

SURVEY REQUEST FORM

SR NUMBER	SR-21	DATE ISSUED	4/7/06		
TYPE OF SR	<input type="checkbox"/> FSS <input checked="" type="checkbox"/> CHARACTERIZATION <input type="checkbox"/> OTHER:				
AREA / LOCATION	Waste Treatment Facility Property on Taylor Road				
PURPOSE	Characterization of the Waste Treatment Facility Property by performing surveys with sodium iodide detectors, and obtaining biased and non-biased samples. The area is approximately 49,800 ft ² .				
SURVEY DESIGN NUMBER	N/A	AREA CLASSIFICATION	Non-Impacted		
SURVEY UNIT NUMBERS	N/A	GRID NUMBERS	A-1 – A-5, B-1 – B-5, C-1 – C-5, D-1 – D-5, E-1 – E-5, F-3 – F-5		
SAMPLE TYPE					
<input checked="" type="checkbox"/> SURFACE SOIL SAMPLE: See page 3 for specific instructions					
<input type="checkbox"/> SUB-SURFACE SOIL SAMPLE:					
<input type="checkbox"/> SMEAR SAMPLE:					
<input type="checkbox"/> SEDIMENT SAMPLE:					
<input type="checkbox"/> CORE SAMPLE:					
<input type="checkbox"/> WATER SAMPLE:					
<input type="checkbox"/> OTHER:					
SURVEY TYPE					
SURFACE SCAN	<input type="checkbox"/> BETA <input checked="" type="checkbox"/> GAMMA <input type="checkbox"/> ALPHA	INST. TYPE	Ludlum 2350-1	SCAN RATE & DETECTOR DISTANCE FROM SURFACE	Detector shall be held within 4 inches from the surface and moved in a serpentine pattern at a speed not to exceed 10 inches per second.
		PROBE TYPE	44-10 Cs-137 window		
SURFACE SCAN	<input type="checkbox"/> BETA <input type="checkbox"/> GAMMA <input type="checkbox"/> ALPHA	INST. TYPE		SCAN RATE & DETECTOR DISTANCE FROM SURFACE	
		PROBE TYPE			
STATIC MEASURE- MENT	<input type="checkbox"/> BETA <input checked="" type="checkbox"/> GAMMA <input type="checkbox"/> ALPHA	INST. TYPE	Ludlum 2350-1	COUNT TIME & DETECTOR DISTANCE FROM SURFACE	Detector shall be held within 4 inches from the surface. Count time shall be 1 minute.
		PROBE TYPE	44-10 Cs-137 window		
STATIC MEASURE- MENT	<input type="checkbox"/> BETA <input type="checkbox"/> GAMMA <input type="checkbox"/> ALPHA	INST. TYPE		COUNT TIME & DETECTOR DISTANCE FROM SURFACE	
		PROBE TYPE			
OTHER					

Form
CS-01/1
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SURVEY REQUEST FORM

SR NUMBER

SR-21

AREA / LOCATION

Waste Treatment Facility Property

SPECIFIC SAMPLING & SURVEYING INSTRUCTIONS / COMMENTS

Prerequisites and General Requirements

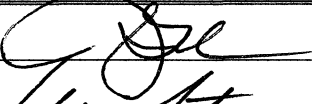


1. An initial pre-job briefing is required with FSS/Characterization Technicians and the FSS/Characterization supervisor prior to the start of surveying/sampling. Subsequent briefings will be at the discretion of the FSS/Characterization Supervisor.
2. Review the JSA and adhere to all precautionary requirements.
3. Scanning or static measurement activities shall not be performed when the ambient air temperature is below 32 degrees Fahrenheit
4. Anomalies, obstructions or other problems encountered in performing the samples shall be documented on a Survey Request Continuation Sheet.
5. Photographs shall be taken to show the physical condition of the area and the grid and sample markers.
6. The FSS/Characterization Manager may select additional areas to be surveyed and/or sampled under this SR.

Quality Control (QC) Measurements

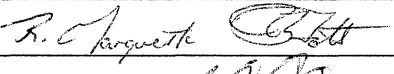
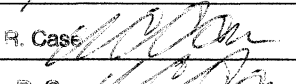
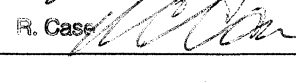
A minimum of 5% of all scan and static measurements will be duplicated or repeated using identical methodology contained in this SR. (Document as separate surveys. Be sure to reference download number on the survey form.) QC scan and static measurement should be performed within 24 hours of the original survey.

A minimum of 5% of all samples collected shall be fully homogenized, split, and submitted for independent analyses. To obtain a QC sample, thoroughly mix the sample material obtained from the selected sample point and divide into two equal samples. Clearly label one of the samples as the QC sample.

APPROVAL SIGNATURES

FSS/CHARACTERIZATION SUPERVISOR	J. Graham / 	DATE	4/7/06
FSS/CHARACTERIZATION MANAGER	W. Stoner / 	DATE	4/7/06
NASA PROJECT RSO	W. Stoner / 	DATE	4/7/06

SR CLOSURE

FSS/CHARACTERIZATION SUPERVISOR	R. Case / 	DATE	4-26-06
FSS/CHARACTERIZATION MANAGER	R. Case / 	DATE	4/26/06
NASA PROJECT RSO	R. Case / 	DATE	4/26/06

