Ft. Stewart RFI

DATA VALIDATION CHECKLIST
SECTION ONE

PROJECT NAME: Ft. Stewart Evans Army Heliport
PROJECT NUMBER: FST-027
SAMPLING DATE: 15 & 17 Sept 93 VALIDATION DATE: 20 Oct 93
SAMPLE IDENTIFICATION: FST-027 SB1-9-93, SB2, SB3, SB3 Dup, SB4, SB5, SB6, SB7, SB8
SAMPLING TEAM: J. Smith + Mike Bailey
ANALYZING LABORATORY: Carr Laboratory
ANALYSES PERFORMED: 8015, 624/8240, 3550, TCLP1311, TCLP52 Components
SAMPLE MATRIX: Non Aqueous (Soil)
QA REPORTING LEVEL: II

FIELD DATA PACKAGE DOCUMENTATION

FIELD SAMPLING LOGS: 1/	REPORTED NO	REPORTED YES	PERFORMANCE ACCEPTABLE NO	PERFORMANCE ACCEPTABLE YES	NOT REQUIRED
1. SAMPLING DATES NOTED		✓		✓	
2. SAMPLING TEAM INDICATED		✓		✓	
3. SAMPLE IDENTIFICATION TRACEABLE TO LOCATION COLLECTED		✓		✓	
4. SAMPLE LOCATION		✓		✓	
5. SAMPLE DEPTH FOR SOILS		✓		✓	
6. COLLECTION TECHNIQUE (BAILER, PUMP ETC		✓		✓	
7. FIELD SAMPLE PREPARATION TECHNIQUES		✓		✓	
8. SAMPLE TYPE (GRAB, COMPOSITE)		✓		✓	
9. SAMPLE CONTAINER TYPE		✓		✓	
10. PRESERVATION METHODS		✓		✓	
11. CHAIN OF CUSTODY FORM COMPLETED		✓		✓	
12. REQUIRED ANALYTICAL METHODS REQUESTED		✓		✓	
13. FIELD (WATER AND SOIL) SAMPLE LOGS COMPLETED PROPERLY AND SIGNED		✓		✓	
14. NUMBER AND TYPE OF FIELD QC SAMPLES COLLECTED (BLANKS, REPLICATES, SPLITS, ETC.)		✓		✓	
15. FIELD EQUIPMENT CALIBRATION		✓		✓	
16. FIELD EQUIPMENT DECONTAMINATION		✓		✓	
17. SAMPLE SHIPPING		✓		✓	
18. LABORATORY TASK ORDER		✓		✓	

1/ FIELD SAMPLING LOGS = WATER AND/OR SOIL/SEDIMENT SAMPLING LOGS

COMMENTS:

DATA VALIDATION CHECKLIST
SECTION ONE CONTINUED

ANALYTICAL DATA PACKAGE DOCUMENTATION

GENERAL INFORMATION

ALL QA REPORTING LEVELS	REPORTED NO	REPORTED YES	PERFORMANCE ACCEPTABLE NO	PERFORMANCE ACCEPTABLE YES	NOT REQUIRED
1. SAMPLE RESULTS		✓		✓	
2. PARAMETERS ANALYZED		✓		✓	
3. METHOD OF ANALYSIS		✓		✓	
4. DETECTION LIMITS OF ANALYSIS		✓		✓	
5. MASTER TRACKING LIST		✓		✓	
6. SAMPLE COLLECTION DATE		✓		✓	
7. LAB SAMPLE RECEIVED DATE		✓		✓	
8. SAMPLE PREPARATION/EXTRACTION DATE		✓		✓	
9. SAMPLE ANALYSIS DATE		✓		✓	
10. COPY OF CHAIN-OF-CUSTODY FORM SIGNED BY THE LAB SAMPLE CUSTODIAN		✓		✓	
11. A NARRATIVE SUMMARY OF QA OR SAMPLE PROBLEMS IS PROVIDED.		✓		✓	

COMMENTS: _____

AFTER COMPLETING SECTION ONE PROCEED TO THE APPROPRIATE QA REPORTING LEVEL OF SECTION TWO (INORGANIC ANALYSES) AND/OR SECTION THREE (ORGANIC ANALYSES). FOLLOWING COMPLETION OF THESE SECTIONS PROCEED TO SECTION FOUR (DATA EVALUATION SUMMARY).

ANALYTICAL DATA VALIDATION CHECKLIST
SECTION TWO

INORGANIC ANALYSES
METALS AND CLASSICAL WET CHEMISTRY METHODS

QA REPORTING LEVEL: I REQUIREMENTS (BATCH SPECIFIC QA)[1]	REPORTED NO	REPORTED YES	IN LIMITS NO	IN LIMITS YES	NOT REQUIRED
1. METHOD BLANKS					
2. MS[2] OR RWS[3] % RECOVERY (%R)					
3. MSD[4] OR RWSD[5] OR LD[6] %R					
4. RPD[7]					

COMMENTS: _____

1/ BATCH SPECIFIC QA: APPLIES TO ANY SAMPLES IN ANALYTICAL BATCH REGARDLESS OF THE SOURCE.
2/ MS = MATRIX SPIKE;
3/ RWS = REAGENT WATER SPIKE;
4/ MSD = MATRIX SPIKE DUP.;
5/ RWSD = REAGENT WATER SPIKE DUP.;
6/ LD = LABORATORY DUPLICATE;
7/ RPD = RELATIVE PERCENT DIFFERENCE

ANALYTICAL DATA VALIDATION CHECKLIST
SECTION TWO

INORGANIC ANALYSES
METALS AND CLASSICAL WET CHEMISTRY METHODS

QA REPORTING LEVEL: II
REQUIREMENTS (BATCH SPECIFIC QA)[1/]

	Reported No	Reported Yes	In Limits No	In Limits Yes	Not Required
1. METHOD BLANKS		✓		✓	
2. MS % RECOVERY (%R)		✓		✓	
3. MSD OR LAB DUPLICATE % R		✓		✓	
4. RWS % R		✓		✓	
5. RWSD % R		✓		✓	
6. RPDs FOR MS/MSD, SAMPLE/LD, RWS/RWSD		✓		✓	
7. LCS[8/] %R		✓		✓	
8. ICVS [9/] %R		✓		✓	

COMMENTS:

QA REPORTING LEVEL: III
REQUIREMENTS (SAMPLE SPECIFIC QA)[10/]

1. CALIBRATION CURVE STANDARDS					
2. ICVS %R					
3. CCVS[11/] %R					
4. LCS %R					
5. METHOD BLANKS					
6. ICS[12/] %R (ICP ONLY)					
7. DCS[13/] %R (ICP ONLY)					
8. MS %R					
9. LD OR MSD %R AND RPD					
10. POST DIGESTION ANALYTICAL SPIKE[14/]					

COMMENTS:

1/ BATCH SPECIFIC QA: APPLIES TO ANY SAMPLES IN ANALYTICAL BATCH.
2/ MS = MATRIX SPIKE; 3/ RWS = REAGENT WATER SPIKE;
4/ MSD = MATRIX SPIKE DUP.; 5/ RWSD = REAGENT WATER SPIKE DUP.;
6/ LD = LABORATORY DUPLICATE; 7/ RPD = RELATIVE PERCENT DIFFERENCE
8/ LCS = LABORATORY CONTROL SAMPLE;
9/ ICVS = INITIAL CALIBRATION VERIFICATION STANDARD;
10/ SAMPLE SPECIFIC QA: APPLIES TO PROJECT SPECIFIC SAMPLES..
11/ CCVS = CONTINUING CALIBRATION VERIFICATION STANDARD;
12/ ICS = INTERFERENCE CHECK SAMPLE; 13/ DCS = DILUTION CHECK SAMPLE;
14/ POST DIGESTION ANALYTICAL SPIKE APPLIES TO FURNACE AA ONLY;

ANALYTICAL DATA VALIDATION CHECKLIST
SECTION THREE

ORGANIC ANALYSES

QA REPORTING LEVEL: I
REQUIREMENTS

	Reported No	Reported Yes	In Limits No	In Limits Yes	Not Required
1. Water Blanks					
2. Extraction Blanks					
3. RWS[1/]					
4. RWSD[2/]					
5. RPD[3/]					

Comments:

QA REPORTING LEVEL: II
REQUIREMENTS

A. GAS CHROMATOGRAPHY (NO MASS SPEC) OR WET CHEMISTRY PROCEDURE

1. Water Blanks					✓
2. Extraction Blanks		✓		✓	
3. MS[4/] (Batch Specific)					
4. MSD[5/] (Batch Specific)					
5. LD[6/] (Optional)					
6. MS/MSD RPD or Sample/LD RPD					
7. RWS					
8. RWSD					
9. RWS RPD					
10. Surrogate Spikes					

B. GAS CHROMATOGRAPH/MASS SPECTROMETER

1. Water Blanks					✓
2. Extraction Blanks		✓		✓	
3. MS (Batch Specific)		✓		✓	
4. MSD (Batch Specific)		✓		✓	
5. LD (Optional)		✓		✓	
6. MS/MSD RPD or Sample/LD RPD		✓		✓	
7. RWS		✓		✓	
8. RWSD		✓		✓	
9. RWS RPD		✓		✓	
10. Surrogate Spikes		✓		✓	

COMMENTS:

