46143

PLUTONIUM IN SOILS

TREATABILITY STUDIES

ROCKY FLATS PLANT

OPERABLE UNIT 2

MARCH 31, 1994

APPENDIX A

VOLUME I OF II

DOCUMENT CLASSIFICATION
REVIEW WAIVER PER
CLASSIFICATION OFFICE

A-OU02-000253

BENCH SHEETS

LESAT
Technology Applications Division

Sample Coordinating Bench Sheet

TAD Batch ID: —— Technician: T. Murarik

Sampling Date	TAD Sample ID	Subsample/ Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
6/17/93	RF601404 RF601504	RF6P41T1	2428.6g	Feed sample, tumbler	Pre-stage #1
6/17/93	RF6P41T1	RF6041T1	284.8	subsample, activity	Pre-stage #1
6/18/93	RF6P41T1	RF6P2T25	2363.2	+1/4" product	Stage #1
6/23/93	RF6P2T25	RF6P8T25	2363.2	+1/4" product	Stage #2
6/28/93	RF6P8T25	RF6P5T25	2354.4	+1/4" product	Stage #3

* Returned refers to the sample or subs thereof being returned to the batch or original sample; or a new number being assigned to the sample, or subs thereof for a different analysis method. Attach an explanation for anomalies of missing or greater sample mass.

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Sample Coordinating Bench Sheet

TAD Batch ID: 989039 RF200000 Technician: K. Smith

Sampling Date	TAD Sample ID	Subsample/ Aliquot ID	Net Amount	Analysis and Results	Amt/ Date *Ret.
6/18/93	989039 ✓ RF200000	TT0018LE RF210000 ✓	49 LBS ✓	Batch Component - 5 gal. pail ✓	
		D82208 RF220000 ✓	427 ✓	" " - 55 gal. Drum ✓	
		D82209 RF230000 ✓	378 ✓	" " " " ✓	
		D82210 ✓ RF240000	434 ✓	" " " " ✓	

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FM-181 Client assigned numbers shown above in Red INK KLS/7/93/REV.1

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Sample Coordinating Bench Sheet

TAD Batch ID: TT000001E RF00001A & 989039 RF200000 Technician: R. Smith

Sampling Date	TAD Sample ID	Subsample/ Aliquot ID	Net Amount	Analysis and Results	Amt/ Date *Ret.
5/05/93	TT000001E RF00001A	D-81445 RF312005	405 LBS		
		D-81447 RF314007	307 LBS		
		D-81448 RF315008	348 LBS		
6/18/93	989039 RF200000	D 82208 RF220000	427 LBS		
		D 82209 RF230000	378 LBS		
		D82210 RF240000	434 LBS		
7/14/93	RF312005 RF220000 RF314007 RF230000 RF315008 RF240000	TT00190LE RF200000	NONE measured		
	TT00190LE RF200000	B2 S1 RF2B2510			8/11/93 167.5 LBS
		B2 S2 RF2B2520			7/30/93 445 LBS
		B2 S3 RF2B2530			7/26/93 845 LBS
		B2 S4 RF2B2540			7/26/93 108 LBS
		B2 S5 RF2B2550			
7/15/93		TT00189LE RF250000 1/2	11570GMS		
		TT00189LE RF250000 2/2	14969GMS		

PHASE 2 WORK

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: RF60300B & RF200000 Technician: Keith Smith

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned	
15 July 93	TT00190LE RF200000	TT00189LE RF250000	GROSS 11570 g	5th Split, 2nd Shipment, 1 of 2 pails		
"	"	TT00189LE RF250000	GROSS 14969	5th Split 2nd Shipment, 2 of 2 pails		
16 July 93	Both Pails RF250000	TT00186LE RF250100	Net 239.5	LaL, LV, NV	Never sent	
"	"	TT00187LE RF250200	212.3	IT Corp. MO	" "	
"	"	TT00188LE RF250300	222.9	IT Corp. WA	" "	
→ 19 July 93	TT00138LE RF60300B	TT00189LE RF60310B	348.7	Pre Sample for MCA Count for Sample Prep		5.936 pCi/gm
27 July 93	TT00002LE RF111000	TT00190LE RF250400	333.7	IT Corp. TN		
"	RF60300B	~~TT00193LE~~ KLS RF6030+C	1171.6	Sample Prep Att2 + #100		
"	"	~~TT00194LE~~ KLS RF603025	1856.3	Sample Prep Att2 + 1/4"		
"	RF6030+C	~~TT00195LE~~ KLS RF2507SP	251.5	MCA AM 241 +100 Sample Prep 2		4.463 pCi/gm
"	RF603025	~~TT00196LE~~ KLS RF2508SP	377.2	MCA Sample AM241 + 1/4" Sample Prep 2		-.1728 pCi/gm
29 July 93	one Pail RF250000	~~TT00191LE~~ KLS RF250500 TT00191LE	415.7	IT Corp. TN		
"	"	~~TT00192LE~~ KLS RF250600	454.6	IT Corp. MO		
2 AUG 93	RF603025	~~TT00197LE~~ KLS RF2509SP	284.9 g	MCA AM241 1/4" SP		.40 pCi/g
"	"	~~TT00198LE~~ KLS RF2510SP	341.2	"		1.21 pCi/gm
"	"	~~TT00199LE~~ KLS RF2511SP	261.4	"		1K sec = .49 pC 4K sec = .31 pCi/g
"	"	~~TT00200LE~~ KLS RF2512SP	289.3	"		.11 pCi/gm
"	"	~~TT00201LE~~ KLS RF2513SP	299.3	"		.36 pCi/gm
5 AUG 93	RF6030+C	TIN ~~TT00202LE~~ KLS RF2514A2	581.6	#20 ATT2 Stage 1		
"	(TIN) RF2514A2	RF2514A2 (SRCC)	417.4	STAGE 1 #20 ATT2 MCA AM241		.61 pCi/gm
"	RF60300B	(TIN) KLS ~~TT00203LE~~ RF6030-C	1392.1	-100 SP 2		
"	RF6030-C (tin)	RF2515SP KLS ~~RF6030-C (SRCC)~~	181.9	-100 SP 2 MCA AM241		20.01 pCi/gm
"	RF6030+C	(TIN) RF6033A2	262.6	#50 Att2		
"	"	(TIN) RF6032A2	183.9	#100 Att2		
"	"	~~RF6034A2~~ RF605100	145.0 Gross ~~KLS 27.2 g~~ KLS	- #100 Att2		

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Reorganization of Attached Bench Sheet

Sample Coordinating Bench Sheet

TAD Batch ID: RF00001A ~~RF000001~~ KLS 3/04/94 Technician: K Smith & Terry Wendstrand

Sampling Date	TAD Sample ID	Subsample/ Aliquot ID	Net Amount	Analysis and Results	Amt/ Date *Ret.
5/27/93	RF600000	RF60200B	12699.8g	Sample Prep for Att. Series 3	
08/23/93	RF60200B	SRCC RF606300	286.6	Dry Sieved MCA Count + 1/4" for ATT3 SP	
		SRCC RF606400	218.8	Dry Sieved MCA Count + #100 for ATT3 SP	218.8 9/14/93 Att3 ~~Stage 1~~
		PAN RF606500	3462.4	Wet Sieved + 1/4" for Att 3 Sample Prep	8/23/93 SRCC for RA Count 280.2
		Pan RF606600	2057.1	For Att 3 Sample Prep + #100	1000.4 9/14/93 Att 3 ~~Stage 1~~
	PAN RF606500	SRCC RF606500	280.2	For ATT3SP MCA Count Wet Sieved + 1/4"	
14 Sept 93	Pan RF606600	LAS TANK RF60660A	500.2	For ATT 3, Stage 1, 1st 1/2	9/17/93 500.2 ATT 3
16 Sept 93		LAS TANK RF60660B	500.2	" " 2nd 1/2	9/17/93 500.2 ATT3
17 Sept 93		SRCC RF606600	324.8	For Att 3, Sample Prep, MCA Count, + #100	324.8 9/17/93 RF 606600
		PAN RF606800	489.3	#20 ATT3 Stage 1	489.3 9/17/93 RF60680A RF60680B SRCC
		PAN RF606900	265.2	#50 ATT3 Stage 1	265.2 9/17/93 RF606900 SRCC
		PAN RF607000	170.2	#100 Att 3 Stage 1	170.2 9/17/93 RF607000 SRCC
	PAN RF606800	SRCC RF60680A	251.0	#20 ATT3 Stage 1 1/2 of sample MCA	9/20/93 251gms RFAT3SG2
		SRCC RF60680B	238.3	" " MCA	238.3 RFAT3SG2 9/20/93
	PAN RF606900	SRCC RF606900	265.2	#50 ATT3 Stage 1 MCA Count	265.2 9/20/93 RFAT3SG2
	PAN RF607000	SRCC RF607000	170.2	#100 Att3 Stage 1 MCA Count	9/20/93 170.2 RFAT3SG2
20 Sept 93	RF60680A RF607000 RF60680B RF606900	RFAT3SG2	924.7	For ATT3 Stage 2	9/20/93 ATT3 Stage 2 924.7
	RFAT3SG2	PAN RF2B001A	482.5	From ATT3 Stage 2 #20	9/23/93 482.5 RFAT3SG3
	PAN RF2B001A	SRCC RF2B001A	297.1	From Att3 Stage 2 #20 for MCA count	9/23/93 297.1 RFAT3SG3
21 Sept 93	RFAT3SG2 ~~RF2B002A~~	PAN RF2B002A	280.1	From Att3 Stage 2 #50	
	PAN RF2B002A	SRCC RF2B002A	280.3	From Att3 Stage 2 #50 for MCA Count	9/23/93 280.3 RFAT3SG3
	RFAT3SG2	PAN RF2B003A	144.8	From Att3 Stage 2 #100	
	PAN RF2B003A	SRCC RF2B003A	144.8	From ATT3 STAGE 2 #100 for MCA Count	23 Sept 93 RFAT3SG3 144.8

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: RF 60200B Technician: KLS

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
5/27/93	RF600000	RF60200B	12699.8g	Sample Prep	
8/23/93	RF60200B	SRCC RF606300	286.6	Dry sieved MCA Count + 1/4" for A++3 SP	
		SRCC RF606400	218.8	Dry Sieved MCA Count + #100 A++3 SP	
	PAN RF606500	SRCC RF606500	280.2	+ 1/4" Wet Sieved A++3 SP MCA Count	
	PAN RF606600	SRCC RF606600	324.8	+ #100 A++3 SP MCA Count	
	RF60200B	PAN RF606600	2057.1	+ #100 A++3 SP PAN	
	RF60200B	RF606500	3462.4	+ 1/4" Wet Sieved A++3 SP PAN	
17 Sept 93	PAN → RF606600 KLS ~~RF60680A~~	SRCC RF60680A		#20 A++3 Stage 1 1/2 of PAN in a SRCC	
	PAN RF606800	SRCC RF60680B		#20 A++3 Stage 1 1/2 of PAN in a SRCC	
	PAN RF606900	SRCC RF606900		#50 A++3 Stage 1 SRCC	
	PAN RF607000	SRCC RF607000		#100 A++3 Stage 1 SRCC	
	RF606600	PAN RF606800		#20 A++3 Stage 1 PAN	
		PAN RF606900		#50 A++3 Stage 1 PAN	
		PAN RF607000		#100 A++3 Stage 1 PAN	

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: RF 60200B Technician: KLS

	Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
	5/27/93	RF600000	RF60200B	12699.8g	Sample Prep	
	8/23/93	RF60200B	SRCC RF606300	286.6	Dry sieved MCA Count + 1/4" on Att 3 SP	
			SRCC RF606400	218.8	Dry Sieved MCA Count + #100 Att 3 SP	
Subsample 1		PAN RF606500	SRCC RF606500	280.2	+ 1/4" Wet Sieved Att 3 SP MCA Count	
Subsample 2		PAN RF606600	SRCC RF606600	324.8	+ #100 Att 3 SP MCA Count	
Parent 2		RF60200B	PAN RF606600	2057.1	+ #100 Att 3 SP PAN	
Parent 1		RF60200B	PAN RF606500	3462.4	+ 1/4" Wet Sieved Att 3 SP PAN	
	17 Sept 93	PAN → RF606800 KLS ~~RF60680A~~	SRCC RF60680A	251.0	#20 Att 3 Stage 1 1/2 of PAN in a SRCC	
Subsamples 3		PAN RF606800	SRCC RF60680B	238.3 ~~238.3~~	#20 Att 3 Stage 1 1/2 of PAN in a SRCC	
Sub 4		PAN RF606900	SRCC RF606900	265.2	#50 Att 3 Stage 1 SRCC	
Sub		PAN RF607000	SRCC RF607000	170.2 ~~238.3~~	#100 Att 3 Stage 1 SRCC	
Parent 3		RF606600	PAN RF606800	489.3	#20 Att 3 Stage 1 PAN	
Parent 4			PAN RF606900	265.2	#50 Att 3 Stage 1 PAN	
			PAN RF607000	170.2	#100 Att 3 Stage 1 PAN	

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: (#5 split from RF00001A) RF600000 Technician: K. Smith

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
5/27/93	TT00135LE RF600000	TT00136LE RF60100B	10611.4g	Sample Prep for Att. Scrub	
		TT00137LE RF60200B	12699.8g	" " " " "	
		TT00138LE RF60300B	5254.1g	" " " " "	
	RF60200B	TT00139LE RF60210M	218.992g	" " " " "	
		TT00140LE RF60220M	265.394g	" " " " "	all returned to RF60100B 9 July 93 CB
5/28/93	RF60100B	TT00141LE RF60110G	89.2g	Sample Prep/GRASS	
		TT00142LE RF60120G	74.9g	" " "	
		TT00143LE RF60130G	79g	" " "	
		TT00144LE RF601404	1706.4g	" "/+1/4 mesh	combined 6/17/93 for Tumbling Test - all of Both
		TT00145LE RF601504	722.2g	" " " "	
-SP WS		TT00146LE RF60160C	1062.1g	" "/+100 mesh	325.0g 6/08/93 to SECC RF60270C for counting (1/2 RF60280C)
-SP WS	6/02/93	TT00147LE RF60170C	1498.3g	" " " "	395.8g 6/08/93 to SECC for Count (RF60260C) (1/2 RF60280C)
* Refer to 2nd Bench Sheet	*	RF6018C-	908.2g	" "/-100 mesh	
	*	RF6019C-	1040.2g	" " " "	
	*	RF6020C-	851.2g	" " " "	
	*	RF6023C-	425.4g	" " " "	
	*	RF6024C-	519.8g	" " " "	
	*	RF6025C-	274.4g	" " " "	
6/08/93	RF60170C	TT00154LE RF60260C	395.8g	+100 MESH Am 241 Count 1.814 pCi/gm	6/9/93 1st attrition scrub - all mass
-SP WS 1a	RF60160C	TT00155LE RF60270C	325.0g	+100 mesh Am241 Count 2.847 pCi/gm	all Returned 9 July 93 CB
-SP WS 1a	RF60160C & RF60170C	TT00156LE RF60280C	371.7g	+100 mesh Am 241 Count 2.846 pCi/gm	6/9/93 1st attrition scrub - all mass
6/09/93	RF60260C & RF60280C	TT00157LE RF6029A1	Gross Wt + 1423.3g	Wet Sieving	6/09/93 wet sieved into +20, +50, +100, -100
		TT00157LE RF6029A1	Gross Wet 431.8g	Wet Sieving	Fractions - RF603020, RF603150, RF6032+C, RF6035-C
RF6029A1 was split between two pie tins. It is the 1st Attrition scrub run and there was too much wash H_2O for one tin.					

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: (4th Split from RF00001A) RF600006 Technician: Keith Smith

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
6/9/93	RF6029A1	TT00158LE RF603020	403.4g	+20 mesh Sieve material	6/10/93; 403.5g; To SRCC for counting
	RF6029A1	TT00159LE RF603150	178.3g	+50 mesh	6/11/93; 178.3g; To SRCC for counting
	RF6029A1	TT00160LE RF6032+C	127.4g	+100 mesh	6/10/93; 127.5g; To SRCC for counting
6/10/93	RF60100B	TT00148LE* RF6018C-	GROSS 927.0g*	Rehydrated to wash out -100 mesh tins	NET 912.3
		TT00149LE RF6019C-	GROSS* 1052.7g		NET 1036.0
		TT00150LE RF6020C-	GROSS* 867.6g		NET 853.0
		TT00151LE RF6023C-	GROSS* 441.9g		NET 427.3
		TT00152LE RF6024C-	GROSS* 530.9g		NET 516.3
		TT00153LE RF6025C-	GROSS* 284.9g		NET 270.4
		TT00161LE RF6033C-	GROSS* 20.8g		NET 5.2
		TT00162LE RF6034C-	GROSS* 23.0g		NET 8.4 (NO TARE)
6/10/93	RF603020	TT00158LE RF603020	403.5g	Transfer from tin to SRCC for Am 241	6/14/93 Recombined for 2nd attrition scrub
	RF6032+C	TT00160LE RF6032+C	127.5g	Count .051 pCi/g 2.443 pCi/g	6/14/93 Recombined for 2nd attrition scrub
6/11/93	RF603150	TT00159LE RF603150	178.3g	1.26 pCi/g	6/14/93 Recombined for 2nd attrition scrub
	RF6029A1 ~~RF6035C~~ KLS	TT00163LE RF6035C-	48.1g	-100 mesh Sieve Material	6/11/93/47.352g to SRCC for counting
	TIN RF6035C-	TT00163LE RF6035C-	47.352g	Transfer from Tin to SRCC for Am 241 count	20.75 pCi/gm
6/14/93	RF6032+C RF603020 RF603150	TT00164LE ~~RF6036A2~~ KLS	708.1 ~~119~~ KLS	+20, +50, +100 mix 2nd ATTRITION SCRUB	~~20.75 pCi/gm~~ KLS 6/15/93 Attrition Scrub
6/15/93	RF6036A2	TT00165LE RF603720		+20 mesh FRACTION	Pietin 6/16/93 Transferred to SRCC 329.678
		TT00166LE RF603850		+50 mesh FRACTION	Pietin 6/16/93 Transferred to SRCC 207.868
		TT00167LE RF6039+C		+100 mesh FRACTION	Pietin 6/16/93 Transferred to SRCC 146.694
		TT00168LE RF6040C-		-100 mesh FRACTION	Pietin 6/17/93 Transferred 21.268 to SRCC
6/17/93	RF6014C4 RF6040C4	TT00169LE RF6041T1	284.814	Tumbler Initial Count - 0.054 pCi/gm	6/17/93 Returned to Tumbler Test Material
6/16/93	Pietin RF603720	TT00165LE SRCC RF603720	329.678 ~~146.694~~ KLS	Am 241 count 0.256 pCi/gm	6/18/93 Combined for 3rd attrition scrub
	Pietin RF603850	TT00166LE SRCC RF603850	207.868 ~~207.868~~ KLS	0.354 "	6/18/93 Combined for 3rd attrition scrub
	Pietin RF6039+C	TT00167LE SRCC RF6039+C	146.694	KLS ~~2.85~~ 2.83 pCi/g	6/18/93 Combined for 3rd attrition scrub

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Sample Coordinating Bench Sheet

TAD Batch ID: RF600000 * Split from RF00001A Technician: K Smith

Sampling Date	TAD Sample ID	Subsample/ Aliquot ID	Net Amount	Analysis and Results	Amt/ Date *Ret.
6/17/93	PIETIN RF6040C-	TT00168LE SRCC RF6040C-	21.268g	AM 241 Count 30.22 pCi/gm	
6/17/93	RF601404/ RF601504	TIN TT00170LE RF642T25	2380.1	6/18/93 286.705 to SRCC for count Wet sieve = + 1/4" 6/23/93 2381.4g 2nd Tumbling Test	
- Tumbling 6/21/93	RF601404 RF601504	TIN TT00171LE RF643T-4	47.1	46.863 to SRCC for count Wet sieve = -1/4"	
6/18/93	TIN RF642T25	SRCC TT00170LE RF642T25	286.705	AM 241 Count .072 pCi/gm 40000 sec. Combined for 2nd Tumbling Test 6/23/93	
6/21/93	TIN RF643T-4	SRCC TT00171LE RF643T-4	46.863	AM 241 Count 5.131 pCi/gm 4000 sec. All returned 9 July 93	
"	RF603720 RF603850 RF6039+C	TIN TT00172LE RF604420	322.6	Wet sieve = 20# mesh 323.039 to SRCC for Counting 6/21/93	
"	"	TIN TT00173LE RF604550	196.5	Wet sieve = 50 mesh 196.503 6/21/93 to SRCC for Counting	
"	"	TIN TT00174LE RF6046+C	150.7	+100 mesh wet sieve 150.6 6/21/93 to SRCC for Counting	
"	"	TIN TT00175LE RF6047-C	12.1	-100 mesh wet sieve 11.236 6/22/93 to SRCC for Counting	
"	* TIN RF604420	SRCC TT00172LE RF604420	323.039	.1197 pCi/gm AM 241 Count 4K sec 6/23/93 for 4th Att. Scrub	
"	TIN RF604550	SRCC TT00173LE RF604550	196.503	AM 241 Count 4K sec -.0151 pCi/g "	
"	TIN RF6046+C	SRCC TT00174LE RF6046+C	150.6	AM 241 Count 4K sec 1.305 pCi/g "	
"	TIN RF6047-C	SRCC TT00175LE RF6047-C	11.236	AM 241 Count 4K sec 20.28 pCi/gm "	
"	* TIN RF604550	SRCC TT00176LE RF645501	196.503	AM 241 Count 4K sec 20.28 pCi/gm	
6/23/93	TIN & SRCC RF642T25	TIN TT00177LE RF648T25	2363.2	+ 1/4" Tumbler Test 2	6/24/93 for 4th Att. Scrub
"	TIN & SRCC RF642T25	TIN TT00178LE RF649T-4	17.8	- 1/4" Tumbler Test 2	
"	RF604420 RF604550 RF6046+C	TIN TT00179LE RF6050A4	669.9	4th Attrition Scrub 6/23/93	4th Attrition Scrub
"	TIN RF6050A4	TIN TT00180LE RF605120	307.2	+20 mesh	6/28/93 to SRCC for Count 307.16g
"	"	TIN TT00181LE RF605250	199.456	+50 "	" 199.456
"	"	TIN TT00182LE RF6053+C	135.202	+100 "	" 135.202
"	"	TIN TT00183LE RF6054-C	25.7	-100 "	KLS
6/24/93	TIN RF648T25	SRCC TT00177LE RF648T25	284.622	AM 241 Count 40K sec .3709 pCi/gm	6/28/93 3rd Tumbler Test
6/28/93	TIN RF605120	SRCC TT00180LE RF605120	307.16	AM 241 4K sec .5438 pCi/gm	

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Technology Applications Division

Sample Coordinating Bench Sheet

TAD Batch ID: RF600000 #4 Split from RF00001A Technician: K Smith

Sampling Date	TAD Sample ID	Subsample/ Aliquot ID	Net Amount	Analysis and Results	Amt/ Date *Ret.
6/28/93	Tin RF605250	SRCL TT00181LE RF605250	199.456	Am 241 40K sec. .2531 pCi/gm	
"	Tin RF605 3+C	SRCL TT00182LE RF605 3+C	135.202	Am 241 1K sec 2.503 pCi/gm	

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: (4th Split from RF00001A) RF600000 Technician: K. Smith

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
6/28/93	TIN RF6054-C	SRCC TT00183LE RF6054-C	25.408 KLS	AM 241 KLS 7.597 pCi/gm	
"	TIN & SRCC RF648T25	TIN TT00184LE RF655T25	2353.6	+ 1/4" 3rd Tumbling Test	Returned 9 July 93 to RF60100B
"	TIN & SRCC RF648T25	TIN TT00185LE RF656T-4	9.3	- 1/4" 3rd Tumbling Test	
"	TIN RF655T25	SRCC TT00184LE RF655T25	285.904	AM 241 40K count -.0821/MDA.0466	KLS
"	TIN RF656T-4	SRCC TT00185LE RF656T-4	8.804	AM 241 4K count 7.588 pCi/gm	
"	TIN RF649T-4	SRCC TT00186LE RF649T-4	17.117	AM 241 4K count 2.830 pCi gm	

DB

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: RF60300B ~~RF200000~~ KLS Technician: Keith Smith

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned	
10 AUG 93	#50 (TIN) RF6033A2	RF6033A2 (SRCC)	262.7g	MCA AM 241 #50 Att 2		.66 pCi/gm
"	#100 (TIN) RF6032A2	RF6032A2 (SRCC)	183.7g	MCA AM 241 #100 Att 2		1.97 pCi/gm
RF605800	-100 (TIN) KLS ~~RF6034A2~~	KLS RF605800 ~~RF6034A2~~ (SRCC)	126.4	MCA AM 241 - #100 Att 2		
11 AUG 93		RF ATT 22 Z	28.2	Paper Towell, etc., used to MCA AM 241 - wipe up seepage of ATT 2, Stage 2		-1.216
"	RF2508SP	RF258SPA	377.2	~~Cold~~ split for MCA AM 241 'w ARM'		.9341
"	RF2508SP	RF258SPB	260.2	'cold' split for MCA AM 241		.5992
12 AUG 93	RF6033A2 RF2514A2 RF6032A2	(tin) RF6035A2	532.4	TIN #20 ATT 2 STAGE 2		
	RF6035A2 (tin)	RF6035A2 (SRCC)	435.6	MCA AM 241 #20 ATT 2 Stage 2		1.06 pCi/gm
11 AUG 93	RFAT2SG2	RFAT2SG2	1010.5	Attrition 2 Stage 2 Homogenization		
13 AUG 93	RFAT2SG2	(TIN) RF6036A2	GROSS 283.1	#50 Attrition 2 Stage 2 tin		
"	RFAT2SG2	(TIN) RF6037A2	GROSS 187.2	#100 Attrition 2 Stage 2 tin		
"	(tin) RF6037A2	(SRCC) RF6037A2	170.7	#100 MCA Count ATT 2 Stage 2		1.34 pCi/gm
"	(tin) RF6036A2	(SRCC) RF6036A2	267.1	#50 MCA Count Att 2 Stage 2		1.20 pCi/gm
16 AUG 93	RF6035A2 RF6036A2 RF6037A2	RFAT2SG3	969.7	Attrition 2 Stage 3 Homogenization		
20 AUG 93	RFAT2SG2	(tin) RF605800	GROSS 44.6	Attrition 2 Stage 2 - #100 Tin GROSS		
"	(tin) RF605800	(SRCC) RF605800	27.5	Att 2 Stage 2 - #100 SRCC MCA		26.74 pCi/gm
"	RFAT2SG3	(tin) RF605900	549.6 GROSS ~~390.0~~	ATT 2 Stage 3 #20 tin GROSS		
"	RFAT2SG3	tin RF606000	GROSS 278.3	Att 2 Stage 3 #50 tin GROSS		
	RFAT2SG3	(tin) RF606100	GROSS 173.2	Att 2 Stage 3 #100 Tin GROSS		
	(tin) RF606100	(SRCC) RF606100	157.0 ~~179.3~~ KLS	Att 2 Stage 3 #100 MCA Count		3.119 pCi/gm
	(tin) RF606000	(SRCC) RF606000	261.5g	Att 2 Stage 3 #50 MCA Count		.3959 pCi/gm
	(tin) RF605900	(SRCC) RF605900	390.0	Att 2 Stage 3 #20 MCA Count		.0539 pCi/g

RFAT2SG2

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LESAT
Technology Applications Division

Sample Coordinating Bench Sheet

TAD Batch ID: ~~RF000001~~ RF000001A KLS 3/04/94 Technician: Terry Wendstrand

Sampling Date	TAD Sample ID	Subsample/ Aliquot ID	Net Amount	Analysis and Results	Amt/ Date *Ret.
21 Sept 93	RFATT3 SG2	PAN RF28004A	13.1 g	From ATT3 Stage 2 -#100	1/23/93 SRCC 13.1 g
23 Sept 93	RF 28001A RF 28003A RF28003A	RFATT3SG3	907.6	For ATT3 Stage 3	23 Sept 93 Attrition 3 STAGE 3 907.6
	PAN RF28004A	SRCC RF28004A	13.1	From Att3 Stage 2 -#100 MCA Count	
	RFATT3SG3	PAN RF28005A	480.7	From ATT3 Stage 3 #20	
	PAN RF28005A	SRCC RF28005A	320.9	For MCA Count from #20 ATT3 Stage 3	
9/24/93	RFATT3SG3	PAN RF28006A	269.9	From Att3 Stage 3 #50	
	PAN RF28006A	SRCC RF28006A	269.9	For MCA Count from #50 ATT3 Stage 3	
	RFATT3SG3	PAN RF28007A	144.8	From ATT3 Stage 3 #100	
	PAN RF28007A	SRCC RF28007A	144.8	For MCA Count from #100 ATT3 Stage 3	
	RFATT3SG3	PAN RF28008A	11.866	From Att3 Stage 3 -#100	
	PAN RF28008A	SRCC RF28008A	11.866	For MCA Count from #-100 Att3 Stage 3	
~~21 Sept 93~~	~~PAN RF28004A~~	~~SRCC RF28004A~~			KLS 3/03/94
28 Sept 93	RF606600	PAN RF607100	59.43	From Att3 Stage 1 -#100	
	PAN RF607100	SRCC RF607100	59.43	For MCA Count from -#100 ATT3 Stage 1	

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Technology Applications Division

Sample Coordinating Bench Sheet

TAD Batch ID: RF200000 Homogenious TT00190LE Technician: J. FOISEL

Sampling Date	TAD Sample ID	Subsample/ Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
12-03-93	~~RF210000~~ Batch 2 Split 1 KLS 3/02/94	~~RFARC210~~ TT00210LE	11,332.2g	ARCHIVE	

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FM-181 Client Numbers shown in Red KLS/7/93/REV.0

LESAT
Technology Applications Division

Sample Coordinating Bench Sheet

TAD Batch ID: RF 989098 000001 Technician: K. Smith

Sampling Date	TAD Sample ID	Subsample/ Aliquot ID	Net Amount	Analysis and Results	Amt/ Date *Ret.
3/31/93	989098 RF000001	D-81444 RF311004	405 Lbs	Batch Component - 55gal. Drum	
		D-81445 RF312005	468	" " " "	
		D-81446 RF313006	327	" " " "	
		D-81447 RF314007	307	" " " "	
		D-81448 RF315008	348	" " " "	
5/05/93	RF311004 RF312005 RF313006 RF314007 RF315008	TT00000LE RF00001A	1080.2 Lbs	Homogenization of Batch Components	

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Client ID Numbers in Red

LESAT
Technology Applications Division

Sample Coordinating Bench Sheet

TAD Batch ID: TT00000LE RF00001A Technician: K. Smith

Sampling Date	TAD Sample ID	Subsample/ Aliquot ID	Net Amount	Analysis and Results	Amt/ Date *Ret.
5/04/93 ~~5/05/93~~	TT00000LE RF00001A	RF316000	13.4 Kg		5/07/93 13.4 Kg rehomogenized
		RF317000	1320.9 Kg		
		RF318000	1.5 Kg		5/07/93 1.5 Kg Rehomogenized
		RF319000	12.71 Kg		5/07/93 12.71 Kg Rehomogenized
5/07/93		RF31X000	33 LBS		
		RF111000 ~~RF3111000~~	27 Lbs		
		RF112000	268.971 gms		
		RF113000	1.67 Kg		combined with RF114000
		TT00005LE RF114000	84 Lbs		combined with RF113000
5/27/93		TT00135LE RF600000	62.98 Lbs		

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FM-181 Client Assigned Numbers shown above in Red INK KLS/7/93/REV.1

LESAT
Technology Applications Division

Sample Coordinating Bench Sheet

TAD Batch ID: — Technician: T. Murarik

Sampling Date	TAD Sample ID	Subsample/ Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
27, Aug '93	RF2B0428	RF2B051R	275.5 g	Trommel oversize	Run 26, dry
30, Aug '93	RF2B0432	RF2B052R	275.4 g	Trommel o.s.	Run 27, dry
"	RF2B0433	RF2B053R	83.9 g	Trommel undersz.	Run 27, dry
31, Aug '93	RF2B0437	RF2B054R	30.6 g	Trommel Screen heel	Run 28, dry
9, Sept, '93	RF2B0416	RF2B055C	175.4 g	Hydrocycl. residue	Run 18, dry
9, Sept '93	RF2B0416	RF2B056C	~~30.6 g~~ 113.6 g TM	Hydrocycl. residue	Run 18, dry
9, Sept, 93	RF2B0416	RF2B057C	203.4 g	Hydrocycl. residue	Run 18, dry
9, Sept, 93	RF2B0418	RF2B058C	181.6 g	Hydrocycl. residue	Run 20, dry
9, Sept, 93	RF2B0418	RF2B059C	37.3 g	Hydrocycl. residue	Run 20, dry
9, Sept, 93	RF2B0418	RF2B060C	206.6 g	Hydrocycl. residue	Run 20, dry
9, Sept, 93	RF2B0420	RF2B061C	90.5 g	Hydrocycl. residue	Run 22, dry
9, Sept, 93	RF2B0420	RF2B062C	181.8 g	Hydrocycl. residue	Run 22, dry
9, Sept, 93	RF2B0422	RF2B063C	25.6 g	Hydrocycl. residue	Run 24, dry
9, Sept, 93	RF2B0422	RF2B064C	202.6 g	Hydrocycl. residue	Run 24, dry
27, Aug 93	RF2B0431	RF2B065H	424.1 g	Trommel Scrub heel	Run 26, dry
27, Aug 93	RF2B0430	RF2B066H	411.7 g	Trommel Screen heel	Run 26, dry
30, Aug. 93	RF2B0434	RF2B067H	373.8 g	Trommel screen heel	Run 27, dry
30, Aug, 93	RF2B0435	RF2B068H	380.4 g	Trommel Scrub heel	Run 27, dry
31, Aug 93	RF2B0438	RF2B069H	284.1 g	Trommel Screen heel	Run 28, dry
31, Aug 93	RF2B0439	RF2B070H	398.9 g	Trommel Scrub heel	Run 28, dry
31, Aug, 93	RF2B0436	RF2B068R	399.2 g	Trommel oversize	Run 28, dry

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Technology Applications Division

Sample Coordinating Bench Sheet

TAD Batch ID: —— Technician: T. Murarik

Sampling Date	TAD Sample ID	Subsample/ Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
8/21/93	RF2B0400	RF2B026T	368.827g	wilfley tails - A	Run 9, dry
"	RF2B0400	RF2B027T	369.841	wilfley tails - B	Run 9, dry
"	RF2B0402	RF2B028T	325.922	wilfley tails - A	Run 10, dry
"	RF2B0402	RF2B029T	293.178	wilfley tails - B	Run 10, dry
"	RF2B0404	RF2B030T	318.627	wilfley tails - A	Run 11, dry
"	RF2B0404	RF2B031T	314.654	wilfley tails - B	Run 11, dry
"	RF2B0406	RF2B032T	292.315	wilfley tails - A	Run 12, dry
"	RF2B0406	RF2B033T	370.116	wilfley tails - B	Run 12, dry
"	RF2B0408	RF2B034T	366.388	wilfley tails - A	Run 13, dry
"	RF2B0408	RF2B035T	347.014	wilfley tails - B	Run 13, dry
"	RF2B0410	RF2B036T	403.887	wilfley tails - A	Run 14, dry
"	RF2B0410	RF2B037T	316.289	wilfley tails - B	Run 14 dry
"	RF2B0414	RF2B038T	312.099	wilfley tails - A	Run 16, dry ~~Run 15, dry~~ TM
"	RF2B0414	RF2B039T	295.407	wilfley tails - B	Run 16, dry ~~Run 15, dry~~ TM
"	RF2B0412	RF2B040T	366.361	wilfley tails - A	Run 15, dry
"	RF2B0412	RF2B041T	325.375	wilfley tails - B	Run 15, dry
26, Aug '93	RF2B0427	RF2B044R	385.227	Scrubber heel - A	Run 25, dry
"	RF2B0427	RF2B045R	335.845	Scrubber heel - B	Run 25, dry
"	RF2B0426	RF2B046R	379.232	Screen heel - A	Run 25, dry
"	RF2B0426	RF2B047R	430.6	Screen heel - B	Run 25, dry
"	RF2B0425	RF2B048R	9.8	Trommel underflow	Run 25, dry
27, Aug 93	RF2B0429	RF2B049R	157.4	Trommel U.S.	Run 26, dry
26, Aug, 93	RF2B0424	RF2B050R	276.4	Trommel oversize	Run 25, dry

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LESAT
Technology Applications Division

Sample Coordinating Bench Sheet

TAD Batch ID: — Technician: T. Murarik

Sampling Date	TAD Sample ID	Subsample/ Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
23, Aug, 93	RF2B0418	RF2B025C	25.0 g	Hydrocycl, 60PSI, UF	Run 20, dry
24, Aug, 93	RF2A0308	RF2B026F	28.0 g	Feed for Cent.	Run 21, dry
"	RF2A0308	RF2B027F	46.1 g	Feed for Cent.	Run 21, dry
"	RF2B0420	RF2B028C	22.8 g	Hydrocycl, 15PSI, UF	Run 22, dry
"	RF2B0420	RF2B029C	10.9 g	Hydrocycl, 15PSI, OF	Run 22, dry
"	RF2B0420	RF2B030C	11.8 g	Hydrocycl, 30PSI, OF	Run 22, dry
"	RF2B0420	RF2B031C	22.5 g	Hydrocycl, 60PSI, UF	Run 22, dry
"	RF2B0420	RF2B032C	10.3 g	Hydrocycl, 60PSI, OF	Run 22, dry
26, Aug, 93	RF2B0421	RF2B033C	275.3 g	Centrif. Cons	Run 21, dry
"	RF2A0318	RF2B028F	47.1 g	Feed for Cent.	Run 23, dry
"	RF2A0318	RF2B029F	49.4 g	Feed for Cent.	Run 23, dry
"	RF2B0422	RF2B034C	18.0 g	Hydrocycl, 15PSI, OF	Run 24, dry
"	RF2B0422	RF2B035C	26.7 g	Hydrocycl, 15PSI, UF	Run 24, dry
"	RF2B0422	RF2B036C	18.3 g	Hydrocycl, 30PSI, OF	Run 24, dry
"	RF2B0422	RF2B037C	35.8 g	Hydrocycl, 30PSI, UF	Run 24, dry
"	RF2B0422	RF2B038C	16.4 g	Hydrocycl, 60PSI, OF	Run 24, dry
"	RF2B0422	RF2B039C	32.5 g	Hydrocycl, 60PSI, UF	Run 24, dry
"	RF2B0420	RF2B040C	25.4 g	Hydrocycl, 30PSI, UF	Run 22, dry
"	RF2A0318	RF2B041C	275.3 g	Centrif. Cons	Run 23, dry
24, Aug '93	RF2B0420	RF2B042T	15.8 g	Centrif. tail	Run 21, dry
26, Aug '93	RF2B0422	RF2B043T	27.0 g	Centrif. tail	Run 23, dry
26, Aug '93	RF2B0424	RF2B042R	337.809 g	Trommel ovrsz - A	Run 25, dry
26, Aug '93	RF2B0424	RF2B043R	293.691 g	Trommel ovrsz - B	Run 25, dry

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: —— Technician: T. Murarik

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
20, Aug, 93	RF2B0409	RF2B001C	275.3 g	Wilfley table cons.	Run 13, ~~wet~~ dry TM
"	RF2B0415	RF2B002C	275.4 g	Wilfley table cons.	Run 16, dry
"	RF2B0413	RF2B003C	275.5 g	Wilfley table cons.	Run 15, dry
"	RF2B0411	RF2B004C	275.4 g	Wilfley table cons.	Run 14, dry
19, Aug, 93	RF2B0401	RF2B005C	275.4 g	Wilfley table cons.	Run 9, dry
"	RF2B0403	RF2B006C	275.1 g	Wilfley table cons.	Run 10, dry
"	RF2B0405	RF2B007C	275.3 g	Wilfley table cons.	Run 11, dry
"	RF2B0407	RF2B008C	275.5 g	Wilfley table cons.	Run 12, dry
20, Aug 93	RF2B0416	RF2B009C	35.6 g	Hydrocycl. 15 PSI, OF	Run 18, dry
"	RF2B0416	RF2B08C	36.9 g	Centrifuge tail	Run 17, dry ~~Run 18, dry~~ TM
"	RF2B0416	RF2B010C	65.5 g	Hydrocycl. 15 PSI, UF	Run 18, dry
"	RF2B0416	RF2B011C	35.5 g	Hydrocycl. 60 PSI, OF	Run 18, dry
"	RF2B0416	RF2B012C	68.3 g	Hydrocycl. 60 PSI, UF	Run 18, dry
"	RF2B0416	RF2B013C	33.9 g	Hydrocycl, 30 PSI, OF	Run 18, dry
"	RF2B0416	RF2B014C	69.9 g	Hydrocycl, 30 PSI, UF	Run 18, dry
"	RF2A0264	RF2B015F	41.3 g	~~R~~ Feed for Cent.	Run 19, dry
23, Aug, 93	RF2B0417	RF2B016C	275.5 g	Centrif. Cons.	Run 17, dry
"	RF2B0419	RF2B017C	275.2 g	Centrif. Cons.	Run 19, dry
"	RF2A0256	RF2B018F	50.7 g	Feed for Cent.	Run 17, dry
"	RF2B0418	RF2B019T	24.9 g	Centrif. tails	Run 19, dry
"	RF2B0418	RF2B020C	25.2 g	Hydrocycl, 15 PSI, OF	Run 20, dry
"	RF2B0418	RF2B021C	31.4 g	Hydrocycl. 15 PSI, UF	Run 20, dry
"	RF2B0418	RF2B022C	12.9 g	Hydrocycl, 30 PSI, OF	Run 20, dry
"	RF2B0418	RF2B023C	32.9 g	Hydrocycl, 30 PSI, UF	Run 20, dry
"	RF2B0418	RF2B024C	12.9 g	Hydrocycl, ~~3~~ 60 PSI, OF	Run 20, dry

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: —— Technician: T. Murarik

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
8/26/93	RF2A0401 RF2A0402	RF2B0425	4.25 lbs	Trommel undersize	Run 25, wet
"	RF2A0401 RF2A0402	RF2B0426	164.9	Trommel Screen heel	" , "
"	RF2A0401 RF2A0402	RF2B0427	17.5 lbs	Trommel Scrub heel	" , "
8/27/93	RF2A0406 RF2A0407	RF2B0428	54. lbs	Trommel oversize	Run 26, wet
"	RF2A0406 RF2A0407	RF2B0429	5.5 lbs	Trommel undersize	" , "
"	RF2A0406 RF2A0407	RF2B0430	1.0 lbs	Trommel Screen heel	" , "
"	RF2A0406 RF2A0407	RF2B0431	8.5 lbs	Trommel Scrub heel	" , "
8/30/93	RF2A0411 RF2A0412	RF2B0432	30.0 lbs	Trommel oversize	Run 27, wet
"	RF2A0411 RF2A0412	RF2B0433	2.0 lbs	Trommel undersize	" , "
"	RF2A0411 RF2A0412	RF2B0434	1.0 lbs	Trommel Screen heel	" , "
"	RF2A0411 RF2A0412	RF2B0435	22.5 lbs	Trommel Scrub heel	" , "
8/31/93	RF2A0415 RF2A0416	RF2B0436	56.5 lbs	Trommel oversize	Run 28, wet
"	RF2A0415 RF2A0416	RF2B0437	5.5 lbs	Trommel undersize	" , "
"	RF2A0415 RF2A0416	RF2B0438	0.5 lbs	Trommel Screen heel	" , "
"	RF2A0415 RF2A0416	RF2B0439	18.0 lbs	Trommel Scrub heel	" , "

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: —— Technician: T. Murari R

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
8/17/93	RF2A0251	RF2B0400	14.5 lbs	wilfley table tails	Run 9, wet
"	RF2A0251	RF2B0401	0.5 lbs	~~wilfley table tails~~ wilfley table cons.	" , "
"	RF2A0252	RF2B0402	5.0 lbs	wilfley table tails	Run 10, wet
"	RF2A0252	RF2B0403	0.5 lbs	wilfley table cons.	" , "
"	RF2A0258	RF2B0404	20.25 lbs	wilfley table tails	Run 11, wet
"	RF2A0258	RF2B0405	0.5 lbs	wilfley table cons.	" , "
"	RF2A0259	RF2B0406	2.25 lbs	wilfley table tails	Run 12, wet
"	RF2A0259	RF2B0407	0.5 lbs	wilfley table cons.	" , "
8/18/93	RF2A0302	RF2B0408	32.25 lbs	wilfley table tails	Run 13, wet
"	RF2A0302	RF2B0409	0.5 lbs	wilfley table cons.	" , "
"	RF2A0303	RF2B0410	6.25 lbs	wilfley table tails	Run 14, wet
"	RF2A0303	RF2B0411	0.5 lbs	wilfley table cons.	" , "
"	RF2A0309	RF2B0412	32.25 lbs	wilfley table tails	Run 15, wet
"	RF2A0309	RF2B0413	0.5 lbs	wilfley table cons.	Run 15, wet
"	RF2A0310	RF2B0414	2.25 lbs	wilfley table tails	Run 16, "
"	RF2A0310	RF2B0415	0.5 lbs	wilfley table cons.	" , "
8/19/93	RF2A0256	RF2B0416	37.5 g	Centrif. tails	Run 17 + 18, wet
"	RF2A0256	RF2B0417	275.5 g	Centrif. cons.	Run 17 + 18, wet
8/20/93	RF2A0264	RF2B0418	24.4 g	Centrif. tails	Run 19 + 20, wet
"	RF2A0264	RF2B0419	275.2 g	Centrif. cons.	Run 19 + 20, wet
8/23/93	RF2A0308	RF2B0420	15.8 g	Centrif. tails	Run 21 + 22, wet
"	RF2A0308	RF2B0421	275.3 g	Centrif. cons.	Run 21 + 22, wet
8/24/93	RF2A0318	RF2B0422	27.0 g	Centrif. tails	Run 23 + 24, wet
"	RF2A0318	RF2B0423	275.3 g	Centrif. cons.	Run 23 + 24, wet
8/26/93	RF2A0401 RF2A0402	RF2B0424	36.25 lbs ~~26.25 g~~	Trommel oversize	Run 25, wet

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: —— Technician: T. Murarik

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
8/11/93	RF2A0000	RF2A0825	43.5 lbs	Feed for Run #7	From barrel D81445
"	"	RF2A0826	39.5 lbs	"	From barrel D81448
"	"	RF2A0827	43.0 lbs	"	From barrel D81445
"	"	RF2A0828	39.0 lbs	"	From barrel D81445
"	"	RF2A0829	23.5 lbs	"	From barrel D81448

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: —— Technician: T. Murarik

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
7/26/93	RF2A0000	RF2A0800	24. lbs	Feed for Run #1	From barrel D-82209
"	"	RF2A0801	25. lbs	"	From barrel D-82210
"	"	RF2A0802	26.5 lbs	"	From barrel D-82209
"	"	RF2A0803	27. lbs	"	From barrel D-82209
"	"	RF2A0804	24.5 lbs	"	From barrel D-82210
"	"	RF2A0805	33.5 lbs	"	From barrel D-82209
"	"	RF2A0806	29. lbs	"	From barrel D-82209
"	"	RF2A0807	29.5 lbs	"	From barrel D-82210
7/30/93	"	RF2A0808	29. lbs	Feed for Run #3	From barrel D-82210
"	"	RF2A0809	28. lbs	"	From barrel D-82209
"	"	RF2A0810	34.5 lbs	"	From barrel D-81448
"	"	RF2A0811	35.5 lbs	"	From barrel D-81448
"	"	RF2A0812	33. lbs	"	From barrel D-82209 ~~From barrel D-814~~ TM
"	"	RF2A0813	35. lbs	"	From barrel D81448
"	"	RF2A0814	41.5 lbs	"	From barrel D81448
8/5/93	"	RF2A0815	32.5 lbs	Feed for Run #5	From barrel D81448
"	"	RF2A0816	32.5 lbs	"	From barrel D81448
"	"	RF2A0817	35.5 lbs	"	From barrel D82209
"	"	RF2A0818	33.0 lbs	"	From barrel D81448
"	"	RF2A0819	39.0 lbs	"	From barrel D81448
"	"	RF2A0820	8.5 lbs	"	From barrel D82209
"	"	RF2A0821	42. lbs	"	From barrel D81448
"	"	RF2A0822	19.5 lbs	"	From barrel D81448
8/11/93	"	RF2A0823	37.0 lbs	Feed for Run #7 TM	From barrel D81448
"	"	RF2A0824	42.0 lbs	"	From barrel D81445

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: —— Technician: T. Murarik

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
7/27/93	RF2A0000	RF2A0400	3.0 lbs	+ 5/4" organics	~~Run 2~~ Run 1 TM moist
"	"	RF2A0401	7.0 lbs	+ 5/4" gravel	" , "
"	"	RF2A0402	62.0 lbs	+ 3/8" gravel	" , "
"	"	RF2A0403	2.0 lbs	Smico Screen C-0	" , "
"	"	RF2A0404	142.5 lbs	< 3/8" feed	" , "
7/30/93	"	RF2A0405	1.5 lbs	+ 5/4" organics	~~Run 4~~ Run 3 TM moist
"	"	RF2A0406	7.0 lbs	+ 5/4" gravel	" , "
"	"	RF2A0407	67.0 lbs	+ 1/4" gravel	" , "
"	"	RF2A0408	10.5 lbs	Smico Screen C-0	" , "
"	"	RF2A0409	147.5 lbs	< 1/4" feed	" , "
8/6/93	"	RF2A0410	2.0 lbs	+ 5/4" organics	~~Run 6~~ Run 5 TM moist
"	"	RF2A0411	5.0 lbs	+ 5/4" gravel	" , "
"	"	RF2A0412	61.0 lbs	+ 1/4" gravel	" , "
"	"	RF2A0413	162.0 lbs	< 1/4" feed	" , "
8/12/93	"	RF2A0414	1.5 lbs	+ 5/4" organics	~~Run 8~~ Run 7 TM " moist
"	"	RF2A0415	11.0 lbs	+ 5/4" gravel	" , "
"	"	RF2A0416	73.5 lbs	+ 1/4" gravel	" , "
"	"	RF2A0417	172.5 lbs	< 1/4" feed	" , "
"	"	RF2A0418	19.5 lbs	Smico Screen C-0	" , "

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: — Technician: T. Murari K

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
8/12/93	RF2A0417	RF2A0319	4.0 lbs	Hutch Cl-out, process blk	Run 8 wet

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: — Technician: T. Murarik

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
7/27/93	RF2A0004	RF2A0300	~~319.~~ 134.5 lbs TM	Thickener (4 bkts)	Run 2, wet
~~8/6/95~~ 8/6/93 TM	RF2A0413	RF2A0301	2.0 lbs	+4 mesh	Run 6, wet
"	"	RF2A0302	41.0 lbs	Hutch 1	Run 6, wet
"	"	RF2A0303	10.5 lbs	Hutch 2	Run 6, wet
"	"	~~RF2A0313~~ RF2A0304 TM	36.5 lbs	Class. underf.	Run 6, wet
"	"	RF2A0305	3.5 lbs	Class. Clean out	Run 6, wet
"	"	RF2A0306	1.0 lbs	Class. Sump	Run 6, wet
"	"	RF2A0307	10.0 lbs	Screen organics	Run 6, wet
"	"	RF2A0308	241.0 lbs	Thickener (6 bkts)	Run 6, wet
8/12/93	RF2A0417	RF2A0309	39.5 lbs	Hutch 1	Run 8, wet
"	"	RF2A0310	7.5 lbs	Hutch 2	Run 8, wet
"	"	RF2A0311	24.5 lbs	Class. undrf.	Run 8, wet
"	"	RF2A0312	11.0 lbs	Class. Clean out	Run 8, wet
"	"	RF2A0313	1.5 lbs	Class. Sump.	Run 8, wet
"	"	RF2A0314	8.5 lbs	Screen org.	Run 8, wet
"	"	RF2A0315	271.5 lbs	Thickener (6 bkts)	Run 8, wet
"	"	RF2A0316	67.5 lbs	Attrn. Scrb. C-O (2 bckts)	Run 8, wet
8/6/93	RF2A0413	RF2A0317	0.5 lbs	Hutch Clean outs	Run 6, wet
8/12/93	RF2A0417	RF2A0318	4.0 lbs	+4 mesh	Run 8, wet

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: —— Technician: T. Murarik

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
7/27/93	RF2A0404	RF2A0250	4.0 lbs	+4 mesh, process bulk	Run 2, wet
"	"	RF2A0251	24.0 lbs	Hutch 1, "	" , "
"	"	RF2A0252	15.5 lbs	Hutch 2, "	" , "
"	"	RF2A0253	12.0 lbs	class undrf, "	" , "
"	"	RF2A0254	8.5 lbs	class cl-out, "	" , "
"	"	RF2A0255	5.5 lbs	Screen org, "	" , "
"	"	RF2A0256	~~6.4~~ 139.5 lbs	Thickener, "	" , "
~~7/29/93~~ 7/30/93	RF2A0409	RF2A0257	6.0 lbs	+4 mesh, process bulk	Run 4, wet
"	"	RF2A0258	33.0 lbs	Hutch 1, "	" , "
"	"	RF2A0259	11.5 lbs	Hutch 2, "	" , "
"	"	RF2A0260	28.0 lbs	class undrf, "	" , "
"	"	RF2A0261	31.0 lbs	class cl-out, "	" , "
"	"	RF2A0262	21.0 lbs	class sump, "	" , "
"	"	RF2A0263	2.0 lbs	Screen org., "	" , "
"	"	RF2A0264	182.0 lbs	Thickener, "	" , "

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: — Technician: T. Murarik

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
9/11/93	RF2B0432	RF2A0215	461.953	Trommel oversz, C, splitter	Run 27, dry
"	RF2B0432	RF2A0216	363.751	Trommel oversz, D, splitter	Run 27, dry
"	RF2A0315	RF2A0217	140.899	Thickener, A-2, splitter	Run 8, dry
"	RF2A0315	RF2A0218	144.957	Thickener, A-3, splitter	Run 8, dry
"	RF2A0315	~~RF2A0218~~ RF2A0219 TM	122.079	Thickener, C-2, splitter	Run 8, dry
"	RF2A0315	~~RF2A0219~~ RF2A0220 TM	124.571	Thickener, ~~D-2~~ C-3 TM, splitter	Run 8, dry
9/26/93	RF2A0030	RF2A0221	53.673	+4 mesh, sieved, -4 mesh & org.	Run 4, dry
"	RF2A0036	RF2A0222	53.215	Class. undf, -100 mesh sieved	Run 4, dry
"	RF2A0316	RF2A0223	250.600	Attrn. Scrub C-0, A1	Run 8, dry
"	RF2A0316	RF2A0224	~~244.531~~ 244.531 TM	Attrn Scrub, C-0, A2	" "
"	RF2A0316	RF2A0225	331.191	Attrn. Scrub, C-0, B-1	" "
"	RF2A0316	RF2A0226	269.247	Attrn, Scrub, C-0, B-2	" "
"	RF2A0126	RF2A0999	18.616	Class. Sump, Dark, hard layer dried on top	Run 8, dry

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: —— Technician: T. Murarik

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
8/24/93	RF2A0415	RF2A0150	361.151 g	>1 1/4", gravel, A	Run 8, dry
"	RF2A0415	RF2A0151	396.8 g	>1 1/4", gravel, B	" , "
"	RF2A0416	RF2A0152	323.981 g	>1/4", gravel, A	" , "
"	RF2A0416	RF2A0153	389.588 g	>1/4", gravel, B	" , "
"	RF2A0416 ~~RF2A0417~~ TM	RF2A0154	359.342 g	>1/4", gravel, C	" , "
8/21/93	RF2A0417	RF2A0155	2.558 g	Filtered water residue	" , "
8/26/93	RF2A0408	RF2A0156	208.068 g	Shaker Cleanout, Sieved <1/4"	Run 4, dry
8/9/93	RF2A0027	RF2A0157	92.310 g	Thickener, C	" , "
8/9/93	RF2A0027	RF2A0158	91.516 g	Thickener, D	" , "
8/21/93	RF2A0417	RF2A0159	0.146 g	Filter paper, process H_2O	Run 8, dry
9/11/93	RF2A0409 ~~RF2A0200~~ TM	RF2A0200	262.581 g	<1/4" feed, B	Run 4, dry
"	RF2A0036	RF2A0201	333.211 g	Class. undrf, sieved, +100 mesh	Run 4, dry
"	RF2A0030	RF2A0202	129.739 g	+4 mesh, sieved, org. + +4 mesh	Run 4, dry
"	RF2A0311	RF2A0203	252.905 g	Class undrf, C, splttr	Run 8, dry
"	RF2A0311	RF2A0204	267.758 g	Class undrf, D, splttr	" , "
"	RF2A0312	RF2A0205	200.955 g	Class, cleanout, C, splttr	" , "
"	RF2A0312	RF2A0206	195.149 g	Class. cleanout, D, splttr	" , "
"	RF2A0318 ~~RF2A0308~~ TM	RF2A0207	186.960 g	+4 mesh, C, splttr	" , "
"	RF2A0318 ~~RF2A0308~~ TM	RF2A0208	171.156 g	+4 mesh, D, splttr	" , "
"	RF2A0313	RF2A0209	108.909 g	Class. sump, C, splttr	" , "
"	RF2A0313	RF2A0210	101.836 g	Class sump, D, splttr	" , "
"	RF2A0314	RF2A0211	35.155 g	Screen org, C, splttr	" , "
"	RF2A0314	RF2A0212	34.502 g	Screen org, D, splttr	" , "
"	RF2B0404 ~~RF2A0404~~ TM	RF2A0213	115.648 g	Table tails, C, splttr	Run 11, "
"	RF2B0404	RF2A0214	180.089 g	Table tails, D, splttr	Run 11, "

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: —— Technician: T. Murarik

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
8/20/93	RF2A0313	RF2A0125	54.045g	Class. Sump, A	Run 8, dry
"	RF2A0313	RF2A0126	53.306g	Class. Sump, B	" , "
8/24/93	RF2A0400	RF2A0127	19.129g	>1 1/4" grass, A	Run 2, dry
8/24/93	RF2A0400	RF2A0128	23.743g	>1 1/4" grass, B	" , "
"	RF2A0401	RF2A0129	351.370g	>1 1/4", gravel, A	" , "
"	RF2A0401	RF2A0130	468.8 g	>1 1/4", gravel, B	" , "
"	RF2A0402	RF2A0131	326.842g	> 3/8", gravel, A	" , "
"	RF2A0402	RF2A0132	~~372.523~~ 313.940g	> 3/8", gravel, B	" , "
"	RF2A0402	RF2A0133	372.523g	> 3/8", gravel, C	" , "
"	RF2A0405	RF2A0134	25.032g	>1 1/4", grass, A	Run 4, dry
"	~~RF2A0406~~ RF2A0405	RF2A0135	23.421g	>1 1/4", grass, B	" , "
"	~~RF2A0407~~ RH2A0406	RF2A0136	335.650g	>1 1/4", gravel, A	" , "
"	~~RF2A0408~~ RF2A0406	RF2A0137	343.007g	>1 1/4", gravel, B	" , "
"	RF2A0407	RF2A0138	314.908g	> 1/4", gravel, A	" , "
"	RF2A0407	RF2A0139	374.100g	> 1/4", gravel, B	" , "
"	RF2A0407	RF2A0140	394.203g	> 1/4", gravel, C	" , "
"	RF2A0410	RF2A0141	39.922g	>1 1/4", grass, A	Run 6, dry
"	RF2A0410	RF2A0142	39.737g	>1 1/4", grass, B	" , "
"	RF2A0411	RF2A0143	359.251g	>1 1/4", gravel, A	" , "
"	RF2A0411	RF2A0144	367.237g	>1 1/4", gravel, B	" , "
"	RF2A0412	RF2A0145	382.253g	> 1/4", gravel, A	" , "
"	RF2A0412	RF2A0146	377.824g	> 1/4", gravel, B	" , "
"	RF2A0412	RF2A0147	348.258g	> 1/4", gravel, C	" , "
"	RF2A0414	RF2A0148	28.230g	>1 1/4", grass, A	Run 8, dry
"	RF2A0414	RF2A0149	30.607g	>1 1/4", grass, B	" , "

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: —— Technician: T. Murarik

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
8/16/93	RF2A0311	RF2A0100	388.141 g	Class. underf, B	~~Run 8,~~ Run 8, dry T
"	RF2A0417	RF2A0101	3086.8 g	Recycle water, filt. test	Run 8, wet, post
"	RF2A0417	RF2A0102	0.209 g	" ", post, A	Run 8, dry
"	RF2A0417	RF2A0103	0.214 g	" ", post B	Run 8, dry
"	RF2A0417	RF2A0104	229.150 g	RF water samp, post, C	" , "
"	RF2A0417	RF2A0105	226.008 g	RF water samp, post, D	" , "
8/18/93	RF2A0309	RF2A0106	358.754 g	Hutch 1, A	" , "
"	RF2A0309	RF2A0107	385.518 g	Hutch 1, B	" , "
"	RF2A0310	RF2A0108	357.041 g	Hutch 2, A	" , "
"	RF2A0310	RF2A0109	312.767 g	Hutch 2, B	" , "
8/18/93	RF2A0308	RF2A0110	70.755 g	Thickener, C	Run 6, dry
"	RF2A0308	RF2A0111	92.202 g	Thickener, D	" , "
"	RF2A0308	RF2A0112	158.695 g	Thickener, E	" , "
"	RF2A0308	RF2A0113	81.624 g	Thickener, F	" , "
"	RF2A0417	RF2A0114	194.170 g	Hutch C-O	" , "
8/20/93	RF2A0315	RF2A0115	81.060 g	Thickener, A	Run 8, dry
8/20/93	RF2A0315	RF2A0116	54.980 g	Thickener, B	" , "
"	RF2A0315	RF2A0117	68.085 g	Thickener, C	" , "
"	RF2A0315	RF2A0118	50.691 g	Thickener, D	" , "
"	RF2A0315	RF2A0119	63.720 g	Thickener, E	" , "
"	RF2A0315	RF2A0120	68.114 g	Thickener, F	" , "
"	RF2A0315	RF2A0121	0.267 g	Clear water from Thickn.	" , "
"	RF2A0417	RF2A0122	144.309 g	Hutch Clean out	" , "
"	RF2A0312	RF2A0123	311.290 g	Class. Clean out, A	" , "
"	RF2A0313	RF2A0124	394.9 g	class. cleanout, B	" , "

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: — Technician: T. Murarik

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
8/10/93	RF2A0306	RF2A0075	169.225g	Class. Sump, B	Run 6, dry
"	RF2A0307	RF2A0076	50.465g	Screen Org., A	" , "
"	RF2A0307	RF2A0077	54.940g	Screen Org., B	" , "
"	RF2A0413	RF2A0078	1.905g	Floating Org.,	" , "
"	RF2A0413	RF2A0079	0.226g	Recycle water, post, B	" , "
"	RF2A0413	RF2A0080	264.932g	RF Water Samp, C	" , wet, post
"	RF2A0413	RF2A0081	254.300g	RF Water Samp, D	" , wet, post
"	RF2A0308	RF2A0082	61.059g	Thickener, A	" , dry
"	RF2A0308	RF2A0083	61.935g	Thickener, B	" , dry
8/11/93	RF2A0417	RF2A0084	216.557g	Starting Soil, A	Run 8, dry
8/11/93	RF2A0417	RF2A0085	213.125g	Starting Soil, B	" , "
8/12/93	RF2A0413	RF2A0086	244.819g	RF water Samp, A	" , wet, pre
"	RF2A0413	RF2A0087	262.795g	RF water Samp, B	" , wet, pre
"	RF2A0413	RF2A0088	0.314g	Recycle water, C	" , dry, pre
"	RF2A0413	RF2A0089	0.347g	Recycle water, D	" , dry, pre
"	RF2A0413	RF2A0090	51.334g	Attrn. Scrub disch.	" , dry, pre
"	RF2A0417	RF2A0091	137.649g	Attrn Scrub disch.	" , dry, post
8/16/93	RF2A0417	RF2A0092	2771. g	Recycle water, stl. test	" , wet, post
"	RF2A0417	RF2A0093	359.177g	Min. jig C-O	" , dry
"	RF2A0417	RF2A0094	14.236g	Floating Org.	" , "
"	RF2A0318 ~~RF2A0308~~ m	RF2A0095 ~~RF2A0308~~ m	158.144g	+4 mesh, A	" , "
"	RF2A0318 ~~RF2A0308~~ m	RF2A0096	210.863g	+4 mesh, B	" , "
"	RF2A0314	RF2A0097	42.299g	Screen organics, A	" , "
"	RF2A0314	RF2A0098	42.314g	Screen organics, B	" , "
"	RF2A0311	RF2A0099	324.242g	Class. underf, A	" , "

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: — Technician: T. Murarik

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
8/4/93	RF2A0009	RF2A0050	18.048 g	Float Org. -A	Run 4, dry
8/4/93	"	RF2A0051	9.490 g	Float Org. -B	" , "
"	"	RF2A0052	0.201 g	Recycle water -B	" , "
"	"	RF2A0053	271.439 g	RF water Samp-A	" , wet, post
"	"	RF2A0054	282.054 g	RF water Samp -B	" , wet, post
8/9/93	RF2A0300	RF2A0055	79.697 g	Thickener, C	Run 2, dry
"	"	RF2A0056	79.301 g	Thickener, D	" , "
8/5/93	RF2A0409 ~~RF2A0413~~ TM ~~RF2A0000~~ TM	RF2A0057	0.220 g	Recycle water, pre	Run 6, dry
"	RF2A0413 TM	RF2A0058	205.281 g	Starting soil -B	" , "
"	"	RF2A0059	198.191 g	Starting soil -A	" , "
"	"	RF2A0060	147.429 g	Attrn. Scrb - start	" , "
"	"	RF2A0061	153.108 g	Attrn. Scrb - ~~start~~ post TM	" , "
8/10/93	"	RF2A0062	0.213 g	Recycle water -A	" , " , post
"	"	RF2A0063	367.119 g	Mineral jig C-O	" , "
"	RF2A0301 TM	RF2A0064	210.205 g	+4 mesh, A	" , dry
"	RF2A0301	RF2A0065	189.733 g	+4 mesh, B	" , "
"	RF2A0302	RF2A0066	421.8 g	Hutch 1, A	" , "
"	RF2A0302	RF2A0067	374.940 g	Hutch 1, B	" , "
"	RF2A0303	RF2A0068	309.665 g	Hutch 2, A	" , "
"	RF2A0303	RF2A0069	281.184 g	Hutch 2, B	" , "
"	RF2A0304	RF2A0070	360.153 g	Class. underf, A	" , "
"	RF2A0304	RF2A0071	407.3 g	Class. underf, B	" , "
"	RF2A0305	RF2A0072	237.009 g	Class. C-O, A	" , "
"	RF2A0305	RF2A0073	285.582 g	Class C-O, B	" , "
"	RF2A0306	RF2A0074	149.750 g	Class. Sump, A	" , "

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: ——— Technician: T. Murarik