SURVEY REQUEST CONTINUATION SHEET

SR NUMBER

SR-21

AREA / LOCATION

Waste Treatment Facility Property

SPECIFIC SAMPLING & SURVEYING INSTRUCTIONS / COMMENTS

Scanning with a Ludlum 2350-1 and a 44-10 2X2 NaI detector with a Cs-137 Window

1. The Waste Treatment Facility Property shall be marked into 50 ft. by 50 ft. grids prior to the start of scanning. (See map on page 5). Label each grid with a letter/number combination starting with **A-1** at the 0,0 coordinate as shown on the map. The numbers will increment on the X-axis, the letters to increment on the Y-axis.
2. Perform a 100% scan of each grid in accordance with Section 4.3 of Procedure CS-01, "Survey Methodology to Support PBRF License Termination."
3. The scan investigation level for this survey shall be **≥ 300 gross CPM**. This investigation level is based on studies performed to establish similar criteria for the Pentolite Ditch Characterization. (Reference Survey Package Number A2300 101P4, Appendix B, Support Documentation.)
4. Areas indicating activity **≥ 300 gross CPM** shall be investigated in accordance with Step 4.3.4.4 of Procedure CS-01, "Survey Methodology to Support PBRF License Termination."
5. Label each point selected for a biased sample with a sequential number (i.e. IP-1, IP-2, etc.)
6. Be sure to obtain sufficient static measurements in accordance with Step 4.3.5 to adequately bound and provide follow-up sampling locations if required.

Surface Soil Sampling

1. Observe the "Prerequisites and Special Instructions" on Page 2 of this SR.
2. Obtain samples at each of the non-biased sample locations as indicated on the map on Page 5, and at the biased sample points as identified in Step 4 above.
3. Collect a surface sample in accordance with Section 4.2.2 of procedure CS-01.
4. Assign each sample a sample number in accordance with Step 4.2.1.3 of procedure CS-01 (SR-21-1, SR21-2, etc.).
5. In the sample location/description indicate the Grid number and sample point.
6. Plot each sample location with the GPS mapping system.
7. When the sample points have been plotted, remove all flags from the lot.

SURVEY REQUEST SAMPLE ANALYSIS SHEET			
SR NUMBER	SR-21	AREA / LOCATION	Waste Treatment Facility Property
REQUESTED SAMPLE ANALYSIS			
SAMPLE TYPE	RADIONUCLIDE	REQUIRED COUNTING SYSTEM MDA	COMMENTS / ADDITIONAL INSTRUCTIONS
Soil	Cs-137	0.2 pCi/g	Other analyses (e.g., TRU or HTD) may be performed as requested by the FSS/Characterization Manager.
Soil	Co-60	0.2 pCi/g	

Form
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SURVEY REQUEST CONTINUATION SHEET

SR NUMBER

SR-21

AREA / LOCATION

Waste Treatment Facility Property

SPECIFIC SAMPLING & SURVEYING INSTRUCTIONS / COMMENTS

Sampling Plan for non-biased samples

The starting coordinate (0,0 point) is the Southern corner of the area 33 ft. west of Taylor Road and 106.3 ft. from the telephone pole on the west side of Taylor Road..

Label each grid with a letter/number combination starting with A-1 at the 0,0 coordinate as shown on the map. The numbers will increment on the X-axis, the letters to increment on the Y-axis

Sample locations

Sample Point	X (ft)	Y (ft)
1	21.1	17.5
2	21.1	119.3
3	50.5	68.4
4	50.5	170.1
5	79.8	17.5
6	79.8	119.3
7	109.2	68.4
8	109.2	170.1
9	138.6	17.5
10	138.6	119.3
11	138.6	221.0
12	168.0	68.4
13	168.0	170.1
14	197.3	17.5
15	197.3	119.3
16	197.3	221.0

