PARSONS ENGINEERING SCIENCE, INC.
A UNIT OF PARSONS INFRASTRUCTURE & TECHNOLOGY GROUP INC.

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Final - Vol 1-

May 31, 2001

Via Federal Express
Ms. Teri DuPriest
Quality Assurance Evaluator
AFCEE/ERD
3207 North Road
Brooks AFB, TX 78235-5363

Subject: Technical Interchange Meeting #3 Minutes, draft
August 18, 2000 Meeting
Camp Stanley Storage Activity, Texas
Contract F11623-94-D0024, Delivery Order RL33
Parsons ES job 730396.02

Dear Teri:

Enclosed please find draft minutes for the August 18, 2000 meeting held at CSSA to discuss the CSSA GIS. Please call me at (512)719-6000 if you have any questions or comments.

Sincerely,

Julie Burdey

Julie Burdey
Project Manager

encl.

xc: Brian Murphy, CSSA
Nancy Stine, AMC (letter only)
Jonathan Decker, Parsons ES-St. Louis (letter only)
Susan Roberts, Parsons ES-Austin (letter only)

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Meeting Minutes
B20/GIS, Camp Stanley Storage Activity
F11623-94-D0024/RL33
Parsons ES 730396.02

Date: August 18, 2000

Place: Camp Stanley Storage Activity (CSSA)

Subject: GIS Presentation

Attendees:

Attendee	Organization	Phone
Brian K. Murphy	CSSA ENV	(210) 698-5208
Susan Roberts	Parsons ES	(512) 719-6051
David Maltby	Parsons ES	(512) 719-6070
Michael Stimets	Parsons ES	(512) 719-6802
Chris Beal	CSSA/WPI	(210) 295-7417
Jo Jean Mullen	AFCEE/ERD	(210) 536-5940
Michele Silva	CSSA	(210) 698-5208
Tom Griffith	AFCEE/ERC	(210) 536-2667

The August 18, 2000 meeting was one of several regarding the CSSA SDS database and GIS system. A number of handouts were provided at the meeting, and these are listed at the end of these minutes. Since the majority of the meeting consisted of a Powerpoint presentation made by Parsons ES (included as attachment 3 and 4), these abbreviated minutes focus primarily on questions asked and action items agreed on.

ATTACHMENT 1
Spreadsheet to track GIS entries for field and lab work performed at CSSA

Site Name	Delivery Order	Number of Soil Boring Samples	Number of Surface Samples	Number of Silt Samples	Number of Pit Samples	Number of Waste Characterization Samples	Sample Designations	Analytical Tests Performed	Site Map Produced	GPS Coordinates Entered Into Database	Sample Location Map Produced	Analytical Table Completed	Well Data (Lithology Logs) Put Into Database	Well Lithology Log Form Generated (GTGS)	Geophysical Survey Performed	Geophysical Anomaly Map Completed	Site Map w/ Geophysical Grid Produced	UXO Clearance	Soil Gas Survey
									DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
B-1	RL-17 Rework	3	-	-	-	-	SB4-6	phthalates		May 2000									
B-3	RL-17 Rework	12	-	-	-	-	VEW7-18	VOCs,metals		"			NA	NA	NA	NA	NA	NA	
B-5	RL-17 Rework	-	3	-	-	-	SS1-3	VOCs, metals, explosives		"			NA	NA	NA	NA	NA	NA	
B-6	RL-17 Rework	-	3	-	-	-	SS1-3	VOCs, SVOCs, metals		"			NA	NA	NA	NA	NA	NA	
B-7	RL-17 Rework	-	3	-	-	-	SS1-3	VOCs, metals, explosives		"			NA	NA	NA	NA	NA	NA	
B-8	RL-17 Rework	3	-	-	-	-	SB1-3	VOCs, metals, explosives		"				✓	NA	NA	NA	NA	
B-9	RL-17 Rework	2	-	-	-	-	SB1-2	VOCs, SVOCs, metals, explosives		"			✓	✓	NA	NA	NA	NA	
B-12	RL-17 Rework	4	-	-	-	-	SB1-4	VOCs, SVOCs, metals, explosives		"				✓	NA	NA	NA	NA	
B-13	RL-17 Rework	4	-	-	-	-	SB1-4	VOCs, SVOCs, metals		"				✓	NA	NA	NA	NA	
B-19	RL-17 Rework	3	-	-	-	-	SB4-6	Cr, Di-n-butylphthalate		"				✓	NA	NA	NA	NA	
B-20	RL-17 Rework	8	-	4	-	-	SB1-8,SIFT19-22	metals, explosives		"				✓	NA	NA	NA	NA	
B-22	RL-17 Rework	-	5	-	-	-	SS1-5	VOCs, metals, explosives		"			NA	NA	NA	NA	NA	NA	
B-25	RL-17 Rework	3	3	-	-	-	SB1-3,SS1-3	VOCs, SVOCs, metals, explosives		"				✓	NA	NA	NA	NA	
B-26	RL-17 Rework	3	3	-	-	-	SB1-3,SS1-3	VOCs, SVOCs, metals, explosives		"				✓	NA	NA	NA	NA	
B-27	RL-17 Rework	3	3	-	-	-	SB1-3,SS1-3	VOCs, SVOCs, metals, explosives		"				✓	NA	NA	NA	NA	
B-28	RL-17 Rework	-	-	1	-	-	SIFT1	metals, explosives		"			NA	NA	NA	NA	NA	NA	
B-29	RL-17 Rework	6	4	-	-	-	SB1-6,SS1-4	VOCs, SVOCs, metals, explosives		"				✓	NA	NA	NA	NA	
B-30	RL-17 Rework	3	3	-	-	-	SB1-3,SS1-3	VOCs, SVOCs, metals		SS1 GPS missing				✓	NA	NA	NA	NA	
B-31	RL-17 Rework	3	3	-	-	-	SB1-3,SS1-3	VOCs, metals, explosives		"				✓	NA	NA	NA	NA	
B-32	RL-17 Rework	3	-	-	-	-	SB1-3	metals, explosives		"				✓	NA	NA	NA	NA	
B-33	RL-17 Rework	3	-	-	-	-	SB1-3	metals, explosives		"				✓	NA	NA	NA	NA	
B-34	RL-17 Rework	3	-	-	-	-	SB1-3	VOCs, SVOCs, metals		"				✓	NA	NA	NA	NA	
B-24	RL-33	5	-	10	-	-	SB01-05,SIFT19-28	VOCs, SVOCs, metals, explosives		"			✓		NA	NA	NA	YES	
DD	RL-33	3	-	-	-	-	SB01-03	VOCs, metals, explosives		"			✓		NA	NA	NA	YES	
B-9	RL-53	1	-	-	-	-	SB3	VOCs, SVOCs, metals, explosives		"			✓		NA	NA	NA	NO	
B-10	RL-53	-	-	-	-	3 (within trench)	T1-3	TCLP all metals		N/A			N/A	NA	NA	NA	NA	Sep. '96	
B-11	RL-53	5	-	-	-	-	SB1-5	VOCs, metals, explosives		"			✓		NA	NA	NA	NO	
Bldg 43	RL-53	6	-	-	-	-	SB1-6	VOCs, SVOCs, metals, explosives		"			✓		NA	NA	NA	NO	
I-1	RL-53	3	3	-	-	-	SB1-3,SS1-3	VOCs, metals, PCBs		"			✓		NA	NA	NA	NO	
Back-ground	RL-53	10	-	-	-	-	SB11-20	metals		"			✓ May 2000		NA	NA	NA	NA	
O-1	RL-74	25	-	-	-	10	SB5-29,WC1-10	Cd;Cr;PCE;1,2-DCE;TCE;Vinyl Chloride;Toluene;Xylenes;TCLP-PCE,TCE,DCE,Cd,Cr		SB5-24 done			SB5-24 done		NA	NA	NA	NA	
AOC 56	RL-83	-	3	-	-	-	SS1-3	VOCs, SVOCs, metals		July 2000			NA	NA	Apr. '99	Apr. '99	Apr. '99	NA	
AOC 58	RL-83	-	3	-	-	-	SS1-3	VOCs, SVOCs, metals		July 2000			NA		Apr. '99	Apr. '99	Apr. '99	NA	
AOC 61	RL-83	-	3	-	-	-	SS1-3	VOCs, SVOCs, metals		July 2000			NA		Apr. '99	Apr. '99	Apr. '99	NA	
B-8	RL-83	-	-	3	-	-	SIFT1-3	VOCs, metals, explosives		N/A			NA		NA	NA	NA	NA	
B-15/16	RL-83	9	-	-	-	-	SB1-9	VOCs, metals, explosives		May 2000			✓		Apr. '99	Apr. '99	Apr. '99	NA	
B-20/21	RL-83	-	-	13	-	-	SIFT6-18	VOCs, SVOCs, metals, explosives		N/A			NA	NA	NA	NA	NA	YES	
B-23	RL-83	3	-	-	-	-	SB1-3	VOCs, SVOCs, metals, explosives		May 2000			✓					NA	

Site Name	Delivery Order	Number of Soil Boring Samples	Number of Surface Samples	Number of Sift Samples	Number of Pit Samples	Number of Waste Characterization Samples	Sample Designations	Analytical Tests Performed	Site Map Produced	GPS Coordinates Entered Into Database	Sample Location Map Produced	Analytical Table Completed	Well Data (Lithology Logs) Put Into Database	Well Lithology Log Form Generated (GTGS)	Geophysical Survey Performed	Geophysical Anomaly Map Completed	Site Map w/ Geophysical Grid Produced	UXO Clearance	Soil Gas Survey
									DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
B-24	RL-83	-	-	18	-	-	SIFT1-18	VOCs, SVOCs, metals, explosives		N/A			NA	NA	NA	NA	NA	YES	
B-28	RL-83	-	-	3	-	-	SIFT3-5	metals, explosives		N/A			NA	NA	NA	NA	NA		
DD	RL-83	-	-	3	-	-	SIFT4-6	VOCs, SVOCs, metals, explosives		N/A			NA	NA	NA	NA	NA	YES	
AOC 36	DO5068	-	10	-	-	-	SS01-10	PCE,TCE,DCE	Oct. '99	July 2000			NA		NA	NA	NA		
AOC 38	DO5068	-	60	-	-	-	SS01-60	PCE,TCE,DCE	Oct. '99	July 2000									
AOC 39	DO5068	-	5	-	-	-	SS01-05	PCE,TCE,DCE	Oct. '99	July 2000									
AOC 40	DO5068	-	5	-	-	-	SS01-05	PCE,TCE,DCE	Oct. '99	July 2000									
AOC 50	DO5068	-	1	-	-	2	1,NP1	VOCs,explosives,TCLP metals	Oct. '99										
AOC 65	DO5068	-		-	2	-	Pit1-2	VOCs, metals		July 2000									
AOC 35	DO5068	-		-	-	-		PCE,TCE,DCE							Nov. '99				
AOC 37	DO5068	-	-	-	-	-		Soil Gas								Apr. '99	Apr. '99		1 Dec. '99
AOC 41	DO5068	-	-	-	-	-		Soil Gas											1 Dec. '99
AOC 66	DO5068	-	-	-	-	-		Soil Gas								Apr. '99	Apr. '99		1 Dec. '99
AOC 42	DO5068	-	-	-	-	-		VOCs,metals,explosives							Nov. '99	Apr. '99	Apr. '99		
AOC 43	DO5068	-		-	-	-		metals,explosives							Nov. '99	Apr. '99	Apr. '99		
B-9	DO5068	-	-	-	-	-									Nov. '99				