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
7/29/93	RF2A0409 TM ~~RF2A0000~~	RF2A0025	21.0 lbs	Classifier Sump C-0	Run 4, wet
"	"	RF2A0026	2.0 lbs	Screen Organics	" , "
"	"	RF2A0027	182.0 lbs	Thickener (4 bckts)	" , "
7/30/93	RF2A0404 TM	RF2A0028	0.205 g	Recycle water	" , "
"	RF2A0409	RF2A0029	281.252 g	Mineral jig C-0	" , dry
"	RF2A0020	RF2A0030	183.880 g	+4 mesh, A	" , dry
"	RF2A0020	RF2A0031	267.734 g	+4 mesh, B	" , dry
"	RF2A0021 TM ~~RF2A0009~~	RF2A0032	230.242 g	Hutch 1, A	" , dry
"	RF2A0021 TM ~~RF2A0009~~	RF2A0033	189.478 g	Hutch 1, B	" , dry
"	RF2A0022	RF2A0034	365.931 g	Hutch 2, A	" , dry
"	RF2A0022	RF2A0035	367.118 g	Hutch 2, B	" , dry
"	RF2A0023	RF2A0036	386.534 g	Classif. undef, A	" , dry
"	RF2A0023	RF2A0037	403.3 g	Classif. undef, B	" , dry
"	RF2A0024	RF2A0038	298.230 g	Classif. C-0, A	" , dry
"	RF2A0024	RF2A0039	144.153 g	Classif. C-0, B	" , dry
"	RF2A0025	RF2A0040	6.968 g	Class. Sump, A	" , dry
"	RF2A0025	RF2A0041	7.191 g	Class. Sump, B	" , dry
"	RF2A0026	RF2A0042	59.488 g	Screen Org., A	" , dry
"	RF2A0026	RF2A0043	83.748 g	Screen Org., B	" , dry
"	RF2A0027	RF2A0044	85.592 g	Thickener, A	" , dry
"	RF2A0027 TM ~~RF2A0028~~	RF2A0045	105.275 g	Thickener, B	" , dry
7/28/93	RF2A0404 TM ~~RF2A0000~~	RF2A0046	2.3419	Float orgs.	~~Run2, dry~~ Run2, ~~wet~~ TM dry TM
7/30/93	RF2A0404 TM ~~RF2A0000~~	RF2A0047	0.2509	Recycle water, post	Run2, dry
8/9/93	RF2A0300	RF2A0048	~~134.5 lbs~~ 133.047 g	Thickener, A	Run2, dry
8/9/93	RF2A0300	RF2A0049	65.780 g	Thickener, B	Run2, dry

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: — Technician: T. Murarik

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
7-27-93	RF2A0404 ~~RF2A0000~~ TM	RF21000V	160.2 g	^{241}Am, Run 2, Start	Run 2, all
"	RF2A0404 ~~RF2A0001~~ TM	RF2A0001	4.0 lbs	", +4 mesh	", wet
"	RF2A0404 ~~RF2A0000~~ TM	RF2A0002	24.0 lbs	", Hutch 1	", wet
"	RF2A0404 ~~RF2A0000~~ TM	RF2A0003	15.5 lbs	", Hutch 2	", wet
"	RF2A0404 ~~RF2A0000~~ TM	RF2A0004	12.0 lbs	", class und-f	", wet
"	RF2A0404 ~~RF2A0000~~ TM	RF2A0005	8.5 lbs	", class. C-C	", wet
"	RF2A0404 ~~RF2A0000~~ TM	RF2A0006	5.5 lbs	", Screen orgs.	", wet
"	RF2A0001	RF2A0007	130.374 g	", +4 mesh A	", dry
"	RF2A0001	RF2A0008	150.201 g	", +4 mesh B	", dry
"	RF2A0002	RF2A0009	355.038 g	", Hutch 1, A	", dry
"	RF2A0002	RF2A0010	435.4 g	", Hutch 1, B	", dry
"	RF2A0003	RF2A0011	419.2 g	", Hutch 2, A	", dry
"	RF2A0003	RF2A0012	439.6 g	", Hutch 2, B	", dry
"	RF2A0004	RF2A0013	363.555 g	", class undf, A	", dry
"	RF2A0004	RF2A0014	393.995 g	", class undf, B	", dry
"	RF2A0005	RF2A0015	215.955 g	", class C-O, A	", dry
"	RF2A0005 ~~RF2A0006~~ TM	RF2A0016	250.287 g	", class C-O, B	", dry
"	RF2A0006	RF2A0017	49.087 g	", screen org., A	", dry
"	RF2A0006	RF2A0018	59.992 g	", screen org., B	", dry
"	RF2A0404 ~~RF2A0000~~ TM	RF2A0019	304.093 g	", min. jig C-O	", dry
7/29/93	RF2A0409 ~~RF2A0000~~ TM	RF2A0020	6.0 lbs ~~5.5 lbs~~ TM	", +4 mesh	Run 4, wet
"	RF2A0409 ~~RF2A0000~~ TM	RF2A0021	33.0 lbs	", Hutch 1	", wet
"	RF2A0409 ~~RF2A0000~~ TM	RF2A0022	11.5 lbs	", Hutch 2	", wet
"	RF2A0409 ~~RF2A0000~~ TM	RF2A0023	28.0 lbs	", Class underf.	", wet
"	RF2A0409 ~~RF2A0000~~ TM	RF2A0024	31.0 lbs	", class C-O	", wet

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Bench Sheet

Lockheed T & E Batch ID: RFBCH001 T. Murarik

Technician	Date	Lockheed Sample ID	Aliquot ID	Amount	Analysis	Results
T. Murarik	5/7/93	RF114000				
"	5/12/93	"	RFPHWET	20.06	pH H_2O	7.86
"	5/12/93	"	RFPHCACL	20.03	" $CaCl_2$	7.32
"	5/14/93	"	RFPH0001	20.007	" H_2O	7.61
"	"	"	RFPH0002	20.040	" H_2O	7.63
"	"	"	RFPH0003	19.995	" H_2O	7.60
"	"	"	RFPH0004	20.005	" $CaCl_2$	7.12
"	"	"	RFPH0005	20.102	" $CaCl_2$	7.14
"	"	"	RFPH0006	20.066	" $CaCl_2$	7.14

Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: — Technician: T. Murarik

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
7/28/93	RF31X000	RF31X900	168.426	Sample Activity	A split
"	"	RF31X901	220.254	" "	B split
"	"	RF31X902	242.798	" "	C split
"	"	RF31X903	162.688	" "	D split

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: —— Technician: T. Murarik

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
9/26/93	RF114124	RF114221	109.612	Dense Liquid Char. 2.32	+2.6 ~~E~~ liquid, A
"	"	RF114222	186.629	" "0.44	+2.9 liquid, A
"	"	RF114223	120.535	" 1.24 "	+2.6 liquid, B
"	"	RF114224	180.234	" 0.48 " ~~9.62~~	+2.9 liquids, B
"	"	RF114225	8.612	" 10.18 " ~~5.68~~	-2.9 liquids, A

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: — Technician: T. Murarik

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
6/22/93	RF114000	RF114128	176.944	Part. Size Analysis	#70F, wet sieved
"	"	RF114129	134.106	"	#200C, " "
"	"	RF114130	0.782	"	<325 H_2O, " "
"	"	RF114131	210.566	"	#325C, " "
9/11/93	RF114039	RF114200	5.332	Grass separation	straw, A
"	"	RF114201	27.657	" "	roots, A
"	"	RF114202	10.589	" "	"dust", A
"	RF114105	RF114203	2.096	Pipet analysis	20μ, from <325C
"	"	RF114204	1.209	" "	5μ, "
"	"	RF114205	0.486	" "	2μ, "
9/17/93	"	RF114206	1.287	" "	H_2O, "
9/26/93	RF114040	RF114207	9.184	Grass separation	straw, B
"	"	RF114208	33.379	" "	roots, B
"	"	RF114209	8.187	" "	"dust", B
"	RF114124	RF114210	6.732	Dense Liquid Chan 52.99 perg	+1.90 floats, A
"	"	RF114211	6.841	" " 44.77	+1.90 floats, B
"	"	RF114212	71.871	" " 2.85	+1.90 liquid, A
"	"	RF114213	76.044	" " 2.50	+1.90 liquid, B
"	"	RF114214	28.580	" " 21.19	+2.6 floats, B
"	"	RF114215	4.073	" " 58.61	-2.9 sinks, B
"	"	RF114216	28.670	" " 23.88	+2.6 floats, A
"	"	RF114217	17.537	" " 8.94	+2.9 floats, A
"	"	RF114218	4.153	" " 67.90	-2.9 sinks, A
"	"	RF114219	18.062	" " 8.98	+2.9 floats, B
"	"	RF114220	9.047	" " 4.22	-2.9 liquid, B

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: —— Technician: T. Murarik

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
6/4/93	RF114000	RF114103	96.276	Part. Size Analysis	<325A, dry sieve
6/11/93	RF114000	RF114104	1.656	"	<325B, wet sieved
"	"	RF114105	111.548	"	<325C, " "
"	"	RF114106	14.724	"	<325D, " "
"	"	RF114107	11.600	"	<325E, " "
"	"	RF114108	106.637	"	<325F, " "
6/12/93	"	RF114109	19.958	"	<325G, " "
"	"	RF114110	94.717	"	<325H, " "
"	"	RF114111	156.682	"	<325I, " "
"	"	RF114112	21.913	"	<325J, " "
"	"	RF114113	0.696	"	<325K, " "
"	"	RF114114	149.631	"	<325L, " "
"	"	RF114115	91.354	"	<50N, dry sieved
6/20/93	"	RF114116	263.616	"	#70D, " "
"	"	RF114117	154.385	"	#70E, " "
"	"	RF114118	149.473	"	#100C, " "
"	"	RF114119	110.428	"	#140C, " "
"	"	RF114120	48.764	"	#200B, " "
"	"	RF114121	75.066	"	#325B, " "
"	"	RF114122	112.519	"	<325M, " "
6/22/93	"	RF114123	210.572	"	<325N, wet sieved
"	"	RF114124	108.400	"	<325O, " "
"	"	RF114125	103.324	"	<325P, " "
"	"	RF114126	245.886	"	#100D, " "
"	"	RF114127	204.006	"	#140D, " "

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: —— Technician: T. Murarik

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
5/26/93	RF114000	RF114078	163.670	Part. Size Analysis	#5, wet sieved
"	RF114000	RF114079	227.726	"	#10A, "
"	"	RF114080	347.128	"	1", "
"	"	RF114081	277.231	"	3/4", "
"	"	RF114082	183.722	"	#20A, "
"	"	RF114083	136.891	"	#20B, "
"	"	RF114084	216.314	"	#40A, "
"	"	RF114085	116.494	"	#40B, "
"	"	RF114086	109.701	"	#50A, "
"	"	RF114087	77.575	"	#50B, "
"	"	RF114088	149.066	"	<50H, "
"	"	RF114089	157.052	"	<50I, "
"	"	RF114090	138.834	"	<50J, "
"	"	RF114091	122.997	"	<50K, "
"	"	RF114092	134.910	"	<50L, "
"	"	RF114093	125.984	"	<50M, "
6/4/93	"	RF114094	246.687	"	#70A, dry sieved
"	"	RF114095	177.704	"	#70B, "
"	"	RF114096	35.309	"	#70C, "
"	"	RF114097	247.334	"	#100A, "
"	"	RF114098	152.758	"	#100B, "
"	"	RF114099	208.371	"	#140A, "
"	"	~~RF1140~~ RF114100 Tm	32.659	"	#140B, "
"	"	RF114101	75.932	"	#200A, "
"	"	RF114102	110.143	"	#325A, "

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: —— Technician: T. Murarik

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
5/19/93	RF114000	RF114053	3659.1	Part. size analysis	<3/4", third split
5/20/93	RF114000	RF114054	240.999	"	3/8", dry sieve
"	"	RF114055	191.372	"	1/4", " "
"	"	RF114056	186.050	"	#5, " "
"	"	RF114057	194.758	"	#10A, " "
"	"	RF114058	230.253	"	#20, " "
"	"	RF114059	168.154	"	#10B, " "
"	"	RF114060	184.813	"	#40A, " "
"	"	RF114061	206.675	"	#50A, " "
"	"	RF114062	194.336	"	3/8"B, " "
"	"	RF114063	237.011	"	#20B, " "
"	"	RF114064	171.654	"	#20C, " "
"	"	RF114065	224.276	"	#40B, " "
"	"	RF114066	246.665	"	#<50A, " "
"	"	RF114067	251.503	"	<50B, " "
"	"	RF114068	141.013	"	#50B, " "
"	"	RF114069	238.319	"	#40C, " "
"	"	RF114070	215.357	"	<#50C, " "
"	"	RF114071	237.013	"	<#50D, " "
"	"	RF114072	205.387	"	<#50E, " " Tm
"	"	RF114073	203.309	"	<#50F, " "
"	"	RF114074	52.687	"	<#50G, " "
5/26/93	"	RF114075	259.881	"	3/8"A, wet sieved
"	"	RF114076	171.465	"	3/8"B, "
"	"	RF114077	187.939	"	1/4", "

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Sample Coordinating Bench Sheet

Lockheed T & E Batch ID: —— Technician: T. Murarik

Sampling Date	Lockheed Sample ID	Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
5/19/93	RF114000	RF114028	229.041	Part. Size Analysis	>1½" gravel, 5/19
"	"	RF114029	353.112	"	1", 5/19
"	"	RF114030	280.601	"	3/4", "
"	"	RF114031	216.362	"	<3/4", "
"	"	RF114032	152.025	"	<3/4", "
"	"	RF114033	21.939	"	>1½" grass, "
"	"	RF114034	227.905	"	>1½ gravel, "
"	"	RF114035	352.025	"	1", "
"	"	RF114036	279.662	"	3/4", "
"	"	RF114037	340.9	"	>1½" gravel, "
"	"	RF114038	79.9	"	>1½" grass ~~gravel~~, T.M."
"	"	RF114039	46.9	"	>1½" grass ~~gravel~~, T.M."
"	"	RF114040	~~45.9~~ 54.8 TM	"	>1½" grass ~~gravel~~, T.M."
"	"	RF114041	2486.1	"	1", "
"	"	RF114042	2528.4	"	3/4", "
"	"	RF114043	151.739	"	<3/4", "
"	"	RF114044	~~355.497~~ 341.013 TM	"	>1½", "
"	"	RF114045	136.75	"	1", first split
"	"	RF114046	534.8	"	1", second split
"	"	RF114047	236.7	"	1" third split
"	"	RF114048	1395.1	"	3/4", first split
"	"	RF114049	622.2	"	3/4", second split
"	"	RF114050	233.8	"	3/4", third split
"	"	RF114051	1496.3	"	<3/4", first split
"	"	RF114052	7269.4	"	<3/4", second split

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Bench Sheet

Lockheed T & E Batch ID: — T. Murarik

Technician	Date	Lockheed Sample ID	Aliquot ID	Amount	Analysis	Results
T Murarik	5/18/93	RF114000 ~~RF114001~~	RF114001	298.0	Part. Size Analys	>1 1/2"
"	"	"	RF114002	2495.1	"	1"
"	"	"	RF114003	2063.2	"	3/4"
"	"	"	RF114004	1531.4	"	<3/4"
"	"	"	RF114005	1369.9	"	<3/4"
"	"	"	RF114006	1274.1	"	<3/4"
"	"	"	RF114007	1552.1	"	<3/4"
"	"	"	RF114008	57.7	"	>1 1/2"
"	"	"	RF114009	1790.5	"	<3/4"
"	"	"	RF114010	1696.9	"	<3/4"
"	"	"	RF114011	1487.8	"	<3/4"
"	"	"	RF114012	1533.3	"	<3/4"
"	"	"	RF114013	1555.2	"	<3/4"
"	"	"	RF114014	1660.2	"	<3/4"
"	"	"	RF114015	1541.0	"	<3/4"
"	"	"	RF114016	59.5	"	>1 1/2"
"	"	"	RF114017	1807.4	"	<3/4"
"	"	"	RF114018	1759.5	"	<3/4"
"	"	"	RF114019	1517.9	"	<3/4"
"	"	"	RF114020	530.9	"	3/4"
"	"	"	RF114021	1404.0	"	<3/4"
"	"	"	RF114022	202.6	"	>1 1/2"
"	"	"	RF114023	1520.8	"	<3/4"
"	"	"	RF114024	1940.4	"	<3/4"
"	"	"	RF114025	1751.5	"	<3/4"
"	"	"	RF114026	1449.0	"	<3/4"
"	"	"	RF114027	29.452	"	>1 1/2" gross

LESAT
Technology Applications Division

Sample Coordinating Bench Sheet

TAD Batch ID: RF Technician: I. Murarik

Sampling Date	TAD Sample ID	Subsample/ Aliquot ID	Net Amount	Analysis and Results	Amount & Date *Returned
5/12/93		RF113B00	148.327	Bulk Density, RF-1	B.D. = 1.0587 g/cc
5/12/93		RF113A00	138.109	Bulk Density, RF-2	B.D. = 0.9865 g/cc

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ACTIVITY/MCA DATA SHEETS

Explanation regarding the Activity/MCA Data Sheets:

During the early portion of this project, the Region of Interest (ROI) was established to cover the spectrum from the left tail to the right tail of the ^{241}Am peak. During early August, 1993, it was found that this region was being overlapped by peaks originating from naturally occurring radioactive materials (NORM), specifically uranium, which was becoming concentrated by the mineral jig, the shaker table, and the centrifugal concentrator.

At this point, all samples read thereafter used a narrower ROI which was established to assume symmetry on both sides of the channel with the highest reading. This reestablishment necessitated either the reanalysis of archived samples or the recall and restripping of stored spectrums. Some stored spectrums had become corrupted, all being from the dry and wet sieving work in the early stage of the project. In these instances, the original spectrums were used in the computation of activity levels for the dry and wet sieving. On almost all occasions for the sieve data, the reestablished activity levels are near the levels of the original analysis. It is therefore assumed that the original activity levels which were not retrievable from the stored spectrums represent values close to the recomputed ROI-derived values.

In addition to this difficulty, some original Activity/MCA Data Sheets contain data from other projects which is considered to be customer confidential.

Volume 1 of Appendix A contains the reconstructed data sheets and copies of data sheets which required no reconstruction. Volume 2 of Appendix A contains copies of the original Activity/MCA Data Sheets. All customer confidential data has been obscured from these records to protect other clients.

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY (6/4) Am^{241} = 7.469 x 10^{-4} CPS/pCi

(~~6~~ TM 5/23) Am^{241} = 7.783 x 10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
6/4/93	RF114095	173	5117	—	3322	1000	3.322	177.704	4447.7	25.03
6/4/93	RF114096	177	5021	—	3131	1000	3.131	35.309	4192.0	118.72
6/4/93	RF114098	92	1447	—	934	1000	0.934	152.758	1250.5	8.186
6/4/93	RF114097	165	4422	—	2770	1000	2.770	247.334	3708.7	14.99
6/4/93	RF114099	182	5368	—	3366	1000	3.366	208.371	4506.6	21.63
6/4/93	RF114100	181	5470	—	3515	1000	3.515	32.659	4706.1	144.1
6/4/93	RF114101	108	1738	—	1015	1000	1.015	75.932	1359.0	17.90
6/4/93	RF114102	134	3195	—	2136	1000	2.136	110.143	2859.8	25.96
6/4/93	RF114103	155	4781	—	3387	1000	3.387	96.276	4534.7	47.10
5/23/93	RF114063	149	2953	—	1610	1000	1.610	237.011	2068.6	8.728
				—						

COMMENTS:

EXPERIMENTER Mitch/T.M.

DATE ~~ANALYZED~~ 9/93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY (6/19) ^{241}Am = 1.1231 $\times 10^{-3}$ CPS/pCi

(5/17) ^{241}Am = 1.232 $\times 10^{-3}$ CPS/pCi

(5/18) ^{241}Am = 1.254 $\times 10^{-3}$ CPS/pCi

(5/20)am ^{241}Am = 1.235 $\times 10^{-3}$ CPS/pCi

(5/20)pm ^{241}Am = 1.174 $\times 10^{-3}$ CPS/pCi

(5/21/93) ^{241}Am = 1.2187 $\times 10^{-3}$ CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
6/19/93	Am241619	~~100~~ 336	28644	—	25046	1000	25.046	296.2	22300	75.29
6/19/93	RF114115	152	2717	—	1844	1000	1.844	91.354	1496.8	16.38
5/17/93	AM241517	305	29730	—	27465	1000	27.465	296.2	22300	75.29
5/17/93	RF000004	75	589	—	405	1000	0.405	288.601	328.73	1.172
5/18/93	Am241518	245	29003	—	27955	1000	27.955	296.2	22300	75.29
5/18/93	RF000007	100	799	—	486	1000	0.486	21.939	387.56	17.67
5/20/93	Am241520a	245	28699	—	27546	1000	27.546	296.2	22300	75.29
5/20/93	RF114043	118	2657	—	2244	1000	2.244	151.739	1817.0	11.97
5/20/93	Am241520p	302	28326	—	26182	1000	26.182	296.2	22300	75.29
5/20/93	RF114054	132	645	—	76	1000	0.076	240.999	64.74	0.27
5/21/93	Am241521	259	28446	—	27176	1000	27.176	296.2	22300	75.29
5/21/93	RF114057	154	2035	—	1317	1000	1.317	194.758	1080.7	5.549
5/21/93	RF114059	178	1942	—	964	1000	0.964	168.154	791.0	4.704

COMMENTS:

EXPERIMENTER T. Murarik

DATE ~~ANALYZED~~ 9/93

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JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY (5/23) $^{241}Am = 1.2700 \times 10^{-3}$ CPS/pCi
(5/24) $^{241}Am = 1.256 \times 10^{-3}$ CPS/pCi
(5/25) $^{241}Am = 1.275 \times 10^{-3}$ CPS/pCi
(5/26) $^{241}Am = 1.211 \times 10^{-3}$ CPS/pCi
(5/27) $^{241}Am = 1.238 \times 10^{-3}$ CPS/pCi
(6/1) $^{241}Am = 1.242 \times 10^{-3}$ CPS/pCi
(6/2) $^{241}Am = 1.2596 \times 10^{-3}$ CPS/pCi
(6/14) $^{241}Am = 1.174 \times 10^{-3}$ CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
5/23/93	Am241523	216	28425	—	28320	1000	28.320	296.2	22300	75.29
5/23/93	RF114060	122	3645	—	3243	1000	3.243	184.813	2553.5	13.817
5/24/93	Am241524	221	28722	—	28016	1000	28.016	296.2	22300	75.29
5/24/93	RF114073	176	6774	—	5916	1000	5.916	203.309	4710.2	~~33~~ 23.17 TM
5/25/93	Am241525	201	28837	—	28431	1000	28.431	296.2	22300	75.29
5/25/93	RF114066	160	~~6357~~ 7007 TM	—	6357	1000	6.357	246.665	4985.9	20.21
5/26/93	Am241526	275	28682	—	26997	1000	26.997	296.2	22300	75.29
5/26/93	RF114071	202	7775	—	6596	1000	6.596	237.013	5446.7	22.98
5/27/93	Am241527	293	29600	—	27612	1000	27.612	296.2	22300	75.29
5/27/93	RF114082	134	983	—	387	1000	0.387	183.722	312.60	1.701
6/1/93	Am241601	249	28884	—	27705	1000	27.705	296.2	22300	75.29
6/1/93	RF114085	104	1573	—	1239	1000	1.239	116.494	997.98	8.56
6/2/93	Am241602	255	29262	—	28089	1000	28.089	296.2	22300	75.29
6/2/93	RF114088	180	4559	—	3646	1000	3.646	149.066	2895.9	19.43
6/2/93	RF114091	159	3446	—	2728	1000	2.728	122.997	2165.8	17.61
6/14/93	Am241604	294	28291	—	26183	1000	26.183	296.2	22300	75.29
6/14/93	RF114094	222	6304	—	4742	1000	4.742	246.687	4039.2	16.37

COMMENTS:

EXPERIMENTER T. Murarik

DATE ~~ANALYZED~~ 9/93

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JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY (5/17) Am^{241} = 7.818 $\times 10^{-4}$ CPS/pCi
(5/18/93) Am^{241} = 7.702 $\times 10^{-4}$ CPS/pCi
(5/23) Am^{241} = 7.782 $\times 10^{-4}$ CPS/pCi
(5/20) Am^{241} = 7.607 $\times 10^{-4}$ CPS/pCi
(5/21) Am^{241} = 7.837 $\times 10^{-4}$ CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
5/17/93	RF000001	63	273	–	5	1000	0.005	29.952	6.395	0.214
5/17/93	~~RF000004~~ RF000003 TM	55	367	–	173	1000	0.173	353.112	221.28	0.627
5/17/93	RF000002	63	273	–	5	1000	0.005	229.041	6.395	0.0280
5/17/93	RF000005	73	1256	–	963	1000	0.963	216.362	1231.8	5.693
5/17/93	RF000006	170	4014	–	2235	1000	2.235	152.025	2858.8	18.805
5/18/93	RF000008	61	584	–	358	1000	0.358	227.91	464.81	2.039
5/18/93	RF000009	43	221	–	99	1000	0.099	352.025	128.54	0.365
5/18/93	RF000010	55	387	–	192	1000	0.192	279.662	249.29	0.891
5/23/93	RF114058	132	2601	–	1554	1000	1.554	230.253	1996.92	8.673
5/23/93	RF114064	124	2001	–	1054	1000	1.054	171.654	1354.4	7.890
5/23/93	RF114065	136	2680	–	1565	1000	1.565	224.276	2011.1	8.967
5/23/93	RF114069	154	4039	–	2664	1000	2.664	238.319	3423.3	14.36
5/20/93	RF114056	57	296	–	90	1000	0.090	186.050	118.31	0.636
5/20/93	RF114055	79	349	–	63	1000	~~191.372~~ 0.063	~~0.063~~ 191.372 TM	82.818	0.433
5/20/93	RF114062	65	391	–	127	1000	0.127	194.336	166.95	0.859
5/21/93	RF114059	126	1503	–	555	1000	0.555	168.154	708.18	4.211
				–						

COMMENTS:

EXPERIMENTER Mitch

DATE ~~ANALYZED~~ 9/93

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JD/11/92/REV.0

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TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY (5/24) $Am^{241} = 7.683 \times 10^{-4}$ CPS/pCi
(5/26-A) $Am^{241} = 7.648 \times 10^{-4}$ CPS/pCi
(5/26-B) $Am^{241} = 7.666 \times 10^{-4}$ CPS/pCi
(5/27) $Am^{241} = 7.827 \times 10^{-4}$ CPS/pCi
(6/1) $Am^{241} = 7.612 \times 10^{-4}$ CPS/pCi
(6/2) $Am^{241} = 7.621 \times 10^{-4}$ CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
5/24/93	RF114072	175	5525	~~3751~~ TM	3751	1000	3.751	205.387	4882.21	23.77
5/24/93	RF114067	182	5377	–	3417	1000	3.417	251.503	4447.5	17.68
5/24/93	RF114061	196	6038	–	3743	1000	3.743	206.675	4871.8	23.57
5/24/93	RF114068	142	3356	–	2157	1000	2.157	141.013	2807.5	19.91
5/24/93	RF114070	144	2874	–	1594	1000	1.594	215.357	2074.7	9.634
5/26/93	RF114076	70	389	–	81	1000	0.081	171.465	105.91	0.618
5/26/93	RF114077	70	420	–	115	1000	0.115	187.939	150.01	0.798
5/26/93	RF114078	75	384	–	28	1000	0.028	163.670	36.52	0.223
5/26/93	RF114079	58	374	–	166	1000	0.166	227.726	217.05	0.953
5/26/93	RF114080	83	500	–	64	1000	0.064	347.128	83.49	0.241
5/26/93	RF114081	60	357	–	135	1000	0.135	277.231	176.10	0.635
5/26/93	RF114074	199	6319	–	4026	1000	4.026	52.687	5264.1	99.91
5/27/93	RF114083	85	661	–	208	1000	0.208	136.891	265.75	1.941
6/1/93	RF114087	80	973	–	610	1000	0.610	77.575	801.37	10.33
6/1/93	RF114086	83	1235	–	854	1000	0.854	109.701	1121.91	10.23
6/2/93	RF114093	135	3041	–	2002	1000	2.002	125.984	2627.0	20.85
6/2/93	RF114092	117	2787	–	2034	1000	2.034	134.910	2668.9	19.78
6/2/93	RF114090	158	3491	–	2006	1000	2.006	138.834	2632.2	18.96
6/2/93	RF114089	144	3686	–	2507	1000	2.507	157.052	3289.6	20.95

COMMENTS:

EXPERIMENTER Mitch

DATE ~~ANALYZED~~ 9/93

FM-139

JD/11/92/REV.0

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INSTRUMENT 92X SPECTRUM MASTER
SERIAL # AWC 5042
EFFICIENCY 7/30/93 Am^{241}: 7.305×10^{-4} CPS/pCi
8/6/93 Am^{241}: 7.147×10^{-4} CPS/pCi
8/4/93 Am^{241}: 7.546×10^{-4} CPS/pCi

MCA DATA SHEET

	Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm	
*	1/1/93	AM073093	365.	24397	8107.	16290.	1000.	16.290	296.2	22300.	75.287	7.305^{-4}
	7/30/93	RF2A000V	141.	3580		2354.	1000.	2.354	160.222	3222.5	~~34.6~~ 20.11	
	7/30/93	RF2A0007	90.	797.		255.	1000.	0.255	130.374	349.08	2.678	
	7/30/93	RF2A0008	71	813.		495.	1000.	0.495	150.701	677.6	4.496	
	7/30/93	RF2A0009	144.	1857.		444.	1000.	0.444	355.038	607.8	1.712	
	7/30/93	RF2A0010	132.	1733		568.	1000.	0.568	435.318	777.5	1.786	
	7/30/93	RF2A0011	96.	1046		439	1000	0.439	419.205	600.96	1.434	
	7/30/93	RF2A0012	104.	1015		285	1000.	0.285	439.205	390.1	0.888	
	7/30/93	RF2A0013	119.	1634		703.	1000.	0.703	363.555	962.4	2.647	
	7/30/93	RF2A0014	120.	1914.		985	1000.	0.985	393.995	1348.4	3.422	
	7/30/93	RF2A0016	152.	2899		1396	1000.	1.396	250.287 ~~215.959~~	1911.0	7.635	
	7/30/93	RF2A0017	88.	1708		1252	1000.	1.252	49.087 ~~250.287~~	1713.9	34.92	
	7/30/93	RF2A0019	78.	512.		91.	1000	0.091	304.093 ~~49.087~~	124.6	0.410	✓
	7/30/93	RF2A0028	52	225.		37.	1000.	.037	0.205 ~~59.992~~	50.65	247.07	✓
**	1-1-93	AM080693		24297		15937	1000.	15.937 ~~16.290~~	296.2	22300	75287	7.147^{-4}
	8/6/93	RF2A0029	150	1763		168.	4000.	.042	281.252	58.77	0.209	✓
	7/30/93	RF2A0018	107.	2053		1353	1000.	1.353	59.992	1893.1	31.56	
	8/4/93	RF2A0030	71.	814		513	1000.	0.513	183.880	679.8	3.697	
	1/1/93	AM080493	370	24618		16828	1000.	16.828	296.2	22300.	75.287	7.546^{-4}

COMMENTS: _____

EXPERIMENTER MITCH

DATE ANALYZED _____

LESAT
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INSTRUMENT 92X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY 8/21/93 Am^{241} = 7.595×10^{-4} CPS/pCi
8/4/93 Am^{241} = 7.546×10^{-4} CPS/pCi
9/1/93 Am^{241} = 7.978×10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm	COUNTED
7/30/93	RF2X0031 RF2A0031	68	582		288.	1000.	0.288	267.734	359.2	1.342	8/7
	RF2A0032	120.	1139		213	1000.	0.213	230.292	282.3	1.226	8/4/93
	RF2A0033	119	1126		213	1000.	0.213	189.478	282.3	1.490	"
	RF2A0034	101	1207		575	1000.	0.575	365.931	761.99	2.082	"
	RF2A0035	130.	1283		190	1000.	0.190	367.118	251.79	0.686	"
	RF2A0036	106	1311		617	1000.	0.617	386.534	817.7	2.115	"
	RF2A0037	97	1339		772	1000	0.772	403.333	1023.1	2.537	"
	RF2A0038	114.	1205.		391	1000.	0.391	298.230	518.2.	1.737	"
	RF2A0039	100.	791		145	1000.	0.145	144.153	192.2	1.333	"
	RF2A0040	58.	518		318	1000.	0.318	6.968	421.4	60.48	"
	RF2A0041	55.	538		361.	1000.	0.361	7.191	478.4	66.53	"
	RF2A0042	94.	1671.		1173.	1000	1.173	59.488	1554.5	26.13	"
	RF2A0043	103	1847		1238	1000.	1.238	83.748	1640.6	19.59	"
	RF2A0044	162	4525		2924	1000.	2.924	85.592	3647.2 ~~3874.9~~	42.61 ~~45.27~~	8/7
	RF2A0045	164	4726		3064	1000.	3.064	105.275	4034.2	38.32	8/21
	RF2A0046	66	558		291	1000.	0.291	2.341	407.2	173.93	8/6
	RF2A0047	40	198		97	1000.	0.097	0.250	128.54	514.2	8/4
	RF2A0048	161.	4946.		3310	1000.	3.301	133.097	4384.4	32.94	8/11
	RF2A0049	144	3976		2681	1000	2.681	65.78	3560.9	54.13	8/11

COMMENTS: _____

EXPERIMENTER MITCH

DATE ANALYZED _____

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY 8/11/93 Am^{241}: 7.529×10^{-4} CPS/pCi
8/5/93 Am^{241}: 7.833×10^{-4} CPS/pCi
8/12/93 Am^{241}: 7.732×10^{-4} CPS/pCi
8/18/93 Am^{241}: 6.932×10^{-4} CPS/pCi
8/20/93 Am^{241}: 7.533×10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
-	RF2A0050	69	724	-	435.	1000.	0.435	18.048	555.6	30.78
7/30/93	RF2A0051	107	2242	-	1627	4000	0.4068	9.49	509.8	53.72
-	RF2A0052	334	7839	-	900	40,000	0.0225	0.201	28.20	140.3
-	RF2A0055	136.	4259	-	3146.	1000	3.146	79.697	4178.5	52.43
-	RF2A0056	187	5333	-	3050	1000	3.050	79.301	4051.0	51.08
-	RF2A0057	200.	3314	-	316	20,000	0.0158	0.22	22.29	103.60
-	RF2A0058	174	4539	-	2615	1000	2.615	205.281	3471.4	16.91
-	RF2A0059	169	4475	-	2730	1000	2.730	198.191	3624.1	18.29
-	RF2A0060	131	2798	-	1707	1000.	1.707	147.429	2207.7	14.975
-	RF2A0061	15.	183	-	178	1000.	0.178	153.108	230.2	1.504
-	RF2A0062	38.	185	-	88	1000.	0.088	0.213	116.8	548.4
-	RF2A0063	74.	568.	-	194.	1000	0.194	367.119	257.5	0.701
-	RF2A0015	124	2065	-	1070	1000	1.070	215.959	1464.8	6.783
8/11/93	AM081193	357	24732	-	16791	1000	16.791	296.2	22300	75.287
8/5/93	AM080593	352	24590	-	17468	1000	17.468	296.2	22300	75.287
8/12/93	AM081293	359	25066	-	17243	1000	17.243	296.2	22300	75.287
8/21/93	AM082193	348	24147	-	16937	1000	16.937	296.2	22300	75.287

COMMENTS:

EXPERIMENTER Mitch

DATE ~~ANALYZED~~ 9/93

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JD/11/92/REV.0

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INSTRUMENT 92X SPECTRUM MASTER
SERIAL # AWC 5042
EFFICIENCY

MCA DATA SHEET

COUNT Date of ~~Sample~~	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm	
8·26·93	RF2A0064	79	913		527	1000.	0.527	210.205	701.82	3.339	
"	RF2A0065	81	884		474	1000.	0.474	189.733	631.24	3.327	
~~8·18·93~~	~~RF2A0066~~	~~114~~	~~1311~~		~~362.~~	~~1000.~~	~~0.362~~		~~522.2~~		TM NO WT
"	~~RF2A0067~~	~~120.~~	~~1294~~		~~229~~	~~1000.~~	~~0.229~~		~~330.4~~		TM
8·20·93	RF2A0068	96	1049		442	1000.	0.442	309.665	586.75	1.895	
"	RF2A0069	102.	1067		367.	1000.	0.367	281.184	487.19	1.733	
8·23·93	RF2A0070	112	1249		396	1000.	0.396	360.2	557.4	1.547	
"	RF2A0071	104	1380		680	1000	0.680	407.3	957.1	2.350	
8·26·93	RF2A0072	133	1893		754	1000.	0.754	237.009	1004.1	4.237	
"	RF2A0073	129	2186		1139	1000.	1.139	285.582	1516.8	5.311	
"	RF2A0074	157	4108		2632	1000.	2.632	149.493	3505.1	23.45	
"	RF2A0075	157	4074		2582	1000.	2.582	169.225	3438.5	20.32	
~~8·18·93~~	~~RF2A0076~~	~~106~~	~~1864~~		~~1099~~	~~1000~~	~~1.099~~		~~1585.4~~		TM NO WT
8·19·93	RF2A0077	94.	1984		1494	1000.	1.494	54.94	1909.3	34.75	
~~8·18·93~~	~~RF2A0078~~	~~49.~~	~~274~~		~~99~~	~~1000.~~	~~0.099~~		~~142.82~~		TM WT
	RF2A0079										~~SAMP~~ FIND
8·21·93	RF2A0082	153.	3961		2517	1000.	2.517	61.059	3314.0	54.28	
"	RF2A0083	137.	4075		2973	1000.	2.973	61.935	3914.4	63.20	
~~8·23·93~~	~~RF2A0084~~	~~100.~~	~~3909~~		~~2279~~	~~1000.~~	~~2.279~~	~~216.56~~			TM

COMMENTS:

EXPERIMENTER Mitch

DATE ~~ANALYZED~~ 9/93

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INSTRUMENT 92X SPECTRUM MASTER
SERIAL # AWC 5042
EFFICIENCY

MCA DATA SHEET

COUNT Date ~~of Sample~~	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm	
~~8.26.93~~	~~RF2A0085~~	~~157.~~	~~4074.~~		~~2582~~	~~1000.~~	~~2.582~~		~~3438.5~~		TM ~~WT~~
8.20.93	RF2A0088	297	7362		1344	40000	0.0336	0.314	44.60	142.05	
~~8.23.93~~	~~RF2A0089~~	~~87~~	~~747~~		~~210.~~	~~4000~~	~~0.0525~~	~~0.347~~			~~TM REDO~~
	~~RF2A0090~~										~~TM~~
8.23.93	RF2A0091	131.	2635		1548.	1000.	1.548	137.65	2178.7	15.83	
8.21.93	RF2A0093	75.	505		118	1000.	0.118	~~13.165~~ 359.177	155.37	0.433	
8.21.93	RF2A0094	76.	864.		491	1000.	0.491	14.236	646.48	45.41	
8.21.93	RF2A0095	50.	662.		520.	1000.	0.520	158.144	684.7	4.33	
8.21.93	RF2A0096	66.	555.		273.	1000.	0.273	210.863	359.5	1.705	
8.21.93	RF2A0097	76	1480		1152	1000.	1.152	42.299	1516.8	35.86	
8.25.93	RF2A0098	88.	1538		1080	1000.	1.080	42.314	1433.5	33.88	
8.21.93	RF2A0099	67.	752.		470	1000.	0.470	324.242	618.83	1.909	
8.21.93	RF2A0100	80.	741		520	1000.	0.320	388.141	241.3	1.086	
8.23.93	RF2A0102	25.	204		171	1000.	0.171	0.236	240.7	1019.9	
8.23.93	RF2A0103	52.	215		27	1000.	0.027	0.214	38.00	177.6	REDO
8.21.93	RF2A0106	115.	1221		321	1000.	0.321	358.754	422.6	1.178	
8.23.93	RF2A0107	121.	1364		371.	1000.	0.371	385.52	522.2	1.354	
8.23.93	RF2A0108	112.	1292		452	1000.	0.452	357.04	636.2	1.782	
8.21.93	RF2A0109	104.	1158		439	1000.	0.439	312.767	578.0	1.848	

COMMENTS:

EXPERIMENTER MITCH

DATE ANALYZED

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 x SPECTRUM MASTER
SERIAL # AWG 5042
EFFICIENCY 8/18/93 Am^{241}: 6.932×10^{-4} cps/pCi
8/7/93 Am^{241}: 8.017×10^{-4} cps/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
8/18/93	AM241818	362	24176		15459	1000	15.459	296.2	22300.	75.287
8/20/93	AM241820	354	24302		16800	1000	16.800	"	"	"
8/7/93	AM080783	361	25385		17878	1000	17.878	"	"	"
8.21.93	RF2A0110	151.	4204		2806	1000	2.806	70.755	3694.5	52.22
"	RF2A0111	153	4154		2710	1000.	2.710	92.202	3568.1	38.70
"	RF2A0112	160	4482		2915	1000.	2.915	158.695	3838.1	24.19
"	RF2A0113	150.	4084		2700	1000.	2.700	81.624	3554.9	43.55
8.30.93	RF2A0114	121	2866 ~~2628~~		1440 ~~1942~~	1000.	1.440	194.17	1898.2	9.776
8.23.93	RF2A0115	144	3649		2299	1000	2.299	81.06	3235.7	39.92
"	RF2A0116	119	3144		2325	1000.	2.325	54.98	3272.3	59.52
"	RF2A0117	146.	3729		2424	1000.	2.424	68.085	3411.7	50.11
"	RF2A0118	128	3075.		2081	1000.	2.081	50.691	2928.9	57.78
"	RF2A0119	132	3362		2305	1000.	2.305	63.72	3244.2	50.91
"	RF2A0120	143	3231		1943	1000	1.943	68.114	2734.7	40.15
8.21.93	RF2A0121	308.	7289.		776.	40000	0.0194	0.267	27.3	102.3
8.30.93	RF2A0122	175	3500		1558	1000.	1.558	144.309	2053.8	14.23
8.27.93	RF2A0123	132	1535		449.	1000.	0.449	311.29	578.6	1.859
"	RF2A0124	121	1634		731	1000.	0.731	394.873	942.0	2.386
8.23.93	RF2A0125	100.	1613		991	1000	0.991	54.045	1394.8	25.81

COMMENTS: _____

EXPERIMENTER MITCH

DATE ANALYZED _____

LESAT
TD&RD

INSTRUMENT 92X SPECTRUM MASTER
SERIAL # AWC 5042
EFFICIENCY

MCA DATA SHEET

COUNT Date ~~of Sample~~	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm	
8·23·93	RF2A0126	95	1513		951	1000.	0.951	53.306	908.4	17.04	
8·26·93	RF2A0127	61	410		167	1000.	0.167	19.129	222.4	11.63	
8·25·93	RF2A0128	60	674.		456	1000.	0.456	23.743	602.6	25.38	
8·26·93	RF2A0129	78	419		38	1000.	0.038	351.37	50.61	0.144	REDO
"	RF2A0130	322.	8233		1414	19000	.07442	468.795	97.83	0.2087	
8·25·93	RF2A0131	66.	485		201	1000.	0.201	326.842	266.8	0.8163	
"	RF2A0132	77.	506		105	1000.	0.105	313.94	139.3	0.444	
"	RF2A0133	75	463		84.	1000.	0.084	372.523	111.5	0.299	
8·26·93	RF2A0134	61	676		453	1000.	0.453	25.032	603.3	24.10	
8·26·93	RF2A0135	57	627		434	1000	0.434	23.421	577.97	24.68	
"	RF2A0136	45	336		214	1000.	0.214	335.65	285.0	0.8491	TM
~~"~~	~~RF2A0137~~	~~66~~	~~341~~		~~50~~	~~1000.~~	~~0.050~~	~~343.007~~			~~KEDO~~
"	RF2A0138	67	497		208	1000.	0.208	314.908	277.0	0.8796	
"	RF2A0139	69	501		187	1000	0.187	374.1	249.0	0.6657	
"	RF2A0140	77	564		179	1000	0.179	397.203	235.3	0.597	
"	RF2A0141	66	806		543	1000	0.543	39.922	723.1	18.11	
"	RF2A0142	45	669		570	1000	0.570	39.737	759.1	19.10	
8/27/93	RF2A0143	316	6757		404	20000	0.0202	359.251	25.33	0.071	TM
~~8.26.93~~	~~RF2A0144~~	~~76~~	~~365~~		~~22~~	~~1000~~					~~REDO~~

COMMENTS:

EXPERIMENTER MITCH

DATE ANALYZED

(8)

LESAT
TD&RD

INSTRUMENT 92X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm	
8.27.93	RF2A0145	59	554		348	1000.	0.348	382.253	448.45	1.173	
8.29.93	RF2A0146	500	17748		2382	30360.4	.07846	377.824	99.44	0.2632	
8.26.93	RF2A0147	67	452		167	1000.	0.167	367.237	222.4	0.6056	
"	RF2A0148	56	500		304	1000.	0.304	28.230	404.8	14.34	
"	RF2A0149	71	855		551	1000.	0.551	30.607	733.8	23.97	
8.27.93	RF2A0150	117	1627		794	1000.	0.794	361.151	1023.2	2.833	
"	RF2A0151	151	1782		344	1000.	0.344	396.758	442.4	1.115	
~~8.28.93~~	~~RF2A0152~~					2000	~~8~~	~~323.981~~			TM
8.27.93	RF2A0153	89	693		191	1000.	0.191 ~~0.693~~	389.588	246.13	0.632	
"	RF2A0154	83	583.		144.	1000.	0.144	359.34	185.57	0.516	
	RF2A0155										T.M
	~~RF2A0156~~	~~162~~	~~4560~~		~~2989~~	~~1000.~~	~~2.989~~				T.M
~~8.25.93~~	~~RF2A0157~~							~~92.3~~			T.M.
"	~~RF2A0159~~ 159	~~306~~	~~4553~~		~~1285~~	~~40000~~	~~0.03213~~				RA 159
"	~~RF2A0158~~ 158	~~140~~	~~4221~~		~~2980~~	~~1000.~~	~~2.980~~	~~91.516~~			T.M 158

COMMENTS:

EXPERIMENTER

DATE ANALYZED

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER
SERIAL # AWC 5042
EFFICIENCY Am^{241}: 7.933×10^{-4} cps/pC (7/6)
Am^{241}: 7.873×10^{-4} cps/pCi (6/20)

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
7/6/93	Am 070693	363	25343	–	17691	1000	17.691	296.2	22300	75.287
"	RF114104	52.	249.	–	71.	1000.	0.071	1.656	89.50	54.05
"	RF114105	155	4328	–	2901	1000	2.901	111.548	3656.9	32.78
"	RF114106	41.	356	–	257	357.7	0.7185	14.724	905.71	61.51
"	RF114107	73.	874.	–	551	1000	0.551	11.600	694.6	59.88
"	RF114108	156	4482	–	3056	1000	3.056	106.637	3852.3	36.13
"	RF114109	76	1283.	–	958	1000	0.958	19.958	1207.6	60.51
"	RF114110	147	4608	–	3387	1000	3.387	94.717	4269.5	45.08
6/30/93	RF114111	191	6652	–	4599	1000	4.599	156.682	5596.9	35.72
7/6/93	RF114112	88	1528	–	1077	1000	1.077	21.913	1357.6	61.96
"	RF114113	54	248	–	53	1000	0.111	0.696	139.6	200.6
6/30/93	RF114114	364	25629	–	18326	1000	4.224	149.631	5312.5	35.50
6/20/93	RF114116	175	5389	–	3550	1000	3.550	263.616	4509.1	17.10
"	RF114117	158	4162	–	2639	1000	2.639	154.385	3352.0	21.71
"	RF114118	148	3509	–	2160	1000	2.160	149.473	2743.6	18.35
"	RF114119	134	3374	–	2310	1000	2.310	110.928	2934.1	26.45
"	RF114120	107	1717	–	1003	1000	1.003	48.764	1274.	26.13
"	RF114121	125	2319	–	1352	1000	1.352	75.666	1717.3	22.88

COMMENTS:

EXPERIMENTER Mitch / T.M.

DATE ~~ANALYZED~~ 9/12/93

(10)

LESAT
TD&RD

INSTRUMENT 92X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY 6/30/93 Am^{241}: 8.217×10^{-4} $\frac{CPS}{pCi}$

7/1/93 Am^{241}: 7.756×10^{-4} $\frac{CPS}{pCi}$

MCA DATA SHEET

COUNT Date ~~Sample~~	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm	
6.20.93	RFX14122	125	2319		1352	1000.	1.352	112.519	1717.3	15.26	No CALIB.
7.6.93	RF114123	179	5470		3564	1000.	3.564	210.572	4492.6	21.34	
"	RF114124	148	4012		2713	1000.	2.713	108.400	3419.9	31.55	
"	RF114125	141	4322		3203	1000.	3.203	103.324	4037.6	39.08	
* 7.1.93	RF114126	138.	3190		2051	1000.	2.051	245.886	2644.4	10.75	
7.6.93	RF114127	150	3948		2602	1000.	2.602	204.006	3280. ~~1640.~~	16.08	
7.6.93	RF114128	128	2619		1624	1000	1.624	176.944	2047.1	11.57	
7.6.93	RF114129	157.	3239		1700	1000	1.700	134.106	2142.9	15.98	TM
~~7.6.93~~	~~RF114130~~	~~54~~	~~205~~		10	1000.	0.01	0.782		—	REDO
7.6.93	RF114131	180	4930		2959	1000	2.959	210.566	3730	17.71	
6.30.93	AM063093	364	25629		18326	1000	18.326	296.2	22300	75.287	
* 7.1.93	AM070193	364	25012		17298	1000	17.298	296.2	22300	75.287	
6.20.93	AM062093	350	24652		17557	1000	17.557	296.2	22300	75.287	
9.12											

COMMENTS:

EXPERIMENTER Mitch

DATE ANALYZED 9/93

FM-139

JD/11/92/REV.0

* IDENTICAL

, RECOUNT

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
6/10/93	RF603020	77	638	–	251	1000	0.251	403.4	334.4	0.8291
6/17/93	RF603720	76	505	–	141	1000	0.141	329.678	182.08	0.5523
6/21/93	RF604420	160	2016	–	303	4000	0.07575	323.039	101.69	0.489
6/21/93	RF604550	155	1916	–	314	4000	0.0785	196.503	105.4	0.5363
6/21/93	RF645501	489	19051	–	3104	40,000	0.0776	196.503	104.2	0.5301
6/25/93	RF605120	152	1790	–	206	4000	0.0515	307.16	67.62	0.2201
6/28/93	RF605250	454	17134	–	3135	40,000	0.07838	199.456	101.15	0.5071
6/18/93	RF642725	126	1558	–	481	4000	0.1203	286.705	157.05	0.5478
7/30/93	RF2508SP	461	15822	–	1249	40,000	0.03123	377.2	40.77	0.1081
8/5/93	RF2509SP	487	16343	–	531	40,000	0.01328	284.9	16.795	0.05895
8/9/93	RF25115P	167	2271	–	266	4000	0.0665	261.4	84.77	0.3243
8/9/93	RF25135P	65	467	–	185	1000	0.185	299.3	235.8	0.7879
8/9/93	RF2514A2	162	1978	–	178	4000	0.0445	417.4	56.72	0.1359
8/10/93	RF6033A2	122	1892	–	631	4000	0.1578	262.7	208.9	0.7952

COMMENTS:

EXPERIMENTER Mitch

DATE ANALYZED 9/7/93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY Am-241 = 8.865 x 10^{-4} CPS/pCi

NIGHT SHIFT, Am-241 = 8.9896 x 10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
09-29-93	AM092993	366	26,213	6,442	19,771	1,000	19.771	296.2	22,300	75.287
"	RF114215	102	980	—	413	2,000	0.2065	4.073	238.73	58.61
* "	RF2B004A	190	5,157	—	2,420	13,000	0.186	13.1	232	17.7
"	RF114216	96	1,670	—	1,214	2,000	0.607	28.670	684.7	23.88
"	RF114217	133	1,518	—	556	4,000	0.139	17.537	156.8	8.941
"	RF114113	110	824	—	144	3,401	0.0423	0.696	47.76	68.72
"	RF114218	65	479	—	250	1,000	0.250	4.153	282.0	67.90
"	RF114219	69	419	—	153	1,000	0.153	9.222	172.6	8.98
"	RF114220	125	1,018	—	149	4,400	0.0339	9.047	38.20	4.222
"	RF114222	79	489	—	146	2,000	0.073	186.629	82.35	0.441
"	RF114221	48	343	—	226	1,002	0.226	109.612	254.4	2.321
"	RF114214	92	990	—	537	1,000	0.537	28.58	605.8	21.19
"	RF2A0224	160	3616	—	2293	1,100	2.08	244.531	2351.4	9.616
"	RF2A0225	137	2628	—	1668	1,000	1.668	331.191	1,881.6	5.68
** "	AMX92993	367	26,491	—	20,047	1,000	20.047	296.2	22,300	75.287
"	RF2A0226	156	3027	—	1,744	1,000	1.744	269.247	1,939.9	7.20
"	RF2A0223	140	3141	—	2,158	1,000	2.158	120.535	2,400.4	19.91
"	RF114224	91	686	—	233	3,000	0.078	180.234	86.39	0.48
"	RF114223	102	972	—	402	3,000	0.134	120.535	149.05	1.237

COMMENTS: * RESTRIP SPECTRUM ON RF2B004A BKW
** NIGHT SHIFT RECOUNT OF THE AM-241 STD..

EXPERIMENTER BRYAN K. WHITE

DATE ANALYZED 09-29-93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY AM-241 = 8.9896 x 10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
09-29-93	RF114225	111	996	—	315	4,000	0.787	8.612	87.69	10.18

COMMENTS:

EXPERIMENTER BRIAN K. WHITE

DATE ANALYZED 09-29-93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY Am-241 = 7.848 x 10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
09-28-93	AM092894	360	24,748	—	17,502	1,000	17.502	296.2	22,300	75.287
"	RF607100	121	3,003	—	2,197	1,000	2.197	59.43	2,799.4	47.10
"	RF114212	104	1,299	—	642	4,000	0.1605	71.871	204.5	2.846
"	RF114213	111	1,359	—	596	4,000	0.149	76.044	189.9	2.50
"	RF114079	248	4,927	—	1,014	10,000	0.1014	227.726	129.2	0.5674

COMMENTS:

EXPERIMENTER Tom M. Murrak

DATE ANALYZED 09-28-93

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER
SERIAL # AWC 5042
EFFICIENCY AM-241 = 7.891 x 10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
09-27-93	AM092793	357	24,712	—	17,598	1,000	17.598	296.2	22,300	75.287
"	RF114211	81	869	—	471	2,000	0.236	6.666	298.44	44.77
"	RF114210	81	960	—	563	2,000	0.282	6.732	356.34	52.99
"	RF114207	84	984	—	519	4,000	0.1298	9.184	164.43	17.90
"	RF114208	101	576	—	1205	2,000	0.6025	33.379	763.53	22.87
"	RF114209	63	664	—	433	1,000	0.433	8.187	548.73	67.02
"	RF2800BA	213	4493	—	1652	13,048	0.1266	11.866	160.4	13.52
~~"~~	~~RF140~~									
~~09-27-93~~	~~RF114187~~	~~106~~	~~1,842~~	~~—~~	~~1,192~~	~~1,000~~	~~1.192~~	~~77.575~~	~~1510.6~~	~~19.47~~
09-27-93	RF114087	106	1,842	—	1,192	1,000	1.192	77.575	1510.6	19.47
"	RF114081	491	16,122	—	576	40,000	0.0144	277.231	18.25	0.0658

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COMMENTS:

EXPERIMENTER Tom M. Murarik

DATE ANALYZED 09-27-93

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY Am-241 = 7.781 x 10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
09-26-93	MM092693	361	24,683	—	17,353	1,000	17.353	296.2	22,300	75.287
"	RF28008A	124	1,482	—	508	4,000	0.127	11.866	163.22	13.76
"	RF114078	458	14,327	—	845	40,000	0.0211	163.670	27.15	0.1659

COMMENTS:

EXPERIMENTER Tom M. Murarik

DATE ANALYZED ~~09-26-94~~ 09-26-93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY Am-241 = 8.036 x 10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
01-01-93	AM092593	352	24,849	—	17,921	1,000	17.921	296.2	22,300	75.287
~~05-26-93~~	~~RF114080~~	~~428~~	~~13,579~~	—		~~1,449~~				
* 05-26-93	RF114080	428	13,579	—	1,449	40,000	0.0362	347.128	45.08	0.130

COMMENTS: * From 9/23

EXPERIMENTER: Tom M. Murarik & Bill Mitchell

DATE ANALYZED 09-25-93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY Am-241 = 7.756 x 10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
01-01-93	AM092493	356	24,632	7,334	17,298	1,000	17.298	296.2	22,300	75.287
* 09-23-93	RF28005A	519	18,739	—	2,356	40,000	0.0589	320.9	73.54	0.2292
09-24-93	RF28006A	221	3,842	—	628	8,000	0.07788	269.9	100.4	0.372
"	RF28007A	222	4,048	—	814	8,000	0.1018	144.8	131.2	0.906
05-20-93	RA14077	172	2,249	—	295	6,091	0.0484	187.939	62.44	0.3323
✓ "	RA14044	322	7,267	—	502	28,351	0.0177	341.013	22.03	0.0646

COMMENTS: * From 9/23
✓ 9/25 ROI

EXPERIMENTER Bill Mitchell

DATE ANALYZED 09-24-93

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER
SERIAL # AWC 5042
EFFICIENCY Am-241 = 8.009 x 10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
01-01-93	AM092393	368	25072	7,211	17,861	1,000	17.861	296.2	22,300	75.287
09-23-93	RF28004A	225	3,221	—	116	13,000	0.008923	13.1	11.4	0.85

COMMENTS:

EXPERIMENTER BILL MITCHELL
DATE ANALYZED 09-22-93 ~~09-23-93~~

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY Am-241 = 7.813 x 10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm	
01-01-93	AM092293	360	24,847	7,423	17,424	1,000	17.424	296.2	22,300	75.287	
—	RF28002A	224	4,517	—	1,265	8,000	0.1581	280.3	202.39	0.7220	
05-20-93	RF114075	153	1,782	—	244	5,000	0.488	259.881	62.46	0.2403	
—	RF28003C	-1839	218,242	—	-5314	40,000	—	275.5	—	—	
* —	RF28003C	1,512	111,446	—	6,457	40,000	0.1614	275.5	206.6	0.7499	±0.1756

COMMENTS: *MODIFIED ROI

EXPERIMENTER BILL MITCHELL

DATE ANALYZED 09-22-93

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER
SERIAL # AWC 5042
EFFICIENCY Am-241 = 8.012 × 10⁻⁴ CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
01-01-93	AM092193	354	24,818	6,950	17,868	1,000	17.868	296.2	22,300	75.287
05-20-93	RF114075	102	780	—	108	2,000	—	—	—	—
"	RF114078	207	1959	—	-48	4,000	—	—	—	—
"	RF114083	166	2,677	—	942	4000	0.2355	136.891	293.9	2.147
"	RF114084	202	5,374	—	2,929	3,929	0.7455	216.314	930.5	4.302
—	RF26803A	112	1,148	—	352	2,101	0.1675	144.8	209.1	1.444
—	RF65575	485	16,512	—	1,412	40,000	0.0353	285.904	44.06	0.1541

COMMENTS:

EXPERIMENTER Bill Mitchell
DATE ANALYZED ~~09-21-93~~ 09-21-93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY Am-241 = 7.989 x 10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm	
01-01-93	AM092093	336	24,321	6,505	17,816	1,000	17.816	296.2	22,300	75.287	
09-20-93	RF28001A	481	17,717	—	2,016	40,000	0.0504	297.1	63.09	0.2163	
09-17-93	RF114206	41	263	—	160	1,000	0.16	16.052 (739 ml)	200.3	12.48	
"	RF31X903	128	2,762	—	1,756	1,000	1.756	162.688	2198.0	13.51	±0.9848
"	RF31X901	109	1,822	—	1,083	1,000	1.083	220.254	1,355.6	6.155	
"	RF31X900	281	11,825	—	7,168	4,000	1.792	168.426	2,243.1	13.32	±0.5221
"	RF31X902	252	10,223	—	6,319	4,000	1.58	242.848	1,977.4	8.143	

COMMENTS:

EXPERIMENTER Bill Mitchell

DATE ANALYZED 09-20-93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY Am-241 = 7.688×10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
09-19-93	AM091993	358	24,342	7,196	17,146	1,000	17.146	296.2	22,300	75.29
"	RF607000	567	27,963	—	7,679	40,000	0.1920	170.2	249.7	1.467

COMMENTS:

EXPERIMENTER Tom M. Muranik

DATE ANALYZED 09-19-93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY Am-241 = 7.409×10^{-4} CPS/pCi

NIGHT SHIFT, Am-241 = 7.448×10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
09-18-93	AM091893	367	24,413	7,890	16,523	1,000	16.523	296.2	22,300	75.29
* "	AMX91893	361	24,198	7,587	16,611	1,000	16.611	296.2	22,300	75.29
"	RF60680B	524	18,966	—	1,675	40,000	0.0419	238.3	56.22	0.236

COMMENTS: * NIGHT SHIFT RECOUNT OF THE AM-241 STD.

EXPERIMENTER Tom M. Murarik

DATE ANALYZED 09-18-93

FM-139

JD/11/92/REV.0

LESAT
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INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY Am-241 = 7.930×10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
01-01-93	AA091793	348	24,685	7,000	17,685	1,000	17.685	296.2	22,300	75.287
07-30-93	RF2A0221	104	1,897	—	1,242	2,000	0.621	53.673	783.1	14.59
"	RF2A0222	121	2,504	—	1,615	2,000	0.8075	53.215	1018.3	19.14
09-17-93	RF60680A	63	425	—	168	1,000	0.168	251.0	211.9	0.844
"	RF60690D	504	21,940	—	5,122	40,000	0.1281	265.2	161.5	0.6089

COMMENTS:

EXPERIMENTER Bill Mitchell

DATE ANALYZED 09-17-93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY Am-241 = 7.965 x 10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm	
01-01-93	AM091693	346	24,652	6,889	17,763	1,000	17.763	296.2	22,300	75.287	
09-13-93	RF2B070H	166	1,904	—	49	4,000	—	398.9	—	—	
"	RF2130:6H	157	1,948	—	299	4,000	0.07475	411.7	93.85	0.228	
"	RF2B068H	181	2,574	—	371	5,000	0.0742	380.4	93.16	0.245	
"	RF2B067H	169	2,200	—	283	5,000	0.0566	373.8	71.06	0.910	
"	RF2B068R	167	2,088	—	218	5,000	0.0436	399.2	54.74	0.137	±0.1050
* "	RF2B070H	523	18,772	—	338	40,000	0.00845	398.9	10.61	*0.0266	

COMMENTS: * Error Exceeds Net

EXPERIMENTER Bill Mitchell

DATE ANALYZED 09-16-94

FM-139

JD/11/92/REV.0

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INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY Am-241 = 7.864×10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
01-01-93	AMX91593	347	24,558	7,021	17,537	1,000	17.537	296.2	22,300	75.287
09-13-93	RF28068R	74	397	—	20	1,000	—	—	—	—
* "	RF28068H	76	481	—	89	1,000	0.089	39.2	113.2	0.2835
"	RF28069H	414	12,736	—	1077	40,000	0.02693	284.1	34.24	0.1205

COMMENTS: * Longer Count Time Req'd

EXPERIMENTER Bill Mitchell

DATE ANALYZED

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY Am-241 = 7.873×10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
01-01-93	AM091593	351	24,798	7,240	17,558	1,000	17.558	296.2	22,300	75.287
09-11-93	RF2A0211	87	1,264	—	762	1,000	0.762	35.155	967.9	27.53
"	RF2A0209	135	2,956	—	1,825	1,000	1.825	108.909	2318.0	21.28
"	RF2A0212	75	1,329	—	987	1,000	0.987	34.502	1,253.7	36.34
"	RF2A0213	175	2,597	—	527	6,000	0.08783	115.648	111.6	0.9646
"	RF2A0215	74	539	—	176	1,000	0.176	461.955	223.5	0.4839
"	RF2A0214	82	591	—	140	1,000	0.140	180.089	177.8	0.9874
"	RF2A0216	70	439	—	107	1,000	0.107	363.751	135.9	—
"	RF2A0216	105	886	—	144	2,000	0.072	363.751	91.45	0.2514
"	RF2A0217	172	5,203	—	3,414	1,000	3.414	140.899	4336.3	30.78
"	RF2A0219	165	5,230	—	3,614	1,000	3.614	122.279	4590.4	37.54
"	RF2A0220	158	5,280	—	3,820	1,000	3.820	124.571	4852.0	38.95
"	RF2A0218	161	4,988	—	3,448	1,000	3.448	144.957	4379.5	30.21
09-13-93	RF2B065H	123	1,166	—	144	3,000	0.048	409.6	60.97	0.1488
"	RF2B067H	78	399	—	-27	—	—	373.8	—	—

COMMENTS:

EXPERIMENTER BILL MITCHELL / BRIAN ROWSELL

DATE ANALYZED 09-15-93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER
SERIAL # AWC 5042
EFFICIENCY Am-241 = 7.803 x 10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
01-01-93	AM091493	352	24,690	7,288	17,402	1,000	17.402	296.2	22,300	75.287
09-11-93	RF2A0201	92	819	—	252	1,600	0.252	373.211	323	0.9692
"	RF2A0203	151	2,380	—	872	4,000	0.218	252.905	279.4	1.105
"	RF2A0204	65	658	—	395	1,000	0.395	267.758	506.22	1.189
"	RF2A0205	201	4,790	—	2,168	4,000	0.542	200.955	694.6	3.45
"	RF2A0206	94	1,199	—	629	1,000	0.629	195.149	806.1	4.131
"	RF2A0207	77	581	—	184	1,000	0.184	186.960	235.8	1.261
09-14-93	RF606600	102	1,160	—	472	1,000	0.472	324.8	604.9	1.862
09-11-93	RF2A0208	79	642	—	226	1,000	0.226	171.156	289.6	1.692
"	RF2A0210	136	2,914	—	1,755	1,000	1.755	101.836	2,249.1	22.09
08-16-93	RF2A0103	308	7,281	—	857	40,000	0.02142	0.214	27.46	128.3

COMMENTS:

EXPERIMENTER Bill Mitchell

DATE ANALYZED 09-14-93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER
SERIAL # AWC 5042
EFFICIENCY Am-241 = 7.632 x 10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm	
01-01-93	AN091393	479	48,179	14139	34,040	2,000	17.020	296.2	22,300	75.287	
09-11-93	RF114203	47	306	—	151	1,000	0.151	2.096	197.9	94.39	
"	RF114204	37	237	—	146	1,000	0.146	1.189	191.3	160.9	
"	RF2A0202	66	291	—	-33	1,000	—	129.739	—	—	
"	RF2A0200	159	4,601	—	2,966	1,000	2.966	262.581	3886.3	14.80	
"	RF114205	37	220	—	129	1,000	0.129	0.486	—	—	
"	RF114205	94	850	—	223	4,000	0.0575	0.486	73.05	150.3	
~~08-17-94~~	~~RF605800~~	~~147~~	~~2,882~~	~~—~~	~~1,411~~	~~4,000~~	~~0.3528~~	~~27.5~~	~~462.2~~	~~16.81~~	CF
~~06-04~~											CF
~~08-17-94~~	~~RF605800~~	~~147~~	~~2,882~~	~~—~~	~~1,411~~	~~4,000~~	~~0.3528~~	~~27~~			CF
08-17-93	RF605800	147	2,882	—	1,411	4,000	0.3528	27.5	462.2	16.81	
06-04-93	RF114130	132	1,637	—	441	8,000	0.05513	0.782	72.24	92.37	
09-11-93	RF2A0202	395	11,757	—	496	40,000	0.0124	129.739	16.25	0.1252	

COMMENTS:

EXPERIMENTER Bill Mitchell

DATE ANALYZED 09-13-93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY Am-241 = 7.951×10^{-4} CPS/pCi

Night Shift, Am-241 = 7.762×10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
01-01-93	AM091293	351	24,926	7,194	17,732	1,000	17,732	296.2	22,300	75.287
06-11-93	RF114014	112	973	—	125	4,000	0.03125	1.656	39.30	23.73
6-30-93	RF114114	182	6217	—	4,224	1,000	4.224	149.631	5312.5	35.50
6-4-93	RF114126	141	3189	—	1948	1,000	1.948	245.886	2,450.0	9.964
* 6-4-93	RF114122	127	2977	—	2006	1,000	2.006	112.519	2,523.0	22.42
* 9-12-93	RF3A0999	73	1306	—	1008	1,000	1.008	18.616	1,267.8	68.10
* 9-11-93	RF114200	53	201	—	10	1,000	—	5.332	—	REDO
9-11-93	RF114200	322	9028	—	2069	40,000	0.0517	5.332	66.64	12.50
9-11-93	RF114106	87	1116	—	641	1000	0.641	14.724	806.2	54.75
9-12-93	RF114202	89	1776	—	1319	1000	1.319	10.589	1658.9	156.66
1-1-93	AM062093	350	24652	7095	17557	1000	17.557	296.2	22300	75.287
9-11-93	RF114201	42	477	—	264	1,000	0.264	27.657	332.0	12.01
9-11-93	RF114103	163	4998	—	3409	1,000	3.409	96.276	4287.5	44.53
4-11-93	RF114130	53	224	—	32	1,000	—	0.732	—	—

COMMENTS: * Keyboard Trouble, Some Filed as "RR" instead of "RF".