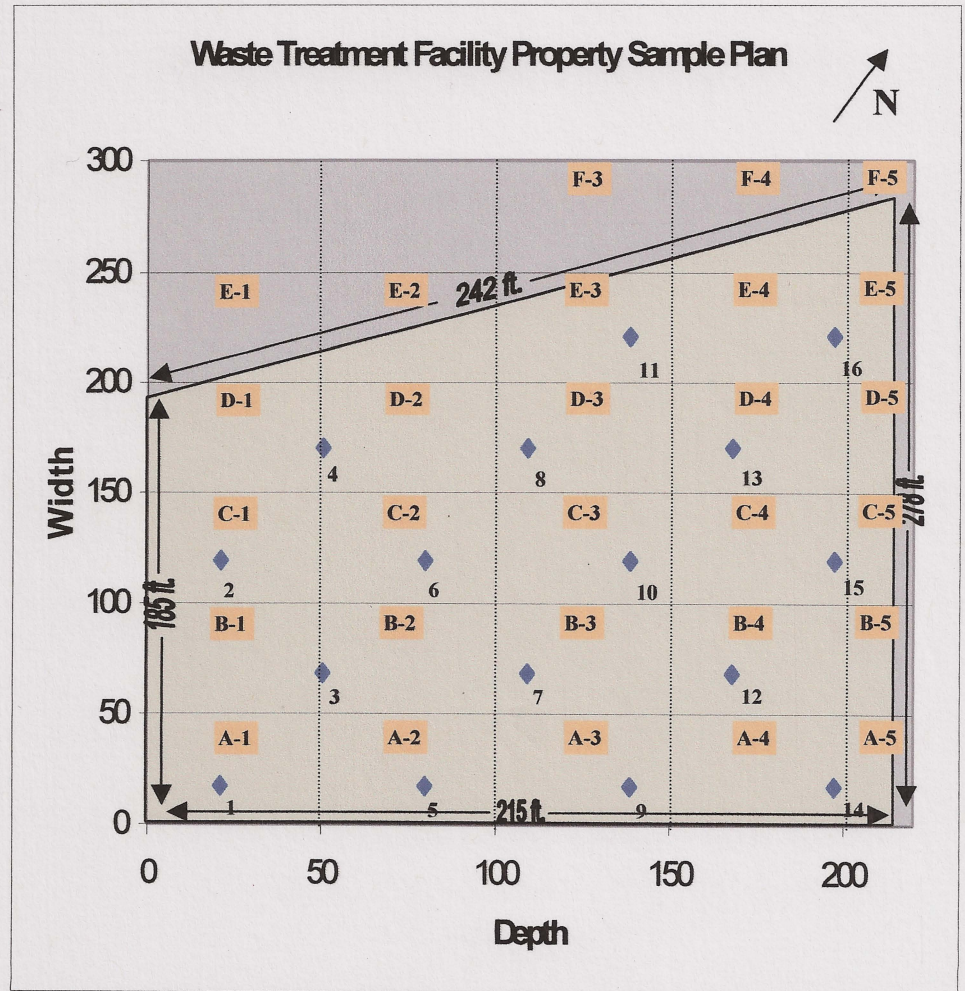


Table 3-1 Job Safety Analysis Form

WORK PLACE DESCRIPTION/LOCATION:	Plum Brook Creek		
ACTIVITY: <u>Survey and Sampling</u>	PREPARED BY/DATE:	<u>R. Marquette</u> <u>11/6/05</u>	REVIEWED BY/DATE: <u>[Signature]</u> <u>11-10-05</u>
CERTIFICATION OF HAZARD ASSESSMENT AND REQUIRED PERSONAL PROTECTIVE EQUIPMENT			
(NAME/DATE): <u>[Signature]</u> <u>11-7-05</u>			

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS	REQUIRED PERSONAL PROTECTIVE EQUIPMENT
Access to sample locations	HIGHWAY HAZARD: Access to sample areas is adjacent to highways.	Park vehicles off highway. Observe all highway signs and laws. Be vigilant for moving traffic while working near or when crossing roads.	High visibility vests
All	SLIP, TRIP, FALL HAZARDS: Survey areas are located in the Plum Brook Creek bed. Access is via steep sides that are overgrown and/or rock covered.	Sturdy hiking boots should be worn. Waterproof footwear is recommended.	Safety toe durable boots meeting ANSI Z41.
All	EYE HAZARDS: Thick undergrowth at access points and in creek bed.	Proceed carefully through brush areas. Some areas may require brush clearing prior to entry.	ANSI Z87 safety glasses
Performing survey and sampling activities	MATERIAL HANDLING AND HAND HAZARDS: Sharp objects and tools	Exercise caution when moving stones and performing digging (sampling) operations.	Wear leather (or Kevlar) gloves when digging and handling sharp objects
Performing survey and sampling activities	BIOLOGICAL HAZARDS: Bees, Wasps, Spiders, poison ivy, etc.	Use insecticide where appropriate. Avoid using perfumes, aftershave lotions, scented soaps, etc. that may attract insects.	Appropriate light colored clothing i.e. work gloves, long sleeved shirt and pants.

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS	REQUIRED PERSONAL PROTECTIVE EQUIPMENT
All	CHEMICAL EXPOSURE HAZARDS	MSDSs will be obtained and kept on file at the project for any chemical used. HMIS labels will be on all chemical containers.	Any recommended PPE from MSDSs.
Performing survey and sampling activities	WILDLIFE HAZARDS: Snakes, small animals, etc.	Do not intentionally disturb any wildlife. Notify the FSS/characterization supervisor if work activities cannot be performed due to the presence of wildlife.	None
All	Communication Difficulties	A communication device, such as a cell phone, shall be used. The "Buddy System" is required.	None
Breaking the soil surface during sampling activities.	Underground utilities hazard	Ensure excavation permit is in place prior to sampling on Plum Brook Station property. Verify through excavation competent person that proper notification has been made and that utilities have been identified prior to performing sampling activities on non-Plum Brook Station properties.	None

List of Equipment to be used:	Training:	Inspections:
Survey instrumentation and equipment necessary for soil sample collection.	RCTs shall be qualified to use survey instruments required by the SR. RCTs shall be trained on sample collection techniques.	See CS-1

SURVEY REQUEST CONTINUATION SHEET**SR NUMBER****SR-21****AREA / LOCATION****Waste Treatment Facility Property****SPECIFIC SAMPLING AND SURVEYING INSTRUCTIONS / COMMENTS****SURVEY REQUEST CLOSE-OUT SUMMARY****Background:**

Survey Request # 21 was generated to perform characterization of the land area that was the site of the Waste Treatment Facility, which was demolished and removed in 2004.

The purpose of this Survey Request was to scan the open land of the area and collect samples based on areas indicating elevated activity. An additional 16 sample locations were selected based on a systematic sampling pattern.

Number and types of surveys / samples taken:

SR-21 required a 100% surface scan of the open land area utilizing a Ludlum 2350-1 with a 44-10 NaI detector in the Cs-137 window configuration. A 1-minute static reading was directed for any location identified as being above the Investigation Level (300 gcpm). No areas were identified on the surveys performed as being above the Investigation level.

A total of 17 surface soil samples were obtained from the 16 systematic sample locations. This includes 1 QC sample, which represents 6.3% of the total samples obtained.

Summary of Soil Sample Results:

A total of 9 of the collected samples indicated the presence of Cs-137 while none of the samples were positive for Co-60. The maximum Cs-137 concentration was 0.35 pCi/g located at sample point # 2.

The average Cs-137 concentration for this area was 0.19 pCi/g.

See the attached "SR-21 Sample Results" for a complete list of all samples and sample analysis results.

Summary of Scan and/or Static Measurements:

Scanning of the area indicated an average gross activity between 100 and 230 gross CPM. No areas were identified as being above the investigation level for the SR.

Problems encountered during surveying/sampling:

None

Summary of QC survey and sample results, including corrective actions taken when acceptance criteria are not met.

5000 ft² of area was scanned for QC, which represents ~ 10% of the survey area. All QC surface scans met the acceptance criteria of section 4.5.2.4.

1 QC soil sample was obtained, which was 6.3% of the total samples. The QC soil sample met the acceptance criteria of section 4.5.2.4.