Background Rework SS11-80 Metals July 2000

ATTACHMENT 2
Lab Package Numbers/ITIR Status Spreadsheet

Job Number	Path	Description	Lab Package Numbers	ITIR Status	Imported into TSSDS DB?
734521, [RL74]	J\734521\O1_IM_ Study\Nov_99.mdb	O-1 Interim Measures Study (flagged)	D111699S3, D111899S9, L111599W3, L111699S3, L111799S1, L111899S3, L111899S9, L111999S5, L111999S9, L112099S1, L112099S2, L112299S1, L112299S2, L112299S9, L112299W1, N4591, N4592, N4593, N4594, N4595, N4596, N4597, N4597RE, N4598, N4598RE, N4599, N4599RE, N4600, N4600RE, N4601, N4601RE, N4602, N4602RE, N4603, N4604, N4604RE, N4605, N4605RE, N4606, N4607, N4956, N4956D, N4956MS, N4956MSD, N4957, N4957RE, N4958, N4958RE, N4959, N4959RE, N4960, N4960RE, N4961, N4961RE, N4962, N4963, N4963RE, N4964, N4964RE, N4965, N4965D, N4965MS, N4965MSD, N4966, N4966RE, N4967, N4968, N4969, N4970, PB111599W3, PB111699S3, PB111799S1, PB111899S3, PB111899S9, PB111999S9, PB112099S1, PB112099S2, PB112299S1, PB112299S2, PB112299S9, PB112299W1	Confirm an ITIR is req., *[lab is revising report, 3/31/00]*	
729973 [DO23], 734521 [RL74]	J\736071\databases\ LabVerify.mdb	Quarterly GW Monitoring – Sep 99 (including three off-site wells)	L091599W1, L091599W2, L091699W1, L091799W1, N0941, N0941MS, N0941MSD, N0942, N0943, N0944, N0945, N0946, N0947, N0948, N0948MS, N0948MSD, N0949, N0950, N0951, N0952, N0953, N1112, N1113, N1114, N1115, N1116, N1117, N1118, N1126, N1127, N1128, N1129, N1130, N1131, N1132, N1132DL, N1133, N1134, N1135, N1136, N1390, N1390DL, N1391, N1392, PB091599W1, PB091599W2, PB091599W3, PB091699W1, PB091799W3,	J/729973/ dataval/ ITIR99/… Pivots are done [J\736071\databases \GWM-Sep99(on+off)]	
729973 [DO23]	J\729973\ Dec99_GWM_DB\ Dec99_ GWM.mdb	Quarterly GW Monitoring – Dec 99 (flagged)	L121699W1, L121799W1, L122099W1, L122199W1, L122199W2, N6652, N6653, N6654, N6655, N6656, N6657, N6658, N6703, N6704, N6704DL, N6705, N6705D, N6705MS, N6705MSD, N6706, N6707, N6708, N6816, N6817, N6818, PB121699W1, PB121799W1, PB122099W1, PB122199W1, PB122199W2	*Complete* J\729973\ Dec99_GWM_DB\ Dec99 ITIR_Tables\ …..pvt.xls, et al.	
736625, 06100, [AETC]	J\736625\Analytical\ Jan00SampleEvent-DB\Jan00.mdb	January 2000 Sampling Event	4420, 4442, 4443, 4444	Draft ITIR complete, pivots done	
732345 [RL53]	J\732345\ CS_BKGR_Data\ CSBkgrData.mdb	Resample for Background Report	991110BLK, 991110LCS, 991111BLK, 991111LCS, 991115BLK, 991115LCS, 991116BLK, 991116LCS, 991118BLK, 991118LCS, 991119BLK, 991119LCS, 991122BLK, 991122LCS, 991201BLK, 991201LCS, 991203BLK, 991203LCS, AP85871, AP85872, AP85873, AP85874, AP85875, AP85876, AP85877,	Draft ITIR complete, pivots done	

Job Number	Path	Description	Lab Package Numbers	ITIR Status	Imported into TSSDS DB?
			AP85943, AP85944, AP85945, AP85946, AP85947, AP85948,		
732345	J\732345\CS_TCLP_Data\ TCLP_Data-Feb00.mdb	Waste characterization data	000107BLK, 000107LCS, 000110BLK, 000110LCS, 000119BLK, 000119LCS, 000120BLK, 000120LCS, AP87201, AP87202, AP87203, AP87739, AP87740, AP87741	Not applicable	Not applicable
735903	J\735903\APPL-DB\ CS_Nov99_Data.mdb	Resample for Background Report [RL17]	991110BLK, 991110LCS, 991111BLK, 991111LCS, 991112BLK, 991112LCS, 991115BLK, 991115LCS, 991116BLK, 991116LCS, 991118BLK, 991118LCS, 991119BLK, 991119LCS, 991122BLK, 991122LCS, 991129BLK, 991129LCS, 991201BLK, 991201LCS, 991203BLK, 991203LCS, AP85878, AP85879, AP85880, AP85881, AP85882, AP85883, AP85884, AP85885, AP85886, AP85887, AP85888, AP85889, AP85890, AP85891, AP85892, AP85893, AP85894, AP85895, AP85896, AP85897, AP85898, AP85899, AP85900, AP85901, AP85902, AP85949, AP85950, AP85951, AP85952, AP85953, AP85954, AP85955, AP85956, AP85957, AP85958, AP85959, AP85960, AP85961, AP85962, AP85963, AP85964, AP85965, AP85966, AP85967, AP85968, AP85969, AP85970, AP85971, AP85972, AP85973, AP85974, AP85975, AP85976, AP85977, AP85978, AP85979, AP85980, AP85981, AP85982, AP85983, AP85984, AP86141, AP86142, AP86143, AP86144, AP86145, AP86146, AP86147, AP86148, AP86149, AP86150, AP86151, AP86152, AP86153, AP86154, AP86155, AP86156, AP86157, AP86158, AP86159, AP86160, AP86161, AP86162, AP86163	Draft ITIR complete, Need to pivot	
736071	J\736071\databases\ JanFeb00event.mdb	Jan/February 2000 Sampling Event [RL83]	000119BLK, 000119LCS, 000121BLK, 000121LCS, 000124BLK, 000124LCS, 000124LCSD, 000125BLK, 000125LCS, 000125LCSD, 000126BLK, 000126LCS, 000126LCSD, 000215BLK, 000215LCS, 000216BLK, 000216LCS, 000222BLK, 000222LCS, AP87743, AP87744, AP87745, AP87746, AP87747, AP87748, AP87749, AP87750, AP87751, AP87752, AP87753, AP88778, AP88779, AP88780, AP88781, AP88782, AP88783, AP88784, AP88785, AP88786, AP88787, AP88788, AP88789	Draft ITIR complete, Need to pivot	
732345	J\732345\ CS_Feb-Mar00_Data\ Feb-Mar00Sample.mdb	Feb/March 2000 Sampling Event [RL53]	000302BLK, 000302LCS, 000303BLK, 000303LCS, 000306BLK, 000306LCS, 000307BLK, 000307LCS, 000308BLK, 000308LCS, 000309BLK, 000309LCS, 000310BLK, 000310LCS, 000315BLK, 000315LCS, AP89195, AP89196, AP89197, AP89198, AP89199, AP89200, AP89201, AP89202, AP89203, AP89204, AP89205, AP89231, AP89232, AP89233, AP89234, AP89235, AP89236, AP89237, AP89238, AP89241, AP89242, AP89243, AP89244, AP89256, AP89257, AP89258, AP89259, AP89260, AP89261, AP89262,	[ready for flags], Draft ITIR complete	

Exp fixed

Job Number	Path	Description	Lab Package Numbers	ITIR Status	Imported into TSSDS DB?
			AP89263, AP89264, AP89265, AP89266, AP89267, AP89273, AP89274, AP89275, AP89276, AP89277, AP89278, AP89279, AP89282, AP89283, AP89284, AP89341, AP89342, AP89343, AP89344, AP89345, AP89346, AP89347, AP89348, AP89349, AP89350, AP89351, AP89352, AP89353, AP89354, AP89375, AP89376, AP89377, AP89378, AP89423		
736071	J\736071\databases\ March_2000_Event\ Mar00Event.mdb	March 2000 Sampling Event [RL83]	000208LCS, 000304BLK, 000304LCS, 000306BLK, 000306LCS, 000307BLK, 000307LCS, 000308BLK, 000308LCS, AP89334, AP89335, AP89336, AP89337, AP89338, AP89339, AP89340, AP89367, AP89368, AP89369, AP89370, AP89373, AP89374, 000208LCS, 000304BLK, 000304LCS, 000306BLK, 000306LCS, 000307BLK, 000307LCS, 000308BLK, 000308LCS, 000309BLK, 000309LCS, 000310BLK, 000310LCS, 000313BLK, 000313LCS, 000314BLK, 000314LCS, 000315BLK, 000315LCS, 000316BLK, 000316LCS, 000322BLK, 000322LCS, 000331BLK, 000331LCS, 000403BLK, 000403LCS, 000404BLK, 000404LCS, 000405BLK, 000405LCS, 000405LCSD, 000406BLK, 000406LCS, 000407BLK, 000407LCS, 000407LCSD, AP89334, AP89335, AP89336, AP89337, AP89338, AP89339, AP89340, AP89367, AP89368, AP89369, AP89370, AP89373, AP89374, AP89450, AP89451, AP89452, AP89453, AP89454, AP89455, AP89456, AP89457, AP89458, AP89459, AP89460, AP89461, AP89493, AP89494, AP89495, AP89496, AP89497, AP89498, AP89499, AP89500, AP89501, AP89502, AP89503, AP89504, AP89505, AP89506, AP89614, AP89615, AP89618, AP89619, AP89620, AP89621, AP89622, AP89625, AP89626, AP89627, AP90409, AP90410, AP90413, AP90414, AP90415, AP90416, AP90417, AP90418, AP90419, AP90420, AP90421, AP90422, AP90423, AP90424, AP90425, AP90426, AP90427, AP90428, AP90429	[ready for flags], Draft ITIR complete	
735903	J\735903\database\ March2000Event.mdb	March 2000 Sampling Event (rework)	000308BLK, 000308LCS, 000313BLK, 000313LCS, 000314BLK, 000314LCS, 000315BLK, 000315LCS, 000317BLK, 000317LCS, 000321BLK, 000321LCS, 000322BLK, 000322LCS, 000323BLK, 000323LCS, 000324BLK, 000324LCS, 000327BLK, 000327LCS, 000328BLK, 000328LCS, 000331BLK, 000331LCS, AP89379, AP89380, AP89381, AP89382, AP89383, AP89384, AP89668, AP89669, AP89670, AP89671, AP89672, AP89673, AP89674, AP89675, AP89676, AP89677, AP89678, AP89679, AP89682, AP89683, AP89684, AP89685, AP89686, AP89687, AP89688, AP89689, AP89722, AP89723, AP89724, AP89725, AP89726, AP89729, AP89730, AP89731, AP89732, AP89733, AP89734, AP89735, AP89766, AP89767, AP89768, AP89771, AP89772, AP89773, AP89774, AP89777, AP89778, AP89779, AP89780,	[ready for flags], Draft ITIR complete	