1/ RWS = REAGENT WATER SPIKE; 2/ RWSD = REAGENT WATER SPIKE DUPLICATE;
3/ RPD = RELATIVE PERCENT DIFFERENCE; 4/ MS = MATRIX SPIKE;
5/ MSD = MATRIX SPIKE DUPLICATE; 6/ LD = LAB DUP

ANALYTICAL DATA VALIDATION CHECKLIST
SECTION FOUR

DATA EVALUATION SUMMARY Ft. Stewart RFI

PROJECT NAME Evans Heliport PROJECT NUMBER: FST-019
QA REPORTING LEVEL: II VALIDATION DATE: 20 Oct 93

ALL QA REPORTING LEVELS (I, II, III)

SUMMARY OF CHECKLIST FINDINGS

	Reported No	Reported Yes	Performance Acceptable No	Performance Acceptable Yes	Not Required
1. FIELD MEASUREMENTS OF PH AND SPECIFIC CONDUCTANCE ARE CONSISTENT WITH HISTORICAL DATA		✓		✓	
2. FIELD RECORDS		✓		✓	
3. METHODS (GEN. INFO. SECTION ONE)		✓		✓	
4. HOLDING TIMES (MASTER SAMPLE LIST)					
A. EXTRACTION HOLDING TIMES		✓		✓	
B. ANALYSIS HOLDING TIMES		✓		✓	
5. DETECTION LIMITS (SECTION ONE)		✓		✓	
6. BLANKS (SECTIONS TWO OR THREE)					
A. EQUIPMENT RINSATE BLANKS					✓
B. FIELD BLANKS					✓
C. TRIP BLANKS		✓		✓	
D. LABORATORY BLANKS		✓		✓	
7. FIELD REPLICATES		✓		✓	
8. FIELD SPLITS					✓
9. GEOPHYSICAL COMPARISONS					
A. CATION VS ANION					✓
B. TDS VS SPEC. CONDUCTANCE					✓
C. PH VS ALK/ACIDITY					✓
D. OTHER					✓
10. METALS QA DATA (SECTION TWO)		✓		✓	
11. INORGANIC WET CHEMISTRY (SEC. TWO)		✓		✓	
12. ORGANIC QA DATA-GC (SECTION THREE-A)		✓		✓	
13. ORGANIC WET CHEMISTRY (SEC. THREE-A)		✓		✓	
14. ORGANIC QA DATA-GC/MS (SEC. THREE-B)		✓		✓	

AFTER COMPLETING THIS SECTION GO TO SECTION FIVE.
COMMENTS:

ANALYTICAL DATA VALIDATION CHECKLIST
SECTION FIVE

DATA VALIDATION CODING Ft. Stewart RFI

PROJECT NAME: Evans Heliport PROJECT NUMBER: FST-029
QA REPORTING LEVEL: II VALIDATION DATE: 20 Oct 93

1. QUALIFIER CODES ASSIGNED TO DATA: R, U, J, U/J, B, NO FLAG

2. IDENTIFICATION OF SAMPLES AND PARAMETERS WITH CODES:

	SAMPLE ID	PARAMETERS
R CODE		
B CODE		
U CODE		
J CODE		
U/J CODE		

EXPLANATION: all acceptable

VALIDATION PERFORMED BY: FRANZ FROELICHER

SIGNED:

DATE: 20 Oct 93

Ft. Stewart RFI

DATA VALIDATION CHECKLIST
SECTION ONE

PROJECT NAME: RECIRCULATING WASH IMPOUNDMENT
PROJECT NUMBER: FST-030
SAMPLING DATE: 10/14/93 VALIDATION DATE: 20 DEC 93
SAMPLE IDENTIFICATION: FST-030-1-10-93, FST-030-1-DUP-10 93, FST-030-2-10 93
SAMPLING TEAM: JUDSON SMITH, MIKE BAILEY
ANALYZING LABORATORY: CARR LABS
ANALYSES PERFORMED: pH, VOC 8240, FULL TCLP, TPH MOD HEAVY
SAMPLE MATRIX: NONAQUEOUS
QA REPORTING LEVEL: II

FIELD DATA PACKAGE DOCUMENTATION

FIELD SAMPLING LOGS: 1/	REPORTED NO	REPORTED YES	PERFORMANCE ACCEPTABLE NO	PERFORMANCE ACCEPTABLE YES	NOT REQUIRED
1. SAMPLING DATES NOTED		✓		✓	
2. SAMPLING TEAM INDICATED		✓		✓	
3. SAMPLE IDENTIFICATION TRACEABLE TO LOCATION COLLECTED		✓		✓	
4. SAMPLE LOCATION		✓		✓	
5. SAMPLE DEPTH FOR SOILS		✓		✓	
6. COLLECTION TECHNIQUE (BAILER, PUMP ETC		✓		✓	
7. FIELD SAMPLE PREPARATION TECHNIQUES		✓		✓	
8. SAMPLE TYPE (GRAB, COMPOSITE)		✓		✓	
9. SAMPLE CONTAINER TYPE		✓		✓	
10. PRESERVATION METHODS		✓		✓	
11. CHAIN OF CUSTODY FORM COMPLETED		✓		✓	
12. REQUIRED ANALYTICAL METHODS REQUESTED		✓		✓	
13. FIELD (WATER AND SOIL) SAMPLE LOGS COMPLETED PROPERLY AND SIGNED		✓		✓	
14. NUMBER AND TYPE OF FIELD QC SAMPLES COLLECTED (BLANKS, REPLICATES, SPLITS, ETC.)		✓		✓	
15. FIELD EQUIPMENT CALIBRATION		✓		✓	
16. FIELD EQUIPMENT DECONTAMINATION		✓		✓	
17. SAMPLE SHIPPING		✓		✓	
18. LABORATORY TASK ORDER		✓		✓	

1/ FIELD SAMPLING LOGS = WATER AND/OR SOIL/SEDIMENT SAMPLING LOGS

COMMENTS:

DATA VALIDATION CHECKLIST
SECTION ONE CONTINUED

ANALYTICAL DATA PACKAGE DOCUMENTATION

GENERAL INFORMATION

ALL QA REPORTING LEVELS	REPORTED NO	REPORTED YES	PERFORMANCE ACCEPTABLE NO	PERFORMANCE ACCEPTABLE YES	NOT REQUIRED
1. SAMPLE RESULTS		✓		✓	
2. PARAMETERS ANALYZED		✓	✓		
3. METHOD OF ANALYSIS		✓		✓	
4. DETECTION LIMITS OF ANALYSIS		✓		✓	
5. MASTER TRACKING LIST		✓		✓	
6. SAMPLE COLLECTION DATE		✓		✓	
7. LAB SAMPLE RECEIVED DATE		✓		✓	
8. SAMPLE PREPARATION/EXTRACTION DATE		✓		✓	
9. SAMPLE ANALYSIS DATE		✓		✓	
10. COPY OF CHAIN-OF-CUSTODY FORM SIGNED BY THE LAB SAMPLE CUSTODIAN		✓		✓	
11. A NARRATIVE SUMMARY OF QA OR SAMPLE PROBLEMS IS PROVIDED.		✓		✓	

COMMENTS: _____

AFTER COMPLETING SECTION ONE PROCEED TO THE APPROPRIATE QA REPORTING LEVEL OF SECTION TWO (INORGANIC ANALYSES) AND/OR SECTION THREE (ORGANIC ANALYSES). FOLLOWING COMPLETION OF THESE SECTIONS PROCEED TO SECTION FOUR (DATA EVALUATION SUMMARY).

ANALYTICAL DATA VALIDATION CHECKLIST
SECTION TWO

INORGANIC ANALYSES
METALS AND CLASSICAL WET CHEMISTRY METHODS

QA REPORTING LEVEL: I REQUIREMENTS (BATCH SPECIFIC QA)[1]	REPORTED NO	REPORTED YES	IN LIMITS NO	IN LIMITS YES	NOT REQUIRED
1. METHOD BLANKS					
2. MS[2] OR RWS[3] % RECOVERY (%R)					
3. MSD[4] OR RWSD[5] OR LD[6] %R					
4. RPD[7]					

COMMENTS: _____

1/ BATCH SPECIFIC QA: APPLIES TO ANY SAMPLES IN ANALYTICAL BATCH REGARDLESS OF THE SOURCE.
2/ MS = MATRIX SPIKE;
3/ RWS = REAGENT WATER SPIKE;
4/ MSD = MATRIX SPIKE DUP.;
5/ RWSD = REAGENT WATER SPIKE DUP.;
6/ LD = LABORATORY DUPLICATE;
7/ RPD = RELATIVE PERCENT DIFFERENCE

ANALYTICAL DATA VALIDATION CHECKLIST
SECTION TWO

INORGANIC ANALYSES
METALS AND CLASSICAL WET CHEMISTRY METHODS

QA REPORTING LEVEL: II
REQUIREMENTS (BATCH SPECIFIC QA)[1/]

	Reported		In Limits		Not
	No	Yes	No	Yes	Required
1. Method Blanks		✓		✓	
2. MS % Recovery (%R)		✓		✓	
3. MSD or Lab Duplicate % R					
4. RWS % R					✓
5. RWSD % R					✓
6. RPDs for MS/MSD, ~~Sample/LD~~, ~~RWS/RWSD~~					✓
7. LCS[8/] %R		✓		✓	
8. ICVS [9/] %R		✓		✓	
					✓

