Los Alamos National Laboratory

UNIVERSITY OF CALIFORNIA

Environmental Restoration Project
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Los Alamos, New Mexico 87545
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Date: April 22, 1997
Refer to: EM/ER:97-129

Mr. Benito Garcia
NMED-HRMB
P.O. Box 26110
Santa Fe, NM 87502

SUBJECT: FIELD UNIT 4 SAMPLING ACTIVITIES

Dear Mr. Garcia:

Field Unit 4 is planning to perform sampling activities for the pilot study in Los Alamos and Pueblo Canyons on or about May 1, 1997 through approximately May 12, 1997. Field activities will include collecting 88 sediment samples.

Samples will be collected as shown in the table below.

Location	Number of Samples	Sample Type	Analyses
Reach LA-5 Los Alamos Canyon	25	sediment	Isotopic PU
Reach P-4 Lower Pueblo Canyon	63	sediment	Isotopic PU and an additional Am241, Gamma Scan, Particle size, and TAL Metals on one sample

If you have any questions or concerns, please feel free to give me a call at (505) 667-0819.

Sincerely,

for David McInroy
Environmental Restoration Project

DM/ss

LANL
4/1044
TL

6884

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To: [illegible]
From: sreneau@lanl.gov (Steven Reneau)
Subject: LA-5 reach full suite data etc.
X-Attachments: :Macintosh HD:46412:LA5IN.XLS: :Macintosh HD:46412:LA5ORG.XLS: :Macintosh HD:46412:LA5RAD.XLS:

John:

Note: Attempts to e-mail you yesterday bombed. One more try today then I'll FAX stuff.

1. Sheets sent only included thoses analytes above background (the interesting data from my perspective). LA-5 sheet so short because we couldn't find much there at all (probably heavy dilution with clean sediment from Bayo and Guaje Canyons). Attached are excel files with all of the (boring) LA-5 data (1 each for rad, organics, and inorganics). Big. Let me know if you can't read them. Similar files available for LA-2, P-1, and P-4.

2. Units are ppm (= mg/kg) for organics and inorganics, and pCi/g for rad.

3. "PU 26" (I assume you mean sample 04PU-96-0026) is an anomalous sand layer with abundant black magnetite-rich sands, so, yes, high metals there are most likely due to mineralogy of sample. We sampled it because it gave us a relatively high field alpha reading, and we were checking to see if some of the rad may have been concentrated there as in a placer deposit (it apparently wasn't). The geomorphic unit is "c3", channel sands deposited probably mostly from mid-1960s to mid-1980s, sampled close to the highway maintanence station (P-4 east).

4. "PU 30" (sample 04PU-96-0030), field site P-4W-49, is from a relatively fine-grained overbank-type deposit at the surface of the c5 geomorphic unit in P-4 west. "c5" is a distinctive sand lobe deposited prior to 1960, probably in mid-to-late 1950s, so overlying overbank sample this age or younger. It was sampled because it had relatively high field alpha and because the setting (age and particle size) was thought to be excellent candidate for high rad contamination (I was surprised that it wasn't). Recent field checking in prep for next sampling round has revealed that some (most?) of the fine sediment at that site actually derived from drainage to south fed by gullies below main hill road, which was diverted under dirt road to Bayo sewage treatment plant and directed east parallel to main Pueblo drainage. Hence, sample could have contribution from erosion of old soils relatively high in Fe and associated metals (Ba, etc.), plus some (minor?) contribution of road runoff, and also an undefined component from Pueblo channel. (FYI, in next sampling round, we are planning 2 samples from this side drainage, unit "f1a", to evaluate Pu concentration and hence source area).

5. "PU 32" (sample 04PU-96-0032) is a fairly clean (well sorted) "c5" coarse sand deposit (mid-to-late 1950s), fairly close to sample 04PU-96-0030 in P-4 west. It had the highest Pu in such clean channel sands in the 1st sampling round (4.74 pCi/g), and a 2nd nearby sample from this unit in the next sampling round gave a higher value (16). (This unit will be sampled more in next round, including depth profile to see if higher Pu buried and to determine thickness of contaminated layer.)

Please feel free to contact me if you need more info. Any input prior to sampling event next week (starting Tuesday, May 13) welcome. And the offer of a quick field tour is still open.

Steve

5/6/97

To: jlewis@tis.eh.doe.gov, randyr@genesis.lanl.gov, emcdonald@lanl.gov, katzman@fimad.lanl.gov, broxton@lanl.gov, plongmire@lanl.gov, deba@alice.lanl.gov, harris@fimad.lanl.gov, linnea@fimad.lanl.gov, chris_hanlonmeyer@nmenv.state.nm.us, etherio@trail.com
From: sreneau@lanl.gov (Steven Reneau)
Subject: Reach P-4 Sediment Sampling
Cc: hill.kim@epamail.epa.gov, sreneau@lanl.gov
X-Attachments: :P-4:18:P-4 Sampling Worksheet 5/6/97: :P-4:49:P-4 Pu data binned:

Sediment sampling in reach P-4 is scheduled for Tuesday, May 8, likely extending into Wednesday, May 9. Collection of a minimum of 39 samples is planned, based on the number felt necessary to meet investigation objectives. Objectives include reducing uncertainty in total contaminant inventory and in horizontal and vertical variations in contamination. The planned distribution of samples between geomorphic units, stratigraphic layers or facies within a geomorphic unit, and between sub-reaches (P-4 West and East) is summarized on an attached spreadsheet, along with a preliminary breakdown of the total Pu inventory and the rationale for collection of specific samples. A 2nd spreadsheet summarizes available Pu data, subdividing these analyses into "bins" of similar age and sedimentary facies; this subdivision is key in the inventory calculation and in planning for the upcoming sampling event. Actual sample sites and depth intervals will be decided during the next week and during sampling, to obtain adequate spatial coverage and to sample appropriate stratigraphic levels.

Accompanying sampling, and possibly preceeding sampling, some additional field alpha measurements will be made in areas that may contain Pu high enough to recognize with field instruments (>25-50 pCi/g: overbank sediments in P-4 west). If high alpha readings are obtained, one or more samples will be collected at such sites. Some replicate samples will also be collected to evaluate if more precise estimates of Pu concentration can be made with the field instruments by making measurements in a more controlled laboratory environment.

The actual number of samples to be collected within specific geomorphic units and stratigraphic layers is still flexible. It is expected that some additional samples will be collected based on the judgment of the field team, in order to adequately characterize depth variations etc. Input is welcome prior to that time on other factors that should be considered.

If you cannot read the attachments but would like copies, please let me know and I will FAX you copies.

Steve

Sheet1

P-4 full suite analyses

Analytes with values above background (rad + metals) or detected (organics)

SAMPLE_LOC	LOCATION_ID	SAMPLE_ID	DEPTH	AG	AL	AS	B	BA	BE	CA	CD	CN(-1)	CO	CR	CU
P-4E-10	PU-0032	04PU-96-0025	28-34 IN	0.22	11300	2.7	3.3	79.8	0.84	2030	0.2	0.52	2.5	8.4	4.8
P-4E-17	PU-0033	04PU-96-0026	10-14 IN	0.1	1330	2.4	1.2	14.8	0.18	859	0.2	0.15	2.6	6.8	1
P-4E-18	PU-0034	04PU-96-0027	0-2.5 IN	0.1	1740	1.2	1.2	18	0.19	413	0.2	0.15	0.86	3.2	1.1
P-4E-19	PU-0035	04PU-96-0028	0-2 IN	0.14	2280	1.4	1.2	21.4	0.22	488	0.2	0.15	0.82	3.4	1.4
P-4E-32	PU-0036	04PU-96-0029	0-2 IN	0.42	5790	2.6	1.2	66.1	0.86	1490	0.41	0.38	2.8	8.7	8.5
P-4W-42	PU-0039	04PU-96-0032	0-3 IN	0.1	1870	1.5	1.2	21.2	0.24	928	0.2	0.49	1.7	3.8	1.8
P-4W-49	PU-0037	04PU-96-0030	0-1.5 IN	0.38	18400	5.1	5.5	163	1.7	4610	0.28	0.29	5.8	14.5	12.8
P-4W-50	PU-0038	04PU-96-0031	0-2.5 IN	0.13	4380	1.8	1.2	46	0.46	1030	0.2	1	2	4.2	3
P-4W-70	PU-0040	04PU-96-0033	0-2.5 IN	1	6890	2.8	1.2	69.4	0.85	1950	0.52	0.52	3.5	8	9
BACKGROUND FOR SS				0.28	13260	3.08	4.1	177	1.31	3850	0.18	0.723	4.73	10.5	9.87

SAMPLE_LOC	LOCATION_ID	SAMPLE_ID	DEPTH	FE	HG	K	MG	MN	NI	PB	TI	TL	U	V	ZN
P-4E-10	PU-0032	04PU-96-0025	28-34 IN	9660	0.02	2660	1540	309	6	11.2	303	1.9	0.5	14.8	46.3
P-4E-17	PU-0033	04PU-96-0026	10-14 IN	36800	0.02	462	380	1030	5.2	8.8	1840	0.7	0.7	23.6	222
P-4E-18	PU-0034	04PU-96-0027	0-2.5 IN	7980	0.02	661	316	242	2.3	5.4	349	1.1	0.27	6.3	46
P-4E-19	PU-0035	04PU-96-0028	0-2 IN	4440	0.02	675	379	157	2.3	5.9	173	0.89	0.35	5.1	28
P-4E-32	PU-0036	04PU-96-0029	0-2 IN	8020	0.05	1630	1080	304	4.7	18.4	173	0.72	0.83	10.6	46.7
P-4W-42	PU-0039	04PU-96-0032	0-3 IN	10100	0.02	952	380	301	2.7	7.1	464	2.2	0.34	7.7	80.7
P-4W-49	PU-0037	04PU-96-0030	0-1.5 IN	15400	0.05	3740	3050	464	11	30.5	184	0.87	1.7	20.3	89.8
P-4W-50	PU-0038	04PU-96-0031	0-2.5 IN	7980	0.02	1400	693	301	3.5	8.5	259	1	0.91	8.8	41.4
P-4W-70	PU-0040	04PU-96-0033	0-2.5 IN	8776	0.11	1898	1280	490	5.5	23.5	135	0.8	1.4	11.4	54.9
				13900	0.03	2890	2130	543	6.38	19.7	438	3.2	1.62	19.7	80.2

SAMPLE_LOC	LOCATION_ID	SAMPLE_ID	DEPTH	ALPHA	AM-241	H-3	PU-238	PU-239/240
P-4E-10	PU-0032	04PU-96-0025	28-34 IN	44.66	0.08	0.03	0.003	1.49
P-4E-17	PU-0033	04PU-96-0026	10-14 IN	33.55	0.05	0.008	0.005	1.08
P-4E-18	PU-0034	04PU-96-0027	0-2.5 IN	26.46	0.04	0.003	0.003	0.53
P-4E-19	PU-0035	04PU-96-0028	0-2 IN	20.21	0.08	0.003	0.002	0.75
P-4E-32	PU-0036	04PU-96-0029	0-2 IN	72.71	0.41	0.07	0.03	9.21
P-4W-42	PU-0039	04PU-96-0032	0-3 IN	38.58	0.09	0.01	0.02	4.74
P-4W-49	PU-0037	04PU-96-0030	0-1.5 IN	51.99	0.27	0.03	0.03	4.23
P-4W-50	PU-0038	04PU-96-0031	0-2.5 IN	42.44	0.11	0.008	0.01	3.41
P-4W-70	PU-0040	04PU-96-0033	0-2.5 IN	61.32	0.71	0.11	0.07	11.28
BACKGROUND FOR SS				58.8	0.139	0.099	0.008	0.197

SAMPLE_LOC	LOCATION_ID	SAMPLE_ID	DEPTH	Acenaphthene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene
P-4E-10	PU-0032	04PU-96-0025	28-34 IN	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
P-4E-17	PU-0033	04PU-96-0026	10-14 IN	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
P-4E-18	PU-0034	04PU-96-0027	0-2.5 IN	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
P-4E-19	PU-0035	04PU-96-0028	0-2 IN	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
P-4E-32	PU-0036	04PU-96-0029	0-2 IN	0.33	0.39	0.09	0.33	0.33	0.33	0.33	0.03
P-4W-42	PU-0039	04PU-96-0032	0-3 IN	0.21	0.36	0.6	0.67	0.81	0.47	0.11	0.6
P-4W-49	PU-0037	04PU-96-0030	0-1.5 IN	0.34	0.34	0.34	0.34	0.05	0.34	0.34	0.34
P-4W-50	PU-0038	04PU-96-0031	0-2.5 IN	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
P-4W-70	PU-0040	04PU-96-0033	0-2.5 IN	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33

SAMPLE_LOC	LOCATION_ID	SAMPLE_ID	DEPTH	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Methylnaphthalene(2-)	Naphthalene	Phenanthrene	Pyrene
P-4E-10	PU-0032	04PU-96-0025	28-34 IN	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
P-4E-17	PU-0033	04PU-96-0026	10-14 IN	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
P-4E-18	PU-0034	04PU-96-0027	0-2.5 IN	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
P-4E-19	PU-0035	04PU-96-0028	0-2 IN	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
P-4E-32	PU-0036	04PU-96-0029	0-2 IN	0.33	0.08	0.33	0.33	0.33	0.33	0.33	0.08
P-4W-42	PU-0039	04PU-96-0032	0-3 IN	0.16	1.27	0.29	0.46	0.16	0.57	1.5	1.05
P-4W-49	PU-0037	04PU-96-0030	0-1.5 IN	0.34	0.05	0.34	0.34	0.34	0.34	0.34	0.05
P-4W-50	PU-0038	04PU-96-0031	0-2.5 IN	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
P-4W-70	PU-0040	04PU-96-0033	0-2.5 IN	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33