Job Number	Path	Description	Lab Package Numbers	ITIR Status	Imported into TSSDS DB?
			AP89781, AP89782, AP89785, AP89786, AP89787, AP89788, AP89789, AP89790, AP89791, AP89792, AP89793, AP89794, AP89908, AP89909, AP89910, AP89911, AP89912, AP89913, AP89916, AP89920, AP89921, AP89922, AP89923, AP89924, AP89925, AP89926, AP89927, AP89928, AP89929, AP89931, AP89932, AP89933, AP89934, AP89935, AP89936, AP89937, AP89938, AP89939, AP89940, AP89941, AP89942, AP89943, AP89946, AP89947, AP90014, AP90015, AP90016, AP90017, AP90018, AP90019, AP90020, AP90021, AP90022, AP90023, AP90024, AP90025, AP90026, AP90027, AP90028, AP90029, AP90032, AP90033, AP90104, AP90105, AP90106, AP90107, AP90108, AP90153, AP90154, AP90155, AP90156, AP90157, AP90158, AP90159, AP90160, AP90161, AP90164, AP90165, AP90166, AP90167, AP90168, AP90169, AP90170, AP90218, AP90219, AP90220, AP90221, AP90222, AP90223, AP90224, AP90225, AP90226, AP90227, AP90228, AP90229, L031500W1, L031900S1, L031900S2, L032300S1, L032300S2, L032400W1, L032400W2, L032500S2, L032600S1, L032600S2, L032800S1, L032800S2, L032800W1, L033000S1, L033000S2, L033000S3, L033000S4, L040300S1, L040400W1, L040700S1, L040700S2, L041000S1, L041000S2, L041100W1, L041100W2, L041400S1, L041400S2, L041700S1, L041900S1, L041900S2, L042500S1, PB031500W1, PB031900S1, PB031900S2, PB032300S1, PB032300S2, PB032400W1, PB032400W2, PB032500S2, PB032600S1, PB032600S2, PB032800S1, PB032800S2, PB032800W1, PB033000S1, PB033000S2, PB033000S3, PB033000S4, PB040300S1, PB040400W1, PB040700S1, PB040700S2, PB041000S1, PB041000S2, PB041100W1, PB041100W2, PB041400S1, PB041400S2, PB041700S1, PB041900S1, PB041900S2, PB042500S1, Q0501, Q0502, Q0503, Q0504, Q0505, Q0506, Q0507, Q0508, Q0509, Q0510, Q0511, Q0511MS, Q0511MSD, Q0512, Q0513, Q0514, Q0515, Q0516, Q0517, Q0518, Q0519, Q0520, Q0521, Q0522, Q0523, Q0524, Q0525, Q0581, Q0582, Q0583, Q0584, Q0585, Q0585MS, Q0585MSD, Q0586, Q0587, Q0588, Q0589, Q0590, Q0591, Q0592, Q0593, Q0594, Q0595, Q0596, Q0597, Q0684, Q0685, Q0686, Q0687, Q0688, Q0688MS, Q0688MSD, Q0689, Q0690, Q0691, Q0692, Q0693, Q0694, Q0695, Q0696, Q0697, Q0698, Q0699, Q0699MS, Q0699MSD, Q0700, Q0701, Q0702, Q0703, Q0704, Q0826, Q0827, Q0828, Q0829, Q0830, Q0831, Q0832, Q0833, Q0834, Q0835, Q0836, Q0837, Q0838, Q0839, Q0840, Q0840MS, Q0840MSD, Q0841, Q0842, Q0843, Q1321, Q1321MS, Q1321MSD, Q1322, Q1323, Q1324, Q1325, Q1326, Q1327, Q1328, Q1329, Q1330, Q1331, Q1332,		

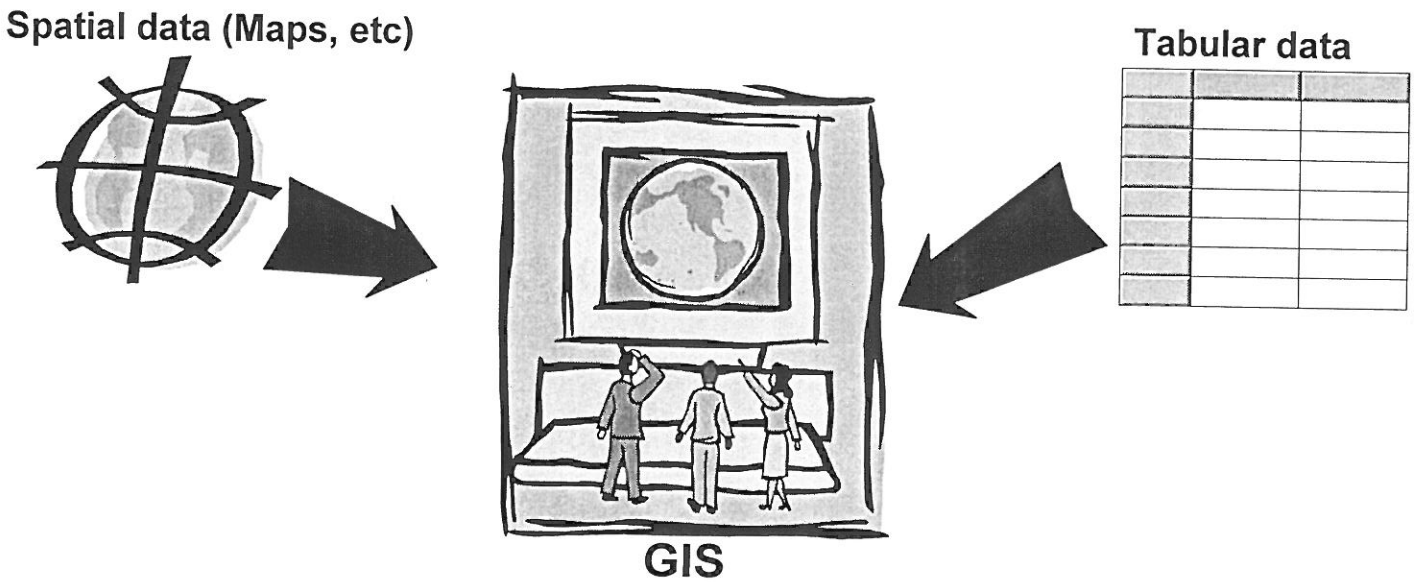
Job Number	Path	Description	Lab Package Numbers	ITIR Status	Imported into TSSDS DB?
			Q1333, Q1334, Q1335, Q1336, Q1337, Q1338, Q1338MS, Q1338MSD, Q1339, Q1340, Q1341, Q1342, Q1343, Q1428, Q1429, Q1430, Q1431, Q1432, Q1433, Q1434, Q2872, Q2873		
734521	J\734521\ Mar00_GWM_DB\ Mar00_GWM.mdb	March 2000 GW Monitoring	L032400W1, L032400W2, L032800W1, L032900W1, PB032400W1, PB032400W2, PB032800W1, PB032900W1, Q1025, Q1026, Q1027, Q1028, Q1029, Q1029MS, Q1029MSD, Q1030, Q1031, Q1071, Q1072, Q1073, Q1074, Q1075, Q1076, 000308BLK, 000308LCS, AP89379, AP89380, AP89381, AP89382, AP89383, AP89384, L031500W1, L031900S1, L031900S2, L032300S1, L032300S2, L032400W1, L032400W2, L032500S2, L032600S1, L032600S2, L032800S1, L032800S2, L032800W1, L033000S1, L033000S2, L033000S3, L033000S4, L040300S1, PB031500W1, PB031900S1, PB031900S2, PB032300S1, PB032300S2, PB032400W1, PB032400W2, PB032500S2, PB032600S1, PB032600S2, PB032800S1, PB032800S2, PB032800W1, PB033000S1, PB033000S2, PB033000S3, PB033000S4, PB040300S1, Q0501, Q0502, Q0503, Q0504, Q0505, Q0506, Q0507, Q0508, Q0509, Q0510, Q0511, Q0511MS, Q0511MSD, Q0512, Q0513, Q0514, Q0515, Q0516, Q0517, Q0518, Q0519, Q0520, Q0521, Q0522, Q0523, Q0524, Q0525, Q0581, Q0582, Q0583, Q0584, Q0585, Q0585MS, Q0585MSD, Q0586, Q0587, Q0588, Q0589, Q0590, Q0591, Q0592, Q0593, Q0594, Q0595, Q0596, Q0597, Q0684, Q0685, Q0686, Q0687, Q0688, Q0688MS, Q0688MSD, Q0689, Q0690, Q0691, Q0692, Q0693, Q0694, Q0695, Q0696, Q0697, Q0698, Q0699, Q0699MS, Q0699MSD, Q0700, Q0701, Q0702, Q0703, Q0704, Q0826, Q0827, Q0828, Q0829, Q0830, Q0831, Q0832, Q0833, Q0834, Q0835, Q0836, Q0837, Q0838, Q0839, Q0840, Q0840MS, Q0840MSD, Q0841, Q0842, Q0843	Draft ITIR complete, , pivots done	
736625	J\736625\Analytical\ Apr00SampEvent-DB\ Apr00_SampEvent.mdb	AOC-65 sampling [AETC]	L041200S1, L041400S1, L041400W1, L041400W2, L041900S1, L041900S2, L041900W1, L042500S1, PB041200S1, PB041400S1, PB041400W1, PB041400W2, PB041900S1, PB041900S2, PB041900W1, PB042500S1, Q2866, Q2866DL, Q2866MS, Q2866MSD, Q2867, Q2867DL, Q2868, Q2868DL, Q2869, Q2870	[ready for flags], Draft ITIR complete	
734521	J\734521\ O1_IM_Study\ April_00.mdb	O-1 Interim Measures Study	L042700W4, L042800S1, L050100W1, L050200S1, L050200S2, L050800T1, L050900T1, L051200W3, PB042700W4, PB042800S1, PB050100W1, PB050200S1, PB050200S2, PB050800T1, PB050900T1, PB051200W3, Q3645, Q3645MS, Q3645MSD, Q3646, Q3647, Q3648, Q3649, Q3650, Q3651, Q3652, Q3653, Q3654, Q3655, Q3656, Q3657, Q3658, Q3659, Q3660, Q3661, Q3662,	[ready for flags], Draft ITIR complete	

Job Number	Path	Description	Lab Package Numbers	ITIR Status	Imported into TSSDS DB?
			TPB0427001, TPB0502001, TPB0505001, TPB0508002		
730396	J\730396\ March2000Sampl\ March_00_Data.mdb	March 2000 Sampling Event [RL33]	000403BLK, 000403LCS, 000404BLK, 000404LCS, 000405BLK, 000405LCS, AP90458, AP90459, AP90460, AP90461, AP90462, AP90463, AP90464, AP90500, AP90501, AP90502, AP90503, AP90504, AP90505, AP90506, AP90507, AP90508, AP90509, AP90512, AP90513, AP90514	[ready for flags], Draft ITIR complete	
734521	J\734521\June00_ GWM_DB\ June00_GWM.mdb			[ready for flags],	

Field Exp

ATTACHMENT 3
Presentation Handout
Geographic Information System/SDS Information

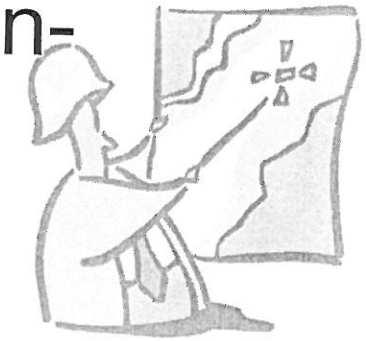
Geographic Information System



- Graphic and non-graphic data combined

SDS – What is it?

- Set of graphic and non-graphic standards for GIS implementations at Department of Defense facilities
- Standardized grouping of geospatial features and their attributes (i.e. locations of objects and other non-spatial information)



What does SDS stand for?

- Tri-Service Spatial Data Standards (TSSDS) – Released November 1996
- TSSDS was changed in July 1999 to "Spatial Data Standards for Facilities, Infrastructure, and Environment" (SDS)

SDS – Who developed it?

- U.S. Army Engineer Research Development Center, CADD/GIS Technology Lab, Vicksburg, Mississippi

US Army Corps of Engineers®
Engineer Research and Development Center

CADD/GIS TECHNOLOGY CENTER
for facilities, infrastructure, and environment

SDS- Who uses it?