COMMENTS: _____

QA REPORTING LEVEL: III
REQUIREMENTS (SAMPLE SPECIFIC QA)[10/]

1. Calibration Curve Standards					
2. ICVS %R					
3. CCVS[11/] %R					
4. LCS %R					
5. Method Blanks					
6. ICS[12/] %R (ICP only)					
7. DCS[13/] %R (ICP only)					
8. MS %R					
9. LD or MSD %R and RPD					
10. Post Digestion Analytical Spike[14/]					

COMMENTS: _____

1/ Batch specific QA: applies to any samples in analytical batch.
2/ MS = matrix spike; 3/ RWS = reagent water spike;
4/ MSD = matrix spike dup.; 5/ RWSD = reagent water spike dup.;
6/ LD = laboratory duplicate; 7/ RPD = relative percent difference
8/ LCS = laboratory control sample;
9/ ICVS = initial calibration verification standard;
10/ Sample specific QA: applies to project specific samples..
11/ CCVS = continuing calibration verification standard;
12/ ICS = interference check sample; 13/ DCS = dilution check sample;
14/ Post digestion analytical spike applies to furnace AA only;

ANALYTICAL DATA VALIDATION CHECKLIST
SECTION THREE

ORGANIC ANALYSES

QA REPORTING LEVEL: I
REQUIREMENTS

	Reported		In Limits		Not
	No	Yes	No	Yes	Required
1. Water Blanks					
2. Extraction Blanks					
3. RWS[1/]					
4. RWSD[2/]					
5. RPD[3/]					

Comments:

QA REPORTING LEVEL: II
REQUIREMENTS

A. GAS CHROMATOGRAPHY (NO MASS SPEC) OR WET CHEMISTRY PROCEDURE

1. Water Blanks					✓
2. Extraction Blanks					✓
3. MS[4/] (Batch Specific)					✓
4. MSD[5/] (Batch Specific)					✓
5. LD[6/] (Optional)					✓
6. MS/MSD RPD or Sample/LD RPD					✓
7. RWS					✓
8. RWSD					✓
9. RWS RPD					✓
10. Surrogate Spikes					✓

B. GAS CHROMATOGRAPH/MASS SPECTROMETER

1. Water Blanks		✓		✓	
2. Extraction Blanks		✓		✓	
3. MS (Batch Specific)		✓		✓	
4. MSD (Batch Specific)		✓		✓	
5. LD (Optional)					✓
6. MS/MSD RPD or ~~Sample/LD RPD~~		✓		✓	
7. RWS					✓
8. RWSD					✓
9. RWS RPD					✓
10. Surrogate Spikes		✓		✓	

COMMENTS:

1/ RWS = REAGENT WATER SPIKE; 2/ RWSD = REAGENT WATER SPIKE DUPLICATE;
3/ RPD = RELATIVE PERCENT DIFFERENCE; 4/ MS = MATRIX SPIKE;
5/ MSD = MATRIX SPIKE DUPLICATE; 6/ LD = LAB DUP

ANALYTICAL DATA VALIDATION CHECKLIST
SECTION FOUR

DATA EVALUATION SUMMARY Ft. Stewart RFI

PROJECT NAME: Recirculating Wash Impound PROJECT NUMBER: FST-030
QA REPORTING LEVEL: II VALIDATION DATE: 20 Dec 93

ALL QA REPORTING LEVELS (I, II, III)

SUMMARY OF CHECKLIST FINDINGS	REPORTED NO	REPORTED YES	PERFORMANCE ACCEPTABLE NO	PERFORMANCE ACCEPTABLE YES	NOT REQUIRED
1. FIELD MEASUREMENTS OF PH AND SPECIFIC CONDUCTANCE ARE CONSISTENT WITH HISTORICAL DATA		✓		✓	
2. FIELD RECORDS		✓		✓	
3. METHODS (GEN. INFO. SECTION ONE)		✓		✓	
4. HOLDING TIMES (MASTER SAMPLE LIST)					
A. EXTRACTION HOLDING TIMES		✓		✓	
B. ANALYSIS HOLDING TIMES		✓		✓	
5. DETECTION LIMITS (SECTION ONE)		✓		✓	
6. BLANKS (SECTIONS TWO OR THREE)					
A. EQUIPMENT RINSATE BLANKS					✓
B. FIELD BLANKS					✓
C. TRIP BLANKS					✓
D. LABORATORY BLANKS		✓		✓	
7. FIELD REPLICATES		✓		✓	
8. FIELD SPLITS					✓
9. GEOPHYSICAL COMPARISONS					
A. CATION VS ANION					✓
B. TDS VS SPEC. CONDUCTANCE					✓
C. PH VS ALK/ACIDITY					✓
D. OTHER					✓
10. METALS QA DATA (SECTION TWO)		✓		✓	
11. INORGANIC WET CHEMISTRY (SEC. TWO)					✓
12. ORGANIC QA DATA-GC (SECTION THREE-A)					✓
13. ORGANIC WET CHEMISTRY (SEC. THREE-A)					✓
14. ORGANIC QA DATA-GC/MS (SEC. THREE-B)		✓		✓	

AFTER COMPLETING THIS SECTION GO TO SECTION FIVE.
COMMENTS:

Spike QC sample # 102193 had high Recoveries for: alpha-BHC of 130%
Gamma-BHC of 125%
Heptachlor of 194%
Aldrin of 190%
all because of matrix interference
The Sample all-in-all complete and accepted in limits

ANALYTICAL DATA VALIDATION CHECKLIST
SECTION FIVE

DATA VALIDATION CODING Ft. Stewart RFI

PROJECT NAME: Recirculating wash Emplmnt. PROJECT NUMBER: FST-030
QA REPORTING LEVEL: II VALIDATION DATE: 20 Dec 93

1. QUALIFIER CODES ASSIGNED TO DATA: R, U, J, U/J, B, NO FLAG

2. IDENTIFICATION OF SAMPLES AND PARAMETERS WITH CODES:

	SAMPLE ID	PARAMETERS
R CODE		
B CODE		
U CODE		
J CODE		
U/J CODE		

EXPLANATION: see Section 4
all acceptable

VALIDATION PERFORMED BY: [signature]

SIGNED: FRANZ FICOBLICHER

DATE: 20 Dec 93

595

Ft. Stewart RFI

DATA VALIDATION CHECKLIST
SECTION ONE

PROJECT NAME: Ft. Stewart DEH Asphalt Tanks
PROJECT NUMBER: EST-031
SAMPLING DATE: 23 July 93 / 17 Oct 93 VALIDATION DATE: 21 Dec 93
SAMPLE IDENTIFICATION: EST-031551, 552, 553, 553 Dup, 554, 555, 556
SAMPLING TEAM: T. Smith, Tony Oliff, T. Smith, Mike Bailey
ANALYZING LABORATORY: Carr Laboratory
ANALYSES PERFORMED: 8015 / 624/8240, 3550, 1051/9040/9045
SAMPLE MATRIX: Soil Non aqueous
QA REPORTING LEVEL: II

FIELD DATA PACKAGE DOCUMENTATION

FIELD SAMPLING LOGS: 1/	REPORTED NO	REPORTED YES	PERFORMANCE ACCEPTABLE NO	PERFORMANCE ACCEPTABLE YES	NOT REQUIRED
1. SAMPLING DATES NOTED		✓		✓	
2. SAMPLING TEAM INDICATED		✓		✓	
3. SAMPLE IDENTIFICATION TRACEABLE TO LOCATION COLLECTED		✓		✓	
4. SAMPLE LOCATION		✓		✓	
5. SAMPLE DEPTH FOR SOILS		✓		✓	
6. COLLECTION TECHNIQUE (BAILER, PUMP ETC		✓		✓	
7. FIELD SAMPLE PREPARATION TECHNIQUES		✓		✓	
8. SAMPLE TYPE (GRAB, COMPOSITE)		✓		✓	
9. SAMPLE CONTAINER TYPE		✓		✓	
10. PRESERVATION METHODS		✓		✓	
11. CHAIN OF CUSTODY FORM COMPLETED		✓		✓	
12. REQUIRED ANALYTICAL METHODS REQUESTED		✓		✓	
13. FIELD (WATER AND SOIL) SAMPLE LOGS COMPLETED PROPERLY AND SIGNED		✓		✓	
14. NUMBER AND TYPE OF FIELD QC SAMPLES COLLECTED (BLANKS, REPLICATES, SPLITS, ETC.)		✓		✓	
15. FIELD EQUIPMENT CALIBRATION		✓		✓	
16. FIELD EQUIPMENT DECONTAMINATION		✓		✓	
17. SAMPLE SHIPPING		✓		✓	
18. LABORATORY TASK ORDER		✓		✓	

1/ FIELD SAMPLING LOGS = WATER AND/OR SOIL/SEDIMENT SAMPLING LOGS

COMMENTS:

DATA VALIDATION CHECKLIST
SECTION ONE CONTINUED

ANALYTICAL DATA PACKAGE DOCUMENTATION

GENERAL INFORMATION

ALL QA REPORTING LEVELS	REPORTED NO	REPORTED YES	PERFORMANCE ACCEPTABLE NO	PERFORMANCE ACCEPTABLE YES	NOT REQUIRED
1. SAMPLE RESULTS		✓		✓	
2. PARAMETERS ANALYZED		✓		✓	
3. METHOD OF ANALYSIS		✓		✓	
4. DETECTION LIMITS OF ANALYSIS		✓		✓	
5. MASTER TRACKING LIST		✓		✓	
6. SAMPLE COLLECTION DATE		✓		✓	
7. LAB SAMPLE RECEIVED DATE		✓		✓	
8. SAMPLE PREPARATION/EXTRACTION DATE		✓		✓	
9. SAMPLE ANALYSIS DATE		✓		✓	
10. COPY OF CHAIN-OF-CUSTODY FORM SIGNED BY THE LAB SAMPLE CUSTODIAN		✓		✓	
11. A NARRATIVE SUMMARY OF QA OR SAMPLE PROBLEMS IS PROVIDED.		✓		✓	

COMMENTS: _____

AFTER COMPLETING SECTION ONE PROCEED TO THE APPROPRIATE QA REPORTING LEVEL OF SECTION TWO (INORGANIC ANALYSES) AND/OR SECTION THREE (ORGANIC ANALYSES). FOLLOWING COMPLETION OF THESE SECTIONS PROCEED TO SECTION FOUR (DATA EVALUATION SUMMARY).