P-4

Reach P-4 Pu Data, With Summary of Particle Size Data

Samples binned into age and particle size groups

Field Site #	Sample ID No	Request No	Geomorphic Unit	Sample Depth (in)	Lab Texture	Gravel	Coarse-Med Sand	Fine Sand	Silt	Clay	Pu-238 (pCi/g)	Pu-239 (pCi/g)		Sample Bin	Average Pu-239,240	Standard Deviation	% of mean
P4E-1	04PU-96-0227	2829	c1b	0--1.5	s	2.2	83.5	12.2	1.7	2.8	BDL	2.1		1			
P4E-1R	04PU-96-0027	1938	c1b	0--2.5	s	4	92.42	6.6	0.78	0.2	0.003	0.539		1			
P4E-4	04PU-96-0228	2829	c3	0--2	s	12.1	81.5	12.5	3.6	2.4	BDL	2.3		1			
P4E-17	04PU-96-0026	1938	c3	10--14	s	3.5	88.81	11.12	0.07	0	0.005	1.06		1			
P4E-19	04PU-96-0028	1938	c3	0--2	s	8.4	84.96	12.7	1.94	0.4	0.002	0.759		1			
PW4-53	04PU-96-0236	2829	o4a	0--4	s	5.6	78.8	14.2	4.5	2.5	BDL	2.4		1			
P4W-58	04PU-96-0237	2829	o4a	0--3	s	8.7	76.8	13	7.8	2.5	0.027	1.6		1	1.5	0.8	50%
PW4-59	04PU-96-0239	2829	o4b	7--15	s	17.6	88.4	8.2	1.5	2.5	0.079	5.5		2			
PW4-52	04PU-96-0235	2829	o4b	5--14	s	3.4	90.8	5.1	1.5	2.4	0.083	8.5		2			
P4W-42	04PU-96-0032	1938	c5	0--3	s	4.5	87.17	10.41	2.01	0.4	0.021	4.75		2			
PW4-44	04PU-96-0233	2829	c5	0--3	s	5.2	79.8	12.2	4.9	3.2	0.064	16		2	8.7	5.1	58%
W of P4W-42	04PU-96-0232	2829	c6	10--18	s	3.6	84.8	9.6	2.4	3.2	BDL	2.5		3			
P4W-70	04PU-96-0240	2829	c6	16--30	s	12.6	91.1	4.8	1.6	2.4	BDL	0.23		3	1.4	1.6	118%
P4E-10	04PU-96-0025	1938	c3	28--35	ls	6.5	38.75	39.46	18.59	3.2	0.003	1.49		4			
P4E-32	04PU-96-0029	1938	f1	0--2	sl	3.2	11.62	33.44	49.84	5.1	0.038	6.21		4	3.9	3.3	87%
															5.3	2.6	49%
PW4-52	04PU-96-0234	2829	o4b	0--4.5	sl	4.9	30.2	40	23.7	6.1	0.048	5.9		4 or 5			
PW4-59	04PU-96-0238	2829	o4b	0--7	ls	8.8	49.1	26.2	20.2	4.5	0.045	7.4		4 or 5			
															11.7	13.2	113%
P4W-49	04PU-96-0030	1938	c5	0--1.5	sl	0.2	34.52	17.64	40.84	7	0.038	4.23		5			
W of P4W-42	04PU-96-0231	2829	c6	0--8	sl	5.8	41.9	29.1	23.4	5.5	0.13	38		5			
P4W-70	04PU-96-0033	1938	c6	0--3	l	3.5	20.88	27.37	44.44	7.3	0.075	11.3		5			
P4W-50	04PU-96-0031	1938	f1	0--2.5	ls	3.8	47.41	32.77	17.62	2.2	0.01	3.42		5	14.2	16.2	114%
P4E-21	04PU-96-0223	2829	f1	0--2.5	sl	14.7	31.3	33.7	30.1	4.9	BDL	0.25		6			
P4E-21	04PU-96-0224	2829	f1	13--17	ls	9.2	59.9	22	14.5	3.6	0.014	0.038		6			
P4E-23	04PU-96-0225	2829	f2	0--3	sl	3.4	40.7	29.1	25.8	4.3	0.022	0.15		6			
P4E-23	04PU-96-0226	2829	f2	11--16	s	8.7	85.4	9.2	2.9	2.5	BDL	0.024		6			
P4E-24	04PU-96-0229	2829	f2	0--3	sl	3.3	35	34.9	25.3	4.8	BDL	0.16		6			
P4E-25	04PU-96-0230	2829	f2	0--2	ls	4.6	62.7	18.5	15.5	3.4	0.035	0.069		6	0.1	0.1	75%

Note on Particle Size Data: percentages of sand, silt, and clay fractions based on <2 mm fraction.

Notes on Lab Texture: l = loam; ls = loamy sand; s = sand; sl = sandy loam.

BDL = Below Detection Limit

Bin 1 = channel sands from ~1965 to 1990s (channel facies of units c1, c1b, c2a, c2b, c2c, c3, o4a)

Bin 2 = channel sands from mid-to-late 1950s to ~1965 (channel facies of units o4b, c5)

Bin 3 = channel sands from ~1935 to pre-late 1950s (channel facies of unit c6)

Bin 4 = loamy sands, sandy loams, and loams from ~1965 to 1990s (overbank/floodplain facies of units c1 to c4a (or to c4b?) and spatially related unit f1)

Bin 5 = loamy sands, sandy loams, and loams of undefined age (overbank/floodplain facies of units c5 and c6 (+ c4b) and spatially related unit f1)

Bin 6 = pre-1943 deposits (deposits of unit f2 and parts of unit f1 with minimal or no post-1943 deposition)

Inventory Pu-239,240 Inventory, Bench P-4, and footprint sample allocations for May 1997 sampling event (using 4/28/97 inventory estimates, and 4/28/97 Crystal Ball runs)

al for allocation: 20 samples distributed between units to optimize reduction in uncertainties in Pu inventory (reduce variance)

thirteen samples allocated to characterize widespread units (area variance), to evaluate potential undefined horizontal and vertical variations in contamination, and some "other criteria".

se allocations constitute the minimum number of samples considered necessary to meet investigation objectives. It is anticipated that additional samples will be collected, selected based on the judgement of the field team.

Site	Location	Facies	Area (ft2)	Area (m2)	Estimated Average Thickness (m)	Estimated Thickness Range (m)	Estimated Volume (m3)	Est. Gravel (%)	Est. Non-gravel Porosity	Estimated Average Density (g/cm3)	zones on concentrations	Estimated Average Pu-239,240 (pCi/g)	Estimated Pu-239,240 Inventory (uCi)	Percent of Total Inventory in sub-reach	Percent in Bin in sub-reach	Percent in Bin in P-4 east+west	Percent in Bin in P-4 Total	No Volume Variance Weight P-4 (n=20)	No Area Variance Weight P-4 (n=20)	Possible Distribution 20 samples Based on Volume Variance (inventory)	Possible Adjustments Using Area Variance (widespread units)	Possible Adjustments Based on "Other Criteria" (geomorphic, etc.)	"Other Criteria" Notes	Total Samples (tentative)	Total Samples (actual vs. Nipel)	Percent of Samples in Bin
1	P-4 west	channel	19928	1852	0.45	0.1-1.0	834	15	0.85	1.25	bin 1	1.5	1318	1%								1	G	1		
1b	P-4 west	channel	17786	1653	0.45	0.1-1.0	744	5	0.95	1.25	bin 1	1.5	1175	1%												
2a	P-4 west	channel	1952	274	0.45	0.1-1.0	123	15	0.85	1.25	bin 1	1.5	197	0%												
2b	P-4 west	channel	28753	2673	0.45	0.1-1.0	1203	15	0.85	1.25	bin 1	1.5	1917	2%												
2c	P-4 west	channel	34172	3176	0.45	0.1-1.0	1429	15	0.85	1.25	bin 1	1.5	2278	1%												
3	P-4 west	channel	2968	276	0.45	0.1-1.0	124	15	0.85	1.25	bin 1	1.5	198	0%				0.3	0.3							
upper	P-4 west	channel	86758	8064	0.2	0.1	1613	5	0.95	1.25	bin 1	1.5	2873	2%	6%	9%				1						
1	P-4 east	channel	108750	10108	0.45	0.1-1.0	4549	15	0.85	1.25	bin 1	1.5	7250	12%						2				1		
1b	P-4 east	channel	43966	4087	0.45	0.1-1.0	1839	5	0.95	1.25	bin 1	1.5	3270	5%												
2a	P-4 east	channel	7589	705	0.45	0.1-1.0	317	15	0.85	1.25	bin 1	1.5	506	1%												
2b	P-4 east	channel	3393	315	0.45	0.1-1.0	142	15	0.85	1.25	bin 1	1.5	226	0%												
2c	P-4 east	channel	3692	343	0.45	0.1-1.0	154	15	0.85	1.25	bin 1	1.5	246	0%												
upper	P-4 east	channel	135365	12954	0.4	0.4	5182	5	0.95	1.25	bin 1	1.5	9230	35%				3.5	0.9	2				2		
1	P-4 east	channel	343331	31773	0.05	0-0.4	1689	5	0.97	1.25	bin 1	1.5	3073	5%	39%	23%	22%	0.3	1		1			1	5	11%
deep	P-4 west	channel	86758	8064	0.8	0.1 - 1.6	6451	5	0.95	1.25	>, <, or = bin 1	1.5	11491	7%	7%	5%		1.4	0.2	3		2	B	3		
deep	P-4 east	channel	135365	12954	0.6	0-1.6	7772	5	0.95	1.25	>, <, or = bin 1	1.5	13845	23%	23%	6%	10%	1.4	0.4	1		2	B	3	6	35%
upper	P-4 west	channel	40783	3791	0.2	0.3	758	5	0.95	1.25	bin 2	8.7	7833	5%								3	E	1		
upper	P-4 west	channel	46213	4296	0.2	0.3	859	5	0.95	1.25	bin 2	8.7	8876	5%				1		2				1		
1	P-4 west	channel	138310	12862	0	0-0.1	0	3	0.97	1.25	bin 2	8.7	0	0%				0.1	2.2		3	-1	A			
1a	P-4 west	channel	61397	5744	0	0-0.05	0	3	0.97	1.25	bin 2	8.7	0	0%	10%	7%	9%								2	5%
deep	P-4 west	channel	40783	3791	0.8	0.3 - 1.6	3033	5	0.95	1.25	>, <, or = bin 2	8.7	33331	19%						2		2	B,E	4		
deep	P-4 west	channel	46213	4296	0.8	0.3 - 1.6	3436	5	0.95	1.25	>, <, or = bin 2	8.7	35903	22%	41%	30%	25%	4.7	1	3		1	B,E	4	3	21%
b	P-4 west	channel	52689	4897	0.8	0.2	3918	5	0.95	1.25	bin 3	1.4	6514	4%	4%	3%	3%	3.1	0.4	2				2	2	5%
1	P-4 west	overbank	19928	1852	0.05	0-1.2	93	0	1	1.25	bin 4	3.9	452	0%												
1b	P-4 west	overbank	17786	1653	0.05	0-1.2	83	0	1	1.25	bin 4	3.9	403	0%												
2a	P-4 west	overbank	2953	274	0.05	0-1.2	14	0	1	1.25	bin 4	3.9	67	0%												
2b	P-4 west	overbank	28753	2673	0.05	0-1.2	134	0	1	1.25	bin 4	3.9	653	0%												
2c	P-4 west	overbank	34172	3176	0.05	0-1.2	159	0	1	1.25	bin 4	3.9	774	0%												
3	P-4 west	overbank	2968	276	0.05	0-0.2	14	0	1	1.25	bin 4	3.9	67	0%												
4	P-4 west	overbank	86758	8064	0.05	0-0.2	403	0	1	1.25	bin 4	3.9	1966	1%	1%	2%		0.6	3.3	1	1	-1	A	1		
1	P-4 east	overbank	108750	10108	0.05	0-0.2	505	0	1	1.25	bin 4	3.9	2464	4%							1	-1	A			
1b	P-4 east	overbank	43966	4087	0.05	0-0.2	204	0	1	1.25	bin 4	3.9	996	2%												
2a	P-4 east	overbank	7589	705	0.05	0-0.2	35	0	1	1.25	bin 4	3.9	172	0%												
2b	P-4 east	overbank	3393	315	0.05	0-0.2	16	0	1	1.25	bin 4	3.9	77	0%												
2c	P-4 east	overbank	3692	343	0.05	0-0.2	17	0	1	1.25	bin 4	3.9	84	0%												
1	P-4 east	overbank	135365	12954	0.05	0-0.2	648	0	1	1.25	bin 4	3.9	3154	5%				0.3	3.4		2	-1	A	1		
1	P-4 east	overbank	343331	31772	0.1	0-0.45	3577	3	0.97	1.25	bin 4	3.9	17370	26%	38%	10%	16%	2.4	4	2	2	2	F	6	6	21%
b	P-4 west	overbank	40783	3791	0.1	0-0.5	379	0	1	1.25	bin 5+	11.7	5544	3%												
1	P-4 west	overbank	46213	4296	0.1	0-0.5	430	0	1	1.25	bin 5+	11.7	6282	4%												
1	P-4 west	overbank	52689	4897	0.1	0-0.5	979	0	1	1.25	bin 5+	11.7	14325	9%						1		3	D, K	4		
1	P-4 west	overbank	138370	12862	0.05	0-0.4	643	3	0.97	1.25	bin 5+	11.7	9123	6%							2			2		
1	P-4 west	overbank	61397	5744	0.15	0-0.1	862	3	0.97	1.25	bin 5+	11.7	12223	7%	29%	21%	18%	2.2	3.8	1		1	C	2	8	21%
	P-4 east	eolian?	56186	5223	0.15	0-0.1	783	3	0.97	1.25	bin 6	0.2	95	0%				0.1	0.2							
																	Total	20	19.9	19	10	11		39	39	

on "other criteria"

mber of samples decreased because area-weighted adjustment added samples to units with insufficient thickness

mber of samples increased to evaluate possible depth variations in contamination in thicker units, including confirmation of thickness of contaminated sediments

mber of samples increased to evaluate area of floodplain with potentially distinct (lower) levels of contamination

mber of samples increased to evaluate contaminant concentrations in stratigraphic layer with highest Pu concentrations

mber of samples increased to evaluate variability in contaminant concentrations in old channel deposits with relatively high Pu concentrations

mber of samples increased to evaluate variability in target geomorphic unit, and to test effects of particle size variations

mber of samples increased to evaluate contaminant in organic-rich sediments along effluent channel

mber of samples increased to include areas outside at location of highest previous Pu concentrations, in order to examine colocation of contaminants

