

SURVEY REQUEST FORM					
SR NUMBER	SR-22			DATE ISSUED	4/13/06
TYPE OF SR	<input type="checkbox"/> FSS <input type="checkbox"/> CHARACTERIZATION <input checked="" type="checkbox"/> OTHER: Scoping				
AREA / LOCATION	Residential Yards Adjacent to Plum Brook				
PURPOSE	Characterization of Residential Yards adjacent to Plum Brook by performing surveys with sodium iodide detectors, and obtaining biased samples. The area is approximately 34,580 ft ² .				
SURVEY DESIGN NUMBER	N/A		AREA CLASSIFICATION	Non-Impacted	
SURVEY UNIT NUMBERS	N/A		GRID NUMBERS	N/A	
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 PROBE TYPE 44-10 Cs-137 window	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.	
SURFACE SCAN	<input type="checkbox"/> BETA <input type="checkbox"/> GAMMA <input type="checkbox"/> ALPHA	INST. TYPE PROBE TYPE	SCAN RATE & DETECTOR DISTANCE FROM SURFACE		
STATIC MEASURE-MENT	<input type="checkbox"/> BETA <input checked="" type="checkbox"/> GAMMA <input type="checkbox"/> ALPHA	INST. TYPE Ludlum 2350-1 PROBE TYPE 44-10 Cs-137 window	COUNT TIME & DETECTOR DISTANCE FROM SURFACE	Detector shall be held within 4 inches from the surface. Count time shall be 1 minute.	
STATIC MEASURE-MENT	<input type="checkbox"/> BETA <input type="checkbox"/> GAMMA <input type="checkbox"/> ALPHA	INST. TYPE PROBE TYPE	COUNT TIME & DETECTOR DISTANCE FROM SURFACE		
OTHER					

SURVEY REQUEST FORM

SR NUMBER

SR-22

AREA / LOCATION

Residential Yards Adjacent to Plum Brook

SPECIFIC SAMPLING & SURVEYING INSTRUCTIONS / COMMENTS

Prerequisites and General Requirements

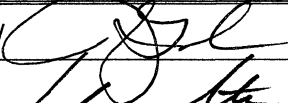
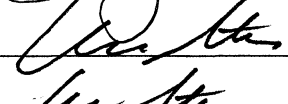
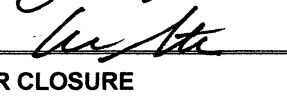
1. An initial pre-job briefing is required with FSS/Characterization Technicians and the FSS/Characterization supervisor prior to the start of surveying/sampling. Subsequent briefings will be at the discretion of the FSS/Characterization Supervisor.
2. Review the JSA and adhere to all precautionary requirements.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

Quality Control (QC) Measurements

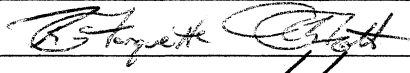
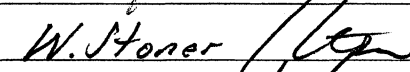
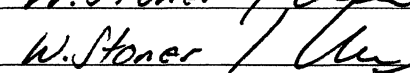
A minimum of 5% of all scan and static measurements will be duplicated or repeated using identical methodology contained in this SR. (Document as separate surveys. Be sure to reference download number on the survey form.) QC scan and static measurement should be performed within 24 hours of the original 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	4/13/06
FSS/CHARACTERIZATION MANAGER	W. Stoner / 	DATE	4/13/06
NASA PROJECT RSO	W. Stoner / 	DATE	4/13/06

SR CLOSURE

FSS/CHARACTERIZATION SUPERVISOR		DATE	6/16/06
FSS/CHARACTERIZATION MANAGER	W. Stoner / 	DATE	6/16/06
NASA PROJECT RSO	W. Stoner / 	DATE	6/16/06

SURVEY REQUEST CONTINUATION SHEET

SR NUMBER

SR-22

AREA / LOCATION

Residential Yards Adjacent to Plum Brook

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 area to be scanned is located on the following properties:
 - ❶ 1201 Bogart Road – Garden: ~150 ft. by 150 ft., ~22,500 ft² scan area
 - ❷ 417 Taylor Road – Back Yard: ~ 100 ft. by 100 ft., ~ 10,000 ft² scan area
 - ❸ 1107 E. Bogart Road – Front Yard by driveway: ~ 20 ft. by 100 ft., ~ 2,000 ft² scan area
 - ❹ Clark Road – Soil Piles: 2 soil piles ~12 ft. in diameter, ~3 ft. tall, ~80 ft² scan area
2. Perform a 100% scan of each area 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. 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.
6. Surveys shall be documented on approved radiological survey forms. Include in each survey a drawing of the area surveyed, showing the actual dimensions of the survey area. If biased sample points are identified, include on the survey map a reference point (0, 0 point), and list the location of the sample point(s) from the reference point.
7. Plot each sample location with the GPS mapping system.

Surface Soil Sampling

1. Observe the "Prerequisites and Special Instructions" on Page 2 of this SR.
2. Obtain samples at each biased sample points as identified in Step 4 above.
3. The FSS/Characterization Supervisor may select additional sample locations that are representative of the area surveyed.
4. Collect a surface sample in accordance with Section 4.2.2 of procedure CS-01.
5. Assign each sample a sample number in accordance with Step 4.2.1.3 of procedure CS-01 (SR-22-1, SR22-2, etc.).
6. In the sample location/description indicate the property address.