SURVEY REQUEST CONTINUATION SHEET**SR NUMBER****SR-21****AREA / LOCATION****Waste Treatment Facility Property****SPECIFIC SAMPLING AND SURVEYING INSTRUCTIONS / COMMENTS****SURVEY REQUEST CLOSE-OUT SUMMARY (continued)****Comparison of survey verification results versus the area classification:**

This survey area does meet the criteria for a non-impacted area.

Conclusion / Recommendations:

Additional subsurface sampling should be performed to the depth of the foundations of the previous structures located in the area to determine if subsurface activity is present.



FSS/Characterization Supervisor (print/sign)

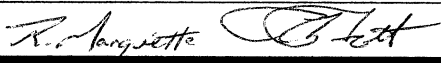
4.26.06
Date

R. Case 

FSS/Characterization Manager (print/sign)

4/26/06
Date

SURVEY DATA VERIFICATION AND VALIDATION FORM

Survey Unit Number or Location Description	Waste Treatment Facility Property on Taylor Road	Survey Request Number	SR-21		
Check the appropriate answer for each question below.			Yes	No	N/A
1. Was each radiological instrument capable of detecting the radiation of interest at or below the investigation level? If not, acceptable compensatory measures have been taken.			X		
2. Did each radiological instrument have a current calibration traceable to NIST standards?			X		
3. Were radiological instruments source checked daily (before and after use) and did the instruments successfully pass?			X		
4. Were survey team personnel properly trained in the applicable survey techniques and was the training adequately documented?			X		
5. Were the MDCs and the assumptions used to develop them appropriate for the instruments and survey methods used to collect the data?			X		
6. Were the survey methods appropriate for the media and types of radiation being measured?			X		
7. Were the samples adequately tracked from their collection point and through the analysis process in accordance with the sample chain-of-custody requirements?			X		
8. Were the samples/surveys collected in accordance with the Survey Request (SR) package?			X		
9. Were the samples/surveys representative of current site conditions?			X		
10. If SR investigation levels were exceeded, was appropriate action taken?					X
11. Were at least 5% of all survey and/or sample points re-sampled and/or re-surveyed using identical methodology contained in the SR per Section 4.5.2?			X		
12. Were the samples analyzed in accordance with requirements contained in the SR Sample Analysis Sheet (Exhibit 3) and did the analyses meet the required MDAs (minimum 10% of the DCGL)?			X		
13. Were all static and scan measurement data and sample point locations properly documented?			X		
14. Has a summary of surveying/sampling results been developed per Step 4.6.4?			X		
<p>NOTE: If the question does not apply to the SR, check the N/A (not applicable) box. If a "No" answer is obtained above, the FSS/Characterization Supervisor should initiate corrective action in accordance with site procedures. Document actions taken and/or justifications in the "Comments" section below. Attach additional sheets as necessary.</p> <p>Comments:</p> 					
FSS/Characterization Supervisor (print/sign)				Date	4-26-06

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SR-21 - SOIL SAMPLES

SR-21 Sample Results

SR-21 Sample Results													
Sample Log #	Sample #	Location	Field Measurement		Weight (g)	Cs-137		Co-60		% Unity	Cs:Co	Cs-137	Co-60
			Contact (cpm)	1 Meter (cpm)		DCGL _(eff)	11.71	DCGL	3.8			MDA	MDA
						pCi/g	2σ	pCi/g	2σ			pCi/g	pCi/g
PB06-01467	SR21-1	A1-SP1			348.8	1.69E-01	8.16E-02	<MDA		1%	N/A		6.37E-02
PB06-01468	SR21-2	A1-SP1Q			350.4	1.64E-01	7.18E-02	<MDA		1%	N/A		6.34E-02
PB06-01469	SR21-3	C1-SP2			335.7	3.53E-01	1.00E-01	<MDA		3%	N/A		7.27E-02
PB06-01470	SR21-4	B2-SP3			419.0	1.63E-01	7.79E-02	<MDA		1%	N/A		5.30E-02
PB06-01471	SR21-5	D2-SP4			415.1	<MDA		<MDA		0%	N/A	5.75E-02	5.35E-02
PB06-01472	SR21-6	A2-SP5			386.2	3.29E-01	8.03E-02	<MDA		3%	N/A		9.69E-02
PB06-01477	SR21-7	C2-SP6			407.4	<MDA		<MDA		0%	N/A	4.62E-02	5.46E-02
PB06-01478	SR21-8	B3-SP7			416.6	<MDA		<MDA		0%	N/A	4.05E-02	5.34E-02
PB06-01479	SR21-9	D3-SP8			416.3	1.18E-01	5.47E-02	<MDA		1%	N/A		5.34E-02
PB06-01480	SR21-10	A3-SP9			388.6	<MDA		<MDA		0%	N/A	5.50E-02	5.72E-02
PB06-01483	SR21-11	C3-SP10			377.6	1.49E-01	5.44E-02	<MDA		1%	N/A		5.89E-02
PB06-01484	SR21-12	E3-SP11			430.3	1.16E-01	5.58E-02	<MDA		1%	N/A		5.17E-02
PB06-01485	SR21-13	B4-SP12			420.6	<MDA		<MDA		0%	N/A	7.06E-02	5.28E-02
PB06-01486	SR21-14	D4-SP13			423.6	<MDA		<MDA		0%	N/A	4.34E-02	5.25E-02
PB06-01493	SR21-15	A4-SP14			390.7	1.00E-01	4.39E-02	<MDA		1%	N/A		5.69E-02
PB06-01494	SR21-16	C4-SP15			410.6	<MDA		<MDA		0%	N/A	4.11E-02	5.41E-02
PB06-01495	SR21-17	E4-SP16			442.0	<MDA		<MDA		0%	N/A	4.26E-02	5.03E-02
Number					17	9	9	0	0	17	0	8	17
Max					442.0	3.53E-01	1.00E-01			3.01E-02		7.06E-02	9.69E-02
Avg					398.8	1.85E-01	6.89E-02			8.34E-03		4.96E-02	5.88E-02
SD					30.68	9.21E-02	1.79E-02			9.83E-03			
Conf Int +/-					5.02	2.07E-02	4.02E-03			0%			