Reach P-4 Pu Data, With Summary of Particle Size Data

Samples Separated By Sample Site and Geomorphic Unit

Field Site #	Sample ID No	Request No	Geomorphic Unit	Sample Depth (in)	Lab Texture	Gravel	Coarse-Med Sand	Fine Sand	Silt	Clay	Pu-238 (pCi/g)	Pu-239 (pCi/g)		Pu 239/238 ratio
P4E-1	04PU-96-0227	2829	C1b	0--1.5	s	2.2	83.5	12.2	1.7	2.8	BDL	2.1		
P4E-18	04PU-96-0027	1938	C1b	0--2.5	s	4	92.42	6.6	0.78	0.2	0.003	0.539		180
P4E-4	04PU-96-0228	2829	C3	0--2	s	12.1	81.5	12.5	3.6	2.4	BDL	2.3		
P4E-10	04PU-96-0025	1938	C3	28--35	ls	6.5	38.75	39.46	18.59	3.2	0.003	1.49		497
P4E-17	04PU-96-0026	1938	C3	10--14	s	3.5	88.81	11.12	0.07	0	0.005	1.06		212
P4E-19	04PU-96-0028	1938	C3	0--2	s	8.4	84.96	12.7	1.94	0.4	0.002	0.759		380
PW4-53	04PU-96-0236	2829	C4a	0--4	s	5.6	78.8	14.2	4.5	2.5	BDL	2.4		
P4W-58	04PU-96-0237	2829	C4a	0--3	s	8.7	76.8	13	7.8	2.5	0.027	1.6		59
PW4-52	04PU-96-0234	2829	C4b	0--4.5	sl	4.9	30.2	40	23.7	6.1	0.048	5.9		123
PW4-52	04PU-96-0235	2829	C4b	5--14	s	3.4	90.8	5.1	1.5	2.4	0.083	8.5		102
PW4-59	04PU-96-0238	2829	C4b	0--7	ls	8.8	49.1	26.2	20.2	4.5	0.045	7.4		164
PW4-59	04PU-96-0239	2829	C4b	7--15	s	17.6	88.4	8.2	1.5	2.5	0.079	5.5		70
P4W-49	04PU-96-0030	1938	C5	0--1.5	sl	0.2	34.52	17.64	40.84	7	0.038	4.23		111
P4W-42	04PU-96-0032	1938	C5	0--3	s	4.5	87.17	10.41	2.01	0.4	0.021	4.75		226
PW4-44	04PU-96-0233	2829	C5	0--3	s	5.2	79.8	12.2	4.9	3.2	0.064	16		250
W of P4W-42	04PU-96-0231	2829	C6	0--8	sl	5.8	41.9	29.1	23.4	5.5	0.13	38		292
W of P4W-42	04PU-96-0232	2829	C6	10--18	s	3.6	84.8	9.6	2.4	3.2	BDL	2.5		
P4W-70	04PU-96-0033	1938	C6	0--3	l	3.5	20.88	27.37	44.44	7.3	0.075	11.3		151
P4W-70	04PU-96-0240	2829	C6	16--30	s	12.6	91.1	4.8	1.6	2.4	BDL	0.23		
P4E-32	04PU-96-0029	1938	F1	0--2	sl	3.2	11.62	33.44	49.84	5.1	0.038	6.21		163
P4W-50	04PU-96-0031	1938	F1	0--2.5	ls	3.8	47.41	32.77	17.62	2.2	0.01	3.42		342
P4E-21	04PU-96-0223	2829	F1	0--2.5	sl	14.7	31.3	33.7	30.1	4.9	BDL	0.25		
P4E-21	04PU-96-0224	2829	F1	13--17	ls	9.2	59.9	22	14.5	3.6	0.014	0.038		3
P4E-23	04PU-96-0225	2829	F1	0--3	sl	3.4	40.7	29.1	25.8	4.3	0.022	0.15		7
P4E-23	04PU-96-0226	2829	F1	11--16	s	8.7	85.4	9.2	2.9	2.5	BDL	0.024		
P4E-24	04PU-96-0229	2829	F2	0--3	sl	3.3	35	34.9	25.3	4.8	BDL	0.16		
P4E-25	04PU-96-0230	2829	F2	0--2	ls	4.6	62.7	18.5	15.5	3.4	0.035	0.069		2
													av	175
													med	163

Note on Particle Size Data: percentages of sand, silt, and clay fractions based on <2 mm fraction

Notes on Lab Texture: l = loam; ls = loamy sand; s = sand; sl = sandy loam.

BDL = Below Detection Limit

Appendix 1 - Full suite laboratory analysis results - all detected chemicals

Geomorphic Unit	PU25	PU26	PU27	PU28	PU29	PU30	PU31	PU32	PU33
	C3 depth Historic Floodplain	C3 depth Historic Floodplain	C1	C3	F1	C5	F1	C5	C6
Sample Depth (cm)	89-71	25-36	0-6	0-5	0-5	0-4	0-7	0-8	0-7
Fixed-Point Sample Location	10	17	18	19	32	49	50	42	70
Total Organic Carbon	6100	465	1450	1420	9220	14100	4940	3560	10300
Alpha Fixed Point	16	10.8	4.8	5	8.4	29.2	12	10	18.6
Beta Fixed Point	682	549	530	543	588	637	633	563	565
Gamma Fixed Point	7368	5336	5002	5087	6943	6308	6199	5146	6432

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Appendix 1 - Full suite laboratory analysis results - all detected chemicals (continued)

Chemical	PU25	PU26	PU27	PU28	PU29	PU30	PU31	PU32	PU33	BACKGROUND UTL FOR SEDIMENTS
Gross Alpha	44.88	33.55	26.46	20.21	72.71	51.99	42.44	38.58	81.32	58.8
Gross Beta	40.23	32.06	32.33	35.55	35.84	42.64	42.42	35.47	41.47	46.1
Actinium-228	1.89	2	1.23	1	2.04	1.92	2.1	1.46	2.19	3.3
Americium-241	0.086	<0.055	0.047	0.064	0.418	0.376	0.11	0.094	0.714	0.139
Bismuth-214	1.06	0.83	0.34	<0.23	1.02	1.05	0.82	<0.25	0.93	1.61
Cesium-137	<0.08	<0.08	<0.08	<0.07	0.79	0.57	<0.08	0.34	0.89	1.28
Lead-212	1.81	1.8	0.71	0.72	1.65	1.95	1.42	1.19	1.79	2.36
Lead-214	1.56	1.29	0.68	0.7	1.64	1.61	1.37	0.87	1.54	1.97
Plutonium-238	0.003	0.005	0.003	0.002	0.038	0.038	0.01	0.021	0.075	0.006
Plutonium-239/240	1.494	1.056	0.539	0.759	6.214	4.233	3.416	4.746	11.265	0.197
Potassium-40	30.23	20.98	27.52	26.45	28.88	27.04	31.35	30.51	30.7	36.8
Strontium-90	0.3	0	0.4	-0.2	-0.2	0.1	0.5	-0.1	0.4	1
Thallium-208	0.82	0.59	0.48	0.27	0.68	0.7	0.45	0.42	0.7	0.906
Thorium-228	1.93	1.97	0.84	0.79	1.79	2.04	*1.61*	1.24	1.9	2.28
Thorium-230	1.98	1.35	0.8	0.84	1.97	2.03	1.56	1.08	1.86	2.29
Thorium-232	1.88	1.79	0.92	0.78	1.85	2.01	1.43	1.25	1.83	2.33
Tritium	0.039	0.006	0.003	0.003	0.016	0.032	0.006	0.011	0.117	0.068
Uranium-234	1.7	1.8	<0.83	<0.95	1.9	1.6	1.4	<0.94	1.8	2.39
Uranium-235	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	0.16
Uranium-238	1.6	1.3	<0.72	<0.72	1.8	1.7	1.4	1	2	2.29
Yttrium-88	<0.05	0.08	<0.03	<0.02	<0.08	<0.03	<0.02	<0.06	<0.02	<0.06

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Appendix 1 - Full suite laboratory analysis results - all detected chemicals (continued)

Chemical	PU25	PU26	PU27	PU28	PU29	PU30	PU31	PU32	PU33	BACKGROUND UTL FOR SEDIMENTS
Aluminum	11300	1330	1740	2260	6790	18400	4380	1870	6960	13260
Antimony	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	5.00
Arsenic	<2.7	<2.4	<1.2	<1.4	<2.5	5.1	<1.9	<1.5	<2.6	3.98
Barium	79.8	14.9	16	21.4	65.1	163	45	21.2	89.4	127
Beryllium	0.94	0.16	0.19	0.22	0.68	1.7	0.46	0.24	0.85	1.31
Cadmium	<0.2	<0.2	<0.2	<0.2	0.41	0.26	<0.2	<0.2	0.52	0.18
Calcium	2030	659	412	488	1430	4610	1030	526	1950	3850
Chromium	8.4	8.8	3.2	3.4	6.7	14.5	4.2	3.6	8	10.5
Cobalt	2.5	2.8	0.85	0.92	2.6	5.6	2	1.7	3.5	4.73
Copper	4.9	1	1.1	1.4	6.5	12.8	3	1.5	9	9.97
Iron	9660	36600	7960	4440	8020	15400	7960	10100	8770	13800
Lead	11.2	9.9	5.6	5.9	19.4	30.5	8.5	7.1	23.5	19.7
Magnesium	1540	390	318	379	1060	3050	693	360	1250	2130
Manganese	309	1030	242	157	304	484	301	301	410	543
Mercury	<0.02	<0.02	<0.02	<0.02	0.05	0.05	<0.02	<0.02	0.11	0.03
Nickel	6	5.2	2.3	2.3	4.7	11	3.5	2.7	5.5	9.38
Potassium	2680	462	661	875	1630	3740	1400	662	1980	2690
Silver	0.22	<0.1	<0.1	0.14	0.42	0.38	0.13	<0.1	1	0.28
Sodium	1440	423	605	682	549	532	772	462	450	1470
Thallium	<1.9	6.7	<1.1	<0.89	<0.72	<0.87	<1	<2.2	<0.6	3.20
Titanium	303	1840	349	173	173	194	259	454	135	439
Uranium	4.8	4	2.2	2.2	5.5	5.1	4.2	3	5.9	6.99
Vanadium	14.6	23.8	6.3	5.1	10.6	20.3	8.6	7.7	11.4	19.7
Zinc	46.3	222	46	26	48.7	66.9	41.4	60.7	54.9	60.2
Cyanide	0.52	<0.15	<0.15	<0.15	0.38	0.23	1	0.49	0.52	0.72

Appendix 1 - Full suite laboratory analysis results - all detected chemicals (continued)

Chemical	PU25	PU26	PU27	PU28	PU29	PU30	PU31	PU32	PU33
Aroclor 1016	0.033	0.029	0.029	0.029	0.032	0.031	0.03	0.03	0.03
Aroclor 1221	0.068	0.059	0.059	0.059	0.065	0.063	0.061	0.06	0.061
Aroclor 1232	0.033	0.029	0.029	0.029	0.032	0.031	0.03	0.03	0.03
Aroclor 1242	0.033	0.029	0.029	0.029	0.032	0.031	0.03	0.03	0.03
Aroclor 1248	0.033	0.029	0.029	0.029	0.032	0.031	0.03	0.03	0.03
Aroclor 1254	0.033	0.029	0.029	0.029	0.032	0.031	0.03	0.03	0.03
Aroclor 1260	0.033	0.029	0.029	0.029	0.032	0.031	0.03	0.03	0.03
Acenaphthene	<0.344	<0.332	<0.329	<0.333	<0.331	<0.344	<0.331	0.219	<0.337
Anthracene	<0.344	<0.332	<0.329	<0.333	<0.331	<0.344	<0.331	0.369	<0.337
Benzo(g,h,i)Perylene	<0.344	<0.332	<0.329	<0.333	<0.331	<0.344	<0.331	0.473	<0.337
Fluoranthene	<0.344	<0.332	<0.329	<0.333	0.059	0.056	<0.331	1.277	<0.337
Fluorene	<0.344	<0.332	<0.329	<0.333	<0.331	<0.344	<0.331	0.294	<0.337
Indeno(1,2,3-cd) Pyrene	<0.344	<0.332	<0.329	<0.333	<0.331	<0.344	<0.331	0.455	<0.337
Naphthalene	<0.344	<0.332	<0.329	<0.333	<0.331	<0.344	<0.331	0.374	<0.337
Phenanthrene	<0.344	<0.332	<0.329	<0.333	<0.331	<0.344	<0.331	1.505	<0.337
Pyrene	<0.344	<0.332	<0.329	<0.333	0.053	0.051	<0.331	1.055	<0.337
Benzo(a)pyrene Equivalence	0.42	0.4	0.4	0.4	0.37	0.39	0.4	0.83	0.41

0.09

NO SAL
2,400 ppm

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Appendix 1 - Full suite laboratory analysis results - all detected chemicals (continued)