- Air Force, Army, Navy, and Marine Corps
- U.S. Army Corps of Engineers Civil Works activities
- Federal, State and Local governments
- Public utilities
- Private industry worldwide

Benefits of SDS for CSSA

- Immediately recognized standards
  - ERPIMS-like structure for environmental analysis data; Benefits lab contracting
  - Common ground for working with contractors who will be collecting data (e.g. USACE, Parsons ES, etc.)
- Comprehensive standards
- Framework for a single data repository

Using SDS at CSSA

Parsons ES implementation

- 1998 - Parsons ES builds SDS for CSSA GIS
  - TSSDS ver. 1.75
  - 700+ Data tables
  - 3000+ Relationships*
  - Microsoft Access 97
  - Modifications made to environmental sampling tables to more closely follow ERPIMS and natural data structure

Using SDS at CSSA

Parsons ES implementation

- Parsons ES – SDS collaboration
  - Working with Mr. Bobby Carpenter (WES) to enhance and further develop the environmental characterization (ERPIMS) portion of SDS
  - Working with Mr. Barry Schimpf (Upper 90 Systems) to debug and enhance the SDS database creation program

Using SDS at CSSA

Parsons ES implementation

- 1999 - Parsons ES upgrades CSSA GIS
  - TSSDS ver. 1.8
  - 700+ Data tables
  - 3000+ Relationships
  - Microsoft SQL Server 7.0
  - Minor modifications made to environmental sampling tables to more closely follow ERPIMS and natural data structure

Using SDS at CSSA

Parsons ES latest updates

- 2000 - Parsons ES upgrades CSSA GIS
  - SDS ver. 1.95
  - 300+ Data tables
  - 1200+ Relationships*
  - Microsoft SQL Server 7.0
  - Very minor modifications made to environmental sampling tables to more closely follow ERPIMS and natural data structure

Currently Used Entity Sets
Tabular Data

Auditory
Boundary
Buildings
Cadastre
Climate
Common
Communications
Cultural
Demographics Ecology
Environmental Hazards
Fauna
Flora
Future Projects
Geodetic
Geology
Hydrography
Improvement
Land Status
Landform Military
Operations
Olfactory
Soil
Transportation
Utilities
Visual

In Use
Not in Use

Currently Used Entity Sets
Geographic Data

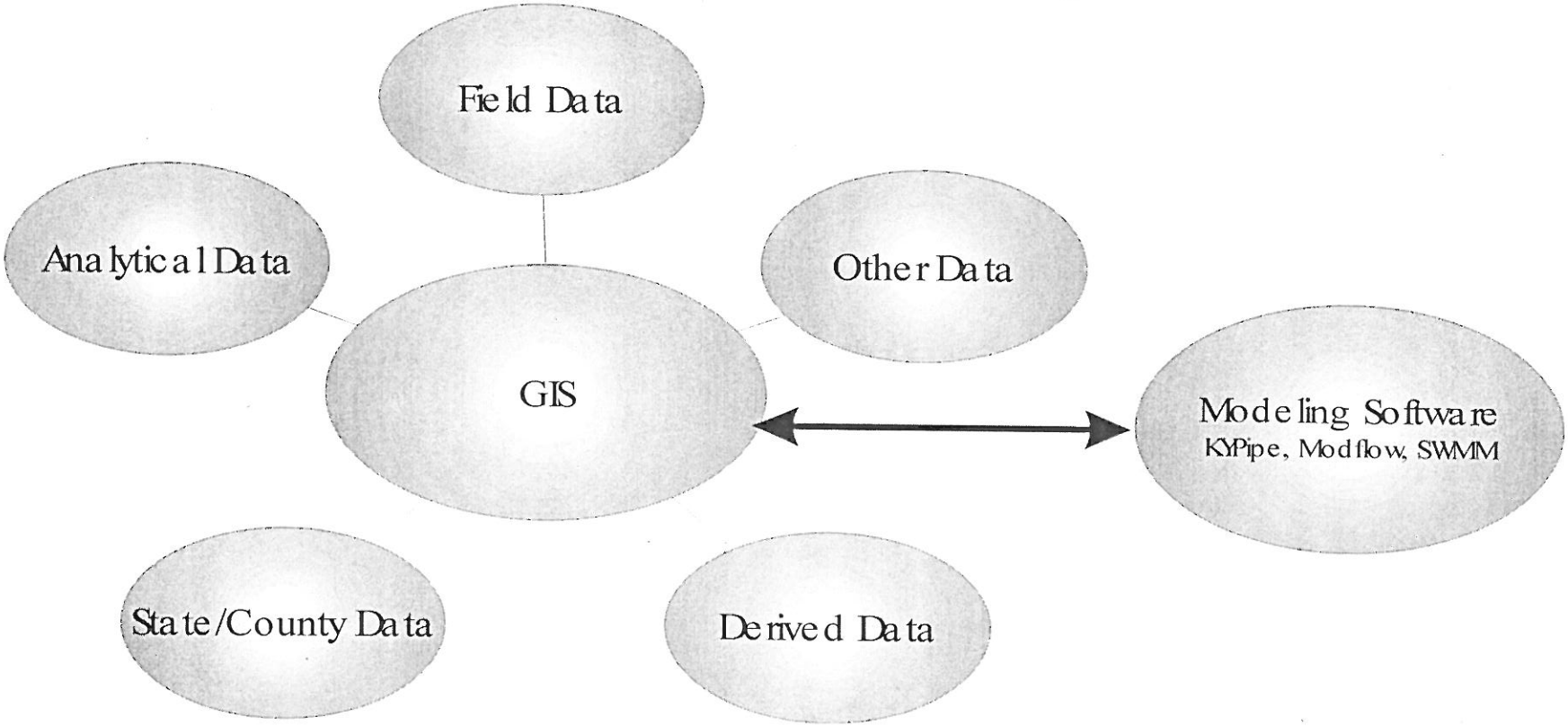
Auditory
Boundary
Buildings
Cadastre
Climate
Common
Communications
Cultural
Demographics
Ecology
Environmental_Hazards
Fauna
Flora

Future_Projects
Geodetic
Geology
Hydrography
Improvement
Land_Status
Landform
Military_Operations
Olfactory
Soil
Transportation
Utilities
Visual

In use
Not in use

ATTACHMENT 4
Presentation Handout
GIS and Data Entry

Geographic Information System



- Multiple data sets
- Multiple data sources
- Analysis
- Modeling Integration
- Topology

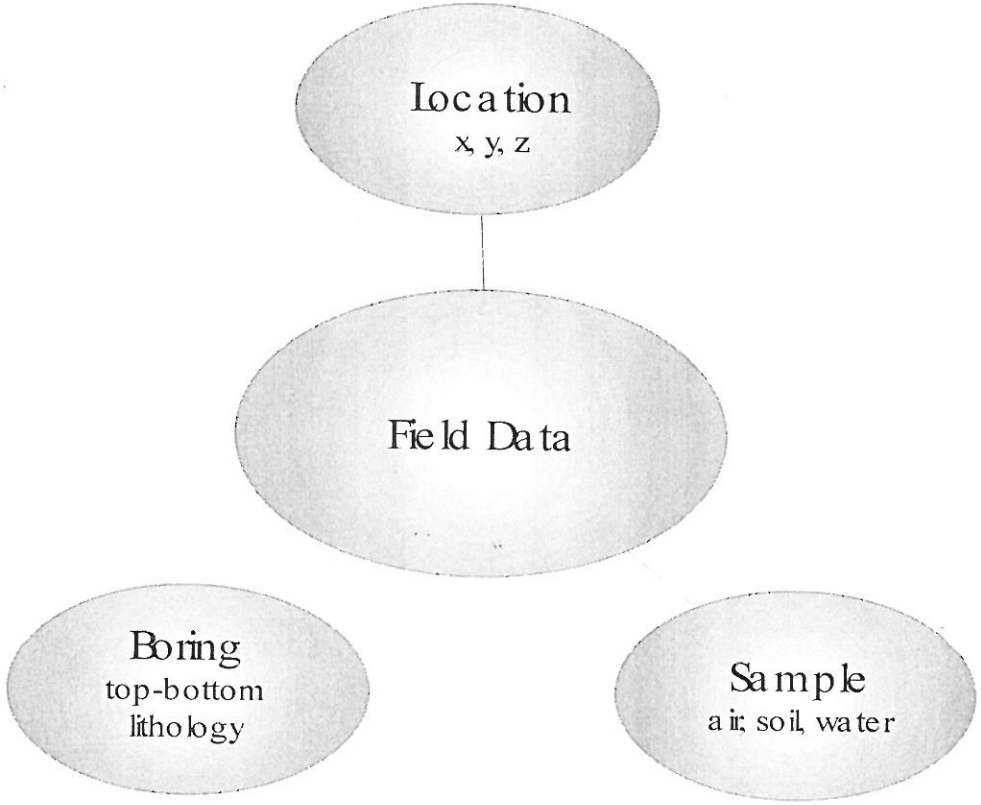
Currently Used Geographic Data Sets

Auditory
Boundary
Buildings
Cadastre
Climate
Common
Communications
Cultural
Demographics
Ecology
Environmental_Hazards
Fauna
Flora

Future_Projects
Geodetic
Geology
Hydrography
Improvement
Land_Status
Landform
Military_Operations
Olfactory
Soil
Transportation
Utilities
Visual