= >50% Unity

= >100% Unity

SR-21 QC Sample Data					
HPGe Log #	Sample #	Location	Weight (g)	Cs-137 pCi/g	Co-60 pCi/g
PB06-01467	SR21-1	A1-SP1	348.8	1.69E-01	<MDA
PB06-01468	SR21-2	A1-SP1Q	350.4	1.64E-01	<MDA

Field Sample Collection & Chain of Custody Log

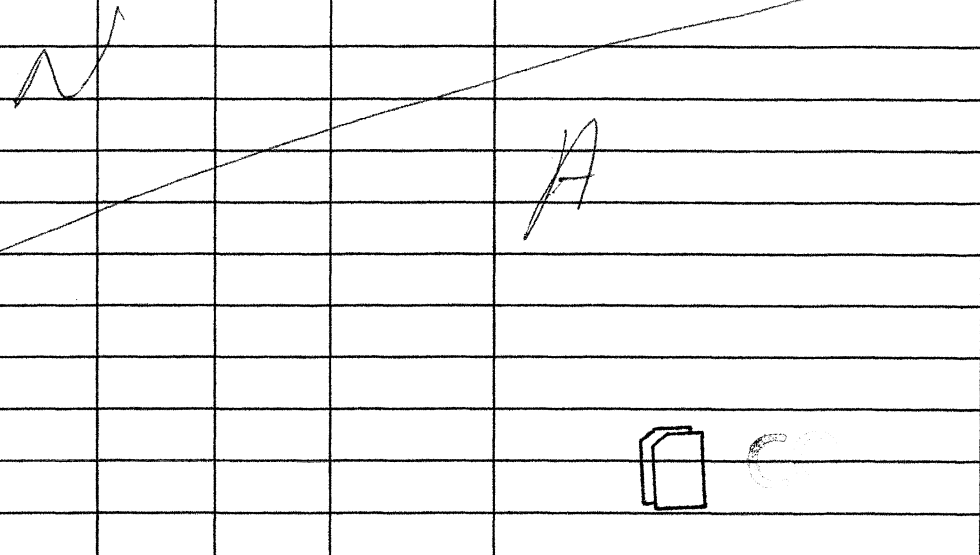
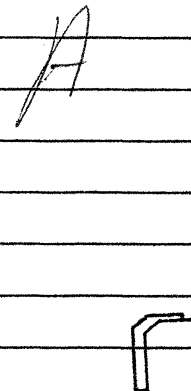
[illegible]

Field Sample Collection & Chain of Custody Form

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SR -	21	COC -	1	Samples Collected By		SORG		
Sample Number	Sample Location/Description	Sample Matrix	Sample Date	Sample Time	Sample Volume or Weight	Comments	HpGe Number	
SR21-1	A1-SP1	SOIL	4-11-06	1050	1L	348.8 g	P006-01467	
SR21-2	A1-SP1Q	SOIL	4-11-06	1052	1L	350.4 g	P006-01468	
SR21-3	A ⁴⁻¹¹⁻⁰⁶ _{SS} C1-SP2			1055		335.7g	P006-01469	
SR21-4	B2-SP3			1058		419.0g	P006-01470	
SR21-5	D2-SP4			1100		415.1g	P006-01471	
SR21-6	A2-SP5			1105		386.2g	P006-01472	
SR21-7	C2-SP6			1108		407.4g	P006-01477	
SR21-8	B3-SP7			1110		416.6g	P006-01478	
SR21-9	D3-SP8			1114		416.3g	P006-01479	
SR21-10	A3-SP9			1230		398.6g	P006-01480	
SR21-11	C3-SP10			1235		377.6g	P006-01483	
SR21-12	E3-SP11			1238		430.3g	P006-01484	
SR21-13	B4-SP12			1242		420.6 g	P006-01485	
SR21-14	D4-SP13			1245		423.6g	P006-01486	
SR21-15	A4-SP14	↓	↓	1248	↓	390.7g	P006-01493	
Comments								
Relinquished By (Print/Sign)		Received By (Print/Sign)		Date	Time	Location Transferred To (as applicable)		
J. SORG / <i>[Signature]</i>		R. DUNN / <i>[Signature]</i>		4-11-06	1430	SOIL PROCESS		
J. SORG / <i>[Signature]</i>		A. HOFF / <i>[Signature]</i>		4-12-06	1450	COUNT LAB		
A. HOFF / <i>[Signature]</i>		J. SORG / <i>[Signature]</i>		4-14-06	0735	ARCHIVE CONEX		

Form
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SR -	COC -	2	Samples Collected By			SORG	
Sample Number	Sample Location/Description	Sample Matrix	Sample Date	Sample Time	Sample Volume or Weight	Comments	HpGe Number
SR21-16	L4 - SP15	SOIL	4-11-06	1252	1L		
SR21-17	E4 - SP16	↓	↓	1300	1L	410.6 g 442.0 g	P006-01494 P006-01495
							
							
Comments							
Relinquished By (Print/Sign)		Received By (Print/Sign)		Date	Time	Location Transferred To (as applicable)	
J. SORG / [Signature]		R. ZUJAN / [Signature]		4-11-06	1436	Soil PROCESS	
J. SORG / [Signature]		A. HUFF / [Signature]		4-12-06	1450	COUNT LAB	
A. HUFF / [Signature]		J. SORG		4-14-06	0700	ARCHIVE CONEX	



SR-21 Waste Treatment Facility Property

4/10/06 @ 1100

Picture taken from the East corner of the map,
looking Southwest.