EXPERIMENTER Mitch

DATE ANALYZED 9/12/93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY Am^{241}: 7.889×10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm	
1-1-93	AM091193	340	24318	6724	17594	1000	17.594	296.2	22300	75.287	
9-9-93	RF2B063C	92.	1524		1031	1000	1.031	25.6	1306.9	51.05	
"	RF2B064C	202	7381		4918	1000	4.918	202.6	6234	30.77	
8-16-93	RF2A0103	128	1145		14	6000				—	
7.30.93	RF2A0044	154	4596		3183	1000.	3.183	85.592	4034.7	47.14	±2.28
8-12-93	RF2A0089	154	1886		210	9910	.02119	0.347	26.86	77.41	±56.8
8-17-93	RF605900	519	19081		717	40000	.01793	390.	22.72	.05826	

COMMENTS:

EXPERIMENTER MITCH

DATE ANALYZED 9/11/93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92X SPECTRUM MASTER
SERIAL # AWC 5042
EFFICIENCY Am^{241}: 7.963×10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm	
1-1-93	AM091093	500.	49566	45051	35515	2000	17.7575	296.2	22300	75.287	
8.24.93	RF2A0144	101	697		25.	2000				—	REDO
9.9.93	RF2B054R	93	1766		1273	2000	1.273	30.6	1598.6	52.24	±1.908
9.9.93	RF2B055C	222	10038		7275	1700.	4.279	175.4	5374.1	30.64	
8.23.93	RF2B038T	108	1158		420	1000.	0.420	312.099	527.44	1.690	±0.4346
9.9.93	RF2B056C	175	5758		4008	1000	4.008	113.6	5033.3	44.31	
9.9.93	RF2B057C	193	8267		6231	1000	6.231	203.4	7824.9	38.47	
9.9.93	RF2B058C	200	7326		5023	1000	5.023	181.6	6307.9	34.74	
"	RF2B059C	100.	2153		1594	1000	1.594	37.3	2001.8	53.67	
"	RF2B060C	206	7412		4959	1000	4.959	216.6	6227.6	28.75	
"	RF2B061C	162	4474		2955	1000	2.955	90.5	3710.9	41.00	
"	RF2B058C	197	7211		4987	1000	4.987	181.6	6262.7	34.49	
"	RF2B062C	206	7697		5261	1000.	5.261	181.8 ~~37.3~~	6606.8	36.34 ~~144.13~~	
"	RF2B059C	97	2208		1702	1000	1.702	37.3	2137.4	57.30	
8/24/93	RF2A0144	442	13950		1272	40000	0.318 ~~1.272~~	367.237	39.93 ~~1577.4~~	0.1087 ~~4.356~~	

COMMENTS:

EXPERIMENTER MITCH

DATE ANALYZED 9/10/93

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY Am^{241}: 8.111×10^{-4} cps/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm	
1-1-93	AM090993	343	24731	6643	18088	1000	18.088	296.2	22300	75.287	
9-9-93	RF606200	46	337	—	207	1000	0.207	15.6	255.2	16.36	
8-24-93	RF2A0137	133	1355	—	185	4000	0.04625	343.007	57.02	0.1662	± 0.1195
8-10-93	RF2A0077	201	7835	—	5496	4000	1.374	69.855	1694.0	24.25	± 0.887
8-12-93	RF2A0090	220	7954	—	5061	4000	1.265	51.334	1559.6	30.38	± 1.321
8-24-93	RF2A0152	170	2700	—	825	4000	0.2063	323.981	254.3	0.7851	± 0.162
* 8-9-93	RF2A0157	152	4447	—	3105	1000	3.105	92.3	3828.1	41.47	± 2.03
* 8-9-93	RF2A0158	153	4477	—	3114	1000	3.114	91.516	3839.2	41.95	± 2.06
8/24/93	RF2A0129	488	16753	—	898	40,000	0.02245	351.37	27.68	0.07877	± 0.543

COMMENTS:

EXPERIMENTER Mitch

DATE ANALYZED 9/9/93

FM-139

JD/11/92/REV.0

* Filed as RF2AX ---

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER
SERIAL # AWC 5042
EFFICIENCY Am^{241}: 7.824 x 10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm	
1-1-93	AM090893	352	24285	6837	17448	1000	17.448	296.2	22300	75.287	
9-8-93	BK090893	134	1235	–	9	7500	–	–	–	–	
9-8-93	RF2A0103	103	816	–	143	4000	0.0358	0.214	45.69	213.52	±153.8
9-8-93	RF2A0044	160	4806	–	3369	1000	3.369	85.592	4306.0	50.31	± 2.389
9-8-93	RF2A0061	139	2929	–	1793	1000	1.793	153.104	2291.7	14.97	± 1.160
9-8-93	RF2A0079	311	7398	–	1295	36315	0.03566	0.226	45.58	201.67	± 48.43

COMMENTS:

EXPERIMENTER Mitch / T.M.

DATE ANALYZED 9/8/93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY Am^{241}: 7.603×10^{-4} cps/pCi

9/5, am $^{241}Am = 7.708 \times 10^{-4}$ CPS/pCi

9/5, pm $^{241}Am = 7.948 \times 10^{-4}$ CPS/pCi

9/6, am $^{241}Am = 8.499 \times 10^{-4}$ CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
1-1-93	Am090493	353	24321	7866	16955	1000	16.955	296.2	22300	75.287
8-26-93	RF606500	207	3401	–	499	10,000	0.0499	280.2	65.63	0.2342
9-4-93	RF2B007C	1379	126977	–	-3075	40,000	Ø	275.3	Ø	Ø
am 9-4-93	Am090593	358	24371	–	17191	1000	17.191	296.2	22300	75.29
9-4-93	RF2A0155	343	9093	–	1582	40,000	0.0396	2.558	51.31	20.06 ± 4.349
pm 9-5-93	Amx90593	359	24862	–	17726	1,000	17.726	296.2	22300	75.29
9-5-93	RF2B042R	534	19008	–	822	40,000	0.02055	337.809	26.66	0.0789
9-6-93	Am090693	355	25252	–	18952	1000	18.952	296.2	22300	75.287
9-6-93	RF2B045R	572	19276	–	-4	40,000	–	335.845	–	–
9-7-93	BCKGD907	82	409	–	10	2000	–	–	–	–

COMMENTS:

EXPERIMENTER Mitch / T.M.

DATE ANALYZED 9/4/93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY Am^{241} = 7.735 x 10^{-4} CPS/pCi

pm: Am^{241} = 7.791 x 10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
1-1-93	Am090393	356	24742	7491	17251	1000	17.251	296.2	22300	75.287
9-3-93	RF606500	203	3369	–	593	10,000	0.0593			
~~9-3-93~~	~~RF2B043R~~	~~230~~	~~3536~~	~~–~~	~~-86~~	~~10,000~~	~~–~~	~~–~~	~~–~~	~~–~~
1-1-93	Amx90393	352	24663	7288	17375	1000	17.375	296.2	22300	75.287
9-3/93	RF2B043R	430	13752	–	1172	40,000	0.0293	293.691	37.61	0.128

T.M.

COMMENTS:

EXPERIMENTER Mitch/T.M.

DATE ANALYZED 9/3/93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY Am^{241}: 7978 $\times 10^{-4}$ CPS/pCi (9/1)

Am^{241}: 8.289 $\times 10^{-4}$ CPS/pCi (9/2)

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
1/1/93	AM090193	359	24766	6974	17792	1000	17.792	296.2	22300	75.287
7-30-93	RF2A0051	107	2242	—	1627	4000	0.4068	9.49	509.8	53.72
8-4-93	RF2A0052	334	7839	—	900	40,000	0.0225	0.201	28.20	140.3
1-1-93	AM090293	351	25253	6768	18485	1000	18.485	296.2	22300	75.287
9-2-93	RF2B053R	171	3396	-	1611	3000	0.537	83.9	647.8	7.722
9-2-93	RF2A0130	499	18377	-	2451	40,000	0.0613	468.795	73.92	0.1577 ±0.0321

COMMENTS:

EXPERIMENTER Mitch

DATE ANALYZED 9/1 - 9/2/93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER
SERIAL # AWC 5042
EFFICIENCY Am^{241}: 7.862×10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
1/1/93	AM083193	366.	25002	7469	17533	1000	17.533	296.2	22300	75.287
8/31/93	RF2B051R	85.	635.	–	182	1000	0.182	275.5	231.49	0.840 ±.3924
8/31/93	RF2B050R	66.	417.	–	147.	1000	0.147	275.4	186.98	0.679
8/31/93	RF2B052R	~~78~~ 134	1283	–	144	4000	0.036	275.4	45.79	0.1663
8/26/93	RF2B044R	543	20306	–	1551	40,000	0.0388	385.227	49.32	0.1280

COMMENTS:

EXPERIMENTER Mitch
DATE ANALYZED 8/31/93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY Am^{241} : 7.586×10^{-4} cps/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm	
1/1/93	AM083093	369	24889	7970	16919	1000	16.919	296.2	22300	75.287	
8/20/93	RF2A0122	175	3500	–	1558	1000	1.558	144.309	2053.8	14.23	± 1.599
8/18/93	RF2A0114	159	2942	–	1464	1000	1.464	194.17	1929.9	9.939	± 1.079
8/26/93	RF2A0156	176	4640	–	2886	1000	2.886	208.07	3804.4	18.28	± 1.115
8/26/93	RF2B047R	129	1598	–	523	4000	0.1308	430.595	172.36	0.4003	
8/30/93	RF2B049R	143	1943	–	613	2000	0.3065	157.4	404.0	2.567	
8/20/93	RF2B001C	1770	198654	–	-11157	40000	–	275.3	–	–	

COMMENTS:

EXPERIMENTER Mitch

DATE ANALYZED 8/30/93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY Am^{241} = 7.890 x 10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm	
1/1/93	AM082993	365	24757	7161	17596	1000	17.596	296.2	22300	75.29	
8/29/56	RF2A0146	500	17748	–	2382	30360.4	0.07846	377.824	99.44	0.2632	±0.0552

COMMENTS:

EXPERIMENTER T.M.

DATE ANALYZED 8/29/93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY 8/27/93 pm : Am^{241} : 8.019×10^{-4} CPS/pCi
8/28/93 am : Am^{241} : 7.897×10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm	
8/27/93	RF2B048R	55.	524.	–	319.	1000	0.319	9.8	397.8	40.59	
8/23/93	RF2A0151	155.	1802.	–	300.	4000.	0.075	396.758	93.53	0.2357	±0.1218
1/1/93	AM082893	366.	24971	7359	17612	1000.	17.612	296.2	22300	75.29	
8/28/93	RF2A0143	455.	14562.	–	1563.	40,000	0.0391	359.251	49.48	0.138	±0.0401

COMMENTS:

EXPERIMENTER Mitch / T.M.

DATE ANALYZED 8/28/93

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER
SERIAL # AWC 5042
EFFICIENCY Am^{241} : 7974 $\times 10^{-4}$ CPS/pCi
8/27/94 pm Am^{241} : 8.019 $\times 10^{-4}$ CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm	
1/1/93	AM082793	347	24366	6585	17781	1000	17.781	296.2	22300.	75.287	
8/23/93	RF2B035T	82.	929	—	524.	1000	0.524	347.014	657.1	1.894	
8/23/93	RF2B034T	95.	900	—	336.	1000	0.336	366.388	421.4	1.150	
8/23/93	RF2B036T	101.	959	—	320.	1000	0.320	403.887	401.3	0.994	
~~8/24/93~~	~~RF2A014S~~	~~316.~~	~~6757~~	~~—~~	~~404.~~	~~20,000~~	~~0.0202~~	~~359.251~~	~~25.33~~	~~0.071~~	T.M.
8/23/93	RF2B040T	98.	813.	—	210.	1000	0.210	366.361	263.4	0.719	± 0.3355
8/23/93	RF2B037T	90	1090.	—	600	1000.	0.600	316.289	752.4	2.379	
8/26/93	RF2B029F	115.	2375.	-	1622.	1000.	1.622	49.4	2034.1	41.18	
8/26/93	RF2B034C	92.	1701.	-	1231.	1000.	1.231	18.0	1543.8	85.76	± 6.410
8/26/93	RF2B033C	161.	4400.	-	2928.	1000.	2.928	275.3	3671.9	13.34	
8/26/93	RF2B035C	100.	2072.	—	1519.	1000.	1.519	26.7	1904.9	71.35	± 4.697
8/26/93	RF2B036C	98.	1786.	—	1251.	1000.	1.251	18.3	1568.8	85.73	
8/26/93	RF2B037C	102.	2178.	—	1611.	1000.	1.611	35.8	2020.3	56.43	
8/26/93	RF2B038C	88.	1570.	—	1149.	1000.	1.149	16.9	1440.9	85.26	± 6.530
8/26/93	RF2B039C	104.	2177.	—	1574.	1000.	1.574	32.5	1973.9	60.74	
1/1/93	AM482793	359.	24926	—	17884.	1000.	17.884	296.2	22300	75.287	
8/26/93	RF2B028F	97	2233	-	1744	1000.	1.744	47.1	2174.8	46.17	
8/26/93	RF2B041C	155	4326	—	2978	1000.	2.978	275.3	3713.7	13.49	± 0.702
8/26/93	RF2B043T	89	1812	—	1392	1000.	1.392	27.0	1735.9	64.29	± 4.111

COMMENTS:

EXPERIMENTER mitch / T.M.

DATE ANALYZED 8/27/93

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER
SERIAL # AWC 5042
EFFICIENCY $^{241}Am = 7.760 \times 10^{-4}$ cps/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm	
8/27/93	AMX82793	362	24608	–	17305	1000	17.305	296.2	22300	75.29	
8/27/93	RF2B042R	64	474	–	221	1000	0.221	337.809	284.79	0.843	
8/27/93	RF2B043R	52	350	–	186	1000	0.186	293.691	239.7	0.816	
8/27/93	RF2B044R	78	530	–	145	1000	0.145	385.227	186.9	0.485	
8/27/93	RF2B045R	69	435	–	132	1000	0.132	335.845	170.1	0.506	TM.
~~8/27/93~~	~~RF2B046R~~	~~77~~	~~389~~	~~–~~	~~3~~	~~1000~~	~~0.003~~	~~379.232~~	~~3.866~~	~~0.0102~~	REDO
8/27/93	RF2B047R	65	394	–	124	1000	0.124	431.145	159.8	0.371	
8/27/93	RF2B046R	140	1562	–	323	4000	0.08075	379.232	104.06	0.274	
8/27/93	RF2A0124	121	1634	–	731	1000	0.731	394.873	942.0	2.386	± 0.395
8/27/93	RF2A0154	83	583	–	144	1000	0.144	359.34	185.57	0.516	± 0.298
8/24/93	RF2A0150	117	1627	–	794	1000	0.794	361.151	1023.2	2.833	± 0.4175
8/24/93	RF2A0153	89	693	–	191	1000	0.191	389.588	246.13	0.632	± 0.2944
8/26/93	RF2B040C	96	1714	–	1196	1000	1.196	25.4	1541.23	60.679	
8/24/93	RF2A0145	59	554	–	348	1000	0.348	382.253	448.45	1.173	± 0.1989
8/20/93	RF2A0123	132	1535	–	449	1000	0.449	311.290	578.6	1.859	± 0.546
8/23/93	RF2B038T	100	1197	–	594	1000	0.594	312.049	765.5	2.453	

COMMENTS:

EXPERIMENTER Mitch / T.M.

DATE ANALYZED 8/27/93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY Am^{241} = 7.786 x 10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm	
8/10/93	RF2A0074	142.	4155.	–	3050.	1000	3.05	149.493	3917.3	26.20	
8/10/93	RF2A0075	155	4140	–	2750	1000	2.75	169.225	3491.6	20.63	
8/24/93	RF2A0141	66.	818.	–	568.	1000.	0.568	39.922	721.2	18.06	± 2.123
8/24/93	RF2A0144	66.	372.	–	90.	1000.	0.090	367.237	114.3	0.3112	± 0.2308
8/23/93	RF2B041T	92.	821	–	291.	1000.	0.291	325.375	369.5	1.136	± 0.3632
8/24/93	RF2A0143	78.	378	–	-20.	1000	–	359.251	–	–	REDO
8/23/93	RF2B039T	102.	1130.	–	484	1000	0.484	295.407	621.6	2.104	± 0.4435
8/10/93	RF2A0073	131.	2221.	–	1189.	1000.	~~285.582~~ 1.189	~~1527.1~~ 285.582	1527.1	5.347	

COMMENTS:

EXPERIMENTER Mitch / T.M.

DATE ANALYZED 8/26/93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY Am^{241}: 7607 x10^{-4} cps/pCi

pm Am^{241} = 7.786 x10^{-4} cps/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm	
1/1/93	AM082693	361	24550	7587	16963	1000	16.963	296.2	22300	75.287	
8/24/93	RF2A0134	57	666.	—	475.	1000	0.475	25.032	630.4	25.18	± 2.993
8/24/93	RF2A0135	64	625.	—	371.	1000.	0.371	23.421	487.7	20.82	± 3.592
8/24/93	RF2A0136	54	334.	—	141.	1000.	0.141	335.65	185.4	0.552	± 0.2115
8/24/93	RF2A0130	322	8233	—	1414.	19,000.	0.0744	468.745	97.83	0.2087	± 0.0475
8/24/93	RF2A0137	65.	339	—	51.	1000	0.51	343.007	67.07	0.196	± 0.2491
8/24/93	RF2A0140	77.	564	—	179.	1000	0.179	344.203	235.3	0.597	± 0.2568
8/24/93	RF2A0138	55.	502.	—	325.	1000	0.325	314.908	373.1	1.185	± 0.2296
8/26/93	AM241826	346.	24001.	6636	17,365	1000	17.365	296.2	22300	75.287	
8/26/93	RF2A0127	63.	417	—	167	1000	0.167	19.129	214.5	11.21	± 4.230
8/26/93	RF2A0149	62	867	—	654	1000	0.654	30.607	840.0	27.44	± 2.602
8/26/93	RF2A0148	56	511	—	261	1000	0.261	28.230	335.2	11.87	± 2.5478
8/26/93	RF2A0142	63	682.	—	449.	1000	0.449	39.737	576.7	14.51	± 2.036
8/26/93	RF2A0139	72.	511.	—	179.	1000	0.179	374.1	229.9	0.615	± 0.2472
8/26/93	RF2A0146	100	535	—	-129	1000	—	377.824	—	—	REDO
8/26/93	RF2A0064	92.	935	—	405	1000	0.405	210.205	520.2	2.475	
8/26/93	RF2A0147	69.	462.	—	163.	1000.	0.163	348.258	209.4	0.601	± 0.254
8/10/93	RF2A0065	80.	894.	—	513.	1000.	0.513	189.733	658.9	3.472	
8/20/93	RF2A0072	127.	1928.	—	935.	1000	0.935	237.009	1200.9	5.067	

COMMENTS:

EXPERIMENTER Mitch / T.M.

DATE ANALYZED 8/26/93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER
SERIAL # AWC 5042
EFFICIENCY $Am^{241} = 7.535 \times 10^{-4}$ CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm	
08-16-93	RF2A0098	96	1,788	—	1,475	1,000	1.475	42.314	1957.5	46.26	±3.011
—	RF2A0128	107	857	—	393	1,000	0.393	23.743	521.6	21.97	±5.981
~~08-24-93~~	~~RF2A0130~~	~~127~~	~~639~~	—	~~-15~~	—					~~J~~
08-24-93	RF2A0130	127	639	—	-15	1,000	—	468.795	—	—	NEEDS LONGER COUNT
"	RF2A0131	90	667	—	352	1,000	0.352	326.842	467.2	1.429	±0.365
"	RF2A0132	77	506	—	105	1,000	0.105	313.94	139.3	0.444	±0.3255
"	RF2A0133	75	463	—	84	1,000	0.084	372.523	111.5	0.299	±0.2672

COMMENTS:

EXPERIMENTER Bill Mitchell

DATE ANALYZED 08-25-93 (CONT'D)

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY Am^{241} = 7.608 x 10^{-4} CPS/pCi

DAY SHIFT, Am^{241} = 7.535 x 10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm	
01-01-93	AM082493	354	24317	7349	16,968	1,000	16.968	296.2	22,300	75.287	
08-17-93	RF605700	150	4,090	—	2,741	1,000	2.741	126.4	3,602.8	28.50	
—	RF606400	137	3,406	—	2,295	1,000	2.295	226.5	3,016.6	13.32	
—	RF606300	74	571	—	211	1,000	0.211	276.3	277.3	1.004	
08-17-93	RF605900	84	492	—	16	1,000	0.016	390.0	21.03	0.0539	✓WT.
08-21-93	RF2A	303	7,615	—	1,504	40,000	0.0376	0.783	49.42	63.12	✓WT.
01-01-93	AM082593	352	24,138	7335	16,803	1,000	16.803	296.2	22,300	75.287	
08-17-93	RF606000	125	705	—	78	1,000	0.078	261.5	103.52	0.3959	
"	RF606100	97	734	—	369	1,000	0.369	157.0	489.7	3.119	
"	RF605800	91	869	—	554	1,000	0.554	27.5	735.2	26.74	
08-21-93	RF2B032T	152	1,329	—	410	1,000	0.410	292.315	544.1	1.861	
"	RF2B033T	137	1,461	—	730	1,000	0.730	370.116	968.8	2.618	
"	RF2B026T	135	1,385	—	680	1,000	0.680	368.827	902.5	2.447	
"	RF2B027T	152	1,347	—	436	1,000	0.436	369.841	578.6	1.565	
"	RF2B028T	142	1,404	—	621	1,000	0.621	325.922	824.2	2.529	
"	RF2B029T	125	1,145	—	538	1,000	0.538	293.178	714.0 ✓	2.435 ✓	
"	RF2B030T	144	930	—	97	1,000	0.097	318.627	128.7	0.404	
"	RF2B031T	126	947	—	319	1,000	0.319	314.654	423.4	1.345	
07-30-93	RF2A004	164	5,326	—	4,418	1,000	4.418	85.592	5863.3	68.50	

COMMENTS: _____

EXPERIMENTER Bill Mitchell

DATE ANALYZED 08-25-93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY Am^{241} = 7.772×10^{-4} CPS/pCi

NIGHT SHIFT, Am^{241} = 7.608×10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
01-01-93	AM082393	346	24,404	7,071	17,333	1,000	17.333	296.2	22,300	75.287
08-20-93	RF2B024C	96	1,324	626	698	1,000	0.698	12.9	898.1	69.62
08-23-93	RF2B025C	100	1,710	—	1,055	1,000	1.055	25.0	1,357.4	54.30
08-20-93	RF2B001C	1,569	170,953	—	-7,689	40,000	—	275.3	—	—
08-23-93	RF2B0236	123	2,265	—	1,253	1,000	1.253	32.9	1,612.2	49.00
08-23-93	RF2B0216	110	2,208	—	1,461	1,000	1.461	31.4	1,879.8	59.87
08-05-93	RF2A0059	167	4,485	—	2,748	1,000	2.748	198.191	3,535.8	17.84
08-23-93	RF2B0176	188	5,070	—	2,806	1,000	2.806	275.2	3,610.4	13.12
** 08-23-93	RF2B022C	78	1,319	—	961	1,000	0.961	12.9	1,236.5	95.85
* 01-01-93	AM082493	354	24,317	7,349	16,968	1,000	16.968	296.2	22,300	75.287
~~08-23-93~~	~~RF2B022C~~	~~70~~	~~1,821~~	~~—~~	~~1,266~~	~~1,000~~	~~1.266~~	~~46.1~~	~~1,664.0~~	~~36.10~~ J
08-23-93	RF2B022C	70	1,323	—	1,058	1,000	1.058	12.9	1,390.6	107.8
08-24-93	RF2B027F	97	1,821	—	1,266	1,000	1.266	46.1	1,664.0	36.10
"	RF2B026F	83	1,651	—	1,254	1,000	1.254	28.0	1,648.3	58.87
"	RF2B042T	78	1,249	—	886	1,000	0.886	15.8	1,164.6	73.71
"	RF2B030C	78	1,144	—	769	1,000	0.769	11.8	1,010.8	85.66
"	RF2B029C	68	1,149	—	884	1,000	0.884	10.9	1,161.9	106.6
"	RF2B031C	76	1,720	—	1,410	1,000	1.410	22.5	1,853.3	82.37
08-16-93	RF2A0103	97	677	—	23	4,000	0.00575	0.214	7.558	35.32

COMMENTS: * NIGHT SHIFT RECOUNT OF THE Am^{241} STD.
** SEE RECOUNT OF THIS SAMPLE BELOW.

EXPERIMENTER BILL MITCHELL

DATE ANALYZED 08-24-93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER
SERIAL # AWC 5042
EFFICIENCY Am^{241} = 7.608 x 10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
08-24-93	RF2B028C	94	1722	—	1,192	1,000	1.192	22.8	1566.8	68.72
"	RF2B032C	71	1,122	—	836	1,000	0.836	10.3	1098.8	106.68

COMMENTS:

EXPERIMENTER Bill Mitchell
DATE ANALYZED 08-24-93 (CONT'D)

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER
SERIAL # AWC 5042
EFFICIENCY Am^{241} = 7.105×10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm	MDA
01-01-93	AM241823	356	23,887	8,043	15,844	1,000	15.844	296.2	22,300	75.29	—
08-16-93	RF2A0102	44	201	136	65	1,000	0.065	0.236	91.5	387.7	±262.4
08-18-93	RF2A0107	113	1,307	908	399	1,000	0.399	385.52	561.6	1.457	±0.4125
08-18-93	RF2A0108	109	1,263	833	430	1,000	0.430	357.04	605.2	1.695	±0.4297
08-10-93	RF2A0070	105	1,230	755	455	1,000	0.455	360.2	640.4	1.778	—
"	RF2A0071	108	1,381	806	575	1,000	0.575	407.3	809.3	1.987	—
08-11-93	RF2A0084	150	3,940	1,457	2,483	1,000	2.483	216.56	3,494.7	16.14	±0.9749
08-11-93	RF2A0085	131	3,325	1,084	2,241	1,000	2.241	213.13	3,154.1	14.799	±0.8651
* 08-12-93	RF2A0089	49	192	179	13	1,000	0.013	0.347	18.297	52.73	227.7 pCi/g
"	RF2A0089	87	747	537	210	4,000	0.0525	0.347	73.89	212.94	—
"	RF2A0091	116	2,610	848	1,762	1,000	1.762	137.65	2,479.9	18.016	±1.186
08-20-93	RF2A0115	144	3,649	1,350	2,299	1,000	2.299	81.06	3,235.7	39.92	±25000
"	RF2A0116	123	3,152	950	2,202	1,000	2.202	54.98	3,099.2	56.37	±3.149
"	RF2A0117	132	3,747	1,086	2,661	1,000	2.661	68.085	3,745.2	55.01	±2.729
"	RF2A0118	125	3,083	981	2,102	1,000	2.102	50.691	2,958.5	58.36	±3.471
"	RF2A0119	133	3,380	1,115	2,265	1,000	2.265	63.72	3,187.9	50.03	±2.938
"	RF2A0120	133	3,227	1,131	2,096	1,000	2.096	68.114	2,950.0	43.31	±2.748
"	RF2A0125	89	1,577	508	1,069	1,000	1.069	54.045	1,504.6	27.84	±2.3178

COMMENTS: * See Recount Of This Sample Below.

EXPERIMENTER Michelle Giles

DATE ANALYZED 08-23-93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER
SERIAL # AWC 5042
EFFICIENCY $Am^{241} = 7.595 \times 10^{-4}$ CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm	
08-21-93	82/BKND	40	158	108	50	1,000	0.050	Ø	—	—	—
"	AM241821	348	24,147	—	16,937	1,000	16.937	296.2	22,300	75.29	—
"	RF2A0112	160	4,482	—	2,915	"	2.915	158.695	3,838.1	24.19	±1.3275
"	RF2A0083	137	4,075	—	2,973	"	2.973	61.935	3,914.4	63.20	±2.912
"	RF2A0113	150	4,084	—	2,700	"	2.700	81.624	3,534.9	43.55	±2.420
"	RF2A082	153	3,961	—	2,517	"	2.517	61.059	3,314.0	54.28	±3.299
"	RF2A0110	151	4,204	—	2,806	"	2.806	70.755	3,694.5	52.22	±2.810
"	~~RF2A0111~~	~~153~~	~~4,154~~	~~—~~	~~2,710~~	~~"~~	~~2.710~~	~~92.202~~	~~3,568.1~~	~~38.4~~	
08-21-93	RF2A0111	153	4,154	—	2,710	1,000	2.710	92.202	3,568.1	38.70	±2.185
"	RF2A0045	164	4,726	—	3,064	"	3.064	105.275	4,034.2	38.32	±2.0511
"	RF2A0100	80	741	—	320	"	0.320	388.141	421.3	1.086	±0.2714
"	RF2A0093	75	505	—	118	"	0.118	359.177	155.37	0.433	±0.2749
"	RF2A0109	104	1,158	—	439	"	0.439	312.767	578.0	1.848	±0.4378
"	RF2A0094	76	864	—	491	"	0.491	14.236	646.48	45.41	±7.0291
"	RF2A097	76	1,480	—	1,152	"	1.152	42.299	1,516.8	35.86	±2.3657
"	RF2A095	50	662	—	520	"	0.520	158.144	684.7	4.33	±0.4163
"	RF2A0096	66	555	—	273	"	0.273	210.863	359.5	1.705	±0.4121
"	RF2A0106	115	1,221	—	321	"	0.321	358.754	422.6	1.178	±0.4321
"	RF2A0099	67	752	—	470	"	0.470	324.242	618.83	1.909	±0.2721

COMMENTS:

EXPERIMENTER Tom M. Munnik

DATE ANALYZED 08-21-93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER
SERIAL # AWC 5042
EFFICIENCY $Am^{241} = 7.595 \times 10^{-4}$ cps/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm	
08-21-93	RF240121	308	7,289	—	776	40,000	0.0194	0.267	27.3	102.3	±31.971

COMMENTS:

EXPERIMENTER Tom M. Murarik
DATE ANALYZED 08-21-93 (Cont'd)

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER
SERIAL # AWC 5042
EFFICIENCY $Am^{241} = 7.534 \times 10^{-4}$ CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm	
01-01-93	AM241820	354	24,302	7,502	16,800	1,000	16.800	296.2	22,300	75.287	—
08-19-93	RF2B005C	203	3,531	2,794	737	1,000	0.737	275.4	978.2	3.556	—
"	RF2B006C	98	926	654	272	"	0.654	275.1	868.1	3.155	—
"	RF2B003C	280	5,165	—	-262	"	—	275.5	—	—	—
"	RF2B002C	131	1,476	1,165	311	"	0.311	275.4	412.8	1.499	0.6314
08-05-93	RF2A0058	174	4,539	1,924	2,615	"	2.615	205.281	3,470.0	16.90	—
08-10-93	RF2A0062	38	185	97	88	"	0.088	0.213	116.8	548.4	—
"	RF2A0063	74	568	374	194	"	0.194	367.119	257.5	0.7014	—
"	RF2A0068	96	1,049	607	442	"	0.442	309.665	586.7	1.895	—
~~"~~	~~RF2A0063~~	~~74~~	~~568~~	~~374~~	~~194~~	~~"~~	~~0.194~~	~~367.119~~	~~257.5~~	~~0.7014~~	~~—~~
~~"~~	~~RF2A0068~~	~~96~~	~~1,049~~	~~607~~	~~442~~	~~"~~					
08-10-93	RF2A0069	102	1,067	700	367	1,000	0.367	281.184	487.1	1.732	—
08-12-93	RF2A0088	297	7,362	6,018	1,344	40,000	0.0336	0.314	44.60	142.03	—

COMMENTS:

EXPERIMENTER Bill Mitchell, Tom Murarik

DATE ANALYZED 08-20-93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY $Am^{241} = 7.826 \times 10^{-4}$ CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
01-01-93	AM241819	354	24,600	7,149	17,451	1,000	17.451	296.2	22,300	75.287
08-12-93	RF240090	105	1,984	490	1,494	1,000	1.494	50.334	1,909.0	37.78
08-10-93	RF240077	94	2,016	486	1,530	"	1.53	54.94	1,955.0	35.58

COMMENTS:

EXPERIMENTER Bill Mitchell, Tom Minarik

DATE ANALYZED 08-19-93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER
SERIAL # AWC 5042
EFFICIENCY Am^{241} = 7.152×10^{-4} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
01 JAN 93	Am^{241} 8/13	35+/	24,165	40,114	15,949	1,000	15.949	296.2	22,300	75.29
8-13-93	RF6037A2	70	524	360	164	"	0.164	170.7	229.3	1.34
"	RF6036A2	61	492	263	229	"	0.229	267.1	320.2	1.20
08-11-93	RF6035A2	52	17,110	15,182	1,928	40,000	$4.82E^{-5}$	435.6	0.0674	$1.55E^{-7}$

COMMENTS:

EXPERIMENTER Bill MITCHELL

DATE ANALYZED 08-13-93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY Am^{241} = 1.2486×10^{-3} CPS/pCi

NIGHT SHIFT, Am^{241} = 1.242×10^{-3} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
08-12-93	AMX41812	270	29,441	N/A	27,845	1,000	27.845	296.2	22,300	75.29
"	RF2A0079	44	310	"	249	"	0.249	0.226	199.4	1.102
"	RF2A0060	140	3,461	"	2,866	"	2.866	147.429	2,295.4	15.57
* "	Am^{241} 8/12	309	29,706	2,001	27,705	"	27.705	296.2	22,300	75.29
"	RF6035A2	95	746	332	414	"	0.414	435.6	460.5	1.06

COMMENTS: * NIGHT SHIFT RECOUNT OF THE Am^{241} STD..

EXPERIMENTER Tom Murrick, Bill Mitchell

DATE ANALYZED 08-12-93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY $Am^{241} = 1.225 \times 10^{-3}$ CPS/pCi

NIGHT SHIFT, $Am^{241} = 1.2613 \times 10^{-3}$ CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
1 JAN 93	AM241811	296	29,551	2729	27,322	1,000	27.322	296.2	22,300	75.29
* 9 AUG 93	RF2505P	54	248	241	7	1,000	0.007	341.2	10.40	0.0305
11 AUG 93	RFATT22X	101	340	382	-42	"	-0.042	28.2	-34.29	-1.216
"	RF2585PA	88	419	285	134	"	0.134	117.1	109.39	0.9341
"	RF2586PB	97	532	341	191	"	0.191	260.2	155.92	0.5992
** 08-11-93	AMX41811	272	29,748	N/A	28,129	"	28.129	296.2	22,300	75.29
"	RF2A0055	128	5,131	"	4,716	"	4.716	79.697	3,739.0	46.92
"	RF2A0048	178	6,009	"	5,065	"	5.065	133.097	4,015.7	30.17
"	RF2A0049	160	4,802	"	4,039	"	4.039	65.780	3,202.3	51.008
"	RF2A0056	230	6,737	"	5,043	"	5.053	79.301	4,006.2	50.52

COMMENTS: * BASED ON 9 AUG 1993 EFFICIENCY Am^{241}
** NIGHT SHIFT RECOUNT OF THE Am^{241} STD.

EXPERIMENTER KEITH SMITH, TOM MURARIK

DATE ANALYZED 11 AUG 1993

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER
SERIAL # AWC 5042
EFFICIENCY $Am^{241} = 6.14 \times 10^{-4}$ CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
01-01-93	Am241810	350	23,350	9,636	13,714	1,000	13.714	296.2	22,300	75.29
08-10-93	RF6032A2	77	656	433	223	"	0.223	183.7	363.19	1.97
"	RF6033A2	151	2,108	1,680	428	4,000	0.107	262.7	174.26	0.66
"	RF25112SP	57	306	285	21	1,000	0.021	289.3	34.20	0.11
* 08-09-93	RF25105P	53	243	—	-8	"	—	182.7	—	—
** "	"	46	262	188	74	"	0074	158.3	120.52	0.76
* "	RF25101P	54	278	240	38	"	0.038	182.7	61.88	0.33

COMMENTS: * COLD
** WARM

EXPERIMENTER FARHAD SOMMANI
DATE ANALYZED AUG/10/93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER
SERIAL # AWC 5042
EFFICIENCY $Am^{241} = 6.73 \times 10^{-4}$ CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
01-01-93	Am241893	360	24,487	9,470	15,017	1,000	15.017	296.2	22,300	75.29
* 08-05-93	RF25115P	66	445	358	87	"	0.087	261.4	129.27	0.49
"	RF25115P	145	1,948	1,727	221	4,000	0.055	"	82.09	0.31
"	RF25105P	23	284	4	280	1,000	0.28	341.2	416.04	1.21
08-06-93	RF251442	136	1,690	1,517	173	4,000	0.173	417.4	257.05	0.61
"	RF25135P	64	405	331	74	1,000	0.074	299.3	109.95	0.36
~~08-09-93~~										

COMMENTS: * RECOUNTED AT A LONGER TIME BELOW

EXPERIMENTER FARHAD SEMNANI

DATE ANALYZED AUG/09/93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER
SERIAL # AWC 5042
EFFICIENCY Am^{241} = 1.2529×10^{-3} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
01-01-93	Am241807	270	29,604	N/A	27,940	1,000	27.940	296.2	22,300	75.29
~~08-04~~										
08-07-93	RF2A0030	105	1,034	N/A	652	1,000	0.652	183.880	520.4	2.830
"	RF2A0031	128	856	"	262	"	0.262	267.734	209.1	0.781
"	RF2A0012	158	1,505	"	601	"	0.601	439.6	479.7	1.091
"	RF2A0007	115	1,092	"	623	"	0.623	130.374	497.25	3.81
"	RF2A0018	125	2,494	"	1,986	"	1.986	59.992	1,585.1	26.42
"	RF2A0009	260	2,864	"	383	"	0.383	355.038	305.7	0.861

COMMENTS:

EXPERIMENTER Tom M. Murarik

DATE ANALYZED 08-07-93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY $Am^{241} = 1.2283 \times 10^{-3}$ CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
8/5/93	AMX41805	267	28975	N/A	27393	1000	27.393	296.2	22 300	75.29
8/5/93	RF2A0050	112	909	"	474	1000	0.474	18.048	385.9	21.38
8/5/93	RF2A0047	70	272	"	97	1000	0.097	0.250	78.97	315.88
8/5/93	RF2A0028	65	327	"	180	1000	0.180	0.205	146.544	714.8

COMMENTS:

EXPERIMENTER T. Murarik

DATE ANALYZED 8/5/93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY $Am^{241} = 1.15 \times 10^{-3}$ CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
01-01-93	Am241863	341	29,226	3,446	25,780	1,000	25.78	296.2	22,300	75.29
08-05-93	RF25155P	209	5,694	1,507	4,187	1,000	4.187	181.9	3,640.86	20.01
~~07-30-93~~	~~RF2A0029~~	~~238~~	~~2,706~~	~~2,135~~	~~571~~	~~4,000~~	~~0.142~~	~~295.94~~	~~124.13~~	~~0.41~~

KLS 11/22/94

COMMENTS:

EXPERIMENTER FARHAD SOMANI

DATE ANALYZED 08-06-93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER
SERIAL # AWC 5042
EFFICIENCY Am 241 = 1.22×10^{-3} cps/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
1/01/93	AMX41804	275	29028	1664	27364	1000	27.364	296.2	22300	75.29
8/03/93	RF25095P	796	27110	21542	5568	40,000	0.1392	284.9	114.09	0.40

COMMENTS:

EXPERIMENTER F. Semnani
DATE ANALYZED Aug 5, 1993

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY Am241 = 1.227 x 10^{-3} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
1/01/93	AMX41804	275	29028	N/A	27364	1000	27.364	296.2	22,300	75.29
8/04/93	RF2A0032	214	1763	N/A	190	1000	0.190	230.242	154.8	0.673
8/04/93	RF2A0039	153	1173	N/A	381	1000	0.381	144.153	310.5	2.154
8/04/93	RF2A0038	202	1780	N/A	392	1000	0.392	298.23	319.5	1.071
8/04/93	RF2A0037	178	1864	N/A	802	1000	0.802	403.3	653.6	1.621
8/04/93	RF2A0033	206	1814	N/A	363	1000	0.363	189.478	295.8	1.56
8/04/93	RF2A0042	84	1954	N/A	1767	1000	1.767	59.488	1440.1	24.21
8/04/93	RF2A0034	104	704	N/A	340	1000	0.340	281.252	277.1	0.99
8/04/93	RF2A0041	126	658	N/A	114	1000	0.114	7.191	92.91	12.92
8/04/93	RF2A0015	185	2890	N/A	1773	1000	1.773	215.959	1445.0	6.691
8/04/93	RF2A0016	208	3779	N/A	2306	1000	2.306	250.287	1879.4	7.509

COMMENTS:

EXPERIMENTER Tom Murarik

DATE ANALYZED August 4, 1993

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER

SERIAL # AWC 5042

EFFICIENCY Am241 = 1.25 x 10^{-3} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
1/01/93	AM241833	252	29199	1155	28044	1000	28.044	296.2	22300	75.29
8/03/93	RF2A0036	148	1774	675	1099	1000	1.099	401.389	879.2	2.19
8/03/93	RF2A0043	121	2212	422	1790	1000	1.79	98.619	1432	14.52
8/03/93	RF2A0040	76	673	171	502	1000	0.502	21.536	401.6	18.64
8/03/93	RF2A0035	164	1818	837	981	1000	0.981	381.988	784.8	2.05
8/03/93	RF2A0034	154	1678	741	937	1000	0.937	380.692	749.6	1.96
8/03/93	RF2A0046	60	704	99	605	1000	0.605	2.431	484	198.6

COMMENTS:

EXPERIMENTER F. Sumnani

DATE ANALYZED 8/04/93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT 92 X SPECTRUM MASTER
SERIAL # AWC 5042
EFFICIENCY Am^{241} = 1.190×10^{-5} CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	% Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
01-01-93	AM241723	342	29,729	3,201	26,528	1,000	26.528	296.2	22,300	75.29
07-24-93	RF6310B	173	3,434	971	2,463	1,000	2.463	348.7	2,069.8	5.936

COMMENTS:

EXPERIMENTER Keith L. Smith
DATE ANALYZED 07-24-93

FM-139

JD/11/92/REV.0

LESAT
TD&RD

INSTRUMENT MCA

SERIAL #

EFFICIENCY AM241 1.134 X 10^{-3} Net CPS/pCi

MCA DATA SHEET

Date of Sample	Sample Description	Error +/-	Gross Count	Bkg. Count	Net Count	Count Time (Sec)	NET CPS	Sample Wgt(g)	Sample Activity pCi	Sample Activity pCi/gm
1 Jan 93	AM241716	338	29058	3777	25281	1000	25.281	296.2g	22300	75.29
16 July 93	RF250100	166	4202	1038	3164	1000	3.164	239.5g	2790.1	11.65
16 July 93	RF250300	161	3711	991	2720	1000	2.72	222.9	2398.5	10.76
16 July 93	RF256200	174	3606	1187	2419	1000	2.419	212.3	2133.1	10.04

COMMENTS:

EXPERIMENTER Keith D. Smith

DATE ANALYZED 7/16/93

FM-139

JD/11/92/REV.0

LESAT
Technology Applications Division

Instrument MCA

Serial # _____

Correction Factor: Am 241 = 1.29×10^{-3} cps/pci

SOIL SAMPLE LOG

Date of Sample	Description	Count Time (Sec.)	Gross CPS	Net CPS	Bkg CPS	Error +/- CPS	pCi	Sample Wgt.	pCi/gm
7-6-93	RF211000	1000	249.821	243.709	—	0.648	188921.71	333.08	567.196
7-6-93	RF212000	1000	217.9	212.049		0.617	164379.07	379.10	433.60
7-6-93	RF213000	1000	259.428	253.25		0.656	196317.83	355.29	552.56
7-6-93	RF215000	1000	231.017	224.57		0.64	174085.27	413.5	421.00

N
A

TECHNICIAN James E [signature]

REVIEWED BY _____

DATE ANALYZED 7-6-93

DATE _____

FM-018

RDS/1/93/REV.2

1

TRANSferred from MCA Soil Sample Log Book
6/30/93 By Keith Smith

LESAT
Technology Applications Division

Instrument MCA

Serial # _____

Correction Factor: 6/30/93 Am 241 = 1.321×10^{-3} CPS/pCi
6/18/93 AM 241 = 1.18×10^{-3} CPS/pCi
6/29/93 AM 241 = 1.12×10^{-3} CPS/pCi
6/29/93 AM 241 = 1.21×10^{-3} CPS/pCi
6/28/93 AM 241 = 1.22×10^{-3} CPS/pCi
6/24/93 AM 241 = 1.28×10^{-3} CPS/pCi
6/25/93 AM 241 = 1.22×10^{-3} CPS/pCi

SOIL SAMPLE LOG

Date of Sample	Description	Count Time (Sec.)	Gross CPS	Net CPS	Bkg CPS	Error +/- CPS	pCi	Sample Wgt.	pCi/gm
1 Jan 93	AM 241 630	1000	30.212	29.454	.758	.229	22300	296.2	75.287
6/30/93	RF 114 114	1000	7.470	5.920	1.55	.213	4481.5	149.631	29.95
6/30/93	RF 114 111	1000	7.769	6.365	1.404	.205	4818.3	156.682	30.75
6/29/93	RF 6054-C	1000	.785	.255	.53	.117	193.04	25.408	7.597
1 Jan 93	AM 241 629	1000	28.033	25.043	2.99	.319	22300	296.2	75.287
6/29/93	RF 655 T5	40,000	.6065	-.0263	.6328	.0201	-23.48	285.904	-.0821
1 Jan 93	AM 241 629	1000	30.174	27.072	3.102	.333	22300	296.2	75.54
6/29/93	RF 214000	1000	201.208	183.823	17.385	.81	151919.83	389.7	389.84
1 Jan 93	AM 241 628	1000	30.02	27.229	2.791	.321	22300	296.2	75.35
6/28/93	RF 605250	1000	.681	.065	.616	.142	53.278	199.456	.267
6/28/93	RF 6053+C	1000	.838	.413	.425	.109	338.524	135.202	2.503
6/28/93	RF 605250	4,000	.67475	.033	.64175	.066	27.05	199.456	.1356
6/28/93	RF 605250	40,000	.6848	.0616	.6232	.0206	50.49	199.456	.2531
1 Jan 93	AM 241 624	1000	29.610	28.188	1.422	.265	22300	296.2	75.287
6/24/93	RF 648 T25	40,000	.6919	.1330	.5589	.0205	105.6	284.622	.3709
6/24/93	RF 605120	4,000	.7593	.2038	.5555	.00006	167.049	307.168	.5438
1 Jan 93	AM 241 625	1000	29.727	27.201	2.526	.311	22300	296.2	75.287
6/18/93	RF642T25	40,000	.571	.243	.5467	.0183	20.60	286.705	0.072
1 Jan 93	AM 241 618	1000	29.005	26.274	2.731	.305	22300	296.2	75.17
6/18/93	RF 642T25	4,000	.57975	.0435	.53625	.05725	36.864	286.705	.129
1 Jan 93	AM 24617	1000	29.09	24.497	4.593	.37	22300	296.2	75.19

MDA .0466

TECHNICIAN _____ REVIEWED BY _____

DATE ANALYZED _____ DATE _____

2 Continue transfer from MCA Soil Sample Log Book
6/30/93 By Keith Smith

LESAT
Technology Applications Division

Instrument MCA

Serial # _____

Correction Factor: 6/15/93 Am241A = 1.10×10^{-3} cps/pCi
6/14/93 Am241A = 1.02×10^{-3} cps/pCi
6/14/93 Am241A = 8.37×10^{-4} cps/pCi
6/11/93 Am241A = 1.20×10^{-3} cps/pCi
6/10/93 Am241A = 2.44×10^{-3} cps/pCi

SOIL SAMPLE LOG

Date of Sample	Description	Count Time (Sec.)	Gross CPS	Net CPS	Bkg CPS	Error +/- CPS	pCi	Sample Wgt.	pCi/gm
6/17/93	RF603720	1000	.681	.093	.588	.12	84.55	329.678	.256
6/17/93	RF603850	1000	.733	.081	.652	.126	73.64	207.868	.354
6/17/93	RF6039+C	1000	1.072	.457	.615	.124	415.45	146.694	2.83
6/17/93	RF6040C-	1000	1.169	.707	.462	.109	642.73	21.268	30.22
1 Jan93	AM241615	1000	28.403	22.818	5.585	.39	22300	296.2	75.53
6/15/93	RF6041T1	1000	.571	.158	.413	.098	154.901	284.814	.54
1Jan93	Am241A14	1000	28.328	23.129	5.199	.378	22300	296.2	75.08
6/14/93	RF6035C	1000	1.915	1.022	.893	.12	982.69	47.352	20.75
1Jan93	AM241614	1000	27.773	18.655	9.118	.453	22300	296.2	75.246
1Jan93	AM241611	1000	29.078	26.823	2.255	.311	22300	296.2	75.464
6/11/93	RF603150	1000	1.07	.27	.8	.158	225	178.3	1.26
1Jan93	Am241610	1000	57.404	54.454	2.95	.532	22300	296.2	75.287
6/10/93	RF603020	1000	.986	.05	.936	.164	20.491	403.5	.051
6/10/93	RF6032C	1000	1.458	.760	.698	.144	311.475	127.5	2.443
1Jan93	Am241610	1000	28.589	25.067	3.522	.34	22300	296.2	75.56
1Jan93	Am241608	1000	25.792	20.883	4.909	.355	22300	296.2	75.287
6/08/93	RF60260C	500	1.678	.672	1.006	.210	717.949	395.8	1.814
6/08/93	RF60270C	500	1.418	.866	.552	.158	925.214	325.0	2.847
6/08/93	RF60280C	500	1.534	.99	.544	.158	1057.692	371.7	2.846
1Jan93 6/03/93	AM24163	1000	22.262	21.428	.834	.212	22300	298.8	74.70
6/03/93	RF111000	1000	2.219	1.422	.797	.147	1481.25	262.0	5.65

TECHNICIAN _____ REVIEWED BY _____

DATE ANALYZED _____ DATE _____

3 Continue transfer from MCA Soil Sample Log Book 6/30/93 by Keith Smith

LESAT
Technology Applications Division

Instrument MCA

Serial # _____

Correction Factor: _____

SOIL SAMPLE LOG

Date of Sample	Description	Count Time (Sec.)	Gross CPS	Net CPS	Bkg CPS	Error +/- CPS	pCi	Sample Wgt.	pCi/gm
6/03/93	RF31X000	1000	2.438	1.796	.642	.134	1870.83	293.0	6.38
6/29/93	RF656T-4	4000	.37775	.064	.31375	.045	48.448	17.117	2.830

TECHNICIAN _____ REVIEWED BY _____

DATE ANALYZED _____ DATE _____

SPREADSHEETS

RUN #1 & 2 — Moist net Feed = 219; Dry net Feed = 196

Smpl loc.	Smpl #	Replic8	Bckt grss wt, lbs.	Bckt tare wt, lbs.	Bckt net wt, lbs.	SRCC grss wet, grams	SRCC grss dry, grams	SRCC tare grams	SRCC net dry, gram	SRCC H2 mass, g	Percent water	Ttl solids dry, lbs	% fraction of feed	Activity pe mss, pCi/	ADJUSTE (PCI/GM)	Ttl actvty for fractn	% activity of total	Notes:
Initial	RF21000V	---	235	16	219	193.334	174.822	14.6	160.222	18.512	11.55	196.32	100	-------	11.82	1053495		<3/8" used for SRCC
+5/4,org.	RF2A0127	A	5	2	3	38.386	33.838	14.709	19.129	4.548	23.78	2.42	1.24	11.63	8.89	9778	0.93	
"	RF2A0128	B	5	2	3	45.35	38.181	14.438	23.743	7.169	30.19	2.30	1.18	25.38	19.48	20378	1.94	
+5/4, grav	RF2A0129	A	9	2	7	366.313	366.132	14.762	351.37	0.181	0.05	7.00	3.57	0.0788	0.08	264	0.03	
"	RF2A0130	B	9	2	7	483.8	483.4	14.605	468.795	0.4	0.09	6.99	3.57	0.158	0.19	593	0.06	
+3/8, grav	RF2A0131	A	66	4	62	341.942	341.386	14.544	326.842	0.556	0.17	61.89	31.58	0.816	0.84	23625	2.24	
"	RF2A0132	B	66	4	62	329.103	328.402	14.462	313.94	0.701	0.22	61.86	31.56	0.444	0.45	12688	1.20	
"	RF2A0133	C	66	4	62	388.214	387.386	14.863	372.523	0.828	0.22	61.86	31.56	0.299	0.32	9045	0.86	
cln-out, +3/8	-----	-----	4	2	2	-----	-----	-----	-----	-----	11.55	1.79	0.91	-----	0.54	438	0.04	
<3/8, feed	RF21000V	-----	150.5	8	142.5	193.334	174.822	14.6	160.222	18.512	11.55	127.74	65.17	20.11	17.62	1022043	97.05	
															0.00	0		
+4 mesh	RF2A0007	A	5.5	1.5	4	251.726	145.036	14.662	130.374	106.69	81.83	2.20	1.73	2.678	2.28	2277	0.22	
"	RF2A0008	B	5.5	1.5	4	279.914	165.524	14.823	150.701	114.39	75.91	2.27	1.79	4.496	3.90	4030	0.39	
Hutch 1	RF2A0009	A	26	2	24	472.4	369.803	14.765	355.038	102.597	28.90	18.62	14.62	1.712	1.81	15325	1.50	
"	RF2A0010	B	26	2	24	576.3	450.2	14.822	435.378	126.1	28.96	18.61	14.61	1.786	2.04	17277	1.69	
Hutch 2	RF2A0011	A	17.5	2	15.5	554	434	14.795	419.205	120	28.63	12.05	9.46	1.434	1.62	8842	0.87	
"	RF2A0012	B	17.5	2	15.5	571.9	454.4	14.759	439.641	117.5	26.73	12.23	9.60	0.888	1.02	5669	0.55	
Class. undr.	RF2A0013	A	14	2	12	482.2	378.401	14.846	363.555	103.799	28.55	9.33	7.33	2.647	2.83	11978	1.17	
"	RF2A0014	B	14	2	12	526.9	408.74	14.745	393.995	118.16	29.99	9.23	7.25	3.422	3.76	15773	1.54	
Class. Cl-out	RF2A0015	A	10.5	2	8.5	362.251	230.786	14.827	215.959	131.465	60.87	5.28	4.15	6.783	6.27	15052	1.47	
"	RF2A0016	B	10.5	2	8.5	451	265.108	14.821	250.287	185.892	74.27	4.88	3.83	7.635	7.30	16171	1.58	
Screen, org.	RF2A0017	A	7.5	2	5.5	252.497	63.748	14.661	49.087	188.749	384.52	1.14	0.89	34.92	27.47	14157	1.39	
"	RF2A0018	B	7.5	2	5.5	305.547	74.732	14.74	59.992	230.815	384.74	1.13	0.89	31.56	25.09	12925	1.26	
Min. jig C-O	RF2A0019	-----	-----	-----	-----	319.578	318.684	14.591	304.093	0.894	0.29	0.67	0.53	0.41	0.41	126	0.01	
Org, floats	RF2A0046	-----	-----	-----	-----	251.046	16.907	14.566	2.341	234.139	10001.67	0.01	0.00	164.7	123.81	290	0.03	
Recycle H2O	RF2A0047	-----	-----	-----	-----	284.25	15.054	14.804	0.25	269.196	107678.4	0.00	0.00	514.2	385.74	96	0.01	
Thickener	RF2A0048	A	35	2	33	357.03	147.967	14.87	133.097	209.063	157.08	12.84	10.08	32.94	28.12	163854	16.03	
"	RF2A0049	B	38.5	2	36.5	323.7	80.402	14.622	65.78	243.298	369.87	7.77	6.10	54.13	43.28	152627	14.93	
"	RF2A0055	C	42.5	2	40.5	320.825	94.3	14.603	79.697	226.525	284.23	10.54	8.27	52.43	42.49	203324	19.89	
"	RF2A0056	D	31.5	2	29.5	330.556	93.928	14.627	79.301	236.628	298.39	7.40	5.81	51.08	41.38	139105	13.61	
Bulk sample	RF31X900	A							168.426					13.32	11.77			
"	RF31X901	B							220.254					6.16	5.72			w/ large stone
"	RF31X902	C							242.848					8.14	7.73			w/ several stones
"	RF31X903	D							162.688					13.51	11.87			

RUN #3 & 4 — Moist net Feed = 236.5; Dry net Feed = 212.2

Smpl loc.	Smpl #	Replic8	Bckt grss wt, lbs.	Bckt tare wt, lbs.	Bckt net wt, lbs.	SRCC grss wet, grams	SRCC grss dry, grams	SRCC tare grams	SRCC net dry, gram	SRCC H2O mass, g	Percent water	Ttl solids dry, lbs	% fraction of feed	Activity per mss, pCi/g	ADJUSTE (PCI/GM)	Ttl actvty for fractn	% activity of total	Notes:
Initial	RF2A0156	-----	250.5	14	236.5	238.267	222.763	14.695	208.068	15.504	7.45	220.10	100	-------	11.82	1181115		
+5/4,org.	RF2A0134	A	2	0.5	1.5	47.452	39.703	14.671	25.032	7.749	30.96	1.15	0.54	24.1	18.52	9631	0.81	
"	RF2A0135	B	2	0.5	1.5	40.315	38.03	14.609	23.421	2.285	9.76	1.37	0.64	24.68	18.94	11749	0.98	
+5/4, grav	RF2A0136	A	7.5	0.5	7	350.579	350.395	14.745	335.65	0.184	0.05	7.00	3.30	0.849	0.88	2802	0.23	
"	RF2A0137	B	7.5	0.5	7	358.014	357.756	14.749	343.007	0.258	0.08	6.99	3.30	0.166	0.17	552	0.05	
+1/4, grav	RF2A0138	A	69	2	67	330.142	329.507	14.599	314.908	0.635	0.20	66.87	31.51	0.88	0.90	27207	2.27	
"	RF2A0139	B	69	2	67	389.574	388.948	14.848	374.1	0.626	0.17	66.89	31.52	0.666	0.72	21817	1.82	
"	RF2A0140	C	69	2	67	409.615	408.84	14.637	394.203	0.775	0.20	66.87	31.51	0.597	0.66	19937	1.67	
cln-out,+1/4	RF2A0156	-----	12.5	2	10.5	238.267	222.763	14.695	208.068	15.504	7.45	9.77	4.61	18.937	17.38	77127	6.45	
<1/4, feed	RF2A0156	-----	155.5	8	147.5	238.267	222.763	14.695	208.068	15.504	7.45	137.27	64.69	18.937	17.38	1083448	90.59	
							est.								0.00	0		
+4 mesh	RF2A0030	A	7.5	1.5	6	293.499	198.424	14.544	183.88	95.075	51.70	3.96	2.88	3.697	3.32	5953	0.55	
"	RF2A0031	B	7.5	1.5	6	345.076	282.311	14.577	267.734	62.765	23.44	4.86	3.54	1.342	1.31	2881	0.27	
Hutch 1	RF2A0032	A	35	2	33	442	244.988	14.746	230.242	197.012	85.57	17.78	12.95	1.226	1.15	9285	0.86	
"	RF2A0033	B	35	2	33	388.323	204.12	14.642	189.478	184.203	97.22	16.73	12.19	1.49	1.34	10205	0.94	
Hutch 2	RF2A0034	A	13.5	2	11.5	540.3	380.692	14.761	365.931	159.608	43.62	8.01	5.83	2.082	2.23	8100	0.75	
"	RF2A0035	B	13.5	2	11.5	510.2	381.988	14.87	367.118	128.212	34.92	8.52	6.21	0.686	0.74	2844	0.26	
Class. undr.	RF2A0036	A	30	2	28	491.2	401.389	14.855	386.534	89.811	23.23	22.72	16.55	2.115	2.31	23821	2.20	
"	RF2A0037	B	30	2	28	510.4	418.1	14.767	403.333	92.3	22.88	22.79	16.60	2.537	2.82	29127	2.69	
Class. Cl-out	RF2A0038	A	33	2	31	472.4	313.069	14.839	298.23	159.331	53.43	20.21	14.72	1.737	1.74	15967	1.47	
"	RF2A0039	B	33	2	31	364.414	158.713	14.56	144.153	205.701	142.70	12.77	9.31	1.333	1.15	6669	0.62	
Class. sump	RF2A0040	A	23	2	21	261.384	21.536	14.568	6.968	239.848	3442.14	0.59	0.43	60.48	45.67	12292	1.13	
"	RF2A0041	B	23	2	21	280.877	21.777	14.586	7.191	259.1	3603.12	0.57	0.41	66.53	50.25	12937	1.19	
Screen, org.	RF2A0042	A	4	2	2	275.874	74.145	14.657	59.488	201.729	339.11	0.46	0.33	26.13	20.76	4294	0.40	
"	RF2A0043	B	4	2	2	335.785	98.619	14.871	83.748	237.166	283.19	0.52	0.38	19.59	15.94	3777	0.35	
Min. jig C-O	RF2A0029	-----	------	------	------	299.69	295.94	14.688	281.252	3.75	1.33	0.62	0.45	0.209	0.21	58	0.01	
Org, floats	RF2A0050	A	------	------	------	281.119	32.743	14.695	18.048	248.376	1376.20	0.04	0.03	30.78	23.49	424	0.04	
"	RF2A0051	B	------	------	------	272.959	24.365	14.875	9.49	248.594	2619.54	0.02	0.02	53.72	40.66	386	0.04	
Recycle H2O	RF2A0028	A	------	------	------	243.265	14.861	14.656	0.205	228.404	111416.6	0.00	0.00	691	518.35	106	0.01	
"	RF2A0052	B	------	------	------	243.04	15.044	14.843	0.201	227.996	113430.8	0.00	0.00	140.3	105.25	21	0.00	
"	RF2A0053	C	------	------	------	300.93	------	29.491	------	------	------	------	------	------	0.00	0	0.00	
"	RF2A0054	D	------	------	------	311.835	------	29.781	------	------	------	------	------	------	0.00	0	0.00	
Thickener	RF2A0044	A	45.5	2	43.5	348.902	100.443	14.851	85.592	248.459	290.28	11.15	8.12	42.61	34.73	175734	16.22	
"	RF2A0045	B	46.5	2	44.5	347.342	119.936	14.661	105.275	227.406	216.01	14.08	10.26	38.32	31.84	203528	18.79	
"	RF2A0157	C	46	2	44	342.392	106.787	14.477	92.31	235.605	255.23	12.39	9.02	41.47	34.02	191313	17.66	
"	RF2A0158	D	52	2	50	329.82	106.128	14.612	91.516	223.692	244.43	14.52	10.58	41.95	34.39	226640	20.92	

RUN #5 & 6 | Moist net Feed = 242.5 | Dry net Feed = 216

Smpl loc.	Smpl #	Replic8	Bckt grss wt, lbs.	Bckt tare wt, lbs.	Bckt net wt, lbs.	SRCC grss wet, grams	SRCC gross dry, grams	SRCC tare grams	SRCC net dry, gram	SRCC H2O mass, g	Percent water	Ttl solids dry, lbs	% fraction of feed	Activity per mss, pCi/g	ADJUSTE (PCI/GM)	Ttl actvty for fractn	% activity of total	Notes:
Initial	RF2A0059	A	258.5	16	242.5	238.061	212.844	14.653	198.191	25.217	12.72	215.13	100.00	-------	11.82	1154437		
"	RF2A0058	B	258.5	16	242.5	244.478	220.039	14.758	205.281	24.439	11.91	216.70	100.32	-------	0.00	0		
+5/4,org.	RF2A0141	A	4	2	2	66.859	54.513	14.591	39.922	12.346	30.93	1.53	0.71	18.11	14.12	9792	0.92	
"	RF2A0142	B	4	2	2	64.713	54.448	14.711	39.737	10.265	25.83	1.59	0.74	14.51	11.31	8162	0.76	
+5/4, grav	RF2A0143	A	7	2	5	374.037	373.911	14.66	359.251	0.126	0.04	5.00	2.31	0.071	0.08	171	0.02	
"	RF2A0144	B	7	2	5	381.94	381.786	14.549	367.237	0.154	0.04	5.00	2.31	0.1087	0.12	264	0.02	
+1/4, grav	RF2A0145	A	63	2	61	397.353	396.91	14.657	382.253	0.443	0.12	60.93	28.21	1.173	1.28	35281	3.31	
"	RF2A0146	B	63	2	61	393.014	392.5	14.676	377.824	0.514	0.14	60.92	28.20	0.263	0.28	7875	0.74	
"	RF2A0147	C	63	2	61	363.257	362.822	14.564	348.258	0.435	0.12	60.92	28.21	0.6011	0.63	17491	1.64	
<1/4, feed	RF2A0059	A	170	8	162	238.061	212.844	14.653	198.191	25.217	12.72	143.71	66.53	17.84	16.22	1058386	99.16	
"	RF2A0058	B	170	8	162	244.478	220.039	14.758	205.281	24.439	11.91	144.77	67.02	16.91	15.48	1017535	95.33	
															0.00	0		
+4 mesh	RF2A0064	A	4	2	2	267.732	224.848	14.643	210.205	42.884	20.40	1.66	1.15	3.339	3.07	2317	0.22	
"	RF2A0065	B	4	2	2	247.814	204.423	14.69	189.733	43.391	22.87	1.63	1.12	3.327	3.00	2217	0.21	
Hutch 1	RF2A0066	A	43	2	41	558	436.4	14.619	421.781	121.6	28.83	31.82	21.98	1.238	1.40	20211	1.95	
"	RF2A0067	B	43	2	41	495.6	389.594	14.654	374.94	106.006	28.27	31.96	22.08	0.881	0.95	13802	1.33	
Hutch 2	RF2A0068	A	12	1.5	10.5	394.747	324.259	14.594	309.665	70.488	22.76	8.55	5.91	1.895	1.92	7456	0.72	
"	RF2A0069	B	12	1.5	10.5	360.852	296.06	14.876	281.184	64.792	23.04	8.53	5.89	1.733	1.71	6618	0.64	
Class. undr.	RF2A0070	A	38.5	2	36.5	440.8	374.852	14.699	360.153	65.948	18.31	30.85	21.31	1.547	1.65	23059	2.22	
"	RF2A0071	B	38.5	2	36.5	496.5	422.2	14.855	407.345	74.3	18.24	30.87	21.32	2.35	2.62	36695	3.54	
Class. Cl-out	RF2A0072	A	5.5	2	3.5	267.318	251.451	14.442	237.009	15.867	6.69	3.28	2.27	5.067	4.78	7125	0.69	
"	RF2A0073	B	5.5	2	3.5	321.052	300.251	14.669	285.582	20.801	7.28	3.26	2.25	5.347	5.29	7839	0.76	
Class. sump	RF2A0074	A	3	2	1	200.432	164.175	14.682	149.493	36.257	24.25	0.80	0.56	26.2	22.72	8302	0.80	
"	RF2A0075	B	3	2	1	223.797	183.881	14.656	169.225	39.916	23.59	0.81	0.56	20.63	18.24	6700	0.65	
Screen, org.	RF2A0076	A	12	2	10	323.905	65.089	14.624	50.465	258.816	512.86	1.63	1.13	31.41	24.74	18328	1.77	
"	RF2A0077	B	12	2	10	320.611	69.855	14.915	54.94	250.756	456.42	1.80	1.24	24.25	19.18	15654	1.51	
Min. jig C-O	RF2A0063	A	------	------	------	391.36	381.735	14.616	367.119	9.625	2.62	0.81	0.56	0.701	0.75	276	0.03	
Org, floats	RF2A0078	A	------	------	------	209.333	16.532	14.627	1.905	192.801	10120.79	0.00	0.00	74.97	56.33	107	0.01	
Recycle H2O	RF2A0057	A-start	------	------	------	267.779	15.033	14.813	0.22	252.746	114884.5	0.00	0.00	103.6	77.72	17	0.00	
"	RF2A0079	B-finish	------	------	------	235.477	14.696	14.47	0.226	220.781	97690.71	0.00	0.00	201.7	151.31	34	0.00	
"	RF2A0080	C- "	------	------	------	294.539	------	29.607	------	------	------	------	------	------	0.00	0	0.00	
"	RF2A0081	D- "	------	------	------	283.926	------	29.626	------	------	------	------	------	------	0.00	0	0.00	
Thickener	RF2A0082	A	44	2	42	299.211	75.723	14.664	61.059	223.488	366.02	9.01	6.23	54.28	43.20	176754	17.03	
"	RF2A0083	B	45.5	2	43.5	278.404	76.786	14.851	61.935	201.618	325.53	10.22	7.06	63.2	50.34	233630	22.51	
"	RF2A0110	C	42	2	40	329.453	85.377	14.622	70.755	244.076	344.96	8.99	6.21	52.22	41.95	171219	16.50	
"	RF2A0111	D	41.5	2	39.5	325.823	106.945	14.743	92.202	218.878	237.39	11.71	8.09	38.7	31.75	168733	16.26	
"	RF2A0112	E	44	2	42	369.199	173.185	14.49	158.695	196.014	123.52	18.79	12.98	24.19	21.17	180576	17.40	
"	RF2A0113	F	36	2	34	302.097	96.133	14.509	81.624	205.964	252.33	9.65	6.67	43.55	35.36	154909	14.92	
Hutch cln-out	RF2A0114	A	------	------	------	------	208.658	14.488	194.17	------	------	0.43	0.30	9.776	8.85	1719	0.17	
Attrn. S.-pre	RF2A0060	A												14.975	11.23	0	0.00	
Attrn. S.-post	RF2A0061	A																