ANALYTICAL DATA VALIDATION CHECKLIST
SECTION TWO

INORGANIC ANALYSES
METALS AND CLASSICAL WET CHEMISTRY METHODS

QA REPORTING LEVEL: I REQUIREMENTS (BATCH SPECIFIC QA)[1]	REPORTED NO	REPORTED YES	IN LIMITS NO	IN LIMITS YES	NOT REQUIRED
1. METHOD BLANKS					
2. MS[2] OR RWS[3] % RECOVERY (%R)					
3. MSD[4] OR RWSD[5] OR LD[6] %R					
4. RPD[7]					

COMMENTS: _____

1/ BATCH SPECIFIC QA: APPLIES TO ANY SAMPLES IN ANALYTICAL BATCH REGARDLESS OF THE SOURCE.
2/ MS = MATRIX SPIKE;
3/ RWS = REAGENT WATER SPIKE;
4/ MSD = MATRIX SPIKE DUP.;
5/ RWSD = REAGENT WATER SPIKE DUP.;
6/ LD = LABORATORY DUPLICATE;
7/ RPD = RELATIVE PERCENT DIFFERENCE

ANALYTICAL DATA VALIDATION CHECKLIST
SECTION TWO

INORGANIC ANALYSES
METALS AND CLASSICAL WET CHEMISTRY METHODS

QA REPORTING LEVEL: II
REQUIREMENTS (BATCH SPECIFIC QA)1/

	Reported		In Limits		Not
	No	Yes	No	Yes	Required
1. Method Blanks		✓		✓	
2. MS % Recovery (%R)		✓		✓	
3. MSD or ~~Lab Duplicate~~ % R		✓		✓	
4. RWS % R					
5. RWSD % R					
6. RPDs for MS/MSD, ~~Sample/LD, RWS/RWSD~~					✓
7. LCS8/ %R		✓		✓	
8. ICVS 9/ %R		✓		✓	

COMMENTS: _____

QA REPORTING LEVEL: III
REQUIREMENTS (SAMPLE SPECIFIC QA)10/

1. Calibration Curve Standards				
2. ICVS %R				
3. CCVS11/ %R				
4. LCS %R				
5. Method Blanks				
6. ICS12/ %R (ICP only)				
7. DCS13/ %R (ICP only)				
8. MS %R				
9. LD or MSD %R and RPD				
10. Post digestion analytical spike14/				

COMMENTS: _____

1/ Batch specific QA: applies to any samples in analytical batch.
2/ MS = matrix spike; 3/ RWS = reagent water spike;
4/ MSD = matrix spike dup.; 5/ RWSD = reagent water spike dup.;
6/ LD = laboratory duplicate; 7/ RPD = relative percent difference
8/ LCS = laboratory control sample;
9/ ICVS = initial calibration verification standard;
10/ Sample specific QA: applies to project specific samples.
11/ CCVS = continuing calibration verification standard;
12/ ICS = interference check sample; 13/ DCS = dilution check sample;
14/ Post digestion analytical spike applies to furnace AA only;

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ANALYTICAL DATA VALIDATION CHECKLIST
SECTION THREE

ORGANIC ANALYSES

QA REPORTING LEVEL: I_
REQUIREMENTS_____

	Reported No	Reported Yes	In Limits No	In Limits Yes	Not Required
1. WATER BLANKS					
2. EXTRACTION BLANKS					
3. RWS[1/]					
4. RWSD[2/]					
5. RPD[3/]					

COMMENTS: _____

QA REPORTING LEVEL: II
REQUIREMENTS

A. GAS CHROMATOGRAPHY (NO MASS SPEC) OR WET CHEMISTRY PROCEDURE

1. WATER BLANKS		✓		✓	
2. EXTRACTION BLANKS		✓		✓	
3. MS[4/] (BATCH SPECIFIC)		✓		✓	
4. MSD[5/] (BATCH SPECIFIC)		✓		✓	
5. LD[6/] (OPTIONAL)					✓
6. MS/MSD RPD OR ~~SAMPLE/LD~~ RPD		✓		✓	
7. RWS					✓
8. RWSD					✓
9. RWS RPD					✓
10. SURROGATE SPIKES		✓		✓	

B. GAS CHROMATOGRAPH/MASS SPECTROMETER

1. WATER BLANKS		✓		✓	
2. EXTRACTION BLANKS		✓		✓	
3. MS (BATCH SPECIFIC)		✓		✓	
4. MSD (BATCH SPECIFIC)		✓		✓	
5. LD (OPTIONAL)		✓		✓	
6. MS/MSD RPD ~~OR SAMPLE/LD~~ RPD		✓		✓	✓
7. RWS					
8. RWSD					✓
9. RWS RPD					✓
10. SURROGATE SPIKES		✓		✓	✓

COMMENTS: _____

1/ RWS = REAGENT WATER SPIKE; 2/ RWSD = REAGENT WATER SPIKE DUPLICATE;
3/ RPD = RELATIVE PERCENT DIFFERENCE; 4/ MS = MATRIX SPIKE;
5/ MSD = MATRIX SPIKE DUPLICATE; 6/ LD = LAB DUP

ANALYTICAL DATA VALIDATION CHECKLIST
SECTION FOUR

DATA EVALUATION SUMMARY Ft. Stewart RFI

PROJECT NAME: asphalt Tanks PROJECT NUMBER: FST-031
QA REPORTING LEVEL: II VALIDATION DATE: 15 Nov 93

ALL QA REPORTING LEVELS (I,II,III)

SUMMARY OF CHECKLIST FINDINGS	REPORTED NO	REPORTED YES	PERFORMANCE ACCEPTABLE NO	PERFORMANCE ACCEPTABLE YES	NOT REQUIRED
1. FIELD MEASUREMENTS OF PH AND SPECIFIC CONDUCTANCE ARE CONSISTENT WITH HISTORICAL DATA		✓		✓	
2. FIELD RECORDS		✓		✓	
3. METHODS (GEN. INFO. SECTION ONE)		✓		✓	
4. HOLDING TIMES (MASTER SAMPLE LIST)					
A. EXTRACTION HOLDING TIMES		✓		✓	
B. ANALYSIS HOLDING TIMES		✓		✓	
5. DETECTION LIMITS (SECTION ONE)		✓		✓	
6. BLANKS (SECTIONS TWO OR THREE)					
A. EQUIPMENT RINSATE BLANKS					✓
B. FIELD BLANKS					✓
C. TRIP BLANKS					✓
D. LABORATORY BLANKS		✓		✓	
7. FIELD REPLICATES		✓		✓	
8. FIELD SPLITS					
9. GEOPHYSICAL COMPARISONS					✓
A. CATION VS ANION					✓
B. TDS VS SPEC. CONDUCTANCE					✓
C. PH VS ALK/ACIDITY					✓
D. OTHER					✓
10. METALS QA DATA (SECTION TWO)		✓		✓	
11. INORGANIC WET CHEMISTRY (SEC. TWO)		✓		✓	
12. ORGANIC QA DATA-GC (SECTION THREE-A)		✓		✓	
13. ORGANIC WET CHEMISTRY (SEC. THREE-A)		✓		✓	
14. ORGANIC QA DATA-GC/MS (SEC. THREE-B)		✓		✓	

AFTER COMPLETING THIS SECTION GO TO SECTION FIVE.
COMMENTS:

ANALYTICAL DATA VALIDATION CHECKLIST
SECTION FIVE

DATA VALIDATION CODING Ft. Stewart RFI

PROJECT NAME: Asphalt Tanks PROJECT NUMBER: FS7-031
QA REPORTING LEVEL: II VALIDATION DATE: 15 Nov 93

1. QUALIFIER CODES ASSIGNED TO DATA: R, U, J, U/J, B, NO FLAG

2. IDENTIFICATION OF SAMPLES AND PARAMETERS WITH CODES:

	SAMPLE ID	PARAMETERS
R CODE		
B CODE		
U CODE		
J CODE		
U/J CODE		

EXPLANATION: all Acceptable

VALIDATION PERFORMED BY: FRANZ FROELICHER

SIGNED:

DATE: 21 Dec - 93

Ft. Stewart RFI

DATA VALIDATION CHECKLIST
SECTION ONE

PROJECT NAME: Ft Stewart Supply Diesel Tanks
PROJECT NUMBER: FST-032
SAMPLING DATE: 22 Jul 93 resampled Oct 93 VALIDATION DATE: 7 Nov 93
SAMPLE IDENTIFICATION: SB1-10-93, SB2, SB3, SB4, SB5, SB6, SB6Dup
SAMPLING TEAM: J. Smith, T. Oliff / J. Smith, M. Bailey
ANALYZING LABORATORY: Con-Test Laboratory
ANALYSES PERFORMED: 8015, 624/8240, 3550
SAMPLE MATRIX: Non Aqueous (soil)
QA REPORTING LEVEL: II

FIELD DATA PACKAGE DOCUMENTATION

FIELD SAMPLING LOGS: 1/	REPORTED NO	REPORTED YES	PERFORMANCE ACCEPTABLE NO	PERFORMANCE ACCEPTABLE YES	NOT REQUIRED
1. SAMPLING DATES NOTED	—	✓	—	✓	—
2. SAMPLING TEAM INDICATED	—	✓	—	✓	—
3. SAMPLE IDENTIFICATION TRACEABLE TO LOCATION COLLECTED	—	✓	—	✓	—
4. SAMPLE LOCATION	—	✓	—	✓	—
5. SAMPLE DEPTH FOR SOILS	—	✓	—	✓	—
6. COLLECTION TECHNIQUE (BAILER, PUMP ETC	—	✓	—	✓	—
7. FIELD SAMPLE PREPARATION TECHNIQUES	—	✓	—	✓	—
8. SAMPLE TYPE (GRAB, COMPOSITE)	—	✓	—	✓	—
9. SAMPLE CONTAINER TYPE	—	✓	—	✓	—
10. PRESERVATION METHODS	—	✓	—	✓	—
11. CHAIN OF CUSTODY FORM COMPLETED	—	✓	—	✓	—
12. REQUIRED ANALYTICAL METHODS REQUESTED	—	✓	—	✓	—
13. FIELD (WATER AND SOIL) SAMPLE LOGS COMPLETED PROPERLY AND SIGNED	—	✓	—	✓	—
14. NUMBER AND TYPE OF FIELD QC SAMPLES COLLECTED (BLANKS, REPLICATES, SPLITS, ETC.)	—	✓	—	✓	—
15. FIELD EQUIPMENT CALIBRATION	—	✓	—	✓	—
16. FIELD EQUIPMENT DECONTAMINATION	—	✓	—	✓	—
17. SAMPLE SHIPPING	—	✓	—	✓	—
18. LABORATORY TASK ORDER	—	✓	—	✓	—

1/ FIELD SAMPLING LOGS = WATER AND/OR SOIL/SEDIMENT SAMPLING LOGS

COMMENTS:

DATA VALIDATION CHECKLIST
SECTION ONE CONTINUED

ANALYTICAL DATA PACKAGE DOCUMENTATION

GENERAL INFORMATION

ALL QA REPORTING LEVELS	REPORTED NO	REPORTED YES	PERFORMANCE ACCEPTABLE NO	PERFORMANCE ACCEPTABLE YES	NOT REQUIRED
1. SAMPLE RESULTS		✓		✓	
2. PARAMETERS ANALYZED		✓		✓	
3. METHOD OF ANALYSIS		✓		✓	
4. DETECTION LIMITS OF ANALYSIS		✓		✓	
5. MASTER TRACKING LIST		✓		✓	
6. SAMPLE COLLECTION DATE		✓		✓	
7. LAB SAMPLE RECEIVED DATE		✓		✓	
8. SAMPLE PREPARATION/EXTRACTION DATE		✓		✓	
9. SAMPLE ANALYSIS DATE		✓		✓	
10. COPY OF CHAIN-OF-CUSTODY FORM SIGNED BY THE LAB SAMPLE CUSTODIAN		✓		✓	
11. A NARRATIVE SUMMARY OF QA OR SAMPLE PROBLEMS IS PROVIDED.		✓		✓	

COMMENTS: _____

AFTER COMPLETING SECTION ONE PROCEED TO THE APPROPRIATE QA REPORTING LEVEL OF SECTION TWO (INORGANIC ANALYSES) AND/OR SECTION THREE (ORGANIC ANALYSES). FOLLOWING COMPLETION OF THESE SECTIONS PROCEED TO SECTION FOUR (DATA EVALUATION SUMMARY).

ANALYTICAL DATA VALIDATION CHECKLIST
SECTION TWO

INORGANIC ANALYSES
METALS AND CLASSICAL WET CHEMISTRY METHODS

QA REPORTING LEVEL: I REQUIREMENTS (BATCH SPECIFIC QA)[1]	REPORTED NO	REPORTED YES	IN LIMITS NO	IN LIMITS YES	NOT REQUIRED
1. METHOD BLANKS					
2. MS[2] OR RWS[3] % RECOVERY (%R)					
3. MSD[4] OR RWSD[5] OR LD[6] %R					
4. RPD[7]					

COMMENTS: _____

1/ BATCH SPECIFIC QA: APPLIES TO ANY SAMPLES IN ANALYTICAL BATCH REGARDLESS OF THE SOURCE.
2/ MS = MATRIX SPIKE;
3/ RWS = REAGENT WATER SPIKE;
4/ MSD = MATRIX SPIKE DUP.;
5/ RWSD = REAGENT WATER SPIKE DUP.;
6/ LD = LABORATORY DUPLICATE;
7/ RPD = RELATIVE PERCENT DIFFERENCE

ANALYTICAL DATA VALIDATION CHECKLIST
SECTION TWO

INORGANIC ANALYSES
METALS AND CLASSICAL WET CHEMISTRY METHODS

QA REPORTING LEVEL: II

REQUIREMENTS (BATCH SPECIFIC QA)[1]	REPORTED NO	REPORTED YES	IN LIMITS NO	IN LIMITS YES	NOT REQUIRED
1. METHOD BLANKS		✓		✓	
2. MS % RECOVERY (%R)		✓		✓	
3. MSD OR LAB DUPLICATE % R		✓		✓	
4. RWS % R		✓		✓	
5. RWSD % R		✓		✓	
6. RPDs FOR MS/MSD, SAMPLE/LD, RWS/RWSD		✓		✓	
7. LCS[8] %R		✓		✓	
8. ICVS [9] %R		✓		✓	

COMMENTS: _____

QA REPORTING LEVEL: III

REQUIREMENTS (SAMPLE SPECIFIC QA)[10]					
1. CALIBRATION CURVE STANDARDS					
2. ICVS %R					
3. CCVS[11] %R					
4. LCS %R					
5. METHOD BLANKS					
6. ICS[12] %R (ICP ONLY)					
7. DCS[13] %R (ICP ONLY)					
8. MS %R					
9. LD OR MSD %R AND RPD					
10. POST DIGESTION ANALYTICAL SPIKE[14]					

COMMENTS: _____

1/ BATCH SPECIFIC QA: APPLIES TO ANY SAMPLES IN ANALYTICAL BATCH.
2/ MS = MATRIX SPIKE; 3/ RWS = REAGENT WATER SPIKE;
4/ MSD = MATRIX SPIKE DUP.; 5/ RWSD = REAGENT WATER SPIKE DUP.;
6/ LD = LABORATORY DUPLICATE; 7/ RPD = RELATIVE PERCENT DIFFERENCE
8/ LCS = LABORATORY CONTROL SAMPLE;
9/ ICVS = INITIAL CALIBRATION VERIFICATION STANDARD;
10/ SAMPLE SPECIFIC QA: APPLIES TO PROJECT SPECIFIC SAMPLES..
11/ CCVS = CONTINUING CALIBRATION VERIFICATION STANDARD;
12/ ICS = INTERFERENCE CHECK SAMPLE; 13/ DCS = DILUTION CHECK SAMPLE;
14/ POST DIGESTION ANALYTICAL SPIKE APPLIES TO FURNACE AA ONLY;

ANALYTICAL DATA VALIDATION CHECKLIST
SECTION THREE

ORGANIC ANALYSES

QA REPORTING LEVEL: I
REQUIREMENTS

	Reported		In Limits		Not
	No	Yes	No	Yes	Required
1. Water blanks					
2. Extraction blanks					
3. RWS[1/]					
4. RWSD[2/]					
5. RPD[3/]					

Comments:

QA REPORTING LEVEL: II
REQUIREMENTS

A. GAS CHROMATOGRAPHY (NO MASS SPEC) OR WET CHEMISTRY PROCEDURE

1. Water blanks					✓
2. Extraction blanks		✓		✓	
3. MS[4/] (batch specific)		✓		✓	
4. MSD[5/] (batch specific)		✓		✓	
5. LD[6/] (optional)					
6. MS/MSD RPD or sample/LD RPD		✓		✓	✓
7. RWS					
8. RWSD					✓
9. RWS RPD					✓
10. Surrogate spikes		✓		✓	✓

B. GAS CHROMATOGRAPH/MASS SPECTROMETER

1. Water blanks					✓
2. Extraction blanks		✓		✓	
3. MS (Batch specific)		✓		✓	
4. MSD (Batch specific)		✓		✓	
5. LD (Optional)					✓
6. MS/MSD RPD or sample/LD RPD		✓		✓	
7. RWS					✓
8. RWSD					✓
9. RWS RPD					✓
10. Surrogate spikes		✓		✓	

COMMENTS:

1/ RWS = REAGENT WATER SPIKE; 2/ RWSD = REAGENT WATER SPIKE DUPLICATE;
3/ RPD = RELATIVE PERCENT DIFFERENCE; 4/ MS = MATRIX SPIKE;
5/ MSD = MATRIX SPIKE DUPLICATE; 6/ LD = LAB DUP

ANALYTICAL DATA VALIDATION CHECKLIST
SECTION FOUR

DATA EVALUATION SUMMARY Ft. Stewart RFI

PROJECT NAME: Supply Diesel Tanks PROJECT NUMBER: EST-032
QA REPORTING LEVEL: I II VALIDATION DATE: 7 Nov 93

ALL QA REPORTING LEVELS (I,II,III)

SUMMARY OF CHECKLIST FINDINGS

	Reported		Performance Acceptable		
	No	Yes	No	Yes	Not Required
1. Field measurements of pH and specific conductance are consistent with historical data		✓		✓	
2. Field Records		✓		✓	
3. Methods (Gen. Info. Section One)		✓		✓	
4. Holding Times (Master Sample List)					
A. Extraction holding times		✓		✓	
B. Analysis holding times		✓		✓	
5. Detection limits (Section One)		✓		✓	
6. Blanks (Sections Two or Three)					
A. Equipment rinsate blanks					✓
B. Field blanks					✓
C. Trip blanks					✓
D. Laboratory blanks		✓		✓	
7. Field replicates		✓		✓	
8. Field splits					✓
9. Geophysical comparisons					
A. Cation vs Anion					✓
B. TDS vs Spec. Conductance					✓
C. pH vs Alk/Acidity					✓
D. Other					✓
10. Metals QA Data (Section Two)		✓		✓	
11. Inorganic Wet Chemistry (Sec. Two)		✓		✓	
12. Organic QA Data-GC (Section Three-A)		✓		✓	
13. Organic Wet Chemistry (Sec. Three-A)		✓		✓	
14. Organic QA Data-GC/MS (Sec. Three-B)		✓		✓	

AFTER COMPLETING THIS SECTION GO TO SECTION FIVE.
COMMENTS:

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ANALYTICAL DATA VALIDATION CHECKLIST
SECTION FIVE

DATA VALIDATION CODING Ft. Stewart RFI

PROJECT NAME: Supply Diesel Tanks PROJECT NUMBER: FST-032
QA REPORTING LEVEL: II VALIDATION DATE: 7 Nov 93

1. QUALIFIER CODES ASSIGNED TO DATA: R, U, J, U/J, B, NO FLAG

2. IDENTIFICATION OF SAMPLES AND PARAMETERS WITH CODES:

	SAMPLE ID	PARAMETERS
R CODE		
B CODE		
U CODE		
J CODE		
U/J CODE		

EXPLANATION: all acceptable

VALIDATION PERFORMED BY: Franz Froelicher

SIGNED:

DATE: 7 Nov 93

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Ft. Stewart RFI

DATA VALIDATION CHECKLIST
SECTION ONE

PROJECT NAME: Ft. Stewart DEH Pesticide Warehouse
PROJECT NUMBER: FST-033
SAMPLING DATE: 22 Jul 93 resampled Oct 93 VALIDATION DATE: 7 Nov 93
SAMPLE IDENTIFICATION: FST-033 SB1-10-93 SB2-10-93 SB1 Dup
SAMPLING TEAM: T. Smith, J. Cliff / T. Smith, M. Daily
ANALYZING LABORATORY: Carr Laboratory
ANALYSES PERFORMED: 608/8080, 624/8240
SAMPLE MATRIX: Non Aqueous (Soil)
QA REPORTING LEVEL: II

FIELD DATA PACKAGE DOCUMENTATION

FIELD SAMPLING LOGS: 1/	REPORTED NO	REPORTED YES	PERFORMANCE ACCEPTABLE NO	PERFORMANCE ACCEPTABLE YES	NOT REQUIRED
1. SAMPLING DATES NOTED		✓		✓	
2. SAMPLING TEAM INDICATED		✓		✓	
3. SAMPLE IDENTIFICATION TRACEABLE TO LOCATION COLLECTED		✓		✓	
4. SAMPLE LOCATION		✓		✓	
5. SAMPLE DEPTH FOR SOILS		✓		✓	
6. COLLECTION TECHNIQUE (BAILER, PUMP ETC		✓		✓	
7. FIELD SAMPLE PREPARATION TECHNIQUES		✓		✓	
8. SAMPLE TYPE (GRAB, COMPOSITE)		✓		✓	
9. SAMPLE CONTAINER TYPE		✓		✓	
10. PRESERVATION METHODS		✓		✓	
11. CHAIN OF CUSTODY FORM COMPLETED		✓		✓	
12. REQUIRED ANALYTICAL METHODS REQUESTED		✓		✓	
13. FIELD (WATER AND SOIL) SAMPLE LOGS COMPLETED PROPERLY AND SIGNED		✓		✓	
14. NUMBER AND TYPE OF FIELD QC SAMPLES COLLECTED (BLANKS, REPLICATES, SPLITS, ETC.)		✓		✓	
15. FIELD EQUIPMENT CALIBRATION		✓		✓	
16. FIELD EQUIPMENT DECONTAMINATION		✓		✓	
17. SAMPLE SHIPPING		✓		✓	
18. LABORATORY TASK ORDER		✓		✓	

1/ FIELD SAMPLING LOGS = WATER AND/OR SOIL/SEDIMENT SAMPLING LOGS

COMMENTS:

DATA VALIDATION CHECKLIST
SECTION ONE CONTINUED

ANALYTICAL DATA PACKAGE DOCUMENTATION

GENERAL INFORMATION

ALL QA REPORTING LEVELS	REPORTED NO	REPORTED YES	PERFORMANCE ACCEPTABLE NO	PERFORMANCE ACCEPTABLE YES	NOT REQUIRED
1. SAMPLE RESULTS		✓		✓	
2. PARAMETERS ANALYZED		✓		✓	
3. METHOD OF ANALYSIS		✓		✓	
4. DETECTION LIMITS OF ANALYSIS		✓		✓	
5. MASTER TRACKING LIST		✓		✓	
6. SAMPLE COLLECTION DATE		✓		✓	
7. LAB SAMPLE RECEIVED DATE		✓		✓	
8. SAMPLE PREPARATION/EXTRACTION DATE		✓		✓	
9. SAMPLE ANALYSIS DATE		✓		✓	
10. COPY OF CHAIN-OF-CUSTODY FORM SIGNED BY THE LAB SAMPLE CUSTODIAN		✓		✓	
11. A NARRATIVE SUMMARY OF QA OR SAMPLE PROBLEMS IS PROVIDED.		✓		✓	

COMMENTS: _____

AFTER COMPLETING SECTION ONE PROCEED TO THE APPROPRIATE QA REPORTING LEVEL OF SECTION TWO (INORGANIC ANALYSES) AND/OR SECTION THREE (ORGANIC ANALYSES). FOLLOWING COMPLETION OF THESE SECTIONS PROCEED TO SECTION FOUR (DATA EVALUATION SUMMARY).

ANALYTICAL DATA VALIDATION CHECKLIST
SECTION TWO

INORGANIC ANALYSES
METALS AND CLASSICAL WET CHEMISTRY METHODS

QA REPORTING LEVEL: I REQUIREMENTS (BATCH SPECIFIC QA)[1]	REPORTED NO	REPORTED YES	IN LIMITS NO	IN LIMITS YES	NOT REQUIRED
1. METHOD BLANKS					
2. MS[2] OR RWS[3] % RECOVERY (%R)					
3. MSD[4] OR RWSD[5] OR LD[6] %R					
4. RPD[7]					

COMMENTS: _____

1/ BATCH SPECIFIC QA: APPLIES TO ANY SAMPLES IN ANALYTICAL BATCH REGARDLESS OF THE SOURCE.
2/ MS = MATRIX SPIKE;
3/ RWS = REAGENT WATER SPIKE;
4/ MSD = MATRIX SPIKE DUP.;
5/ RWSD = REAGENT WATER SPIKE DUP.;
6/ LD = LABORATORY DUPLICATE;
7/ RPD = RELATIVE PERCENT DIFFERENCE

ANALYTICAL DATA VALIDATION CHECKLIST
SECTION TWO

INORGANIC ANALYSES
METALS AND CLASSICAL WET CHEMISTRY METHODS

QA REPORTING LEVEL: II
REQUIREMENTS (BATCH SPECIFIC QA)1/

	Reported No	Reported Yes	In Limits No	In Limits Yes	Not Required
1. METHOD BLANKS		✓		✓	
2. MS % RECOVERY (%R)		✓		✓	
3. MSD OR LAB DUPLICATE % R		✓		✓	
4. RWS % R					
5. RWSD % R					
6. RPDs FOR MS/MSD, SAMPLE/LD, RWS/RWSD					
7. LCS8/ %R		✓		✓	
8. ICVS 9/ %R		✓		✓	

COMMENTS: _____

QA REPORTING LEVEL: III
REQUIREMENTS (SAMPLE SPECIFIC QA)10/

1. CALIBRATION CURVE STANDARDS					
2. ICVS %R					
3. CCVS11/ %R					
4. LCS %R					
5. METHOD BLANKS					
6. ICS12/ %R (ICP ONLY)					
7. DCS13/ %R (ICP ONLY)					
8. MS %R					
9. LD OR MSD %R AND RPD					
10. POST DIGESTION ANALYTICAL SPIKE14/					