SURVEY REQUEST SAMPLE ANALYSIS SHEET			
SR NUMBER	SR-22	AREA / LOCATION	Residential Yards Adjacent to Plum Brook
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	

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>11/7/05</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-22

AREA / LOCATION

Residential Yards Adjacent to Plum Brook

SPECIFIC SAMPLING AND SURVEYING INSTRUCTIONS / COMMENTS**SURVEY REQUEST CLOSE-OUT SUMMARY****Background:**

The purpose of this Survey Request is to collect information from various yards and gardens of homeowners whose property is adjacent to the Plum Brook stream bed. Homeowners were contacted by a NASA representative and those who used soil from the stream bed area for their gardens or pumped water from the stream for yard watering purposes were offered the opportunity to have their property surveyed and sampled.

Number and types of surveys / samples taken:

A total of 4 locations were identified for surveying. Three of the locations were surveyed, however the 4th location, a residential property, was not surveyed due to no response from the homeowner. Multiple efforts were made over a 6 week period of time to obtain permission for surveying, but the homeowner did not respond. NASA determined that the survey was not critical to the Characterization of the Stream or surrounding areas and the location was eliminated for surveying.

The remaining three locations, soil mounds near Clark Road and residential properties at 1201 and 1107 Bogart Road, were scanned with a 2350-1 and a 44-10 probe in the Cesium window configuration. Soil samples were also obtained at all three locations.

Summary of Soil Sample Results:

A total of eleven (11) soil samples were obtained under this SR: Two (2) from each of the soil piles along Clark Road, two from the yard at 1107 Bogart Rd., and four (4) from the garden at 1201 Bogart Rd. Four (4) of the samples were <MDA with an average of 0.07 pCi/g. The maximum activity detected was at the 1107 address. Both of the samples obtained from that yard indicated elevated Cs-137 activity at a concentration of 1.83 and 1.77 pCi/g.

NOTE: The investigation level was never reached during scanning activities at the 1107 property. The technician performing the scan chose the sample points because the highest scan levels were seen in those locations.

The average of the 7 samples indicating positive Cesium activity was 0.66 pCi/g. There was no Co-60 activity detected in any of the samples from the three (3) locations.

Summary of Scan and/or Static Measurements:

There were no indications of any activity above the investigation level during any scanning activities.

There were no static measurements obtained under this SR.

SURVEY REQUEST CONTINUATION SHEET.

SR NUMBER

SR-22

AREA / LOCATION

Residential Yards Adjacent to Plum Brook

SURVEY REQUEST CLOSE-OUT SUMMARY

Problems encountered during surveying/sampling:

There were no problems encountered during the performance of any survey or sampling activities.

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

All QC surface scans met the acceptance criteria of procedure CS-01, "Survey Methodology to Support PBRF License Termination," section 4.5.2.4: The investigation level was not exceeded during any scanning activities.

There was one (1) QC soil sample obtained for this survey. The analysis of this sample met the acceptance criteria stated in 4.5.2.4 of being in agreement with the original analysis.

Comparison of survey results versus the area classification.

The areas surveyed are outside of the GRC facility and are classified as non-impacted areas. The results of this SR verify the classification as being correct for the property at 1201 Bogart Road and the dirt piles. The property at 1107 Bogart Road, however, meets the minimum requirement for being classified as a Class 3 area with positive activity at 15.1% and 15.6% of the DCGL.

Summary and Recommendations.

The survey results of the 1107 Bogart Road property indicate the potential for residual activity to be present in the homeowners yard, possibly from using water from the Plum Brook to water the lawn. Additional discussion with the homeowner to determine the potential for other areas of elevated activity to exist on the property and the collection of additional random samples should be performed.

FSS/Characterization Supervisor:

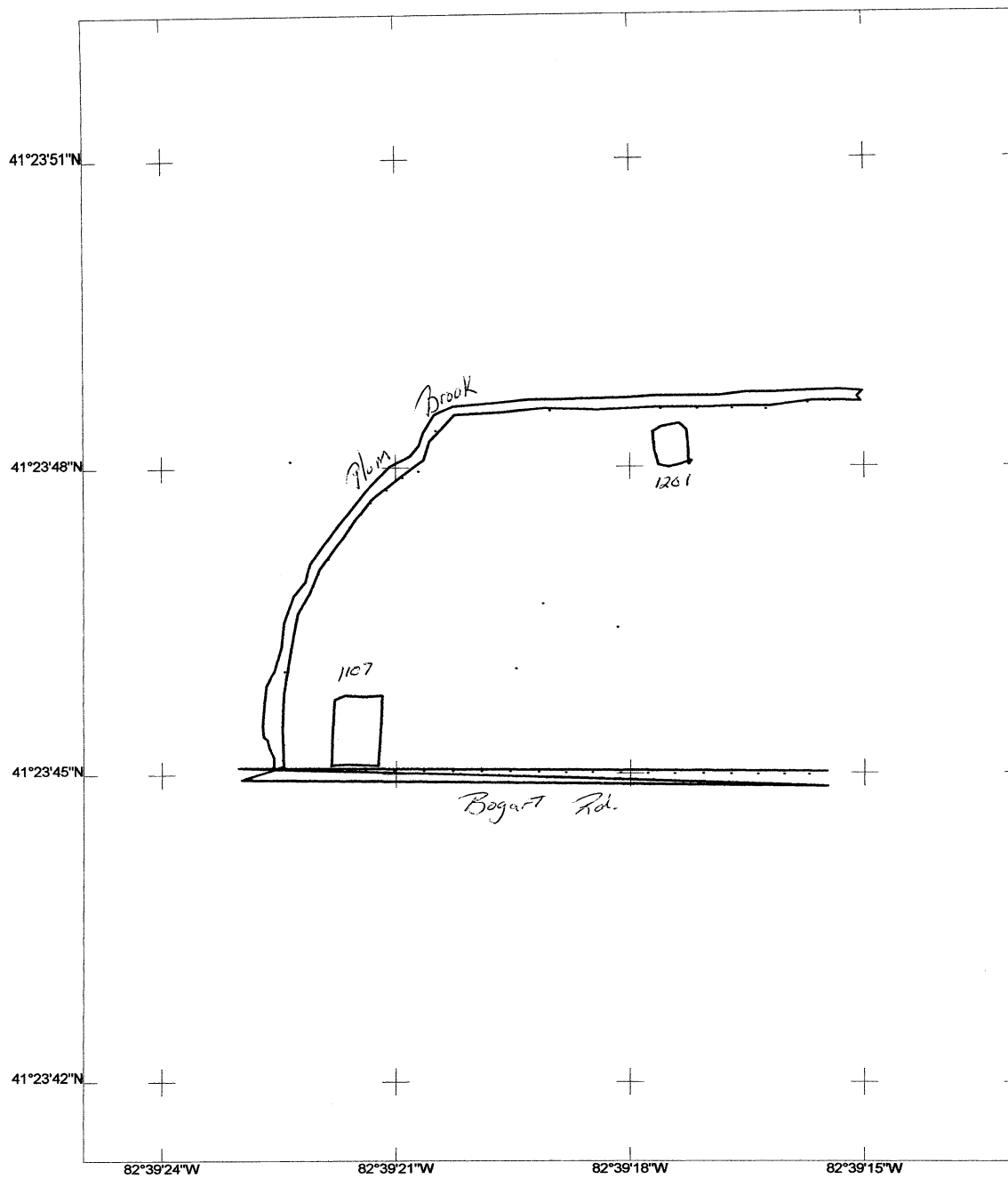


Print / Sign

FSS/Characterization Manager:

 6/16/06

Print / Sign



Lat/Long
WGS 1984



Scale 1:2,000



SR22 1107 AND 1201.SSF

6/15/2006

GPS Pathfinder® Office





1107 BOGART RD. YARD
FLAGS INDICATE ELEVATED SCAN/SAMPLE
LOCATIONS



1201 BOGART RD. GARDEN

SR-21 - SOIL SAMPLES

SR-22 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
PB06-01671	SR22-1	CLK RD 1			439.0	<MDA		<MDA		0%	N/A	4.40E-02	5.08E-02
PB06-01672	SR22-2	CLK RD 1Q			447.0	<MDA		<MDA		0%	N/A	3.65E-02	4.99E-02
PB06-01673	SR22-3	CLK RD 2			467.5	8.67E-02	4.81E-02	<MDA		1%	N/A		4.77E-02
PB06-01674	SR22-4	CLK RD 3			349.3	<MDA		<MDA		0%	N/A	9.07E-02	7.01E-02
PB06-01675	SR22-5	CLK RD 4			337.7	<MDA		<MDA		0%	N/A	9.24E-02	6.60E-02
PB06-02004	SR22-6	1201-1			363.9	1.61E-01	7.16E-02	<MDA		1%	N/A		6.11E-02
PB06-02006	SR22-7	1201-2			390.1	2.54E-01	8.22E-02	<MDA		2%	N/A		5.70E-02
PB06-02007	SR22-8	1201-3			400.6	2.71E-01	8.27E-02	<MDA		2%	N/A		6.57E-02
PB06-02008	SR22-9	1201-4			379.9	2.30E-01	8.43E-02	<MDA		2%	N/A		8.00E-02
PB06-02009	SR22-10	1107-1			428.6	1.77E+00	1.86E-01	<MDA		15%	N/A		5.19E-02
PB06-02010	SR22-11	1107-2			398.5	1.83E+00	2.09E-01	<MDA		16%	N/A		5.58E-02
Number					11	7	7	0	0	11	0	4	11
Max					467.5	1.83E+00	2.09E-01			1.56E-01		9.24E-02	8.00E-02
Avg					400.2	6.58E-01	1.09E-01			3.57E-02		6.59E-02	5.96E-02
SD					41.67	7.83E-01	6.20E-02			5.90E-02			
Conf int +/-					8.47	2.00E-01	1.58E-02			1%			

	= >50% Unity
#####	= >100% Unity

SR-22 Additional Isotope Data								
HPGe Log #	Sample #	Location	Eu-152		Eu-154		U-235	
			pCi/g	2σ	pCi/g	2σ	pCi/g	2σ
None detected								

Field Sample Collection & Chain of Custody Log

[illegible]

* SAMPLE ANALYSES COMPLETED

Form
CS-03/1
Rev 0

[illegible]