RUN #7 & 8

Moist net Feed = 267.5
Dry net Feed = 239.6

Smpl loc.	Smpl #	Replic8	Bckt grss wt, lbs.	Bckt tare wt, lbs.	Bckt net wt, lbs.	SRCC grss wet, grams	SRCC gros dry, grams	SRCC tar grams	SRCC net dry, gram	SRCC H2 mass, g	Percent water	Ttl solids dry, lbs	% fraction of feed	Activity pe mss, pCi/	ADJUSTE (PCI/GM)	Ttl actvty for fractn	% activity of total
Initial	RF2A0084	A	281.5	14	267.5	256.507	231.274	14.717	216.557	25.233	11.65	239.58	100	------	11.82	1285674	
"	RF2A0085	B	281.5	14	267.5	252.575	227.698	14.573	213.125	24.877	11.67	239.54	100	------	0.00	0	
+5/4,org.	RF2A0148	A	3.5	2	1.5	48.423	42.885	14.655	28.23	5.538	19.62	1.25	0.52	11.87	9.15	5209	0.55
"	RF2A0149	B	3.5	2	1.5	51.056	45.362	14.755	30.607	5.694	18.60	1.26	0.53	27.44	21.20	12173	1.29
+5/4, grav	RF2A0150	A	13	2	11	376.744	375.72	14.569	361.151	1.024	0.28	10.97	4.58	2.833	3.02	15029	1.59
"	RF2A0151	B	13	2	11	411.3	411.2	14.442	396.758	0.1	0.03	11.00	4.59	1.115	1.23	6139	0.65
+1/4, grav	RF2A0152	A	77.5	4	73.5	339.357	338.606	14.625	323.981	0.751	0.23	73.33	30.61	0.7851	0.81	26856	2.85
"	RF2A0153	B	77.5	4	73.5	405.191	404.26	14.672	389.588	0.931	0.24	73.32	30.61	0.632	0.69	23040	2.44
"	RF2A0154	C	77.5	4	73.5	375.256	373.955	14.613	359.342	1.301	0.36	73.23	30.57	0.516	0.55	18244	1.93
<1/4, feed	RF2A0084	A	182.5	10	172.5	256.507	231.274	14.717	216.557	25.233	11.65	154.50	64.49	14.81	13.71	961561	101.87
"	RF2A0085	B	182.5	10	172.5	252.575	227.698	14.573	213.125	24.877	11.67	154.47	64.47	13.02	12.01	842373	89.24
Screen C-O			21.5	2	19.5										0.00	0	
															0.00	0	
+4 mesh	RF2A0095	A	5.5	1.5	4	298.943	172.726	14.582	158.144	126.217	79.81	2.22	1.44	4.33	3.79	3825	0.42
"	RF2A0096	B	5.5	1.5	4	320.158	225.279	14.416	210.863	94.879	45.00	2.76	1.79	1.705	1.57	1966	0.22
Hutch 1	RF2A0106	A	41.5	2	39.5	477.3	373.41	14.656	358.754	103.89	28.96	30.63	19.83	1.178	1.25	17410	1.93
"	RF2A0107	B	41.5	2	39.5	516.8	400.037	14.519	385.518	116.763	30.29	30.32	19.62	1.354	1.48	20329	2.25
Hutch 2	RF2A0108	A	9.5	2	7.5	493.6	371.613	14.572	357.041	121.987	34.17	5.59	3.62	1.782	1.89	4798	0.53
"	RF2A0109	B	9.5	2	7.5	435	327.376	14.609	312.767	107.624	34.41	5.58	3.61	1.848	1.88	4758	0.53
Class. undr.	RF2A0099	A	26.5	2	24.5	394.818	338.969	14.727	324.242	55.849	17.22	20.90	13.53	1.909	1.96	18616	2.06
"	RF2A0100	B	26.5	2	24.5	469.9	402.616	14.475	388.141	67.284	17.33	20.88	13.51	1.086	1.19	11258	1.25
Class. Cl-ou	RF2A0123	A	13	2	11	400.442	325.751	14.461	311.29	74.691	23.99	8.87	5.74	1.859	1.89	7599	0.84
"	RF2A0124	B	13	2	11	505.6	409.5	14.627	394.873	96.1	24.34	8.85	5.73	2.386	2.63	10549	1.17
Class. sump	RF2A0125	A	3	1.5	1.5	301.194	68.577	14.532	54.045	232.617	430.41	1.50	0.97	25.81	20.40	13893	1.54
"	RF2A0126	B	3	1.5	1.5	275.44	67.758	14.452	53.306	207.682	389.60	1.50	0.97	17.04	13.46	9166	1.02
Screen, org.	RF2A0097	A	10.5	2	8.5	308.332	57.027	14.728	42.299	251.305	594.12	1.22	0.79	35.86	28.02	15580	1.73
"	RF2A0098	B	10.5	2	8.5	293.777	56.912	14.598	42.314	236.865	559.78	1.29	0.83	33.88	26.48	15486	1.72
Min. jig C-O	RF2A0093	A	------	------	------	374.364	373.842	14.665	359.177	0.522	0.15	0.79	0.51	0.433	0.46	165	0.02
Org, floats	RF2A0094	A	------	------	------	251.676	28.915	14.679	14.236	222.761	1564.77	0.03	0.02	45.41	34.53	492	0.05
Recycle H2	RF2A0086	A-pre	------	------	------	274.32	------	29.501	------	------	------	------	------	------	0.00	0	0.00
"	RF2A0087	B-pre	------	------	------	292.411	------	29.616	------	------	------	------	------	------	0.00	0	0.00
"	RF2A0088	C-pre	------	------	------	270.417	15.016	14.702	0.314	255.401	81337.90	0.00	0.00	142.05	106.57	33	0.00
"	RF2A0092	D-pre	------	------	------	4013	------	1242.1	------	------	------	------	------	------	0.00	0	0.00
"	RF2A0089	E-pre			------	291.942	15.009	14.662	0.347	276.933	79807.78	0.00	0.00		0.00	0	0.00
Thickener	RF2A0115	A	46	2	44	309.484	95.753	14.693	81.06	213.731	263.67	12.10	7.83	39.68	32.20	176864	19.61
"	RF2A0116	B	44.5	2	42.5	287.513	69.458	14.478	54.98	218.055	396.61	8.56	5.54	59.52	47.09	182960	20.28
"	RF2A0117	C	48	2	46	306.454	82.706	14.621	68.085	223.748	328.63	10.73	6.95	50.11	40.15	195635	21.69
"	RF2A0118	D	48.5	2	46.5	284.563	65.384	14.693	50.691	219.179	432.38	8.73	5.65	57.78	45.52	180516	20.01
"	RF2A0119	E	49.5	2	47.5	311.909	78.355	14.635	63.72	233.554	366.53	10.18	6.59	50.91	40.62	187768	20.82
"	RF2A0120	F	47	2	45	273.329	82.541	14.427	68.114	190.788	280.10	11.84	7.66	40.15	32.17	172926	19.17
Thcknr-supe	RF2A0121	A	------	------	------	242.076	14.971	14.074	0.897	227.105	25318.28	0.00	0.00	102.3	76.79	69	0.01
Hutch cln-o	RF2A0122	A	5.5	1.5	4	352.393	159.16	14.851	144.309	193.233	133.90	1.71	1.11	14.23	12.28	9533	1.06
Attrn. S.-pre	RF2A0090	A	------	------	------	202.194	65.862	14.528	51.334	136.332	265.58	0.11	0.07		0.00	0	0.00
Attrn. S.-pos	RF2A0091	A	------	------	------	296.713	152.539	14.89	137.649	144.174	104.74	0.30	0.20	15.83	13.57	1868	0.21
Recycle H2	RF2A0101	A-post	------	------	------	4167.6	------	1080.8	------	------	------	------	------	------	0.00	0	0.00
"	RF2A0102	B-post	------	------	------	241.635	14.936	14.727	0.209	226.699	108468.4	0.00	0.00	1019.9	765.08	160	0.02
"	RF2A0103	C-post	------	------	------	247.914	14.993	14.779	0.214	232.921	108841.6	0.00	0.00		0.00	0	0.00
"	RF2A0104	D-post	------	------	------	258.98	------	29.83	------	------	------	------	------	------	0.00	0	0.00
"	RF2A0105	E-post	------	------	------	255.757	------	29.749	------	------	------	------	------	------	0.00	0	0.00
Filtrd H2O	RF2A0155	Process	------	------	6.799119	------	17.22	14.662	2.558	------	------	------	------	19.89	14.95	0	0.00
Filtr paper	RF2A0159	Process	------	------	------	------	15.468	15.322	0.146	------	------	------	------	292.1	219.11	0	0.00
Atrn scrb C-O		A							275.4								
"		B							275.5								
"		C							18								
"		D							26.7								

DRY SIEVE RESULTS	Am. stnd. Label	net mass	metric label	SRCC net mass, #1	SRCC net mass, #2	percent mass	activity/ mass, #1	adj. act/ mass, #1	activity/ mass, #2	adj. act/ mass, #2	adj. ovrll act/mass	Total activity	Percent activity
	< 3/4"	30142.9	< 19.0	216.362	152.025	84.08	13.21	12.23	19.157	16.65	14.05	423611.2	97.45
	3/4"	2594.1	19	280.601	------	7.24	0.789	0.78	------	------	0.78	2018.19	0.46
	1"	2495.1	25.4	353.112	------	6.96	1.147	1.21	------	------	1.21	3024.94	0.70
	> 1 1/2"	617.8	> 37.5	29.952	229.041	1.72	41.12	31.75	0.638	0.60	9.76	6027.72	1.39
	Totals =	*35849.9*				*100.00*						*434880.1*	*100.00*

Dry Sieve													adj % actv.	SRCC net mass, #3	activity/ mass, #3	adj. act/ mass, #3
	< #50	1411.921	<0.3	251.503	237.013	33.44	19.37	18.55	22.21	20.97	19.75	27892.11	61.25	59.69	205.387	21.65	19.82
	#50	347.688	0.3	206.675	141.013	8.23	13.58	12.45	14.71	12.65	12.53	4357.30	9.57	9.32	------	------	------
	#40	648.016	0.425	184.813	------	15.35	11.19	10.04	------	------	10.04	6508.25	14.29	13.93	------	------	------
	$20	638.918	0.85	230.253	237.011	15.13	5.88	5.52	8.43	7.96	7.73	4939.13	10.85	10.57	171.654	11.72	10.39
	#10	362.912	2.0	194.758	------	8.60	3.64	3.30	------	------	3.30	1197.15	2.63	2.56	------	------	------
	#5	186.05	4.0	186.05	------	4.41	0.685	0.62	------	------	0.62	114.52	0.25	0.25	------	------	------
	1/4"	191.372	6.3	191.372	------	4.53	1.226	1.11	------	------	1.11	211.93	0.47	0.45	------	------	------
	3/8"	435.335	9.5	240.999	194.336	10.31	0.693	0.66	0.907	0.82	0.73	317.98	0.70	0.68	------	------	------
	Totals =	4222.212				100						45538.36	100	97.45			

														SRCC net mass, #3	activity/ mass, #3	adj. act/ mass, #3
	< #325	208.795	< 0.045	96.276	112.519	9.09	44.53	36.67	18.57	15.54	25.28	5278.83	11.06	6.60	------	------	------
	#325	185.209	0.045	110.143	75.066	8.06	41.17	34.37	22.88	18.46	27.92	5170.71	10.83	6.47	------	------	------
	#200	124.696	0.075	75.932	48.764	5.43	37.66	30.41	26.13	20.55	26.55	3310.64	6.94	4.14	------	------	------
	#140	*351.956*	*0.106*	*208.371*	*32.659*	*15.32*	*22.59*	*20.74*	*41.61*	*32.21*	*22.23*	*7825.66*	*16.40*	*9.79*	*110.926*	*26.45*	*22.10*
	#100	549.565	0.150	247.334	152.758	23.92	18.22	17.38	24.28	21.12	18.02	9904.47	20.75	12.39	149.473	18.35	15.91
	#70	877.701	0.212	246.687	177.704	38.20	18.03	17.19	23.59	21.03	18.50	16235.00	34.02	20.31	35.309	35.42	27.49
	Totals =	2297.924				100.00						47725.305	100.00	59.69			

WET SIEVE RESULTS	Am. stnd. Label	net mass	metric label	SRCC net mass, #1	SRCC net mass, #2	percent mass	activity/ mass, #1	adj. act/ mass, #1	activity/ mass, #2	adj. act/ mass, #2	adj. ovrll act/mass	Total activity	Percent activity
	< 3/4"	30294.6	< 19.0	151.739	30142.9	84.55	11.97	10.40	14.05	14.05	14.04	425190.3	99.15
	3/4"	2529.4	19	277.231	------	7.06	0.066	0.06	------	------	0.06	163.8	0.04
	1"	2486.1	25.4	347.12	------	6.94	0.13	0.14	------	------	0.14	339.6	0.08
	> 1 1/2"	522.5	> 37.5	21.939	227.91	1.46	21.19	16.23	0.56	0.53	5.99	3131.8	0.73
	Totals =	*35831.6*				100.00						*428825.5*	*100.00*

Wet Sieve												
	< #50	2332.118	<0.3	149.066	157.052	55.75	22.07	19.13	16.76	14.64	19.05	44428.2	90.66
	#50	187.276	0.3	109.701	77.575	4.48	7.31	6.10	19.47	15.75	10.09	1890.5	3.86
	#40	332.808	0.425	216.314	116.494	7.96	4.3	3.98	9.63	8.09	5.42	1803.0	3.68
	$20	320.613	0.85	183.722	136.841	7.66	1.45	1.30	2.15	1.84	1.53	490.6	1.00
	#10	227.726	2.0	227.726	------	5.44	0.567	0.53	------	------	0.53	120.8	0.25
	#5	163.67	4.0	163.67	------	3.91	0.166	0.15	------	------	0.15	23.9	0.05
	1/4"	187.939	6.3	187.939	------	4.49	0.332	0.30	------	------	0.30	56.2	0.11
	3/8"	431.346	9.5	259.881	171.465	10.31	0.24	0.23	0.88	0.78	0.45	193.1	0.39
	Total =	4183.496				100						49006.3	100.00

	< #325	1321.635	< 0.045	210.572	108.4	57.63	21.33	19.63	31.54	26.28	24.88	32887.2	72.37
	#325	210.566	0.045	210.566	------	9.18	18.41	16.94	------	------	16.94	3567.4	7.85
	#200	134.106	0.075	134.106	------	5.85	15.98	13.65	------	------	13.65	1830.9	4.03
	#140	*204.006*	*0.106*	*204.006*	------	*8.90*	*16.07*	*14.69*	------	------	*14.69*	*2997.8*	*6.60*
	#100	245.886	0.150	245.886	------	10.72	9.964	9.49	------	------	9.49	2333.4	5.14
	#70	176.944	0.212	176.944	------	7.72	11.57	10.31	------	------	10.31	1823.5	4.01
	Totals =	2293.143				100.00						45440.3	100.00

Sieve totals		% Mass Dry	% Mass Wet	% Mass (wet-dry)	activ/mass dry	activ/mass wet	% actv. dry	% actv. wet
<#325	< 0.045	2.56	27.42	24.86	25.28	24.88	6.6	65.06
#325	0.045	2.27	4.28	2.01	27.92	16.94	6.47	7.06
#200	0.075	1.53	2.72	1.19	26.55	13.65	4.14	3.62
#140	0.106	4.31	4.14	-0.17	22.23	14.69	9.79	5.93
#100	0.15	6.73	4.99	-1.74	18.02	9.49	12.39	4.62
#70	0.212	10.74	3.59	-7.15	18.5	10.31	20.31	3.61
#50	0.3	6.92	3.79	-3.13	12.53	10.09	9.32	3.86
#40	0.425	12.91	6.73	-6.18	10.04	5.42	13.93	3.68
#20	0.85	12.72	6.48	-6.24	7.73	1.53	10.57	1
#10	*2*	*7.23*	*4.6*	*-2.63*	*3.3*	*0.53*	*2.56*	*0.25*
#5	4	3.71	3.31	-0.4	0.62	0.15	0.25	0.05
1/4"	6.3	3.81	3.8	-0.01	1.11	0.3	0.45	0.11
3/8"	9.5	8.67	8.72	0.05	0.73	0.45	0.68	0.39
3/4"	19	7.24	7.06	-0.18	0.78	0.06	0.46	0.04
1"	25.4	6.96	6.94	-0.02	1.21	0.14	0.7	0.08
1 1/2 "	> 37.5	1.72	1.46	-0.26	9.76	5.99	1.39	0.73
	Totals =	100.03	100.03				100.01	100.09

	A	#1		#2		#3		
Density	1.9		2.6		2.9			
Float mass	6.732		28.67		17.537			
Float pCi/g	52.99	40.00	23.88	18.42	8.941	6.82		
Liquid pCi	204.5	164.47	254.4	212.24	82.35	74.04		
Liquid mass	71.871		109.612		186.629			
Sink mass					4.153			
Sink pCi/g					67.9	55.45		
Liquid pCi					87.69			
Liquid mass					8.612			
B								
Density	1.9		2.6		2.9			
Float mass	*4.89*		*28.58*		*18.062*			
Float pCi/g	44.77	33.74	25.65	19.78	8.98	6.85		
Liquid pCi	189.9	153.35	149.05	125.68	86.39	77.19		
Liquid mass	76.044		120.535		180.234			
Sink mass					5.25			
Sink pCi/g					58.61	44.18		
Liquid pCi					38.2	28.90		
Liquid mass					9.047			

Density	A Act/mass	A mass	B Act/mass	B mass	A % mass	B % mass
1.9 Float	40	6.73	33.74	4.89	11.79	8.61
2.6 Float	18.42	28.67	19.78	28.58	50.22	50.33
2.9 Float	6.82	17.54	6.85	18.06	30.72	31.81
2.9 Sink	55.45	4.15	44.18	5.25	7.27	9.25
		57.09		56.78		

Density	A	adj.	B	adj.
1.9	33.74	4.89		
2.6	19.78	28.58		
2.9	6.85	18.06		
Sink	44.18	5.25		

RUN #9 SHAKER TABLE PROCESSING OF RUN #2 HUTCH #1

SAMPLE LOCATION	SAMPLE #	REPLICTS	BKT GROSS WEIGHT (LBS)	BKT TARE WEIGHT (LBS)	NET BKT WEIGHT (LBS)	WET SRCC WEIGHT (GRAMS	DRY SRCC WEIGHT (GRAMS)	SRCC TARE WEIGHT (GRAMS)	SRCC NET DRY WEIGHT (GRAMS)	SRCC WATER WEIGHT (GRAMS)	SRCC PERCENT WATER (%)	DRY PROCESS STREAM WEIGHT (LBS)	PROCESS STREAM ACTIVITY (PCI/GM)	ADJUSTED STREAM ACTIVITY (PCI/GM)	PROCESS STREAM ACTIVITY (PCI)	
TABLE TAILS	RF2B026T	A	16.5	2	14.5	507.4	383.505	14.678	368.827	123.895	33.59163	12.55	2.45	2.63	14960	
	RF2B027T	B	16.5	2	14.5	525.2	384.533	14.692	369.841	140.667	38.03445	12.20	1.57	1.68	9310	
TABLE CONS	RF2B005C								275.4			3.40	3.56	3.49	5374	
																ACTIVITY
TOTAL												15.59			17509	1.074002
FEED	RF2A0009	A	26	2	24	472.4	369.803	14.765	355.038	102.597	28.89747	18.62	1.71	1.81	15327	MASS
	RF2A0010	B	26	2	24	576.3	450.2	14.822	435.378	126.1	28.96334	18.61	1.79	2.05	17279	0.847019

RUN #10 SHAKER TABLE PROCESSING OF RUN #2 HUTCH #2

SAMPLE LOCATION	SAMPLE #	REPLICTS	BKT GROSS WEIGHT (LBS)	BKT TARE WEIGHT (LBS)	NET BKT WEIGHT (LBS)	WET SRCC WEIGHT (GRAMS	DRY SRCC WEIGHT (GRAMS)	SRCC TARE WEIGHT (GRAMS)	SRCC NET DRY WEIGHT (GRAMS)	SRCC WATER WEIGHT (GRAMS)	SRCC PERCENT MOISTURE (%)	DRY PROCESS STREAM WEIGHT (LBS)	PROCESS STREAM ACTIVITY (PCI/GM)	ADJUSTED STREAM ACTIVITY (PCI/GM)	PROCESS STREAM ACTIVITY (PCI)	
TABLE TAILS	RF2B028T	A	7	2	5	507.5	340.6	14.678	325.922	166.9	51.20857	4.73	2.53	2.60	5596	
	RF2B029T	B	7	2	5	406.991	307.643	14.465	293.178	99.348	33.88658	5.16	2.44	2.43	5691	
TABLE CONS	RF2B006C								275.1			4.72	3.16	3.09	6618	
																ACTIVITY
TOTAL												9.88			12309	1.696428
FEED	RF2A0011	A	17.5	2	15.5	554	434	14.795	419.205	120	28.62561	12.05	1.43	1.62	8843	MASS
	RF2A0012	B	17.5	2	15.5	571.9	454.4	14.759	439.641	117.5	26.72635	12.23	0.89	1.02	5669	0.796017

RUN #11 SHAKER TABLE PROCESSING OF RUN #4 HUTCH #1

SAMPLE LOCATION	SAMPLE #	REPLICTS	BKT GROSS WEIGHT (LBS)	BKT TARE WEIGHT (LBS)	NET BKT WEIGHT (LBS)	WET SRCC WEIGHT (GRAMS	DRY SRCC WEIGHT (GRAMS)	SRCC TARE WEIGHT (GRAMS)	SRCC NET DRY WEIGHT (GRAMS)	SRCC WATER WEIGHT (GRAMS)	SRCC PERCENT MOISTURE (%)	DRY PROCESS STREAM WEIGHT (LBS)	PROCESS STREAM ACTIVITY (PCI/GM)	ADJUSTED STREAM ACTIVITY (PCI/GM)	PROCESS STREAM ACTIVITY (PCI)	
TABLE TAILS	RF2B030T	A	22.25	2	20.25	426.1	333.45	14.823	318.627	92.65	29.07789	17.15	0.40	0.41	3215	
	RF2B031T	B	22.25	2	20.25	423.6	329.559	14.905	314.654	94.041	29.88711	17.05	1.35	1.37	10602	
TABLE CONS	RF2B007C								275.3			3.31	0.00	0.00	0	
																ACTIVITY
TOTAL												20.36			10602	1.088085
FEED	RF2A0032	A				442	244.988	14.746	230.242	197.012	85.56736	17.78	1.23	1.15	9284	MASS
	RF2A0033	B				388.323	204.12	14.642	189.478	184.203	97.21604	16.73	1.49	1.34	10204	1.183053

RUN #12 SHAKER TABLE PROCESSING OF RUN #4 HUTCH #2

SAMPLE LOCATION	SAMPLE #	REPLICTS	BKT GROSS WEIGHT (LBS)	BKT TARE WEIGHT (LBS)	NET BKT WEIGHT (LBS)	WET SRCC WEIGHT (GRAMS	DRY SRCC WEIGHT (GRAMS)	SRCC TARE WEIGHT (GRAMS)	SRCC NET DRY WEIGHT (GRAMS)	SRCC WATER WEIGHT (GRAMS)	SRCC PERCENT MOISTURE (%)	DRY PROCESS STREAM WEIGHT (LBS)	PROCESS STREAM ACTIVITY (PCI/GM)	ADJUSTED STREAM ACTIVITY (PCI/GM)	PROCESS STREAM ACTIVITY (PCI)	
TABLE TAILS	RF2B032T	A	4.25	2	2.25	399.2	306.792	14.477	292.315	92.408	31.61247	3.23	1.86	1.85	2721	
	RF2B033T	B	4.25	2	2.25	509.1	384.658	14.542	370.116	124.442	33.62243	3.21	2.62	2.81	4096	
TABLE CONS	RF2B008C								275.5			1.76	1.12	1.10	877	
																ACTIVITY
TOTAL												4.97			4973	0.90858
FEED	RF2A0034	A				540.3	380.692	14.761	365.931	159.608	43.61697	8.01	2.08	2.23	8104	MASS
	RF2A0035	B				510.2	381.988	14.87	367.118	128.212	34.92392	8.52	0.69	0.74	2843	0.602417

RUN #13 SHAKER TABLE PROCESSING OF RUN #6 HUTCH #1

SAMPLE LOCATION	SAMPLE #	REPLICTS	BKT GROSS WEIGHT (LBS)	BKT TARE WEIGHT (LBS)	NET BKT WEIGHT (LBS)	WET SRCC WEIGHT (GRAMS	DRY SRCC WEIGHT (GRAMS)	SRCC TARE WEIGHT (GRAMS)	SRCC NET DRY WEIGHT (GRAMS)	SRCC WATER WEIGHT (GRAMS)	SRCC PERCENT MOISTURE (%)	DRY PROCESS STREAM WEIGHT (LBS)	PROCESS STREAM ACTIVITY (PCI/GM)	ADJUSTED STREAM ACTIVITY (PCI/GM)	PROCESS STREAM ACTIVITY (PCI)	
TABLE TAILS	RF2B034T	A	34.25	2	32.25	485.9	380.966	14.578	366.388	104.934	28.64013	26.71	1.15	1.23	14931	
	RF2B035T	B	34.25	2	32.25	466.1	361.896	14.882	347.014	104.204	30.02876	26.44	1.89	1.99	23889	
TABLE CONS	RF2B001C								275.3			2.71	0.00	0.00	0	
																ACTIVITY
TOTAL												29.15			23889	1.404738
FEED	RF2A0066	A				558	436.4	14.619	421.781	121.6	28.83013	31.82	1.24	1.40	20210	MASS
	RF2A0067	B				495.6	389.594	14.654	374.94	106.006	28.27279	31.96	0.88	0.95	13803	0.918275

RUN #14 SHAKER TABLE PROCESSING OF RUN #6 HUTCH #2

SAMPLE LOCATION	SAMPLE #	REPLICTS	BKT GROSS WEIGHT (LBS)	BKT TARE WEIGHT (LBS)	NET BKT WEIGHT (LBS)	WET SRCC WEIGHT (GRAMS	DRY SRCC WEIGHT (GRAMS)	SRCC TARE WEIGHT (GRAMS)	SRCC NET DRY WEIGHT (GRAMS)	SRCC WATER WEIGHT (GRAMS)	SRCC PERCENT MOISTURE (%)	DRY PROCESS STREAM WEIGHT (LBS)	PROCESS STREAM ACTIVITY (PCI/GM)	ADJUSTED STREAM ACTIVITY (PCI/GM)	PROCESS STREAM ACTIVITY (PCI)	
TABLE TAILS	RF2B036T	A	8.25	2	6.25	542.6	418.5	14.613	403.887	124.1	30.72642	6.43	0.99	1.10	3223	
	RF2B037T	B	8.25	2	6.25	425.5	330.851	14.562	316.289	94.649	29.92485	6.46	2.38	2.43	7117	
TABLE CONS	RF2B004C								275.4			1.14	1.14	1.12	576	
																ACTIVITY
TOTAL												7.60			7694	1.093667
FEED	RF2A0068	A				394.747	324.259	14.594	309.665	70.488	22.76266	8.55	1.90	1.92	7454	MASS
	RF2A0069	B				360.852	296.06	14.876	281.184	64.792	23.04256	8.53	1.73	1.71	6615	0.887869

RUN #15 SHAKER TABLE PROCESSING OF RUN #8 HUTCH #1

SAMPLE LOCATION	SAMPLE #	REPLICTS	BKT GROSS WEIGHT (LBS)	BKT TARE WEIGHT (LBS)	NET BKT WEIGHT (LBS)	WET SRCC WEIGHT (GRAMS	DRY SRCC WEIGHT (GRAMS)	SRCC TARE WEIGHT (GRAMS)	SRCC NET DRY WEIGHT (GRAMS)	SRCC WATER WEIGHT (GRAMS)	SRCC PERCENT MOISTURE (%)	DRY PROCESS STREAM WEIGHT (LBS)	PROCESS STREAM ACTIVITY (PCI/GM)	ADJUSTED STREAM ACTIVITY (PCI/GM)	PROCESS STREAM ACTIVITY (PCI)	
TABLE TAILS	RF2B040T	A	34.25	2	32.25	492	381.085	14.724	366.361	110.915	30.27478	26.34	0.72	0.77	9157	
	RF2B041T	B	34.25	2	32.25	438.5	340.154	14.779	325.375	98.346	30.22543	26.35	1.46	1.50	17986	
TABLE CONS	RF2B003C								275.5			2.37	0.00	0.00	0	
																ACTIVITY
TOTAL												28.72			17986	0.95307
FEED	RF2A0106	A				477.3	373.41	14.656	358.754	103.89	28.95856	30.63	1.18	1.25	17412	MASS
	RF2A0107	B				516.8	400.037	14.519	385.518	116.763	30.2873	30.32	1.35	1.48	20332	0.942356

RUN #16 SHAKER TABLE PROCESSING OF RUN #8 HUTCH #2

SAMPLE LOCATION	SAMPLE #	REPLICTS	BKT GROSS WEIGHT (LBS)	BKT TARE WEIGHT (LBS)	NET BKT WEIGHT (LBS)	WET SRCC WEIGHT (GRAMS	DRY SRCC WEIGHT (GRAMS)	SRCC TARE WEIGHT (GRAMS)	SRCC NET DRY WEIGHT (GRAMS)	SRCC WATER WEIGHT (GRAMS)	SRCC PERCENT MOISTURE (%)	DRY PROCESS STREAM WEIGHT (LBS)	PROCESS STREAM ACTIVITY (PCI/GM)	ADJUSTED STREAM ACTIVITY (PCI/GM)	PROCESS STREAM ACTIVITY (PCI)	
TABLE TAILS	RF2B038T	A	4.25	2	2.25	457.4	326.891	14.792	312.099	130.509	41.81654	2.99	1.69	1.72	2330	
	RF2B039T	B	4.25	2	2.25	440	310.211	14.804	295.407	129.789	43.93565	2.97	2.10	2.10	2832	
TABLE CONS	RF2B002C								275.4			0.76	1.50	1.47	508	
																ACTIVITY
TOTAL												3.73			3340	0.698958
FEED	RF2A0108	A	9.5	2	7.5	493.6	371.613	14.572	357.041	121.987	34.17	5.59	1.78	1.89	4799	MASS
	RF2A0109	B	9.5	2	7.5	435	327.376	14.609	312.767	107.624	34.41	5.58	1.85	1.88	4758	0.669626

RUN #17/18 CENTRIFUGAL AND HYDROCYCLONE PROCESSING OF RUN #2 THICKENER UNDERFLOW

SAMPLE LOCATION	SAMPLE #	REPLICTS	BKT GROSS WEIGHT (LBS)	BKT TARE WEIGHT (LBS)	NET BKT WEIGHT (LBS)	WET SRCC WEIGHT (GRAMS	DRY SRCC WEIGHT (GRAMS)	SRCC TARE WEIGHT (GRAMS)	SRCC NET DRY WEIGHT (GRAMS)	SRCC WATER WEIGHT (GRAMS)	SRCC PERCENT MOISTURE (%)	DRY PROCESS STREAM WEIGHT (LBS)	PROCESS STREAM ACTIVITY (PCI/GM)	ADJUSTED STREAM ACTIVITY (PCI/GM)	PROCESS STREAM ACTIVITY (PCI)
CENTRIF TAIL	RF2B08C								37.5			0.083	29.27	22.77	854
CENTRIF CONS	RF2B016C								275.5			0.607	10.63	10.42	2871
15 PSI UF	RF2B010C								65.5			0.144	32.98	26.36	1727
15 PSI OF	RF2B009C								35.6			0.078	28.44	22.08	786
30 PSI UF	RF2B014C								69.9			0.154	33.32	26.75	1870
30 PSI OF	RF2B013C								33.9			0.075	38.52	29.86	1012
60 PSI UF	RF2B012C								68.3			0.150	35.72	28.63	1955
60 PSI OF	RF2B011C								35.5			0.078	30.66	23.80	845
HYDRO RESIDUAL	RF2B055C								175.4			1.231	30.64	27.25	15233
	RF2B056C												44.31		
TOTAL									797.1	1.325938		2.601			27153
FEED					7.04845 81					0.662574		1.961	46.02		40981
													43.98		

RUN #19/20 CENTRIFUGAL AND HYDROCYCLONE PROCESSING OF RUN #4 THICKENER UNDERFLOW

SAMPLE LOCATION	SAMPLE #	REPLICTS	BKT GROSS WEIGHT (LBS)	BKT TARE WEIGHT (LBS)	NET BKT WEIGHT (LBS)	WET SRCC WEIGHT (GRAMS	DRY SRCC WEIGHT (GRAMS)	SRCC TARE WEIGHT (GRAMS)	SRCC NET DRY WEIGHT (GRAMS)	SRCC WATER WEIGHT (GRAMS)	SRCC PERCENT MOISTURE (%)	DRY PROCESS STREAM WEIGHT (LBS)	PROCESS STREAM ACTIVITY (PCI/GM)	ADJUSTED STREAM ACTIVITY (PCI/GM)	PROCESS STREAM ACTIVITY (PCI)
CENTRIF TAIL	RF2B019T								24.9			0.055	61.65	47.37	1180
CENTRIF CONS	RF2B017C								275.2			0.606	13.12	12.86	3538
15 PSI UF	RF2B021C								31.4			0.069	59.87	46.29	1454
15 PSI OF	RF2B020C								25.2			0.056	56.37	43.33	1092
30 PSI UF	RF2B023C								32.9			0.072	49.00	37.94	1248
30 PSI OF	RF2B022C								12.9			0.028	107.80	81.87	1056
60 PSI UF	RF2B025C								25			0.055	54.30	41.73	1043
60 PSI OF	RF2B024C								12.9			0.028	69.62	52.87	682
HYDRO RESIDUAL	RF2B058C											1.080	34.74	26.06	12775
	RF2B059C												34.74		
	RF2B060C												28.75		
TOTAL									440.4	1.016479		2.050			24068
FEED					7.04845 81					0.780324		2.017	33.69		30843
													39.85		

RUN #21/22 CENTRIFUGAL AND HYDROCYCLONE PROCESSING OF RUN #6 THICKENER UNDERFLOW

SAMPLE LOCATION	SAMPLE #	REPLICTS	BKT GROSS WEIGHT (LBS)	NET BKT WEIGHT (LBS)	WET SRCC WEIGHT (GRAMS	DRY SRCC WEIGHT (GRAMS)	SRCC TARE WEIGHT (GRAMS)	SRCC NET DRY WEIGHT (GRAMS)	SRCC WATER WEIGHT (GRAMS)	SRCC PERCENT MOISTURE (%)	DRY PROCESS STREAM WEIGHT (LBS)	PROCESS STREAM ACTIVITY (PCI/GM)	ADJUSTED STREAM ACTIVITY (PCI/GM)	PROCESS STREAM ACTIVITY (PCI)
CENTRIF TAIL	RF2B042T							15.8			0.035	73.70	56.13	887
CENTRIF CONS	RF2B033C							275.3			0.606	13.34	13.07	3599
15 PSI UF	RF2B028C							22.8			0.050	68.72	52.69	1201
15 PSI OF	RF2B029C							10.9			0.024	106.60	80.80	881
30 PSI UF	RF2B040C							25.4			0.056	60.68	46.65	1185
30 PSI OF	RF2B030C							11.8			0.026	85.66	64.99	767
60 PSI UF	RF2B031C							22.5			0.050	82.37	63.14	1421
60 PSI OF	RF2B032C							10.3			0.023	106.68	80.82	832
HYDRO RESIDUAL	RF2B061C										0.583	41.00	30.75	8133
	RF2B062C											36.34		
TOTAL								394.8	0.726345		1.452			18907
FEED				7.04845 81					0.485644		1.999	42.89		38931
												36.10		

RUN #23/24 CENTRIFUGAL AND HYDROCYCLONE PROCESSING OF RUN #8 THICKENER UNDERFLOW

SAMPLE LOCATION	SAMPLE #	REPLICTS	BKT GROSS WEIGHT (LBS)	BKT TARE WEIGHT (LBS)	NET BKT WEIGHT (LBS)	WET SRCC WEIGHT (GRAMS	DRY SRCC WEIGHT (GRAMS)	SRCC TARE WEIGHT (GRAMS)	SRCC NET DRY WEIGHT (GRAMS)	SRCC WATER WEIGHT (GRAMS)	SRCC PERCENT MOISTURE (%)	DRY PROCESS STREAM WEIGHT (LBS)	PROCESS STREAM ACTIVITY (PCI/GM)	ADJUSTED STREAM ACTIVITY (PCI/GM)	PROCESS STREAM ACTIVITY (PCI)
CENTRIF TAIL	RF2B043T								27			0.059	64.29	49.50	1336
CENTRIF CONS	RF2B041C								275.3			0.606	13.49	13.22	3640
15 PSI UF	RF2B035C								26.7			0.059	71.35	54.92	1466
15 PSI OF	RF2B034C								18			0.040	85.76	65.46	1178
30 PSI UF	RF2B037C								35.8			0.079	56.43	43.82	1569
30 PSI OF	RF2B036C								18.3			0.040	85.73	65.45	1198
60 PSI UF	RF2B039C								32.5			0.072	60.74	47.02	1528
60 PSI OF	RF2B038C								16.4			0.036	85.26	64.97	1066
HYDRO RESIDUAL	RF2B063C											0.906	51.50	38.63	15894
	RF2B064C												30.77		
TOTAL									450	1.174846		1.898			28875
FEED					7.04845 81					0.808809		1.615	48.69		35701
													41.18		

RUN #25 TROMMEL PROCESSING OF RUN #1 +3/8 INCH MATERIAL

SAMPLE LOCATION	SAMPLE #	REPLICTS	BKT GROSS WEIGHT (LBS)	BKT TARE WEIGHT (LBS)	NET BKT WEIGHT (LBS)	WET SRCC WEIGHT (GRAMS	DRY SRCC WEIGHT (GRAMS)	SRCC TARE WEIGHT (GRAMS)	SRCC NET DRY WEIGHT (GRAMS)	SRCC WATER WEIGHT (GRAMS)	SRCC PERCENT MOISTURE (%)	DRY PROCESS STREAM WEIGHT (LBS)	PROCESS STREAM ACTIVITY (PCI/GM)	ADJUSTED STREAM ACTIVITY (PCI/GM)	PROCESS STREAM ACTIVITY (PCI)
OVERSIZE	RF2B050R		38.25	2	36.25				275.5			42.80	0.68	0.67	5194
	RF2B042R					355.367		14.567	337.809				0.01	0.01	
	RF2B043R					311.293			293.691				0.13	0.13	
UNDERSIZE	RF2B048R		6.25	2	4.25				9.8			4.27	40.59	30.73	59602
SCREEN HEEL	RF2B046R					440.7		14.593	104.06			1.20	0.27	0.23	151
	RF2B047R					475.9		14.705	159.8				0.37	0.33	
SCRUBBER HEEL	RF2B044R		19.5	2	17.5	407.239		14.555	385.227			17.87	0.13	0.14	2383
	RF2B045R					356.674		14.837	170.1				0.51	0.45	
TOTAL					58					0.960005		66.14			67330
FEED										5.51912		68.90		0.39	12199

RUN #26 TROMMEL PROCESSING OF RUN #3 +1/4 INCH MATERIAL

SAMPLE LOCATION	SAMPLE #	REPLICTS	BKT GROSS WEIGHT (LBS)	BKT TARE WEIGHT (LBS)	NET BKT WEIGHT (LBS)	WET SRCC WEIGHT (GRAMS	DRY SRCC WEIGHT (GRAMS)	SRCC TARE WEIGHT (GRAMS)	SRCC NET DRY WEIGHT (GRAMS)	SRCC WATER WEIGHT (GRAMS)	SRCC PERCENT MOISTURE (%)	DRY PROCESS STREAM WEIGHT (LBS)	PROCESS STREAM ACTIVITY (PCI/GM)	ADJUSTED STREAM ACTIVITY (PCI/GM)	PROCESS STREAM ACTIVITY (PCI)
OVERSIZE	RF2B051R		56	2	54				275.4			56.77	0.84	0.82	21220
UNDERSIZE	RF2B049R		7.5	2	5.5				157.4			5.85	2.57	2.24	5955
SCREEN HEEL	RF2B066H		1.5	0.5	1				411.7			1.91	0.23	0.26	221
SCRUBBER HEEL	RF2B065H		10.5	2	8.5				424.1			9.43	0.15	0.17	722
TOTAL					69					1.000748		73.96			28118
FEED										1.258358		73.90		0.67	22345

RUN #27 TROMMEL PROCESSING OF RUN #5 +1/4 INCH MATERIAL

SAMPLE LOCATION	SAMPLE #	REPLICTS	BKT GROSS WEIGHT (LBS)	BKT TARE WEIGHT (LBS)	NET BKT WEIGHT (LBS)	WET SRCC WEIGHT (GRAMS	DRY SRCC WEIGHT (GRAMS)	SRCC TARE WEIGHT (GRAMS)	SRCC NET DRY WEIGHT (GRAMS)	SRCC WATER WEIGHT (GRAMS)	SRCC PERCENT MOISTURE (%)	DRY PROCESS STREAM WEIGHT (LBS)	PROCESS STREAM ACTIVITY (PCI/GM)	ADJUSTED STREAM ACTIVITY (PCI/GM)	PROCESS STREAM ACTIVITY (PCI)
OVERSIZE	RF2B052R		30	0	30				275.4			30.61	0.17	0.16	2261
UNDERSIZE	RF2B053R		4	2	2				83.9			2.18	7.72	6.28	6233
SCREEN HEEL	RF2B067H		1.5	0.5	1				373.8			1.82	0.91	0.98	812
SCRUBBER HEEL	RF2B068H		24.5	2	22.5				380.4			23.34	0.25	0.27	2818
TOTAL					55.5					0.879403		57.95			12124
FEED										0.913991		65.90		0.44	13265

RUN #28 TROMMEL PROCESSING OF RUN #7 +1/4 INCH MATERIAL

SAMPLE LOCATION	SAMPLE #	REPLICTS	BKT GROSS WEIGHT (LBS)	BKT TARE WEIGHT (LBS)	NET BKT WEIGHT (LBS)	WET SRCC WEIGHT (GRAMS	DRY SRCC WEIGHT (GRAMS)	SRCC TARE WEIGHT (GRAMS)	SRCC NET DRY WEIGHT (GRAMS)	SRCC WATER WEIGHT (GRAMS)	SRCC PERCENT MOISTURE (%)	DRY PROCESS STREAM WEIGHT (LBS)	PROCESS STREAM ACTIVITY (PCI/GM)	ADJUSTED STREAM ACTIVITY (PCI/GM)	PROCESS STREAM ACTIVITY (PCI)
OVERSIZE	RF2B068R		58.5	2	56.5				399.2			57.38	0.14	0.15	3945
UNDERSIZE	RF2B054R		7.5	2	5.5				30.6			5.57	52.24	40.36	102021
SCREEN HEEL	RF2B069H		1	0.5	0.5				284.1			1.13	0.12	0.12	61
SCRUBBER HEEL	RF2B070H		20	2	18				398.9			18.88	0.03	0.03	252
TOTAL					80.5					0.983999		82.95			106279
FEED										2.203916		84.30		1.26	48223

PHOTOGRAPHIC RECORDS

Record of Photographs

Film Type: 100 ISO 35mm Date: 4/12/93 Microscopist: Gary Rooks SEM/Petrographic/Stereo Microscope, Photo eyepiece 10X

Photo No.	Specimen Name/Number/Designation	Objective	Magnification	~~Secondary or Backscatter~~	Remarks
01	Untreated thickener.	0.67	6.7 x	✓	exp time 1.45 automatic
02	"	"	"	✓	2 sec. manual over-ride
03	"	"	"	✓	1.88 automatic
04	"	"	"	✓	2.50 manual over-ride
05	Float material at ~1.9 g/cc	4.0	40 x	✓	4.87 automatic
06	"	4.0	40 x	✓	5.0 manual
07	"	.67	6.7 x	✓	~~1.72~~ 1.8 automatic
08	"	.67	6.7 x	✓	2.50 manual
09	Float material at ~2.6 g/cc	.67	6.7 x	✓	1.64 automatic
10	"	.67	6.7 x	✓	2.00 manual
11	"	2.5	25 x	✓	4.09 automatic
12	"	2.5	25 x	✓	5. manual
13	Float material at ~2.9 g/cc	0.67*	6.7X	✓	0.49 auto
14	"	"	"	✓	1.00 manual
15	"	3.0*	30 x	✓	1.00 automatic
16	"	"	"	✓	1.25 manual
17	Sink Material at ~2.9 g/cc	.67*	6.7	✓	0.45 automatic
18	"	"	"	✓	1.00 manual
19	"	4.0	40 x	✓	1.57 automatic
20	"	"	"	✓	2.00 manual
21	Process float organics	0.67	6.7X	✓	1.45 sec auto
22	"	"	"	✓	2.0 manual
23	"	2.0	20 x	✓	2.43 automatic
24	"	"	"	✓	3.2 manual
25	"	0.67	6.7 x	✓	1.96 auto
26	"	"	"	✓	2.50 manual

File Name: FILMFRM2.GAR

Rocky Flats

Record of Photographs

Film Type: 35mm 100 ASO Date: 4/12/93 Microscopist: Gary Rocky SEM/Petrographic/Stereo Microscope, Photo eyepiece 10X

Photo No.	Specimen Name/Number/Designation	Objective	Magnification	~~Secondary or Backscatter~~	Remarks		
01	Untreated thickener	0.67	6.7 K	✓	exp. time 1.45	automatic	Neg. # 00A-0
02	"	"	"	✓	2.5 sec	manual over-ride	0A-1
03	"	"	"	✓	1.88	automatic	1A-2
04	"	"	"	✓	2.50	manual over-ride	2A-3
05	Float material at ~1.9 g/cc	4.0	40 x	✓	4.87	automatic	3A-4
06	"	4.0	40 x	✓	5.0	manual	4A-5
07	"	.67	6.7 x	✓	~~1.72~~ 1.8	automatic	5A-6
08	"	.67	6.7 x	✓	2.50	manual	6A-7
09	Float material at ~2.6 g/cc	.67	6.7 x	✓	1.64	automatic	7A-8
10	"	.67	6.7 x	✓	2.00	manual	8A-9
11	"	2.5	25 x	✓	4.09	automatic	9A-10
12	"	2.5	25 x	✓	5.	manual	10A-11
13	Float material at ~2.9 g/cc	0.67*	67X	✓	0.49	auto	11A-12
14	"	"	"	✓	1.00	manual	12A-13
15	"	3.0*	30 x	✓	1.00	automatic	13A-14
16	"	"	"	✓	1.25	manual	14A-15
17	Sink Material at ~2.9 g/cc	.67*	6.7	✓	0.45	automatic	15A-16
18	"	"	"	✓	1.00	manual	16A-17
19	"	4.0	40 x	✓	1.57	automatic	17A-18
20	"	"	"	✓	2.00	manual	18A-19
21	Process float organics	0.67	6.7X	✓	1.45 sec	auto	19A-20
22	"	"	"	✓	2.0	manual	20A-21
23	"	2.0	20 x	✓	2.43	automatic	21A-22
24	"	"	"	✓	3.2	manual	22A-23
25	"	0.67	6.7 x	✓	1.46	auto	23A-24
26	"	"	"	✓	2.50	manual	24A

File Name: FILMFRM2.GAR

- **PLEASE NOTE**

  The original photographs can be found in copy #1 of this report.

MINERAL JIG

OPTIMIZATION TESTS

REMOVAL OF A PLUTONIUM SURROGATE (BISMUTH) FROM NEVADA TEST SITE SOILS

January 29, 1993

T. K. WENSTRAND

G. G. FOISEL

T. M. MURARIK

J. F. DE MELO

EXECUTIVE SUMMARY

A laboratory scale test using a mineral jig was conducted for the Reynolds Electrical and Engineering Company (REECo) to demonstrate a physical process for removing a plutonium surrogate, bismuth from NTS soil. This report contains data and analysis of the test. The configuration used in the demonstration included gravimetric equipment designed to remove a target material (bismuth) followed by size fractionation of the soil and polymer aided thickening of the fine soil fractions. The demonstration illustrated that volume reduction technologies can be utilized to reduce the volumes of waste which require disposal when the plutonium contaminated soil is processed.

The test shows volume reductions of 39% are achievable on the test soil. Bismuth concentration in the soils was reduced from 80 μg/g to 9 μg/g. Higher volume reductions may be obtainable by further processing of thickener underflow process streams.

Different results may be achieved on actual plutonium contaminated soils. Although bismuth was selected because it has high density, similar to plutonium, it may not perfectly behave the same as plutonium compounds. This test should be viewed as a guide for using the mineral jig on NTS soils. Actual NTS soil contaminated with plutonium must be run through the system to get definitive data.

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Removal of a Plutonium Surrogate (Bismuth)
from Nevada Test Site Soils

1.0 Introduction

A demonstration to remove powdered bismuth (used as a plutonium surrogate) from Nevada Test Site (NTS) soils was performed at the Treatability Test Facility (TTF) located on the Nevada Test Site (NTS). Noncontaminated soil from NTS Area 6 which exhibited similar soil characteristics to the plutonium contaminated soil in Area 11 was collected by Reynolds Electric and Engineering Company (REECo) for the test. Bismuth powder with a tailored particle size distribution was added to the soil and homogeneously mixed in a blender. The gravity separation and selective fractionation equipment used in the test consisted of a trommel, mineral jig, and spiral classifier followed by polymer aided settling in a thickener. The equipment was first fine tuned with magnetite to optimize recoveries followed by testing on soil containing the plutonium surrogate bismuth.

2.0 NTS Area 11 Soils

According to Leavitt (1978), NTS Area 11 is located on the eastern boundary of the Nevada Test Site at an elevation of about 3,400 feet. Soil surveys and their profile descriptions were provided by Leavitt (1978) for the safety shot sites at NTS. Generally, soils ranged in texture from gravelly, loamy sands to stony clays, with the majority of soils on the alluvial fans having deep, well-developed profiles (distinct horizons indicating Quaternary formations), high alkalinity, platy structure (hindering water infiltration), and pH values from 7 to 9. Leavitt further generalized the soils as having a shallow to moderately deep character on uplands and steep alluvial fans, and very deep and coarse textured character on fan lowlands (common in Basin and Range province, F. Peterson, personal communication). Also, Leavitt states that the NTS Area 11 soils are similar to Area 18 soils which are typically brown or light gray, calcareous, and have very gravelly and sandy control sections. The soils are classified as Typic Torriorthents, a member of a sandy skeletal, mixed, nonacid, and mesic family.

The vegetation in Area 11 consists primarily of big sage (Artemisia Tridenata), buckwheat (Eriogonum Maculatum), desert needlegrass (Stipa Speciosa), fourwing saltbush (Atriplex Canescens), small rabbitbrush (Carysothamnus Viscidiflorus), and loco weed (Astragalus Lentiginosus).

3.0 TRUclean Laboratory Test System Description

The TRUclean Laboratory Test System utilized in the demonstration consisted of an integrated assembly of unit operations based on technologies from mineral processing. Two basic principles are exploited: 1) selective particle size fractionation, and 2) gravimetric separation. During the demonstration, the unit operations were reconfigured to address specific soil/sand characteristics. A description of the unit configuration utilized for the NTS soils is described in the following paragraphs and illustrated in Figure 1.

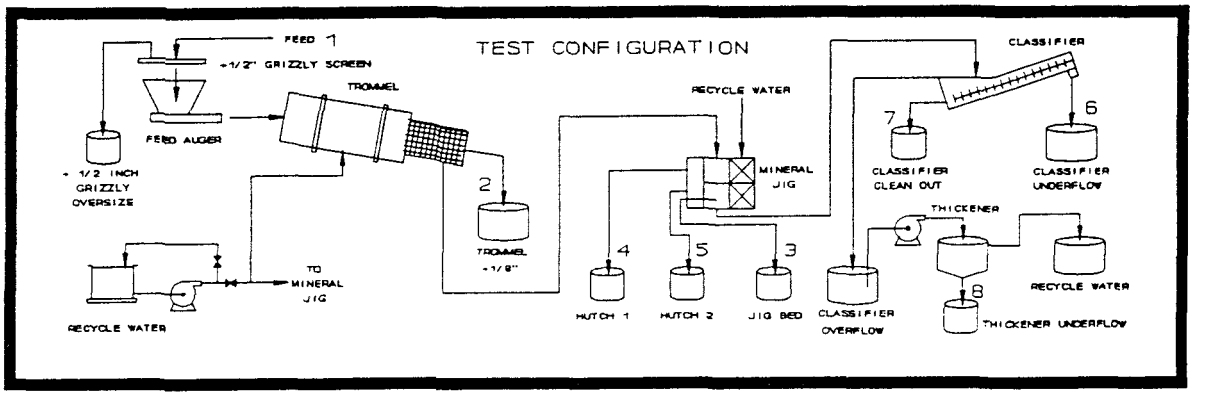


Figure 1 Plutonium Surrogate Test Configuration

During the test run on the NTS soils, the soil to be tested was placed in a feed hopper which contains a 1/2" grizzly screen to remove large stones. The feed hopper then meters the soil to the system at a predetermined rate using a feed auger. Soil from the feed hopper enters the scrubbing section of the rotating trommel. The scrubbing section of the trommel causes gravel, sand, and soil grains to impact against each other, thereby breaking apart agglomerates and washing fine grained material from the larger soil pieces. The scrubbed soil then enters a screening section in the trommel where it is washed with a water spray. The +1/8 inch soil grains are retained on a screen and discharged as a trommel oversize through a chute. The fine soil grains fall through the screen and enter the mineral jig.

The mineral jig basically consists of an open tank which is filled with water. A screen supporting a bed of steel shot is located about 3 inches below the water level. As soil is introduced into the mineral jig, a bed of soil material forms above the steel shot. The bed of soil in the mineral jig is periodically fluidized by action of a pulsating diaphragm. When the diaphragm moves up, it compresses the water cavity and produces an upward pulse of water through the bed, lifting and

opening the bed. Following the upward pulse, the particles in the bed begin to fall and experience separation by differential acceleration. The denser particles of equivalent size accelerate more rapidly than the less dense particles, thus, falling further down. As the downward stroke continues, dense particles are further separated by hindered settling. When the bed compacts, it acts as a heavy slurry and the dense particles continue to settle in the bed. At the end of the downward stroke, intersticial trickling occurs, whereby the dense particles move through the intersticial openings in the bed. As this alternating pulsation action continues, the denser particles preferentially move through the soil bed and supporting steel balls and are collected in the hutch located below the steel balls. The upward flow of water is adjusted so that the dense particles move down and the less dense particles are swept upward. The soil is retained above the bed of steel balls and passes to the discharge end of the mineral jig.

After processing in the mineral jig, the soil is dewatered and sized in a spiral classifier where soil particles larger than about 75 microns are augured up an incline from the water pool in the classifier and collected as a clean product and the fine material is carried from the classifier with the water overflow. The actual separation size is determined by the water flow rate through the classifier, the auger speed, and the classifier pool depth. Soil from the classifier overflow is pumped to a thickener tank where a flocculant is added to promote settling of the solids. The thickened solids are removed from the bottom of the thickener. Clear water overflows the thickener and is used as recycle water in the process.

4.0 System Pretesting

A series of tests were performed on the TRUclean Laboratory Test System to test recoveries prior to running the soil with the plutonium surrogate, bismuth. Fifty grams of sized magnetite was added to a mixture of + 1/8 inch gravel and 590 micron (30 mesh) sand to simulate the Area 11 soils. No silt or clay size particles were used in the soil mixture to minimize time required for mass and magnetite balances for the runs. Magnetite was prepared for the tests by dry sieving the material in size ranges of 45 - 75 microns, 75 - 150 microns, and 150 - 300 microns. This provided three specific size ranges of magnetite and allowed evaluation of operating parameters against particle size being recovered. Particle size distribution of the magnetite is shown in Appendix 1. Magnetite was used because it provided a quick and easy way to analyze how the material proceeded through the various process flow streams (it could be recovered with a magnet).

All runs were performed following Standard Operating Procedures (SOPs) which included specific instructions for operating the equipment used in the test. Operating parameters, process stream weights, and magnetite recoveries were recorded on run sheets for each test run performed.

Thirty mesh sand recovered from the classifier underflow and gravel from the +1/8 inch trommel streams were collected in containers, dried by solar evaporation, and weighed. Magnetite from a sample of the classifier underflow was recovered by passing the material over a magnet to remove the magnetic portion of the sample. The magnetic portion of the sample was subsequently passed through 150, 75, and 45 micron sieves to separate the magnetite by size fractions. The size fraction representing that of the original spike was weighed to determine residual magnetite in the classifier underflow.

Concentrates collected in the hutches and classifier cleanout were collected in containers, dried in an oven at 105° C, and weighed. The entire contents of the sample were passed over a magnet to remove the magnetite. The magnetic portion of the sample was passed through 150, 75, and 45 micron sieves, followed by weight determination of the sieve fractions. Following each run, the system was allowed to operate an additional 15 minutes after feed was exhausted. This allowed the 30 mesh sand in the jig bed to be drawn through the artificial steel shot bed and collected in the hutches. This procedure resulted in the addition of approximately 1.7 Kg of mass in each of the hutch masses. Results of the magnetite test runs and operating parameters are found in Appendix 2.

Magnetite recoveries in the mass balance were below the mass added to the feed. By removing the steel shot from the mineral jig and thoroughly washing the shot, three to five grams of magnetite were recovered. The magnetite mass losses are most likely attributed to retention in the mineral jig shot and hutch horizontal surfaces.

During these test runs the following parameters were evaluated to maximize recoveries:

1. Hutch flow rates
2. Magnetite particle size
3. Trommel flow rate
4. Feed rate
5. Stroke length of mineral jig
6. Stroke frequency of mineral jig

The magnetite test runs were examined to determine the operating parameters which recovered the highest quantity of magnetite and had the lowest quantity of magnetite in the classifier underflow.

Based on the magnetite testing, the following operating parameters were selected as the initial settings for the bismuth testing:

Soil feed rate = 68.4 Kg/hr
Trommel flow rate = 20.0 l/m
Hutch 1 flow rate = 11.4 l/m
Hutch 2 flow rate = 11.4 l/m
Jig ragging = 4.7 mm steel shot
Mineral jig stroke = 0.635 cm
Mineral jig stroke frequency = 150 c/m

5.0 Preparation of Soil and Plutonium Surrogate

A soil sample was obtained by REECo from a noncontaminated portion of the NTS which represented the soil profile of the plutonium contaminated soil in Area 11. The soil was screened to -1/4 inches when transferred into drums to remove the large gravel and cobbles. The drums of noncontaminated soil were then transferred to the TTF for addition of surrogate and testing. The noncontaminated soil was placed in a pug mill (twin screw blender) and scheelite added at one end of the pug mill. The soil was blended in the mill until a uniform fluorescence was observed by a black light in the soil. The soil was then transferred from the pug mill back to the drums for storage.

The bismuth surrogate was prepared at the University of Nevada Reno (UNR) by grinding bismuth needles and sieving the material at 75 - 150 and 20 - 38 microns. The plutonium surrogate soil sample was prepared by REECo utilizing a V blender to mix the bismuth into the noncontaminated Area 11 soils. Appropriate quantities of each size fraction were mixed with the NTS soils to obtain a concentration of 40 ppm Bi for each size fraction, resulting in a total Bi concentration of 80 ppm in the soil.

6.0 Surrogate Test Procedure

Prior to implementing the tests, a test plan was developed by AWC (Wenstrand 1992). The purpose of the test plan was to establish a test sequence which will maximize both the activity (or surrogate) removed from the test soils and the volume of soils decontaminated by the test

process. The test plan described the test configurations which are utilized during the tests along with sample locations, sample frequencies, sampling methods, and measurements required on samples to obtain all necessary information to evaluate equipment performance.

The test configuration used in the surrogate test runs consisted of the baseline test configuration which evaluates minimal feed preparation in a trommel screen, gravity separation by a mineral jig, size fractionation by a spiral classifier, and polymer assisted settling of suspended solids in a thickener. The baseline test configuration is graphically depicted in Figure 1.

Each unit operation in the test system was controlled utilizing Standard Operating Procedures (SOP). Data collected during the test runs was recorded manually on run sheets, as required by the SOP. Two test runs (13 and 14) were performed on the NTS soil containing bismuth. Run 13 sampled only Hutch 1 and the spiral classifier underflow and was considered "shake down" for the new soil type. Run 14 utilized the sampling program described below.

Soil samples were obtained at several points in order to evaluate performance of system components and to obtain a mass balance of the surrogate bismuth in the process streams. The sampling points and methods for sample collection are listed below.

Feed Stream:	Three samples were taken at evenly spaced time intervals from feed and composited into one sample.
Trommel Oversize (>1/8")	Three samples were taken at evenly spaced time intervals from discharge chute.
Jig Bed (<1/8"):	One sample was taken from each jig bed following the run.
Hutch 1 (<1/8"):	Three samples were taken at evenly spaced time intervals from Hutch 1 spigot.
Hutch 2 (<1/8"):	Three samples were taken at evenly spaced time intervals from Hutch 2 spigot.
Classifier Underflow (>75 Micron, <1/8"):	Three samples were taken at evenly spaced time intervals from classifier discharge chute.
Classifier Cleanout (<1/8"):	The entire contents of classifier cleanout was retained and one sample taken for analysis.
Thickener (<75 Microns):	The entire contents of thickener was retained and one sample taken for analysis.

This sampling strategy was based on approximately 49.0 Kg of dry soil as feed input.

Following sampling, each sample was sieved at +45 and -45 micron to separate the sized surrogate which reported to each process stream. The +45 and -45 micron fractions were submitted to REECo laboratories for analysis. The 45 micron separation size was selected as a decisive separation point between the two bismuth particle sizes added to the feed. The 45 microns also corresponds to the expected lower recovery limits of the mineral jig, as indicated in the magnetite testing.

7.0 Results

Table 1 shows a summary of the test results on the recovery of plutonium surrogate (bismuth) from the NTS soils. Specific calculations for the mass balance are shown in Figure 2 relative to their sampling points. Three concentrating points were observed during the test. The larger bismuth particles (75 - 150 micron) were concentrated in Hutch 1 at an average concentration of 455 ppm and the 20 - 38 micron particles in the classifier cleanout (3011 ppm). Additional concentration of the 20 - 38 micron bismuth (410 ppm) was found in Hutch 2. Hutch 1 represents a 10 fold increase in concentration of the 75 - 150 micron bismuth which was introduced at a feed concentration of 40 ppm. The 20 - 38 micron bismuth particles were concentrated by x 10 and x 75 in Hutch 2 and the classifier cleanout, respectively.

Recovery of the <45 micron bismuth was 1.99 grams compared with a calculated 1.96 grams based on a concentration of 40 ppm. Only 1.08 grams of the >45 micron bismuth was recovered compared with a calculated 1.96 grams in the feed. The missing bismuth is probably retained in the steel shot and hutch as was found in the magnetite runs. It should also be noted that the Hutch 1 concentration of bismuth increases as the run progresses (250 ppm, 485 ppm, and 620 ppm). This indicates that there may be a time lag for the bismuth to pass through the steel shot and reach the hutch discharge. Longer run times with larger soil volumes would allow evaluation of this trend and probably reduce variations observed between samples.

The total bismuth concentration was reduced from 80 ppm to 1.65 ppm (98% decrease) in the +1/8 inch trommel size fraction and from 80 ppm to 9.38 ppm in the classifier underflow (88% decrease). The higher concentration of the classifier underflow relative to the +1/8 inch trommel can be anticipated as a result of the high concentration of 20 - 38 micron bismuth which resided in the pool of the classifier (classifier cleanout sample). During the test run, a portion of the classifier heal would be carried up the incline with the classifier underflow. Sample results for test

runs 13 and 14 are found in Appendix 3. The particle size graphs in Appendix 3 show the distribution of particles in the feed and the classifier underflow. As seen by the second graph, the classifier fractionation point was about 75 microns. This is based on a comparison of the surrogate soil and the classifier underflow particle size analysis as shown in Appendix 3.

A total of 47.5 Kg of soil was recovered as compared to 49 Kgs of soil feed to the test system. The missing 1.5 Kg of soil was consumed by samples taken during the test run or can be accounted for by small variations on moisture content of soils.