In use
Not in use

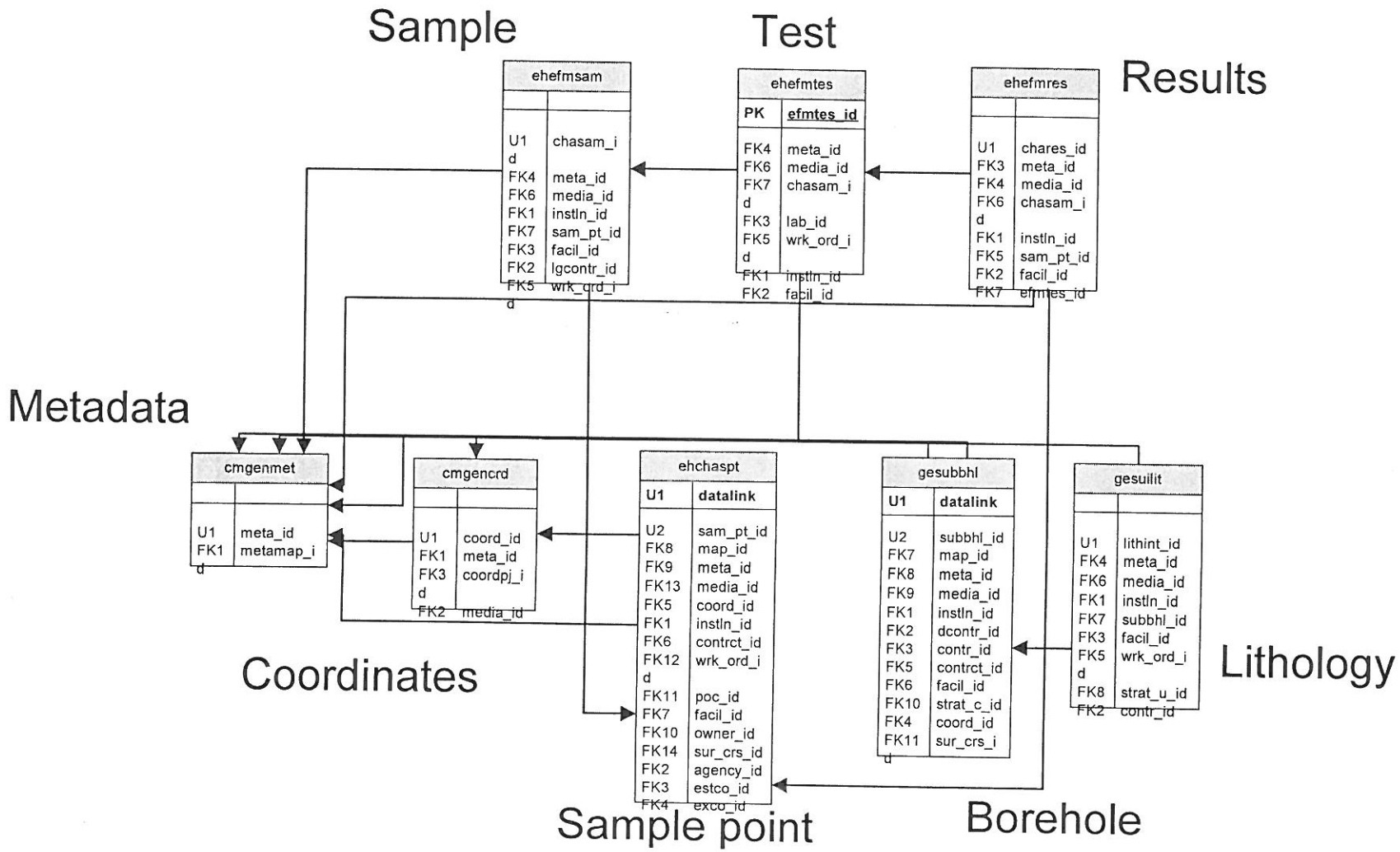
Sampling and Analysis



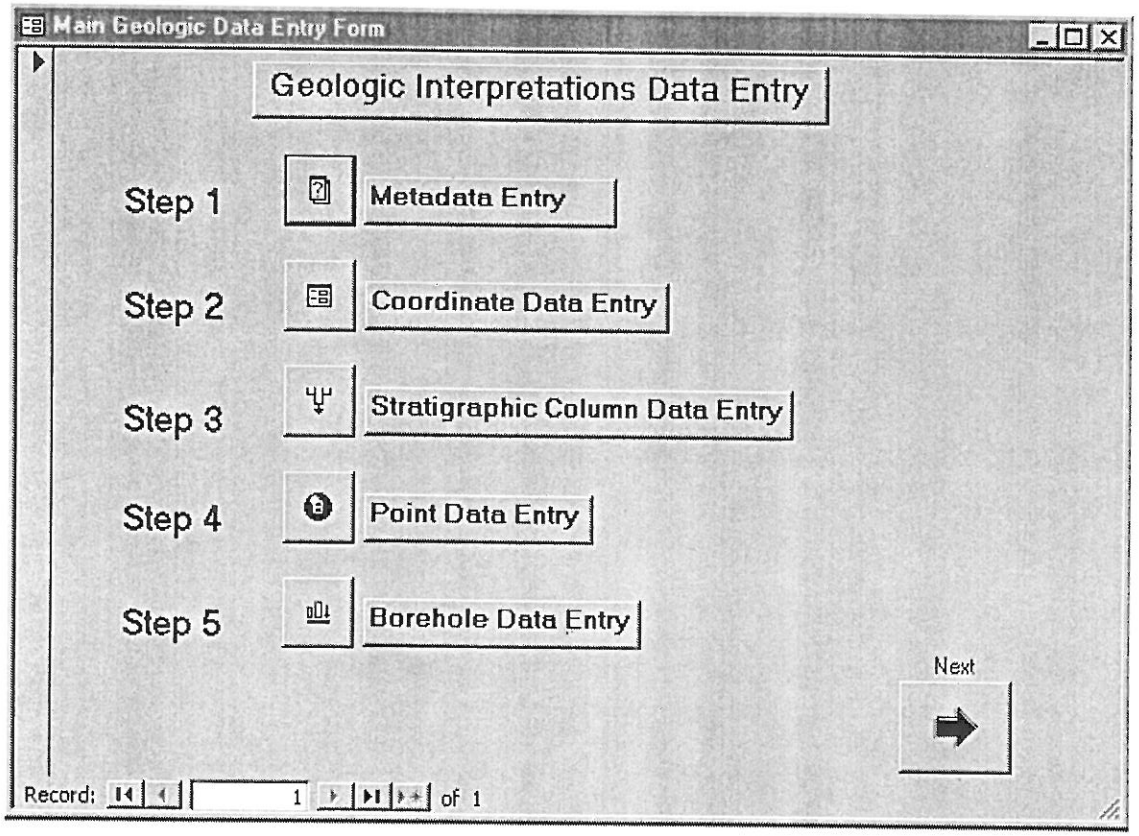
- Positional
  - Northing, easting, elevation
- Multi-layered
  - Soil, subsurface lithology
- Referential integrity
  - Order of data

Environmental Characterization

Data tables frequently updated



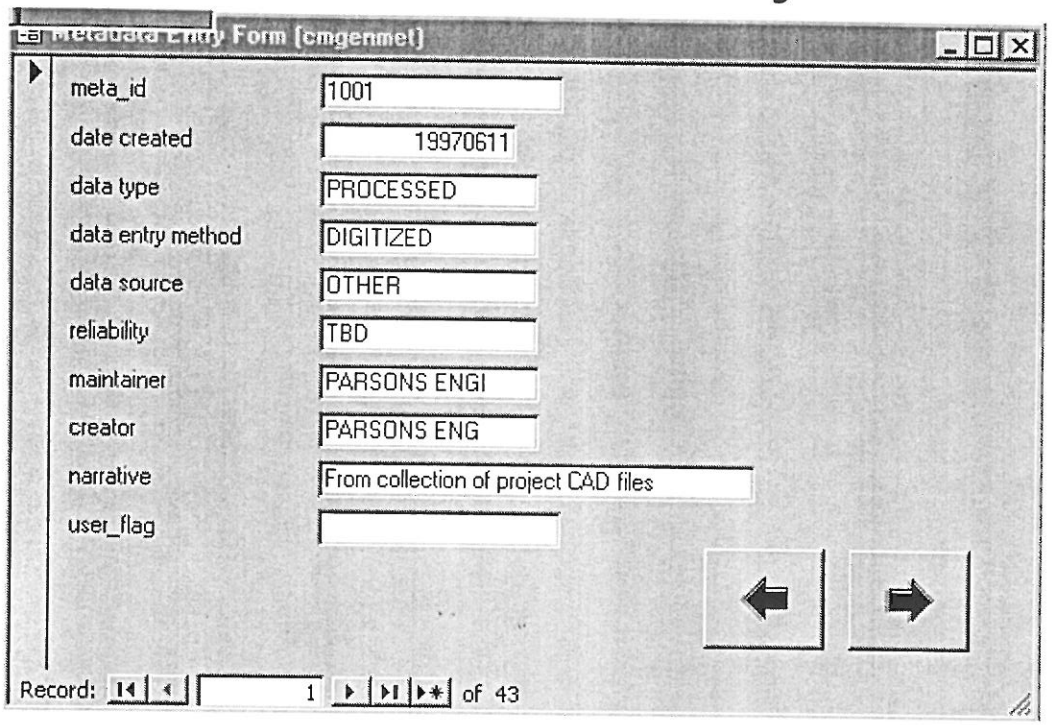
Sampling and Geologic Interpretation Data Entry Utility



Sample and borehole data

- Comprehensive data entry
- References to top-level data
- Step-by-step
- Help flags
- Written in VBA ® in Microsoft Access®

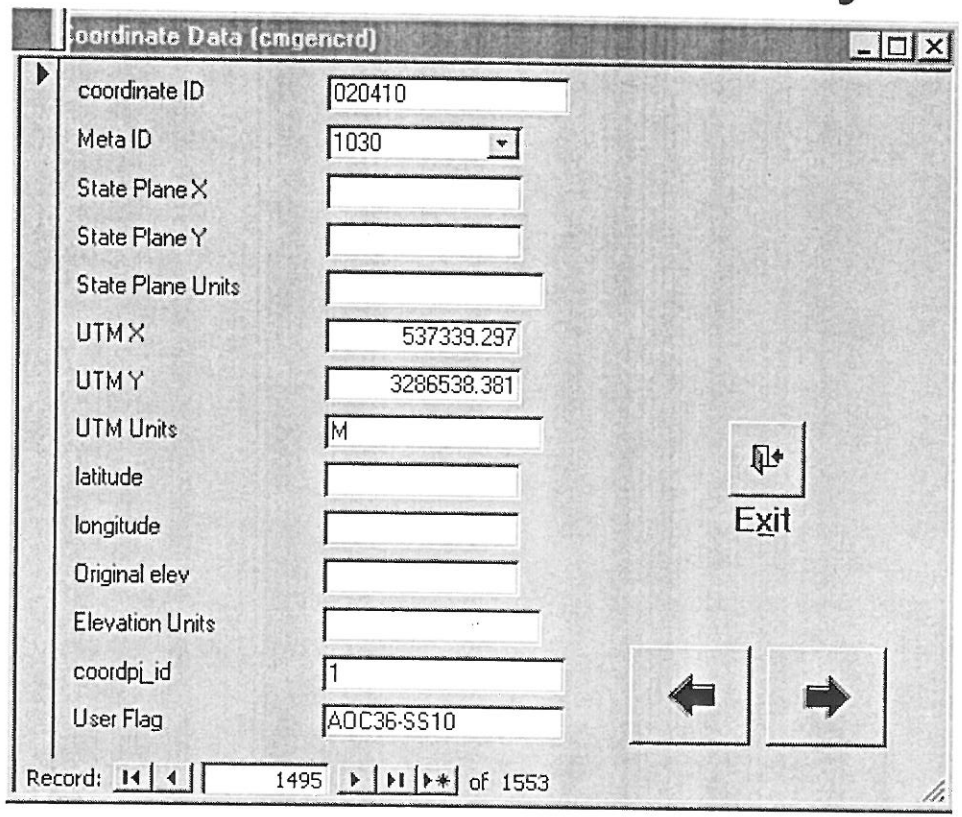
Metadata Entry



Data about data

- Who collected data
- When data were collected
- Accuracy of data

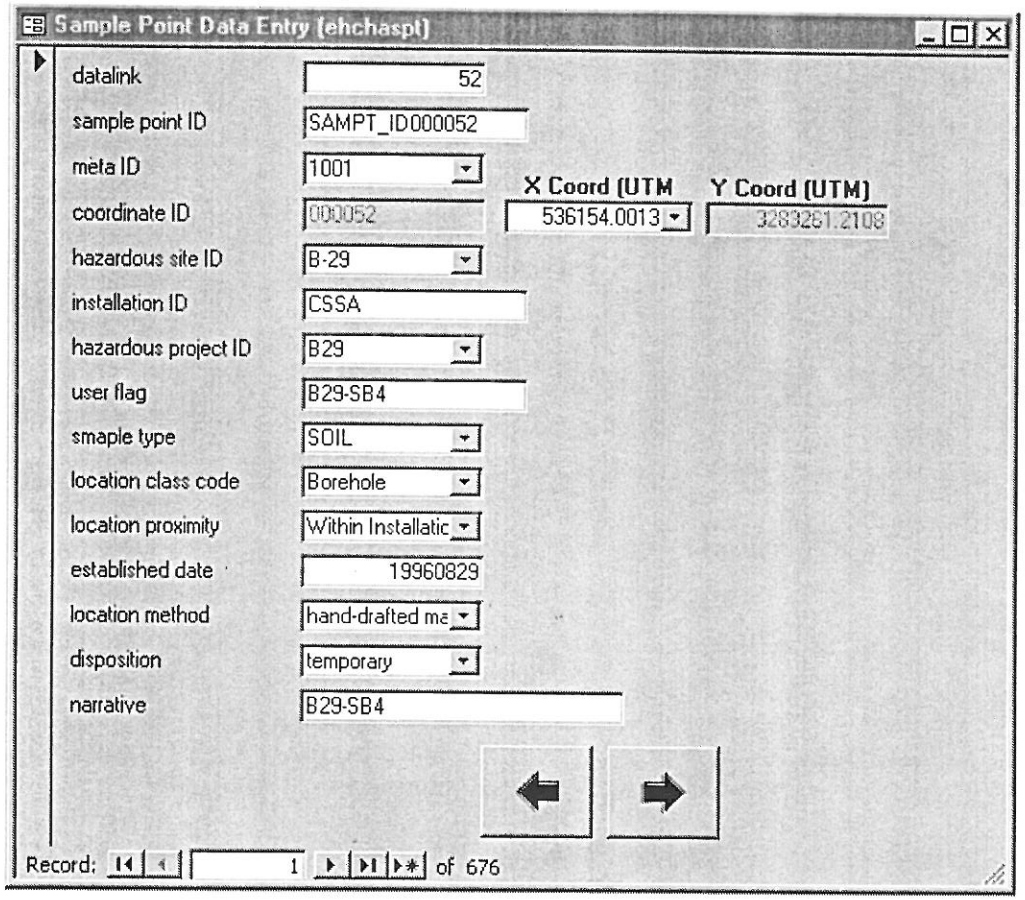
Positional Data Entry



Coordinate data

- Northing, easting and elevation
- Multiple coordinate systems
- Metadata reference
- User reference