Geomorphic Unit	PU25 Historic Floodplain	PU26 Historic Floodplain	PU27 C1	PU28 C3	PU29 F1	PU30 C5	PU31 C5	PU32 C5	PU33 F1
4,4-DDD	0.0033	0.0029	0.0029	0.0029	0.0032	0.0031	0.003	0.003	0.003
4,4-DDE	0.0033	0.0029	0.0029	0.0029	0.0032	0.0031	0.003	0.003	0.003
4,4-DDT	0.0033	0.0029	0.0029	0.0029	0.0032	0.0031	0.003	0.003	0.003
Aldrin	0.0017	0.0015	0.0015	0.0015	0.0016	0.0016	0.0015	0.0015	0.0015
alpha-BHC	0.0017	0.0015	0.0015	0.0015	0.0016	0.0016	0.0015	0.0015	0.0015
alpha-Chlordane	0.0017	0.0015	0.0015	0.0015	0.0016	0.0016	0.0015	0.0015	0.0015
beta-BHC	0.0017	0.0015	0.0015	0.0015	0.0016	0.0016	0.0015	0.0015	0.0015
delta-BHC	0.0017	0.0015	0.0015	0.0015	0.0016	0.0016	0.0015	0.0015	0.0015
Dieldrin	0.0033	0.0029	0.0029	0.0029	0.0032	0.0031	0.003	0.003	0.003
Endosulfan I	0.0017	0.0015	0.0015	0.0015	0.0016	0.0016	0.0015	0.0015	0.0015
Endosulfan II	0.0033	0.0029	0.0029	0.0029	0.0032	0.0031	0.003	0.003	0.003
Endosulfan Sulfate	0.0033	0.0029	0.0029	0.0029	0.0032	0.0031	0.003	0.003	0.003
Endrin	0.0033	0.0029	0.0029	0.0029	0.0032	0.0031	0.003	0.003	0.003
Endrin Aldehyde	0.0033	0.0029	0.0029	0.0029	0.0032	0.0031	0.003	0.003	0.003
Endrin Ketone	0.0033	0.0029	0.0029	0.0029	0.0032	0.0031	0.003	0.003	0.003
gamma-BHC(Lindane)	0.0017	0.0015	0.0015	0.0015	0.0016	0.0016	0.0015	0.0015	0.0015
gamma-Chlordane	0.0017	0.0015	0.0015	0.0015	0.0016	0.0016	0.0015	0.0015	0.0015
Heptachlor	0.0017	0.0015	0.0015	0.0015	0.0016	0.0016	0.0015	0.0015	0.0015
Heptachlor Epoxide	0.0017	0.0015	0.0015	0.0015	0.0016	0.0016	0.0015	0.0015	0.0015
Methoxychlor	0.017	0.015	0.015	0.015	0.016	0.016	0.015	0.015	0.015
Toxaphene	0.17	0.15	0.15	0.15	0.16	0.16	0.15	0.15	0.15
2-Methylnaphthalene	<0.344	<0.332	<0.329	<0.333	<0.331	<0.344	<0.331	0.167	<0.337
Di-n-octyl phthalate	<0.344	<0.332	<0.329	<0.333	<0.331	<0.344	0.094	<0.328	<0.337
Dibenzofuran	<0.344	<0.332	<0.329	<0.333	<0.331	<0.344	<0.331	0.18	<0.337

Los Alamos Canyon, LA5

Field Site #	Sample ID No	Request No	Geomorphic Unit	Sample Depth (in)	Sample Depth (cm)	Am-241 (pCi/g)	Cs-137 (pCi/g)	Pu-238 (pCi/g)	Pu-239 (pCi/g)	Sr-90 (pCi/g)	Pu 239/238 ratio	Median Particle Size	Lab Texture	Gravel	Coarse-Med Sand	Fine Sand	Silt	Clay
LA5-7	04LA-96-0176	2252	c1	0--4	0-10	0.023	0.08	-0.001	0.124	0.59		cs	gs	20.4	92.49	5.68	1.64	0.18
LA5-22	04LA-96-0180	2252	c1	0--3	0-8	0.032	0.12	0.004	0.161	0.24	40	cs	gs	28.2	92.14	5.07	2.59	0.2
LA5-16	04LA-96-0179	2252	c2	0--3	0-8	0.052	0.11	0.005	1.379	0.43	276	fs	ls	7.5	31.6	47.08	19.42	1.9
LA5-1	04LA-96-0175	2252	c3	0--3	0-8	0.025	0.43	0.002	0.101	0.42	51	vfs	ls	5.3	26.37	50.77	20.35	2.5
						0.02		0.003	0.098	0.88	33							
LA5-13	04LA-96-0177	2252	f	0--4	0-10	0.026	0.39	0	0.18	0.55		fs	ls	2.8	22.26	57.44	17.8	2.5
LA5-14	04LA-96-0178	2252	f	0--4	0-10	0.065	0.68	0.005	0.189	0.72	38	fs	sl	9.9	35.78	32.04	30.08	2.1
							0.79											
LA5-30	04LA-96-0181	2252	f1	0--2	0-5	0.023	0.45	-0.002	0.436	0.56		fs	ls	2.7	27.86	57.16	13.59	1.4

Notes

Percentages of sand, silt, & clay size fractions calculated from < 2mm fraction.

Lab Texture: ls=loamy sand; sl=sandy loam; gs= gravelly sand (≥20% gravel)

Median Particle Size: refers to <2mm fraction (fraction submitted for chemical analysis) cs=coarse sand; fs=fine sand; vfs=very fine sand

Am-241 analyses by alpha spec; gamma spec also run, but not presented here as close to detection limit.

LA-5

LA-5 full suite analyses

Analytes with values above background (rad + metals) or detected (organics)

SAMPLE_LOC	LOCATION_ID	SAMPLE_ID	DEPTH	B	CA	K	NA	PB	V
LA5-1	LA-0032	04LA-96-0175	0-3 IN	3.3	3440	2120	1430	26.2	13.9
LA5-13	LA-0034	04LA-96-0177	0-4 IN	2.5	3830	2260	1530	8.8	18.8
LA5-14	LA-0035	04LA-96-0178	0-4 IN	2.4	3320	2020	1360	9.8	16.4
LA5-16	LA-0036	04LA-96-0179	0-3 IN	2.2	3220	1840	1180	9	18.8
LA5-22	LA-0037	04LA-96-0180	0-3 IN	1.2	1380	1020	966	4	8.7
LA5-30	LA-0038	04LA-96-0181	0-2 IN	6.8	4910	2880	875	9.5	20.6
LA5-7	LA-0033	04LA-96-0176	0-4 IN	1.2	1320	556	497	5.1	6.5
BACKGROUND FOR SS				4.1	3850	2690	1470	19.7	19.7

SAMPLE_LOC	LOCATION_ID	SAMPLE_ID	DEPTH	PU-239/240		Aldrin			
LA5-1	LA-0032	04LA-96-0175	0-3 IN	0.09		0.00117			
LA5-13	LA-0034	04LA-96-0177	0-4 IN	0.18		0.000671			
LA5-14	LA-0035	04LA-96-0178	0-4 IN	0.18		0.000671			
LA5-16	LA-0036	04LA-96-0179	0-3 IN	1.37		0.00067			
LA5-22	LA-0037	04LA-96-0180	0-3 IN	0.16		0.00067			
LA5-30	LA-0038	04LA-96-0181	0-2 IN	0.43		0.000673			
LA5-7	LA-0033	04LA-96-0176	0-4 IN	0.12		0.00067			
BACKGROUND FOR SS				0.197					

SAL's

Los Alamos Canyon, LA-5																				
Field Site #	Sample ID No	Request No	Geomorphic Unit	Sample Depth (in)	Sample Depth (cm)		Am-241 (pCi/g)	Cs-137 (pCi/g)	Pu-238 (pCi/g)	Pu-239 (pCi/g)	Sr-90 (pCi/g)		Pu 239/238 ratio		Median Particle Size	Lab Texture	Gravel	Coarse-Med Sand	Fine Sand	Silt	Clay
LA5-7	04LA-96-0176	2252	c1	0–4	0-10		0.023	0.08	-0.001	0.124	0.59				cs	gs	20.4	92.49	5.68	1.64	0.18
LA5-22	04LA-96-0180	2252	c1	0–3	0-8		0.032	0.12	0.004	0.161	0.24		40		cs	gs	28.2	92.14	5.07	2.59	0.2
LA5-16	04LA-96-0179	2252	c2	0–3	0-8		0.052	0.11	0.005	1.379	0.43		276		fs	ls	7.5	31.6	47.08	19.42	1.9
LA5-1	04LA-96-0175	2252	c3	0–3	0-8		0.025	0.43	0.002	0.101	0.42		51		vfs	ls	5.3	26.37	50.77	20.35	2.5
							0.02		0.003	0.098	0.88		33								
LA5-13	04LA-96-0177	2252	f	0–4	0-10		0.026	0.39	0	0.18	0.55				fs	ls	2.8	22.26	57.44	17.8	2.5
LA5-14	04LA-96-0178	2252	f	0–4	0-10		0.065	0.68	0.005	0.189	0.72		38		fs	sl	9.9	35.78	32.04	30.08	2.1
								0.79													
LA5-30	04LA-96-0181	2252	fl	0–2	0-5		0.023	0.45	-0.002	0.436	0.56				fs	ls	2.7	27.86	57.16	13.59	1.4

Notes

Percentages of sand, silt, & clay size fractions calculated from < 2mm fraction.

Lab Texture: ls=loamy sand; sl=sandy loam; gs= gravelly sand (≥20% gravel)

Median Particle Size: refers to <2mm fraction (fraction submitted for chemical analysis) cs=coarse sand; fs=fine sand; vfs=very fine sand

Am-241 analyses by alpha spec; gamma spec also run, but not presented here as close to detection limit.

LA-5

~~BACKGND~~

SAMPLE_LOC	LOCATION_ID	SAMPLE_ID	DEPTH	MEDIA	B	QUAL	CA	QUAL	K	QUAL	NA	QUAL	PB	QUAL	SE	QUAL	TOC	QUAL	V	QUAL
LA5-1	LA-0032	04LA-96-0175	0-3 IN	SS	3.3	J	3440		2120		1430		[redacted]		0.4	J	3450		13.9	
LA5-13	LA-0034	04LA-96-0177	0-4 IN	SS	2.5	J	3830		2260		[redacted]		8.8		0.7		2580		18.8	
LA5-14	LA-0035	04LA-96-0178	0-4 IN	SS	2.4	J	3320		2020		1360		9.6		0.37	J	3140		18.4	
LA5-16	LA-0036	04LA-96-0179	0-3 IN	SS	2.2	J	3220		1640		1180		9		0.67		3300		18.8	
LA5-22	LA-0037	04LA-96-0180	0-3 IN	SS	1.2	U	1380		1020		966		4		0.62		787		8.7	
LA5-30	LA-0038	04LA-96-0181	0-2 IN	SS	[redacted]	J	[redacted]		[redacted]		876		9.5		0.74		11500		[redacted]	
LA5-7	LA-0033	04LA-96-0176	0-4 IN	SS	1.2	U	1320		556		497	J	5.1		0.3	U	906		6.5	
[redacted]																				

BACKGND

SAMPLE LOC	LOCATION ID	SAMPLE ID	DEPTH	MEDIA	AG	QUAL	AL	QUAL	AS	QUAL	BA	QUAL	BE	QUAL	CD	QUAL	CN(-1)	QUAL	CO	QUAL	CR	QUAL	CU
LA5-1	LA-0032	04LA-96-0175	0-3 IN	SS	0.1	U	7210		1.5		88.8		0.54		0.2	U	0.15	U	2.3	J	7.8		5.8
LA5-13	LA-0034	04LA-96-0177	0-4 IN	SS	0.1	U	7590		1.8		102		0.53		0.2	U	0.15	U	3.2	J	9.4		5.4
LA5-14	LA-0035	04LA-96-0178	0-4 IN	SS	0.1	U	6470		1.7		90.4		0.5	J	0.2	U	0.15	J	2.9	J	8		5
LA5-16	LA-0036	04LA-96-0179	0-3 IN	SS	0.1	U	6560		1.8		91		0.46	J	0.2	U	0.3	J	2.6	J	9.1		5.2
LA5-22	LA-0037	04LA-96-0180	0-3 IN	SS	0.1	U	2460		1.1		42.3		0.2	J	0.2	U	0.15	U	0.52	J	3.5		2.8
LA5-30	LA-0038	04LA-96-0181	0-2 IN	SS	0.1	U	5570		1.6		94.2		0.42	J	0.2	U	0.15	U	3.4	J	9.4		5.8
LA5-7	LA-0033	04LA-96-0176	0-4 IN	SS	0.1	U	1510		0.92	J	35.2		0.15	J	0.2	U	0.15	U	0.61	J	2.7		2.2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

<BACKGND

QUAL	FE	QUAL	HG	QUAL	MG	QUAL	MN	QUAL	NI	QUAL	SB	QUAL	TI	QUAL	TL	QUAL	U	QUAL	ZN	QUAL
	8120		0.02	U	1580		237		5.8		4.9	UJ	269	J	0.4	U	0.42		33.6	
	9770		0.02	U	1780		258		7		4.9	UJ	379	J	0.4	U	0.51		32	
	8830		0.02	U	1560		231		6.5		4.9	UJ	322	J	0.4	U	0.42		32.7	
	9870		0.02	U	1480		245		6.7		4.9	UJ	394	J	0.4	U	0.51		36.8	
	4500		0.02	U	858		128		2.9	J	4.9	UJ	216	J	0.4	U	0.1		17.2	
	10200		0.02	U	1590		248		6.4		4.9	UJ	389	J	0.4	U	0.38		38.4	
J	3500		0.02	U	800		116		3.3	J	4.9	UJ	133	J	0.4	U	0.15		14.6	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

DETECTS

SAMPLE_LOC	LOCATION_ID	SAMPLE_ID	DEPTH	MEDIA	Aldrin	QUAL
LA5-1	LA-0032	04LA-96-0160	0-3 IN	SS	[redacted]	
LA5-13	LA-0034	04LA-96-0162	0-4 IN	SS	0.000671	U
LA5-14	LA-0035	04LA-96-0163	0-4 IN	SS	0.000671	U
LA5-16	LA-0036	04LA-96-0164	0-3 IN	SS	0.00067	U
LA5-22	LA-0037	04LA-96-0165	0-3 IN	SS	0.00067	U
LA5-30	LA-0038	04LA-96-0166	0-2 IN	SS	0.000673	U
LA5-7	LA-0033	04LA-96-0161	0-4 IN	SS	0.00067	U

NON-DETECTS

SAMPLE_LOC	LOCATION_ID	SAMPLE_ID	DEPTH	MEDIA	Acenaphthene	QUAL	Acenaphthylene	QUAL	Aniline	QUAL	Anthracene	QUAL	Aroclor-1016	QUAL	Aroclor-1221	QUAL
LA5-1	LA-0032	04LA-96-0160	0-3 IN	SS	0.33	U	0.33	U	0.33	U	0.33	U	0.01	U	0.01	U
LA5-13	LA-0034	04LA-96-0162	0-4 IN	SS	0.33	U	0.33	U	0.33	U	0.33	U	0.01	U	0.01	U
LA5-14	LA-0035	04LA-96-0163	0-4 IN	SS	0.33	U	0.33	U	0.33	U	0.33	U	0.01	U	0.01	U
LA5-16	LA-0036	04LA-96-0164	0-3 IN	SS	0.33	U	0.33	U	0.33	U	0.33	U	0.01	U	0.01	U
LA5-22	LA-0037	04LA-96-0165	0-3 IN	SS	0.33	U	0.33	U	0.33	U	0.33	U	0.01	U	0.01	U
LA5-30	LA-0038	04LA-96-0166	0-2 IN	SS	0.67	U	0.67	U	0.67	U	0.67	U	0.01	U	0.01	U
LA5-7	LA-0093	04LA-96-0161	0-4 IN	SS	0.33	U	0.33	U	0.33	U	0.33	U	0.01	U	0.01	U