The mineral jig has a good recovery for particles which exceed 75 microns in size, as indicated by the magnetite runs. The jig recovery starts to drop as particle size approaches 45 microns and is ineffective below 45 microns. It was anticipated that concentrating points for the 75 - 150 micron bismuth would be in the jig hutches and the 20 - 38 micron bismuth would be carried over the jig tail and concentrate in the classifier cleanout and thickener tank. Examination of the data obtained in this test indicates this theoretical prediction occurred. Application of the mineral jig should be limited to economically processing large volumes of soils which contain dense contaminants above 45 microns in particle size. Once the larger soil volumes are treated, the small fractions containing the <45 micron contaminants are subjected to methods designed specifically to remove the <45 micron contaminants.

Based on previous work by AWC, the process streams from this run were divided into "clean" streams and "concentrate" streams as shown in Table 1.

Table 1 Bismuth and Soil Mass Balance

	CLEAN STREAM		CONCENTRATE STREAM	
	Soil Mass (Kgs)	Surrogate Mass (Gm)	Soil Mass (Kgs)	Surrogate Mass (Gm)
Trommel +1/8"	0.828	0.001	—	—
Jig Bed #1	1.693	0.016	—	—
Jig Bed #2	1.693	0.016	—	—
Hutch #1	—	—	2.108	0.914
Hutch #2	—	—	0.362	0.012
Classifier Underflow	13.600	0.127	—	—
Classifier Cleanout	0.823	0.008	—	0.305
Thickener Underflow	—	—	26.400	1.705
Totals	18.637	0.168	28.870	2.936

The listing of the trommel +1/8" and classifier underflow in the "clean" stream columns is obvious because of their low concentrations of bismuth. The two jig beds and classifier cleanout are also listed in the "clean" stream column since they represent process heals. As the volume of soil processed through the system increases, the heal masses remain constant and become infinitesimally small compared to the total mass processed. For the purposes of the test, it is necessary to add the heal masses to the clean volume to adequately represent them at larger throughput. These streams would have become part of the classifier underflow so they were assigned the same concentrations of bismuth as the classifier underflow. This results in an estimated bismuth inventory of 0.016 grams in the two jig beds and 0.008 grams in the classifier cleanout for an extended run. In an operating process, the classifier cleanout can be periodically removed as a concentrate.

Based on the above analysis, the calculated volume reduction would be:

$$\frac{18.637}{18.637 + 28.870} = 39.2\%$$

This figure does not include the mass of +1/4" gravels and cobbles removed in the field. If 40% of the sample remains in the field, the overall volume reduction would increase substantially.

Based on the analysis of the bismuth, 1.705 grams of bismuth were collected in the thickener tank. This process stream could be treated with a specific separation device to further concentrate the 20 - 38 micron bismuth. This represents an 85.6% recovery of the 20 - 38 micron bismuth for further treatment.

8.0 Recommendations

As a result of the characterization work and testing performed in this project, the following recommendations for further study are offered.

1. The test material used in the TTF has been sized to -1/4". In order to determine the overall volume reductions which can be anticipated in a field test, the volume ratio of +1/4" and -1/4" material needs to be determined. The activity levels in the +1/4" fraction remaining in the field should be determined to ascertain if treatment of this fraction is required.

2. Testing should be continued on actual plutonium contaminated material from Area 11. Murarik, et al (1991) reports the existence of plutonium particles attached to sand grains, which would reduce recovery rates relative to the bismuth studies.

3. Sample mass should be included in future mass balance in an attempt to account for the missing 3% mass.

4. Based on the variation in sample results, a larger volume of plutonium contaminated soil should be processed to obtain a steady operational state for the test system.

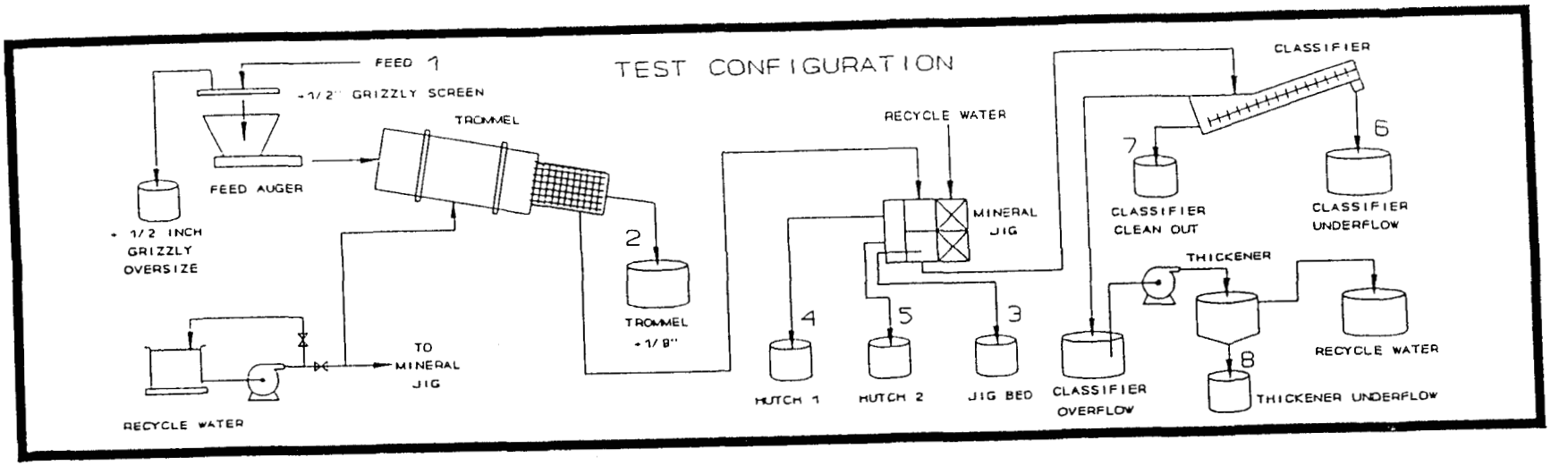


Figure 2 Plutonium Surrogate Test Results (Run 14)

Process Stream	Total Mass (Kg)	Surrogate Conc. <45 Micron (μg/gm)	Surrogate Conc. >45 Micron (μg/gm)	Particle Size (Sieve) <45 Micron (%)	Particle Size (Sieve) >45 Micron (%)	Size Fraction Mass <45 Micron (Kg)	Size Fraction Mass >45 Micron (Kg)	Surrogate Mass <45 Micron (Grams)	Surrogate Mass >45 Micron (Grams)	Surrogate Conc. (PPM)
Feed	49.000							1.96	1.96	80
Trommel +1/8"	0.828	118.33	0.08	1.33	98.67	0.011	0.817	0.001	0.000	1.65
Jig Bed #1	1.693	380	0	0.2	99.8	0.003	1.690	0.001	0.000	0.76
Jig Bed #2	1.693	890	0	0.2	99.8	0.003	1.690	0.003	0.000	1.78
Hutch #1	2.108	142.3	455	6.8	93.2	0.143	1.965	0.020	0.894	433.74
Hutch #2	0.362	415.7	13.9	4.61	95.39	0.017	0.345	0.007	0.005	32.42
Classifier Underflow	13.600	125.3	1.84	6.11	93.89	0.831	12.769	0.104	0.023	9.38
Classifier Cleanout	0.823	3011	210	6.11	93.89	0.050	0.773	0.151	0.162	361.14
Thickener Underflow	26.400	95	0	67.99	32.01	17.949	8.451	1.705	0	64.59
Totals	47.507					19.007	28.500	1.992	1.084	

References

Leavitt, V.D. 1978. Soil Surveys and Profile Descriptions of Plutonium-Contaminated Areas on the Test Range Complex in Nevada, 1970 - 1977. In: NVO-192;Selected Environmental Plutonium Research Reports of the NAEG, vol. 1. Pgs. 253-263. Nevada Applied Ecology Group. NTIS. Springfield, VA.

Wenstrand, T.K. 1992. Test Plan for the Nevada Test Site Soils. AWC. July 21, 1992.

Murarik, T.M., Wenstrand, T.K., Hall, G.F. Nature of Plutonium in Soil Systems, NTS & TTR Safety Shot Residues. November 1991. AWC-Lockheed. Las Vegas, NV.

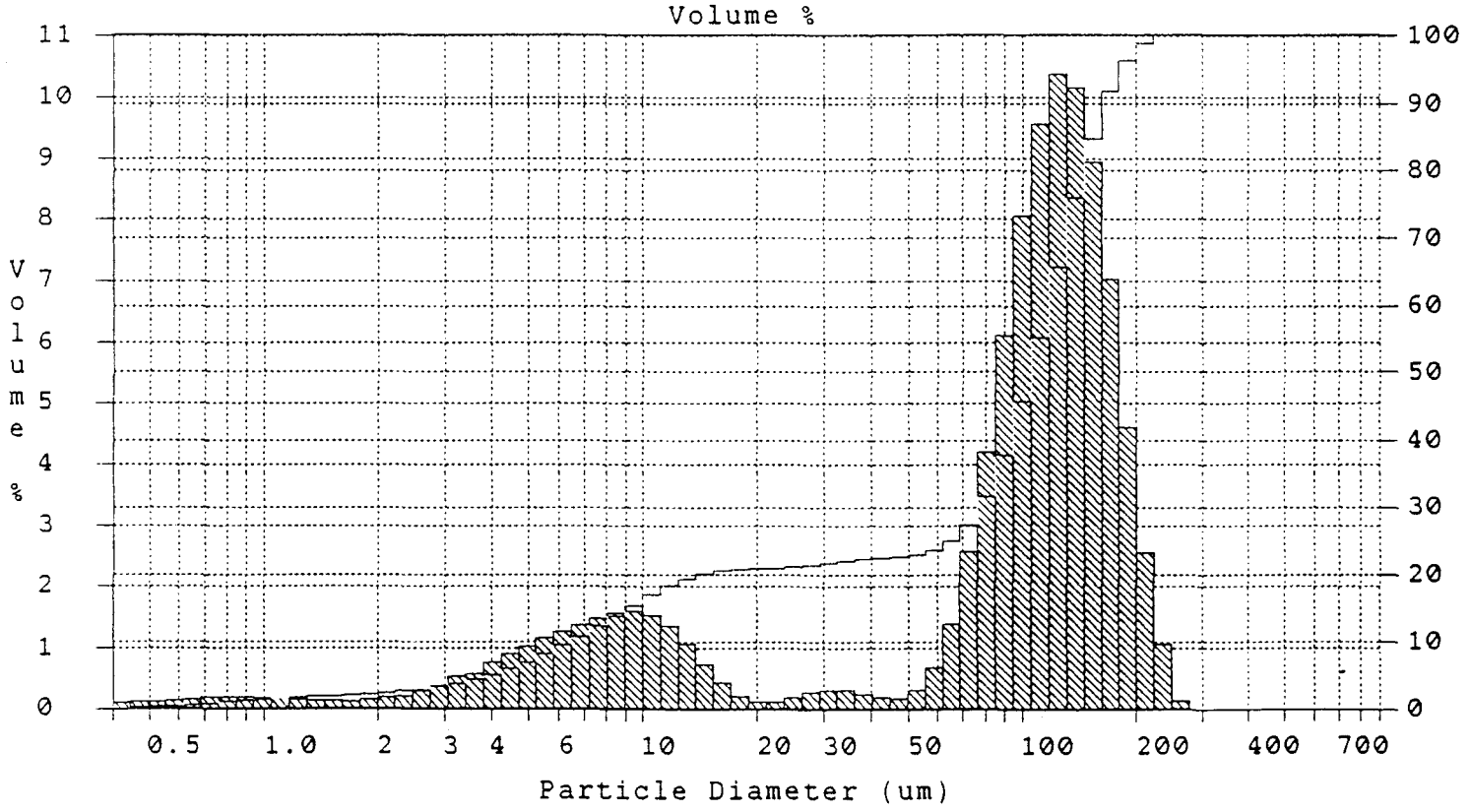
APPENDIX 1

COULTER[R] LS Particle Size Analysis 14:29 29 Dec 199

PUID.$28

Filename:	PUID.$28	Group ID:	PUID
Sample ID:	75- 150 Magnetite	Run number:	6
Operator:	Jerry Foisel, LESAT		
Comments:	This magnetite was milled in our rotary tumbler and then dry sieved on 09-16-92. It was taken out of a 6 oz. Nalgene bottle.		
Start time:	14:27 29 Dec 1992		
Run length:	61 Seconds		
Pump Speed:	75		
Obscuration:	10%		
Optical model:	Fraunhofer		

PC: Version 1.44 14:20 Wed Jan 30 1991



COULTER[R] LS Particle Size Analysis 14:30 29 Dec 199.

PUID.$28

Volume Statistics (Arithmetic) PUID.$28

Calculations from 0.40 um to 900.00 um

Volume	100.0	%			
Mean:	102.4	um	95% Conf. Limits:	90.52-114.3	um
Median:	110.9	um	Std. Dev.:	60.59	um
Mean/Median Ratio:	0.923		Variance:	3671	um^2
Mode:	123.9	um	Coef. Var.:	59.17	%
			Skewness: -0.238 Left skewed		
			Kurtosis: -0.743 Platykurtic		

% >	10.00	25.00	50.00	75.00	90.00
Size um	175.9	144.4	110.9	69.33	6.855

Volume %	Particle Diameter um >
10.0	175.89
25.0	144.41
50.0	110.89
75.0	69.33
90.0	6.85

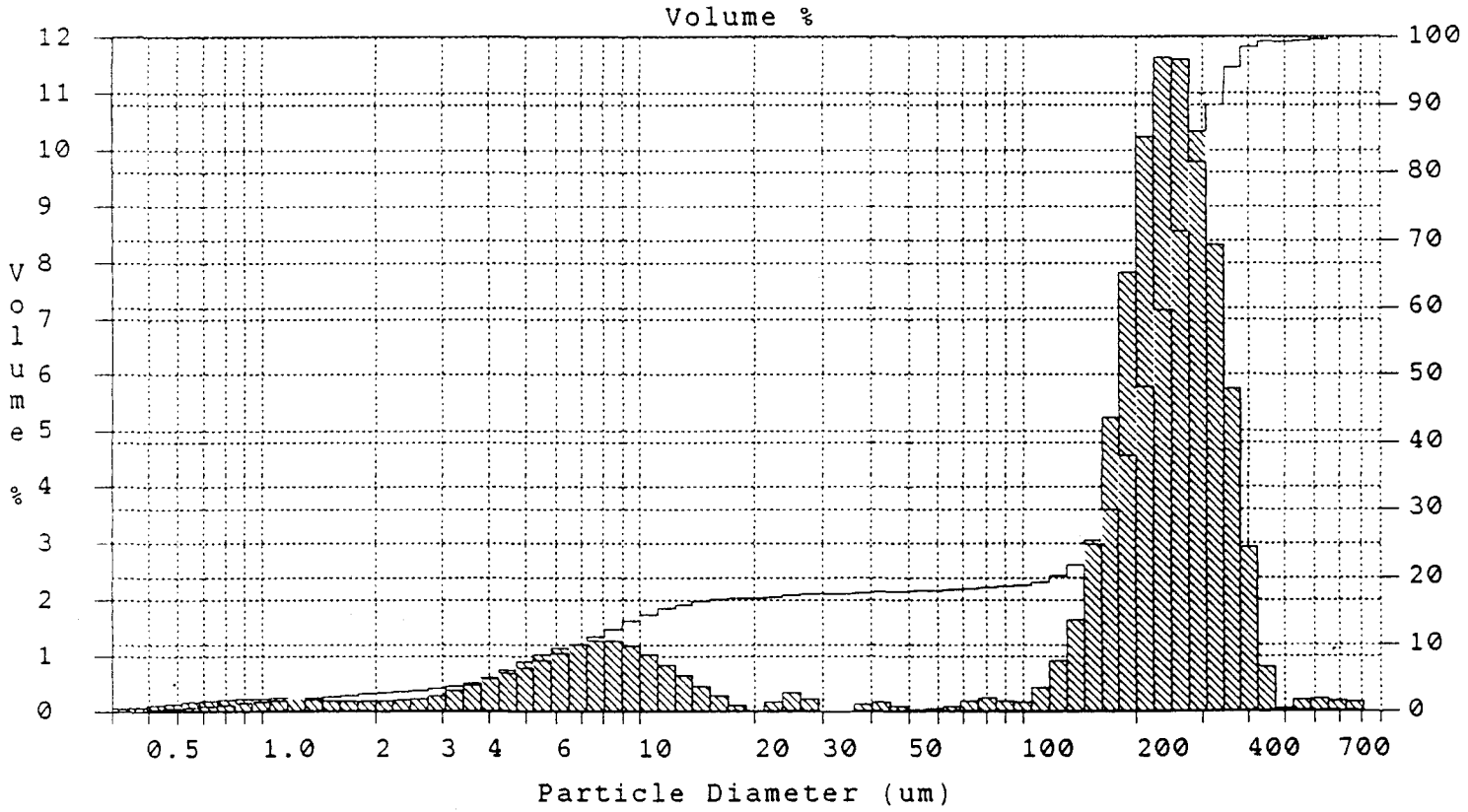
Particle Diameter um	Volume %	Particle Diameter um	Volume %	Particle Diameter um	Volume %
0.40	0.10	7.23	1.47	130.68	10.15
0.45	0.11	8.05	1.55	145.46	8.92
0.50	0.11	8.96	1.58	161.93	7.03
0.55	0.14	9.97	1.52	180.25	4.61
0.61	0.15	11.10	1.34	200.65	2.54
0.68	0.17	12.36	1.06	223.35	1.05
0.76	0.18	13.76	0.73	248.63	0.13
0.85	0.18	15.31	0.42	276.76	0.00
0.94	0.17	17.04	0.21	308.08	0.00
1.05	0.16	18.97	0.11	342.94	0.00
1.17	0.15	21.12	0.12	381.75	0.00
1.30	0.14	23.51	0.19	424.95	0.00
1.45	0.12	26.17	0.27	473.04	0.00
1.61	0.12	29.13	0.31	526.57	0.00
1.79	0.14	32.43	0.30	586.15	0.00
2.00	0.19	36.10	0.24	652.48	0.00
2.22	0.20	40.18	0.18	726.32	0.00
2.47	0.28	44.73	0.16	808.51	0.00
2.75	0.37	49.79	0.30		
3.07	0.52	55.43	0.67		
3.41	0.57	61.70	1.37		
3.80	0.75	68.68	2.56		
4.23	0.89	76.46	4.18		
4.71	1.02	85.11	6.09		
5.24	1.15	94.74	8.03		
5.83	1.25	105.46	9.55		
6.49	1.36	117.39	10.37		

COULTER[R] LS Particle Size Analysis 14:09 29 Dec 199

PUID.$27

Filename:	PUID.$27	Group ID:	PUID
Sample ID:	150-300 um Magnetite	Run number:	5
Operator:	Jerry Foisel, LESAT		
Comments:	This magnetite was milled in our rotary tumbler and then dry sieved on 09-16-92. It was taken out of a 6 oz. Nalgene bottle.		
Start time:	14:07 29 Dec 1992		
Run length:	60 Seconds		
Pump Speed:	75		
Obscuration:	11%		
Optical model:	Fraunhofer		

PC: Version 1.44 14:20 Wed Jan 30 1991



COULTER[R] LS Particle Size Analysis 14:09 29 Dec 199

PUID.$27

Volume Statistics (Arithmetic) PUID.$27

Calculations from 0.40 um to 900.00 um

Volume	100.0	%			
Mean:	211.9	um	95% Conf. Limits:	188.4-235.3	um
Median:	227.7	um	Std. Dev.:	119.8	um
Mean/Median Ratio:	0.930				
Mode:	235.6	um	Variance:	14357	um^2
			Coef. Var.:	56.56	%

Skewness: -0.110 Left skewed
Kurtosis: 0.636 Leptokurtic

% >	10.00	25.00	50.00	75.00	90.00
Size um	344.2	288.3	227.7	162.8	7.370

Volume %	Particle Diameter um >
10.0	344.22
25.0	288.28
50.0	227.74
75.0	162.80
90.0	7.37

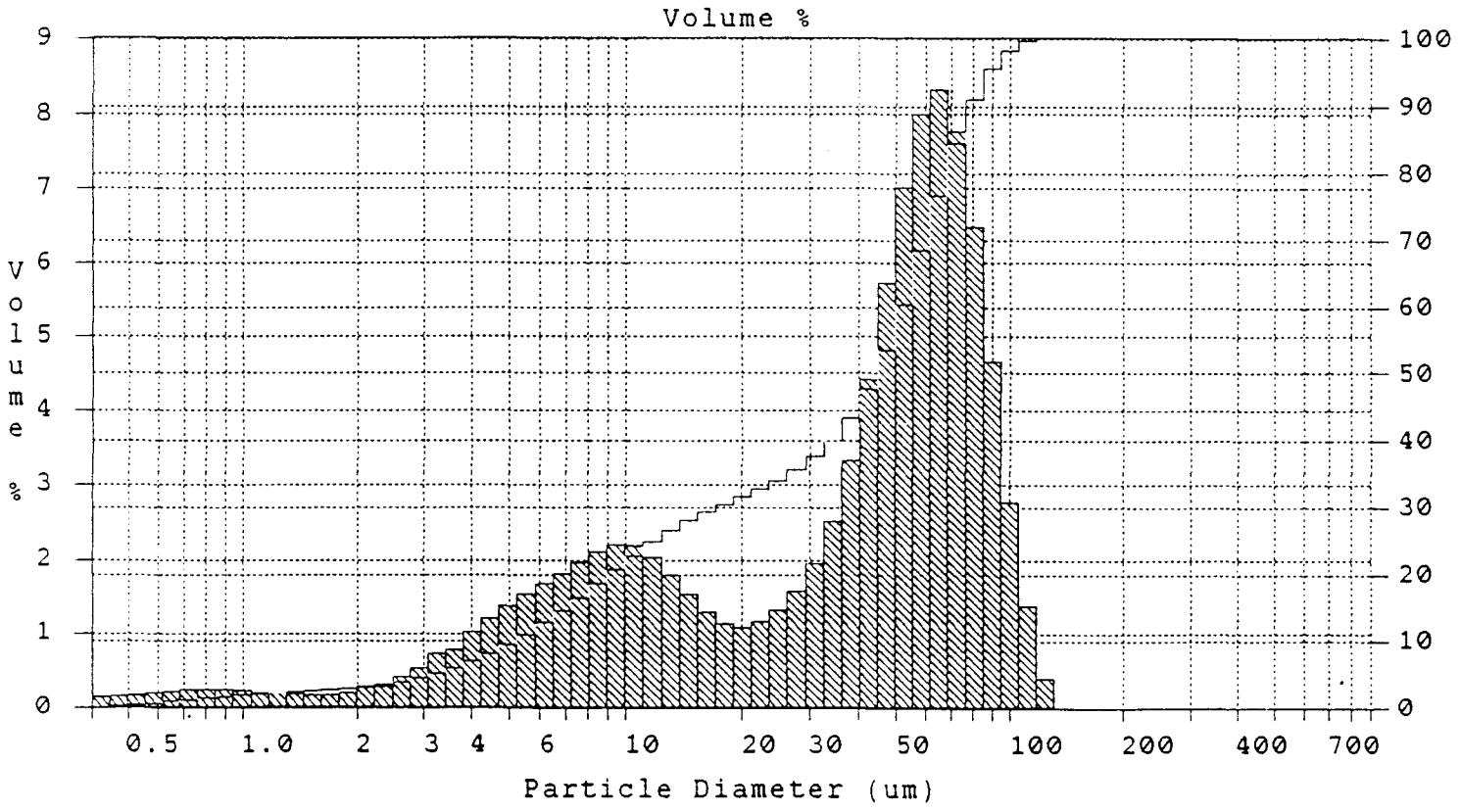
Particle Diameter um	Volume %	Particle Diameter um	Volume %	Particle Diameter um	Volume %
0.40	0.05	7.23	1.26	130.68	1.64
0.45	0.06	8.05	1.26	145.46	3.04
0.50	0.11	8.96	1.17	161.93	5.21
0.55	0.13	9.97	1.01	180.25	7.81
0.61	0.16	11.10	0.82	200.65	10.21
0.68	0.18	12.36	0.63	223.35	11.64
0.76	0.20	13.76	0.45	248.63	11.59
0.85	0.22	15.31	0.27	276.76	10.31
0.94	0.22	17.04	0.10	308.08	8.29
1.05	0.23	18.97	0.02	342.94	5.72
1.17	0.21	21.12	0.16	381.75	2.91
1.30	0.21	23.51	0.32	424.95	0.78
1.45	0.19	26.17	0.21	473.04	0.04
1.61	0.18	29.13	0.00	526.57	0.19
1.79	0.17	32.43	0.00	586.15	0.22
2.00	0.18	36.10	0.12	652.48	0.17
2.22	0.19	40.18	0.15	726.32	0.16
2.47	0.23	44.73	0.09	808.51	0.00
2.75	0.28	49.79	0.04		
3.07	0.36	55.43	0.05		
3.41	0.47	61.70	0.09		
3.80	0.59	68.68	0.17		
4.23	0.73	76.46	0.23		
4.71	0.88	85.11	0.18		
5.24	1.02	94.74	0.17		
5.83	1.12	105.46	0.43		
6.49	1.20	117.39	0.90		

COULTER[R] LS Particle Size Analysis 14:44 29 Dec 199

PUID.$29

Filename:	PUID.$29	Group ID:	PUID
Sample ID:	45-75 um Magnetite	Run number:	7
Operator:	Jerry Foisel, LESAT		
Comments:	This magnetite was milled in our rotary tumbler and then dry sieved on 09-16-92. It was taken out of a 6 oz. Nalgene bottle.		
Start time:	14:43 29 Dec 1992		
Run length:	60 Seconds		
Pump Speed:	75		
Obscuration:	10%		
Optical model:	Fraunhofer		

PC: Version 1.44 14:20 Wed Jan 30 1991



COULTER[R] LS Particle Size Analysis 14:45 29 Dec 199

PUID.$29

Volume Statistics (Arithmetic) PUID.$29

Calculations from 0.40 um to 900.00 um

Volume	100.0	%			
Mean:	44.46	um	95% Conf. Limits:	38.56-50.35	um
Median:	46.84	um	Std. Dev.:	30.09	um
Mean/Median Ratio:	0.949				
Mode:	65.10	um	Variance:	905.3	um^2
			Coef. Var.:	67.68	%

Skewness: 0.179 Right skewed
Kurtosis: -0.985 Platykurtic

% >	10.00	25.00	50.00	75.00	90.00
Size um	83.96	67.31	46.84	12.60	5.503

Volume %	Particle Diameter um >
10.0	83.96
25.0	67.31
50.0	46.84
75.0	12.60
90.0	5.50

Particle Diameter um	Volume %	Particle Diameter um	Volume %	Particle Diameter um	Volume %
0.40	0.14	7.23	1.96	130.68	0.00
0.45	0.15	8.05	2.09	145.46	0.00
0.50	0.16	8.96	2.18	161.93	0.00
0.55	0.19	9.97	2.17	180.25	0.00
0.61	0.20	11.10	2.02	200.65	0.00
0.68	0.23	12.36	1.78	223.35	0.00
0.76	0.24	13.76	1.51	248.63	0.00
0.85	0.24	15.31	1.27	276.76	0.00
0.94	0.22	17.04	1.12	308.08	0.00
1.05	0.20	18.97	1.08	342.94	0.00
1.17	0.19	21.12	1.14	381.75	0.00
1.30	0.17	23.51	1.30	424.95	0.00
1.45	0.16	26.17	1.56	473.04	0.00
1.61	0.16	29.13	1.94	526.57	0.00
1.79	0.19	32.43	2.50	586.15	0.00
2.00	0.26	36.10	3.32	652.48	0.00
2.22	0.28	40.18	4.41	726.32	0.00
2.47	0.40	44.73	5.72	808.51	0.00
2.75	0.52	49.79	7.00		
3.07	0.72	55.43	7.98		
3.41	0.78	61.70	8.32		
3.80	1.01	68.68	7.76		
4.23	1.18	76.46	6.47		
4.71	1.35	85.11	4.64		
5.24	1.51	94.74	2.76		
5.83	1.65	105.46	1.35		
6.49	1.79	117.39	0.38		

APPENDIX 2

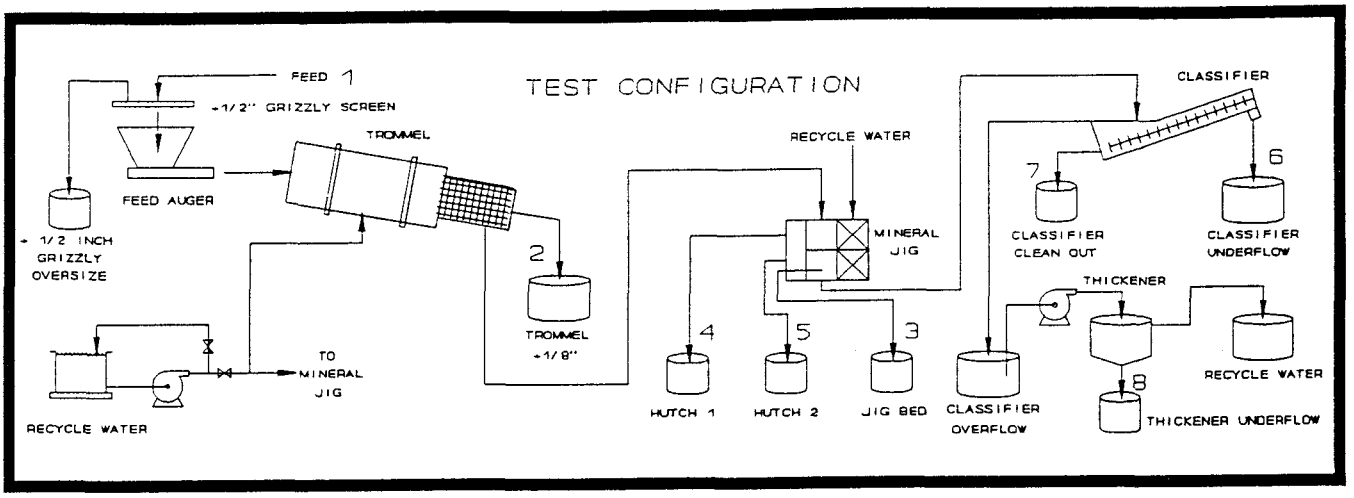


Figure 1 Plutonium Surrogate Test Configuration

RUN 2

PROCESS STREAM		DRY MASS (g)	MAGNETITE MASS (g)
1	Feed	31,700.00	---
2	Trommel Oversize	4,100.00	---
3-1	Jig Bed 1	0.00	---
3-2	Jig Bed 2	0.00	---
4	Hutch 1	6,700.00	---
5	Hutch 2	0.00	---
6	Classifier Underflow	18,800.00	---
7	Classifier Cleanout	0.00	---
8	Thickener Underflow	0.00	---
	TOTALS	29,600.00	---

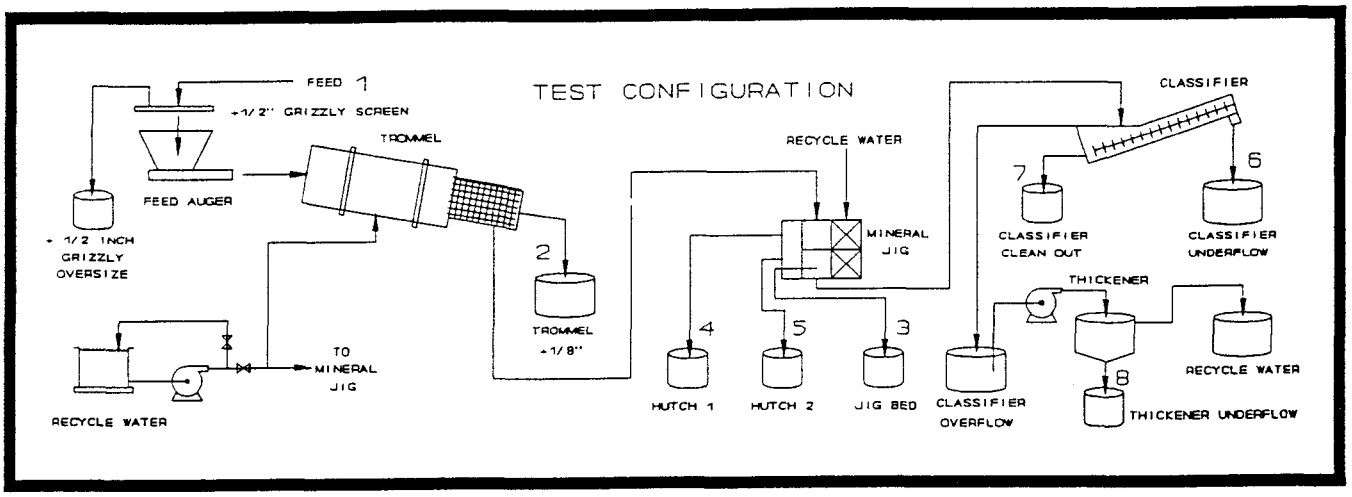


Figure 1 Plutonium Surrogate Test Configuration

RUN 3 (150 - 300 μ Magnetite)

PROCESS STREAM		DRY MASS (g)	MAGNETITE MASS (g)
1	Feed	30,800.00	50.0
2	Trommel Oversize	4,400.00	0.00
3-1	Jig Bed 1	0.00	0.00
3-2	Jig Bed 2	0.00	0.00
4	Hutch 1	2,360.00	31.60
5	Hutch 2	2,487.00	3.90
6	Classifier Underflow	12,000.00	0.18
7	Classifier Cleanout	1,203.00	1.10
8	Thickener Underflow	0.00	0.00
	TOTALS	22,450.00	36.78

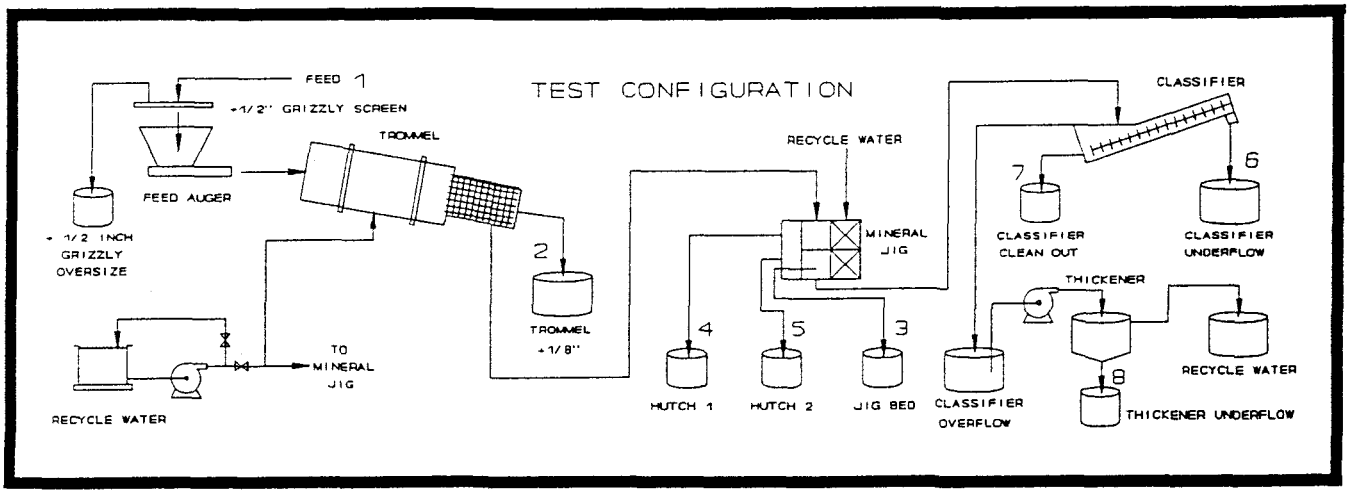


Figure 1 Plutonium Surrogate Test Configuration

RUN 4 (150 - 300 μ Magnetite)

PROCESS STREAM		DRY MASS (g)	MAGNETITE MASS (g)
1	Feed	25,900.00	50.0
2	Trommel Oversize	5,900.00	0.00
3-1	Jig Bed 1	0.00	0.00
3-2	Jig Bed 2	0.00	0.00
4	Hutch 1	6,986.28	39.74
5	Hutch 2	3,991.89	2.38
6	Classifier Underflow	7,900.00	<0.01
7	Classifier Cleanout	1,120.00	0.34
8	Thickener Underflow	0.00	0.00
	TOTALS	25,898.17	42.47

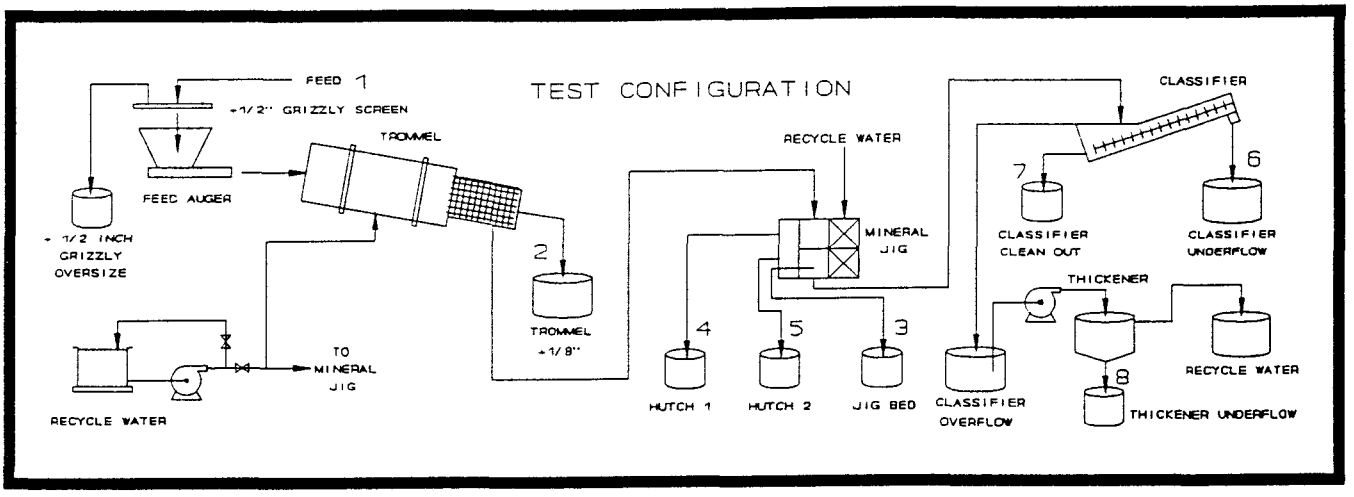


Figure 1 Plutonium Surrogate Test Configuration

RUN 5 (150 - 300 μ Magnetite)

PROCESS STREAM		DRY MASS (g)	MAGNETITE MASS (g)
1	Feed	26,900.00	50.0
2	Trommel Oversize	5,400.00	0.00
3-1	Jig Bed 1	0.00	0.00
3-2	Jig Bed 2	0.00	0.00
4	Hutch 1	6,990.00	38.88
5	Hutch 2	3,780.00	2.46
6	Classifier Underflow	9,800.00	<0.01
7	Classifier Cleanout	923.00	0.28
8	Thickener Underflow	0.00	0.00
	Classifier Overflow	128.00	<0.01
	TOTALS	27,021.00	41.64

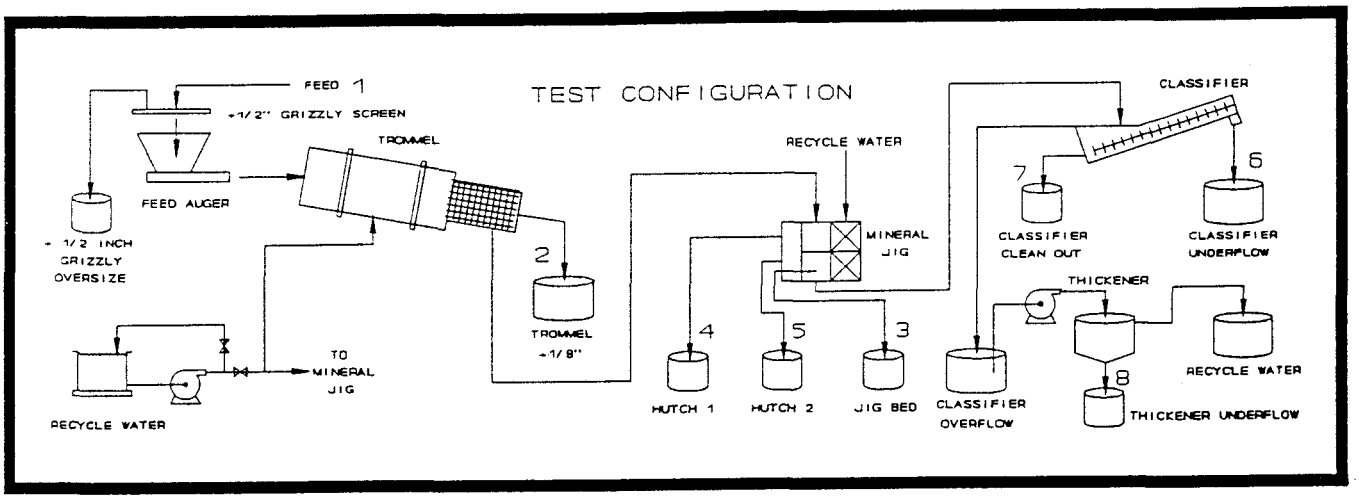


Figure 1 Plutonium Surrogate Test Configuration

RUN 6 (150 - 300 μ Magnetite)

PROCESS STREAM		DRY MASS (g)	MAGNETITE MASS (g)
1	Feed	26,900.00	50.0
2	Trommel Oversize	5,700.00	0.00
3-1	Jig Bed 1	0.00	0.00
3-2	Jig Bed 2	0.00	0.00
4	Hutch 1	6,477.87	41.70
5	Hutch 2	3,215.04	3.10
6	Classifier Underflow	10,100.00	<0.01
7	Classifier Cleanout	1,232.29	0.41
8	Thickener Underflow	0.00	0.00
	TOTALS	26,725.20	45.22

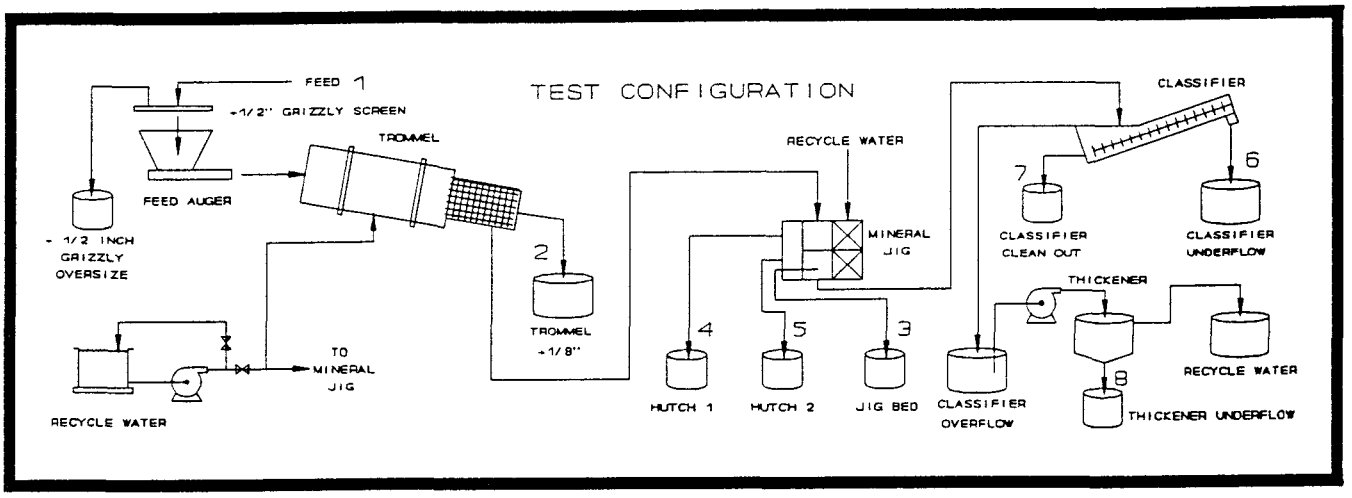


Figure 1 Plutonium Surrogate Test Configuration

RUN 7 (75 - 150 μ Magnetite)

PROCESS STREAM		DRY MASS (g)	MAGNETITE MASS (g)
1	Feed	27,500.00	50.0
2	Trommel Oversize	6,100.00	0.00
3-1	Jig Bed 1	0.00	0.00
3-2	Jig Bed 2	0.00	0.00
4	Hutch 1	5,817.70	28.90
5	Hutch 2	3,021.70	4.60
6	Classifier Underflow	9,100.00	<0.50
7	Classifier Cleanout	1,228.30	1.70
8	Thickener Underflow	0.00	0.00
	Classifier Overflow	118.70	0.00
	TOTALS	25,386.40	35.70

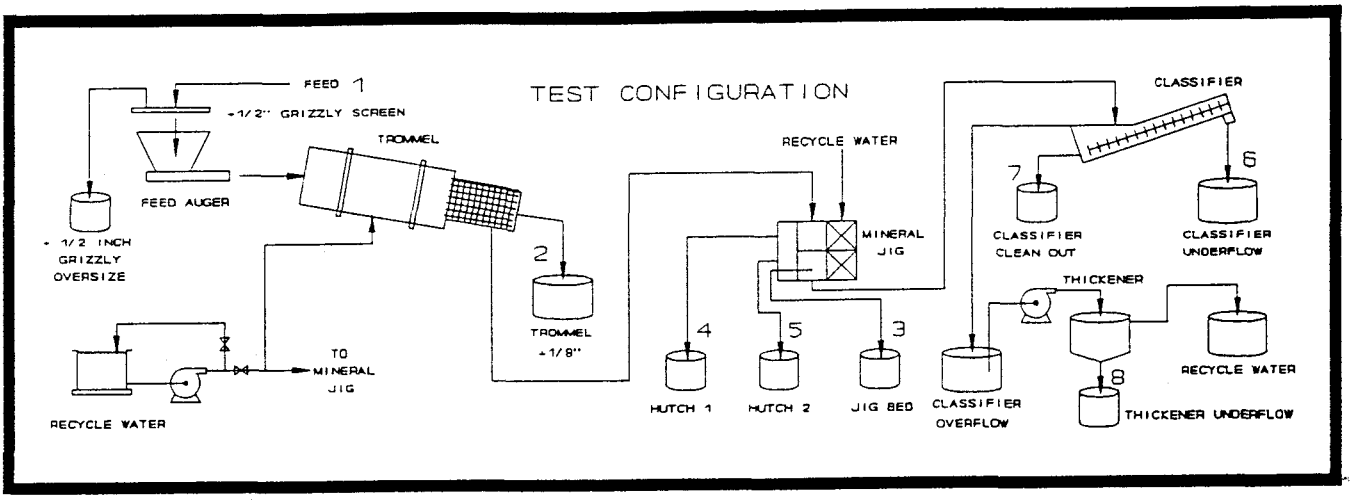


Figure 1 Plutonium Surrogate Test Configuration

RUN 8 (75 - 150 μ Magnetite)

PROCESS STREAM		DRY MASS (g)	MAGNETITE MASS (g)
1	Feed	30,400.00	50.0
2	Trommel Oversize	7,700.00	0.00
3-1	Jig Bed 1	0.00	0.00
3-2	Jig Bed 2	0.00	0.00
4	Hutch 1	6,992.10	26.30
5	Hutch 2	3,550.00	7.00
6	Classifier Underflow	10,100.00	<0.17
7	Classifier Cleanout	1,065.70	2.30
8	Thickener Underflow	0.00	0.00
	TOTALS	29,407.80	35.77

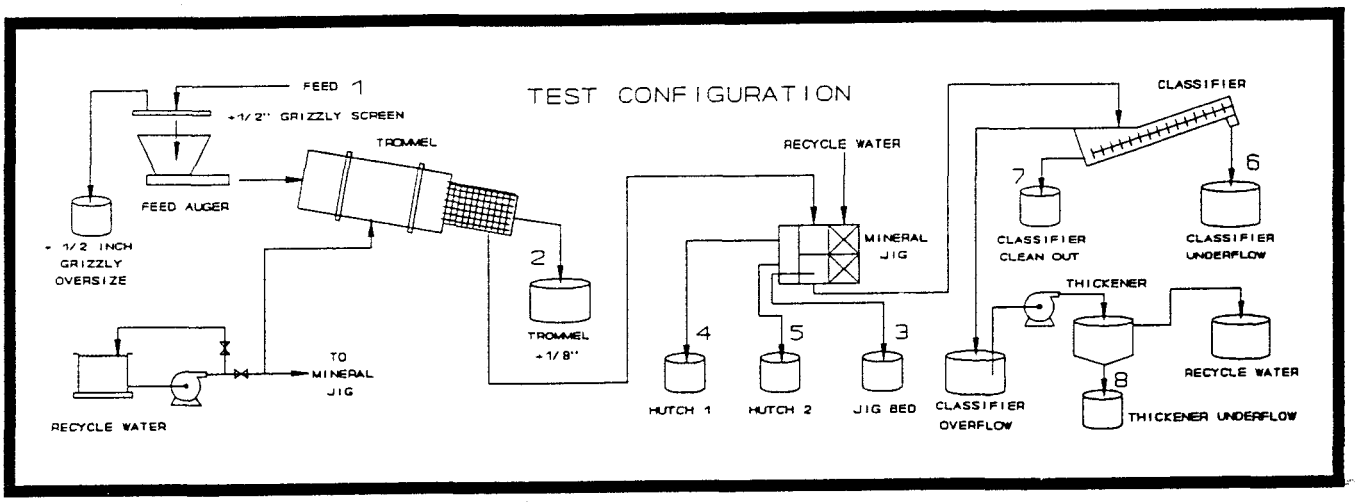


Figure 1 Plutonium Surrogate Test Configuration

RUN 9 (75 - 150 μ Magnetite)

PROCESS STREAM		DRY MASS (g)	MAGNETITE MASS (g)
1	Feed	26,900.00	50.0
2	Trommel Oversize	6,100.00	0.00
3-1	Jig Bed 1	0.00	0.00
3-2	Jig Bed 2	0.00	0.00
4	Hutch 1	3,814.40	34.70
5	Hutch 2	3,531.20	4.40
6	Classifier Underflow	11,700.00	<0.10
7	Classifier Cleanout	1,082.60	1.20
8	Thickener Underflow	0.00	0.00
	Classifier Overflow	67.70	0.60
	TOTALS	26,295.90	41.00

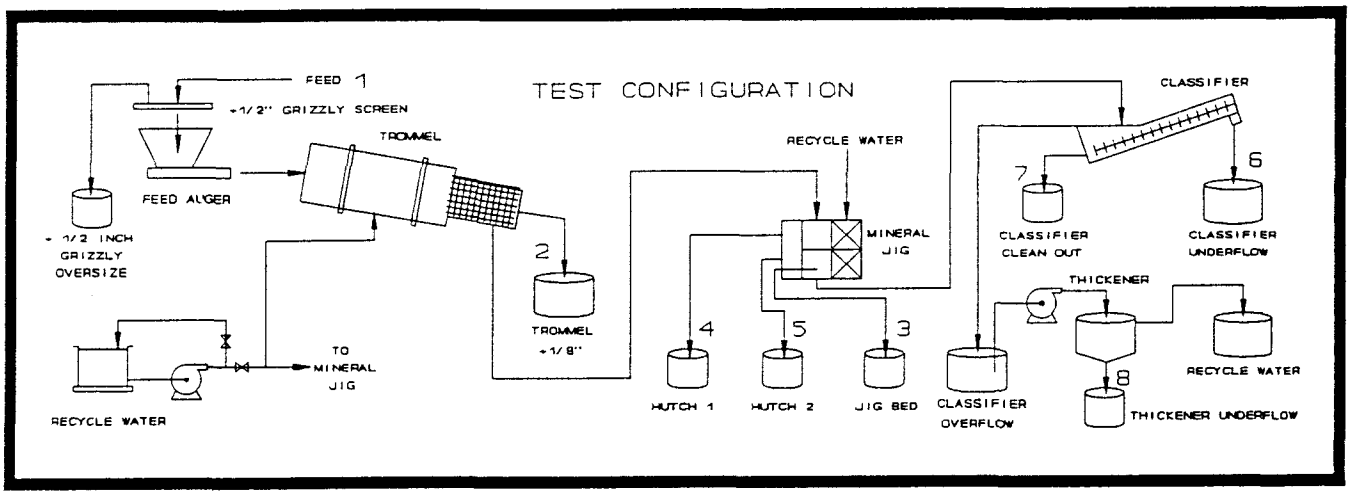


Figure 1 Plutonium Surrogate Test Configuration

RUN 10 (45 - 75 μ Magnetite)

PROCESS STREAM		DRY MASS (g)	MAGNETITE MASS (g)
1	Feed	24,900.00	50.0
2	Trommel Oversize	5,900.00	0.00
3-1	Jig Bed 1	0.00	0.00
3-2	Jig Bed 2	0.00	0.00
4	Hutch 1	3,609.10	8.30
5	Hutch 2	3,498.20	4.10
6	Classifier Underflow	10,100.00	<0.10
7	Classifier Cleanout	1,178.80	11.0
8	Thickener Underflow	0.00	0.00
	Classifier Overflow	53.40	5.50
	TOTALS	24,339.50	29.0

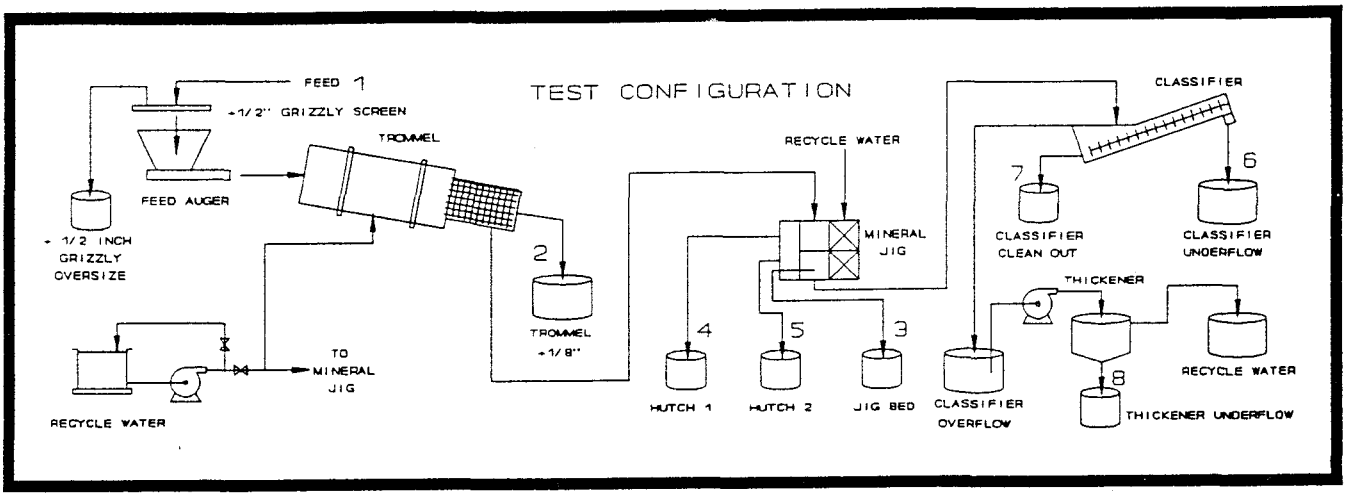


Figure 1 Plutonium Surrogate Test Configuration

RUN 11 (75 - 150 μ Magnetite)

PROCESS STREAM		DRY MASS (g)	MAGNETITE MASS (g)
1	Feed	28,000.00	50.0
2	Trommel Oversize	7,100.00	0.00
3-1	Jig Bed 1	0.00	0.00
3-2	Jig Bed 2	0.00	0.00
4	Hutch 1	3,418.00	34.60
5	Hutch 2	3,698.40	4.40
6	Classifier Underflow	12,400.00	<0.10
7	Classifier Cleanout	1,144.80	6.30
8	Thickener Underflow	0.00	0.00
	Classifier Overflow	70.60	0.80
	TOTALS	27,831.80	46.20

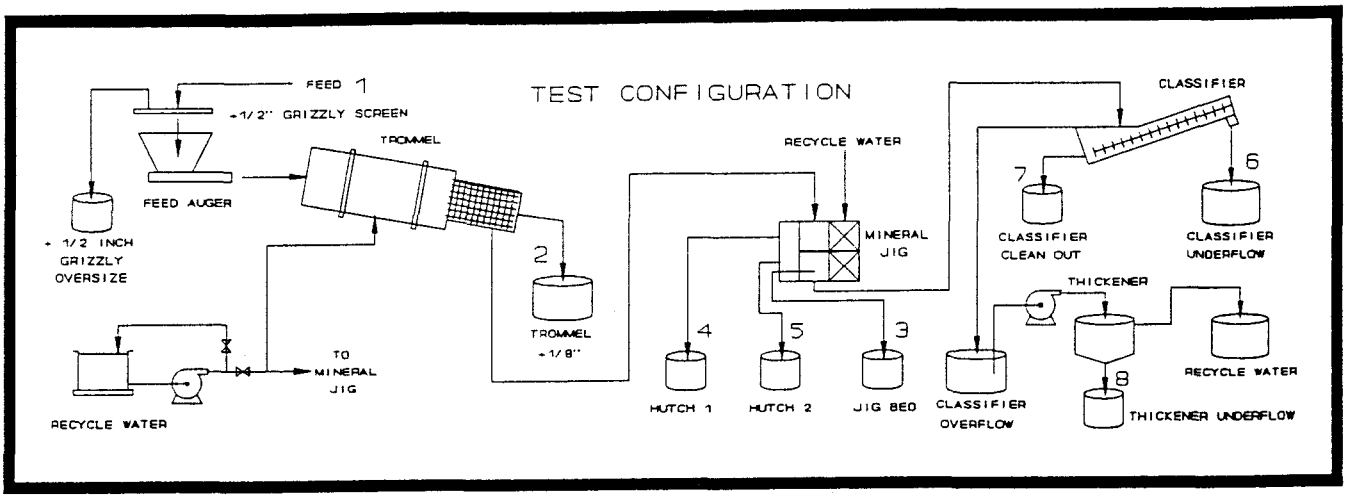


Figure 1 Plutonium Surrogate Test Configuration

RUN 12 (45 - 75 μ Magnetite)

PROCESS STREAM		DRY MASS (g)	MAGNETITE MASS (g)
1	Feed	28,000.00	50.0
2	Trommel Oversize	7,200.00	0.00
3-1	Jig Bed 1	0.00	0.00
3-2	Jig Bed 2	0.00	0.00
4	Hutch 1	5,064.60	4.30
5	Hutch 2	4,770.50	6.60
6	Classifier Underflow	10,200.00	<0.10
7	Classifier Cleanout	1,017.90	0.90
8	Thickener Underflow	230.30	15.40
	Classifier Overflow	55.90	0.40
	TOTALS	28,539.20	27.70

TEST SYSTEM OPERATING PARAMETERS

	Run 2	Run 3	Run 4	Run 5	Run 6	Run 7
Feed Rate	158 kg/hr	168 kg/hr	168 kg/hr	168 kg/hr	168 kg/hr	168 kg/hr
Trommel Flow Rate	22.5 l/m	20.0 l/m	20.0 l/m	20.0 l/m	20.0 l/m	20.0 l/m
Mineral Jig Stroke Length	0.95 cm	0.95 cm	0.95 cm	0.95 cm	0.95 cm	0.635 cm
Mineral Jig Frequency	100 M	100 M	150 M	150 M	150 M	150 M
Bedding Size	0.47 cm	0.47 cm	0.47 cm	0.47 cm	0.47 cm	0.47 cm
Bedding Thickness	1.90 cm	1.91 cm	1.91 cm	1.90 cm	1.90 cm	1.90 cm
General Jig Hutch 1 Flow Rate	6.90 l/m	9.5 l/m	9.5 l/m	11.40 l/m	13.2 l/m	11.4 l/m
General Jig Hutch 2 Flow Rate	7.60 l/m	9.5 l/m	9.5 l/m	11.40 l/m	13.2 l/m	11.4 l/m

	Run 8	Run 9	Run 10	Run 11	Run 12	Run 13	Run 14
Feed Rate	168 kg/hr	168 kg/hr	168 kg/hr	168 kg/hr	168 kg/hr	122 kg/hr	68.37 kg/hr
Trommel Flow Rate	20.0 l/m	20.0 l/m	20.0 l/m	20.0 l/m	20.0 l/m	20.0 l/m	25.0 l/m
Mineral Jig Stroke Length	0.635 cm	0.635 cm	0.635 cm	0.635 cm	0.635 cm	0.635 cm	0.635 cm
Mineral Jig Frequency	200 M	150 M	150 M	150 M	150 M	150 M	150 M
Bedding Size	0.47 cm	0.47 cm	0.47 cm	0.47 cm	0.47 cm	0.47 cm	0.47 cm
Bedding Thickness	1.90 cm	1.90 cm	1.90 cm	1.91 cm	1.90 cm	1.90 cm	1.90 cm
General Jig Hutch 1 Flow Rate	11.4 l/m	11.4 l/m	11.4 l/m	13.2 l/m	7.6 l/m	11.4 l/m	11.4 l/m
General Jig Hutch 2 Flow Rate	11.4 l/m	11.4 l/m	11.4 l/m	13.2 l/m	7.6 l/m	11.4 l/m	11.4 l/m

APPENDIX 3

BISMUTH SAMPLE RESULTS

TEST RUN 13

ription	Results
	208 μg/g
derflow	3.1 μg/g

BISMUTH SAMPLE RESULTS

TEST RUN 14

Sample	Sample Description	Results <45μ	Results >45μ	Results All (μ)
41A	Feed, Compo		82.0 μg/g	
42 A	Feed, Compo	152.0 μg/g		
07 A	Trommel Oversize, Grab #1		N/D	
08 A	Trommel Oversize, Grab #1	14.0 μg/g		
09 A	Trommel Oversize, Grab #2		0.23 μg/g	
10 A	Trommel Oversize, Grab #2	268.0 μg/g		
11 A	Trommel Oversize, Grab #3		N/D	
12 A	Trommel Oversize, Grab #3	73.0 μg/g		
37 A	Jig Bed #1, Grab		N/D	
38 A	Jig Bed #1, Grab	380.0 μg/g		
39 A	Jig Bed #2, Grab		N/D	
40 A	Jig Bed #2, Grab	890.0 μg/g		
31 A	Hutch #1, Grab #1		250.0 μg/g	
32 A	Hutch #1, Grab #1	144.0 μg/g		
33 A	Hutch #1, Grab #2		485.0 μg/g	
34 A	Hutch #1, Grab #2	205.0 μg/g		
35 A	Hutch #1, Grab #3		620.0 μg/g	
36 A	Hutch #1, Grab #3	78.0 μg/g		
25 A	Hutch #2, Grab #1		19.0 μg/g	
26 A	Hutch #2, Grab #1	274.0 μg/g		
27 A	Hutch #2, Grab #2		18.0 μg/g	
28 A	Hutch #2, Grab #2	769.0 μg/g		

BISMUTH SAMPLE RESULTS (continued)

Sample	Sample Description	Results <45μ	Results >45μ	Results All (μ)
29 A	Hutch #2, Grab #3		4.7 μg/g	
30 A	Hutch #2, Grab #3	204.0 μg/g		
01 A	Classifier Underflow, Grab #1		4.4 μg/g	
02 A	Classifier Underflow, Grab #1	55.0 μg/g		
03 A	Classifier Underflow, Grab #2		0.38 μg/g	
04 A	Classifier Underflow, Grab #2	118.0 μg/g		
05 A	Classifier Underflow, Grab #3		0.73 μg/g	
06 A	Classifier Underflow, Grab #3	203.0 μg/g		
17 A	Classifier Cleanout, Grab #1		280.0 μg/g	
18 A	Classifier Cleanout, Grab #1	4876.0 μg/g		
19 A	Classifier Cleanout, Grab #2		350.0 μg/g	
20 A	Classifier Cleanout, Grab #2	4157.0 μg/g		
23 A	Thickener Underflow, Grab #1			96.0 μg/g
24 A	Thickener Underflow, Grab #2			94.0 μg/g
13 A	Classifier Fines, Grab #1		2.3 μg/g	
14 A	Classifier Fines, Grab #1	210.0 μg/g		
15 A	Classifier Fines, Grab #2		3.9 μg/g	
16 A	Classifier Fines, Grab #2	87.0 μg/g		
21 A	Classifier Fines, Grab #3		6.1 μg/g	
22 A	Classifier Fines, Grab #3	40.0 μg/g		

ND -- Instrument Detection Limit was 0.055 μg/g

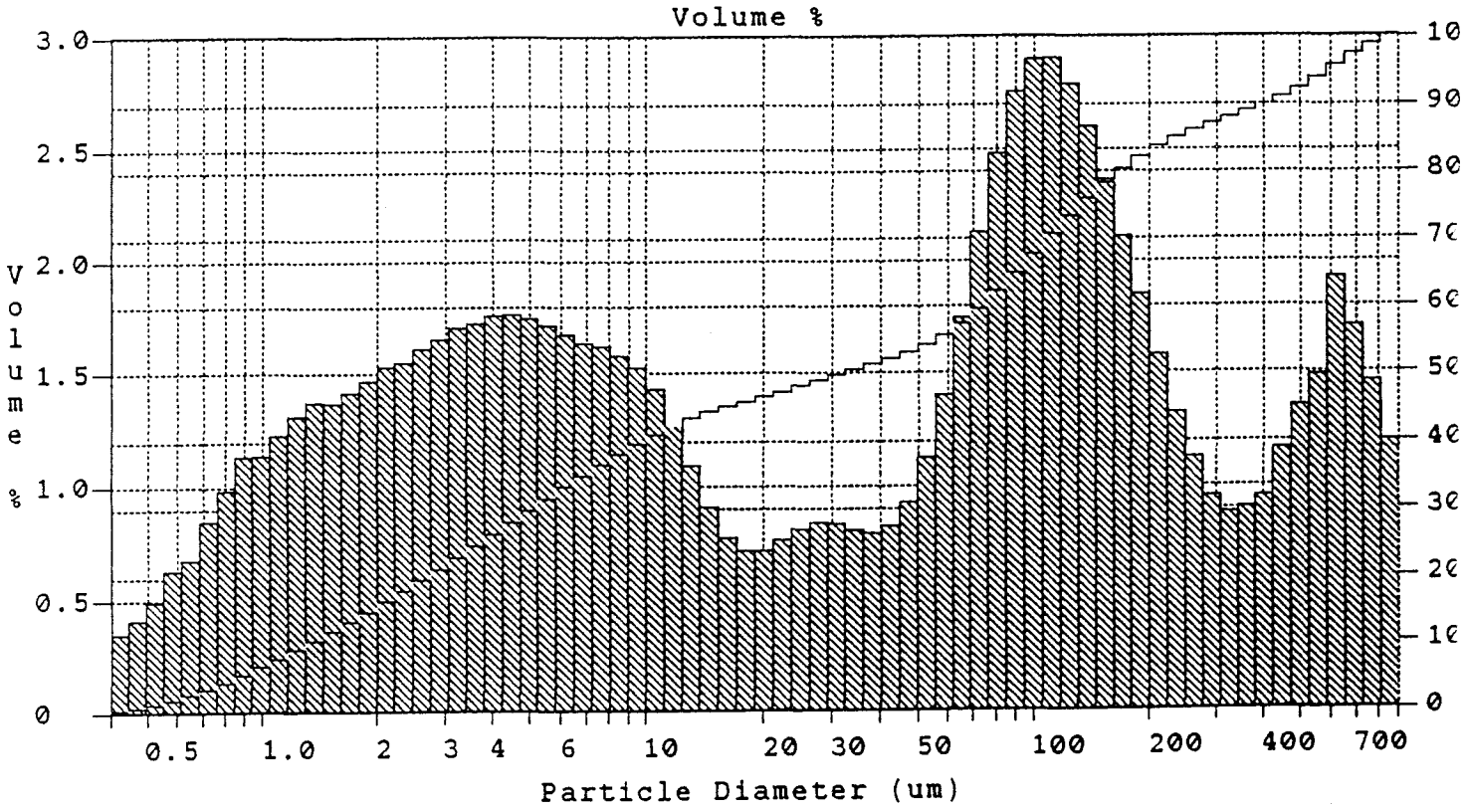
Quantitation Limit = 0.18 μg/g

COULTER[R] LS Particle Size Analysis 13:42 20 Oct 1

PUID.$01

Filename:	PUID.$01	Group ID:	PUID
Sample ID:	REECo Surrogate	Run number:	2
Operator:	Jerry Foisel, LESAT		
Comments:	REECo supplied soil from Area 11 (clean soil) that has been laced with Scheelite and Bismuth as a surrogate.		
Start time:	13:41 20 Oct 1992		
Run length:	60 Seconds		
Pump Speed:	75		
Obscuration:	11%		
Optical model:	Fraunhofer		