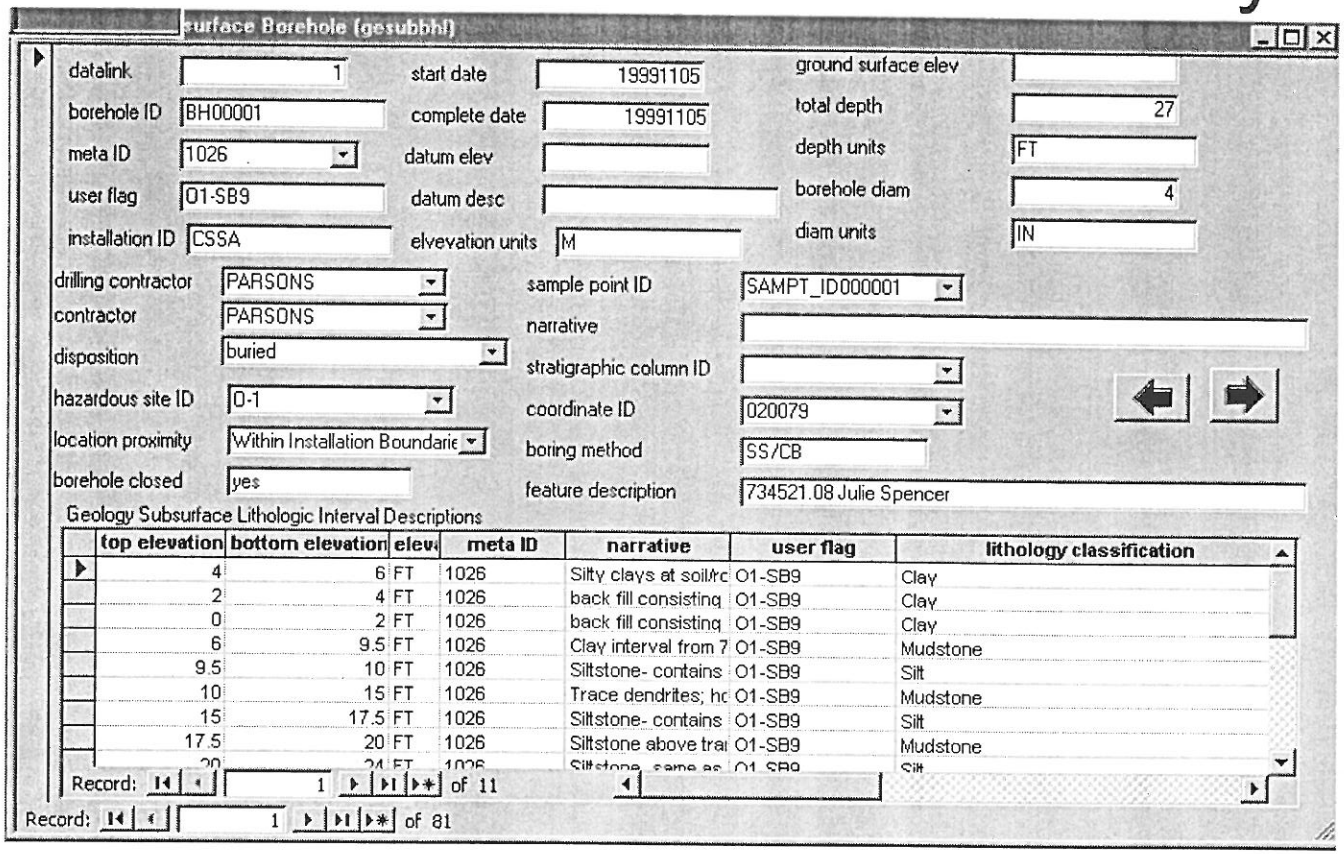
Field Sample Location Data Entry



Sample points

- Multi-media data entry (i.e., soil, groundwater, surface water, air)
- Geographic reference link (map)
- Hazardous site specific
- User reference

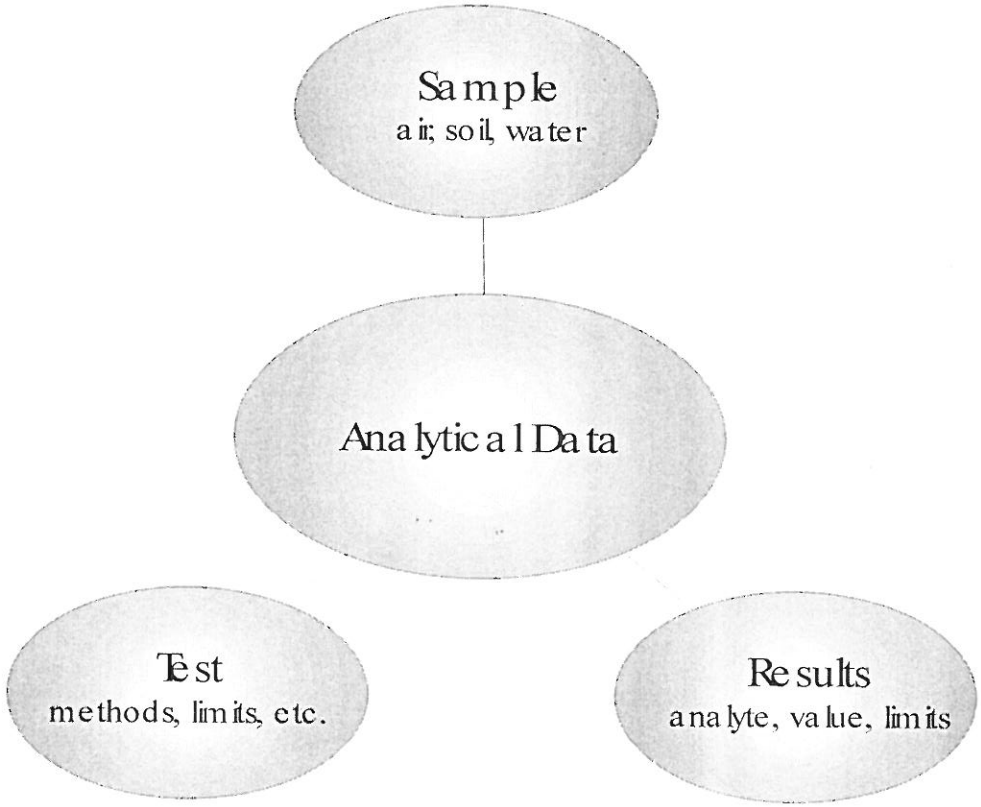
Subsurface Borehole Data Entry



Boring data

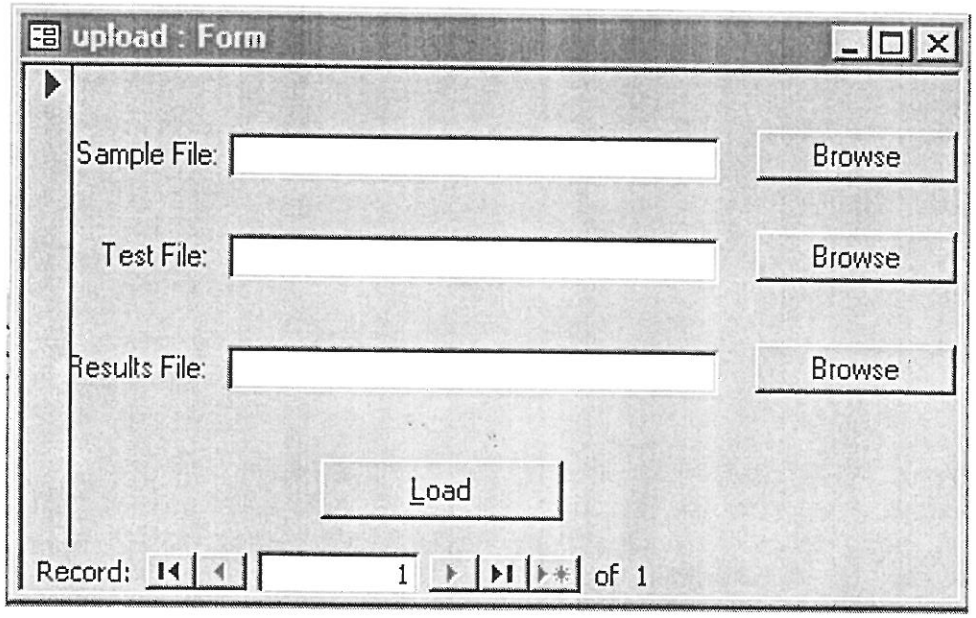
- Geographic (map) data link
- Core interpretations
- Driller
- Date
- Sample link

Laboratory Analyses



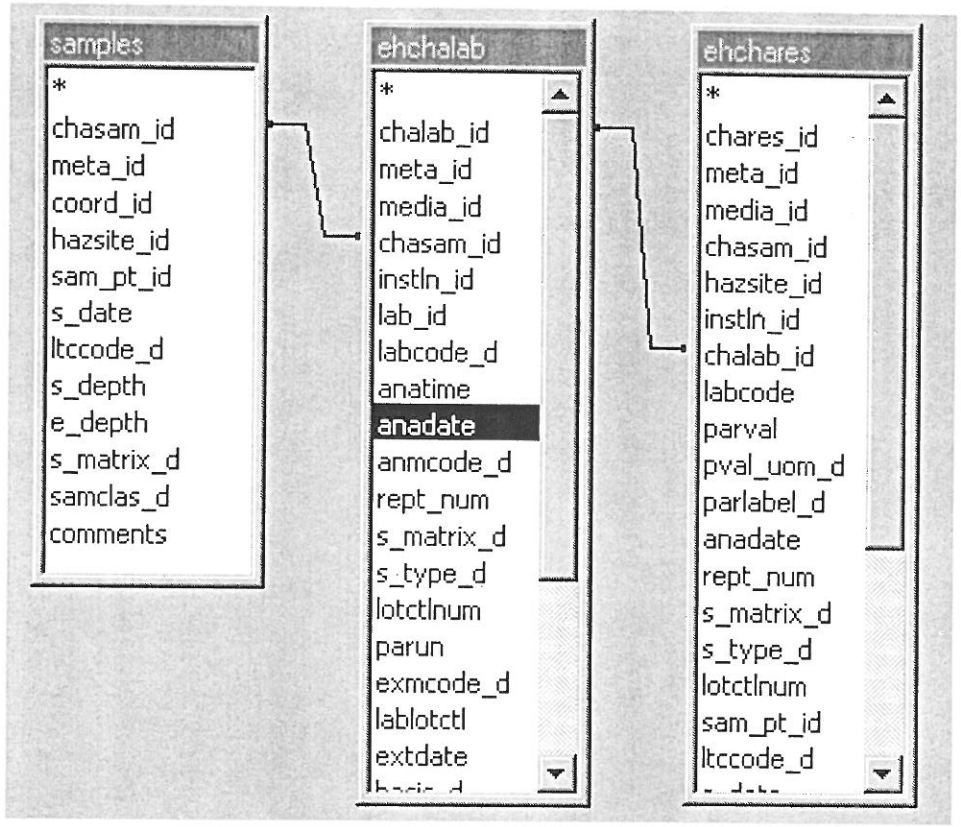
- Specified format
- Laboratory familiarity
- Equivalent to SDS format

Upload Utility



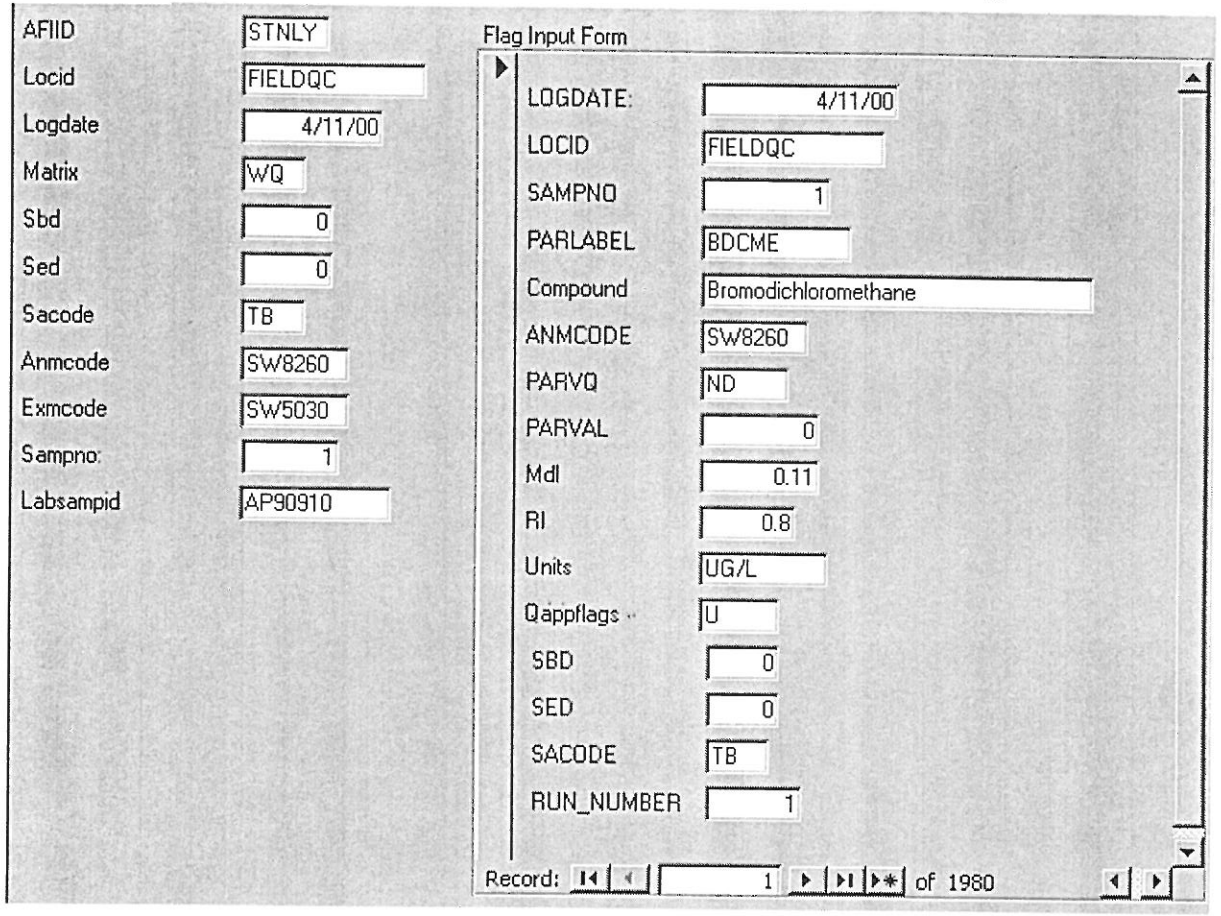
- Windows API
- Multiple source
- Automatically builds tables
- QA/QC deliverable format