NON-DETECTS

Aroclor-1232	QUAL	Aroclor-1242	QUAL	Aroclor-1248	QUAL	Aroclor-1254	QUAL	Aroclor-1260	QUAL	Azobenzene	QUAL	BHC[alpha-]	QUAL	BHC[beta-]	QUAL	BHC[delta-]	QUAL
0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.33	U	0.000671	U	0.000671	U	0.000671	U
0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.33	U	0.000671	U	0.000671	U	0.000671	U
0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.33	U	0.000671	U	0.000671	U	0.000671	U
0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.33	U	0.00067	U	0.00067	U	0.00067	U
0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.33	U	0.00067	U	0.00067	U	0.00067	U
0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.67	U	0.000673	U	0.000673	U	0.000673	U
0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.33	U	0.00067	U	0.00067	U	0.00067	U

NON-DETECTS

BHC(gamma-)	QUAL	Benzo(a)anthracene	QUAL	Benzo(a)pyrene	QUAL	Benzo(b)fluoranthene	QUAL	Benzo(g,h,i)perylene	QUAL	Benzo(k)fluoranthene	QUAL	Benzoic Acid	QUAL
0.000671	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	3.3	U
0.000671	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	3.3	U
0.000671	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	3.3	U
0.00067	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	3.3	U
0.00067	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	3.3	U
0.000673	U	0.67	U	0.67	U	0.67	U	0.67	U	0.67	U	6.7	U
0.00067	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	3.3	U

NON-DETECTS

Benzyl Alcohol	QUAL	Bis(2-chloroethoxy)methane	QUAL	Bis(2-chloroethyl)ether	QUAL	Bis(2-ethylhexyl)phthalate	QUAL	Bromophenyl-phenylether(4-)	QUAL	Butylbenzylphthalate	QUAL
1.3	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U
1.3	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U
1.3	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U
1.3	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U
1.3	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U
2.6	U	0.67	U	0.67	U	0.67	U	0.67	U	0.67	U
1.3	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U

NON-DETECTS

Carbazole	QUAL	Chlordane (Technical Grade)	QUAL	Chlordane[alpha-]	QUAL	Chlordane[gamma-]	QUAL	Chloro-3-methylphenol[4-]	QUAL	Chloroaniline[4-]	QUAL	Chloronaphthalene[2-]
0.33	U	0.000671	U	0.000671	U	0.000671	U	0.66	U	1.3	U	0.33
0.33	U	0.00336	U	0.000671	U	0.000671	U	0.66	U	1.3	U	0.33
0.33	U	0.00335	U	0.000671	U	0.000671	U	0.66	U	1.3	U	0.33
0.33	U	0.00335	U	0.00067	U	0.00067	U	0.66	U	1.3	U	0.33
0.33	U	0.00335	U	0.00067	U	0.00067	U	0.66	U	1.3	U	0.33
0.67	U	0.00337	U	0.000673	U	0.000673	U	1.3	U	2.6	U	0.67
0.33	U	0.00335	U	0.00067	U	0.00067	U	0.66	U	1.3	U	0.33

NON-DETECTS

QUAL	Chlorophenol[2-]	QUAL	Chlorophenyl-phenyl[4-] Ether	QUAL	Chrysene	QUAL	DDD[4,4-]	QUAL	DDE[4,4-]	QUAL	DDT[4,4-]	QUAL	Di-n-butylphthalate	QUAL	Di-n-octylphthalate
U	0.33	U	0.33	U	0.33	U	0.000671	U	0.000671	U	0.000671	U	0.33	U	0.33
U	0.33	U	0.33	U	0.33	U	0.000671	U	0.000671	U	0.000671	U	0.33	U	0.33
U	0.33	U	0.33	U	0.33	U	0.000671	U	0.000671	U	0.000671	U	0.33	U	0.33
U	0.33	U	0.33	U	0.33	U	0.00067	U	0.00067	U	0.00067	U	0.33	U	0.33
U	0.33	U	0.33	U	0.33	U	0.00067	U	0.00067	U	0.00067	U	0.33	U	0.33
U	0.67	U	0.67	U	0.67	U	0.000673	U	0.000673	U	0.000673	U	0.67	U	0.67
U	0.33	U	0.33	U	0.33	U	0.00067	U	0.00067	U	0.00067	U	0.33	U	0.33

NON-DETECTS

QUAL	Dibenz(a,h)anthracene	QUAL	Dibenzofuran	QUAL	Dichlorobenzene(1,2-)	QUAL	Dichlorobenzene(1,3-)	QUAL	Dichlorobenzene(1,4-)	QUAL	Dichlorobenzidine(3,3-)	QUAL
U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.66	U
U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.66	U
U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.66	U
U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.66	U
U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.66	U
U	0.67	U	0.67	U	0.67	U	0.67	U	0.67	U	1.3	U
U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.66	U

NON-DETECTS

Dichlorophenol[2,4-]	QUAL	Dieldrin	QUAL	Diethylphthalate	QUAL	Dimethyl Phthalate	QUAL	Dimethylphenol[2,4-]	QUAL	Dinitro-2-methylphenol[4,6-]	QUAL	Dinitrophenol[2,4-]	QUAL
0.33	U	0.000671	U	0.33	U	0.33	U	0.33	U	1.6	U	1.6	U
0.33	U	0.000671	U	0.33	U	0.33	U	0.33	U	1.6	U	1.6	U
0.33	U	0.000671	U	0.33	U	0.33	U	0.33	U	1.6	U	1.6	U
0.33	U	0.00067	U	0.33	U	0.33	U	0.33	U	1.6	U	1.6	U
0.33	U	0.00067	U	0.33	U	0.33	U	0.33	U	1.6	U	1.6	U
0.67	U	0.000673	U	0.67	U	0.67	U	0.67	U	3.2	U	3.2	U
0.33	U	0.00067	U	0.33	U	0.33	U	0.33	U	1.6	U	1.6	U

NON-DETECTS

Dinitrotoluene[2,4-]	QUAL	Dinitrotoluene[2,6-]	QUAL	Endosulfan I	QUAL	Endosulfan II	QUAL	Endosulfan Sulfate	QUAL	Endrin	QUAL	Endrin Aldehyde	QUAL	Fluoranthene	QUAL
0.33	U	0.33	U	0.000671	U	0.000671	U	0.000671	U	0.000671	U	0.000671	U	0.33	U
0.33	U	0.33	U	0.000671	U	0.000671	U	0.000671	U	0.000671	U	0.000671	U	0.33	U
0.33	U	0.33	U	0.000671	U	0.000671	U	0.000671	U	0.000671	U	0.000671	U	0.33	U
0.33	U	0.33	U	0.00067	U	0.00067	U	0.00067	U	0.00067	U	0.00067	U	0.33	U
0.33	U	0.33	U	0.00067	U	0.00067	U	0.00067	U	0.00067	U	0.00067	U	0.33	U
0.67	U	0.67	U	0.000673	U	0.000673	U	0.000673	U	0.000673	U	0.000673	U	0.67	U
0.33	U	0.33	U	0.00067	U	0.00067	U	0.00067	U	0.00067	U	0.00067	U	0.33	U

NON-DETECTS

Fluorene	QUAL	Heptachlor	QUAL	Heptachlor Epoxide	QUAL	Hexachlorobenzene	QUAL	Hexachlorobutadiene	QUAL	Hexachlorocyclopentadiene	QUAL	Hexachloroethane	QUAL
0.33	U	0.000671	U	0.000671	U	0.33	U	0.33	U	0.33	U	0.33	U
0.33	U	0.000671	U	0.000671	U	0.33	U	0.33	U	0.33	U	0.33	U
0.33	U	0.000671	U	0.000671	U	0.33	U	0.33	U	0.33	U	0.33	U
0.33	U	0.00067	U	0.00067	U	0.33	U	0.33	U	0.33	U	0.33	U
0.33	U	0.00067	U	0.00067	U	0.33	U	0.33	U	0.33	U	0.33	U
0.67	U	0.000673	U	0.000673	U	0.67	U	0.67	U	0.67	U	0.67	U
0.33	U	0.00067	U	0.00067	U	0.33	U	0.33	U	0.33	U	0.33	U

NON-DETECTS

Indeno(1,2,3-cd)pyrene	QUAL	Isophorone	QUAL	Methoxychlor[4,4-]	QUAL	Methylnaphthalene[2-]	QUAL	Methylphenol[2-]	QUAL	Methylphenol[4-]	QUAL	Naphthalene	QUAL	Nitroaniline[2-]
0.33	U	0.33	U	0.000671	U	0.33	U	0.33	U	0.33	U	0.33	U	1.6
0.33	U	0.33	U	0.000671	U	0.33	U	0.33	U	0.33	U	0.33	U	1.6
0.33	U	0.33	U	0.000671	U	0.33	U	0.33	U	0.33	U	0.33	U	1.6
0.33	U	0.33	U	0.00067	U	0.33	U	0.33	U	0.33	U	0.33	U	1.6
0.33	U	0.33	U	0.00067	U	0.33	U	0.33	U	0.33	U	0.33	U	1.6
0.67	U	0.67	U	0.000673	U	0.67	U	0.67	U	0.67	U	0.67	U	3.2
0.33	U	0.33	U	0.00067	U	0.33	U	0.33	U	0.33	U	0.33	U	1.6

NON-DETECTS

QUAL	Nitroaniline[3-]	QUAL	Nitroaniline[4-]	QUAL	Nitrobenzene	QUAL	Nitrophenol[2-]	QUAL	Nitrophenol[4-]	QUAL	Nitroso-di-n-propylamine[N-]	QUAL	Nitrosodimethylamine[N-]	QUAL
U	1.6	U	0.6	U	0.33	U	0.33	U	1.6	U	0.33	U	0.33	U
U	1.6	U	0.6	U	0.33	U	0.33	U	1.6	U	0.33	U	0.33	U
U	1.6	U	0.6	U	0.33	U	0.33	U	1.6	U	0.33	U	0.33	U
U	1.6	U	0.6	U	0.33	U	0.33	U	1.6	U	0.33	U	0.33	U
U	1.6	U	0.6	U	0.33	U	0.33	U	1.6	U	0.33	U	0.33	U
U	3.2	U	1.2	U	0.67	U	0.67	U	3.2	U	0.67	U	0.67	U
U	1.6	U	0.6	U	0.33	U	0.33	U	1.6	U	0.33	U	0.33	U

~~NON-DETECTS~~

Nitrosodiphenylamine[N-]	QUAL	Oxybis(1-Chloropropane)[2,2-]	QUAL	Pentachlorophenol	QUAL	Phenanthrene	QUAL	Phenol	QUAL	Pyrene	QUAL	Toxaphene (Technical Grade)	QUAL
0.33	U	0.33	U	1.6	U	0.33	U	0.33	U	0.33	U	0.06	U
0.33	U	0.33	U	1.6	U	0.33	U	0.33	U	0.33	U	0.06	U
0.33	U	0.33	U	1.6	U	0.33	U	0.33	U	0.33	U	0.06	U
0.33	U	0.33	U	1.6	U	0.33	U	0.33	U	0.33	U	0.06	U
0.33	U	0.33	U	1.6	U	0.33	U	0.33	U	0.33	U	0.06	U
0.67	U	0.67	U	3.2	U	0.67	U	0.67	U	0.67	U	0.06	U
0.33	U	0.33	U	1.6	U	0.33	U	0.33	U	0.33	U	0.06	U

NON-DETECTS

Trichlorobenzene[1,2,4-]	QUAL	Trichlorophenol[2,4,5-]	QUAL	Trichlorophenol[2,4,6-]	QUAL
0.33	U	1.6	U	0.33	U
0.33	U	1.6	U	0.33	U
0.33	U	1.6	U	0.33	U
0.33	U	1.6	U	0.33	U
0.33	U	1.6	U	0.33	U
0.67	U	3.2	U	0.67	U
0.33	U	1.6	U	0.33	U

>BACKGND

SAMPLE_LOC	LOCATION_ID	SAMPLE_ID	DEPTH	MEDIA	BI-211	QUAL	CS-134	QUAL	PA-234M	QUAL	PU-239/240	QUAL
LA5-1	LA-0032	04LA-96-0175	0-3 IN	SS	1.89		0.07	U	9.39	U	0.09	
LA5-13	LA-0034	04LA-96-0177	0-4 IN	SS	2.34		0.12	U	10.4	U	0.18	
LA5-14	LA-0035	04LA-96-0178	0-4 IN	SS	1.71		0.12	U	8.93	U	0.18	
LA5-16	LA-0036	04LA-96-0179	0-3 IN	SS	1.48		0.07	U	9.87	U	[redacted]	
LA5-22	LA-0037	04LA-96-0180	0-3 IN	SS	0.73	U	0.1	U	32.04		0.16	
LA5-30	LA-0038	04LA-96-0181	0-2 IN	SS	1.04	U	0.09	U	11.7	U	[redacted]	
LA5-7	LA-0033	04LA-96-0176	0-4 IN	SS	0.58	U	0.24		4.88	U	0.12	
[redacted]												

<BACKGND

SAMPLE_LOC	LOCATION_ID	SAMPLE_ID	DEPTH	MEDIA	AC-228	QUAL	ALPHA	QUAL	AM-241	QUAL	ANN_RAD	QUAL	BA-140	QUAL	BETA	QUAL	BI-212	QUAL	BI-214	QUAL
LA5-1	LA-0032	04LA-96-0175	0-3 IN	SS	2.41		51.12		0.02		0.13	U	0.16	U	40.07		2.21	U	1.06	
LA5-13	LA-0034	04LA-96-0177	0-4 IN	SS	1.85		54.57		0.02		0.16	U	0.15	U	36.19		3.17	U	1.06	
LA5-14	LA-0035	04LA-96-0178	0-4 IN	SS	0.45	U	55.83		0.06		0.16	U	0.23	U	36.13		1.99	U	1.08	
LA5-18	LA-0036	04LA-96-0179	0-3 IN	SS	1.75		37.17		0.05		0.16	U	0.2	U	33.11		1.52	U	0.5	
LA5-22	LA-0037	04LA-96-0180	0-3 IN	SS	0.35	U	26.75		0.03		0.16	U	0.33	U	26.93		2.74	U	0.3	U
LA5-30	LA-0038	04LA-96-0181	0-2 IN	SS	1.5		39.82		0.02		0.18	U	0.43	U	35.1		1.89	U	0.36	U
LA5-7	LA-0033	04LA-96-0176	0-4 IN	SS	0.25	U	18.75		0.02		0.12	U	0.22	U	24.45		1.27	U	0.25	U