PC: Version 1.44 14:20 Wed Jan 30 1991



COULTER[R] LS Particle Size Analysis 13:43 20 Oct 1

PUID.$01

Volume Statistics (Arithmetic) PUID.$01

Calculations from 0.40 um to 900.00 um

Volume	100.0	%			
Mean:	124.1	um	95% Conf. Limits:	85.73-162.4	um
Median:	34.11	um	Std. Dev.:	195.7	um
Mean/Median Ratio:	3.637		Variance:	38281	um^2
Mode:	111.3	um	Coef. Var.:	157.7	%
			Skewness: 2.109 Right skewed		
			Kurtosis: 3.712 Leptokurtic		

% >	10.00	25.00	50.00	75.00	90.00
Size um	435.3	141.1	34.11	3.915	1.390

Volume %	Particle Diameter um >
10.0	435.31
25.0	141.12
50.0	34.11
75.0	3.91
90.0	1.39

Particle Diameter um	Volume %	Particle Diameter um	Volume %	Particle Diameter um	Volume %
0.40	0.35	7.23	1.61	130.68	2.60
0.45	0.41	8.05	1.57	145.46	2.36
0.50	0.49	8.96	1.52	161.93	2.10
0.55	0.62	9.97	1.43	180.25	1.84
0.61	0.67	11.10	1.27	200.65	1.57
0.68	0.84	12.36	1.09	223.35	1.32
0.76	0.98	13.76	0.91	248.63	1.12
0.85	1.13	15.31	0.77	276.76	0.95
0.94	1.13	17.04	0.71	308.08	0.88
1.05	1.23	18.97	0.71	342.94	0.90
1.17	1.31	21.12	0.76	381.75	0.95
1.30	1.37	23.51	0.81	424.95	1.16
1.45	1.36	26.17	0.84	473.04	1.35
1.61	1.41	29.13	0.83	526.57	1.48
1.79	1.46	32.43	0.80	586.15	1.92
2.00	1.53	36.10	0.79	652.48	1.70
2.22	1.55	40.18	0.82	726.32	1.45
2.47	1.61	44.73	0.93	808.51	1.19
2.75	1.65	49.79	1.12		
3.07	1.70	55.43	1.40		
3.41	1.72	61.70	1.75		
3.80	1.76	68.68	2.12		
4.23	1.76	76.46	2.48		
4.71	1.74	85.11	2.75		
5.24	1.71	94.74	2.90		
5.83	1.67	105.46	2.90		
6.49	1.63	117.39	2.78		

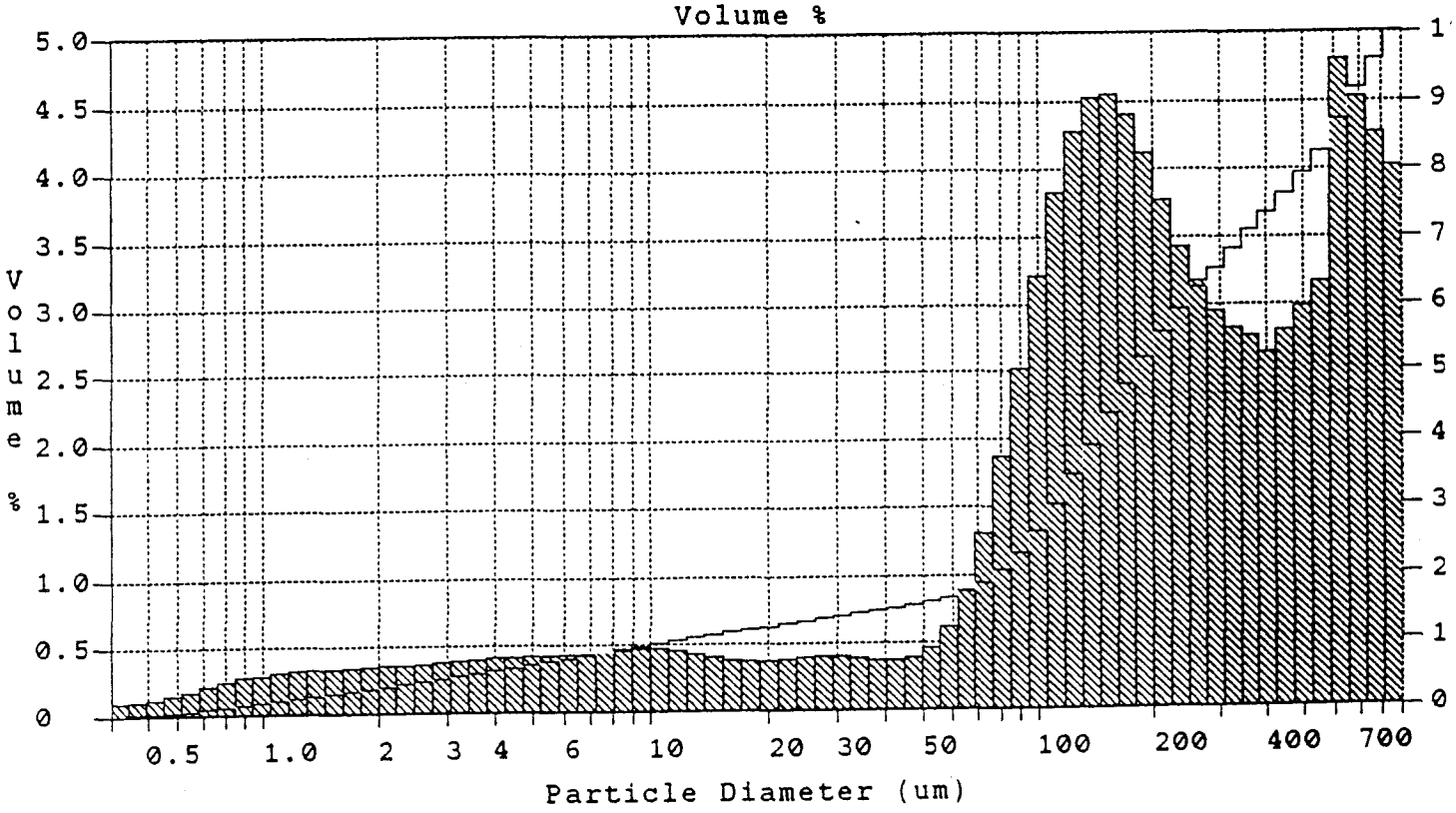
COULTER[R] LS Particle Size Analysis 15:00 20 Oct 1

PUID.$02

Filename:	PUID.$02	Group ID:	PUID
Sample ID:	Class. U-Flow RUN 14	Run number:	1
Operator:	Jerry Foisel, LESAT		
Comments:			

Start time: 14:58 20 Oct 1992
Run length: 61 Seconds
Pump Speed: 75
Obscuration: 11%
Optical model: Fraunhofer

PC: Version 1.44 14:20 Wed Jan 30 1991



COULTER[R] LS Particle Size Analysis 15:00 20 Oct

PUID.$02

Volume Statistics (Arithmetic) PUID.$02

Calculations from 0.40 um to 900.00 um

Volume	100.0	%			
Mean:	284.2	um	95% Conf. Limits:	235.5-332.9	um
Median:	190.8	um	Std. Dev.:	248.6	um
Mean/Median Ratio:	1.489				
Mode:	618.4	um	Variance:	61777	um^2
			Coef. Var.:	87.46	%

Skewness: 0.864 Right skewed
Kurtosis: -0.453 Platykurtic

% >	10.00	25.00	50.00	75.00	90.00
Size um	698.0	451.1	190.8	101.1	10.94

Volume %	Particle Diameter um >
10.0	698.01
25.0	451.09
50.0	190.83
75.0	101.07
90.0	10.94

Particle Diameter um	Volume %	Particle Diameter um	Volume %	Particle Diameter um	Volume %
0.40	0.09	7.23	0.44	130.68	4.52
0.45	0.10	8.05	0.45	145.46	4.55
0.50	0.12	8.96	0.46	161.93	4.39
0.55	0.15	9.97	0.46	180.25	4.11
0.61	0.17	11.10	0.45	200.65	3.76
0.68	0.21	12.36	0.42	223.35	3.42
0.76	0.24	13.76	0.40	248.63	3.17
0.85	0.27	15.31	0.37	276.76	2.95
0.94	0.28	17.04	0.37	308.08	2.81
1.05	0.30	18.97	0.37	342.94	2.76
1.17	0.32	21.12	0.38	381.75	2.63
1.30	0.33	23.51	0.39	424.95	2.80
1.45	0.32	26.17	0.40	473.04	2.98
1.61	0.33	29.13	0.40	526.57	3.16
1.79	0.34	32.43	0.38	586.15	4.80
2.00	0.35	36.10	0.37	652.48	4.52
2.22	0.35	40.18	0.36	726.32	4.26
2.47	0.36	44.73	0.38	808.51	4.01
2.75	0.37	49.79	0.45		
3.07	0.38	55.43	0.61		
3.41	0.39	61.70	0.88		
3.80	0.40	68.68	1.30		
4.23	0.41	76.46	1.86		
4.71	0.41	85.11	2.52		
5.24	0.42	94.74	3.20		
5.83	0.42	105.46	3.82		
6.49	0.42	117.39	4.27		

PROCEDURAL RUN SHEETS

AWC

WET SIEVE DATA SHEET

Date 6/22/93

Sample ID RF114020 (Rocky Flats)

Technician T. Murarik

Dried Mass 84.0 lbs (air dried, gross)

Isotope ^{241}Am ($^{239,240}Pu$)

	Sieve Size	Gross Subsample Mass g	Can & Lid Mass g	Net Subsample Mass g	Gross Counts ~~(pCi)~~	Background Counts (pCi)	Net ~~Counts~~ (pCi)
130	~~#10~~ ~~2000 µm~~	15,592	14,810	0.782	328	N/A	132.10
131	~~#20~~ ~~850 µm~~	225.328	14,762	210.566	6147	"	3639.8
	#50 300 µm						
	#100 150 µm						
	#200 75 µm						
	#325 45 µm						
	Pan <45 µm						
	Total						

Comments and Observations Third set of sieving

10/5/93 ~~10/5/95~~ MW
Date

T. Wenstrand
Supervisor

FM-049

TKW/6-92/Rev.1

AWC

WET SIEVE DATA SHEET

Date 6/22/93

Technician T. Murarik

Sample ID RF114000 (Rocky Flats)

Dried Mass 84.0 lbs (airdried, gross)

Isotope ^{241}Am ($^{239,240}Pu$)

	Sieve Size	Gross Subsample Mass g	Can & Lid Mass g	Net Subsample Mass g	Gross Counts ~~(pCi)~~	Background Counts (pCi)	Net ~~Counts~~ (pCi)
123	~~<325N~~ ~~#10~~ ~~2000 µm~~	225.328	14.756	210.572	6598	N/A	4544.3
124	~~<325O~~ ~~#20~~ ~~850 µm~~	122.913	14.513	108.400	4822	"	3140.9
125	~~<325P~~ ~~#50~~ ~~300 µm~~	117.915	14.591	103.324	5227	"	3592.4
126	~~#100O~~ ~~#100~~ ~~150 µm~~	260.482	14.596	245.886	3902	"	2204.6
127	~~#170O~~ ~~#200~~ ~~75 µm~~	218.686	14.680	204.006	4948	"	3262.1
128	~~#325~~ ~~45 µm~~	191.631	14.687	176.944	3202	"	2187.4
129	~~Pan~~ ~~<45 µm~~	148.691	14.585	134.106	4139	"	2402.7
	Total						

Comments and Observations Third set of sieving.

10/5/93 ~~10/5/95~~ TKW

Date

T. Wenstrand

Supervisor

FM-049

TKW/6-92/Rev.1

AWC

DRY SIEVE DATA SHEET

Date 6/20/93

Technician T. Muranik

Sample ID RF114000 (Rocky Flats)

As received, gross mass 84.0 lbs (air dried)

Weighing pan mass ~0.5 lbs

As received, net mass 83.5 lbs (air dried)

Dried mass [air dried, above]

Isotope ^{241}Am ($^{239,240}Pu$)

	Sieve Size/ Subsample Designation	Gross Mass Sieve Subsample, can, & lid	Can & lid Mass	Net Subsample mass, g.	Gross Counts ~~(cpm)~~	Pan Mass g	Gross Counts ~~(pCi)~~	Net Subsample Mass (g)	Background Counts (pCi)	Net Sample ~~Counts~~ (pCi)
116	~~#700~~ ~~#10~~ ~~2000 µm~~	278.203	14.587	263.616	6698	14.587	6698	263.616	N/A	4165.4
117	#70E ~~#20~~ ~~850 µm~~	168.988	14.603	154.385	5199	14.603	5199	154.385	"	3167.4
118	#100 C ~~#50~~ ~~300 µm~~	164.212	14.739	149.473	4496	14.739	4496	149.473	"	2616.8
119	#140 C ~~#100~~ ~~150 µm~~	125.791	14.863	110.928	4349	14.863	4349	110.928	"	2478.1
120	#200 B ~~#200~~ ~~75 µm~~	63.349	14.585	48.764	2248	14.585	2248	48.764	"	1278.5
121	#325 B ~~#325~~ ~~45 µm~~	89.656	14.590	75.066	3043	14.590	3043	75.066	"	1884.99
122	<325 M ~~Pan~~ <45 µm	127.202	14.683	112.519	3856	14.683	3856	112.519	"	2089.8
	Total									

Comments and Observations Third set of sieving

10/6/93
Date

T. Wenstrand
Supervisor

FM-048

TKW/6-92/Rev.1

AWC

WET SIEVE DATA SHEET

Date 6/12/93

Sample ID RF114000 (Rocky Flats)

Technician T. Murarik

Dried Mass 84.0 lbs (airdried, gross)

Isotope ^{241}Am ($^{239,240}Pu$)

	Sieve Size	Gross Subsample Mass g	Can & Lid Mass g	Net Subsample Mass g	Gross Counts ~~(pCi)~~	Background Counts (pCi)	Net ~~Counts~~ (pCi)
111	~~#10 2000 µm~~ 23252	171.360	14.678	156.682	6365	N/A	4818.3
112	~~#20 850 µm~~ 23255	36.673	14.760	21.913	1866	"	1091.0
113	~~#50 300 µm~~	15.296	14.600	0.696	362	"	195.0
114	~~#100 150 µm~~	164.224	14.593	149.631	7470	"	4481.5
115	~~#200 75 µm~~	106.208	14.854	91.354	2717	"	1641.9
~~116~~ TM	~~#325 45 µm~~						
~~117~~ TM	~~Pan <45 µm~~						
	Total						

Comments and Observations Third set of sieving.

10/5/93
Date

T. Wenstrand
Supervisor

FM-049

TKW/6-92/Rev.1

AWC

WET SIEVE DATA SHEET

Date 6/12/93

Technician T. Murarik

Sample ID RF114 000 (Rocky Flats)

Dried Mass 84.0 lbs (air dried, gross)

Isotope ^{241}Am ($^{239,240}Pu$)

	Sieve Size	Gross Subsample Mass g	Can & Lid Mass g	Net Subsample Mass g	Gross Counts ~~(pCi)~~	Background Counts (pCi)	Net ~~Counts~~ (pCi)
104	<325B ~~#10~~ ~~2000 µm~~	16.326	14.670	1.656	401	N/A	170.2 ~~102.76~~ TM
105	<325C ~~#20~~ ~~850 µm~~	126.169	14.621	111.548	5206	"	3625.8
106	<325D ~~#50~~ ~~300 µm~~	29.280	14.556	14.724	456	"	306.2
107	<325E ~~#100~~ ~~150 µm~~	26.319	14.719	11.600	1090	"	665.2
108	<325F ~~#200~~ ~~75 µm~~	121.214	14.577	106.637	5403	"	3593.9
109	<325G ~~#325~~ ~~45 µm~~	34.618	14.660	19.958	1570	"	1061.5
110	<325H Pan ~~<45 µm~~	109.280	14.563	94.717	5492	"	3780.4
	Total						

Comments and Observations Third set of sieving

10/5/93
Date

T. Wenstrand
Supervisor

FM-049

TKW/6-92/Rev.1

AWC

DRY SIEVE DATA SHEET

Date 6/4/93

Technician T. Muranik

Sample ID RF114000 (Rocky Flats)

As received, gross mass 84.0 lbs

Weighing pan mass ~0.5 lbs

As received, net mass 83.5 lbs (air dried)

Dried mass [air dried, above]

Isotope ^{241}Am ($^{239,240}Pu$)

	Sieve Size/ Subsample Designation	Gross Mass Sieve Subsample, can, & lid	Can & lid Mass	Net Subsample mass, g	Gross Counts (cps)	Pan Mass g	Gross Counts ~~(pCi)~~	Net Subsample Mass (g)	Background Counts (pCi)	Net Sample ~~Counts~~ (pCi)
101	~~#10~~ ~~2000 µm~~	90.615	14.683	75.932	3996	14.683	3996	75.932	N/A.	2393.5
102	~~#20~~ ~~850 µm~~	124.905	14.762	110.143	5833	14.762	5833	110.143	"	3952.3
103	~~#50~~ ~~300 µm~~	110.949	14.673	96.276	5597	14.673	5597	96.276	"	3627.8
	#100 150 µm									
	#200 75 µm									
	#325 45 µm									
	Pan <45 µm									
	Total									

Comments and Observations Third set of sieving

10/5/93
Date

T. Wenstrand
Supervisor

FM-048

TKW/6-92/Rev.1

AWC

DRY SIEVE DATA SHEET

Date 6/4/93

Technician T. Murarik

Sample ID RF114 000 (Rocky Flats)

As received, gross mass 84.0 lbs

Weighing pan mass ~0.5 lbs

As received, net mass 83.5 lbs (air dried)

Dried mass [air dried, above]

Isotope ^{241}Am ($^{239,240}Pu$)

	Sieve Size/ Subsample Designation	Gross Mass Sieve Subsample, can, & lid	Can & lid Mass	Net Subsample mass, g	Gross Counts ~~(cpc)~~	Pan Mass g	Gross Counts ~~(pCi)~~	Net Subsample Mass (g)	Background Counts (pCi)	Net Sample ~~Counts~~ (pCi)
94	~~#10~~ #70A ~~2000 µm~~	261.276	14.589	246.687	6304	14.589	6304	246.687	N/A	4039.2
95	~~#20~~ ~~850 µm~~	192.391	14.687	177.704	6141	14.687	6141	177.704	"	3989.8
96	~~#50~~ ~~300 µm~~	49.916	14.607	35.309	1817	14.607	1817	35.309	"	1235.1
97	~~#100~~ ~~150 µm~~	262.144	14.810	247.334	6636	14.810	6636	247.334	"	4437.8
98	~~#200~~ ~~75 µm~~	167.354	14.596	152.758	5456	14.596	5456	152.758	"	3508.5
99	~~#325~~ ~~45 µm~~	223.234	14.863	208.371	6770	14.863	6770	208.371	"	4551.96
100	~~Pan~~ ~~<45 µm~~	47.339	14.680	32.659	2179	14.680	2179	32.659	"	1307.5
	Total									

Comments and Observations Third set of Sieving

10/5/93
Date

T. Wenshaw
Supervisor

FM-048

TKW/6-92/Rev.1

AWC

WET SIEVE DATA SHEET

Date 5/26/93

Sample ID RF114000 (Rocky Flats)

Technician T. Murarik

Dried Mass 84.0 lbs (gross, airdried)

Isotope ^{241}Am ($^{239,240}Pu$)

	Sieve Size	Gross Subsample Mass g	Can & Lid Mass g	Net Subsample Mass g	Gross Counts ~~(pCi)~~	Background Counts (pCi)	Net ~~Counts~~ (pCi)
	~~<50 I~~						
84	~~#10 2000 µm~~	171.791	14.739	157.052	4373	N/A	2927.9
90	~~#20 850 µm~~	153.424	14.590	138.834	3750	"	2249.9
91	~~#50 300 µm~~	137.582	14.585	122.997	3446	"	2165.8
92	~~#100 150 µm~~	149.498	14.588	134.910	3785	"	2488.9
93	~~#200 75 µm~~	140.677	14.693	125.984	3455		2375.4
	~~#325 45 µm~~						
	~~Pan <45 µm~~						
	Total						

Comments and Observations Second set of sieving.

10/5/93
Date

T. Wenstrand
Supervisor

FM-049

TKW/6-92/Rev.1

AWC

WET SIEVE DATA SHEET

Date 5/26/93

Sample ID RF114000 (Rocky Flats)

Technician T. Muranik

Dried Mass 84.0 lbs (gross, air dry)

Isotope ^{241}Am ($^{239,240}Pu$)

	Sieve Size	Gross Subsample Mass g	Can & Lid Mass g	Net Subsample Mass g	Gross Counts (pCi)	Background Counts (pCi)	Net ~~Counts~~ (pCi)
82	#20A ~~#10~~ ~~2000 µm~~	198.369	14.647	183.722	983	N/A	312.6
83	~~#20~~ ~~850 µm~~	151.690	14.799	136.891	941	"	481.4
84	~~#50~~ ~~300 µm~~	230.731	14.417	216.314	1744	"	1046.4
85	~~#100~~ ~~150 µm~~	131.071	14.577	116.494	1573	"	997.6
86	~~#200~~ ~~75 µm~~	124.495	14.794	109.701	1283	"	711.0
87	~~#325~~ ~~45 µm~~	92.247	14.672	77.575	2319	"	1500.8
88	~~Pan~~ ~~<45 µm~~	163.653	14.587	149.066	4559	"	2895.9
	Total						

Comments and Observations Second set of sieving.

10/5/93
Date

T. Wenstrand
Supervisor

FM-049

TKW/6-92/Rev.1

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WET SIEVE DATA SHEET

Date 5/26/93

Sample ID RF114000 (Rocky Flats)

Technician T. Murarik

Dried Mass 84.0 lbs (gross, air dried)

Isotope ^{241}Am (^{239,240}Pu) TM

	Sieve Size	Gross Subsample Mass g	Can & Lid Mass g	Net Subsample Mass g	Gross Counts ~~(pCi)~~	Background Counts (pCi)	Net ~~Counts~~ (pCi)
75	3/8" A ~~#10~~ ~~2000 µm~~	274.448	14.567		603	N/A	0.269
76	3/8" B ~~#20~~ ~~850 µm~~	185.927	14.462		673	"	0.155
77	1/4" ~~#50~~ ~~300 µm~~	202.511	14.572		598	"	0.025
78	#5 ~~#100~~ ~~150 µm~~	178.337	14.667		619	"	0.073
79	#10A ~~#200~~ ~~75 µm~~	242.559	14.833		763	"	0.429
80	1" ~~#325~~ ~~45 µm~~	361.754	14.626		573	"	0.177
81	3/4" ~~Pan~~ ~~<45 µm~~	291.933	14.702		569	"	0.139
	Total						

Comments and Observations Second set of sieving.

10/5/93
Date

T. Wenshand
Supervisor

FM-049

TKW/6-92/Rev.1

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DRY SIEVE DATA SHEET

Data 5/26/93

Technician T. Maranik

Sample ID RF 114000 (Rocky Flats)

As received, gross mass 84.0 lbs

Weighing pan mass ~0.5 lbs

As received, net mass 83.5 lbs

Dried mass [air dried, above]

Isotope ^{241}Am ($^{239,240}Pu$)

	Sieve Size/ Subsample Designation	Gross Mass Sieve Subsample, can, & lid	Can & lid Mass	Net Subsample mass, g	Gross Counts ~~(cps)~~	Pan Mass g	Gross Counts ~~(pCi)~~	Net Subsample Mass (g)	Background Counts (pCi)	Net Sample ~~Counts~~ (pCi)
68	#50 B ~~#10~~ ~~2000 µm~~	155.685	14.672	141.013	3610	14.672	3610	141.013	N/A	2240.4
69	#40 C ~~#20~~ ~~850 µm~~	252.927	14.608	238.319	4135	14.608	4135	238.319	"	2606.3
70	<#50 C ~~#50~~ ~~300 µm~~	230.096	14.739	215.357	6719	14.739	6719	215.357	"	4327.2
71	<#50 D ~~#100~~ ~~150 µm~~	251.601	14.588	237.013	7775 ~~6674~~	14.588	7775	237.013	"	5446.7 ~~4514.3~~
72	<#50 E ~~#200~~ ~~75 µm~~	219.977	14.590	205.387	6679	14.590	6679	205.387	"	4514.3
73	<#50 F ~~#325~~ ~~45 µm~~	217.894	14.585	203.309	6774	14.585	6774	203.309	"	4710.2
74	<#50 G ~~Pan~~ ~~<45 µm~~	67.380	14.693	52.687	3172	14.693	3172	52.687	"	2316.2
	Total									

Comments and Observations Second set of Sieving

10/5/93
Date

T. Wenstrand
Supervisor

FM-048

TKW/6-92/Rev.1

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DRY SIEVE DATA SHEET

Data 5/24/93

Technician T. Murarik

Sample ID RF114000 (Rocky Flats)

As received, gross mass 848.0 lbs

Weighing pan mass ~0.5 lbs

As received, net mass 83.5 lbs

Dried mass [air dried, above)

Isotope ^{241}Am ($^{239,240}Pu$)

	Sieve Size/ Subsample Designation	Gross Mass Sieve Subsample, can, & lid	Can & lid Mass	Net Subsample mass, g	Gross Counts ~~(cps)~~	Pan Mass g	Gross Counts ~~(pCi)~~	Net Subsample Mass (g)	Background Counts (pCi)	Net Sample ~~Counts~~ (pCi)
61	#50A ~~#10~~ ~~2000 µm~~	221.469	14.794	206.675	4237	14.794	4237	206.675	N/A	2596.3
62	3/8" B ~~#20~~ ~~850 µm~~	208.798	14.462	194.336	587	14.462	587	194.336	"	176.32
63	#20B ~~#50~~ ~~300 µm~~	251.810	14.799	237.011	3300	14.799	3300	237.011	"	1951.2
64	#20C ~~#100~~ ~~150 µm~~	186.342	14.688	171.654	3389	14.688	3389	171.654	"	2233.9
65	#40B ~~#200~~ ~~75 µm~~	238.853	14.577	224.276	4963	14.577	4963	224.276	"	3473.2
66	<#50A ~~#325~~ ~~45 µm~~	261.519	14.854	246.665	7007	14.854	7007	246.665	"	4985.9
67	<#50B Pan ~~<45 µm~~	266.090	14.587	251.503	7540	14.587	7540	251.503	"	5176.8
	Total									

Comments and Observations Second set of sieving

10/5/93
Date

T. Wenstrand
Supervisor

FM-048

TKW/6-92/Rev.1

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DRY SIEVE DATA SHEET

Date 5/20/93

Technician T. Murarik

Sample ID RF 114000 (Rocky Flats)

As received, gross mass 84.0 lbs

Weighing pan mass ~0.5 lbs

As received, net mass 83.5 lbs, air dry

Dried mass [air dried, above]

Isotope ^{241}Am ($^{239,240}Pu$)

	Sieve Size/ Subsample Designation	Gross Mass Sieve Subsample, can, & lid	Can & lid Mass	Net Subsample mass, g	Gross Counts ~~(cps)~~	Pan Mass g	Gross Counts ~~(pCi)~~	Net Subsample Mass (g)	Background Counts (pCi)	Net Sample ~~Counts~~ (pCi)
54	3/8" ~~#10~~ ~~2000 µm~~	255.566	14.567	240.999	645	14.567	645	240.999	N/A	64.74
55	1/4" ~~#20~~ ~~850 µm~~	205.944	14.572	191.372	674	14.572	674	191.372	"	0
56	#5 ~~#50~~ ~~300 µm~~	200.717	14.667	186.050	826	14.667	826	186.050	"	57.92
57	#10A ~~#100~~ ~~150 µm~~	209.591	14.833	194.758	2035	14.833	2035	194.758	"	1080.7
58	#20 ~~#200~~ ~~75 µm~~	244.900	14.647	230.253	2624	14.647	2624	230.253	"	1560.6
59	#10B ~~#325~~ ~~45 µm~~	182.929	14.775	168.154	1942	14.775	1942	168.154	"	791.0
60	#40A ~~Pan~~ <~~45 µm~~	199.230	14.417	184.813	3645	14.417	3645	184.813	"	2553.5
	Total									

Comments and Observations Second set of sieving.

10/5/93
Date

T. Wenstrand
Supervisor

FM-048

TKW/6-92/Rev.1

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WET SIEVE DATA SHEET

Data 5/20/93

Technician T. Murarik

Sample ID RF114000 (Rocky Flats)

Dried Mass total ~ 84.0 lbs (gross-air dry)

Isotope ^{241}Am ($^{239,240}Pu$)

	Sieve Size	Gross Subsample Mass g	Can & Lid Mass g	Net Subsample Mass g	Gross Counts ~~(pCi)~~ Tm	Background Counts ~~(pCi)~~	Net ~~Counts~~ (pCi)
47	1" 3rd split ~~#10~~ ~~2000 µm~~	251.7	15.0	236.7	—	—	—
48	3/4" first split ~~#20~~ ~~850 µm~~	1410.2	15.1	1395.1	—	—	—
49	3/4" 2nd split ~~#50~~ ~~300 µm~~	637.2	15.0	622.2	—	—	—
50	3/4" 3rd split ~~#100~~ ~~150 µm~~	248.6	14.8	233.8	—	—	—
51	<3/4" 1st split ~~#200~~ ~~75 µm~~	15132.3	165.0	14967.3	—	—	—
52	<3/4" 2nd split ~~#325~~ ~~45 µm~~	7344.4	75.0	7269.4	—	—	—
53	<3/4" 3rd split ~~Pan~~ ~~<45 µm~~	3704.1	45.0	3659.1	—	—	—
	Total						

Comments and Observations Split + archive samples

10/5/93
Date

T. Wenstrand
Supervisor

FM-049

TKW/6-92/Rev.1

AWC

WET SIEVE DATA SHEET

Data 5/20/93

Sample ID RF114000 (Rocky Flats)

Technician T. Muranik

Dried Mass total ~ 84.0 lbs (gross-airdry)

Isotope ^{241}Am ($^{239,240}Pu$)

	Sieve Size	Gross Subsample Mass g	Can & Lid Mass g	Net Subsample Mass g	Gross Counts ~~(pCi)~~	Background Counts ~~(pCi)~~	Net ~~Counts~~ (pCi)
40	>1 1/2" gross ~~#10~~ ~~2000 µm~~	70.7	15.9	54.8	—	—	—
41	1" ~~#20~~ ~~850 µm~~	2500.9	14.8	2486.1	—	—	—
42	3/4" ~~#50~~ ~~300 µm~~	2543.3	14.9	2528.4	—	—	—
43	<3/4" ~~#100~~ ~~150 µm~~	166.431	14.692	151.739	2657	N/A	1817.0
44	>1 1/2" ~~#200~~ ~~75 µm~~	355.497	14.484	341.013	484	"	~~0~~
45	1" 1st split ~~#325~~ ~~45 µm~~	1382.6	15.1	1367.5	—	—	—
46	1" 2nd split ~~Pan~~ ~~<45 µm~~	549.8	15.0	534.8	—	—	—
	Total						

Comments and Observations Samples RF114043 + RF114044 are subsamples for activity analysis.

10/5/93
Date

T. Wenstrand
Supervisor

FM-049

TKW/6-92/Rev.1

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WET SIEVE DATA SHEET

Date 5/20/93

Sample ID RF114000 (Rocky Flats)

Technician T. Murarik

Dried Mass total ~ 84.0 lbs (gross-air dry)

Isotope ^{241}Am ($^{239,240}Pu$)

	Sieve Size	Gross Subsample Mass g	Can & Lid Mass g	Net Subsample Mass g	Gross Counts ~~(pCi)~~ TM	Background Counts (pCi)	Net ~~Counts~~ TM (pCi)
33	>1 1/2" gross ~~#10~~ ~~2000 µm~~	36.508	14.569	21.939	799	N/A	387.56
34	>1 1/2" gravel ~~#20~~ ~~850 µm~~	242.467	14.562	227.905	402	"	137.46
35	~~#50~~ 1" ~~300 µm~~	366.718	14.693	352.025	669	"	275.92
36	~~#100~~ 3/4" ~~150 µm~~	294.302	14.640	279.662	535	"	272.72
37	>1 1/2" gravel ~~#200~~ ~~75 µm~~	356.7	15.8	340.9	—	—	—
38	>1 1/2" gross ~~#325~~ ~~45 µm~~	94.8	14.9	79.9	—	—	—
39	>1 1/2" gross ~~Pan~~ ~~<45 µm~~	61.8	14.9	46.9	—	—	—
	Total						

Comments and Observations Samples ~~RF114000~~ RF114033 through RF114036 are subsamples for activity analysis.

10/6/93
Date

T. Wenstrand
Supervisor

FM-049

TKW/6-92/Rev.1

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DRY SIEVE DATA SHEET

Date 5/19/93

Technician T. Murarik

Sample ID RF114000 (Rocky Flats)

As received, gross mass 84.0 lbs

Weighing pan mass ~0.5 lbs

As received, net mass 83.5 lbs air dry

Dried mass [air dried, above]

Isotope ^{241}Am ($^{239,240}Pu$)

	Sieve Size/ Subsample Designation	Gross Mass Sieve Subsample, can, & lid	Can & lid Mass	Net Subsample	Gross Counts ~~(cps)~~ Tm	Pan Mass g	Gross Counts ~~(pCi)~~	Net Subsample Mass (g)	Background Counts ~~(pCi)~~	Net Sample ~~Counts~~ (pCi)
29	1" B ~~#10~~ ~~2000 µm~~	367.805	14.693	353.112	718	14.693	—	353.112	N/A	499
30	~~#20~~ ~~850 µm~~	295.241	14.640	280.601	589	14.640	—	280.601	—	405
31	~~#50~~ ~~300 µm~~	231.116	14.754	216.362	5030	14.754	—	216.362	—	4091
32	~~#100~~ ~~150 µm~~	166.584	14.559	152.025	4286	14.559	—	152.025	—	3588
33 Tm	#200 75 µm									
	#325 45 µm									
	Pan <45 µm									
	Total									

Comments and Observations The above listed samples were subsampled from the dry sieved fractions, and analyzed for activity.

TKW 10/5/93 ~~5/19/93~~
Date

T. Wenstrand
Supervisor

FM-048

TKW/6-92/Rev.1

(4)

AWC

DRY SIEVE DATA SHEET

Date 5/19/93

Technician T. Mint

Sample ID RF114000 (Rocky Flats)

As received, gross mass 84.0 lbs

Weighing pan mass ~0.5 lbs

As received, net mass 83.5 lbs air dry

Dried mass [air dried, above]

Isotope ^{241}Am ($^{239,240}Pu$)

Sieve Size/ Subsample Designation	Gross Mass Sieve Subsample, can, & lid	Can & lid Mass	Net Subsample	Gross Counts ~~(cps)~~	Pan Mass g	Gross Counts ~~(pCi)~~	Net Subsample Mass (g)	Background Counts ~~(pCi)~~	Net Sample ~~Counts (pCi)~~ pCi
>1 1/2" D ~~#10~~ ~~2000 µm~~	218.5	15.9	202.6	—	—	—	—	—	—
<3/4" P ~~#20~~ ~~850 µm~~	1536.6	15.8	1520.8	—	—	—	—	—	—
<3/4" Q ~~#50~~ ~~300 µm~~	1957.4	17.0	1940.4	—	—	—	—	—	—
<3/4" R ~~#100~~ ~~150 µm~~	1768.7	17.2	1751.5	—	—	—	—	—	—
<3/4" S ~~#200~~ ~~75 µm~~	1466.3	17.3	1449.0	—	—	—	—	—	—
27 >1 1/2" grass ~~#325~~ ~~45 µm~~	44.521	14.569	29.952	1503	14.569	—	29.952	N/A	997.56
28 >1 1/2" gravel ~~Pan~~ ~~<45 µm~~	243.603	14.562 ~~14.569~~	229.041	429	14.562	—	14.562	"	180.0
Total									

Comments and Observations The first five listed samples were the remainder of the sieve fractions from the stock sample. The last two listed samples were subsamples, taken from the sieved fractions, for activity analysis

10/5/93
Date

T. Wenstrand
Supervisor

FM-048

TKW/6-92/Rev.1

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DRY SIEVE DATA SHEET

Date 5/19/93

Technician T. Murarik

Sample ID RF114000 (Rocky Flats)

As received, gross mass 84.0 lbs

Weighing pan mass ~0.5 lbs

As received, net mass 83.5 lbs air dry

Dried mass [air dry, above]

Isotope ^{241}Am ($^{239,240}Pu$)

Sieve Size/ Subsample Designation	Gross Mass Sieve Subsample, can, & lid	Can & lid Mass	Net Subsample	Gross Counts (cps)	Pan Mass g	Gross Counts ~~(pCi)~~	Net Subsample Mass (g)	Background Counts ~~(pCi)~~	Net Sample ~~Counts~~ (pCi)
<3/4" ~~#10~~ ~~2000 µm~~ K	1556.7	15.7	1541.0	—	—	—	—	—	—
>1 1/2" ~~#20~~ ~~850 µm~~ C	75.3	15.8	59.5	—	—	—	—	—	—
<3/4" ~~#50~~ ~~300 µm~~ L	1823.1	15.7	1807.4	—	—	—	—	—	—
<3/4" ~~#100~~ ~~150 µm~~ M	1775.5	16.0	1759.5	—	—	—	—	—	—
<3/4" ~~#200~~ ~~75 µm~~ N	1533.9	16.0	1517.9	—	—	—	—	—	—
3/4" ~~#325~~ ~~45 µm~~ B	546.8	15.9	530.9	—	—	—	—	—	—
<3/4" ~~Pan~~ <~~45 µm~~ O	1419.8	15.8	1404.0	—	—	—	—	—	—
Total	8731.1	110.9	8620.2	—	—	—	—	—	—

Comments and Observations These samples were later subsampled for activity analysis (#RF114027 through #RF114032).

10/5/93
Date

T. Wenstrand
Supervisor

AWC

DRY SIEVE DATA SHEET

Date 5/19/93

Technician T. Muranik

Sample ID RF114000 (Rocky Flats)

As received, gross mass 84.0 lbs

Weighing pan mass ~0.5 lbs

As received, net mass 83.5 lbs air dry

Dried mass [air dried, above]

Isotope ^{241}Am ($^{239,240}Pu$)

Sieve Size/ Subsample Designation	Gross Mass Sieve Subsample, can, & lid	Can & lid Mass	Net Subsample	Gross Counts (cps)	Pan Mass g	Gross Counts ~~(pCi)~~	Net Subsample Mass (g)	Background Counts ~~(pCi)~~	Net Sample ~~Counts~~ (pCi)
>1 1/2" ~~#10~~ B ~~2000 µm~~	72.6	14.9	57.7	—	—	—	—	—	—
<3/4" ~~#20~~ E ~~850 µm~~	1805.5	15.0	1790.5	—	—	—	—	—	—
<3/4" ~~#50~~ F ~~300 µm~~	1711.8	14.9	1696.9	—	—	—	—	—	—
<3/4" ~~#100~~ G ~~150 µm~~	1502.7	14.9	1487.8	—	—	—	—	—	—
<3/4" ~~#200~~ H ~~75 µm~~	1548.4	15.1	1533.3	—	—	—	—	—	—
<3/4" ~~#325~~ I ~~45 µm~~	1570.2	15.0	1555.2	—	—	—	—	—	—
<3/4" ~~Pan~~ J <45 µm	1675.0	14.8	1660.2	—	—	—	—	—	—
Total	9886.2	104.6	9781.6	—	—	—	—	—	—

Comments and Observations These samples were later subsampled for activity analysis (#RF 114027 through #RF 114032).

10/5/93
Date

T. Wenstrand
Supervisor

FM-048

TKW/6-92/Rev.1

①

AWC

DRY SIEVE DATA SHEET

Date 5/19/93

Technician T. Muranik

Sample ID RF 114000 (Rocky Flats)

As received, gross mass 84.0 lbs

Weighing pan mass ~ 0.5 lbs

As received, net mass 83.5 lbs air dry

Dried mass [air dried, above]

Isotope ^{241}Am ($^{239,240}Pu$)

Sieve Size/ Subsample Designation	Gross Mass Sieve Subsample, can, & lid	Can ~~& lid~~ Mass	Net Subsample	Gross Counts (cps)	Pan Mass g	Gross Counts ~~(pCi)~~	Net Subsample Mass (g)	Background Counts ~~(pCi)~~	Net Sample ~~Counts~~ (pCi)
>1 1/2", A ~~#10~~ ~~2000 µm~~	312.9 g	14.9 g	298.0 g	—	—	—	—	—	—
1", A ~~#20~~ ~~850 µm~~	2509.9	14.8	2495.1	—	—	—	—	—	—
3/4", A ~~#50~~ ~~300 µm~~	2078.1	14.9	2063.2	—	—	—	—	—	—
<3/4", A ~~#100~~ ~~150 µm~~	1546.3	14.9	1531.4	—	—	—	—	—	—
<3/4", B ~~#200~~ ~~75 µm~~	1385.0	15.1	1369.9	—	—	—	—	—	—
<3/4", C ~~#325~~ ~~45 µm~~	1288.9	14.8	1274.1	—	—	—	—	—	—
<3/4", D ~~Pan~~ ~~<45 µm~~	1566.8	14.7	1552.1	—	—	—	—	—	—
Total	10687.9	104.1	10583.8	—	—	—	—	—	—

Comments and Observations These samples were later subsampled for activity analysis (#~~RF114001~~ RF114027 through #RF114032).

10/5/93
Date

T. Wenstrand
Supervisor

FM-048

TKW/6-92/Rev.1

AWC

KNOWN VOLUME BULK DENSITY

Sample ID	Net AIR WT.	Net OD WT.		VOL. (cc)	DATE	ID	COMMENTS	SAMPLER (INITIALS)	DATE
RF 113 B00	164.963	148.327	—	140.1	5/12/93	RF-1	Volume-Filling	T.M.	5/12/93
RF 113 A00	154.253	138.109	—	140.0	5/12/93	RF-2	—	T.M.	5/12/93

AWC

Parameter - PH _ H_2O
pH in Water

Batch # RF-1
Lab Code Rocky Flats

Submission # A
Orig. Analysis 5/14/93
Re-Analysis —
Re-Submission —
Operator Initials T.M

Date Analysis Started 5 / 14 / 93
Date Analysis Completed 5 / 14 / 93
Date Form Completed 5 / 18 / 93
Lab Manager Initials Q

A Samp. #	B Sample Weight (g) XX.X	C Solution Volume (mL) XX.X	D Result (pH) X.XX
RFPH000 1	20.007	20.0	7.61
RFPH000 2	20.040	20.0	7.63
RFPH000 3	19.995	20.0	7.60
~~RFPH0004~~ TM			
~~RFPH0005~~ TM			
~~RFPH0006~~ TM			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
RBLK1	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX	

AWC

QC Form Parameter - PH _ H_2O
pH in Water

Batch # RF-1
Lab Code Rocky Flats

Submission # A
Run # 5/14/93
Re-Analysis —
Operator Initials T.M.

Date Analysis Started 5 / 14 / 93
Date Analysis Completed 5 / 14 / 93
Date Form Completed 5 / 18 / 93
Lab Manager Initials G

REPLICATES				
A Samp. # Used XX	B Sample Wt. (g) XX.X	C Solution Vol. (mL) XX.X	D Result (pH) X.XX	E SD XXX.XX
RFPH0001	20.007	20.0	7.61	± 0.019
RFPH0002	20.040	20.0	7.63	± 0.019
RFPH0003	19.995	20.0	7.60	± 0.019
—				

QCCS	(pH) X.XX
True	
High	
Low	
QCCS 1	
QCCS 2	
QCCS 3	
QCCS 4	
QCCS 5	
QCCS 6	
QCCS 7	
QCCS 8	

AWC

Parameter - PH _ 01M
pH in 0.01M Calcium Chloride

Batch # RF-1
Lab Code Rocky Flats

Submission # A
Run # 5/14/93
Re-Analysis —
Operator Initials T.M.

Date Analysis Started 5/14/93
Date Analysis Completed 5/14/93
Date Form Completed 5/18/93
Lab Manager Initials G

	A Samp. #	B Sample Weight (g) XX.X	C Solution Volume (mL) XX.X	D Result (pH) X.XX
RFPH0004	1	20.005	20.0	7.12
RFPH0005	2	20.102	20.0	7.14
RFPH0006	3	20.066	20.0	7.14
	4			
	5			
	6			
	7			
	8			
	9			
	10			
	11			
	12			
	13			
	14			
	15			
	16			
	17			
	18			
	19			
	20			
	RBLK1	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX	

AWC

QC Form Parameter - PH _ .01M
pH in 0.01M Calcium Chloride

Batch # RF-1
Lab Code Rocky Flats

Submission # A
Run # 5/14/93
Re-Analysis —
Operator Initials T.M.

Date Analysis Started 5 / 14 / 93
Date Analysis Completed 5 / 14 / 93
Date Form Completed 5 / 18 / 93
Lab Manager Initials GR

REPLICATES				
A Samp. # Used XX	B Sample Wt. (g) XX.X	C Solution Vol. (mL) XX.X	D Result (pH) X.XX	E SD XXX.XX
RFPH0004	20.005	20.0	7.12	± 0.0115
RFPH0005	20.102	20.0	7.14	± 0.0115
RFPH0006	20.066	20.0	7.14	± 0.0115
—				

QCCS	(pH) X.XX
True	
High	
Low	
QCCS 1	
QCCS 2	
QCCS 3	
QCCS 4	
QCCS 5	
QCCS 6	
QCCS 7	
QCCS 8	

AWC

Parameter - Moist
Air Dry Moisture Percent

Batch # RF-1
Lab Code Rocky Flats

Batch # A
Submission # RF34
Run # —
Re-Analysis —
Operator Initials T.M.

Lab Code —
Date Analysis Started 5/12/93
Date Analysis Completed 5/12/93
Date Form Completed 5/18/93
Lab Supervisor Initials GR

	A Samp. #	B Air Dried Sample Wt. (g) XX.XX	C Oven Dried Sample Wt. (g) XX.XX	D Calculated Result (%) XX.XX
RF-3	1	~~125.173~~ 128.055 TM	125.173	2.30
RF-4	2	135.136	132.284	2.16
	3			
	4			
	5			
	6			
	7			
	8			
	9			
	10			
	11			
	12			
	13			
	14			
	15			
	16			
	17			
	18			
	19			
	20			

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AWC

QC Form

Parameter - Moist

Air Dry Moisture Percent

Batch # RF-1

Lab Code —

Batch # A

Lab Code —

Submission # RF-3,4

Date Analysis Started 5/12/93

Run # —

Date Analysis Completed 5/12/93

Re-Analysis —

Date Form Completed 5/18/93

Operator Initials TM

Lab Supervisor Initials GR

REPLICATES				
A Samp. #	B Air Dried Sample Wt. (g) XX.XX	C Oven Dried Sample Wt. (g) XX.XX	D Calculated Result (%) XX.XX	E SD or %RSD XXX.XX
RF-3	128.055	125.173	2.30	± 0.098
RF-4	135.136	132.289	2.16	± 0.098
—				
—				

LESAT
Technology Applications Division

PIPETTE METHOD

Date 9/11/93

Technician T. Murarik

Sample ID RF114105 (< #325 mesh, C).

Dried Mass 100.0 g

Isotope Am-241

Sieve/Size Subsample Designation	Temperature °C	Time hrs:min:sec	Time to Sample hrs:min:sec	Gross Subsample Mass g	Pan Mass g	Net Subsample Mass g	Gross Counts (pCi)	Background Counts (pCi)	Net Counts (pCi)	
Start	22°C	7:05:24								
20 µm	22°C	7:09:59	4:35	16.656	14.560	2.096	306	—	151	1000 s
5 µm	22°C	8:10:30	65:06	15.770	14.581	1.189	237	—	146	1000 s
2 µm	22°C	2:43:24	7:38:00	15.104	14.618	0.486	~~291~~ 850	—	~~1~~ 223	4000 s
Total	—	—	—	—	—	3.771	—	—	—	

Comments and Observations 100.0 g of RF114105 used.

28 April 1994
Date

Supervisor

FM-050

TKW/6-92/Rev.2

LESAT
Technology Applications Division

INSTRUCTION
DENSE LIQUID CHARACTERIZATION OF SOILS

DLC FORM

Date 8/26/93
Technician T. Murarik

Sample ID RF114124 (< #325,0) A, B
As received, gross mass —
Weighing pan mass —
As received, net mass 50.0 g
Air dried mass 50.0 g
Oven dried mass 50.0 g
Isotope Am-241
Separatory funnel size 250ml Centrifuge
Dense liquid type Poly-W (1.4 g/cc)

	A Duplicate 1	B Duplicate 2
Amt. dense liquid, (+ H_2O)	100.	100.
Air dry mass of sample, g	50.0	50.0
Gross counts, initial, pCi	—	—
Background counts, initial, pCi	—	—
Net sample counts, initial, pCi	—	—
Time for separation	1:20: hr	1:20: hr
Air/oven dry weight (~~cyclone~~)		
Float products	6.732 g	6.841 g
Liquid ~~Sink~~ products	71.871	76.044
Gross counts, final, pCi		
Float products	—	—
Sink products	—	—
Background counts, final, pCi		
Float products	—	—
Sink products	—	—
Net sample counts, final, pCi/g		
Float products	52.94 pCi/g	44.77 pCi/g
Liquid ~~Sink~~ products	2.85	2.50

Comments and Observations First DLC sep., at 1.90 g/cc. Sink product went on to 2.6 g/cc test.

Greg [illegible]
Reviewer

28 April 1994
Date

LESAT
Technology Applications Division

INSTRUCTION
DENSE LIQUID CHARACTERIZATION OF SOILS

DLC FORM

Date 8/26/93

Technician T. Murarik

Sample ID RE114124 (< #325,0) A, B

As received, gross mass —
Weighing pan mass —
As received, net mass 50.0 g
Air dried mass 50.0 g
Oven dried mass 50.0 g
Isotope Am-241
Separatory funnel size 250 ml Centrifuge
Dense liquid type Poly-W (2.6 g/cc)

	A Duplicate 1	B Duplicate 2
Amt. dense liquid, (+ H_2O)	100	100
Air dry mass of sample, g	< 50.0 g	< 50.0 g
Gross counts, initial, pCi	—	—
Background counts, initial, pCi	—	—
Net sample counts, initial, pCi	—	—
Time for separation	1:30: hr	1:30: hr
~~Air~~ oven dry weight (~~cyclone~~)		
Float products	28.670 g	28.580 g
Liquid ~~Sink~~ products	109.612	120.535
Gross counts, final, pCi		
Float products	—	—
Sink products	—	—
Background counts, final, pCi		
Float products	—	—
Sink products	—	—
Net sample counts, final, pCi/g		
Float products	23.88 pCi/g	21.19 pCi/g
Liquid ~~Sink~~ products	2.32	1.24

Comments and Observations Second DLC sep. at 2.6 g/cc. Sink products went on to 2.9 g/cc test.

Reviewer

28 April 1994
Date

LESAT
Technology Applications Division

INSTRUCTION
DENSE LIQUID CHARACTERIZATION OF SOILS

DLC FORM

Date 8/26/93

Technician T. Murarik

Sample ID RF114124 (< #325,0) A,B

As received, gross mass —
Weighing pan mass —
As received, net mass 50.0 g
Air dried mass 50.0 g
Oven dried mass 50.0 g
Isotope Am-241
Separatory funnel size 250 ml centrifuge
Dense liquid type Poly-W (2.9 g/cc)

	A Duplicate 1	B Duplicate 2
Amt. dense liquid, (no H_2O)	100	100
Air dry mass of sample, g	< 50.0 g	< 50.0 g
Gross counts, initial, pCi	—	—
Background counts, initial, pCi	—	—
Net sample counts, initial, pCi	—	—
Time for separation	1:30 hr	1:30 hr
~~Air~~ oven dry weight ~~(cyclone)~~		
Float products	17.537 g	18.062 g
Sink products	4.153 ~~4.073~~ Tm	4.073
~~Gross counts, final, pCi~~ Tm Liquid products	~~3.612~~ + 186.629	9.047
Float products	—	—
Sink products	—	—
Background counts, final, pCi		
Float products	—	—
Sink products	—	—
Net sample counts, final, pCi		
Float products	8.94 pCi/g	8.98 pCi/g
Sink products	67.90	58.61
Liquid products	10.18 + 0.44	4.22

Comments and Observations Final D.L.C. sep, at 2.9 g/cc. All products removed.

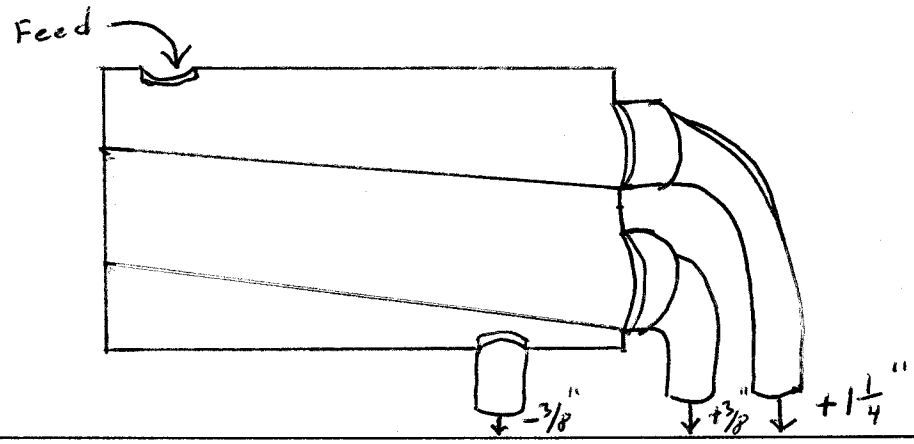
Greg [illegible]
Reviewer

28 April 1994
Date

Vibrating Screen Run Sheet

Date 7/26/93
Lab Supervisor T. Wenstrand
Run # RFP #1

System Configuration:



System Configuration by T.M. Tilt Angle 8 Feed Weight 219. lbs
Feed Rate ~100 lbs ~~kg~~/hr by T.M.

Water Flow N/A L/min by N/A Time Feed Started 1:00 by TM
Size of screen: 1st 1 1/4" 2nd 3/8"

Time Feed Stopped 2:50 pm by T.M.

Stream	Weight ~~(kg)~~ TM lbs	Volume (cc)	Moisture (%)	Activity (pCi/g)	By
+ 5/4" Organics	3.0	N/A	~0	9.0 - 19.5	T.M.
+ 5/4" gravel	7.0	"	~0	0.1 - 0.2	T.M.
+ 3/8" gravel	62.0	"	~0	0.3 - 0.8	T.M.
< 3/8" feed	142.5	"	11.6	17.6	T.M.
+ 3/8" screen clean out	2.0	"	~0	~~17.6~~ 0.5 TM	T.M

Special Instructions: Screened < 3/8" material is feed for Run #2.

Safety —— Date ——

Vibrating Screen Run Sheet Reviewed by Greg Reed Date 28 April 1994

AWC

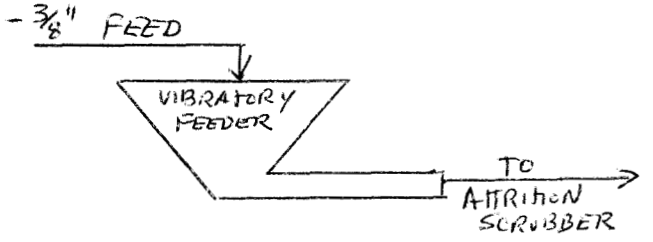
FEED AUGER RUN SHEET

Date 7/27/93

Lab Supervisor T. Wenstrand

Run # RFP-2

System Configuration:



System Configuration by SRW

Feed Rate 70.42* kg/hr by SRW * "moist"

Angle of Tilt NA ° by NA

Time Feed Started 10:30 AM by SRW

Time Feed Stopped 11:25 AM by SRW

Feed Weight 64.55* kg by SRW * 142.5 TM "moist"

Stream	Weight ~~(kg)~~ TM lbs	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
< 3/8" feed	142.5	N/A	11.6	17.6	TM

Special Precautions: Feeder needed to occasionally be manually unclogged due to matting from organics.

Safety — Date —

Feed Auger Run Sheet Reviewed by Greg Reed Date 28 April 1994

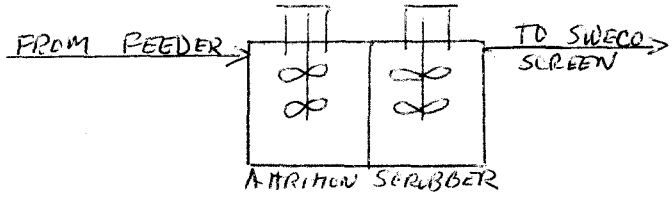
FM-044

TKW/6/91/Rev.0

AWC

ATTRITION SCRUBBER RUN SHEET	Date 7/27/93 Lab Supervisor T. Wenstrand Run # RFP-2

System Configuration:



System Configuration by ARW

Feed Rate 70.42 kg/hr by ARW

Impeller Speed fixed by manufacturer RPM by ARW

Time Feed Started 10:30 by T.M.

Pulp Density N/M % by —

Time Feed Stopped 11:27 by T.M.

Stream	Weight ~~(kg)~~ lbs	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
< 3/8" feed	142.5	N/A	11.6	17.6	T.M.
Attrn Scrub discharge	—	—	—	—	—

Special Instructions:

Special Precautions:

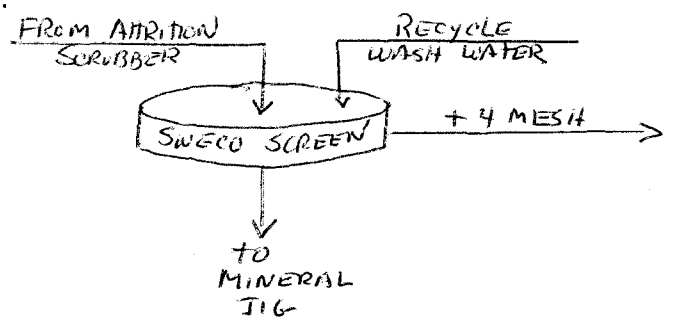
Safety — Date —

Attrition Scrubber Run Sheet Reviewed by Greg Reed Date 28 April 1994

Attachment 10.1 SWECO Vibro-Energy Separator Run Sheet

SWECO Vibro-Energy Separator Serial #:_____	Date 7/27/93 Lab Supervisor T. Wenstrand Run # RFP-2

System Configuration:



System Configuration by ARW # Weight Top —
Feed Rate 70.42 kg/hr by ARW # Weight Bottom —

Water Flow — L/min by — Time Feed Started 10:30 by TM.
Size of screen: 1st 4 mesh 2nd N/A 3rd N/A

Time Feed Stopped 11:27 by T.M.

Stream	Weight ~~(kg)~~ lbs	Volume (cc)	Moisture (%)	Activity (pCi/g)	By
~~Attrn scrub discharge/feed~~	~~4.0~~	—	~~78%~~	~~3.1~~	~~TM~~ TM
+4 mesh discharge	4.0 lbs	—	78%	3.1	T.M
−4 mesh discharge	—	—	—	—	—

Special Precautions:

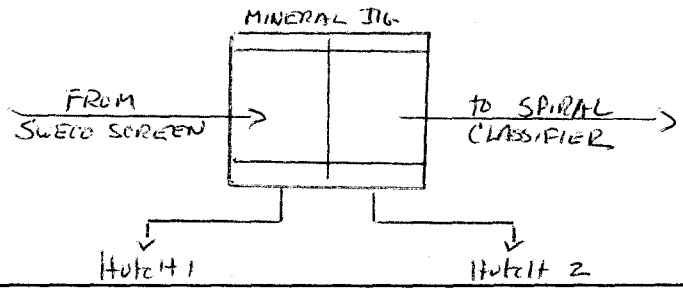
Safety — Date —

SWECO Vibro-Energy Separator Run Sheet Reviewed by Greg Rand Date 28 Apr. 1994

AWC

G.S. RUN SHEET	Date 7/27/93 Laboratory Supervisor T. Wenstrand Run # RFP-2

System Configuration:



System Configuration by T. Wenstrand Cell 1 Flow — l/m by —

G.S. Stroke Length ~~3/8"~~ (.953) cm by ARW Cell 2 Flow — l/m by —

G.S. Stroke Frequency 144/~~min~~ ~~cm~~ by ARW Dilution Water — l/m by —

Bedding Size 0.47 cm² by ARW Feed Rate ~~10:30~~ T kg/hr by ~~T.M.~~ T

Bedding Thickness 1.9 cm by ARW Time Feed Started 10:30 by T.M.

Feed Weight N/M lbs. by — Time Feed Stopped 11:27 by T.M.

Stream	Weight ~~(kg)~~ gm lbs	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
-4 mesh Screen discharge/feed	—	N/A	—	—	—
Hutch 1	24.0 lbs	N/A	29 %	1.92	T.M.
Hutch 2	15.5 lbs	N/A	27.6 %	1.32	T.M.
Hutch discharge	—	N/A	—	—	—

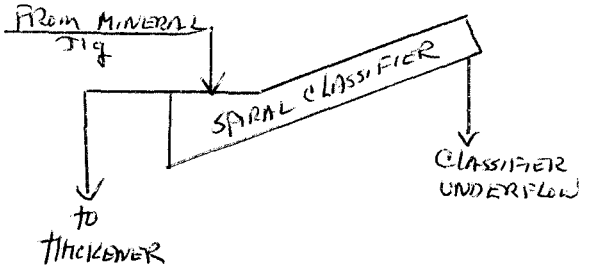
Special Instructions:

G.S. Run Sheet Reviewed by [signature] Date 28 April 1994

AWC

SPIRAL CLASSIFIER RUN SHEET	Date 7/27/93 Lab Supervisor T. Wenstrand Run # RFP-2

System Configuration:



System Configuration by ARW

Feed Weight N/M kg by —

Pulp Density NA % by ARW

Time Feed Started 10:30 by TM

Feed Rate N/M kg/hr by —

Time Feed Stopped 11:29 by TM

Stream	Weight ~~(kg)~~ TM lbs	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
Jig discharge/Feed	~~12.0 lbs~~ TM	—	—	—	—
Classifier underflow	12.0 lbs	N/A	29.0%	3.30	TM
Overflow to Thickener	—	—	—	—	—
Classifier Clean out	8.5 lbs	N/A	67.6%	6.78	TM

Special Precautions:

Safety — Date —

Spiral Classifier Run Sheet Reviewed by Greg [illegible] Date 28 April 1994

AWC

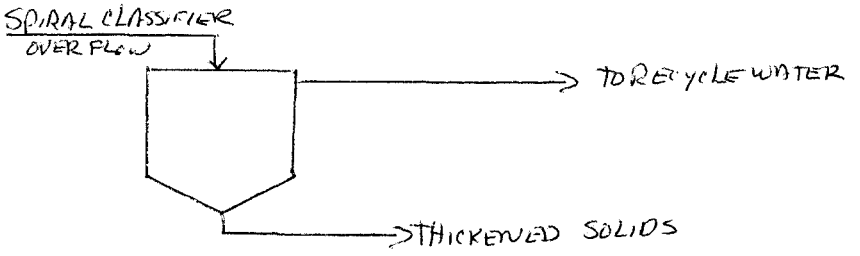
THICKENER RUN SHEET

Date 7/27/93

Lab Supervisor T. Wenstrand

Run # RFP-2

System Configuration:



System Configuration by ARW

Feed Pulp Density N/A % by ARW

Feed Flow Rate _____ l/m by _____

Flocculating Agent N/A by T.M.

Flocculant Dilution N/A by T.M.

Flocculant Addition rate N/A ml/m by T.M.

Flocculant Volume N/A ml by T.M.

Slurry Pump Flow Rate Varied l/m by ARW

Stream	Weight ~~(kg)~~ TM lbs	Moisture (%)	Volume (cc)	Activity (pCi/gm)	By
Classifier overflow/feed	—	—	—	—	—
Thickened Solids	139.5 lbs	262%	N/A	38.8	TM
Screen Organics	5.5 lbs	384%	N/A	26.3	T.M.

Special Instructions:

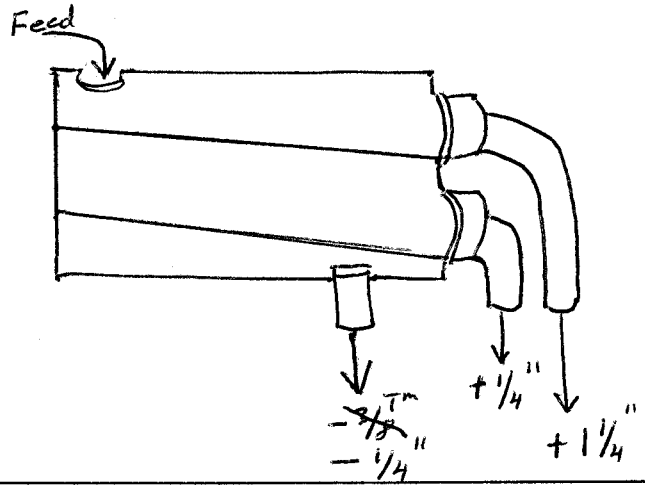
Safety — Date —

Thickener Run Sheet Reviewed by Greg [illegible] Date 28 April 1994

Vibrating Screen Run Sheet

Date 7/29/93
Lab Supervisor T. Wenstrand
Run # RFP # 3

System Configuration:



System Configuration by T.M. Tilt Angle 8° Feed Weight 236.5 lbs
Feed Rate ~ 150. lbs ~~kg~~/hr by T.W.

Water Flow N/A L/min by — Time Feed Started 9:40 by TM
Size of screen: 1st 1 1/4" 2nd 1/4"

Time Feed Stopped 11:15 by T.M.

Stream	Weight ~~(kg)~~ TM lbs	Volume (cc)	Moisture (%)	Activity (pCi/g)	By
+ 5/4" organics	1.5	N/A	~0	18.7	T.M.
+ 5/4" gravel	7.0	"	~0	0.6	T.M.
+ 1/4" gravel	67.0	"	~0	0.76	T.M.
< 1/4" feed	147.5	"	11.5	17.4	
+ 1/4" Screen clean out	10.5	"	~0	~~17.4~~ 17.8 TM	T.M.

Special Instructions: Dry Screened < 1/4" material for feed to Run # 4.