QA/QC Electronic Laboratory Data



- First level QA
- Test table to results table
- Results table to test table

Analytical Flag Entry



AFIID	STNLY
Locid	FIELDQC
Logdate	4/11/00
Matrix	WQ
Sbd	0
Sed	0
Sacode	TB
Anmcode	SW8260
Exmcode	SW5030
Sampno:	1
Labsampid	AP90910

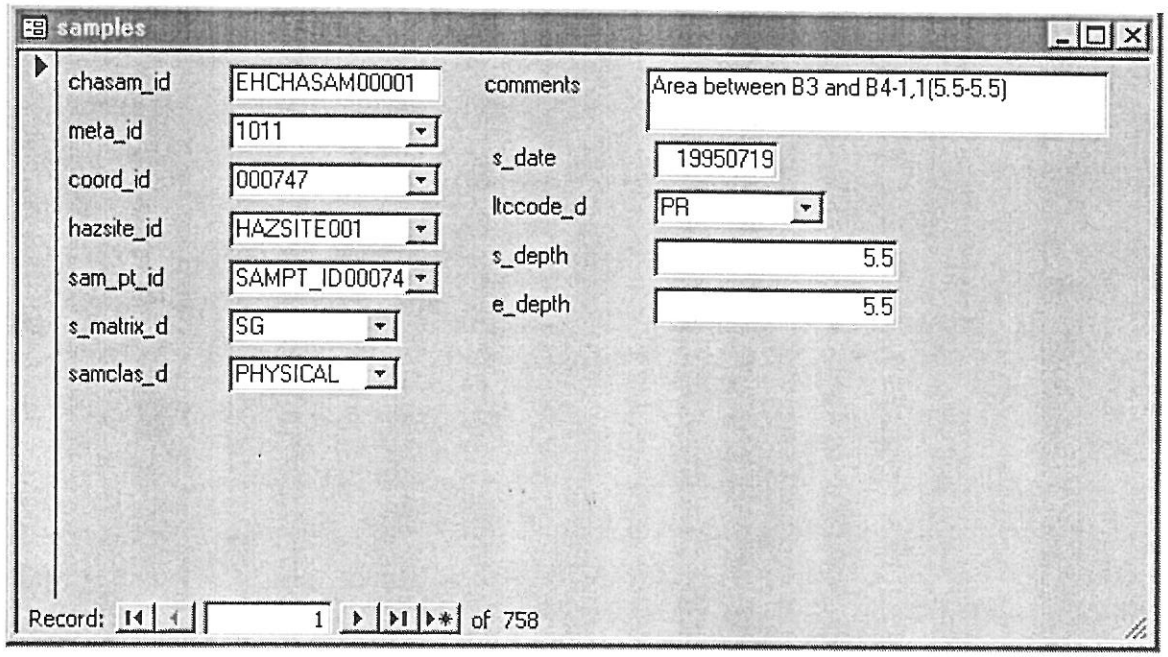
Flag Input Form

LOGDATE:	4/11/00
LOCID	FIELDQC
SAMPNO	1
PARLABEL	BDCME
Compound	Bromodichloromethane
ANMCODE	SW8260
PARVQ	ND
PARVAL	0
Mdl	0.11
RI	0.8
Units	UG/L
Qappflags	U
SBD	0
SED	0
SACODE	TB
RUN_NUMBER	1

Record: 1 of 1980

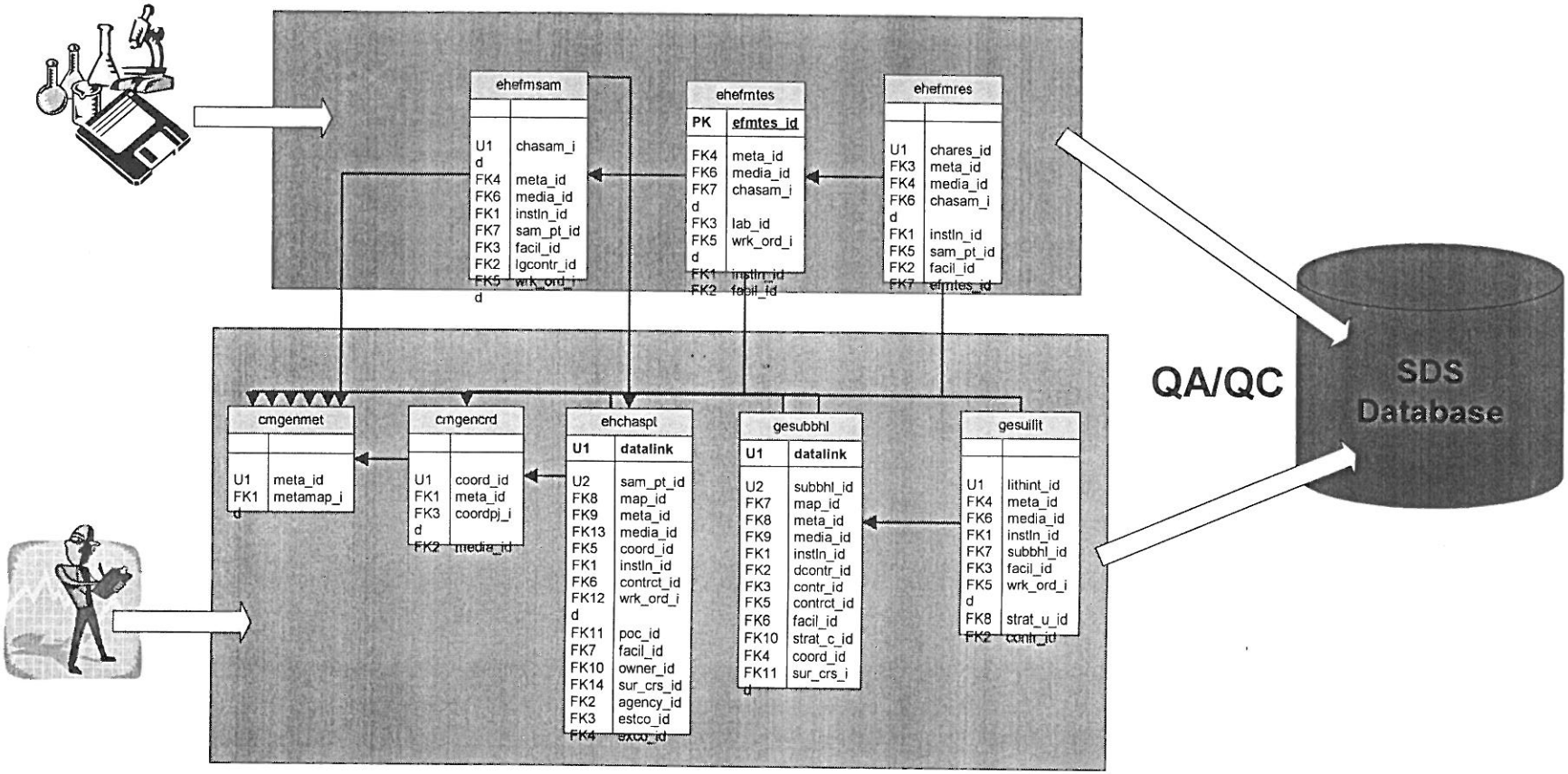
- Locate specific records/packages
- Referential integrity
- Easy to use

Sample Data Entry



- References to parent tables
- Pull-down lists
- Searches

Merging Lab data with Field Data



ATTACHMENT 5
E-Mail with Technical Questions Regarding the SQL Server Database

Author: Susan Roberts at PARAUSTIN
Date: 8/15/2000 11:06 AM
Normal
CC: "Mullen, Jo Jean, Ms, HQAFCEE" <JoJean.Mullen@hqafcee.brooks.af.mil> at NetTalk,
"'mail195687(a)pop.net'" <mail195687@pop.net> at NetTalk
TO: ,"Griffith, Tom, Mr, HQ AFCEE" <Tom.Griffith@hqafcee.brooks.af.mil> at NetTalk
CC: Mike Stimets
Subject: Re: SQL Server Database
---------- Message Contents

Tom -

Thanks for your questions. Mike Stimets has provided our responses below each question. Please call or email if you have any other questions before the Thursday meeting.

Regards, Susan Roberts

_____ Reply Separator _____
Subject: SQL Server Database
Author: ,"Griffith, Tom, Mr, HQ AFCEE" <Tom.Griffith@hqafcee.brooks.af.mil> at NetTalk
Date: 8/14/2000 10:36 AM

Susan, I am helping Jo and Brian with the GIS implementation at CSSA. I have requested that we host a copy of the SQL Server database here at AFCEE.

There are a few technical issues that we need to answer before we can continue this path.

1. What version of SQL Server are you using?
Microsoft SQLServer 7.0, SP2

2. The Character Set and Sort Order must match. Ours is character set 850, multilingual, and dictionary case insensitive sort order.
The settings for CSSA's and Parsons' SQL Server are:
- Character Set = 1, iso_1
- ISO 8859-1 (Latin-1) - Western European 8-bit character set (also known as character set 1252)
- Case-insensitive dictionary sort order

3. What is th size of the DB?
Current size = 90 MB

4. What kind of Front End will Jo be using? Is this a VB App or just a customized ACCESS Form?
ArcView 3.2 front end. VB6 front end being developed.

5. Will the updates be handled by scripts supplied on a CD with the data deliverables?
The database delivered to CSSA and AFCEE is considered a read only publication. Currently there is one data entry point which CSSA requested to be at Parsons while they are working on the database and GIS, thus ensuring at all times 1 current data set and also reducing maintenance for the CSSA GIS. The approach for each update is to create a SQL Server backup file. This file will be sent to CSSA and AFCEE for uploading, effectively overwriting the previous version. (This update will not work unless the SQL server settings match for CSSA, AFCEE, and their contractors.)

Thanks.

Tom Griffith
GIS/Web Deployment
AFCEE/MSC
210-536-2667

ATTACHMENT 6
Handout with Questions regarding the Database

1. What part of ERPIMS can not be used in the TSSDS and why can't they be used?

A large percentage of the data in ERPIMS is included in SDS; however, the format and structure are slightly different.

ERPIMS can be used for storing environmental data. ERPIMS cannot be used for facility infrastructure information or for complex spatial areas.

To put the data that ERPIMS stores into SDS would require development of an additional interface to import the data into SDS.

2. If ERPIMS could be used, could IRP Tools be used to download all the Information into the GIS? Others are doing this.

Yes and no. IRP Tools is a data entry and validation tool; it does not download data into the GIS. ERPIMS information can be downloaded into the database portion of the GIS (in other words, no shape files or graphics, just tabular data) using customized queries. Parsons is currently downloading all the information into the GIS using customized queries.

3. What additional TSSDS forms and data fields have been identified as being necessary for CSSA's GIS that is not contained in ERPIMS?

Hazard site boundary information, buildings, building information, utility locations and information, soil gas data, geophysical survey data, cross-sections, topography, surface water features, fencelines, weather, air data, spatial data, NPDES data, land forms, demographics, facility-wide geology.