<BACKGND

CD-109	QUAL	CE-139	QUAL	CE-144	QUAL	CO-57	QUAL	CO-60	QUAL	CS-137	QUAL	EU-152	QUAL	H-3	QUAL	HG-203	QUAL	I-129	QUAL	K-40	QUAL	LA-140	QUAL	MN-54
2.93	U	0.06	U	1.17	U	0.05	U	0.16	U	0.43		0.28	U	0.01		0.06	U	0.01	U	28.34		0.04	U	0.07
3.19	U	0.05	U	0.78	U	0.08	U	0.12	U	0.39		0.4	U	0.007		0.05	U	0.01	U	27.33		0.02	U	0.08
3.15	U	0.06	U	0.78	U	0.11	U	0.1	U	0.79		0.34	U	0.01		0.11	U	0.01	U	30.72		0.02	U	0.08
2.77	U	0.09	U	0.66	U	0.08	U	0.11	U	0.11	U	0.26	U	0.005		0.06	U	0.01	U	26.13		0.04	U	0.08
2.86	U	0.06	U	1.07	U	0.07	U	0.13	U	0.12	U	0.25	U	0.002		0.08	U	0.01	U	26.34		0.05	U	0.08
3.24	U	0.05	U	1.3	U	0.06	U	0.12	U	0.45		0.26	U	0.01		0.06	U	0.01	U	25.63		0.05	U	0.08
2.16	U	0.03	U	0.69	U	0.05	U	0.09	U	0.08	U	0.26	U	0.004		0.06	U	0.01	U	25.83		0.07	U	0.07

<BACKGND

QUAL	NA-22	QUAL	NP-237	QUAL	PA-231	QUAL	PA-233	QUAL	PB-210	QUAL	PB-211	QUAL	PB-212	QUAL	PB-214	QUAL	PU-238	QUAL	RA-223	QUAL	RA-224	QUAL	RA-226
U	0.02	U	0.9	U	2.92	U	0.13	U	1.61	U	2.37	U	1.54		1.13		0.003		0.95	U	2.51	U	2.36
U	0.09	U	0.97	U	3.39	U	0.13	U	1.68	U	2.72	U	1.46		0.75		0		1.35	U	2.59	U	3.26
U	0.13	U	0.95	U	3.64	U	0.19	U	1.74	U	2.67	U	1.32		0.93		0.005		1.03	U	2.69	U	2.82
U	0.07	U	0.85	U	2.93	U	0.16	U	1.61	U	2.49	U	1.25		0.76		0.005		1.06	U	2.99	U	2.66
U	0.04	U	0.61	U	2.92	U	0.14	U	1.5	U	2.27	U	0.79		0.24	U	0.004		0.96	U	2.13	U	2.82
U	0.11	U	0.98	U	4.45	U	0.12	U	1.92	U	2.61	U	1.15		0.66		-0.002		1.28	U	2.78	U	3.53
U	0.08	U	0.65	U	2.35	U	0.07	U	1.38	U	2.6	U	0.55		0.34		-0.001		0.84	U	1.65	U	2.02
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

<BACKGND

QUAL	RN-219	QUAL	RU-106	QUAL	SE-75	QUAL	SN-113	QUAL	SR-85	QUAL	SR-90	QUAL	TH-227	QUAL	TH-228	QUAL	TH-230	QUAL	TH-232	QUAL	TH-234	QUAL	TL-208	QUAL
U	1.18	U	0.7	U	0.1	U	0.05	U	0.1	U	0.42		1.3	U	1.88		1.99		1.77		3.1	U	0.61	
U	1.34	U	1.11	U	0.06	U	0.1	U	0.1	U	0.55		1.34	U	1.65		1.59		1.83		3.32	U	0.54	J
U	1.21	U	0.28	U	0.12	U	0.09	U	0.12	U	0.72		1.38	U	1.61		1.74		1.57		3.51	U	0.6	
U	1.02	U	0.62	U	0.07	U	0.06	U	0.11	U	0.43		1.4	U	1.44		1.35		1.4		2.87	U	0.46	
U	1.3	U	0.35	U	0.04	U	0.12	U	0.1	U	0.24		1.11	U	0.73		0.82		0.8		2.8	U	0.23	
U	1.39	U	0.62	U	0.13	U	0.1	U	0.12	U	0.56		1.36	U	1.24		1.32		1.2		3.44	U	0.12	U
U	1.35	U	0.46	U	0.03	U	0.09	U	0.08	U	0.59		0.67	U	0.67		0.89		0.63		2.33	U	0.18	

<BACKGND

U-234	QUAL	U-235	QUAL	U-238	QUAL	Y-88	QUAL	ZN-65	QUAL
2		0.04	U	1.8		0.04	U	0.08	U
1.5		0.04	U	1.6		0.03	U	0.36	U
1.4		0.04	U	1.8		0.04	U	0.12	U
1.2		0.04	U	1.3		0.04	U	0.08	U
0.83		0.04	U	0.88		0.02	U	0.1	U
1.3		0.04	U	1.3		0.04	U	0.15	U
0.9		0.04	U	0.83		0.02	U	0.06	U

ueblo Canyon, P-1

ield Site #	Sample ID No	Request No	Geomorphic Unit	Sample Depth (in)	Sample Depth (cm)	Pu-238 (pCi/g)	Pu-239 (pCi/g)		Pu 239/238 ratio	Median Particle Size	Lab Texture	Gravel	Coarse-Med Sand	Fine Sand	Silt	Clay	notes
1-3	04PU-96-0123	2252	c2	0–8	0-20	0	0.075			ms	ls	6.3	54.17	19.26	23.57	3	
1-11	04PU-96-0124	2252	c1 (Acid Cyn)	0–3	0-8	0.059	12.593		213	cs	s	12.1	77.92	17.01	4.37	0.7	
1-20	04PU-96-0125	2252	c2	0–3	0-8	0.055	11.743		214	ms	ls	6.8	63.09	19.82	15.59	1.5	
1-20	04PU-96-0149	2832	c2	4–10	10-25	0.064	9.5		148	fs	ls	2	44.8	33.1	17	5.1	
1-20	04PU-96-0150	2832	c2	10–16	25-41	0.072	16		222	fs	sl	1.2	43.1	24.2	26.6	6.1	
1-24	04PU-96-0126	2252	c1	0–4	0-10	0.028	6.297		225	cs	gs	45.4	92.82	4.84	2.04	0.3	
1-28	04PU-96-0129	2252	f1	0–2	0-5	0.014	3.655		261	fs	ls	10.6	46.55	27.18	24.17	2.1	
1-29	04PU-96-0151	2832	c2	0–4	0-10	0.15	30		200	ms	s	7.3	74.8	16.3	5.5	3.3	
1-29	04PU-96-0152	2832	c2	4–10	34266	0.062	15		242	vfs	sl	6.1	22.6	32.6	37	7.8	
1-29	04PU-96-0153	2832	c2	10–18	25-46	0.11	18		164	fs	sl	2.7	35.6	27.9	28.6	7.9	
1-29	04PU-96-0154	2832	c2	18–26	46-66	0.67	86		128	fs	sl	10.9	46.2	25	20.9	7.9	
1-29	04PU-96-0155	2832	c2	26–30	66-76	1.3	170		131	ms	sl	13	53.4	21.1	18.4	7.1	
1-29	04PU-96-0156	2832	c2	30–36	76-91	1	240		240	fs	sl	16.4	37.3	22.5	29.7	10.4	
1-29	04PU-96-0165	2832	c2	36–41	91-104	0.067	20		299	ms	sl	19.6	52	18.6	23.2	6.1	
1-29	04PU-96-0166	2832	c2	41–51	104-130	0.034	6		176	cs	gs	30.5	87.3	6.4	3.8	2.5	
1-29	04PU-96-0164	2832	c2	51–63	130-160	0.039	4.8		123	vcs	gs	54.5	87.8	6	3	3.3	
1-57	04PU-96-0157	2832	c2	0–6	0-15	0.07	14		200	fs	sl	8.1	39.2	27.7	27.4	5.7	
1-57	04PU-96-0158	2832	c2	6–13	15-33	0.096	20		208	cmsi	l	1	21.6	27.8	42.7	7.8	
1-57	04PU-96-0159	2832	c2	13–20	33-51	0.086	19		221	fs	sl	13.2	48.5	22.3	22.2	7	
1-57	04PU-96-0160	2832	c2	20–25	51-64	0.075	15		200	vfs	sl	2.2	33.4	24.6	35.9	6	
1-57	04PU-96-0161	2832	c2	25–36	64-91	0.082	17		207	ms	ls	10.2	62.9	16.4	16.6	4.1	
1-57	04PU-96-0162	2832	c2	36–41	91-104	0.059	14		237	vfs	l	8.2	25.3	24.9	40.4	9.4	
1-57	04PU-96-0163	2832	c2	41–45	104-114	0.12	18		150	cmsi	l	5.7	30.1	17	42.7	10.2	
1-73A	04PU-96-0127	2252	c2	0–11	0-28	0.078	18.102		232	vfs	sl	0.3	27.32	32.99	35.8	3.9	
1-73	04PU-96-0139	2832	c2	0–4	0-10	BDL	15			fs	sl	2.8	35.4	26.3	30.9	7.4	
1-73	04PU-96-0141	2832	c2	4–9	34264	0.15	29		193	cmsi	sl	0.1	9.7	34.2	49.6	6.4	
1-73	04PU-96-0142	2832	c2	9–16	23-41	0.15	25		167	cs	gs	35.5	80.3	6.5	9.2	4.1	
1-73	04PU-96-0143	2832	c2	16–21	41-53	0.34	55		162	vfs	sl	4.8	29.3	30	32.4	8.3	
1-73	04PU-96-0144	2832	c2	21–25	53-64	0.84	150		179	vfs	l	2.9	30	21.9	37.1	11.1	
1-73B	04PU-96-0128	2252	c2	25–30	64-76	1.777	502.01		283	fs	sl	3.5	42.89	30.53	20.39	6.2	
1-73B	04PU-96-0128	2252	c2	25–30	64-76	2.078	474.61		228	fs	sl	3.5	42.89	30.53	20.39	6.2	replicate
1-73	04PU-96-0145	2832	c2	25–30	64-76	0.12	25		208	vfs	l	3.7	35.2	16.3	37.1	11.4	
1-73	04PU-96-0146	2832	c2	32–36	81-91	0.15	44		293	cs	gls	42.8	73.9	9.5	10.5	6.1	
								av	205								
								med	208								

otes

DL = below detection limit. ~~Not measured~~

ercentages of sand, silt, & clay size fractions calculated from < 2mm fraction.

ab Texture: l=loam; ls=loamy sand; sl=sandy loam; s=sand; gs=gravelly sand; gls=gravelly loamy sand (g indicates >20% gravel)

Median Particle Size: refers to <2mm fraction (fraction submitted for chemical analysis) cmsi=coarse to medium silt; cs=coarse sand; fs=fine sand; ms=medium sand; vcs=very coarse sand; vfs=very fine sand

P-1 full suite analyses

Analytes with values above background (red = metals) or detected (organics)

SAMPLE_LOC	LOCATION_ID	SAMPLE_ID	DEPTH	AG	B	CA	CO	CR	CU	HG	PB	U	ZN
P1-11	PU-0017	04PU-96-0124	0-3 IN	0.1	1.2	801	0.25	5.2	4.3	0.07	54.8	0.65	66.3
P1-20	PU-0018	04PU-96-0125	0-3 IN	0.22	1.4	1270	0.31	6.2	6.2	0.08	47	0.74	84.1
P1-24	PU-0019	04PU-96-0126	0-3 IN	0.1	1.7	366	0.21	4	2.7	0.08	29.6	0.26	54.1
P1-26	PU-0022	04PU-96-0129	0-2 IN	0.11	6.2	4740	0.35	5.7	5.8	0.07	22.5	3.1	58.2
P1-3	PU-0016	04PU-96-0123	0-8 IN	0.29	1.4	1630	0.28	6.9	9.1	0.17	49.6	0.61	74.6
P1-73	PU-0020	04PU-96-0127	0-12 IN	0.82	3.1	2380	0.8	12.9	13.6	0.65	77.3	1.4	113
P1-73B	PU-0021	04PU-96-0128	0-30 IN	1.5	1.5	1760	0.92	11.7	15.1	0.49	50.7	2.6	87.6
BACKGROUND FOR SS				0.28	4.1	3850	0.18	10.5	8.97	0.03	19.7	1.62	60.2

SAMPLE_LOC	LOCATION_ID	SAMPLE_ID	DEPTH	ALPHA	AM-241	CS-137	H-3	PU-234	PU-239/240	SR-90	U-234
P1-11	PU-0017	04PU-96-0124	0-3 IN	78.1	0.54	0.14	0.02	0.05	12.58	0.55	0.98
P1-2	PU-0016	04PU-96-0125	0-3 IN	67.17	0.62	0.34	0.04	0.05	11.74	0.36	1.3
P1-24	PU-0019	04PU-96-0126	0-3 IN	56.11	0.2	0.13	0.06	0.02	6.28	1.03	0.64
P1-26	PU-0022	04PU-96-0129	0-2 IN	53.9	0.11	1.53	0.12	0.01	3.85	1.4	1.7
P1-3	PU-0016	04PU-96-0123	0-8 IN	45.28	0.01	0.13	0.04	0	0.07	0.83	1.2
P1-73	PU-0020	04PU-96-0127	0-12 IN	109.91	0.74	0.57	0.06	0.07	18.1	0.76	1.8
P1-73B	PU-0021	04PU-96-0128	0-30 IN	1852.17	10.67	0.37	1.21	2.07	502.01	0.95	2.4
BACKGROUND FOR SS				56.6	0.139	1.28	0.068	0.008	0.197	1	2.39