Field Sample Collection & Chain of Custody Form

Form
CS-03/1
Rev 0

SR -	22	COC -	2	Samples Collected By		SORG	
Sample Number	Sample Location/Description	Sample Matrix	Sample Date	Sample Time	Sample Volume or Weight	Comments	HpGe Number
SR 22-6	1201-1	SOIL	5-9-06	0850	1L	363.9	PA06-02004
SR 22-7	1201-2	↓	↓	0853	↓	390.1	PA06-02006
SR 22-8	1201-3	↓	↓	0857	↓	400.6	PA06-02007
SR 22-9	1201-4	↓	↓	0900	↓	379.9	PA06-02008
SR 22-10	1107-1	↓	↓	0910	↓	428.6	PA06-02009
SR 22-11	1107-2	SOIL	5-9-06	0914	1L	398.5	PA06-02010
Comments	1201 = 1201 BOGART RD. 1107 = 1107 BOGART RD.						
Relinquished By (Print/Sign)		Received By (Print/Sign)		Date	Time	Location Transferred To (as applicable)	
J. SORG / <i>[Signature]</i>		J. SORG / <i>[Signature]</i>		5-9-06	1100	PREP TRL	
J. SORG / <i>[Signature]</i>		A. Hoff / <i>[Signature]</i>		5-12-06	0822	COUNT LAB	
A. Hoff / <i>[Signature]</i>		T. Graham / <i>[Signature]</i>		5-15-06	1235	Sample Arch. we	

APPENDIX A RADIATION PROTECTION SURVEY FORM

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Location: <u>YARDS AND GARDENS</u>					SR#: <u>22</u> DL#: <u>93</u>		RWP: <u>PB-06- N/A</u>	
Instrument(s)					Date: <u>4-14-06</u>			
Model	S/N	Cal. Due	Bkg / cpm	MDA / dpm	Time: <u>1255</u>			
<u>2357/44-10</u>	<u>180731/181344</u>	<u>12-28-06</u>	<u>10.7</u>	<u>N/A</u>	Survey #: <u>NASA-06-1098</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"/> Weekly <input checked="" type="checkbox"/> Characterization					<input type="checkbox"/> Dose rates in mr/hr unless otherwise noted <input type="checkbox"/> Dose rates in μ r/hr unless otherwise noted <input checked="" type="checkbox"/> N/A			
<p> MOUND #1 IS 16' IN DIAMETER AND 5' HIGH MOUND #2 IS 13' IN DIAMETER AND 4' HIGH PERFORMED Cs WINDOW GAMMA SCAN OF MOUND #1. SCAN RANGED 90-140 gcpm. ◇ - INDICATES SAMPLER LOCATION SCANNED 205ft² </p> <p align="center">CLARK RD</p> <p align="center">// - AREA SCANNED</p>					1			
					2			
					3			
					4			
					5			
					6			
					7			
					8			
					9	<u>N</u>		
					10			
					11		<u>A</u>	
					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. S. 26/ [Signature]</u> <u>4-14-06</u>			
					Reviewed by: (sign/date) <u>[Signature]</u> <u>4-17-06</u>			

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A-2

SR Number		SR-22	Instrument #	180731	Technician(s):		JGS8492	Survey Number	NASA-06-1098
Log #	Location	Date	Time	Det. #	Measurement	Count Time	Type	Comments	
0	PRE BKG	4/14/2006	6:49	5	51	60	SCL		
1	PRE SRC	4/14/2006	6:58	5	6342	60	SCL		
2	SR22 CLKRD	4/14/2006	12:55	5	103	0	RAT		
3	CLKRD BKG	4/14/2006	12:57	5	107	60	SCL		
4	CLKRD SCN	4/14/2006	12:57	5	90	0	RAT		
5	CLKRD SCN	4/14/2006	13:11	5	100	0	RAT		
6	1107 SCN	4/14/2006	13:38	5	94	0	RAT		
7	1107 SCN	4/14/2006	13:57	5	73	0	RAT		
8	POST BKG	4/14/2006	14:22	5	62	60	SCL		
9	POST SRC	4/14/2006	14:26	5	6325	60	SCL		
Detector #5 is 44-10 w/ Cs window.									
BKG = Background; SRC = Source; SCL = Scalar count; RAT = Rate count; SR = Survey Request; CLKRD = Clark Road; 1107 = 1107 E. Bogart Rd.; SCN = Scan survey									
Survey downloaded and performed by J. Sorg.									

RW 4-26-06

APPENDIX A **RADIATION PROTECTION SURVEY FORM**

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Location: <u>YARDS AND GARDENS</u>					SR#: <u>22</u> DL#: <u>94</u>		RWP: <u>PB-06-N/A</u>		
Instrument(s)							Date: <u>4-14-06</u>		
Model	S/N	Cal. Due	Bkg / cpm	MDA / dpm	Time: <u>1311</u>				
<u>2350/44-10</u>	<u>180731/188344</u>	<u>12-28-06</u>	<u>107</u>	<u>N/A</u>	Survey #: <u>NASA-06-1099</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"/> Weekly <input checked="" type="checkbox"/> Characterization					<input type="checkbox"/> Dose rates in mR/hr unless otherwise noted <input type="checkbox"/> Dose rates in μ R/hr unless otherwise noted <input checked="" type="checkbox"/> N/A				1
									2
<p>MOUND #1 IS 16' IN DIAMETER AND 5' HIGH MOUND #2 IS 13' IN DIAMETER AND 4' HIGH</p> <p>PERFORMED CS WINDOW GAMMA QC SCAN OF MOUND #2. SCAN RANGED <u>120-160 gcpm</u>. 120-250 gcpm 4-14-06</p> <p>// - AREA SCANNED. SCANNED 52 ft².</p> <p align="center">CLARK RD</p>					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)
J. SORCE 4-14-06