SR-21 WASTE TREATMENT FACILITY PROPERTY

4/10/06 @ 1100

Picture taken at the Southern corner of the map,
looking North



SR-21 WASTE TREATMENT FACILITY PROPERTY

4/10/06 @ 1100

Picture taken at the Southern corner of the map,
looking Northeast

APPENDIX A RADIATION PROTECTION SURVEY FORM

Page 1 of 2

Location: <u>WASTE TREATMENT FACILITY</u> <u>SR-21 DOWNLOAD # 91</u>					RWP: PB-06- <u>N/A</u>
Instrument(s)					Date: <u>4-10-06</u>
Model	S/N	Cal. Due	Bkg / cpm	MDA / dpm	Time: <u>0826</u>
<u>2350/44-10</u>	<u>203470/196941</u>	<u>12-28-06/12-28-06</u>	<u>92</u>	<u>N</u>	Survey #: <u>NASA-06-1035</u>
<u>N</u>	<u>N</u>	<u>N</u>	<u>N</u>	<u>N</u>	Smear #
<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	&
					Location
					Contamination (dpm/100cm ²)
					β γ α

Reason for Survey:

☐ Daily ☐ Job Coverage
☐ Weekly ☒ Other: CHARACTERIZATION

☐ Dose rates in mR/hr unless otherwise noted
☐ Dose rates in μR/hr unless otherwise noted
☒ N/A

1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11	<u>N</u>	<u>A</u>
12		
13		
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25		

GRIDS A 50'x50'
SCAN SURVEY

F

E

D

C

B

A

Legend

xxxx - Radiological boundary

x-x-x - Contaminated area

- General area dose rate

*Contact/30cm dose rates

O - Smear location

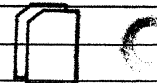
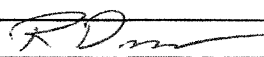
LAS - Large area smear

- Direct frisk

A/S - Air sampler location

Performed by: (print/sign/date)
R D 210N 92 4-10-06
R D m

Reviewed by: (sign/date)
R J Wanner 4-11-06

SR Number		SR-21	Instrument #	203470	Technician(s):		RJD6589	Survey Number	NASA-06-1035
Log #	Location	Date	Time	Det. #	Measurement	Count Time	Type	Comments	
0	PRE BKG	4/10/2006	6:55	5	34	60	SCL		
1	PRE SRC	4/10/2006	7:26	5	5350	60	SCL		
2	SR21 WTF	4/10/2006	8:26	5	64	0	RAT		
3	SR21 BKG	4/10/2006	8:27	5	92	60	SCL		
4	SR21 SCN	4/10/2006	8:28	5	100	0	RAT		
5	SR21 SCN	4/10/2006	13:15	5	100	0	RAT		
6	POST BKG	4/10/2006	13:57	5	41	60	SCL		
7	POST SRC	4/10/2006	14:05	5	5291	60	SCL		
Detector #5 is 44-10 w/ Cs window.									
BKG = Background; SRC = Source; SCL = Scalar count; RAT = Rate count; SR = Survey Request; WTF = Waste Treatment Facility; SCN = Scan survey									
Survey downloaded by J. Sorg and performed by R. Dzvonar. 									

RJD 4-25-06

APPENDIX A **RADIATION PROTECTION SURVEY FORM**

Page 1 of 2

Location: <u>WATER TREATMENT FACILITY</u>					SR#: <u>21</u> DL#: <u>89</u>		RWP: PB-06- <u>N/A</u>																																		
Instrument(s)							Date: <u>4-10-06</u>																																		
Model	S/N	Cal. Due	Bkg / cpm	MDA / dpm	Time: <u>0830</u>																																				
<u>2350/44-10</u>	<u>203443/220132</u>	<u>2-13-06</u>	<u>104</u>	<u>N/A</u>	Survey #: <u>NASA-06-1036</u>																																				
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	Smear # & Location		Contamination (dpm/100cm ²) β γ α																																		
Reason for Survey: <input type="checkbox"/> Daily <input type="checkbox"/> Job Coverage <input type="checkbox"/> Dose rates in mr/hr unless otherwise noted <input type="checkbox"/> Weekly <input checked="" type="checkbox"/> Characterization <input type="checkbox"/> Dose rates in μ r/hr unless otherwise noted <input checked="" type="checkbox"/> N/A					1																																				
					2																																				
					3																																				
<p>GRIDS ARE 50' X 50' EXCEPT COLUMN #5. COUNTS ARE IN GCPM</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td colspan="2" rowspan="2"></td> <td colspan="2" rowspan="2">140-220</td> <td colspan="2" rowspan="2"></td> <td colspan="2" rowspan="2">COLUMN #5 IS 50' X 15'</td> </tr> <tr></tr> <tr> <td>E</td> <td>140-190</td> <td>100-200</td> <td></td> <td></td> </tr> <tr> <td>D</td> <td>150-230</td> <td>130-210</td> <td>120-180</td> <td></td> </tr> <tr> <td>C</td> <td>140-210</td> <td>130-200</td> <td></td> <td></td> </tr> <tr> <td>B</td> <td>120-180</td> <td>120-200</td> <td>130-200</td> <td></td> </tr> <tr> <td>A</td> <td>110-170</td> <td>120-190</td> <td></td> <td></td> </tr> </table>							140-220				COLUMN #5 IS 50' X 15'		E	140-190	100-200			D	150-230	130-210	120-180		C	140-210	130-200			B	120-180	120-200	130-200		A	110-170	120-190			4			
															140-220				COLUMN #5 IS 50' X 15'																						
					E	140-190	100-200																																		
					D	150-230	130-210	120-180																																	
					C	140-210	130-200																																		
					B	120-180	120-200	130-200																																	
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					<p align="center">Legend</p> xxxx - Radiological boundary x-x-x - Contaminated area # - General area dose rate *Contact/30cm dose rates O - Smear location LAS - Large area smear # - Direct frisk A/S - Air sampler location																																				
					Performed by: (print/sign/date) <u>J. SORGE</u> <u>4-10-06</u>																																				
					Reviewed by: (sign/date) <u>R. H. HANNA</u> <u>4-11-06</u>																																				

PERFORMED LS WINDOW GAMMA SCANS OF GRIDS A2, B2, C2, D2, E2, A4, B4, C4, D4, E4, F4, B5, AND D5. SCAN RESULTS AS INDICATED ABOVE.