COMMENTS: _____

1/ BATCH SPECIFIC QA: APPLIES TO ANY SAMPLES IN ANALYTICAL BATCH.
2/ MS = MATRIX SPIKE; 3/ RWS = REAGENT WATER SPIKE;
4/ MSD = MATRIX SPIKE DUP.; 5/ RWSD = REAGENT WATER SPIKE DUP.;
6/ LD = LABORATORY DUPLICATE; 7/ RPD = RELATIVE PERCENT DIFFERENCE
8/ LCS = LABORATORY CONTROL SAMPLE;
9/ ICVS = INITIAL CALIBRATION VERIFICATION STANDARD;
10/ SAMPLE SPECIFIC QA: APPLIES TO PROJECT SPECIFIC SAMPLES..
11/ CCVS = CONTINUING CALIBRATION VERIFICATION STANDARD;
12/ ICS = INTERFERENCE CHECK SAMPLE; 13/ DCS = DILUTION CHECK SAMPLE;
14/ POST DIGESTION ANALYTICAL SPIKE APPLIES TO FURNACE AA ONLY;

ANALYTICAL DATA VALIDATION CHECKLIST
SECTION THREE

ORGANIC ANALYSES

QA REPORTING LEVEL: I_
REQUIREMENTS_____

	Reported No	Reported Yes	In Limits No	In Limits Yes	Not Required
1. WATER BLANKS					
2. EXTRACTION BLANKS					
3. RWS[1/]					
4. RWSD[2/]					
5. RPD[3/]					

COMMENTS: _____

QA REPORTING LEVEL: II
REQUIREMENTS

A. GAS CHROMATOGRAPHY (NO MASS SPEC) OR WET CHEMISTRY PROCEDURE

	Reported No	Reported Yes	In Limits No	In Limits Yes	Not Required
1. WATER BLANKS					✓
2. EXTRACTION BLANKS		✓		✓	
3. MS[4/] (BATCH SPECIFIC)		✓		✓	
4. MSD[5/] (BATCH SPECIFIC)		✓		✓	
5. LD[6/] (OPTIONAL)					✓
6. MS/MSD RPD OR SAMPLE/LD RPD		✓		✓	
7. RWS					✓
8. RWSD					✓
9. RWS RPD					✓
10. SURROGATE SPIKES		✓		✓	

B. GAS CHROMATOGRAPH/MASS SPECTROMETER

	Reported No	Reported Yes	In Limits No	In Limits Yes	Not Required
1. WATER BLANKS					✓
2. EXTRACTION BLANKS		✓		✓	
3. MS (BATCH SPECIFIC)		✓		✓	
4. MSD (BATCH SPECIFIC)		✓		✓	
5. LD (OPTIONAL)					✓
6. MS/MSD RPD OR SAMPLE/LD RPD		✓		✓	
7. RWS					✓
8. RWSD					✓
9. RWS RPD					✓
10. SURROGATE SPIKES		✓		✓	

COMMENTS: _____

1/ RWS = REAGENT WATER SPIKE; 2/ RWSD = REAGENT WATER SPIKE DUPLICATE;
3/ RPD = RELATIVE PERCENT DIFFERENCE; 4/ MS = MATRIX SPIKE;
5/ MSD = MATRIX SPIKE DUPLICATE; 6/ LD = LAB DUP

ANALYTICAL DATA VALIDATION CHECKLIST
SECTION FOUR

DATA EVALUATION SUMMARY Ft. Stewart RFI

PROJECT NAME: Pesticide Warehouse PROJECT NUMBER: FST-033
QA REPORTING LEVEL: II VALIDATION DATE: 7 Nov 93

ALL QA REPORTING LEVELS (I, II, III)

SUMMARY OF CHECKLIST FINDINGS

	Reported No	Reported Yes	Performance Acceptable No	Performance Acceptable Yes	Not Required
1. Field measurements of pH and specific conductance are consistent with historical data		✓		✓	
2. Field Records		✓		✓	
3. Methods (Gen. Info. Section One)		✓		✓	
4. Holding Times (Master Sample List)					
a. Extraction holding times		✓		✓	
b. Analysis holding times		✓		✓	
5. Detection limits (Section One)		✓		✓	
6. Blanks (Sections Two or Three)					
a. Equipment rinsate blanks					✓
b. Field blanks					✓
c. Trip blanks					✓
d. Laboratory blanks		✓		✓	
7. Field replicates		✓		✓	
8. Field splits					✓
9. Geophysical comparisons					
a. Cation vs Anion					✓
b. TDS vs Spec. Conductance					✓
c. pH vs Alk/Acidity					✓
d. Other					✓
10. Metals QA Data (Section Two)		✓		✓	
11. Inorganic Wet Chemistry (Sec. Two)		✓		✓	
12. Organic QA Data-GC (Section Three-A)		✓		✓	
13. Organic Wet Chemistry (Sec. Three-A)		✓		✓	
14. Organic QA Data-GC/MS (Sec. Three-B)		✓		✓	

AFTER COMPLETING THIS SECTION GO TO SECTION FIVE.
COMMENTS:

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ANALYTICAL DATA VALIDATION CHECKLIST
SECTION FIVE

DATA VALIDATION CODING Ft Stewart RFI

PROJECT NAME: Pesticide Warehouse PROJECT NUMBER: FST-033
QA REPORTING LEVEL: F VALIDATION DATE: 7 Nov 93

1. QUALIFIER CODES ASSIGNED TO DATA: R, U, J, U/J, B, NO FLAG

2. IDENTIFICATION OF SAMPLES AND PARAMETERS WITH CODES:

	SAMPLE ID	PARAMETERS
R CODE		
B CODE		
U CODE		
J CODE		
U/J CODE		

EXPLANATION: all acceptable

VALIDATION PERFORMED BY: FRANZ FROEHLICHER

SIGNED:

DATE: 7 Nov 93

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Ft. Stewart RFI

DATA VALIDATION CHECKLIST
SECTION ONE

PROJECT NAME: Ft. Stewart Equipment Wash Rack
PROJECT NUMBER: FST-034
SAMPLING DATE: 28 July 93 resampled 1 Oct 93 VALIDATION DATE: 21 Dec 93
SAMPLE IDENTIFICATION: FST-034 SS1-10-93, SS2, SS2 Dup, SS3

SAMPLING TEAM: J Smith, L. Oliff / T. Smith, M Daily
ANALYZING LABORATORY: Core Laboratory
ANALYSES PERFORMED: 8015, 624/8240, 3550

SAMPLE MATRIX: non aqueous (Soil)
QA REPORTING LEVEL: II

FIELD DATA PACKAGE DOCUMENTATION

FIELD SAMPLING LOGS: 1/	REPORTED NO	REPORTED YES	PERFORMANCE ACCEPTABLE NO	PERFORMANCE ACCEPTABLE YES	NOT REQUIRED
1. SAMPLING DATES NOTED		✓		✓	
2. SAMPLING TEAM INDICATED		✓		✓	
3. SAMPLE IDENTIFICATION TRACEABLE TO LOCATION COLLECTED		✓		✓	
4. SAMPLE LOCATION		✓		✓	
5. SAMPLE DEPTH FOR SOILS		✓		✓	
6. COLLECTION TECHNIQUE (BAILER, PUMP ETC		✓		✓	
7. FIELD SAMPLE PREPARATION TECHNIQUES		✓		✓	
8. SAMPLE TYPE (GRAB, COMPOSITE)		✓		✓	
9. SAMPLE CONTAINER TYPE		✓		✓	
10. PRESERVATION METHODS		✓		✓	
11. CHAIN OF CUSTODY FORM COMPLETED		✓		✓	
12. REQUIRED ANALYTICAL METHODS REQUESTED		✓		✓	
13. FIELD (WATER AND SOIL) SAMPLE LOGS COMPLETED PROPERLY AND SIGNED		✓		✓	
14. NUMBER AND TYPE OF FIELD QC SAMPLES COLLECTED (BLANKS, REPLICATES, SPLITS, ETC.)		✓		✓	
15. FIELD EQUIPMENT CALIBRATION		✓		✓	
16. FIELD EQUIPMENT DECONTAMINATION		✓		✓	
17. SAMPLE SHIPPING		✓		✓	
18. LABORATORY TASK ORDER		✓		✓	

1/ FIELD SAMPLING LOGS = WATER AND/OR SOIL/SEDIMENT SAMPLING LOGS

COMMENTS:

DATA VALIDATION CHECKLIST
SECTION ONE CONTINUED

ANALYTICAL DATA PACKAGE DOCUMENTATION

GENERAL INFORMATION

ALL QA REPORTING LEVELS	REPORTED NO	REPORTED YES	PERFORMANCE ACCEPTABLE NO	PERFORMANCE ACCEPTABLE YES	NOT REQUIRED
1. SAMPLE RESULTS		✓		✓	
2. PARAMETERS ANALYZED		✓		✓	
3. METHOD OF ANALYSIS		✓		✓	
4. DETECTION LIMITS OF ANALYSIS		✓		✓	
5. MASTER TRACKING LIST		✓		✓	
6. SAMPLE COLLECTION DATE		✓		✓	
7. LAB SAMPLE RECEIVED DATE		✓		✓	
8. SAMPLE PREPARATION/EXTRACTION DATE		✓		✓	
9. SAMPLE ANALYSIS DATE		✓		✓	
10. COPY OF CHAIN-OF-CUSTODY FORM SIGNED BY THE LAB SAMPLE CUSTODIAN		✓		✓	
11. A NARRATIVE SUMMARY OF QA OR SAMPLE PROBLEMS IS PROVIDED.		✓		✓	

COMMENTS: _____

AFTER COMPLETING SECTION ONE PROCEED TO THE APPROPRIATE QA REPORTING LEVEL OF SECTION TWO (INORGANIC ANALYSES) AND/OR SECTION THREE (ORGANIC ANALYSES). FOLLOWING COMPLETION OF THESE SECTIONS PROCEED TO SECTION FOUR (DATA EVALUATION SUMMARY).