Reviewed by: (sign/date)
R. Wanner 4-17-06

APPENDIX A **RADIATION PROTECTION SURVEY FORM**

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Location: <u>YARDS AND GARDENS</u>					SR#: <u>22</u> DL#: <u>94</u>		RWP: <u>PB-06- N/A</u>	
Instrument(s)					Date: <u>4-14-06</u>			
Model	S/N	Cal. Due	Bkg / cpm	MDA / dpm	Time: <u>1311</u>			
<u>2357/44-10</u>	<u>180731/188344</u>	<u>12-28-06</u>	<u>107</u>	<u>N/A</u>	Survey #: <u>NASA-06-1099</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
					1			
					2			
					3			
					4			
					5			
					6			
					7			
					8			
					9			
					10			
					11			
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					13			
					14			
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					16			
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					18			
					19			
					20			
					21			
					22			
					23			
					24			
					25			

Reason for Survey:

☐ Daily
☐ Weekly

☐ Job Coverage
☒ Characterization

☐ Dose rates in mr/hr unless otherwise noted
☐ Dose rates in μ r/hr unless otherwise noted
☒ N/A

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1107 E BOGART RD.

DRIVEWAY

65'

49'

BOGART ROAD

FIRE HYDRANT

SCANNED 200ft²

PERFORMED QC SCAN OF NORTH HALF OF YARD.

SCAN RANGED 120-250 gcpm. 111 - AREA SCANNED

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)


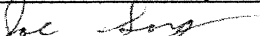
J. SORRELL

4-14-06

Reviewed by: (sign/date)

R. W. ...

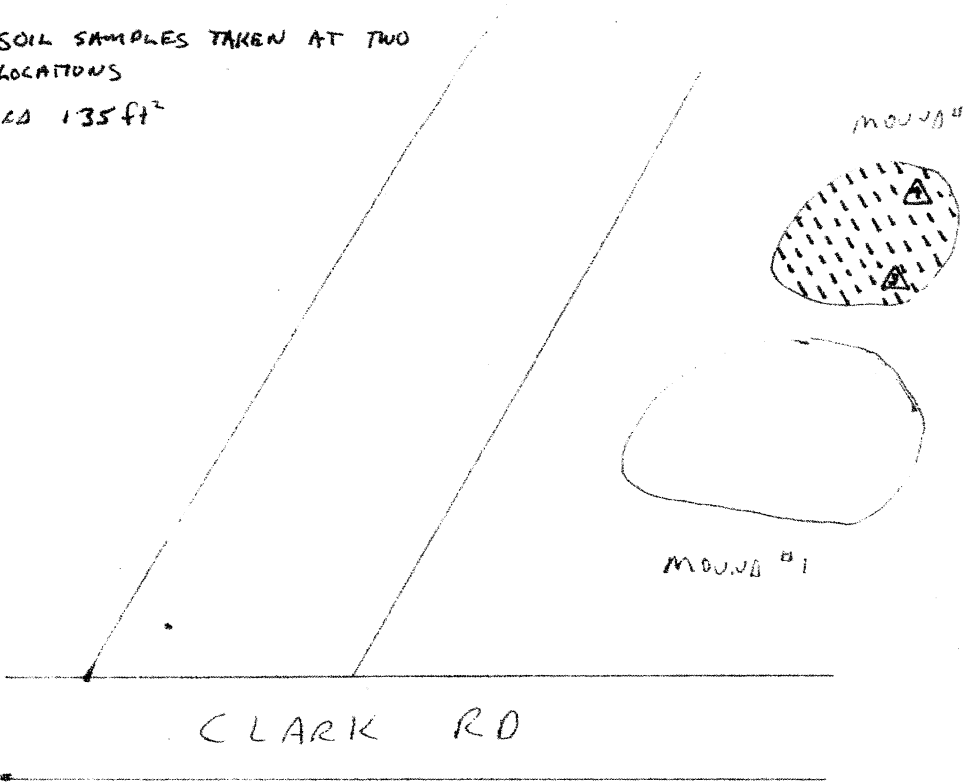

4-17-06

SR Number		SR-22	Instrument #	180731	Technician(s):		JGS8492	Survey Number	NASA-06-1099
Log #	Location	Date	Time	Det. #	Measurement	Count Time	Type	Comments	
0	PRE BKG	4/14/2006	6:49	5	51	60	SCL		
1	PRE SRC	4/14/2006	6:58	5	6342	60	SCL		
2	SR22 CLKRD	4/14/2006	12:55	5	103	0	RAT		
3	CLKRD BKG	4/14/2006	12:57	5	107	60	SCL		
4	CLKRD SCNQ	4/14/2006	13:11	5	111	0	RAT		
5	CLKRD SCNQ	4/14/2006	13:19	5	136	0	RAT		
6	1107 SCNQ	4/14/2006	13:57	5	68	0	RAT		
7	1107 SCNQ	4/14/2006	14:01	5	98	0	RAT		
8	POST BKG	4/14/2006	14:22	5	62	60	SCL		
9	POST SRC	4/14/2006	14:26	5	6325	60	SCL		
Detector #5 is 44-10 w/ Cs window.									
BKG = Background; SRC = Source; SCL = Scalar count; RAT = Rate count; SR = Survey Request; CLKRD = Clark Road; 1107 = 1107 E. Bogart Rd.; SCNQ = Quality Control scan survey									
Survey downloaded and performed by J. Sorg. 									