SR Number		SR-21	Instrument #		203443	Technician(s):		JGS8492	Survey Number	NASA-06-1036
Log #	Location	Date	Time	Det. #	Measurement	Count Time	Type	Comments		
0	PRE BKG	4/10/2006	7:01	5	32	60	SCL			
1	PRE SRC	4/10/2006	7:32	5	6566	60	SCL			
2	SR21 WTF	4/10/2006	8:30	5	110	0	RAT			
3	SR21 BKG	4/10/2006	8:32	5	104	60	SCL			
4	SR21 SCN	4/10/2006	8:32	5	96	0	RAT			
5	SR21 SCN	4/10/2006	13:15	5	90	0	RAT			
6	POST BKG	4/10/2006	13:55	5	43	60	SCL			
7	POST SRC	4/10/2006	14:02	5	6616	60	SCL			
Detector #5 is 44-10 w/ Cs window.										
BKG = Background; SRC = Source; SCL = Scalar count; RAT = Rate count; SR = Survey Request; WTF = Waste Treatment Facility; SCN = Scan survey										
Survey downloaded and performed by J. Sorg. <i>Joe Sorg</i>										

R/W 4-25-06

APPENDIX A **RADIATION PROTECTION SURVEY FORM**

Page 1 of 2

Location: <u>WASTE TREATMENT FACILITY SR-21 DONALD # 92</u>					RWP: PB-06- <u>N/A</u>
Instrument(s)					Date: <u>4-10-06</u>
Model	S/N	Cal. Due	Bkg / cpm	MDA / dpm	Time: <u>1326</u>
<u>2350 / 4410</u>	<u>203470 / 196941</u>	<u>12-28-06 / 12-28-06</u>	<u>92</u>	<u>N</u>	Survey #: <u>NASA-06-1037</u>
<u>N</u>	<u>N</u>	<u>N</u>	<u>N</u>	<u>N</u>	Smear #
<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	&
Reason for Survey:					Location
<input type="checkbox"/> Daily		<input type="checkbox"/> Job Coverage		<input type="checkbox"/> Contamination (dpm/100cm ²)	
<input type="checkbox"/> Weekly		<input checked="" type="checkbox"/> Other: <u>CHARACTERIZATION</u>		<input type="checkbox"/> β <input type="checkbox"/> γ <input type="checkbox"/> α	
<input type="checkbox"/> Dose rates in mR/hr unless otherwise noted					1
<input type="checkbox"/> Dose rates in μ R/hr unless otherwise noted					2
<input checked="" type="checkbox"/> N/A					3
<p><u>GRIDS 50' x 50'</u></p> <p><u>QC SCAN SURVEY</u></p>					4
					5
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					21
					22
					23
					24
					25

Legend

xxxx - Radiological boundary

x-x-x- Contaminated area

- General area dose rate

*Contact/30cm dose rates

O - Smear location

LAS - Large area smear

- Direct frisk

A/S - Air sampler location

Performed by: (print/sign/date)

RD205NAK 4-10-06

RDm

Reviewed by: (sign/date)

R/Warrant 4-11-06

SR Number		SR-21	Instrument #	203470		Technician(s):		RJD6589	Survey Number	NASA-06-1037
Log #	Location	Date	Time	Det. #	Measurement	Count Time	Type	Comments		
0	PRE BKG	4/10/2006	6:55	5	34	60	SCL			
1	PRE SRC	4/10/2006	7:26	5	5350	60	SCL			
2	SR21 WTF	4/10/2006	8:26	5	64	0	RAT			
3	SR21 BKG	4/10/2006	8:27	5	92	60	SCL			
4	A4 SCNQ	4/10/2006	13:26	5	101	0	RAT			
5	A4 SCNQ	4/10/2006	13:45	5	37	0	RAT			
6	POST BKG	4/10/2006	13:57	5	41	60	SCL			
7	POST SRC	4/10/2006	14:05	5	5291	60	SCL			
Detector #5 is 44-10 w/ Cs window.										
BKG = Background; SRC = Source; SCL = Scalar count; RAT = Rate count; SR = Survey Request; WTF = Waste Treatment Facility; SCNQ = Quality Control scan survey; A4 = Grid number A4										
Survey downloaded by J. Sorg and performed by R. Dzvonar.										

RJD
R/LW 4-25-06

APPENDIX A **RADIATION PROTECTION SURVEY FORM**

Page 1 of 2

Location: <u>WATER TREATMENT FACILITY</u>					SR#: <u>21</u> DL#: <u>90</u>	RWP: <u>PB-06- N/A</u>
Instrument(s)					Date: <u>4-10-06</u>	
Model	S/N	Cal. Due	Bkg / cpm	MDA / dpm	Time: <u>1323</u>	
<u>2750/44-10</u>	<u>203443/220132</u>	<u>2-13-06</u>	<u>104</u>		Survey #: <u>NASA-06-1038</u>	
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	Smear #	Contamination
					&	(dpm/100cm ²)
					Location	β γ α
Reason for Survey: <input type="checkbox"/> Daily <input type="checkbox"/> Job Coverage <input type="checkbox"/> Dose rates in mR/hr unless otherwise noted <input type="checkbox"/> Weekly <input checked="" type="checkbox"/> Characterization <input type="checkbox"/> Dose rates in μ R/hr unless otherwise noted <input checked="" type="checkbox"/> N/A					1	
					2	
GRIDS ARE 50' X 50' EXCEPT COLUMN 5. COUNTS ARE IN GCPM.					3	
					4	
					5	
					6	
					7	
					8	
					9	
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					23	
					24	
					25	
					26	
Legend xxxx - Radiological boundary x-x-x- Contaminated area # - General area dose rate *Contact/30cm dose rates O - Smear location LAS - Large area smear # - Direct frisk A/S - Air sampler location					Performed by: (print/sign/date) <u>J. SORGE</u> <u>4-10-06</u>	
					Reviewed by: (sign/date) <u>R/Wannick</u> <u>4-11-06</u>	