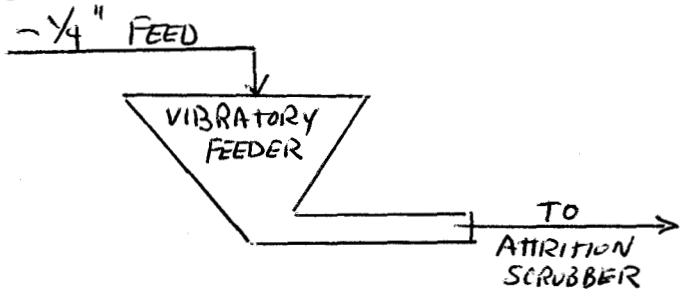
Safety — Date —

Vibrating Screen Run Sheet Reviewed by Greg Rast Date 28 April 1994

AWC

FEED AUGER RUN SHEET	Date 7/30/93 Lab Supervisor T. Wenstrand Run # RFP-4

System Configuration:



System Configuration by T. Wenstrand

Feed Rate 143.2 ~~kg~~ lbs/hr by TM

Angle of Tilt NA ° by ARW

Time Feed Started 12:24 by T.M.

Time Feed Stopped 1226 by T.M.

Feed Weight 147.5 ~~kg~~ lbs by TM

Stream	Weight ~~(kg)~~ lbs	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
< 3/8" feed	147.5	N/A	11.5	17.4	TM

Special Precautions: Feeder, on occasion, needed to be manually unclogged due to build up of matting from organics.

Safety — Date —

Feed Auger Run Sheet Reviewed by Greg Rust Date 28 April 1994

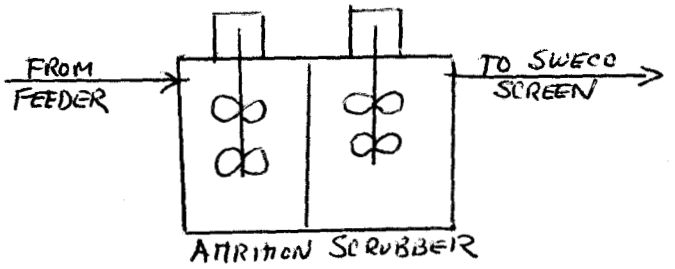
FM-044

TKW/6/91/Rev.0

AWC

ATTRITION SCRUBBER RUN SHEET	Date 7/30/93 Lab Supervisor T. Wenstrand Run # RFP-4

System Configuration:



System Configuration by T. Wenstrand

Feed Rate 143.2 lbs ~~kg~~/hr by T.M

Impeller Speed Fixed by Manufacturer RPM by ARW

Time Feed Started 12:24 by T.M.

Pulp Density N/M % by —

Time Feed Stopped 1:28 by T.M

Stream	Weight (kg)	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
< 1/4" feed	147.5	N/A	11.5	12.4	T.M
Attrn. Scrub discharge	—	—	—	—	—

Special Instructions:

Special Precautions:

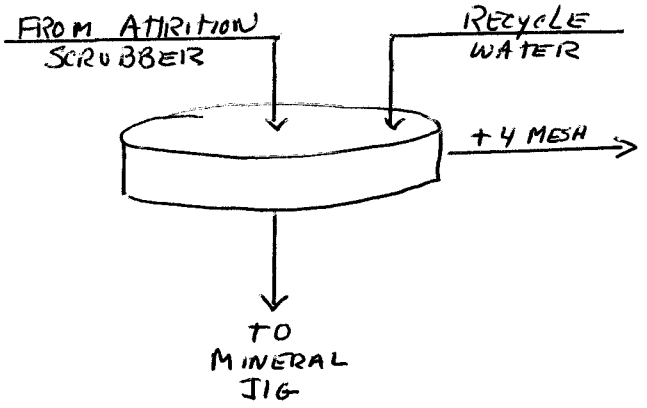
Safety — Date —

Attrition Scrubber Run Sheet Reviewed by Greg [illegible] Date 28 April 1994

Attachment 10.1 SWECO Vibro-Energy Separator Run Sheet

SWECO Vibro-Energy Separator Serial #:	Date 7/30/93 Lab Supervisor T. Wenstrand Run # RFP-4

System Configuration:



System Configuration by T. Wenstrand # Weight Top N/M
Feed Rate 143.2 lbs ~~kg~~/hr by TM # Weight Bottom N/M

Water Flow — L/min by — Time Feed Started 12:24 by T.M.
Size of screen: 1st 4 mesh 2nd N/A 3rd N/A

Time Feed Stopped 1:28 by T.M.

Stream	Weight ~~(kg)~~ T.M. lbs	Volume (cc)	Moisture (%)	Activity (pCi/g)	By
Attrn Scrub discharge/feed	—	—	—	—	—
+ 4 mesh discharge	6.0 lbs	N/A	23-52%	4.41	T.M.
− 4 mesh discharge	—	—	—	—	—

Special Precautions:

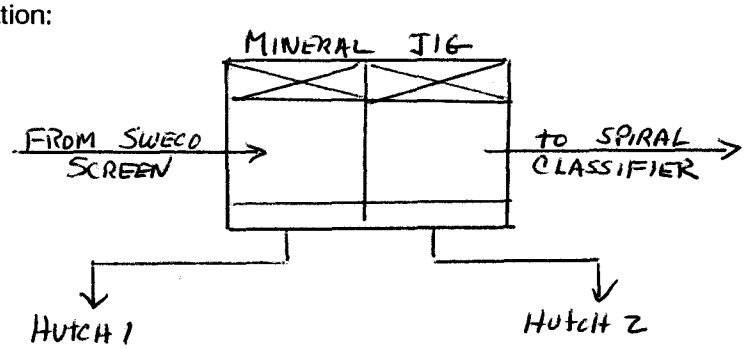
Safety — Date —

SWECO Vibro-Energy Separator Run Sheet Reviewed by [signature] Date 28 April 1994

AWC

G.S. RUN SHEET	Date 7/30/93 Laboratory Supervisor T. Wenstrand Run # RFP-4

System Configuration:



6 psi

6 Gpm total H_2O flow

System Configuration by G.W.		Cell 1 Flow NA l/m by ARW	
G.S. Stroke Length (3/8") cm by ARW		Cell 2 Flow NA l/m by ARW	
G.S. Stroke Frequency 150 ~~cm by~~ min		Dilution Water 22.7 l/m by T.M.	
Bedding Size 0.47 cm² by ARW		Feed Rate N/M kg/hr by —	
Bedding Thickness 1.9 cm by ARW		Time Feed Started 12:24 by T.M.	
Feed Weight _____ lbs. by _____		Time Feed Stopped 1:28 by T.M.	

50/20

Stream	Weight ~~(kg)~~ T.M. lbs	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
-4 mesh Screen discharge/feed	—	—	—	—	—
Hutch 1	33.0 lbs	N/A	91.4%	1.2	T.M.
Hutch 2	11.5 lbs	N/A	39.2%	1.5	T.M.
Hutch discharge	—	—	—	—	—

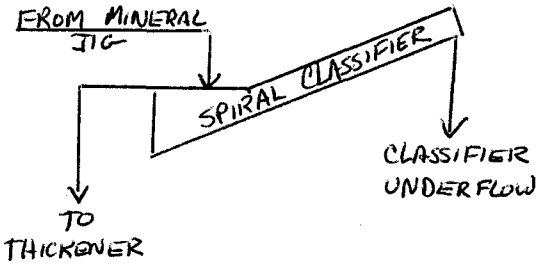
Special Instructions:

G.S. Run Sheet Reviewed by Greg Rach Date 28 April 1994

AWC

SPIRAL CLASSIFIER RUN SHEET	Date 7/30/93 Lab Supervisor T. Wenstrand Run # RFP-4

System Configuration:



System Configuration by Terry Wenstrand

Feed Weight post jig kg by –

Pulp Density N/M % by –

Time Feed Started 12:24 by T.M.

Feed Rate N/M kg/hr by –

Time Feed Stopped 1.28 by T.M.

Stream	Weight ~~(kg)~~ T.M. lbs	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
Jig discharge / feed	–	–	–	–	–
Classified underflow	28.0 lbs	N/A	23.0	2.6	TM
Overflow to thickener	–	–	–	–	–
Classifier Clean-out	31.0 lbs	N/A	48.0	1.4	TM
Classifier sump	21.0 lbs	N/A	3500.	48.0	T.M.

Special Precautions:

Safety – Date –

Spiral Classifier Run Sheet Reviewed by Greg [illegible] Date 28 April 1994

AWC

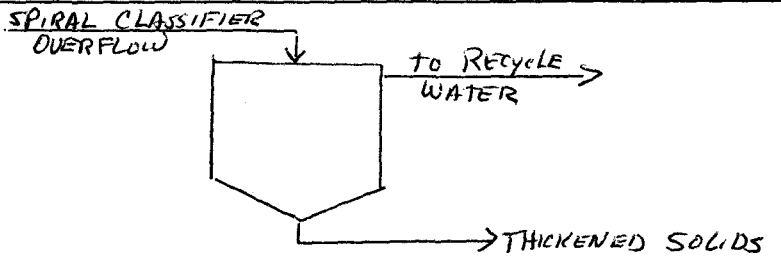
THICKENER RUN SHEET

Date 7/30/93

Lab Supervisor T. Wenstrand

Run # RFP-4

System Configuration:



System Configuration by Terry Wenstrand

Feed Pulp Density N/M % by —

Feed Flow Rate Varied l/m by —

Flocculating Agent N/A by T.M.

Flocculant Dilution N/A by T.M.

Flocculant Addition rate N/A ml/m by T.M.

Flocculant Volume N/A ml by T.M.

Slurry Pump Flow Rate N/A l/m by ARW

Stream	Weight ~~(kg)~~ T.M. lbs	Moisture (%)	Volume (cc)	Activity (pCi/gm)	By
Classifier overflow/feed	—	—	—	—	—
Thickened solids	182.0 lbs	25%	N/A	32-34	T.M.
Screen Organics	2.0 lbs	31%	N/A	18.4	T.M.

Special Instructions:

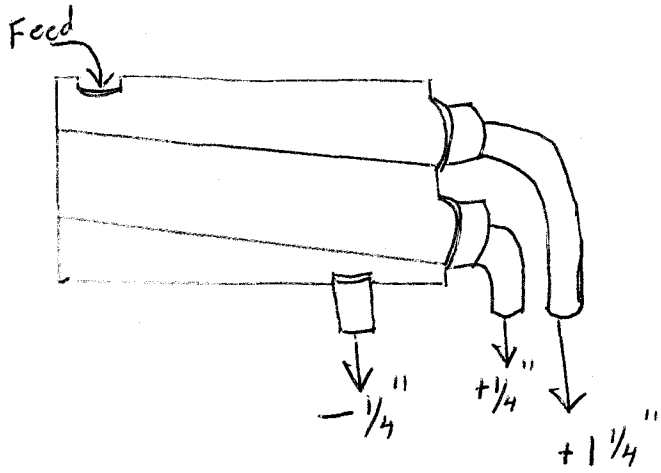
Safety — Date —

Thickener Run Sheet Reviewed by Greg [illegible] Date 28 April 1994

Vibrating Screen Run Sheet

Date 8/5/93
Lab Supervisor T. Wenstrand
Run # RFP #5

System Configuration:



System Configuration by T.M. Tilt Angle Θ Feed Weight 242.5 lbs.
Feed Rate 162. lbs ~~kg~~/hr by T.M.

Water Flow N/A L/min by — Time Feed Started 11:30 by T.M.
Size of screen: 1st 1 1/4" 2nd 1/4"

Time Feed Stopped 1:07 pm by T.M.

Stream	Weight (kg)	Volume (cc)	Moisture (%)	Activity (pCi/g)	By
+ 5/4" organics	2.0	N/A	Θ	12.7	T.M.
+ 5/4" gravel	5.0	"	Θ	0.1	T.M.
+ 1/4" gravel	61.0	"	Θ	0.3-1.3	T.M.
< 1/4" feed	162.0	"	12.3%	15.8	T.M.
~~+ 1/4" T.M.~~		"			

Special Instructions: Dry screened < 1/4" material for feed to Run #6.

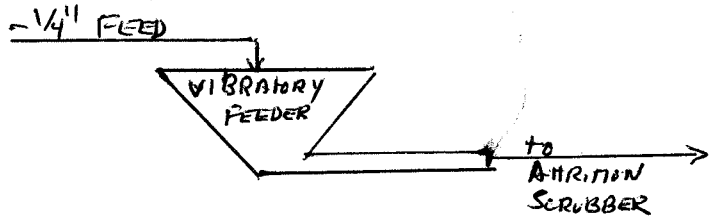
Safety — Date —

Vibrating Screen Run Sheet Reviewed by Greg [illegible] Date 28 April 94

AWC

FEED AUGER RUN SHEET	Date 8/6/93 Lab Supervisor T. Wenstrand Run # RFP-4

System Configuration:



System Configuration by T Murarik

Feed Rate ~~200~~ 162. T.M. ~~kg~~ lbs T.M./hr by ~~BKW~~ T.M.

5.9 dial setting

Angle of Tilt N/A ° by BKW

Time Feed Started 1218 by TM

Time Feed Stopped 1318 by BW

Feed Weight ~~150 lbs~~ 162. lbs T.M. ~~kg~~ by ~~BKW~~ T.M.

Stream	Weight ~~(kg)~~ T.M. lbs	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
Feed (<1/4")	162. lbs	N/A	~~15.6~~ 12.3 T.M.	15.8	T.M.

Special Precautions: Feeder needed to often be manually unclogged due to matting from organics.

Safety BK. White Date 6 Aug 93

Feed Auger Run Sheet Reviewed by Greg Reed Date 28 April 1994

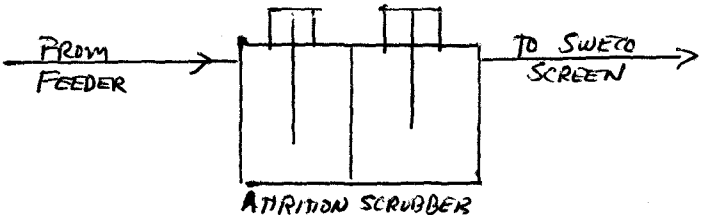
FM-044

TKW/8/91/Rev.0

AWC

ATTRITION SCRUBBER RUN SHEET	Date 8/6/93 Lab Supervisor T. Wenstrand Run # RFP-6

System Configuration:



System Configuration by D.K. White

Feed Rate ~~200~~ 162 T.M. ~~kg~~ lbs T.M./hr by DKW

Impeller Speed ~~Fixed by manufacturer~~ RPM by DKW

Time Feed Started 1218 by DKW

Pulp Density N/M % by _____

Time Feed Stopped 1:31 by T.M.

Stream	Weight ~~(kg)~~ lbs T.M.	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
< 1/4" feed	162 lbs	N/A.	12.3	15.8	T.M.
Attrn scrub discharge	162 lbs	—	—	—	TM

Special Instructions: H_2O at 850 ml min^{-1}

Special Precautions: Note: Scrubber Stopped at ~~1329~~ 1:31 T.M.

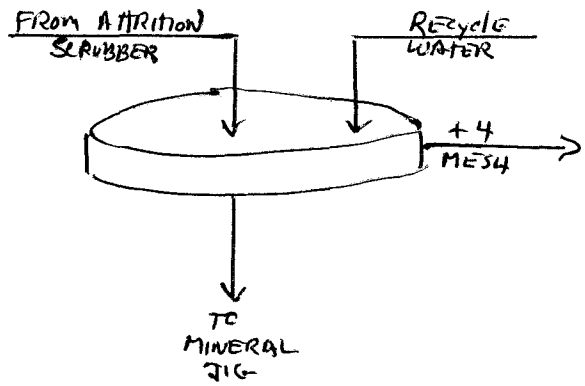
Safety D.K. White Date 6 Aug 93

Attrition Scrubber Run Sheet Reviewed by [illegible] Date 28 Apr 94

Attachment 10.1 SWECO Vibro-Energy Separator Run Sheet

SWECO Vibro-Energy Separator Serial #:	Date 8/6/93 Lab Supervisor T. Wenstrand Run # RFP-6

System Configuration:



System Configuration by B.K. White
Feed Rate 162 lbs ~~kg~~/hr by T.M.
Weight Top ~~Ø~~
Weight Bottom ~~Ø~~

Water Flow N/m L/min by –
Time Feed Started 12:18 by T.M.
Size of screen: 1st 4 mesh 2nd N/A 3rd N/A

Time Feed Stopped 1:31 by T.M.

Stream	Weight (~~kg~~ lbs)	Volume (cc)	Moisture (%)	Activity (pCi/g)	By
Attrn scrub discharge/feed	162.	N/A	~~21.~~	3.0	T.M.
+4 mesh discharge	2.0	"	21.	3.0	T.M.
–4 mesh discharge	160.	"			T.M.

Special Precautions:

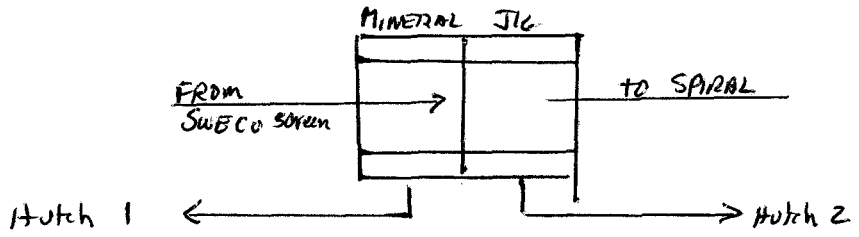
Safety B.K. White Date 6 Aug 93

SWECO Vibro-Energy Separator Run Sheet Reviewed by [illegible] Date 2 Feb 94

AWC

G.S. RUN SHEET	Date 8/6/93 Laboratory Supervisor T. Wenstrand Run # RFP-6

System Configuration:



System Configuration by D.K. White — Cell 1 Flow * l/m by BKW

G.S. Stroke Length (3/8") cm by BKW — Cell 2 Flow ** l/m by BKW

G.S. Stroke Frequency 150 c/m by BKW — Dilution Water Ø l/m by BKW

Bedding Size 0.47 cm² by BKW — Feed Rate N/m kg/hr by

Bedding Thickness 1.9 cm by BKW — Time Feed Started 12:18 by T.M.

Feed Weight post +4 mesh lbs. by — — Time Feed Stopped 1:31 by T.M.

Stream	Weight ~~(kg)~~ lbs	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
-4 mesh screen discharge/feed	160. lbs	N/A	—	—	T.M.
Hutch 1	41.0 lbs	"	28.5%	1.2	T.M.
Hutch 2	10.5 lbs	"	22.9%	1.8	T.M.
Hutch discharge	118. lbs	"	—	—	

Special Instructions: * 3.0 g/m
** 3.0 g/m

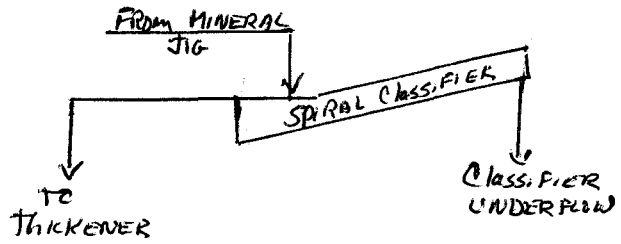
G.S. Run Sheet Reviewed by [signature] Date 28 Apr 94

FM-039 TKW/6/91/rev.0

AWC

SPIRAL CLASSIFIER RUN SHEET	Date 8/6/93 Lab Supervisor T. Wenstrand Run # RFP-6

System Configuration:



System Configuration by B.K. White

Feed Weight 118. lbs ~~kg~~ T.M. by T.M.

Pulp Density N/M % by —

Time Feed Started 12:18 by T.M.

Feed Rate 96.7 lbs ~~kg~~ T.M./hr by T.M.

Time Feed Stopped 1:31 by T.M.

Stream	Weight ~~(kg)~~ T.M. lbs	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
Classifier Underflow	36.5 lbs	N/A	18.3	2.1	T.M.
Classifier Clean-Out	3.5 lbs	N/A	7.0	5.0	T.M.
Jig discharge / feed	118. lbs	"	(12.3 assumed)	?	T.M.
Overflow to thickener	79.5 lbs	"	(12.5 assumed)	—	T.M.
Classifier sump	1.0 lbs	"	23.9	20.4	T.M.

Special Precautions:

Safety B.K. White Date 6 Aug 93

Spiral Classifier Run Sheet Reviewed by [signature] Date 28 Apr 94

AWC

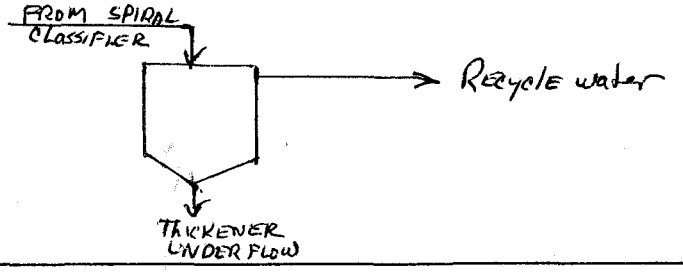
THICKENER RUN SHEET

Date 8/6/93

Lab Supervisor T. Wenstrand

Run # RFP-6

System Configuration:



System Configuration by B.K. White

Feed Pulp Density N/m. % by —

Feed Flow Rate Varied l/m by —

Flocculating Agent N/A by BKW

Flocculant Dilution N/A by T.M.

Flocculant Addition rate N/A ml/m by T.M

Flocculant Volume N/A ml by T.M.

Slurry Pump Flow Rate NA l/m by ~~BKW~~

Stream	Weight (kg)	Moisture (%)	Volume (cc)	Activity (pCi/gm)	By
Thickener Underflow (feed)	79.5 lbs	(12.3 assumed)	N/A	—	T.M.
Thickened Solids	~~68.5~~ 68.5 lbs T.M.	~~0~~	"	32.	T.M.
Screen Organics	1.7 lbs	~~0~~	"	22.	T.M.

Special Instructions:

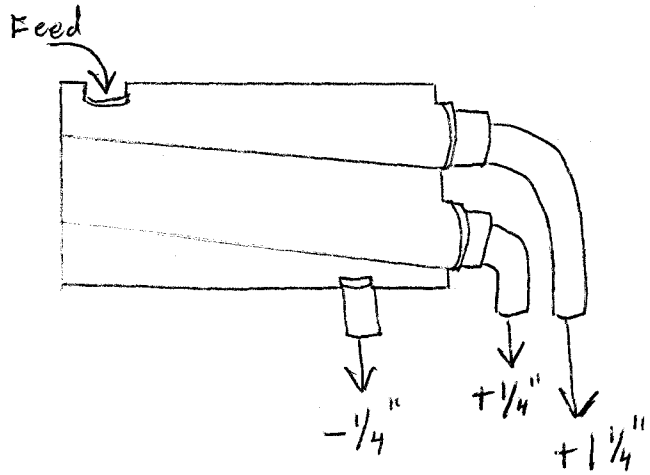
Safety B.K. White Date 6 Aug 93

Thickener Run Sheet Reviewed by [illegible] Date 28 Apr 94

Vibrating Screen Run Sheet

Date 8/11/93
Lab Supervisor Terry Wenstrand
Run # BFP#7

System Configuration:



System Configuration by T.M. Tilt Angle Θ Feed Weight 267.5 lbs
Feed Rate 134. lbs ~~kg~~/hr by T.M.

Water Flow N/A L/min by T.M. Time Feed Started 2:20 by TM
Size of screen: 1st 1 1/4" 2nd 1/4"

Time Feed Stopped 4:15 pm by T.M.

Stream	Weight ~~(kg)~~ lbs	Volume (cc)	Moisture (%)	Activity (pCi/g)	By
+1 1/4" organics	1.5 lbs	N/A	Θ	9.2-21.2	T.M.
+1 1/4" gravel	11. lbs	"	Θ	2.1	T.M.
+ 1/4" gravel	73.5 lbs	"	Θ	0.7	T.M.
< 1/4" feed	172.5 lbs	"	11.7	12.8	T.M.
+ 1/4" Screen Clean-out	19.5 lbs	"	—	—	T.M.

Special Instructions: Dry screened < 1/4" material for feed to Run #8.

Safety — Date —

Vibrating Screen Run Sheet Reviewed by [illegible] Date 28 Apr 94

AWC

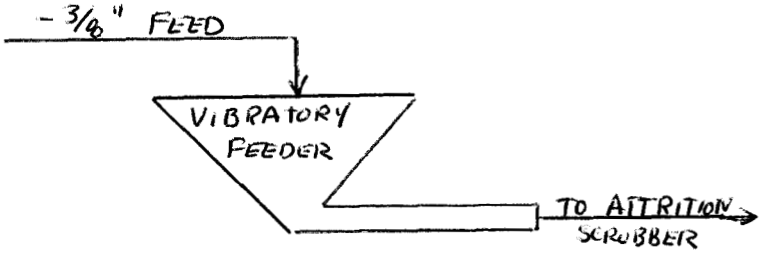
FEED AUGER RUN SHEET

Date 8/12/93

Lab Supervisor T. Wenstrand

Run # RFP-8

System Configuration:



System Configuration by T.M.

Feed Rate 138.0 lbs ~~kg~~ T.M./hr by T.M.

Angle of Tilt Ø ° by T.M.

Time Feed Started 11:30 by T.M.

Time Feed Stopped 12:45 by T.M.

Feed Weight ~~267.5~~ 172.5 T.M. lbs ~~kg~~ T.M. by T.M.

Stream	Weight ~~(kg)~~ T.M. lbs	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
<1/4" feed	172.5 lbs	N/A	11.66	12.8	T.M.

Special Precautions: Feeder needed to often be manually unclogged due to matting from organics.

Safety — Date —

Feed Auger Run Sheet Reviewed by [signature] Date 28 Apr 94

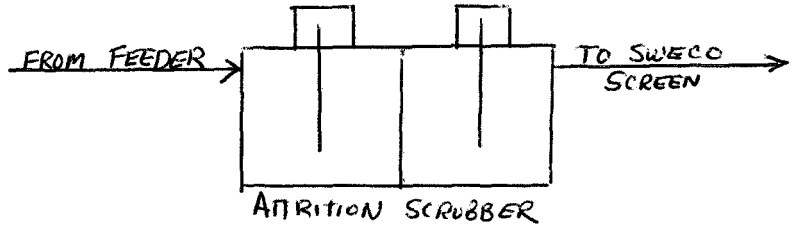
FM-044

TKW/6/91/Rev.0

AWC

ATTRITION SCRUBBER RUN SHEET	Date 8/12/93 Lab Supervisor T. Wenstrand Run # RFP-8

System Configuration:



System Configuration by Terry W.

Feed Rate 138 lbs ~~kg~~ T.M./hr by T.M.

Impeller Speed fixed by manufacturer RPM by SRW

Time Feed Started 11:30 by T.M.

Pulp Density N/M % by _____

Time Feed Stopped 12:50 by T.M.

Stream	Weight ~~(kg)~~ T.M. lbs	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
< 1/4" feed	172.5 lbs	N/A	11.66	12.8	T.M.
Attrn. scrub discharge	172.5 lbs	"	(11.66, assumed)	—	T.M.

Special Instructions:

Special Precautions:

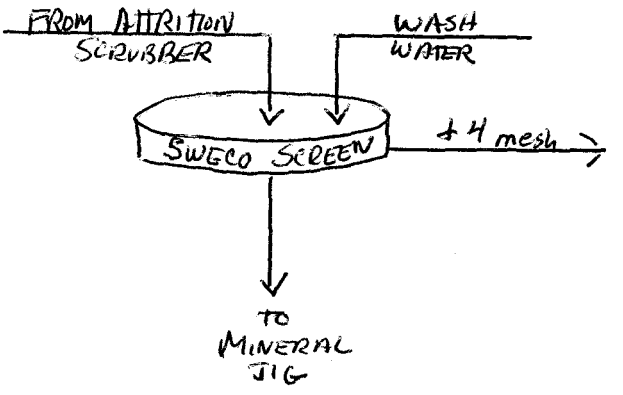
Safety ✓ Date ✓

Attrition Scrubber Run Sheet Reviewed by [signature] Date 28 Apr 94

Attachment 10.1 SWECO Vibro-Energy Separator Run Sheet

SWECO Vibro-Energy Separator Serial #:	Date 8/12/93 Lab Supervisor T. Wenstrand Run # RFP -8

System Configuration:



System Configuration by Terry W. # Weight Top N/M
Feed Rate _____ kg/hr by _____ # Weight Bottom N/M

Water Flow N/M L/min by — Time Feed Started 11:30 by T.M.
Size of screen: 1st 4 MESH 2nd NONE 3rd NONE

Time Feed Stopped 12:45 by T.M.

Stream	Weight ~~(kg)~~ lbs	Volume (cc)	Moisture (%)	Activity (pCi/g)	By
Attm. Scrub discharge/feed	172.5	N/A	11.66	12.8	T.M.
+ 4 mesh discharge	4.0	"	62.4	2.7	T.M.
− 4 mesh discharge	170.8	"	~~11.7~~	—	T.M.

Special Precautions:

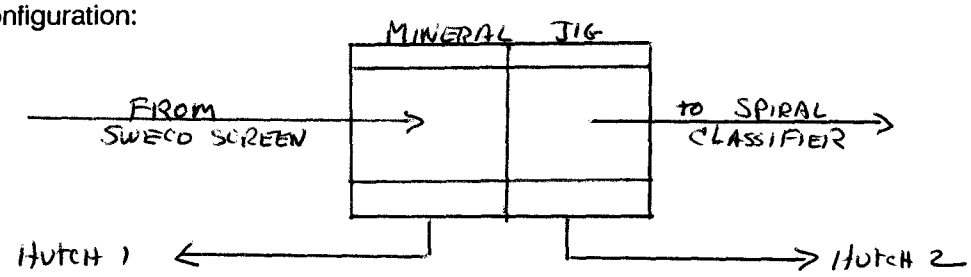
Safety _____ Date _____

SWECO Vibro-Energy Separator Run Sheet Reviewed by [signature] Date 28 Apr 94

AWC

G.S. RUN SHEET	Date 8/12/93 Laboratory Supervisor T. Wenstrand Run # RFP-8

System Configuration:



System Configuration by Terry W. Cell 1 Flow NA l/m by ARW

G.S. Stroke Length 0.953 cm by ARW Cell 2 Flow NA l/m by ARW

G.S. Stroke Frequency 150 c/m by ARW Dilution Water N/A l/m by

Bedding Size 0.47 cm² by ARW Feed Rate From Screen kg/hr by

Bedding Thickness 1.9 cm by ARW Time Feed Started 11:30 by T.M.

Feed Weight post +4 mesh lbs. by Time Feed Stopped 12:45 by T.M.

Stream	Weight ~~(kg)~~ TM lbs	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
-4 mesh Screen discharge/feed	170.8	N/A	(11.7, assumed)	—	T.M.
Hutch 1	39.5	"	29.7	1.39	T.M.
Hutch 2	7.5	"	34.3 ~~7.5~~ TM	34.3	T.M.
~~Hutch~~ Jig TM discharge	133.6	"	(11.7, assumed)	—	T.M.

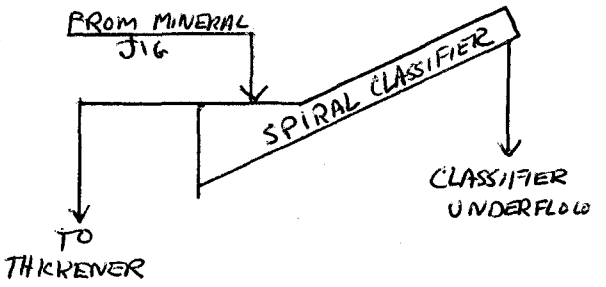
Special Instructions:

G.S. Run Sheet Reviewed by [signature] Date 28 Apr 94

AWC

SPIRAL CLASSIFIER RUN SHEET	Date 8/12/93 Lab Supervisor T. Wenstrand Run # RFP-8

System Configuration:



System Configuration by Terry W.

Feed Weight N/measured kg by —

Pulp Density N/measured % by —

Time Feed Started 11:30 by T.M.

Feed Rate Not measured kg/hr by T.M.

Time Feed Stopped 12:45 by T.M.

Stream	Weight ~~(kg)~~ T.M. lbs	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
~~Hutch~~ Jig discharge/feed	133.6	N/A	(11.7% assumed)		T.M.
Classifier underflow	24.5	"	17.3	1.58	T.M.
overflow to thickener	99.4	"	(11.7% assumed)	—	T.M.
Classifier clean out	11.0	"	24.2	2.26	T.M.
classifier Sump	1.5	"	~~410.~~ 8% T.M.	16.93	T.M.

Special Precautions:

Safety — Date —

Spiral Classifier Run Sheet Reviewed by [illegible] Date 28 Apr 94

AWC

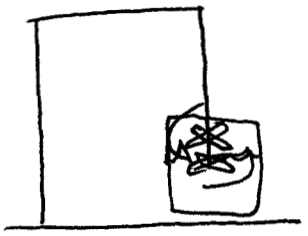
LAS RUN SHEET

Date 16 AUG 1993

Lab Supervisor T. Wenstrand

Run # 2.3

System Configuration:



System Configuration by KLS

Feed Weight RF AT 2 SG3 969.7 gms by MASS

Pulp Density 65 % by vol

Scrubber Speed 900 RPM by Motor

Scrub Time 10 min by clock

Stream	Weight (gms)	Moisture (%)	Volume (cc)	Activity (pCi/gm)	By	ROI REVISED DATA
#20 RF605900	390.0	65%	522.15ml	.0539	BM	.05826
#50 RF60 6000	261.5	↓	↓	.3959	BM	0.7512
#100 RF606100	157.0			3.119	BM	1.403
-#100 RF606200	15.6			16.36	BM	16.36

Special Instructions: ATTrition 2 Stage 3

Safety _____ Date _____

LAS Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

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AWC

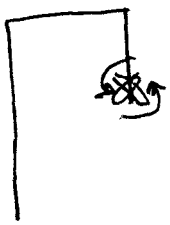
LAS RUN SHEET

Date 15 Sept 93

Lab Supervisor Terry Wenstrand

Run # Attrition 3, Stage 1 First HALF

System Configuration:



Unable to fit entire Mass of +#100/-1/4" Sample Prep Material (RF606600) ~~set~~ in Attrition Scrubber Container, so split the sample in half. This is the ~~Second~~ First half. The total mass of the +#100/-1/4" Sample Prep Material is 2057.1g. The sub sample count material mass of 324.8g counted out at ~~1.862 pCi/g~~ 1.862

System Configuration by KLS

Feed Weight 500.2 gms by KLS

Pulp Density 65 % by KLS

Scrubber Speed 900 RPM by KLS

Scrub Time 10 min by KLS

Stream	Weight (gms)	Moisture (%)	Volume (cc)	Activity (pCi/gm)	By
RF 60680A #20 ~~RF606808 #20~~ TKW	251.0	65	306.6	0.844* ~~0.844~~ TKW	TKW
RF606900 #50	265.2	↓	↓	0.6089	TKW
RF607000 #100	170.2			1.426	TKW
RF607100 -#100				~~0.236~~ TKW	TKW
RF60680B #20	238.3			0.236	TKW

Special Instructions: Attrition 3, Stage 1, 1st half

Safety — Date —

LAS Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

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* short count poor statistics

AWC

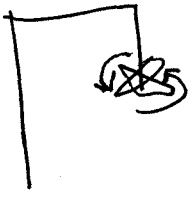
LAS RUN SHEET

Date 15 Sept 93

Lab Supervisor Terry Wenstrand

Run # ~~Attrition 3, Stage 1~~ SEcond half

System Configuration:



Unable to fit entire mass of +#100/-¼" Sample Prep Material (RF 606600) in Attrition Scrubber Container, so split the Sample in half. This is the second half.

System Configuration by KLS

Feed Weight _____ gms by _____

Pulp Density 65 % by KLS

Scrubber Speed 900 RPM by KLS

Scrub Time 10 min by KLS

Stream	Weight (gms)	Moisture (%)	Volume (cc)	Activity (pCi/gm)	By
See First half DATA - all combined there from both halves.					

Special Instructions: Attrition 3, Stage 1, 2nd half.

Safety _____ Date _____

LAS Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

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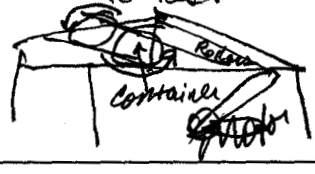
*

OPERATION OF THE TUMBLER

TUMBLER RUN SHEET	Date 6/17/93 Laboratory Supervisor T. Wenstrand Run# 1

System Configuration: 70% Solids/Moisture Slurry
2428.6 g Material to test
+ 1/4"
41 RPM



System Configured by K. Smith

Mesh Size + 1/4 Mesh by KLS

RPM 41 by KLS

Time Started 9:38 AM by KLS

Time Stopped 9:40 AM by KLS

Stream	Weight(g)	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
+ 1/4"	2380.1	1040.8ml	70%	0.072	BKW
− 1/4"	46.863	1040.8ml	70%	5.131	KLS
+ 1/4" REVISED	ROI	DATA:			
+ 1/4"	2380.1	1040.8ml	70%	0.5478	BKW

40,000 sec. Count
4,000 sec.

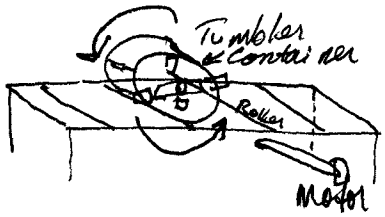
Special Instructions: Subsampler RF642T25 (+1/4") & RF643T-4 (−1/4" mesh material) Tumbling Test #1

Tumbler Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

OPERATION OF THE TUMBLER

TUMBLER RUN SHEET	Date 6/23/93 Laboratory Supervisor T. Wenstrand Run# 2

System Configuration:



System Configured by Keith Smith

Mesh Size 1/4" by KLS

RPM 41 by KLS

Time Started 8:58 AM by KLS

Time Stopped 9:01 AM by KLS

Stream	Weight(g)	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
+ 1/4"	2381.4 ~~2363.2~~ KLS	1020.6	70%	.3709	KLS
− 1/4"	17.117	1020.6	70%	2.830	KLS

REVISED ROI DATA

−# LMDA

Special Instructions: Subsamples RF 648T25 (+1/4") & RF649T-4 (−1/4")

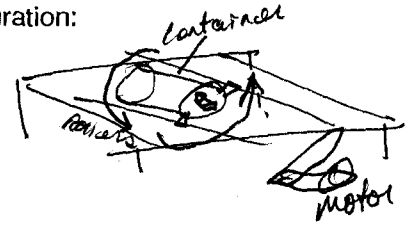
Tumbler Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

*

OPERATION OF THE TUMBLER

TUMBLER RUN SHEET	Date 6/25/93 Laboratory Supervisor T. Wenstrand Run# 3

System Configuration:



System Configured by Keith Smith

Mesh Size 1/4" Mesh by KLS

RPM 41 by KLS

Time Started 3 pm by KLS

Time Stopped 3:10 pm by KLS

Stream	Weight(g)	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
+1/4" (40,000 sec.)	285.904	1012.8	70	-.0821 MDA .0466	KLS
-1/4" (4,000 sec.)	8.804	1012.8	70	7.588	KLS

REVISED ROI DATA: 2.003

Special Instructions: Sub samples RF655T25 (+1/4" mesh) & RF656T-4 (-1/4")

Tumbler Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

AWC

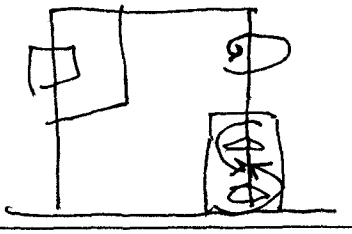
LAS RUN SHEET

Date 6/9/93

Lab Supervisor Terry Wenstrand

Run # 1

System Configuration: Denver Attrition Scrubber
2 minutes
900 RPM



System Configuration by Keith Smith

Feed Weight 767.5 gms by KLS

Pulp Density 65 % by KLS

Scrubber Speed 900 RPM by KLS

Scrub Time 2 min by KLS

Stream	Weight (gms)	Moisture (%)	Volume (~~pct~~ ml)	Activity (pCi/gm)	By
All	Gross 1180.8	65	413 H_2O	N/A	KLS
+ 20 mesh fraction	Net 403.5	0	N/A	0.051	BW
+ 100 mesh fraction	Net 127.5g	0	N/A	2.443	BW
+ 50 mesh fraction	Net 178.3g	0	N/A	1.26	JP
− 100 mesh fraction	Net 47.352g	0	N/A	20.75	JP

REVISED ROI DATA:
0.8291

Special Instructions: Subsamples RF603020, RF603150, RF6032+C, ~~RF6033-C~~ KLS RF6035-C

Safety _____ Date _____

LAS Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

FM-092 TKW/8-91/Rev.0

AWC

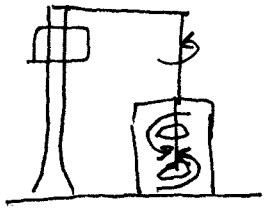
LAS RUN SHEET

Date 6/14/93

Lab Supervisor Terry Wenstrand

Run # 2

System Configuration: Denver Attrition Scrubber
3 Minutes
900 RPM



System Configuration by Keith Smith

Feed Weight 708.1 gms by KLS

Pulp Density 65 % by KLS

Scrubber Speed 900 RPM by KLS

Scrub Time 3 minutes min by KLS

Stream	Weight (gms)	Moisture (%)	Volume (cc)	Activity (pCi/gm)	By	REVISED ROI DATA.
All	Not 708.1	65	381.3g	N/A	KLS	
+20 Mesh Fraction	329.678	0	N/A	0.256	JP	0.5523
+50 " "	207.868	0	N/A	0.354	JP	~~0.489~~ KLS .2112
+100 " "	146.694	0	N/A	2.83	JP	
-100 " "	21.868	0	N/A	30.22	JP	

Special Instructions: Subsamples RF 603720, RF 603850, RF 6039+C, RF 6040C-

Safety Lab Coat, Shield, gloves Date 6/14/93

LAS Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

FM-092 TKW/8-91/Rev.0

AWC

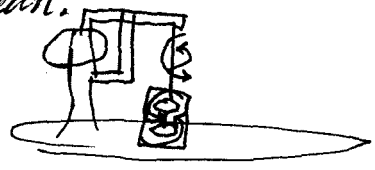
LAS RUN SHEET

Date 6/18/93

Lab Supervisor Terry Wenstrand

Run # 3

System Configuration: Combined +20 mesh, +50 mesh, & +100 mesh from 2nd run.



System Configuration by Keith Smith

Feed Weight 1169.5 gms by KLS

Pulp Density 65 % by KLS

Scrubber Speed 900 RPM by KLS

Scrub Time 5 min by KLS

Stream	Weight (gms)	Moisture (%)	Volume ~~(ec)~~	Activity (pCi/gm)	By
+20 mesh	323.039	65	629.7ml	4000 Count .1197	KLS
+50 "	196.503	"	Combined	40000 Count .3139	KLS
+100 "	150.6	"	"	4000 Count 1.305	KLS
-100 "	11.236	"	"	4000 Count 20.28	KLS

REVISED ROI DATA
0.489
0.5363 (4K)
0.5301 (40K)

Special Instructions: Subsamples RF 604420, RF 604550 (4K) ~~RF 604~~ KLS
RF 645501 (40K Sec. Count), RF 6046+C, & RF 6047-C

Safety _____ Date _____

LAS Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

FM-092 TKW/8-91/Rev.0

AWC

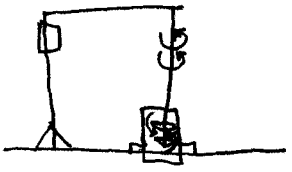
LAS RUN SHEET

Date 6/23/93

Lab Supervisor Terry Wienshand

Run # 4

System Configuration:



System Configuration by Keith Smith

Feed Weight 669.9 gms by KLS

Pulp Density 65 % by KLS

Scrubber Speed 900 RPM by KLS

Scrub Time 10 min by KLS

Stream	Weight (gms)	Moisture (%)	Volume (cc)	Activity (pCi/gm)	By	REVISED ROI DATA
+20 Mesh	307.16	65	360.7ml	.5438	KLS	0.2201
+50 Mesh	199.456	"		.2531	KLS	0.5071
+100 Mesh	135.202	"		2.503	KLS	
-100 Mesh	25.408	"		7.597	KLS	

Special Instructions: Sub samples RF 6054-C, RF6053+C, RF605250, RF605120. RF605120 counted for 4000 sec. RF 605250 counted for 40,000 sec. RF 6053+C counted for 1000 sec. RF 6054-C counted for 1000 sec.

Safety _____ Date _____

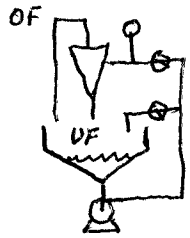
LAS Run Sheet Reviewed by Terry Wienshand Date 4/28/94

FM-092 TKW/8-91/Rev.0

AWC

HYDROCYCLONE TEST UNIT RUN SHEET	Date 20 Aug 93 Lab Supervisor T. WENSTRAND Run # RFP# 20

System Configuration:



System Configuration by ARW

Hydrocyclone Size 2" w/14MM orifice by ARW

Underflow Beaker Weight NA by ARW

Overflow Beaker Weight NA by ARW

Feed Weight FALCON TAILS kg by ARW

Water Volume Underflow NA l by ARW

Pulp Density ≈ 7 % by ARW

Water Volume Overflow NA l by ARW

Time Feed Started 11:29 by ARW

Solids Volume Underflow NA kg by ARW

Time Feed Stopped 11:36 by ARW

Solids Volume Overflow NA kg by ARW

Hydrocyclone Pressure 15/30/60 psi by ARW

Stream ARW	Weight ARW (15 PSI) ~~(kg)#~~ (30 PSI)		~~Volume (cc)~~ (60 PSI)	~~Moisture (%)~~	Activity (pCi/gm)		By
~~RFP # 19 TAILS (FEED)~~	wt			activity 15	30	60	
RFP#20 UF	.069	.072	.055	46.29	37.94	41.73	ARW
RFP#20 OF	.056	.028	.028	43.33	81.87	52.87	ARW

Special Precautions:

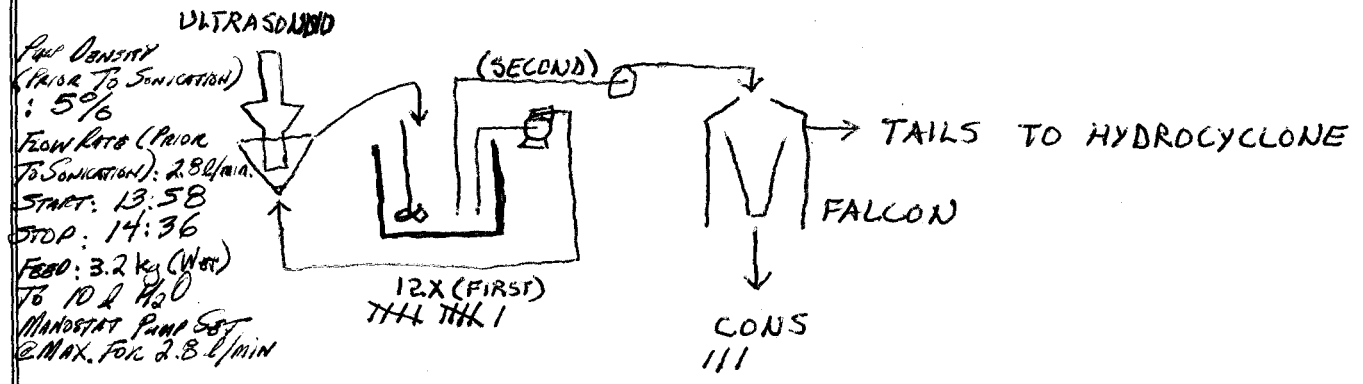
Safety — Date —

Hydrocyclone Test Unit Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

AWC

FALCON / SONICATOR ~~M.G.S.~~ RUN SHEET	Date 23 Aug 93 Laboratory Supervisor T. WENSTRAND Run # RFP #21

System Configuration:



System Configuration by ARW	Feed Weight 3.2 kg ~~dry~~ wet wt. by ARW
Angle of Tilt NA c/m ° by ARW	Pulp Density 5 % by GRW
Rotation Speed PRE-SET R/m by ARW	* Feed Rate 600 ~~kg/hr~~ mL/min. by GF
Shake Frequency NA cm by ARW	Time Feed Started 14:44 by GF
Shake Amplitude NA cm by ARW	Time Feed Stopped 15:19 by GF

Stream	Weight (kg)	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
RFP #6 TUF (FEED)	1.99	~500	Oven Dried	37.30	ARW
RFP #21 CONS	.61	"	" "	13.07	ARW
RFP #21 TAILS	.04	"	" "	56.13	ARW
RFP #21 Sonicated Falcon Feed	1.99	"	" "	37.30	ARW

Special Instructions: RECYCLE FALCON TAILS 3X (4 PASSES THROUGH FALCON)

08-23: Ultrasound Run Done By J. Foisel & G. Williams.

" " Concentrator Run Done By J. Foisel & G. Williams. * Mandstat Set To Level 5.

M.G.S. Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

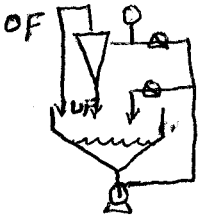
FM-042

TKW/6/91/Rev.0

AWC

HYDROCYCLONE TEST UNIT RUN SHEET	Date 23 Aug 93 Lab Supervisor T. WENSTRAND Run # RFP # 22

System Configuration:



System Configuration by SRW

Hydrocyclone Size 2" w/14 mm orifice by SRW

Underflow Beaker Weight NA by SRW

Overflow Beaker Weight NA by SRW

Feed Weight FALLON TAILS kg by SRW

Water Volume Underflow NA l by SRW

Pulp Density ~ 5 % by GRW

Water Volume Overflow NA l by SRW

Time Feed Started 15:37 by [signature]

Solids Volume Underflow NA kg by SRW

Time Feed Stopped 15:42 by [signature]

Solids Volume Overflow NA kg by SRW

Hydrocyclone Pressure 15/30/60 psi by SRW

Stream	Weight ~~(kg)~~ # SRW 15 PSI	30 PSI	~~Volume~~ SRW ~~(cc)~~ 60 PSI	~~Moisture (%)~~ 15	30	Activity (pCi/~~gm~~) 60	By
~~RFP# 21 TAILS (FEED)~~ SRW		wt	~500	Over Dried			
RFP# 22 UF	.050	.056	.050	52.69	46.65	63.14	SRW
RFP# 22 OF	.024	.026	.023	80.80	64.99	80.82	SRW

Special Precautions: COLLECT THREE SETS OF THE OVER & UNDERFLOW (@ 15, 30 & 60 psi) [signature]

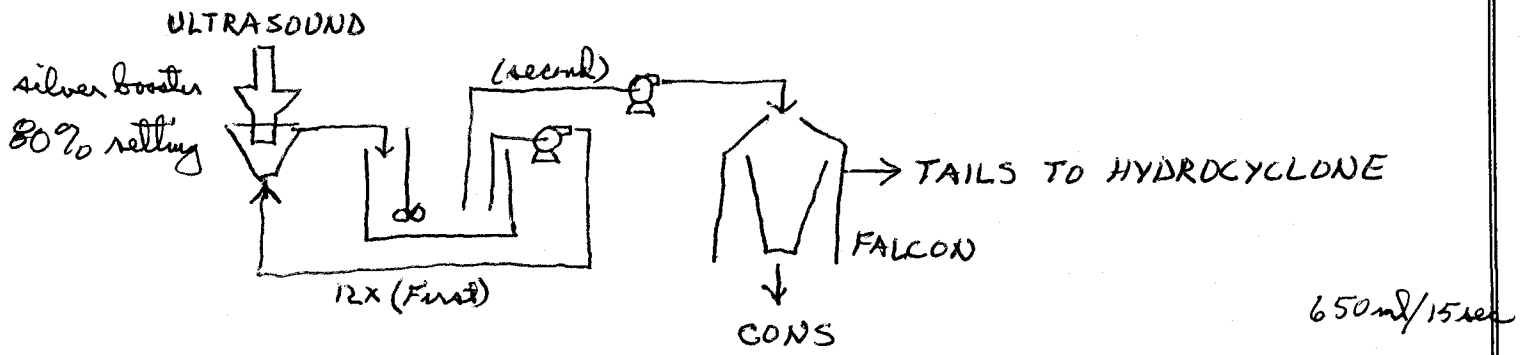
Safety [signature] Date 08-23-93

Hydrocyclone Test Unit Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

AWC

FALCON ~~M.G.S.~~ RUN SHEET	Date 24 Aug 93 Laboratory Supervisor T. WENSTRAND Run # RFP # 23

System Configuration:



System Configuration by ARW	Feed Weight 3.2 kg wet ult by ARW
Angle of Tilt N/A c/m ° by ARW	Pulp Density 12 % by ARW
Rotation Speed PRE-SET R/m by ARW	Feed Rate 2.6 l/m ~~kg/hr~~ by ARW
Shake Frequency NA cm by ARW	Time Feed Started 1027 by BKW
Shake Amplitude NA cm by ARW	Time Feed Stopped 1117 by BKW

Stream	(dry) Weight ~~(kg)~~ # ARW	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
RFP # 8 TUF (FEED)	1.62	NA	—	39.61	ARW
RFP # 23 CONS	.61	NA	—	13.22	ARW
RFP # 23 TAILS	.06	NA	—	49.50	ARW
RFP # 23 Sonified Falcon Feed	1.62	NA	—	39.61	ARW

Special Instructions: RECYCLE FALCON TAILS 3X (4 PASSES THROUGH FALCON)

~~||||~~ ~~||||~~ | ← Passed through Sonifier 12X. BKW. Flow for Falcon set at 1.4 l/m. BKW; Start for Falcon - 1122 hrs; Stop - 1157

||| = 4 Passes through Falcon

M.G.S. Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

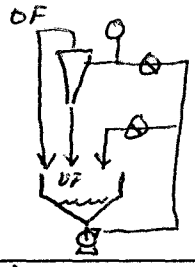
FM-042

TKW/6/91/Rev.0

AWC

HYDROCYCLONE TEST UNIT RUN SHEET	Date 24 Aug 93 Lab Supervisor T. WENSTRAND Run # RFP #24

System Configuration:



System Configuration by ARW

Hydrocyclone Size 2" w/14mm orifice by ARW

Underflow Beaker Weight NA by ARW

Overflow Beaker Weight NA by ARW

Feed Weight FALCON TAILS kg by ARW

Water Volume Underflow NA l by ARW

Pulp Density ≈ 12 % by ARW

Water Volume Overflow NA l by ARW

Time Feed Started 1341 by ARW

Solids Volume Underflow NA kg by ARW

Time Feed Stopped 1344 by ARW

Solids Volume Overflow NA kg by ARW

Hydrocyclone Pressure 15/30/60 psi by ARW

Stream ARW	Weight ~~(kg)~~ #		~~Volume (cc)~~	~~Moisture (%)~~		Activity (pCi/gm)	By
~~RFP # 23 TAILS/FEED~~	15 PSI	30 PSI	60 PSI	15	30	60	
RFP #24 UF	.059	.079	.072	54.92	43.82	47.02	ARW
RFP #24 OF	.040	.040	.036	65.46	65.45	64.97	ARW

Special Precautions:

Safety — Date —

Hydrocyclone Test Unit Run Sheet Reviewed by Terry Wenstrand Date 4/26/94

AWC

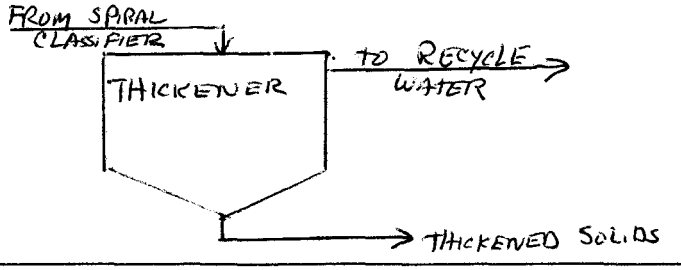
THICKENER RUN SHEET

Date 8/12/93

Lab Supervisor T. Wenstrand

Run # RFP-8

System Configuration:



System Configuration by Terry W.

Feed Pulp Density N/A % by

Feed Flow Rate Varied l/m by

Flocculating Agent NA by ARW

Flocculant Dilution NA by ARW

Flocculant Addition rate NA ml/m by ARW

Flocculant Volume NA ml by ARW

Slurry Pump Flow Rate NA l/m by ARW

Stream	Weight ~~(kg)~~ lbs	Moisture (%)	Volume (cc)	Activity (pCi/gm)	By
Classifier overflow/feed	99.4 lbs	(11.7% assumed)	N/A	—	T.M.
Thickened solids	271.5 lbs.	263.-432.%	"	32.2-47.1	T.M.
Screen organics	8.5 lbs	57%	"	27.2	T.M.

Special Instructions:

Safety — Date —

Thickener Run Sheet Reviewed by [signature] Date 28 Apr 94

FM-091 TKW/8-91/Rev.0

AWC

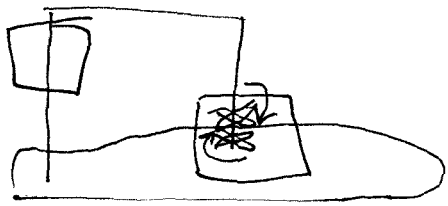
LAS RUN SHEET

Date 3 Aug 1993

Lab Supervisor Terry Wendstrand

Run # 2.1A

System Configuration:



System Configuration by KLS

Feed Weight 593.1 gms by weight KLS

Pulp Density 65 % by weight KLS

Scrubber Speed 900 RPM by KLS

Scrub Time 10 (8:45 to 8:55 AM) min by KLS

Stream	Weight (gms)	Moisture (%)	Volume (cc)	Activity (pCi/gm)	By	REVISED ROI DATA:
RF2514A2 #20	417.4	65% solids by weight	638.7	0.61	FS	0.1359
RF6033A2 #50	262.6			0.66	FS	0.7952
RF6032A2 #100	183.7 ~~183.9~~ KLS			1.97	~~FS~~ BM	1.960
KLS RF605700 ~~RF6034A2~~ - #100	126.4			28.50	BM	29.07

Special Instructions: Could not fit entire mass in Scrubber Container so split it in half. Other half data on attached page.