SAMPLE_LOC	LOCATION_ID	SAMPLE_ID	DEPTH	Acenaphthene	Acenaphthylene	Aldrin	Anthracene	Aroclor-1254	Aroclor-1260	BHC(delta-)	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene
P1-11	PU-0017	04PU-96-0109	0-3 IN	0.33	0.33	0.00067	0.03	0.01	0.01	0.00067	0.07	0.11	0.13
P1-2	PU-0018	04PU-96-0110	0-3 IN	0.17	0.68	0.00345	0.3	0.01	0.02	0.000672	0.55	0.67	0.86
P1-24	PU-0019	04PU-96-0111	0-3 IN	0.33	0.33	0.00067	0.33	0.01	0.01	0.00067	0.33	0.06	0.07
P1-26	PU-0022	04PU-96-0114	0-2 IN	0.34	0.34	0.00194	0.34	0.01	0.01	0.000687	0.34	0.34	0.34
P1-3	PU-0016	04PU-96-0108	0-8 IN	0.05	0.34	0.000682	0.1	0.01	0.08	0.000682	0.2	0.21	0.32
P1-73	PU-0020	04PU-96-0112	0-12 IN	0.17	0.44	0.00067	0.26	0.01	0.1	0.02	1	1.7	2.5
P1-73B	PU-0021	04PU-96-0113	25-30 IN	0.13	0.33	0.00491	0.23	0.29	0.13	0.000673	0.5	0.54	0.76

SAMPLE_LOC	LOCATION_ID	SAMPLE_ID	DEPTH	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Bis(2-ethylhexyl)phthalate	Carbazole	Chlordane(alpha-)	Chlordane(gamma-)	Chrysene	DDT(4,4-)	Dibenz(a,h)anthracene
P1-11	PU-0017	04PU-96-0109	0-3 IN	0.33	0.06	0.75	0.33	0.33	0.00153	0.00211	0.09	0.00431	0.33
P1-2	PU-0016	04PU-96-0110	0-3 IN	0.25	0.43	0.2	0.66	0.14	0.0017	0.000672	0.82	0.000672	0.66
P1-24	PU-0019	04PU-96-0111	0-3 IN	0.33	0.33	0.06	0.33	0.33	0.00067	0.00067	0.06	0.00747	0.33
P1-26	PU-0022	04PU-96-0114	0-2 IN	0.34	0.34	0.24	0.34	0.34	0.000687	0.000687	0.34	0.00279	0.34
P1-3	PU-0016	04PU-96-0108	0-8 IN	0.07	0.15	0.04	2.8	0.05	0.00357	0.000682	0.28	0.000682	0.34
P1-73	PU-0020	04PU-96-0112	0-12 IN	0.86	0.95	0.22	0.66	0.18	0.00711	0.00067	1.2	0.00067	0.28
P1-73B	PU-0021	04PU-96-0113	25-30 IN	0.19	0.34	3.3	0.33	0.14	0.000673	0.000673	0.55	0.000673	0.06

SAMPLE_LOC	LOCATION_ID	SAMPLE_ID	DEPTH	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Methylnaphthalene(2-)	Naphthalene	Phenanthrene	Pyrene
P1-11	PU-0017	04PU-96-0109	0-3 IN	0.33	0.21	0.33	0.33	0.33	0.33	0.17	0.18
P1-2	PU-0018	04PU-96-0110	0-3 IN	0.06	1.3	0.19	0.26	0.07	0.2	1.1	1.2
P1-24	PU-0019	04PU-96-0111	0-3 IN	0.33	0.09	0.33	0.33	0.33	0.33	0.06	0.08
P1-26	PU-0022	04PU-96-0114	0-2 IN	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
P1-3	PU-0016	04PU-96-0108	0-8 IN	0.34	0.49	0.04	0.06	0.34	0.03	0.35	0.38
P1-73	PU-0020	04PU-96-0112	0-12 IN	0.09	1.9	0.16	0.86	0.66	0.18	1.2	2.2
P1-73B	PU-0021	04PU-96-0113	25-30 IN	0.06	1.2	0.11	0.22	0.03	0.09	0.87	0.94

Los Alamos Canyon, Reach LA-2

Field Site #	Sample ID No	Request No	Geomorphic Unit	Sample Depth (in)	Sample Depth (cm)	Am-241 (pCi/g)	Cs-137 (pCi/g)	Sr-90 (pCi/g)	Pu-239+240 (pCi/g)	Pu-238 (pCi/g)	Pu 239/238 ratio	Lab Texture	Median Particle Size	Gravel	Coarse-Med Sand	Fine Sand	Silt	Clay	Silt + Clay
LA2-9	04LA-96-0141	2104	c1 (up LA Cyn)	0–3	0-8	0.034	<0.12	0.66	0.211	0.005	42	s	cs	1.5	99.27	0.49	0	0.23	0.23
LA2-61	04LA-96-0147	2104	c1 (down LA Cyn)	0–4	0-10	0.278	2.12	1.04	0.22	0.027	8	s	cs	0	94.3	4.73	0.97	0	0.97
LA2-4	04LA-96-0140	2104	c2b (DP Cyn)	0–3	0-8	3.35	87.82	9.87	4.15	0.688	6	gls	fs	22.9	35.49	42.23	19.28	3	22.28
LA2-12	04LA-96-0215	2833	c2 (up LA Cyn)	0–5	0-13	<0.29	0.33	2.4	NM	NM		sl	vfs	2.4	14.3	43.9	35.8	6	41.8
LA2-12	04LA-96-0216	2833	c2 (up LA Cyn)	8–11	20-28	<0.25	0.38	3.3	NM	NM		sl	fs	4.6	39	29.8	25.8	5.5	31.3
LA2-12	04LA-96-0217	2833	c2 (up LA Cyn)	16–20	41-51	<0.24	0.32	3.7	NM	NM		gls	cs	38.6	73.7	9.2	12	5.2	17.2
LA2-12	04LA-96-0218	2833	c2 (up LA Cyn)	24–28	61-71	<0.25	0.28	3.1	NM	NM		gls	ms	63.9	65.3	14.7	13	7	20
LA2-S7																			
LA2-48	04LA-96-0143	2104	c2 (down LA Cyn)	0–6	0-15	1.13	5.77	2.21	0.632	0.309	2	s	ms	8.8	56.12	34.95	7.73	1.2	8.93
LA2-48	04LA-96-0225	2833	c2 (down LA Cyn)	7–10	18-25	8.3	13	5.6	NM	NM		sl	fs	5.1	23.2	42.8	27.4	6.6	34
LA2-48	04LA-96-0226	2833	c2 (down LA Cyn)	14–17	36-43	17	21	6.9	NM	NM		sil	cmsi	6.2	10	33.2	51.1	5.7	56.8
LA2-48	04LA-96-0227	2833	c2 (down LA Cyn)	19–22	48-56	2.5	9.2	4.1	NM	NM		sl	vfs	6.2	22.2	40.6	29.6	7.6	37.2
LA2-S17																			
LA2-62	04LA-96-0146	2104	c2 (down LA Cyn)	0–3	0-8	0.95	4.76	1.91	0.54	0.091	6	ls	ms	11.2	62.72	27.15	8.83	1.3	10.13
LA2-62	04LA-96-0205	2833	c2 (down LA Cyn)	8–12	20-30	28	25	NM	NM	NM		l	vfs	5.2	21.7	28.3	43	7	50
LA2-62	04LA-96-0206	2833	c2 (down LA Cyn)	16–19	41-48	21	20	3.3	NM	NM		sl	vfs	1.8	18.7	38.3	36.8	6.2	43
LA2-62	04LA-96-0207	2833	c2 (down LA Cyn)	21–25	53-64	2.3	5.7	4	NM	NM		gs	cs	57	77.6	10.3	7.5	4.5	12
LA2-S11																			
LA2-54A	04LA-96-0144	2104	c2b (down LA Cyn)	0–6	0-15	1.15	5.52	1.86	0.653	0.155	4	s	ms	14.4	56.88	34.52	7.5	1.1	8.6
LA2-54	04LA-96-0211	2833	c2b (down LA Cyn)	8–12	20-30	7	13	NM	NM	NM		ls	fs	7.2	33.7	41.2	19.5	5.5	25
LA2-54	04LA-96-0212	2833	c2b (down LA Cyn)	15–19	38-48	9.4	38	NM	NM	NM		sl	fs	4.5	32.7	28.2	30.2	8.9	39.1
LA2-54B	04LA-96-0145	2104	c2b (down LA Cyn)	25–29	64-74	1.3	34.53	1.27	NM	NM		ls	fs	3.6	39.68	39.74	16.77	3.8	20.57
LA2-S4																			
LA2-30	04LA-96-0148	2104	c3 ("garden plot")	0–6	0-15	0.348	27.85	3.93	0.95	0.028	34	s	cs	4.8	94.97	4.11	0.92	0	0.92
LA2-30-31	04LA-96-0220	2833	c3 ("garden plot")	6–9	15-23	<1.1	25	13	NM	NM		s	cs	11.4	83.3	8.6	3.2	5.2	8.4
LA2-30-31	04LA-96-0221	2833	c3 ("garden plot")	13–18	33-46	<1.0	39	9.3	NM	NM		s	cs	15.2	89.5	5.4	1.8	4	5.8
LA2-31	04LA-96-0149	2104	c3 ("garden plot")	28–32	66-81	1.59	192.31	39.56	5.41	0.07	77	sl	ms	8.9	51.32	13.47	27.41	7.8	35.21
LA2-30-31	04LA-96-0222	2833	c3 ("garden plot")	29–32	74-81	<1.6	230	36	NM	NM		gsil	cmsi	30.3	11.7	15.4	56.9	16	72.9
LA2-30-31	04LA-96-0223	2833	c3 ("garden plot")	35–39	89-99	<2.5	170	17	NM	NM		s	cs	15.2	88.4	4.5	3.1	4	7.1
LA2-30-31	04LA-96-0224	2833	c3 ("garden plot")	45–48	114-122	0.6	18	6	NM	NM		s	ms	18	76.7	14.7	5.3	3.3	8.6
LA2-30-31	04LA-96-0229	2833	c3 ("garden plot")	50–58	127-147	<0.63	8	4.9	NM	NM		gs	cs	48.4	79.6	11	5.5	3.9	9.4
LA2-10	04LA-96-0142	2104	f1 (up LA Cyn)	0–3	0-8	0.043	1.6	0.77	1.31	0.01	131	ls	fs	9	32.45	41.48	23.27	2.8	26.07

Notes

[redacted] NM = not measured.

Percentages of sand, silt, & clay size fractions calculated from < 2mm fraction.

Lab Texture: l=loam; ls=loamy sand; sl=sandy loam; s=sand; sil=silt loam; gs=gravelly sand; gsil=gravelly silt loam; gls=gravelly loamy sand (g indicates >20% gravel)

Median Particle Size: refers to <2mm fraction (fraction submitted for chemical analysis) cmsi=coarse to medium silt; cs=coarse sand; fs=fine sand; ms=medium sand; vfs=very fine sand

Los Alamos Canyon, Reach LA-2

Field Site #	Sample ID No	Request No	Geomorphic Unit	Sample Depth (in)	Sample Depth (cm)	Am-241 (pCi/g)	Cs-137 (pCi/g)	Sr-90 (pCi/g)	Pu-239+240 (pCi/g)	Pu-238 (pCi/g)	Pu 239/238 ratio	Lab Texture	Median Particle Size	Gravel	Coarse-Med Sand	Fine Sand	Silt	Clay	Silt + Clay
LA2-9	04LA-96-0141	2104	c1 (up LA Cyn)	0--3	0-8	0.034	<0.12	0.66	0.211	0.005	42	s	cs	1.5	99.27	0.49	0	0.23	0.23
LA2-61	04LA-96-0147	2104	c1 (down LA Cyn)	0--4	0-10	0.278	2.12	1.04	0.22	0.027	8	s	cs	0	94.3	4.73	0.97	0	0.97
LA2-4	04LA-96-0140	2104	c2b (DP Cyn)	0--3	0-8	3.35	87.82	9.87	4.15	0.688	6	gls	fs	22.9	35.49	42.23	19.28	3	22.28
LA2-12	04LA-96-0215	2833	c2 (up LA Cyn)	0--5	0-13	<0.29	0.33	2.4	NM	NM		sl	vfs	2.4	14.3	43.9	35.8	6	41.8
LA2-12	04LA-96-0216	2833	c2 (up LA Cyn)	8--11	20-28	<0.25	0.38	3.3	NM	NM		sl	fs	4.6	39	29.8	25.8	5.5	31.3
LA2-12	04LA-96-0217	2833	c2 (up LA Cyn)	16--20	41-51	<0.24	0.32	3.7	NM	NM		gls	cs	38.6	73.7	9.2	12	5.2	17.2
LA2-12	04LA-96-0218	2833	c2 (up LA Cyn)	24--28	61-71	<0.25	0.28	3.1	NM	NM		gls	ms	63.9	65.3	14.7	13	7	20
LA2-S7																			
LA2-48	04LA-96-0143	2104	c2 (down LA Cyn)	0--6	0-15	1.13	5.77	2.21	0.632	0.309	2	s	ms	8.8	56.12	34.95	7.73	1.2	8.93
LA2-48	04LA-96-0225	2833	c2 (down LA Cyn)	7--10	18-25	8.3	13	5.8	NM	NM		sl	fs	5.1	23.2	42.8	27.4	6.6	34
LA2-48	04LA-96-0226	2833	c2 (down LA Cyn)	14--17	36-43	17	21	6.9	NM	NM		sil	cmsi	6.2	10	33.2	51.1	5.7	56.8
LA2-48	04LA-96-0227	2833	c2 (down LA Cyn)	19--22	48-56	2.5	9.2	4.1	NM	NM		sl	vfs	6.2	22.2	40.6	29.6	7.6	37.2
LA2-S17																			
LA2-62	04LA-96-0146	2104	c2 (down LA Cyn)	0--3	0-8	0.95	4.76	1.91	0.54	0.091	6	ls	ms	11.2	62.72	27.15	8.83	1.3	10.13
LA2-62	04LA-96-0205	2833	c2 (down LA Cyn)	8--12	20-30	28	25	NM	NM	NM		l	vfs	5.2	21.7	28.3	43	7	50
LA2-62	04LA-96-0206	2833	c2 (down LA Cyn)	16--19	41-48	21	20	3.3	NM	NM		sl	vfs	1.8	18.7	38.3	36.8	6.2	43
LA2-62	04LA-96-0207	2833	c2 (down LA Cyn)	21--25	53-64	2.3	5.7	4	NM	NM		gs	cs	57	77.6	10.3	7.5	4.5	12
LA2-S11																			
LA2-54A	04LA-96-0144	2104	c2b (down LA Cyn)	0--6	0-15	1.15	5.52	1.86	0.653	0.155	4	s	ms	14.4	56.88	34.52	7.5	1.1	8.6
LA2-54	04LA-96-0211	2833	c2b (down LA Cyn)	8--12	20-30	7	13	NM	NM	NM		ls	fs	7.2	33.7	41.2	19.5	5.5	25
LA2-54	04LA-96-0212	2833	c2b (down LA Cyn)	15--19	38-48	9.4	38	NM	NM	NM		sl	fs	4.5	32.7	28.2	30.2	8.9	39.1
LA2-54B	04LA-96-0145	2104	c2b (down LA Cyn)	25--29	64-74	1.3	34.53	1.27	NM	NM		ls	fs	3.6	39.68	39.74	16.77	3.8	20.57
LA2-S4																			
LA2-30	04LA-96-0148	2104	c3 ("garden plot")	0--6	0-15	0.348	27.85	3.93	0.95	0.028	34	s	cs	4.8	94.97	4.11	0.92	0	0.92
LA2-30-31	04LA-96-0220	2833	c3 ("garden plot")	6--9	15-23	<1.1	25	13	NM	NM		s	cs	11.4	83.3	8.6	3.2	5.2	8.4
LA2-30-31	04LA-96-0221	2833	c3 ("garden plot")	13--18	33-46	<1.0	39	9.3	NM	NM		s	cs	15.2	89.5	5.4	1.8	4	5.8
LA2-31	04LA-96-0149	2104	c3 ("garden plot")	26--32	66-81	1.59	192.31	39.56	5.41	0.07	77	sl	ms	8.9	51.32	13.47	27.41	7.8	35.21
LA2-30-31	04LA-96-0222	2833	c3 ("garden plot")	29--32	74-81	<1.6	230	36	NM	NM		gsil	cmsi	30.3	11.7	15.4	56.9	16	72.9
LA2-30-31	04LA-96-0223	2833	c3 ("garden plot")	35--39	89-99	<2.5	170	17	NM	NM		s	cs	15.2	88.4	4.5	3.1	4	7.1
LA2-30-31	04LA-96-0224	2833	c3 ("garden plot")	45--48	114-122	0.6	18	6	NM	NM		s	ms	18	76.7	14.7	5.3	3.3	8.6
LA2-30-31	04LA-96-0229	2833	c3 ("garden plot")	50--58	127-147	<0.63	8	4.9	NM	NM		gs	cs	48.4	79.6	11	5.5	3.9	9.4
LA2-10	04LA-96-0142	2104	f1 (up LA Cyn)	0--3	0-8	0.043	1.6	0.77	1.31	0.01	131	ls	fs	9	32.45	41.48	23.27	2.8	26.07