SR Number		SR-21	Instrument #		203443	Technician(s):		JGS8492	Survey Number	NASA-06-1038
Log #	Location	Date	Time	Det. #	Measurement	Count Time	Type	Comments		
0	PRE BKG	4/10/2006	7:01	5	32	60	SCL			
1	PRE SRC	4/10/2006	7:32	5	6566	60	SCL			
2	SR21 WTF	4/10/2006	8:30	5	110	0	RAT			
3	SR21 BKG	4/10/2006	8:32	5	104	60	SCL			
4	A3 SCNQ	4/10/2006	13:23	5	95	0	RAT			
5	A3 SCNQ	4/10/2006	13:33	5	83	0	RAT			
6	POST BKG	4/10/2006	13:55	5	43	60	SCL			
7	POST SRC	4/10/2006	14:02	5	6616	60	SCL			
Detector #5 is 44-10 w/ Cs window.										
BKG = Background; SRC = Source; SCL = Scalar count; RAT = Rate count; SR = Survey Request; WTF = Waste Treatment Facility; SCNQ = Quality Control scan survey; A3 = Grid number A3										
Survey downloaded and performed by J. Sorg. <i>J. Sorg</i>										

RJD 4-25-06

APPENDIX A **RADIATION PROTECTION SURVEY FORM**

Page 1 of 1

Location: <u>WATER TREATMENT FACILITY</u>					SR#: <u>21</u> DL#: <u>N/A</u>		RWP: <u>PB-06- N/A</u>		
Instrument(s)					Date: <u>4-11-06</u>				
Model	S/N	Cal. Due	Bkg / cpm	MDA / dpm	Time: <u>1300</u>				
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	Survey #: <u>NASA-06-1056</u>				
					Smear #		Contamination		
					& Location		(dpm/100cm ²)		
							β γ α		
Reason for Survey: <input type="checkbox"/> Daily <input type="checkbox"/> Job Coverage <input type="checkbox"/> Weekly <input checked="" type="checkbox"/> Characterization					<input type="checkbox"/> Dose rates in mr/hr unless otherwise noted <input type="checkbox"/> Dose rates in μr/hr unless otherwise noted <input checked="" type="checkbox"/> N/A				
COLLECTED SAMPLES AT INDICATED LOCATIONS. GRIDS ARE 50'X50', EXCEPT COLUMN #5 WHICH ARE 50'X15'.					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				
					Legend xxxx - Radiological boundary x-x-x- Contaminated area # - General area dose rate *Contact/30cm dose rates O - Smear location LAS - Large area smear # - Direct frisk A/S - Air sampler location Performed by: (print/sign/date) <u>J. SOR...</u> <u>R. D. W. A. C. / R. D. W. A. C. 4-11-06</u> Reviewed by: (sign/date) <u>R. D. W. A. C. 4-11-06</u>				

Pre-Job Briefing Attendance Form

[illegible]

Pre-Job Briefing Checklist

Date / Time 4-10-06 / 0730

Job/Task Description CHARACTERIZATION SURVEY

Location WASTE TREATMENT FACILITY PROPERTY

Work Document # SR-21 Revision # 0 Document Type SR RWP # N/A

	Items to be considered	Circle One	Comments
1	Has a review of the entire job procedure by key parties been performed?	<input checked="" type="radio"/> Y N N/A	
	Is a delineation of each individual's specific involvement and responsibility understood?	<input checked="" type="radio"/> Y N N/A	
	Do affected parties understand the expected results or performance; including limitations, hold points, emergency action(s) to be taken if contingencies arise?	<input checked="" type="radio"/> Y N N/A	
2	Has notification been made to other needed Support Departments (i.e., Safety, Radwaste, Dosimetry, D&D, etc)?	<input checked="" type="radio"/> Y N N/A	
3	Does everyone understand the interface and communication required with each other?	<input checked="" type="radio"/> Y N N/A	
4	Are there any Industrial Safety Hazards involved and have they been discussed (i.e., Switching & Tagging, Confined Space, etc)?	<input checked="" type="radio"/> Y N N/A	
5	Have the work document requirements been discussed?	<input checked="" type="radio"/> Y N N/A	
6	Have the ALARA Review requirements been discussed?	Y N <input checked="" type="radio"/> N/A	
7	Have the RWP requirements been discussed?	Y N <input checked="" type="radio"/> N/A	
8	Have the radiological conditions of the area(s) been discussed?	<input checked="" type="radio"/> Y N N/A	
9	Are the necessary ALARA engineering controls in place (i.e., portable ventilation systems, containments, shielding, system flushes or draining, discrete particle controls, access controls, etc.)?	Y N <input checked="" type="radio"/> N/A	
10	If needed, are special tools and/or equipment ready and available (i.e., communication devices, audio visual aids, long handled tools, robotics, special instrumentation including radiological instrumentation, special dosimetry, lighting, breathing air, service air, electric power, etc)?	<input checked="" type="radio"/> Y N N/A	
11	Does decontamination need performed at any point?	Y N <input checked="" type="radio"/> N/A	
12	Does everyone understand their anticipated individual dose to complete the task?	<input checked="" type="radio"/> Y N N/A	
13	Have <u>STAR</u> self check points been discussed?	<input checked="" type="radio"/> Y N N/A	
14	Other items/issues:		

Briefing Conducted By: J. BRAHAM / [Signature]
Job/Task Supervisor (print/sign)