R1W 4-26-06

APPENDIX A RADIATION PROTECTION SURVEY FORM

Page 1 of 3

Location: <u>YARDS + GARDENS</u>					SR#: <u>22 DL#: 95</u>	RWP: <u>PB-06- N/A</u>
Instrument(s)					Date: <u>4/14/06</u>	
Model	S/N	Cal. Due	Bkg / cpm	MDA / dpm	Time: <u>1255</u>	
<u>2350-1 / 44-10</u>	<u>203970 / 196941</u>	<u>12/28/06 12/28/06</u>	<u>136</u>	<u>N/A</u>	Survey #: <u>NASA-06-1100</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	
<p>MOUND #1 IS 16 IN DIAMETER AND 5' HIGH MOUND #2 IS 13 IN DIAMETER AND 4' HIGH</p> <p>PERFORMED Cs 137 WINDOW SCAN OF MOUND #2; SCAN RESULTS BETWEEN 110 → 160 GCPM</p> <p>△ - SOIL SAMPLES TAKEN AT TWO LOCATIONS</p> <p>SCANNED 135 ft²</p>  <p align="center">CLARK RD</p> <p align="left">  SCAN AREA </p>					3	
					4	
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					9	
					10	
					11	
					12	
					13	<u>N</u>
					14	<u>A</u>
					15	
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					18	
					19	
					20	
					21	
					22	
23						
24						
25	<u>N</u>	<u>A</u>				

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)
MSTOCK / [Signature] 4/14/06

Reviewed by: (sign/date)
[Signature] 4-17-06

APPENDIX A RADIATION PROTECTION SURVEY FORM

Page 2 of 3

Location: <u>YARDS + GARDENS</u>				SR#: <u>22DL#: 95</u>		RWP: PB-06- <u>N/A</u>	
Instrument(s)						Date: <u>4/14/06</u>	
Model	S/N	Cal. Due	Bkg / cpm	MDA / dpm	Time: <u>1255</u>		
<u>2350-1 / 44-1D</u>	<u>203470 / 196941</u>	<u>12/28/06 12/28/06</u>	<u>136</u>	<u>N/A</u>	Survey #: <u>NASA-06-1100</u>		
<div style="display: flex; justify-content: space-between;"> <div> Reason for Survey: <input type="checkbox"/> Daily <input type="checkbox"/> Job Coverage <input type="checkbox"/> Weekly <input checked="" type="checkbox"/> Characterization </div> <div> <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 </div> </div>					Smear # & Location	Contamination (dpm/100cm²)	
						β γ α	
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	2						
	3						
	4						
	5						
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	13	N A					
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	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)
MSTOCK / [Signature] 4/14/06

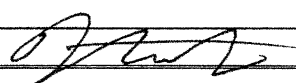
Reviewed by: (sign/date)
[Signature] 4-17-06

SR Number		SR-22	Instrument #	203470	Technician(s):		MRS3840	Survey Number	NASA-06-1100
Log #	Location	Date	Time	Det. #	Measurement	Count Time	Type	Comments	
0	PRE BKG	4/14/2006	6:50	5	48	60	SCL		
1	PRE SRC	4/14/2006	7:00	5	5469	60	SCL		
2	SR22 CLKRD	4/14/2006	12:55	5	113	0	RAT		
3	CLKRD BKG	4/14/2006	12:58	5	136	60	SCL		
4	CLKRD SCN	4/14/2006	12:58	5	118	0	RAT		
5	CLKRD SCN	4/14/2006	13:11	5	100	0	RAT		
6	1107 SCN	4/14/2006	13:38	5	123	0	RAT		
7	1107 SCN	4/14/2006	13:58	5	71	0	RAT		
8	POST BKG	4/14/2006	14:21	5	42	60	SCL		
9	POST SRC	4/14/2006	14:31	5	5658	60	SCL		

Detector #5 is 44-10 w/ Cs window.

BKG = Background; SRC = Source; SCL = Scalar count; RAT = Rate count; SR = Survey Request; CLKRD = Clark Road; 1107 = 1107 E. Bogart Rd.; SCN = Scan survey

Survey downloaded by J. Sorg and performed by M. Stock.