Notes

[illegible] NM = not measured.

Percentages of sand, silt, & clay size fractions calculated from < 2mm fraction.

Lab Texture: l=loam; ls=loamy sand; sl=sandy loam; s=sand; sil=silt loam; gs=gravelly sand; gsil=gravelly silt loam; gls=gravelly loamy sand (g indicates >20% gravel)

Median Particle Size refers to <2mm fraction (fraction submitted for chemical analysis) cmsi=course to medium silt; cs=coarse sand; fs=fine sand; ms=medium sand; vfs=very fine sand

LA-2 full suite analyses

Analytes with values above background (rad + metals) or detected (organics)

SAMPLE_LOC	LOCATION_ID	SAMPLE_ID	DEPTH	AL	AS	B	BA	CA	CR	CU	HG	PB	U	V	ZN
LA-2-10	LA-0018	04LA-96-0142	0-3 IN	5170	2.5	1.2	58.2	1420	5.5	4.9	0.05	18.8	2.5	8.9	46.7
LA-2-30	LA-0024	04LA-96-0148	0-6 IN	2440	1.3	1.2	28.2	611	4.7	2.8	0.02	12.8	0.39	6.7	39.4
LA-2-31	LA-0025	04LA-96-0149	26-32 IN	14300	4.7	5.9	132	5740	38.4	13.9	0.14	51.9	2.9	21.9	90.5
LA-2-4	LA-0016	04LA-96-0140	0-3 IN	4520	2.6	2	76	2050	5.8	7.7	0.03	42.4	1.3	11.6	53.6
LA-2-48	LA-0019	04LA-96-0143	0-6 IN	3160	2	1.2	46	1260	4.8	4.8	0.02	23	0.82	6.8	44.7
LA-2-54A	LA-0020	04LA-96-0144	0-6 IN	4330	2.1	1.3	50.3	1410	6.7	4.7	0.02	24.4	0.75	10.8	56.7
LA-2-54B	LA-0021	04LA-96-0145	25-29 IN	8930	2.7	2.6	59.6	1800	18.9	9.3	0.06	36.1	1.1	10.6	62
LA-2-61	LA-0023	04LA-96-0147	0-4 IN	3440	2.4	1.2	36.4	716	6.3	3	0.02	14.3	0.21	11.9	72.8
LA-2-62	LA-0022	04LA-96-0146	0-4 IN	4260	1.9	1.9	48.7	1360	6.5	6.6	0.02	29.3	0.63	8	60.5
LA-2-9	LA-0017	04LA-96-0141	0-3 IN	3000	1.7	1.2	37	696	4.4	2.9	0.02	12.2	0.3	7.8	34.3
BACKGROUND FOR SS				13260	3.98	4.1	127	3850	10.5	9.97	0.03	19.7	1.62	19.7	60.2

SAMPLE_LOC	LOCATION_ID	SAMPLE_ID	DEPTH	ALPHA	AM-241	BETA	CS-137	H-3	PU-238	PU-239/240	RA-226	SR-90	TH-230	U-234	U-238
LA-2-10	LA-0018	04LA-96-0142	0-3 IN	33.58	0.04	47.06	1.6	0.05	0.01	1.31	2.65	0.77	1.85	2.2	2.3
LA-2-30	LA-0024	04LA-96-0148	0-6 IN	21.62	0.34	75.89	27.86	0.007	0.02	0.96	3.75	3.93	1.13	0.87	1
LA-2-31	LA-0025	04LA-96-0149	26-32 IN	80.92	1.5	300	192.31	0.13	0.07	5.4	5.97	39.66	1.95	2.4	2.4
LA-2-4	LA-0016	04LA-96-0140	0-3 IN	79.81	3.95	137.55	67.82	0.14	0.68	4.15	4.59	9.87	2.2	2.8	2.3
LA-2-48	LA-0019	04LA-96-0143	0-6 IN	55.61	1.24	49.17	5.77	0.05	0.3	0.63	3.12	2.21	1.6	1.7	1.8
LA-2-54A	LA-0020	04LA-96-0144	0-6 IN	38.71	1.24	46.73	5.52	0.03	0.15	0.65	2.53	1.86	1.66	1.7	1.7
LA-2-54B	LA-0021	04LA-96-0145	25-29 IN	56.83	1.37	84.21	34.53	0.12	0.18	2.31	3.52	1.27	2.44	2.2	2.1
LA-2-61	LA-0023	04LA-96-0147	0-4 IN	31.42	0.27	39.44	2.12	0.01	0.02	0.22	5.28	1.04	1.16	1.2	1.3
LA-2-62	LA-0022	04LA-96-0146	0-4 IN	39.35	1.13	51.75	4.76	0.02	0.09	0.54	3	1.91	1.69	1.7	1.8
LA-2-9	LA-0017	04LA-96-0141	0-3 IN	18.04	0.03	36.56	0.12	0.02	0.005	0.21	2.53	0.66	1.1	1.1	0.91
BACKGROUND FOR SS				58.8	0.139	46.1	1.28	0.068	0.006	0.197	2.03	1	2.29	2.39	2.29

SAMPLE_LOC	LOCATION_ID	SAMPLE_ID	DEPTH	Acenaphthene	Anthracene	Aroclor-1260	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Chrysene
LA-2-10	LA-0018	04LA-96-0142	0-3 IN	0.32	0.32	0.12	0.32	0.32	0.32	0.32	0.32
LA-2-30	LA-0024	04LA-96-0148	0-6 IN	0.32	0.32	0.04	0.32	0.32	0.32	0.32	0.32
LA-2-31	LA-0025	04LA-96-0149	26-32 IN	0.33	0.04	0.42	0.13	0.95	0.25	0.33	0.16
LA-2-4	LA-0016	04LA-96-0140	0-3 IN	0.08	0.09	0.02	0.2	0.27	0.36	0.17	0.28
LA-2-48	LA-0019	04LA-96-0143	0-6 IN	0.32	0.03	0.05	0.19	0.24	0.33	0.14	0.22
LA-2-54A	LA-0020	04LA-96-0144	0-6 IN	0.32	0.05	0.05	0.27	0.31	0.48	0.2	0.31
LA-2-54B	LA-0021	04LA-96-0145	25-29 IN	0.35	0.06	0.23	0.34	0.65	0.56	0.29	0.35
LA-2-61	LA-0023	04LA-96-0147	0-4 IN	0.32	0.04	0.01	0.12	0.12	0.17	0.32	0.12
LA-2-62	LA-0022	04LA-96-0146	0-4 IN	0.32	0.06	0.05	0.36	0.39	0.62	0.26	0.41

SAMPLE_LOC	LOCATION_ID	SAMPLE_ID	DEPTH	DDE[4,4-]	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
LA-2-10	LA-0018	04LA-96-0142	0-3 IN	0.008	0.32	0.05	0.32	0.32	0.32	0.03	0.05
LA-2-30	LA-0024	04LA-96-0148	0-6 IN	0.0031	0.32	0.32	0.32	0.32	0.32	0.32	0.32
LA-2-31	LA-0025	04LA-96-0149	26-32 IN	0.03	0.33	0.29	0.33	0.33	0.33	0.18	0.27
LA-2-4	LA-0016	04LA-96-0140	0-3 IN	0.0031	0.03	0.48	0.08	0.16	0.08	0.43	0.43
LA-2-48	LA-0019	04LA-96-0143	0-6 IN	0.0031	0.32	0.36	0.32	0.13	0.32	0.19	0.34
LA-2-54A	LA-0020	04LA-96-0144	0-6 IN	0.0032	0.32	0.56	0.32	0.18	0.32	0.26	0.47
LA-2-54B	LA-0021	04LA-96-0145	25-29 IN	0.0034	0.35	0.66	0.35	0.34	0.35	0.32	0.58
LA-2-61	LA-0023	04LA-96-0147	0-4 IN	0.003	0.32	0.22	0.32	0.32	0.32	0.15	0.2
LA-2-62	LA-0022	04LA-96-0146	0-4 IN	0.0032	0.32	0.72	0.32	0.26	0.32	0.33	0.57

SENT BY:LANL ; 4-30-97 ; 3:02PM ; DOE-LA ; 5005671344;# 2

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EES-1
Geology/Geochemistry
P. O. Box 1663, MS D462
Los Alamos, NM 87545

Telecopier Number
505-665-3285

Confirmation Number
505-667-7590

TO: John Young [redacted], NMED, Santa Fe

FAX: 827-1544

FROM: Steven Reneau

RE: Attached are summary of limited suite analyses for P-1, P-4, CA-2, CA-5, with particle size, geomorphic unit, etc; + full suite sample [redacted] data for same isotopes. Also, complete full suite data for P-4 samples, faces of next sample round (CA-5 to follow later, only $Pu^{239,240}$ above background in CA-5) Other full suite data sheets to follow.

Ask steve:
SAL's
Semi Vols?
Units ppm/ppb?
Description of PU 30,32

Number of pages including cover sheet: 10 **Date:** 4/29/97

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Geology/Geochemistry
P. O. Box 1663, MS D462
Los Alamos, NM 87545

Telecopier Number
505-665-3285

Confirmation Number
505-667-7590

TO: John Young
NMED - Santa Fe

FAX: 827-1544

FROM: Steven Reneau

RE: Attached are all "full-suite" analyses for analytes detected above "background", and "limited-suite" analyses FAXed before. Data for all 4 reaches.

Number of pages including cover sheet: 9 **Date:** _____

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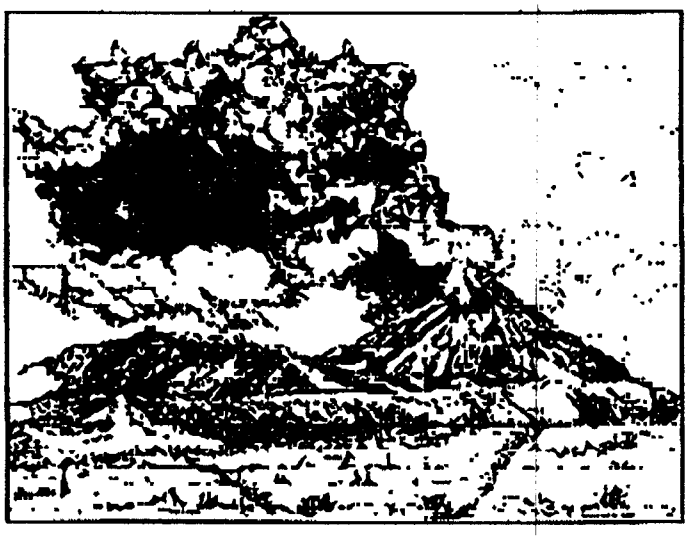

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EES-1
Geology/Geochemistry
P. O. Box 1663, MS D462
Los Alamos, NM 87545

Telecopier Number
505-665-3285

Confirmation Number
505-667-7590

TO: John Young
NMED

FAX: 827-1544

FROM: Steven Reneau

RE: Reach P-4 sampling

FYI. Do you have an e-mail address for future distribution? Also, Please pass copy to Terri. Thanks!

Number of pages including cover sheet: 4 **Date:** 5/6/97

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EES-1
Geology/Geochemistry
P. O. Box 1663, MS D462
Los Alamos, NM 87545

Telecopier Number
505-665-3285

Confirmation Number
505-667-7590

TO: John Young
NMED

FAX: 827-1544

FROM: Steven Renear

RE: LA-5 data sheets
+ P-4 questions

Number of pages including cover sheet: 25 **Date:** 5/7/97

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