4. With the former questions in mind, when will the interface database originally requested be developed so that there will be an elimination of entering the same data more than once?

The same data are not entered more than once. As specified in the RL33 proposal, Parsons developed a database using the SDS structure. Data (excluding analytical test information and results) are hand entered (via an Microsoft Access® front-end designed by Parsons to reduce keystroke errors) into a temporary database until a quality review is conducted. Once the quality review is complete and AFCEE reviews the associated data packages, the data are uploaded from the temporary database into the main SDS database. Original development of the SDS database was completed under RL33, and upgrades to version 1.95 of SDS and moving data from Access to SQL Server were completed under RL74.

5. Where is the plan for data entry? Where is the list of data scheduled to be entered? Where is the schedule for this entry?

There are three main sources of data, one of which (environmental data associated with sampling at SWMUs and groundwater sampling) is currently being entered. The Access interface is used for data entry. A list of sites and field data to be hand entered has been created (attachment 1) and is used to track what has been entered. The interface dictates the format and order of the data to be entered. Input of data is well underway. Coordinate data, lithology, weather, sampler, contract, dates,

requested analytical methods, soil gas data, geophysical survey data, and QA flags have already been entered using the Access interface. AFCEE-reviewed analytical data from the laboratories has already been imported into SDS. Transfer of analytical data from the temporary database to the SDS database will continue as AFCEE reviews the packages. As investigation reports are prepared, quality control checks of the database will continue and gaps will be filled. Input of the data will be complete when the report is submitted.

The other sources of data to be entered into the database are: environmental and well construction data associated with well installations; and infrastructure data gathered by the Corps.

Only a very limited amount of data from the second source (well installations) are currently available. Input of this data will continue once well installations commence. Prior to inputting these data, Parsons personnel involved will meet to prepare a list of data and assign responsibilities.

Data from the third source is currently being gathered by the Corps and will be input into the SDS structure upon receipt. David Maltby will input these data into the SDS.

6. Where are the SOPs for the data entry personnel to follow?

As described in the response to questions 4 and 5, data are entered into the temporary database via an Access front end that reduces opportunities for errors. There are five steps for the hand-keyed data entry, as described in the presentation. The procedure for the analytical data received electronically from the laboratory is different. First, electronic deliverables are QC'ed in a temporary database. After data validation has been completed, validation flags are hand-keyed into the temporary database using another Access interface. After AFCEE reviews a data package and indicates in writing to Parsons that the package is acceptable, Parsons transfers the data into the SDS database. Parsons maintains a list of data packages and their status in this system (attachment 2).

7. What labor category is performing the data entry? What labor category is performing QA/QC on the GIS product and the data entry? Provide a list of personnel with labor categories, budgeted hours etc. of personnel assigned to perform the work.

The entire Parsons CSSA team is involved in different aspects of data entry, quality control checks, identifying data gaps, and transferring the data into the SDS database. If a list of personnel, labor categories, and budgeted hours in addition to the project proposals is necessary, it will be prepared for each delivery order under each project's project management task.

8. Where are the SOPs for the QA/QC procedures?

QA/QC occurs at several points; there are no written SOPs. Electronic submittals from the laboratory are checked to make sure the laboratory submitted the data in the correct format and that tests have results, and vice versa. After data validation is complete, validation flags are entered. At this time, completeness and accuracy of each laboratory record is verified by comparing it to the hard copy. Field sample

location data that has been hand-keyed are checked through production of site sample location maps. Parsons personnel check locations on the GIS map by comparing to the logbook sketch and verifying the location with personnel who did the sampling in the field. Lithologic data are checked in a similar manner. Each site report will be prepared primarily by one geologist (one involved in the field work at that site, to the extent possible) who will use the GIS information, field sampling log forms, chain-of-custody forms, field lithologic log forms, field logbooks, sample location maps, analytical data tables created with the database, and any other relevant site information to prepare the report. Any remaining discrepancies between these information sources will be identified at that time and corrected in the GIS before the report is submitted.

9. How are the needs of CSSA being determined? Is there feedback from the base? How is periodic testing of the product being accomplished so that it is known if CSSA requirements are being met? Are these covered in an SOP?

The TSSDS was proposed in 1996 as the database structure most appropriate for CSSA as it includes both environmental data and infrastructure data in one database. The proposal was accepted and work using the SDS data structure was initiated. Parsons initially submitted the database to CSSA and AFCEE in July 1997. Revisions, updates, and revisions have been made periodically since that time. Numerous verbal communications between CSSA and Parsons have occurred, and Parsons responded to CSSA's requests. For instance, Building 90 CAD drawings from CSSA were recently digitized and added to the GIS, at CSSA's request. No formal SOPs for periodic testing have been developed because the majority of effort is currently focused on data input. No written comments have been received.

10. Does all newly added data contain all the necessary links that will allow it to be used by CSSA in the way they requested it?

The database contains all the links that are suggested by the nature of the data. An understanding of the data structure and relationships allow for the data to be viewed and summarized in many different ways. Additionally, there is the ability to relate spatial information (e.g. site boundaries) to the data. The SDS structure is a comprehensive database used by many other DoD facilities to maintain a variety of data so that it can be queried and viewed in many ways – the foundation is there to allow for changing information needs. Parsons is in the process of learning CSSA's needs and is building tools to support them. The robust nature of the SDS database will make it easier for CSSA and its contractors to get information in and out.

11. Are there recommendations on how to make the current GIS set-up user friendly? (In English and rational. Example: Suggest hiding the TSSDS coding and putting in the background, easily accessible if needed but not showing)

Parsons has added a graphical user interface (GUI) to make use of the GIS easier. Development of additional front-end features in the future is only limited by the data available, and since the SDS is a very complete database, many future options are possible for CSSA.

ATTACHMENT 7
Handout on AFCEE QAPP
Elements of Quality Control (QC) Regarding MS/MSD Samples

minimum number of calibration points specified in the method with all points used for the calibration being contiguous. If more than the minimum number of standards is analyzed for the initial calibration, all of the standards analyzed shall be included in the initial calibration. The only exception to this rule is a standard that has been statistically determined as being an outlier can be dropped from the calibration, providing the requirement for the minimum number of standards is met. Acceptance criteria for the calibration check are presented in Section 7. Analyte concentrations are determined with either calibration curves or response factors (RFs). For gas chromatography (GC) and gas chromatography/mass spectroscopy (GC/MS) methods, when using RFs to determine analyte concentrations, the average RF from the initial five point calibration shall be used. The continuing calibration shall not be used to update the RFs from the initial five point calibration. The continuing calibration verification cannot be used as the laboratory control sample (LCS).

4.4 ELEMENTS OF QUALITY CONTROL

QC elements relevant to screening data are presented in Section 6.0. This section presents QC requirements relevant to analysis of environmental samples that shall be followed during all analytical activities for fixed-base, mobile, and field laboratories producing definitive data. The purpose of this QC program is to produce data of known quality that satisfy the project objectives and that meet or exceed the requirements of the standard methods of analysis. This program provides a mechanism for ongoing control and evaluation of data quality measurements through the use of QC materials.

Laboratory QC samples (e.g., blanks and laboratory control samples) shall be included in the preparation batch with the field samples. An AFCEE analytical batch is a number of samples (not to exceed 20 environmental samples plus the associated laboratory QC samples) that are similar in composition (matrix) and that are extracted or digested at the same time and with the same lot of reagents. Matrix spikes and matrix spike duplicates count as environmental samples. The term AFCEE analytical batch also extends to cover samples that do not need separate extraction or digestion (e.g., volatile analyses by purge and trap). This AFCEE analytical batch is a number of samples (not to exceed 20 environmental samples plus the associated laboratory QC samples) that are similar in composition (matrix) and analyzed sequentially. The identity of each AFCEE analytical batch shall be unambiguously reported with the analyses so that a reviewer can identify the QC samples and the associated environmental samples. All references to the analytical batch in the following sections and tables in this QAPP refer to the AFCEE analytical batch.

The type of QC samples and the frequency of use of these samples are discussed below and in the method-specific subsections of Section 7.

A minimum of one MS and one MSD sample shall be analyzed for every 20 AFCEE samples.

The performance of the MS and MSD is evaluated against the QC acceptance limits given in the tables in Section 7. If either the MS or the MSD is outside the QC acceptance limits, the analytes in all related samples shall be qualified according to the data flagging criteria in Sections 7 and 8.

4.4.3 Surrogates

Surrogates are organic compounds that are similar to the target analyte(s) in chemical composition and behavior in the analytical process, but that are not normally found in environmental samples.

Surrogates are used to evaluate accuracy, method performance, and extraction efficiency.

Surrogates shall be added to environmental samples, controls, and blanks, in accordance with the method requirements.

Whenever a surrogate recovery is outside the acceptance limit, corrective action must be performed. After the system problems have been resolved and system control has been reestablished, reprep and reanalyze the sample. If corrective actions are not performed or are ineffective, the appropriate validation flag, as described in Sections 7 and 8, shall be applied to the sample results.

4.4.4 Internal Standards

Internal standards (ISs) are measured amounts of certain compounds added after preparation or extraction of a sample.

They are used in an IS calibration method to correct sample results affected by column injection losses, purging losses, or viscosity effects.

ISs shall be added to environmental samples, controls, and blanks, in accordance with the method requirements.

When the IS results are outside of the acceptance limits, corrective actions shall be performed. After the system problems have been resolved and system control has been reestablished, all samples analyzed while the system was malfunctioning shall be reanalyzed. If corrective actions are not performed or are ineffective, the appropriate validation flag, as described in Sections 7 and 8, shall be applied to the sample results.

ATTACHMENT 8
Spreadsheet
Examples of QA/QC Counting Approaches for 100 Samples

Examples of QA/QC Counting Approaches for 100 Samples

QA/QC as Environmental Samples

	Environmental Samples			Non-environmental Samples
N1	*FD1*	*MS1*	*SD1*	*EB1*
1				
2				
3				
4				
5				
6				
7				
8				
9	10			
11				
12				
13				
14				
15				
16				
17	18	19	20	X
21				
22				
23				
24				
25				
26				
27				
28				
29	30			
31				
32				
33				
34				
35				
36				
37	38	39	40	X
41				
42				
43				
44				
45				
46				
47				
48				
49	50			
51				
52				
53				
54				
55				
56				
57	58	59	60	X
61				
62				
63				
64				
65				
66				
67				
68				
69	70			
71				
72				
73				
74				
75				
76				
77	78	79	80	X
81				
82				
83				
84				
85				
86				
87				
88				
89	90			
91				
92				
93				
94				
95				
96				
97	98	99	100	X
101				
102				
103				
104				
105				
106				
107				
108				
109	110			
111				
112				
113				
114				
115				
116				
117	118	119	120	X
121				
122				
123				
* 124	125	126	127	X
100	**13**	**7**	**7**	**7**

Total Number of Samples: **134**

X = Sample is not counted as an "AFCEE Environmental Sample"

* Each sampling event must end with a series of (FD1, MS1, SD1, and EB1) unless the sample location count is a multiple of 16 (e.g. 16, 32, 48, 64,80, 96)

Unique Sample Location
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
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70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
100

QA/QC not as Environmental Samples

Environmental Samples	Non-environmental Samples			
N1	*FD1*	*MS1*	*SD1*	*EB1*
1				
2				
3				
4				
5				
6				
7				
8				
9				
10	X			
11				
12				
13				
14				
15				
16				
17				
18				
19				
20	X	X	X	X
21				
22				
23				
24				
25				
26				
27				
28				
29				
30	X			
31				
32				
33				
34				
35				
36				
37				
38				
39				
40	X	X	X	X
41				
42				
43				
44				
45				
46				
47				
48				
49				
50	X			
51				
52				
53				
54				
55				
56				
57				
58				
59				
60	X	X	X	X
61				
62				
63				
64				
65				
66				
67				
68				
69				
70	X			
71				
72				
73				
74				
75				
76				
77				
78				
79				
80	X	X	X	X
81				
82				
83				
84				
85				
86				
87				
88				
89				
90	X			
91				
92				
93				
94				
95				
96				
97				
98				
99				
100	X	X	X	X
100	**10**	**5**	**5**	**5**

Total Number of Samples: **125**