R/W 4-26-06

APPENDIX A **RADIATION PROTECTION SURVEY FORM**

Page 1 of 3

Location: <u>YARDS & GARDENS</u>				SR#: <u>ZZ DL#: 96</u>		RWP: PB-06- <u>N/A</u>	
Instrument(s)						Date: <u>4/14/06</u>	
Model	S/N	Cal. Due	Bkg / cpm	MDA / dpm	Time: <u>1312</u>		
<u>2350-1 / 44-10</u>	<u>203470 / 196941</u>	<u>12/29/06 12/29/06</u>	<u>136</u>	<u>N/A</u>	Survey #: <u>NASA-06-1101</u>		
<u>N/A</u>					Smear # & Location	Contamination (dpm/100cm²)	
					β	γ	α
Reason for Survey: <input type="checkbox"/> Daily <input type="checkbox"/> Job Coverage <input type="checkbox"/> Dose rates in mrem/hr unless otherwise noted <input type="checkbox"/> Weekly <input checked="" type="checkbox"/> Characterization <input type="checkbox"/> Dose rates in μrem/hr unless otherwise noted <input checked="" type="checkbox"/> N/A				1			
				2			
<p><u>MOUND #1 IS 16 IN DIAMETER AND 5' HIGH</u> <u>MOUND #2 IS 13 IN DIAMETER AND 4' HIGH</u></p> <p><u>PERFORMED QA SCAN OF MOUND #1</u> <u>RESULTS BETWEEN 110 - 150 GCPM</u></p> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; width: 20px; height: 20px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px); margin-right: 10px;"></div> <p>SCAN AREA</p> </div> <p><u>SCANNED 32 ft²</u></p> <p align="center"><u>CLARK RD</u></p>				3			
				4			
				5			
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				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)
MS/OCK/2002 4/14/06

Reviewed by: (sign/date)
RfWannick 4-17-06

APPENDIX A RADIATION PROTECTION SURVEY FORM

Page 2 of 3

Location: <u>YARDS + GARAGE</u>				SR#: <u>22</u> DL#: <u>96</u>		RWP: PB-06- <u>N/A</u>	
Instrument(s)						Date: <u>4/14/06</u>	
Model	S/N	Cal. Due	Bkg / cpm	MDA / dpm	Time: <u>1312</u>		
<u>2350-1 / 44-10</u>	<u>203470 / 196941</u>	<u>12/28/06 12/28/06</u>	<u>136</u>	<u>N/A</u>	Survey #: <u>NASA-06-1101</u>		
					Smear # & Location	Contamination (dpm/100cm ²) β γ α	
Reason for Survey:				<input type="checkbox"/> Dose rates in mr/hr unless otherwise noted <input type="checkbox"/> Dose rates in μ r/hr unless otherwise noted <input checked="" type="checkbox"/> N/A		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	
<input type="checkbox"/> Daily <input type="checkbox"/> Job Coverage <input type="checkbox"/> Weekly <input checked="" type="checkbox"/> Characterization							
<p align="center"><u>1107 E BOGART RD.</u></p> <p align="center"><u>65'</u></p> <p align="center"><u>49'</u></p> <p align="center"><u>BOGART ROAD</u></p> <p align="center"><u>SCANNED 196 ft²</u></p> <p align="center">PERFORMED QA SCAN OF SOUTHERN HALF OF YARD RANGE 110 - 240 GCPM</p>						<p align="center"><u>Legend</u></p> <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</p> <p>Performed by: (print/sign/date) <u>MSTOK / [Signature] 4/14/06</u></p> <p>Reviewed by: (sign/date) <u>[Signature] 4/17/06</u></p>	

SR Number		SR-22	Instrument #	203470	Technician(s):		MRS3840	Survey Number	NASA-06-1101
Log #	Location	Date	Time	Det. #	Measurement	Count Time	Type	Comments	
0	PRE BKG	4/14/2006	6:50	5	48	60	SCL		
1	PRE SRC	4/14/2006	7:00	5	5469	60	SCL		
2	SR22 CLKRD	4/14/2006	12:55	5	113	0	RAT		
3	CLKRD BKG	4/14/2006	12:58	5	136	60	SCL		
4	CLKRD SCNQ	4/14/2006	13:12	5	156	0	RAT		
5	CLKRD SCNQ	4/14/2006	13:20	5	109	0	RAT		
6	1107 SCNQ	4/14/2006	13:58	5	94	0	RAT		
7	1107 SCNQ	4/14/2006	14:02	5	70	0	RAT		
8	POST BKG	4/14/2006	14:21	5	42	60	SCL		
9	POST BKG	4/14/2006	14:31	5	5658	60	SCL		
Detector #5 is 44-10 w/ Cs window.									
BKG = Background; SRC = Source; SCL = Scalar count; RAT = Rate count; SR = Survey Request; CLKRD = Clark Road; 1107 = 1107 E. Bogart Rd.; SCNQ = Quality Control scan survey									
Survey downloaded by J. Sorg and performed by M. Stock.									