ANALYTICAL DATA VALIDATION CHECKLIST
SECTION TWO

INORGANIC ANALYSES
METALS AND CLASSICAL WET CHEMISTRY METHODS

QA REPORTING LEVEL: I REQUIREMENTS (BATCH SPECIFIC QA)[1]	REPORTED NO	REPORTED YES	IN LIMITS NO	IN LIMITS YES	NOT REQUIRED
1. METHOD BLANKS					
2. MS[2] OR RWS[3] % RECOVERY (%R)					
3. MSD[4] OR RWSD[5] OR LD[6] %R					
4. RPD[7]					

COMMENTS: _____

1/ BATCH SPECIFIC QA: APPLIES TO ANY SAMPLES IN ANALYTICAL BATCH REGARDLESS OF THE SOURCE.
2/ MS = MATRIX SPIKE;
3/ RWS = REAGENT WATER SPIKE;
4/ MSD = MATRIX SPIKE DUP.;
5/ RWSD = REAGENT WATER SPIKE DUP.;
6/ LD = LABORATORY DUPLICATE;
7/ RPD = RELATIVE PERCENT DIFFERENCE

ANALYTICAL DATA VALIDATION CHECKLIST
SECTION TWO

INORGANIC ANALYSES
METALS AND CLASSICAL WET CHEMISTRY METHODS

QA REPORTING LEVEL: II
REQUIREMENTS (BATCH SPECIFIC QA)[1/]

	Reported No	Reported Yes	In Limits No	In Limits Yes	Not Required
1. METHOD BLANKS		✓		✓	
2. MS % RECOVERY (%R)		✓		✓	
3. MSD OR LAB DUPLICATE % R		✓		✓	
4. RWS % R		✓		✓	
5. RWSD % R					✓
6. RPDs FOR MS/MSD, ~~SAMPLE/LD, RWS/RWSD~~					✓
7. LCS[8/] %R		✓		✓	
8. ICVS [9/] %R					✓
					✓

COMMENTS: _____

QA REPORTING LEVEL: III
REQUIREMENTS (SAMPLE SPECIFIC QA)[10/]

1. CALIBRATION CURVE STANDARDS					
2. ICVS %R					
3. CCVS[11/] %R					
4. LCS %R					
5. METHOD BLANKS					
6. ICS[12/] %R (ICP ONLY)					
7. DCS[13/] %R (ICP ONLY)					
8. MS %R					
9. LD OR MSD %R AND RPD					
10. POST DIGESTION ANALYTICAL SPIKE[14/]					

COMMENTS: _____

1/ BATCH SPECIFIC QA: APPLIES TO ANY SAMPLES IN ANALYTICAL BATCH.
2/ MS = MATRIX SPIKE; 3/ RWS = REAGENT WATER SPIKE;
4/ MSD = MATRIX SPIKE DUP.; 5/ RWSD = REAGENT WATER SPIKE DUP.;
6/ LD = LABORATORY DUPLICATE; 7/ RPD = RELATIVE PERCENT DIFFERENCE
8/ LCS = LABORATORY CONTROL SAMPLE;
9/ ICVS = INITIAL CALIBRATION VERIFICATION STANDARD;
10/ SAMPLE SPECIFIC QA: APPLIES TO PROJECT SPECIFIC SAMPLES.
11/ CCVS = CONTINUING CALIBRATION VERIFICATION STANDARD;
12/ ICS = INTERFERENCE CHECK SAMPLE; 13/ DCS = DILUTION CHECK SAMPLE;
14/ POST DIGESTION ANALYTICAL SPIKE APPLIES TO FURNACE AA ONLY;

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ANALYTICAL DATA VALIDATION CHECKLIST
SECTION THREE

ORGANIC ANALYSES

QA REPORTING LEVEL: I
REQUIREMENTS

	Reported No	Reported Yes	In Limits No	In Limits Yes	Not Required
1. WATER BLANKS					
2. EXTRACTION BLANKS					
3. RWS[1/]					
4. RWSD[2/]					
5. RPD[3/]					

COMMENTS:

QA REPORTING LEVEL: II
REQUIREMENTS

A. GAS CHROMATOGRAPHY (NO MASS SPEC) OR WET CHEMISTRY PROCEDURE

	Reported No	Reported Yes	In Limits No	In Limits Yes	Not Required
1. WATER BLANKS		✓		✓	
2. EXTRACTION BLANKS					✓
3. MS[4/] (BATCH SPECIFIC)		✓		✓	
4. MSD[5/] (BATCH SPECIFIC)		✓		✓	
5. LD[6/] (OPTIONAL)					✓
6. MS/MSD RPD OR SAMPLE/LD RPD		✓		✓	
7. RWS					✓
8. RWSD					✓
9. RWS RPD		✓			✓
10. SURROGATE SPIKES		✓		✓	

B. GAS CHROMATOGRAPH/MASS SPECTROMETER

	Reported No	Reported Yes	In Limits No	In Limits Yes	Not Required
1. WATER BLANKS		✓		✓	
2. EXTRACTION BLANKS					✓
3. MS (BATCH SPECIFIC)		✓		✓	
4. MSD (BATCH SPECIFIC)		✓		✓	
5. LD (OPTIONAL)					✓
6. MS/MSD RPD OR SAMPLE/LD RPD		✓		✓	
7. RWS					✓
8. RWSD					✓
9. RWS RPD					✓
10. SURROGATE SPIKES		✓		✓	

COMMENTS:

1/ RWS = REAGENT WATER SPIKE; 2/ RWSD = REAGENT WATER SPIKE DUPLICATE;
3/ RPD = RELATIVE PERCENT DIFFERENCE; 4/ MS = MATRIX SPIKE;
5/ MSD = MATRIX SPIKE DUPLICATE; 6/ LD = LAB DUP

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ANALYTICAL DATA VALIDATION CHECKLIST
SECTION FOUR

DATA EVALUATION SUMMARY Ft. Stewart RFI

PROJECT NAME: Equipment Wash Racks PROJECT NUMBER: FST-084
QA REPORTING LEVEL: II VALIDATION DATE: 93

ALL QA REPORTING LEVELS (I,II,III)

SUMMARY OF CHECKLIST FINDINGS

	Reported No	Reported Yes	Performance Acceptable No	Performance Acceptable Yes	Not Required
1. FIELD MEASUREMENTS OF PH AND SPECIFIC CONDUCTANCE ARE CONSISTENT WITH HISTORICAL DATA		✓		✓	
2. FIELD RECORDS		✓		✓	
3. METHODS (GEN.INFO. SECTION ONE)		✓		✓	
4. HOLDING TIMES (MASTER SAMPLE LIST)		✓		✓	
A. EXTRACTION HOLDING TIMES		✓		✓	
B. ANALYSIS HOLDING TIMES		✓		✓	
5. DETECTION LIMITS (SECTION ONE)		✓		✓	
6. BLANKS (SECTIONS TWO OR THREE)					
A. EQUIPMENT RINSATE BLANKS					✓
B. FIELD BLANKS					✓
C. TRIP BLANKS					✓
D. LABORATORY BLANKS					
7. FIELD REPLICATES		✓		✓	
8. FIELD SPLITS		✓		✓	
9. GEOPHYSICAL COMPARISONS					✓
A. CATION VS ANION					✓
B. TDS VS SPEC. CONDUCTANCE					✓
C. PH VS ALK/ACIDITY					✓
D. OTHER					✓
10. METALS QA DATA (SECTION TWO)		✓		✓	
11. INORGANIC WET CHEMISTRY (SEC. TWO)		✓		✓	
12. ORGANIC QA DATA-GC (SECTION THREE-A)		✓		✓	
13. ORGANIC WET CHEMISTRY (SEC. THREE-A)		✓		✓	
14. ORGANIC QA DATA-GC/MS (SEC. THREE-B)		✓		✓	

AFTER COMPLETING THIS SECTION GO TO SECTION FIVE.
COMMENTS:

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ANALYTICAL DATA VALIDATION CHECKLIST
SECTION FIVE

DATA VALIDATION CODING Ft. Stewart RFI

PROJECT NAME: Equipment Wash Rack PROJECT NUMBER: EST-034
QA REPORTING LEVEL: IV VALIDATION DATE: 21 Dec 93

1. QUALIFIER CODES ASSIGNED TO DATA: R, U, J, U/J, B, NO FLAG

2. IDENTIFICATION OF SAMPLES AND PARAMETERS WITH CODES:

	SAMPLE ID	PARAMETERS
R CODE		
B CODE		
U CODE		
J CODE		
U/J CODE		

EXPLANATION: all acceptable

VALIDATION PERFORMED BY: Frauz Fadelicker

SIGNED:

DATE: 21 Dec 93