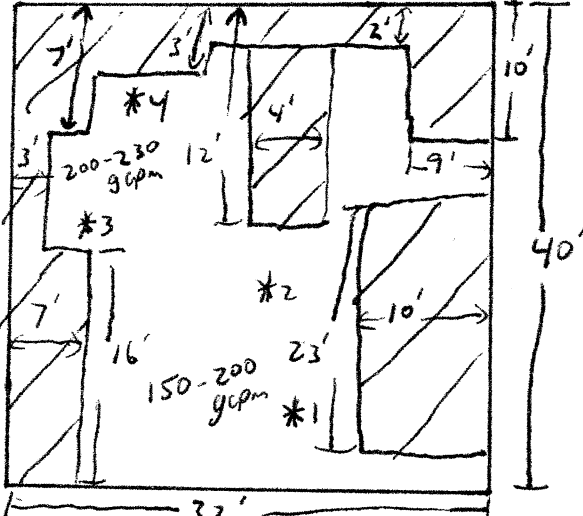
RW 4-26-06

APPENDIX A RADIATION PROTECTION SURVEY FORM

Page 1 of 2

Location: <u>YARDS AND GARDENS</u>		SR- <u>22</u>	DL- <u>120</u>	RWP: PB-06- <u>N/A</u>																																																																																																								
Instrument(s)				Date: <u>5-9-06</u>																																																																																																								
Model	S/N	Cal. Due	Bkg / cpm	MDA / dpm																																																																																																								
<u>2350/44-10</u>	<u>203443/220132</u>	<u>2-13-07</u>	<u>107</u>	<u>N/A</u>																																																																																																								
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>																																																																																																								
Reason for Survey:				Survey #: <u>NASA-06-1344</u>																																																																																																								
<input type="checkbox"/> Daily <input type="checkbox"/> Weekly		<input type="checkbox"/> Job Coverage <input checked="" type="checkbox"/> Other: <u>CHARACTERIZATION</u>		Smear # & Location																																																																																																								
		<input type="checkbox"/> Dose rates in mr/hr unless otherwise noted <input type="checkbox"/> Dose rates in μ r/hr unless otherwise noted <input checked="" type="checkbox"/> N/A		Contamination (dpm/100cm ²)																																																																																																								
				<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>β</th> <th>γ</th> <th>α</th> </tr> </thead> <tbody> <tr><td>1</td><td></td><td></td><td></td></tr> <tr><td>2</td><td></td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td><td></td></tr> <tr><td>7</td><td></td><td></td><td></td></tr> <tr><td>8</td><td></td><td></td><td></td></tr> <tr><td>9</td><td></td><td></td><td></td></tr> <tr><td>10</td><td></td><td></td><td></td></tr> <tr><td>11</td><td></td><td></td><td></td></tr> <tr><td>12</td><td></td><td></td><td></td></tr> <tr><td>13</td><td></td><td></td><td></td></tr> <tr><td>14</td><td></td><td></td><td></td></tr> <tr><td>15</td><td></td><td></td><td></td></tr> <tr><td>16</td><td></td><td></td><td></td></tr> <tr><td>17</td><td></td><td></td><td></td></tr> <tr><td>18</td><td></td><td></td><td></td></tr> <tr><td>19</td><td></td><td></td><td></td></tr> <tr><td>20</td><td></td><td></td><td></td></tr> <tr><td>21</td><td></td><td></td><td></td></tr> <tr><td>22</td><td></td><td></td><td></td></tr> <tr><td>23</td><td></td><td></td><td></td></tr> <tr><td>24</td><td></td><td></td><td></td></tr> <tr><td>25</td><td></td><td></td><td></td></tr> </tbody> </table>		β	γ	α	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			
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PERFORMED CS WINDOW GAMMA SCAN OF 1201 BOGART GARDEN. COLLECTED SAMPLES FROM 1201 BOGART GARDEN AND 1107 BOGART FRONT YARD.
 * - SAMPLE LOCATION.



(HOUSE)

1107 BOGART

1107 YARD

*5

*6

1201 BOGART GARDEN

/// - AREA NOT SCANNED DUE TO VEGETABLES. AT HOMEOWNER REQUEST

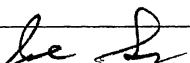
SCANNED 670 ft² OF 1201 BOGART GARDEN

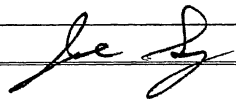
Legend

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)
J. SORGE 5-9-06

Reviewed by: (sign/date)
[Signature] 5-10-06

SR Number		SR-22	Instrument #	203443		Technician(s):		JGS8492	Survey Number	NASA-06-1344	
Log #	Location	Date	Time	Det. #	Measurement	Count Time	Type	Comments			
0	PRE BKG	5/9/2006	7:14	5	48	60	SCL				
1	PRE SRC	5/9/2006	7:19	5	6328	60	SCL				
2	SR22 1201	5/9/2006	8:19	5	81	0	RAT				
3	1201 BKG	5/9/2006	8:21	5	107	60	SCL				
4	1201 SCN	5/9/2006	8:22	5	187	0	RAT				
5	1201 SCN	5/9/2006	8:44	5	157	0	RAT				
6	POST BKG	5/9/2006	14:43	5	47	60	SCL				
7	POST SRC	5/9/2006	14:46	5	6266	60	SCL				
Detector #5 is 44-10 w/ Cs window.											
BKG = Background; SRC = Source; SCL = Scalar count; RAT = Rate count; SR = Survey Request; SCN = Scan survey; 1201 = 1201 Bogart Rd garden											
Survey downloaded and performed by J. Sorg.  5-9-06											



5-9-06

R/W 5-9-06



Pre-Job Briefing Attendance Form

[illegible]

Pre-Job Briefing Checklist

Date / Time 4/14/06 - 1230

Job/Task Description CHARACTERIZATION SURVEY OF RESIDENTIAL YARDS AND GARDENS

Location OFF-SITE PROPERTIES

Work Document # SR-22 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?	Y N <input checked="" type="radio"/> 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?	Y N <input checked="" type="radio"/> 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:

Job/Task Supervisor (print/sign)