Safety _____ Date _____

LAS Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

FM-092 TKW/8-91/Rev.0

AWC

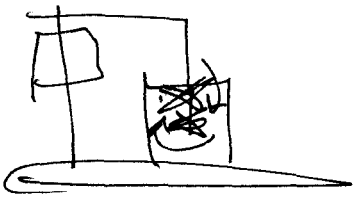
LAS RUN SHEET

Date 3 AUG 1993

Lab Supervisor T. Wenstrand

Run # 2.1B

System Configuration:



System Configuration by KLS

Feed Weight 593.1 gms by KLS

Pulp Density 65 % by KLS

Scrubber Speed 900 RPM by KLS

Scrub Time 10 (9:07 & 9:17 AM) min by KLS

Stream	Weight (gms)	Moisture (%)	Volume (cc)	Activity (pCi/gm)	By

Special Instructions: After scrubbing recombined both halves for wet sieving. All fraction data contained on first page

Safety — Date —

LAS Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

FM-092 TKW/8-91/Rev.0

AWC

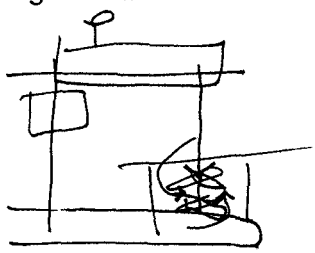
LAS RUN SHEET

Date 11 AUG 1993

Lab Supervisor Terry Wenstrand

Run # 2.2

System Configuration:



System Configuration by Kirk L. Smith

Feed Weight 1010.5 gms by MASS

Pulp Density .65 solids % by mass

Scrubber Speed 900 RPM by KLS

Scrub Time 10 min min by KLS

Stream	Weight (gms)	Moisture (%)	Volume (cc)	Activity (pCi/gm)	By	Revised ROI DATA
#20 RF6035A2	435.6	.65	544.1	.1547 ~~1.06~~ KLS	BM	0.1195
#50 RF6036A2	267.1	↓	↓	1.20	BM	0.8585
#100 RF6037A2	170.7			1.34	BM	
-#100 RF605800	27.5			26.74	BM	~~19.60~~ KLS 16.81

Special Instructions: Attrition Scrub 2 Stage 2

Safety — Date —

LAS Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

FM-092 TKW/8-91/Rev.0

AWC

TROMMEL RUN SHEET

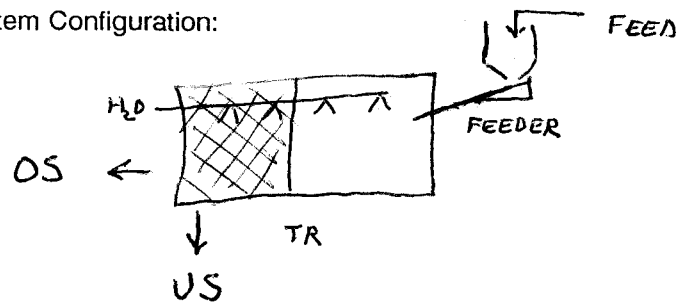
Serial # 5020

Date 26 Aug 93

Lab Supervisor T. WENTSRAND

Run # RFP # 25

System Configuration:



Feeder settings
#5 = 10# in 4 min
#7 = 10# in 2 min
#5 = 10# in 3 min
#5 = 10# in 3 min

System Configuration by ARW

Feed Rate 200 ~~kg~~ lbs/hr by BKW

Water Flow 9.60 l/m by BKW

Time Feed Started 1332 hrs by BKW

Tilt Angle 1/8" in 27½" by ARW

Time Feed Stopped 1405 by BKW

Feed Weight — kg by —

Stream	Weight (dry) ~~(kg)~~ # ARW	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
RFP #1 (Feed)	68.90	NA	—	.39	ARW
RFP # 25 OS	42.80	NA	—	.27	ARW
RFP # 25 US	4.27	NA	—	30.73	ARW
Screen head (#25)	1.20	NA	—	.33	ARW
Scrubber head (#25)	17.87	NA	—	.29	ARW

Special Precautions:

Trommel Start: 1330 hrs, BKW. 1st particle discharge at 1334.
Trommel Stop: 1410 hrs

Safety — Date —

Trommel Run Sheet Reviewed by Terry Wentsrand Date 4/28/94

FM-043 TKW/12/91/Rev.0

AWC

TROMMEL RUN SHEET

Serial # 5020

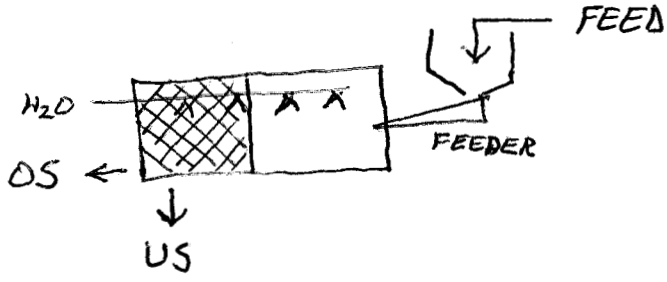
Date 27 Aug 93

Lab Supervisor T. WENSTRAND

Run # RFP #26

System Configuration:

1/4" wire on screen section



System Configuration by ARW

Feed Rate 109.23#/hr ~~kg/HR~~ by ARW

Water Flow 9.6 l/m by GLW

Time Feed Started 1030 hrs by DKW

Tilt Angle 1/8" in 27 1/2" by ARW

Time Feed Stopped 1109 hrs by ARW

Feed Weight ~~271.0~~ # ~~kg~~ by ARW

Stream	Weight (dry) ~~(kg)~~ #	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
RFP #3 (FEED)	73.90 ~~71.0#~~ ARW	NA	—	.67	ARW
RFP #26 OS	56.77 ~~58.0#~~ ARW	NA	—	.82	ARW
RFP #26 US	5.85	NA	—	2.24	ARW
Screen Feed (#26)	1.91 ~~1.0#~~ ARW	NA	—	.26	ARW
Scrubber Feed (#26)	9.43 ~~9.0#~~ ARW	NA	—	.17	ARW

Special Precautions:

Trommel off at 1114 hrs ARW

Safety Face shields to be worn when water spraying Date ARW

Trommel Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

FM-043 TKW/12/91/Rev.0

AWC

TROMMEL RUN SHEET

Serial # 5020

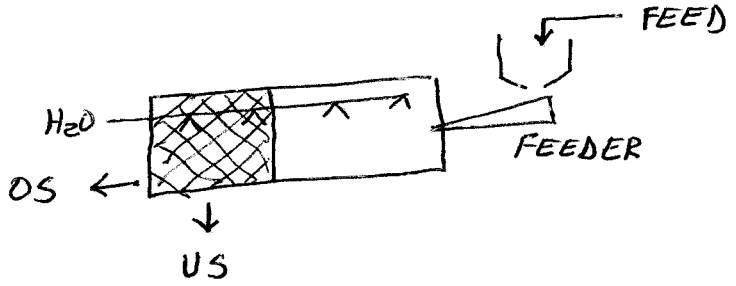
Date 30 Aug 93

Lab Supervisor T. WENSTRAND

Run # RFP #27

System Configuration:

1/4" wire on screen section



System Configuration by SRW

Feed Rate 726# ~~kg~~/hr by SRW

Water Flow 9.0 l/m by SRW

Time Feed Started 9:27 by SRW

Tilt Angle 1/8" in 27 1/2" by SRW

Time Feed Stopped 9:32 by SRW

Feed Weight 60.5 # ~~kg~~ by SRW

Stream	Weight (Dry) ~~(kg)~~ # SRW	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
RFP #5 (FEED)	65.90 ~~60.5~~ # SRW	NA	—	.44	SRW
RFP #27 OS	30.61	NA	—	.16	SRW
RFP #27 US	2.18	NA	—	6.28	SRW
Screen heel (#27)	1.82	NA	—	.98	SRW
Scrubber heel (#27)	23.34	NA	—	.27	SRW

Special Precautions:

Trommel off at 9:37 SRW

Safety Face shields to be worn when spray is on Date —

Trommel Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

FM-043

TKW/12/91/Rev.0

AWC

TROMMEL RUN SHEET

Serial # 5020

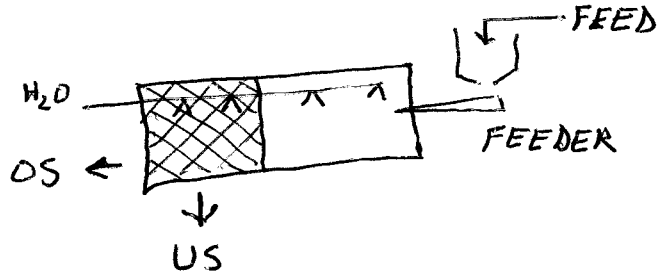
Date 31 Aug 93

Lab Supervisor T. WENSTRAND

Run # RFP #28

System Configuration:

1/4" wire on screen section



System Configuration by SRW

Feed Rate 197.14 # ~~kg~~/hr by SRW

Water Flow 9.0 l/m by SRW

Time Feed Started 10:07 by SRW

Tilt Angle 1/8" in 27 1/2" by SRW

Time Feed Stopped 10:31.5 by SRW

Feed Weight 80.5 lbs ~~kg~~ by BKW

Stream	Weight (dry) ~~(kg)~~ # SRW	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
RFP # 7 (FEED)	84,30 ~~80.5~~ # SRW	NA	—	1.26	SRW
RFP #28 OS	57.38	NA	—	.15	SRW
RFP #28 US	5.57	NA	—	40.36	SRW
Screen Reel (#28)	1.13	NA	—	.12	SRW
Scrubber Reel (#28)	18.88	NA	—	.03	SRW

Special Precautions:

Trommel off at 10:36.5 SRW

Safety Face Shield to be worn when spray on Date —

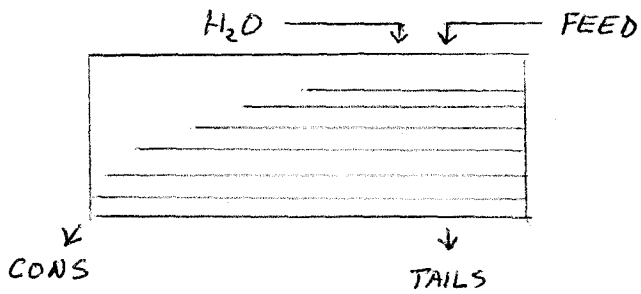
Trommel Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

FM-043 TKW/12/91/Rev.0

AWC

G.S.T. RUN SHEET	Date 17 Aug 93 Laboratory Supervisor T. Wemtrand Run # RFP #9

System Configuration:



System Configuration by SRW	Wash Water 3000 ml/m by SRW
G.S.T. Stroke Length 3/8" ~~cm~~ by SRW	Pulp Density SPOON FED % by SRW
G.S.T. Frequency 270 SPM by SRW	Feed Rate 85.85 ~~kg~~ g/hr by ~~G.R.W.~~ SRW
G.S.T. Side Tilt 1/2" in 7" ~~cm~~ by SRW	Time Feed Started 0943 by SRW
G.S.T. Longitudinal Tilt 1/4" in 39" ~~cm~~ by SRW	Time Feed Stopped 0956 by SRW
Feed Weight — kg by —	

Stream	(dry) Weight ~~(kg)~~ lbs	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
RFP#2 HUTCH 1 (FEED)	18.6 (dry)	N/A	~~WET~~ SRW	1.93 ~~0.86~~ SRW	TW
RFP#9 CONS	3.4	N/A	~~wet~~ SRW	3.49	SRW
RFP#9 TAILS	12.38	N/A	~~wet~~ SRW	2.16	SRW

Special Instructions:

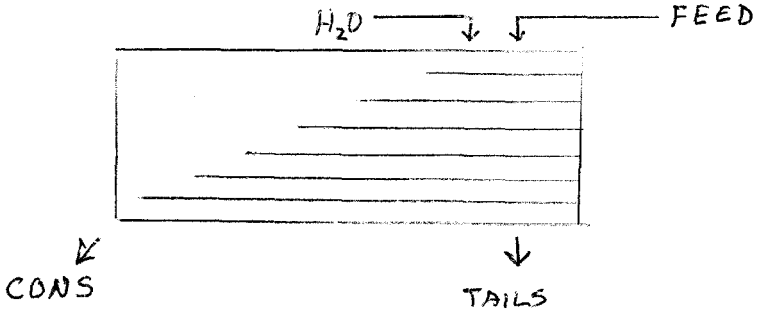
G.S.T. Run Sheet Reviewed by Terry Wemstrand Date 4/28/94

FM-041 TKW/6/91/Rev.0

AWC

G.S.T. RUN SHEET	Date 12 Aug 93 Laboratory Supervisor T. Wenstrand Run # RFP #10

System Configuration:



System Configuration by ARW	Wash Water 3300 ml/m by ARW
G.S.T. Stroke Length 3/8" ~~cm~~ by ARW	Pulp Density SLOW FED% by ARW
G.S.T. Frequency 270 SP~~M~~m by ARW	Feed Rate 145.68 ~~#~~/hr by ~~G.R.W.~~ ARW
G.S.T. Side Tilt ½" in 7" ~~cm~~ by ARW	Time Feed Started 1032 by ARW
G.S.T. Longitudinal Tilt ¼" in 39" ~~cm~~ by ARW	Time Feed Stopped 1037 by ARW
Feed Weight — kg by —	

Stream	(dry) Weight ~~(kg)~~ # ARW	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
RFP #2 HUTCH 2 (FEED)	12.14	N/A	~~WET~~ ARW	1.32 ARW ~~1.091~~	T.M
RFP #10 CONS	4.72	N/A	~~WET~~ ARW	3.09	ARW
RFP #10 TAILS	4.95	N/A	~~WET~~ ARW	2.52	ARW

Special Instructions:

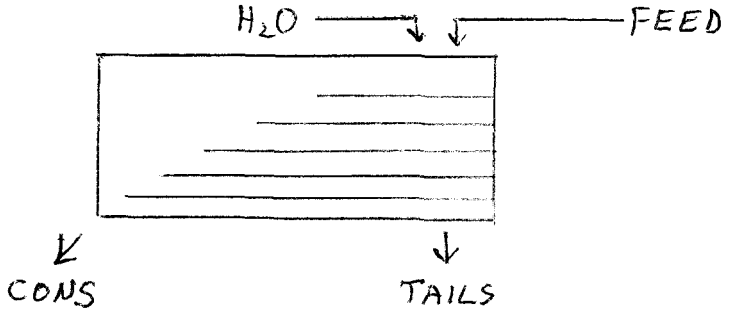
G.S.T. Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

FM-041 TKW/6/91/Rev.0

AWC

G.S.T. RUN SHEET	Date 17 aug 93 Laboratory Supervisor T. WENSTRAND Run # RFP #11

System Configuration:



System Configuration by ARW	Wash Water 6000 ~~cm~~/m by ARW
G.S.T. Stroke Length 3/8" ~~cm~~ by ARW	Pulp Density SPOON FED ~~%~~ by ARW
G.S.T. Frequency 270 SPM ~~cm~~ by ARW	Feed Rate 129.41 ~~kg~~ #/hr by ~~G.R.W.~~ ARW
G.S.T. Side Tilt 1/2" in 7" ~~cm~~ by ARW	Time Feed Started 1450 by ARW
G.S.T. Longitudinal Tilt 1/4" in 39" ~~cm~~ by ARW	Time Feed Stopped 1458 by ARW
Feed Weight ← kg by —	

Stream	(dry) Weight ~~(kg)~~ # ARW	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
RFP #4 HUTCH 1 (FEED)	17.26	NA	~~to ARW~~	~~0.673~~ 1.25	ARW
RFP #11 CONS	3.31	NA	~~to ARW~~	0.00	ARW
RFP #11 TAILS	17.10	NA	~~to ARW~~	0.89	ARW

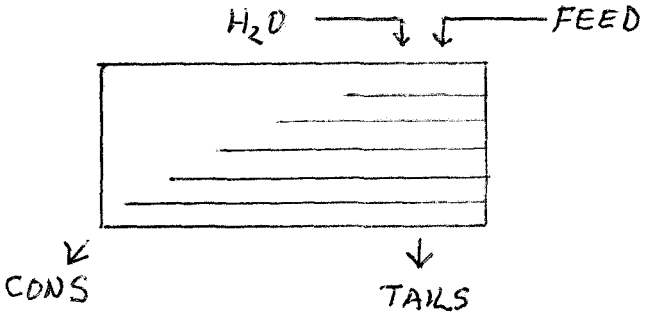
Special Instructions:

G.S.T. Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

AWC

G.S.T. RUN SHEET	Date 17 Aug 93 Laboratory Supervisor T. WENSTRAND Run # RFP #12

System Configuration:



System Configuration by ARW	Wash Water 4200 ~~cm~~ l/m by ARW
G.S.T. Stroke Length 3/8" ~~cm~~ by ARW	Pulp Density SPOON FEED ~~%~~ by ARW
G.S.T. Frequency 270 SPM ~~cpm~~ by ARW	Feed Rate 165.30 ~~kg~~ #/hr by ~~G.R.W.~~ ARW
G.S.T. Side Tilt 1/2" in 7" ~~cm~~ by ARW	Time Feed Started 1523 by ARW
G.S.T. Longitudinal Tilt 1/4" in 39" ~~cm~~ by ARW	Time Feed Stopped 1526 by ARW
Feed Weight — kg by —	

Stream	(Dry) Weight ~~(kg)~~ # ARW	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
RFP #4 HUTCH 2 (FEED)	8.27	NA	~~wet~~ ARW	1.960	ARW
RFP #12 CONS	1.76	NA	~~wet~~ ARW	1.10	ARW
RFP #12 TAILS	3.22	NA	~~wet~~ ARW	2.33	ARW

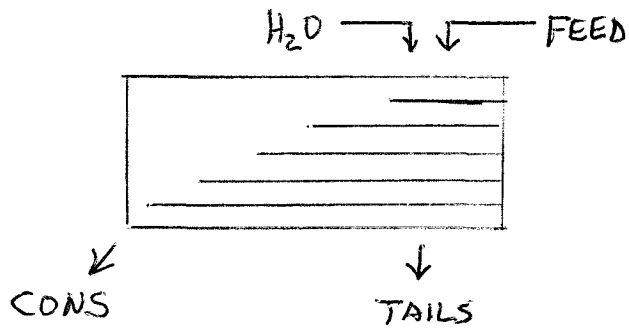
Special Instructions:

G.S.T. Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

AWC

G.S.T. RUN SHEET	Date 18 Aug 93 Laboratory Supervisor T. WENSTRAND Run # RFP #13

System Configuration:



System Configuration by DRW	Wash Water 4800 ml/m by DRW
G.S.T. Stroke Length 3/8" ~~cm~~ by DRW	Pulp Density SPOON FED % by DRW
G.S.T. Frequency 270 SPM ~~cm~~ by DRW	Feed Rate 173.95 ~~kg~~ #/hr by ~~G.R.W.~~ DRW
G.S.T. Side Tilt 1/2" in 2" ~~cm~~ by DRW	Time Feed Started 1339 by DRW
G.S.T. Longitudinal Tilt 1/4" in 39" ~~cm~~ by DRW	Time Feed Stopped 1350 by DRW
Feed Weight — kg by —	

Stream	Weight ~~(kg)~~ # (dry) DRW	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
RFP #6 HUTCH 1 (FEED)	31.89	NA	~~wet~~ DRW	1.18	DRW
RFP #13 CONS	2.71	NA	~~wet~~ DRW	0.00	DRW
RFP #13 TAILS	26.58	NA	~~wet~~ DRW	1.61	DRW

Special Instructions:

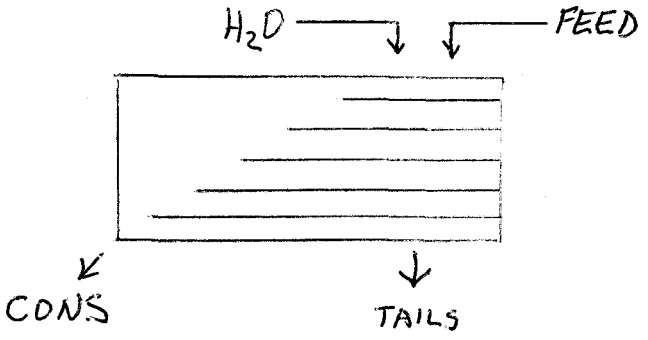
G.S.T. Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

FM-041 TKW/6/91/Rev.0

AWC

G.S.T. RUN SHEET	Date 18 Aug 93 Laboratory Supervisor T. WENSTRAND Run # RFP #14

System Configuration:



System Configuration by ARW	Wash Water 4500 ~~ml~~ l/m by ARW
G.S.T. Stroke Length 3/8" ~~cm~~ by ARW	Pulp Density ~~HAND~~ ARW SPOON FED % by ARW
G.S.T. Frequency 270 SPM ~~cm~~ by ARW	Feed Rate 170.80 ~~kg~~ # /hr by ~~G.R.W.~~ ARW
G.S.T. Side Tilt 1/2" in 7" ~~cm~~ by ARW	Time Feed Started 1403 by ARW
G.S.T. Longitudinal Tilt 1/4" in 39" ~~cm~~ by ARW	Time Feed Stopped 1406 by ARW
Feed Weight — kg by —	

Stream	(dry) Weight ~~(kg)~~ # ARW	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
RFP #6 HUTCH 2 (FEED)	8.54	NA	~~wet~~ ARW	1.82	ARW
RFP #14 CONS	1.14	NA	~~wet~~ ARW	1.12	ARW
RFP #14 TAILS	6.45	NA	~~wet~~ ARW	1.77	ARW

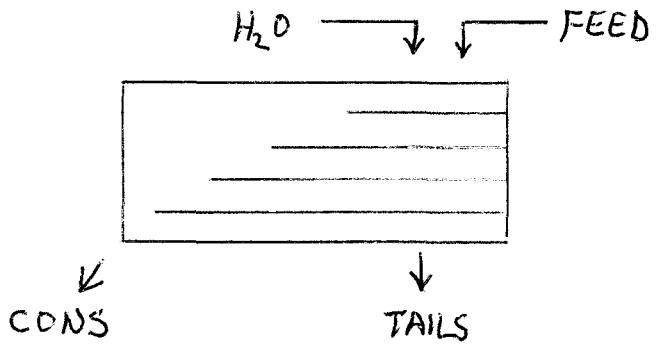
Special Instructions:

G.S.T. Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

AWC

G.S.T. RUN SHEET	Date 18 Aug 93 Laboratory Supervisor T. WENSTRAND Run # RFP #15

System Configuration:



System Configuration by ARW	Wash Water 5100 ml/m by ARW
G.S.T. Stroke Length 3/8" ~~cm~~ by ARW	Pulp Density SPOON FED % by ARW
G.S.T. Frequency 270 SPM ~~cm~~ by ARW	Feed Rate 182.85 # ~~kg~~/hr by ~~G.R.W.~~ ARW
G.S.T. Side Tilt 1/2" in 7" ~~cm~~ by ARW	Time Feed Started 1424 by ARW
G.S.T. Longitudinal Tilt 1/4" in 39" ~~cm~~ by ARW	Time Feed Stopped 1434 by ARW
Feed Weight — kg by —	

Stream	(dry) Weight (# ~~kg~~) ARW	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
RFP #8 HUTCH 1 (FEED)	30.48	NA	~~1.0~~ ARW	1.37	ARW
RFP #15 CONS	2.37	NA	~~wet~~ ARW	0.00	ARW
RFP #15 TAILS	26.35	NA	~~wet~~ ARW	1.14	ARW

Special Instructions:

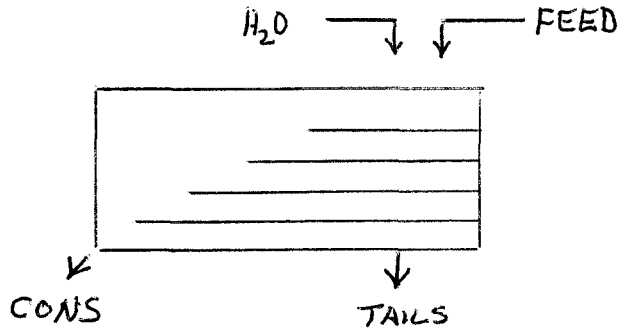
G.S.T. Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

FM-041 TKW/6/91/Rev.0

AWC

G.S.T. RUN SHEET	Date 18 Aug 93 Laboratory Supervisor T. WENSTRAND Run # RFP # 16

System Configuration:



System Configuration by ARW	Wash Water 4500 ml/m by ARW
G.S.T. Stroke Length 3/8" ~~cm~~ by ARW	Pulp Density SPOON FED % by ARW
G.S.T. Frequency 270 SPM ~~cm~~ by ARW	Feed Rate 167.55 ~~kg~~ # /hr by ~~G.R.W.~~ ARW
G.S.T. Side Tilt 1/2" in 7" ~~cm~~ by ARW	Time Feed Started 1446 by ARW
G.S.T. Longitudinal Tilt 1/4" in 39" ~~cm~~ by ARW	Time Feed Stopped 1448 by ARW
Feed Weight — kg by —	

Stream	(Dry) Weight ~~(kg)~~ # ARW	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
RFP # 8 HUTCH 2 (FEED)	5.59	NA	~~wet~~ ARW	1.89	ARW
RFP # 16 CONS	.76	NA	~~wet~~ ARW	1.47	ARW
RFP # 16 TAILS	2.98	NA	~~wet~~ ARW	1.91	ARW

Special Instructions:

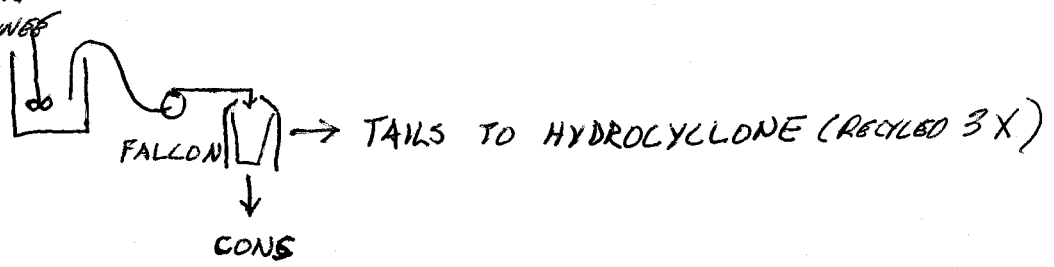
G.S.T. Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

AWC

FALCON ~~M.G.S.~~ RUN SHEET	Date 19 Aug 93 Laboratory Supervisor T. WENSTRAND Run # RFP #17

System Configuration:

OPERATORS:
G. WILLIAMS, FEED, PUMP & MIXING
B. WHITE, TAILS, CLEANOUT, TRAINEE
G. FOISEL SUPERVISOR, HOTLINE COORDINATOR, DATA RECORDER



System Configuration by SRW

*Feed Weight 3.2 kg by SKW

Angle of Tilt NA c/m ° by SRW

Pulp Density 9 % by GRW

Rotation Speed PRE-SET R/m by SRW

Feed Rate 1.1 ~~kg/hr.~~ L/min by GRW

Shake Frequency NA cm by SRW

Time Feed Started 11:33:00 by [illegible]

Shake Amplitude NA cm by SRW

Time Feed Stopped 12:08:28 by [illegible]

Stream	(Dry) Weight ~~(kg)~~ # SRW	Volume ~~(L~~(cc)	Moisture (%)	Activity (pCi/gm)	By
RFP#2 TUF (FEED)	1.96	~500 N/A	OVEN DRIED	39.5	SRW
RFP# 17 CONS	.61	" N/A	" "	10.42	SRW
RFP# 17 TAILS	.08	" N/A	" "	22.77	SRW

Special Instructions: *WET SLUDGE. RECYCLES: III.

M.G.S. Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

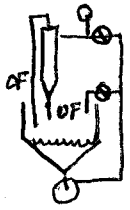
FM-042

TKW/6/91/Rev.0

AWC

HYDROCYCLONE TEST UNIT RUN SHEET	Date 19 aug 93 Lab Supervisor T. WENSTRAND Run # RFP # 18

System Configuration:
OPERATORS:
G. WILLIAMS, SUPERVISION
B. WHITE, TRAINEE
G. FOISEL, HOTLINE COORDINATOR



System Configuration by ARW

Hydrocyclone Size 2" w/14 mm orifice by ARW

Underflow Beaker Weight NA by ARW

Overflow Beaker Weight NA by ARW

Feed Weight FALCON TAILS kg by ARW

Water Volume Underflow NA l by ARW

Pulp Density ≈ 9 % by ARW

Water Volume Overflow NA l by ARW

Time Feed Started 14:40 by GRW

Solids Volume Underflow 14:46 kg by GRW

Time Feed Stopped ↓ by ARW

Solids Volume Overflow NA kg by ARW

Hydrocyclone Pressure 15, 30 & 60 psi by GRW & BKW

Stream	Weight # (kg) ARW 15PSI	Weight # (kg) ARW 30PSI	Volume ~~(cc)~~ ARW 60PSI	Moisture ~~(%)~~ ARW 15	Moisture ~~(%)~~ 30	Activity (pCi/gm) ARW 60	By
~~RFP # 17 TAILS (FEED)~~	~~15PSI~~ ARW	wt	→	← activity		→	
RFP # 18 UF	.144	.154	.150	26.36	26.75	28.63	ARW
RFP # 18 OF	.078	.075	.078	22.08	29.86	23.80	ARW

Special Precautions: UNDER & OVERFLOW SAMPLES TAKEN AT EACH PRESSURE SETTING.

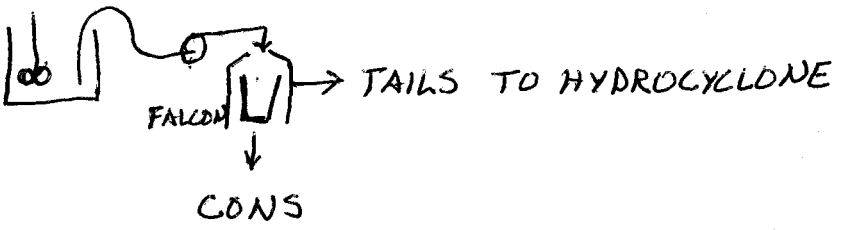
Safety [signature] Date 08-19-93

Hydrocyclone Test Unit Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

AWC

FALCON ~~M.G.S.~~ RUN SHEET	Date 20 aug 93 Laboratory Supervisor T. WENSTRAND Run # RFP #19

System Configuration:



System Configuration by ARW	Feed Weight 3.2 kg ~~wet wt.~~ by ARW
Angle of Tilt NA c/m ° by ARW	Pulp Density 7 % by DKW
Rotation Speed PRE-SET R/m by ARW	Feed Rate 1.3 kg/~~hr~~ Min by DKW
Shake Frequency NA cm by ARW	Time Feed Started 1036 by GRW
Shake Amplitude NA cm by ARW	Time Feed Stopped 1111 by GRW

Stream	(Dry) Weight ~~(kg)~~ # ARW	Volume (cc)	Moisture (%)	Activity (pCi/gm)	By
RFP#4 TUF (FEED)	2.017	NA	—	33.71	ARW
RFP#19 CONS	.606	NA	—	12.86	ARW
RFP#19 TAILS	.055	NA	—	47.37	ARW

Special Instructions: RECYCLE FALCON TAILS 3X (4 PASSES THROUGH FALCON)

Review: 111

M.G.S. Run Sheet Reviewed by Terry Wenstrand Date 4/28/94

FM-042

TKW/6/91/Rev.0

MASSES USED FROM BULK SAMPLES

NET MOIST MASSES USED ON ROCKY FLATS PROJECT

BATCH #1, FIRST HOMOGENIZATION (MAY 4, 1993):

• 1st homogenization split, removed:	225. kg
• 2nd homogenization split, removed:	121. kg
• 3rd homogenization split, removed:	57. kg
• 4th homogenization split, removed:	28. kg
• 5th homogenization split, ITC sample:	13.4 kg
• 5th homogenization split, TAD sample:	15.5 kg
• Soil mixed with moisture adsorbent:	167. kg

BARRELS USED FOR PHASE 2 TEST SAMPLES (JULY-AUG., 1993):

• Runs # 1 & 2; fourth split barrel, second batch:	35.9 kg
third split barrel, second batch:	63.6 kg
• Runs # 3 & 4; fourth split barrel, second batch:	13.2 kg
third split barrel, second batch:	27.2 kg
second split barrel, second batch:	66.5 kg
• Runs # 5 & 6; third split barrel, second batch:	20.0 kg
second split barrel, second batch:	90.1 kg
• Runs # 7 & 8; second split barrel, second batch:	45.4 kg
first split barrels, second batch:	76.0 kg

SAMPLE MASS DATA SHEETS

LESAT
Technology Applications Division

Project Rocky Flats

Sample Source RF600000

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g Assumed Air Drying	COMMENTS (pan fraction, pH, treatment, etc.)
RF60100B	681.6 g		11293 g	Sample Prep for ATT. Sample
RF60200B	679.2		13379	" " " " "
RF60300B	686.9		5254.1	" " " " "

Investigator Keith L. Smith

Date 4/12/94

Reviewer Greg Roof

Date 20 April 1994

FM-162

TMM/4-93/Rev. 0

LESAT
Technology Applications Division

Project Rocky Flats

Sample Source RF60200B

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF60210M	14.743	218.992	210.010	Sample for Moisture Content Determination
RF60220M	14.540	279.934	254.816	

Investigator [signature]

Date 4/2/94

Reviewer [signature]

Date 20 April 1994

FM-162

TMM/4-93/Rev. 0

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Technology Applications Division

Project Rocky Flats

Sample Source RF60100B

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF60110G	14.6	337.3	103.8	GRASS
RF60120G	14.5	368.1	89.4	GRASS
RF60130G	14.6	376.7	93.6	GRASS
RF601404	14.6	1796.5	1721.0	
RF601504	14.6	810.4	736.8	
RF60160C	14.6	1606.2	1076.7	100 mesh
RF60170C	14.7	1973.3	1513.0	100 mesh
RF6018C-	14.7	1667.0	922.9	-100 mesh
RF6019C-	14.7	1823.3	1054.9	" "
RF6020C-	14.9	1545.2	868.1	" "
RF6023C-	14.6		440.0	" "
RF6024C-	14.6		534.4	" "
RF6025C-	14.5		288.9	" "

Investigator Keith L. Smith

Date 4/12/94

Reviewer Greg Rash

Date 20 April 1994

FM-162

TMM/4-93/Rev. 0

LESAT
Technology Applications Division

Project Rocky Flats

Sample Source RF6026OC & RF6027OC

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF6029A1	14.7	1423.3	3	Homogenization
RF6029A1	14.5	431.8	3	of 100 mesh

Investigator Keith L. Smith

Date 4/12/94

Reviewer Greg Rust

Date 20 April 1994

FM-162

TMM/4-93/Rev. 0

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Technology Applications Division

Project Rocky Flats

Sample Source RF6029A1

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF603020	14.8		418.2	Attrion / STAGE 1 20 mesh
RF603150	14.677		193.0	50 mesh
RF6035 C-	14.748		62.9	-100 mesh
RF6032+C	14.567		142.1	+100 mesh

Investigator Keith L. Smith

Date 4/12/94

Reviewer Greg West

Date 20 April 1994

FM-162

TMM/4-93/Rev. 0

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Technology Applications Division

Project Rocky Flats

Sample Source REATT1SG2

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF603720	14.822		344.5	Attrion 1 STAGE 2 20 mesh
RF603850	14.732		222.6	50 mesh
RF6039+C	14.706		161.4	+100 mesh
RF6040C-	14.632		35.9	-100 mesh

Investigator Keith L. Smith

Date 4/6/94

Reviewer Greg Rapp

Date 20 April 1994

FM-162

TMM/4-93/Rev. 0

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Technology Applications Division

Project Rocky Flats

Sample Source RF6030-C

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF2515 SP	14.6		196.5	Sample Prep

Investigator [signature]

Date 4/18/94

Reviewer [signature]

Date 20 April 1994

FM-162

TMM/4-93/Rev. 0

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Technology Applications Division

Project Rocky Flats

Sample Source RF6030OB

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF6030+C	14.6		1186.2	+ 100 mesh
RF603025	15.7		1872.0	1/4 mesh
RF6030-C	17.5		1409.6	- 100 mesh

Investigator Robert L. Smith

Date 4/12/94

Reviewer Greg Reed

Date 20 April 1994

FM-162

TMM/4-93/Rev. 0

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Technology Applications Division

Project Rocky Flats

Sample Source RF603025

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF2508SP	14.6		391.8	Sample Prep
RF2509SP	14.6		299.5	" "
RF2510SP	14.7		355.9	" "
RF2511SP	14.5		275.9	" "
RF2512SP	14.7		304	" "
RF2513SP	14.8		314.1	" "

Investigator Keith L. Smith

Date 4/18/94

Reviewer Greg Reed

Date 20 April 1994

FM-162

TMM/4-93/Rev. 0

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Technology Applications Division

Project Rocky Flats

Sample Source RF6030 +C

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF2507SP	14.5		266.0	Sample Prep
RF2514A2	16.4		582.0	#20 ATT 2 Stage 1
RF6033A2	16.4		279.0	#50 mesh " "
RF6032A2	16.4		200.3	#100 " " "
~~RF605700~~	?		?	~~100 " " "~~ KLS

Investigator Kristi L. Smith

Date 4/12/94

Reviewer Greg Reab

Date 20 April 1994

FM-162

TMM/4-93/Rev. 0

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Project Rocky Flats

Sample Source RF 6033A2, RF2514A2, RF6032 A2

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RFAT2SG2	485		1495.5	ATT2 Stage 2 material

Investigator Keith L. Smith

Date 4/12/94

Reviewer Greg Reed

Date 20 April 1994

FM-162

TMM/4-93/Rev. 0

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Technology Applications Division

Project Rocky Flats

Sample Source RF60300B

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RFATT22X	14.6		45.7	Absorbant, paper towel, spilt material
RF250SP	14.7		355.9	A mistake sample # which should be RF2510SP
RF2510SP	?		?	segragated "warm" material
RF25101SP	?		?	segragated "cold" material
RF2583PA	~~391.8~~ KLS 14.6		391.8	segrated "warm" material
RF2583PB	14.6		274.8	segragated "cold" material
~~RF6035A2(fin)~~	~~14.2~~		~~548.6~~	~~#20 Att 2 Stage 2 wet sieved~~ KLS
~~RF6035A2(sec)~~	~~19.9~~		~~455.5~~	" KLS
~~RF6036A2(fin)~~	~~19.7~~		~~286.8~~ ~~283.1~~ KLS ~~+9.9~~	KLS
~~RF6037A2(fin)~~	~~20.2~~		~~187.2~~ KLS	KLS
~~RF6034A2~~				~~#100 Stage 1 Att 2~~ KLS
RF605700(sec)	14.5		148.6	ATT 2 Stage 1 -100 sec
RF605700(fin)			145.0	Att 2 Stage 1 -100 +1n

Investigator [signature]

Date 4/11/94

Reviewer [signature]

Date 20 April 1994

FM-162

TMM/4-93/Rev. 0

ATT 2 STAGE 2

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Technology Applications Division

Project Rocky Flats

Sample Source RF 2514A2 tin & SRCC, RF6033A2 SRCC, RF6032A2 SRCC

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF AT2SG2 ATT2 STAGE 2	485.0		1495.5	
RF6035A2	16.2		548.6	tin, #20
RF6035A2	19.9 (CAN + LID)		455.5	SRCC, #20
RF6036A2	19.7		286.8	#50, tin, Att 2 Stage 2
RF6037A2	20.2		190.9	#100, tin, Att 2 Stage 2
RF605800 SRCC	14.7		49.9	- #100, SRCC Att 2 Stage 2

Investigator Keith L. Smith

Date 4/11/94

Reviewer Greg Hart

Date 20 April 1994

FM-162

TMM/4-93/Rev. 0

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Technology Applications Division

Project Rocky Flats Attrition Scrub 2 Stage 3

Sample Source RF6035A2, RF6036A2, & RF6037A2

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RFAT2SG3	485		1454.7	Att 2 Stage 3 #20, #50, & #100 homogenization from Stage 2.
RF605900 (tin)			549.6	Att 2 Stage 3 #20 Tin
RF605900 (srcc)	7.7 = LiO 14.5 CAN		412.2	Att 2 Stage 3 #20 SRCC
RF606000 (tin)			278.3	Att 2 Stage 3 #50 Tin
RF606000 (srcc)	~~16.8~~ KLS 22.4 ~~14.7 CAN~~ KLS		283.9	Att 2 Stage 3 #50 SRCC
RF606100 (tin)			173.3	Att 2 Stage 3 #100 Tin
RF606100 (srcc)	22.3 ~~14.6~~ KLS		179.3	Att 2 Stage 3 #100 SRCC
RF606200 (tin)	16.7		33.4	Att 2 Stage 3 - #100 Tin
RF606200 (srcc)	22.4		38.0	Att 2 Stage 3 - #100 SRCC

Investigator [signature]

Date 4/11/94

Reviewer [signature]

Date 20 April 1994

FM-162

TMM/4-93/Rev. 0

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Technology Applications Division

Project Rocky Flats

Sample Source RF60300B

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF60310B	22.6		371.3	Pre Sample Prep Sample for MCA Count
RF25075P (Grec)	14.5		266	#100 Sample Prep 2
RF25085P	14.6		391.8	1/4" Sample Prep 2
RF25095P	14.6		299.5	" " "
RF25105P	14.7		355.9	" " "
RF25115P	14.5		275.9	" " "
RF25125P	14.7		304	" " "
RF25135P	14.8		314.1	" " "
RF2515 5P	14.6		196.5	-100 Sample Prep 2
RF2514 A2 (Grec)	14.7		432.1	#20 ATTrition 2A
RF2514A2 (tin)	16.4		582.0	#20 " "
RF6033A2 (tin)	16.4		279.0	#50 " "
~~RF6033A2 (Grec)~~	~~16.4~~ KLS 14.5		277.2	#50 " "
RF6032 A2 (tin)	16.4		200.3	#100 " "
~~RF6032A2 (Grec)~~	14.4		198.1	#100 " "
RF6030-C (tin)	17.5		1409.6	-#100 Sample Prep 2
RF2515 5P ~~RF6032~~ KLS (Grec)	14.6		196.5	-#100 " " "
RF6030 +C (tin)	14.6		1186.2	#100 Sample Prep 2
RF6030 25 (tin)	15.7		1872.0	1/4 " " "
~~RF6030 2 All 2 STAGE 2~~	~~485 g~~		1495.5	~~All 2 STAGE 2 material from Sample #20, #50 & #100~~ KLS

Investigator Keith Smith

Reviewer Greg Reed

Date 09 August 1993

Date 20 April 1994

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Technology Applications Division

Project Rocky Flats

Sample Source RF60200B

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF60660A	485		985.2	ATT.3 Stage 1 material

Investigator Keith L Smith

Date 4/12/94

Reviewer Gary Rust

Date 20 April 1994

FM-162

TMM/4-93/Rev. 0

Attrition Scrub 3
Sample Prep
and Stage 1

LESAT
Technology Applications Division

Project Rocky Flats

Sample Source RF60200B

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF606300(SRCC)	7.7 - LID 14.4 - CAN		290.7	+1/4" Dry Sieved Att3 Sample Prep
RF606400(SRCC)	7.7 - LID 14.6 - CAN		241.1	+ #100 Dry Sieved Att3 Sample prep
RF606500(SRCC)	14.5 - CAN 7.8 - LID		302.5	+ 1/4" wet Sieved Att3 Sample Prep SRCC
RF606600(SRCC)	22.1		346.9	+ #100 wet sieved Att3 Sample Prep SRCC
RF606700				- #100 wet Sieved Att3 Sample Prep SRCC
RF606600(PAN)	1023.1 ~~+165.0 lbs~~		3530.2	+ #100 wet sieved Att3 SP PAN
RF606500(PAN)	1106.6		4569	+ 1/4" Wet Sieved Att3 SP PAN
RF606800(PAN)	16.6		505.9	Att3 Stage 1 #20 PAN
RF606800(SRCC)				Att3 Stage 1 #20 1/2 of PAN in a SRCC
RF606800A(SRCC)				Att3 Stage 1 #20 1/2 of PAN in a SRCC
RF606900(PAN)	16.6		282.1	Att3 Stage 1 #50 PAN
RF606900(SRCC)				Att3 Stage 1 #50 SRCC
RF607000(PAN)	16.7		186.9	Att3 Stage 1 #100 PAN
RF607000(SRCC)				Att3 Stage 1 #100 SRCC

Investigator [signature]

Date 4/11/94

Reviewer [signature]

Date 20 April 1994

FM-162

TMM/4-93/Rev. 0

LESAT
Technology Applications Division

Project Rocky Flats

Sample Source RFA + 3 SG2

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF2B001A	14.5	497		A++.3 STAGE 2 #20 mesh pan
"	14.6	311.7		#20 mesh REC
RF2B002A	14.7	294.8		#50 " "
RF2B002A	14.5	294.8		#50 " "
RF2B003A	16.5	161.3		#100 " "
RF2B003A	14.6	159.4		" " "
RF2B004A	14.8	27.9		-100 " "

Investigator Keith L. Smith

Date 4/12/94

Reviewer Greg Reed

Date 20 April 1994

FM-162

TMM/4-93/Rev. 0

LESAT
Technology Applications Division

Project Rocky Flats

Sample Source REAT 35G3

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF2B005A	14.6	335.5		20 mesh
~~RF2B004A~~	~~14.8~~	~~27.9~~		~~-100 mesh~~ KLS
RF2B006A	14.8	284.7		+50 mesh
RF2B007A	14.8	159.6		+100 mesh
RF2B008A	14.641	26.508		-100 "

Investigator Keith L Smith

Date 4/12/94

Reviewer Greg Reed

Date 20 April 1994

FM-162

TMM/4-93/Rev. 0

LESAT
Technology Applications Division

Project Rocky Flats

Sample Source Various Runs

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF2B064C	14.7	~~217.3~~ tm	217.3	Run #23-24
RF2B065H	14.5	—	438.6	Scrub heel Run #26
RF2B066H	14.5	—	426.2	Screen heel Run #26
RF2B067H	14.6	—	388.4	Screen heel Run #27
RF2B068H	14.6	—	395.0	Scrub heel Run #27
RF2B068R	14.7	—	413.9	Trommel Oversize Run #28
RF2B069H	14.4	—	298.5	Screen heel Run #28
RF2B070H	14.8	—	413.7	Scrub heel Run #28
RF2B015F	14.7	—	56.0	Sample Feed Run #19
RF2B028F	14.5	—	61.6	Sample Feed Run #23
RF2B029F	14.5	—	63.9	Sonified falcon feed Run #23

Investigator T. Murarik

Date 10/18/93

Reviewer Greg Rast

Date 20 April 1994

FM-162

TMM/4-93/Rev. 0

LESAT
Technology Applications Division

Project Rocky Flats

Sample Source Various Runs

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF2B023C	14.6	~~4~~ TM	47.5	30 PSI UF Run #20
RF2B024C	14.5	—	27.4	60 PSI OF Run #20
RF2B025C	14.7	—	39.7	60 PSI UF Run #20
RF2B026F	14.6	—	42.6	Feed Sample Run #21
RF2B027F	14.6	—	46.1	Feed Sample Run #21
RF2B028C	14.7	—	37.5	15 PSI UF Run #22
RF2B029C	14.5	—	25.4	15 PSI OF Run #22
RF2B030C	14.6	—	26.4	30 PSI OF Run #22
RF2B031C	14.6	—	37.1	60 PSI UF Run #22
RF2B032C	14.6	—	24.9	60 PSI OF Run #22
RF2B033C	14.7	—	290.0	Concentrates Run #21
RF2B034C	14.8	—	32.8	15 PSI OF Run #24
RF2B035C	14.5	—	47.2	15 PSI UF Run #24
RF2B036C	14.6	—	32.9	30 PSI OF Run #24
RF2B037C	14.7	—	50.5	30 PSI UF Run #24
RF2B039C	14.4	—	46.9	60 PSI UF Run #24
RF2B038C	14.7	—	31.1	60 PSI OF Run #24
~~RF2B03~~ RF2B040C TM	14.5	—	39.9	30 PSI UF Run #22
RF2B041C	14.6	—	~~279.9~~ 284.9 TM	Centrif. Concentrate Run #23
~~RF2B042C~~ RF2B042T TM	14.6	—	30.4	Tails Run #21

Investigator T. Murarik

Date 10/18/93

Reviewer Greg Rest

Date 20 April 1994

FM-162

TMM/4-93/Rev. 0

LESAT
Technology Applications Division

Project Rocky Flats

Sample Source Various Runs

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF2B002C	14.7	—	290.1	Table Cons. Run #16
RF2B003C	14.5	—	290.0	Table Cons. Run #15
RF2B043T ~~RF2B043C~~	14.6	—	41.6	Centrif. tail Run #23
RF2B048R	14.8	—	24.6	Trommel Underflow Run #25
RF2B049R	14.6	—	172.0	Trommel U.S. Run #26
RF2B050R	14.6	—	291.0	Trommel oversize Run #25
RF2B051R	14.8	—	290.3	Trommel oversize Run #26
RF2B052R	14.6	—	290.0	Trommel O.S. Run #27
RF2B053R	14.6	—	98.5	Trommel Undersize Run #27
~~RF2B054C~~ ~~RF2B054R~~	~~14.5~~	~~—~~	~~189.9~~	~~Run #17-18~~ Tm
RF2B055C	14.5	—	189.9	Run #17-18
RF2B054R	14.5	—	45.1	Run #28
RF2B056C	14.5	—	128.1	Run #17-18
RF2B057C	14.6	—	218.0	Run #17-18
RF2B058C	14.3	—	195.9	Run #19-20
RF2B059C	14.6	—	51.9	Run #19-20
RF2B060C	14.7	—	221.3	Run #19-20
RF2B061C	14.6	—	105.1	Run #21-22
RF2B062C	14.6	—	196.4	Run #21-22
RF2B063C	14.6	—	40.2	Run #23-24

Investigator T. Murarik

Date 10/18/93

Reviewer Greg Raab

Date 20 April 1994

FM-162

TMM/4-93/Rev. 0

LESAT
Technology Applications Division

Project Rocky Flats

Sample Source Various Runs

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF2B001C	14.7	—	290.0 g	Table concentrate, Run #13
RF2B004C	14.6	—	290.0 g	Table concentrates Run #14
RF2B005C	14.6	—	290.0 g	Table concentrates Run #9
RF2B006C	14.9	—	290.0 g	Table Concentrates Run #10
RF2B007C	14.7	—	290.0 g	Table Concentrates Run #11
RF2B008C	14.5	—	290.0 g	Table Concentrates Run #12
RF2B08C	14.7	—	51.6 g	Falcon tails Run #17
RF2B009C	14.7	—	35.6	15 PSI OF Run #18
RF2B010C	14.5	—	65.5	15 PSI UF Run #18
RF2B011C	14.8	—	35.5	60 PSI OF Run #18
RF2B012C	14.5	—	68.3	60 PSI UF Run #18
RF2B013C	14.6	—	33.9	30 PSI OF Run #18
RF2B014C	14.6	—	69.9	30 PSI UF Run #18
RF2B016C	14.5	—	290.0	Concentrate, Falcon Run #17
RF2B017C	14.8	—	290.0	Falcon Concentrate Run #19
RF2B018F	14.5	—	65.2	Feed material Run #17
RF2B019T	14.4	—	39.3	Falcon tails Run #19
RF2B020C	14.5	—	29.7	15 PSI OF Run #20
RF2B021C	14.7	—	46.1	15 PSI UF Run #20
RF2B022C	14.6	—	27.5	30 PSI OF Run #20

Investigator T. Murarik

Date 10/18/93

Reviewer Greg Best

Date 20 Apr. 7 1994

FM-162

TMM/4-93/Rev. 0

LESAT
Technology Applications Division

Project Rocky Flats

Sample Source Run 2, 4, + 8

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), ~~g~~ TM	WET GROSS MASS, ~~g~~ TM	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF2A0001	1.5 lbs	5.5 lbs	—	+4 mesh, process, Run 2
RF2A0002	~~26.0 lbs~~ 2.0 lbs TM	26.0 lbs	—	Hutch 1, " "
RF2A0003	2.0 lbs	17.5 lbs	—	Hutch 2, " "
RF2A0004	2.0 lbs	14.0 lbs	—	Class. undrf, " "
RF2A0005	2.0 lbs	10.5 lbs	—	Class. Cl-out, " "
RF2A0006	2.0 lbs	7.5 lbs	—	Screen org., " "
RF2A0020	1.5 lbs	7.5 lbs	—	+4 mesh, process, Run 4
RF2A0021	2.0 lbs	35.0 lbs	—	Hutch 1, " "
RF2A0022	2.0 lbs	13.5 lbs	—	Hutch 2, " "
RF2A0023	2.0 lbs	30.0 lbs	—	class. undrf., " "
RF2A0024	2.0 lbs	33.0 lbs	—	Class. Cl-out, " "
RF2A0025	2.0 lbs	23.0 lbs	—	class. Sump., " "
RF2A0026	2.0 lbs	4.0 lbs	—	Screen org., " "
RF2A0027	8.0 lbs	190.0 lbs	—	Thickener, " "
RF2A0999	—	—	18.616 g	Dark hard layer, Class Sump, Run 8, dry

Investigator T. [signature]

Date 10/18/93

Reviewer Greg [signature]

Date 20 April 1994

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TMM/4-93/Rev. 0

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Project Rocky Flats

Sample Source Runs 2, 4, + 6

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), ~~g~~ Tm	WET GROSS MASS, ~~g~~ Tm	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF2A0250	1.5 lbs	5.5 lbs	—	+4 mesh, process, Run#2 ~~+4 mesh, process, Run#4~~ Tm
RF2A0251	2.0 lbs	26.0 lbs	—	Hutch 1, ", "#2
RF2A0252	2.0 lbs	17.5 lbs	—	Hutch 2, ", "
RF2A0253	2.0 lbs	14.0 lbs	—	class. undrf, ", "
RF2A0254	2.0 lbs	10.5 lbs	—	class. cl-out, ", "
RF2A0255	2.0 lbs	7.5 lbs	—	screen org., ", "
RF2A0256	8.0 lbs	190.0 lbs	—	Thickener, ", "
RF2A0257	1.5 lbs	7.5 lbs	—	+4 mesh, process, Run#4
RF2A0258	2.0 lbs	35.0 lbs	—	Hutch 1, ", "
RF2A0259	2.0 lbs	13.5 lbs	—	Hutch 2, ", "
RF2A0260	2.0 lbs	30.0 lbs	—	class. undrf, ", "
RF2A0261	2.0 lbs	33.0 lbs	—	class. cl-out, ", "
RF2A0262	2.0 lbs	23.0 lbs	—	class. sump., ", "
RF2A0263	2.0 lbs	4.0 lbs	—	screen org, ", "
RF2A0264	8.0 lbs	182.0 lbs	—	Thickener, ", "
RF2A0300	8.0 lbs	190.0 lbs	—	Thickener, process, Run#2
RF2A0301	2.0 lbs	4.0 lbs	—	+4 mesh, process, Run#6
RF2A0302	2.0 lbs	43.0 lbs	—	Hutch 1, ", "
RF2A0303	1.5 lbs	12.0 lbs	—	Hutch 2, ", "
RF2A0304	2.0 lbs	38.5 lbs	—	class undrf., ", "

Investigator T. [signature]

Date 10/18/93

Reviewer Greg [signature]

Date 20 April 1994

FM-162

TMM/4-93/Rev. 0

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Technology Applications Division

Project Rocky Flats

Sample Source Run #6 + 8

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), ~~g~~ gm	WET GROSS MASS, ~~g~~ gm	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF2A0305	2.0 lbs	5.5 lbs	—	Class. cl-out, process, Run #6
RF2A0306	2.0 lbs	3.0 lbs	—	Class. Sump, ", "
RF2A0307	2.0 lbs	12.0 lbs	—	Screen org., ", "
RF2A0308	12.0 lbs	253.0 lbs	—	Thickener, ", "
RF2A0309	2.0 lbs	41.5 lbs	—	Hutch #1, process, Run #8
RF2A0310	2.0 lbs	9.5 lbs	—	Hutch #2, ", "
RF2A0311	2.0 lbs	26.5 lbs	—	class. undrf, ", "
RF2A0312	2.0 lbs	13.0 lbs	—	class. cl-out, ", "
RF2A0313	1.5 lbs	3.0 lbs	—	Class. Sump., ", "
RF2A0314	2.0 lbs	10.5 lbs	—	Screen. org., ", "
RF2A0315	12.0 lbs	283.5 lbs	—	Thickener, ", "
RF2A0316	4.0 lbs	71.5 lbs	—	Attrn. Scrub C-out, ", "
RF2A0317	2.0 lbs	2.5 lbs	—	Hutch cl-out, ", Run #6
RF2A0318	1.5 lbs	5.5 lbs	—	+4 mesh, ", Run #8
RF2A0319	1.5 lbs	5.5 lbs	—	Hutch cl-out, ", Run #8

Investigator T. Munn

Date 10/18/93

Reviewer Greg Beck

Date 20 April 1994

FM-162

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Technology Applications Division

Project Rocky Flats

Sample Source Runs # 1, 3, 5, 7.

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), ~~g~~ T.M.	WET GROSS MASS, ~~g~~ T.M.	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF2A0400	2.0 lbs	5.0 lbs	—	+5/4" organics, process, Run # 1
RF2A0401	2.0 lbs	9.0 lbs	—	+5/4" gravel, process Run # 1
RF2A0402	4.0 lbs	66.0 lbs	—	+3/8" gravel, process, Run # 1
RF2A0403	2.0 lbs	4.0 lbs	—	+3/8" gravel Cleanout, Screen Run # 1
RF2A0404	8.0 lbs	150.5 lbs	—	< 3/8" feed, process Run # 1
RF2A0405	0.5 lbs	2.0 lbs	—	+5/4" organics, process, Run # 3
RF2A0406	0.5 lbs	7.5 lbs	—	+5/4" gravel, process, Run # 3
RF2A0407	2.0 lbs	69.0 lbs	—	+1/4" gravel, process Run # 3
RF2A0408	2.0 lbs	12.5 lbs	—	Screen + 1/4" Clean out, Run # 3
RF2A0409	8.0 lbs	155.5 lbs	—	< 1/4" feed, process Run # 3
RF2A0410	4.0 lbs	2.0 lbs	—	+5/4" organics, process, Run # 5
RF2A0411	2.0 lbs	7.0 lbs	—	+5/4" gravel, process, Run # 5
RF2A0412	2.0 lbs	63.0 lbs	—	+1/4" gravel, process, Run # 5
RF2A0413	8.0 lbs	170.0 lbs	—	< 1/4" feed, process, Run # 5
RF2A0414	2.0 lbs	3.5 lbs	—	+5/4" organics, process, Run # 7
RF2A0415	2.0 lbs	13.0 lbs	—	+5/4" gravel, process Run # 7
RF2A0416	4.0 lbs	77.5 lbs	—	+1/4" gravel, process, Run # 7
RF2A0417	10.0 lbs	182.5 lbs	—	< 1/4" feed, process, Run # 7
RF2A0418	2.0 lbs	21.5 lbs	—	Screen + 1/4" cleanout, Run # 7

Investigator T. Mercado

Reviewer Greg Ast

Date 10/18/93

Date 20 April 1994

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TMM/4-93/Rev. 0

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Technology Applications Division

Project Rocky Flats

Sample Source RF2A0000

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), ~~g~~ Tm	WET GROSS MASS, ~~g~~ Tm	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF2A0800	2.0 lbs	26.0 lbs	—	From barrel D-82209 Split #3.
RF2A0801	2.0 lbs	27.0 lbs	—	From barrel D-82210 Split #4.
RF2A0802	2.0 lbs	28.5 lbs	—	From barrel D-82209 Split #3.
RF2A0803	2.0 lbs	29.0 lbs	—	From barrel D-82209 Split #3.
RF2A0804	2.0 lbs	26.5 lbs	—	From barrel D-82210 Split #4.
RF2A0805	2.0 lbs	35.5 lbs	—	From barrel D-82209 Split #3.
RF2A0806	2.0 lbs	31.0 lbs	—	From barrel D-82209 Split #3.
RF2A0807	2.0 lbs	31.5 lbs	—	From barrel D-82210 Split #4.
RF2A0808	2.0 lbs	31.0 lbs	—	From barrel D-82210 Split #4.
RF2A0809	2.0 lbs	30.0 lbs	—	From barrel D-82209 Split #3.
RF2A0810	2.0 lbs	36.5 lbs	—	From barrel D-81448 Split #2.
RF2A0811	2.0 lbs	37.5 lbs	—	From barrel D-81448 Split #2.
RF2A0812	2.0 lbs	35.0 lbs	—	From barrel D-82209 Split #3.
RF2A0813	2.0 lbs	37.0 lbs	—	From barrel D-81448 Split #2.
RF2A0814	2.0 lbs	43.5 lbs	—	From barrel D-81448 Split #2.
RF2A0815	2.0 lbs	34.5 lbs	—	From barrel D-81448 Split #2.
RF2A0816	2.0 lbs	34.5 lbs	—	From barrel D-81448 Split #2.
RF2A0817	2.0 lbs	37.5 lbs	—	From barrel D-82209 Split #3.
RF2A0818	2.0 lbs	35.0 lbs	—	From barrel D-81448 Split #2.
RF2A0819	2.0 lbs	41.0 lbs	—	From barrel D-81448 Split #2.

Investigator T. Murarik

Reviewer Greg [illegible]

Date 10/18/93

Date 20 April 1994

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Technology Applications Division

Project Rocky Flats

Sample Source RF2A 0000

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF2A0820	2.0 lbs	10.5 lbs	—	From barrel D-82209 Split #3.
RF2A0821	2.0 lbs	44.0 lbs	—	From barrel D-81448 Split #2.
RF2A 0822	2.0 lbs	21.5 lbs	—	From barrel D-81448 split #2.
RF2A0823	2.0 lbs	39.0 lbs	—	From barrel D-81448 Split #2.
RF2A 0824	2.0 lbs	44.0 lbs	—	~~From barrel D-81445~~ split #1 From barrel # D-81445 TM
RF2A0825	2.0 lbs	45.5 lbs	—	From barrel D-81445 split #1.
RF2A0826	2.0 lbs	41.5 lbs	—	From barrel D-81448 Split #2
RF2A0827	2.0 lbs	45.0 lbs	—	From barrel D-81445 split #1.
RF2A0828	2.0 lbs	41.0 lbs	—	From barrel D-81445 Split #1.
RF2A0829	2.0 lbs	25.5 lbs	—	From barrel D-81448 Split #2.

Investigator T. Mumarik

Reviewer Greg Rach

Date 10/18/93

Date 20 April 1994

FM-162

TMM/4-93/Rev. 0

LESAT
Technology Applications Division

Project Rocky Flats

Sample Source RF114000

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RFPHWET	66.85	—	86.91	pH=7.86
RFPHCACL	67.81	—	87.84	pH=7.32
RFPH0001	—	—	20.007 (net)	pH=7.61
RFPH0002	—	—	20.040 (net)	pH=7.63
RFPH0003	—	—	19.995 (net)	pH=7.60
RFPH0004	—	—	20.005 (net)	pH=7.12
RFPH0005	—	—	20.102 (net)	pH=7.14
RFPH0006	—	—	20.066 (net)	pH=7.14
~~RFPH~~				

TM

Investigator T. Merrill

Date May 21, 1993

Reviewer T. Wenstrand

Date 10/6/93

FM-162

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LESAT
Technology Applications Division

Project Rocky Flats

Sample Source IT Corp Sample - RF31X000

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF31X900	14.666	205.287	183.092	Activity Sample -A Split
RF31X901	14.560	252.210	234.814	Activity Sample -B Split
RF31X902	14.698	281.382	257.496	Activity Sample -C Split
RF31X903	14.555	198.224	177.243	Activity Sample -D Split

Investigator T. Muranik

Date July 28, '93

Reviewer T. Wenstrand

Date 10/5/93

FM-162

TMM/4-93/Rev. 0

LESAT
Technology Applications Division

Project Rocky Flats

Sample Source Trommel, Run #25

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF2B042R	14.567	355.367	352.376	Oversize - A Run-25
RF2B043R	14.631	311.293	308.322	Oversize - B Run 25
RF2B044R	14.555	407.239	399.782	~~Oversize~~ Scrubber Tn Heel - A Run 25
RF2B045R	14.837	356.674	350.682	Scrubber-Heel - B Run 25
RF2B046R	14.593	440.7	393.825	Screen Heel - A Run 25
RF2B047R	14.705	475.9	445.3	Screen Heel - B Run 25

Investigator T. Murarik for B.K.W.

Reviewer T. Wenstrand

Date Aug. 27, 1993

Date 10/5/93

FM-162

TMM/4-93/Rev. 0

LESAT
Technology Applications Division

Project Rocky Flats

Sample Source Wifley Table tails

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF2B026T	14.678	507.4	383.505	Tails - Run 9, A bucket = 18.0 lbs
RF2B027T	14.692	525.2	384.533	Tails - Run 9, B
RF2B028T	14.678	507.5	340.600	Tails - Run 10, A Bucket = 9.0 lbs
RF2B029T	14.465	406.991	307.643	Tails - Run 10, B
RF2B030T	14.823	426.1	333.450	Tails - Run 11, A bucket = 25.5 lbs
RF2B031T	14.905	423.6	329.559	Tails - Run 11, B
RF2B032T	14.477	399.2	306.792	Tails - Run 12, A bucket = 7.6 lbs
RF2B033T	14.542	509.1	384.658	Tails - Run 12, B
RF2B034T	14.578	485.9	380.466	Tails - Run 13, A
RF2B035T	14.882	466.1	361.896	Tails, Run 13, B
RF2B036T	14.613	542.6	418.5	Tails - Run 14, A
RF2B037T	14.562	425.5	330.851	Tails - Run 14, B
RF2B038T	14.792	457.4	326.891	Tails - Run 16, A
RF2B039T	14.804	440.0	310.211	Tails - Run 16, B
RF2B040T	14.724	492.0	381.085	Tails - Run 15, A
RF2B041T	14.779	438.5	340.154	Tails - Run 15 - B

Reviewer ~~Investigator~~ T. Wenstrand

Date 10/5/93

Investigator ~~Reviewer~~ T. Murarik for B.K.W.

Date 8/21/93

FM-162

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Technology Applications Division

Project Rocky Flats

Sample Source Runs 4+8

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF2A0220	14.555	359.943	139.126	Thickener, Bckt C-3 Run 8, splitter (5)
RF2A0221	14.544	~~293.499~~ T.m.	68.217	+4mesh-A, Run 4 Sieved - 4 mesh +org.
RF2A0222	14.855	~~491.2~~ Tm	68.070	Classifier underf, Run 4 Sieved — 100 mesh
RF2A0999	14.555	—	33.171	Classifier sump, Run 8 Dark, hard portion dried on top.
RF2A0223	14.756	419.8	265.356	Attrn. Scrub C-0, A1 From Run 8
RF2A0224	14.717	415.8	259.248	Attrn. Scrub C-0, A2 From Run 8
RF2A0225	14.566	515.1	345.757	Attrn Scrub C-0, B1 From Run 8
RF2A0226	14.632	490.1	283.879	Attrn. Scrub C-0, B2 From Run 8

Investigator T. Murarik

Reviewer T. Wernstrand

Date Sept. 26, '93

Date 10/6/93

FM-162

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LESAT
Technology Applications Division

Project Rocky Flats

Sample Source Runs #4, 8, 11, 27

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF2A0200	14.656	—	277.237	< 1/4" feed -B Run #4
RF2A0201	14.786	—	347.997	Classifier underflow, Run #4 sieved, +100 mesh
RF2A0202	14.646	—	144.385	+4 mesh, Run 4, -org sieved +4 mesh
RF2A0203	14.679	271.350	267.584	Classifier underflow Run 8 splitt -C
RF2A0204	14.551	286.239	282.309	Classifier underflow Run 8 Splitt -D
RF2A0205	14.625	223.131	215.580	Classifier Clean out Run 8, split C
RF2A0206	14.564	216.954	209.713	Classifier clean out Run 8, split D
RF2A0207	14.604	202.710	201.564	+4 mesh -C Run 8 - split
RF2A0208	14.736	187.300	185.892	+4 mesh -D Run 8 split
RF2A0209	14.769	143.020	123.678	Classifier sump -C Run 8 split
RF2A0210	14.627	134.643	116.463	Classifier Sump -D Run 8 Split
RF2A0211	14.642	54.616	49.797	Screen organics -C Run 8 Split
RF2A0212	14.588	53.896	49.090	Screen organics -D Run 8 split.
RF2A0213	14.662	141.476	130.310	Table tails -C Run 11 split.
RF2A0214	14.728	212.916	194.817	Table tails -D Run 11 Split.
RF2A0215	14.847	478.2	476.8	Trommel overs -C Run 27 Splitter
RF2A0216	14.672	382.410	378.423	Trommel overs -D Run 27 splitter
RF2A0217	14.567	363.442	155.466	Thickener - Bckt A -2 Run 8 split
RF2A0218	14.641	372.859	159.598	Thickener - Bckt A -3 Run 8, Split.
RF2A0219	14.690	354.030	136.969	Thickener Bckt C -2 Run 8 split

Investigator T. Murarik

Reviewer T. Wenstrand

Date Sept. 11, 1993

Date 10/5/93

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Technology Applications Division

Project Rocky Flats

Sample Source Runs #4, 6, 8

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF2A0154	14.613	375.256	373.955	>1/4" gravel-C Run #8
RF2A0155	14.662	-RF2A0101 mass	~~(3086.3)~~ TM 17.220	Filtered water Run 8
RF2A0156	14.695	238.267	222.763	Shaker clean out, sieved ~~X~~ 1/4", Run 4
RF2A0157	14.477	342.392	106.787	Thickener-C Run 4
RF2A0158	14.612	329.820	106.128	Thickener-D Run 4
RF2A0159	14.685+0.637	—	15.468	Filter paper, process water - Run 8

Investigator T. Mund

Date Aug 31, '93

Reviewer T. Wenstrand

Date 10/5/93

FM-162

TMM/4-93/Rev. 0

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Technology Applications Division

Project Rocky Flats

Sample Source Runs #4, 6, + 8

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF2A0134	14.671	47.452	39.703	>1 1/4" grass-A Run 4
RF2A0135	14.609	40.315	38.030	>1 1/4" grass-B "
RF2A0136	14.745	350.579	350.395	>1 1/4" gravel-A "
RF2A0137	14.749	358.014	357.756	>1 1/4" gravel-B "
RF2A0138	14.599	330.142	329.507	>1/4" gravel-A "
RF2A0139	14.848	389.574	388.948	>1/4" gravel-B "
RF2A0140	14.637	409.615	408.840	>1/4" gravel-C "
RF2A0141	14.591	66.859	54.513	>1 1/4" grass-A Run 6
RF2A0142	14.711	64.713	54.448	>1 1/4" grass-B
RF2A0143	14.660	374.037	373.911	>1 1/4" gravel-A "
RF2A0144	14.549	381.940	381.786	>1 1/4" gravel-B "
RF2A0145	14.657	397.353	396.910	>1/4" gravel-A "
RF2A0146	14.676	393.014	392.500	>1/4" gravel-~~C~~ B "
RF2A0147	14.564	363.257	362.822	>1/4" gravel-C "
RF2A0148	14.655	48.423	42.885	>1 1/4" grass-A Run 8
RF2A0149	14.755	51.056	45.362	>1 1/4" grass-B "
RF2A0150	14.569	376.744	375.720	>1 1/4" gravel-A "
RF2A0151	14.442	411.3	411.2	>1 1/4" gravel-B "
RF2A0152	14.625	339.357	338.606	>1/4" gravel-A "
RF2A0153	14.672	405.191	404.260	>1/4" gravel-B "

Investigator T. Merritt

Date 8/27/93

Reviewer T. Wenstrand

Date 10/5/93

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Project Rocky Flats

Sample Source Runs #6 + 8 + 2

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF2A0114	14.488	—	208.658	Hutch Clean out, Total, Run 6
RF2A0115	14.693	309.484	95.753	Thickener-A, Run 8
RF2A0116	14.478	287.513	69.458	Thickener-B, "
RF2A0117	14.621	306.454	82.706	Thickener-C, "
RF2A0118	14.693	284.563	65.384	Thickener-D, "
RF2A0119	14.635	311.909	78.355	Thickener-E, "
RF2A0120	14.427	273.329	82.541	Thickener-F, "
RF2A0121	14.704	242.076	14.971	Thickener, settled water from bucket, "
RF2A0122	14.851	352.393	159.160	Hutch Clean-out, Run 8
RF2A0123	14.461	400.442	325.751	Class C-O, -A "
RF2A0124	14.627	505.6	409.5	Class. C-O., -B "
RF2A0125	14.532	301.194	68.577	Class. Sump-A "
RF2A0126	14.452	275.440	67.758	Class Sump-B "
RF2A0127	14.709	38.386	33.838	>1 1/4" grass-A Run 2
RF2A0128	14.438	45.350	38.181	>1 1/4" grass-B "
RF2A0129	14.762	366.313	366.132	>1 1/4" gravel-A "
RF2A0130	14.605	483.8	483.4	>1 1/4", gravel-B "
RF2A0131	14.544	341.942	341.386	> 3/8" gravel-A "
RF2A0132	14.462	329.103	328.402	> 3/8" gravel-B "
RF2A0133	14.863	388.214	387.386	> 3/8" gravel-C "

Investigator T. Murarik

Reviewer T. Wenstrand

Date 8/27/93

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Project Rocky Flats

Sample Source Run #6 + 8

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF2A0094	14.679	251.676	28.915	Organics - Float, Run #8
RF2A0095	14.582	298.943	172.726	+4 mesh - A, "
RF2A0096	14.416	320.158	225.279	+4 mesh - B, "
RF2A0097	14.728	308.332	57.027	Screen organics - A, "
RF2A0098	14.598	293.777	56.912	Screen organics - B, "
RF2A0099	14.727	394.818	338.969	Class. underf - A, "
RF2A0100	14.475	469.9	402.616	Class. underf - B, "
RF2A0101	1080.8	4167.6	—	Recycle water, post Run 4 days, Run 8 - Filtering
RF2A0102	14.727	241.635	14.936	Recycle water, post Run A, "
RF2A0103	14.779	247.914	14.993	Recycle water, post Run B, "
RF2A0104	29.830	258.980	—	Recycle water, post Run RF-C, "
RF2A0105	29.749	255.757	—	Recycle water, post Run, RF-D, "
RF2A0106	14.656	477.3	373.410	Hutch 1 - A, "
RF2A0107	14.519	516.8	400.037	Hutch 1 - B, "
RF2A0108	14.572	493.6	371.613	Hutch 2 - A, "
RF2A0109	14.609	435.0	327.376	Hutch 2 - B, "
RF2A0110	14.622	329.453	85.377	Thickener - C Run 6
RF2A0111	14.743	325.823	106.945	Thickener - D Run 6
RF2A0112	14.490	369.199	173.185	Thickener - E Run 6
RF2A0113	14.509	302.097	96.133	Thickener - F Run 6

Investigator T. Murarik

Reviewer T. Wenstrand

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Sample Source Run #6 + 8

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF2A0074	14.682	200.432	164.432	Classifier Sump, A Run 6
RF2A0075	14.656	223.797	183.881	class. Sump -B, "
RF2A0076	14.624	323.905	65.089	Screen organics -A, "
RF2A0077	14.915	320.611	69.855	Screen organics-B, "
RF2A0078	14.627	209.333	16.532	Float organics, "
RF2A0079	14.470	235.477	14.696	Recycle water, finish -B, "
RF2A0080	29.607	294.539	—	Recycle water, finish -C, RF, "
RF2A0081	29.626	283.926	—	Recycle water, finish -D, RF, "
RF2A0082	14.664	299.211	75.723	Thickener -A, "
RF2A0083	14.851	278.404	76.786	Thickener -B, "
RF2A0084	14.717	256.507	231.274	Initial Sample -A Run #8
RF2A0085	14.573	252.575	227.698	Initial Sample, B, Run 8
RF2A0086	29.501	274.320	—	Recycle water, A, pre-Run 8
RF2A0087	29.616	292.411	—	Recycle water, B pre-Run 8
RF2A0088	14.702	270.417	15.016	Recycle water, C pre-Run 8
RF2A0089	14.662	291.942	15.009	Recycle water, D pre-Run 8
RF2A0090	14.528	202.194	65.862	Attrn. Scrub. discharge pre-Run 8
RF2A0091	14.890	296.713	152.539	Attrn. Scrub disch. post Run 8
RF2A0092	1242.1	4013.	~~373.842~~	Post Run, Recycle water, Suspend. tot Run 8
RF2A0093	14.665	374.364 ~~373.842~~	~~374.364~~	Min. Jig Cleanout Run 8

Investigator T. Murarik

Reviewer T. Wenohand

Date 8/20/93

Date 10/5/93

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Project Rocky Flats

Sample Source Run #2, 4 + 6

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF2A0054	29.781	311.835	—	Recycle H_2O-RF, Run 4
RF2A0055	14.603	320.825	94.300	Thickener-C, Run 2
RF2A0056	14.627	330.556	93.928	Thickener-D, Run 2
RF2A0057	14.813	267.779	15.033	Recycle H_2O, start, Run 6
RF2A0058	14.758	244.478	220.039	Initial-B, Run 6
RF2A0059	14.653	238.061	212.844	Initial-A, "
RF2A0060	14.586	380.939	162.015	Attrn. Scr-Initial, #6
RF2A0061	14.576	358.690	167.684	Attrn, Scr.-post, #6
RF2A0062	14.637	234.897	14.850	Recycle H_2O-A, "
RF2A0063	14.616	391.360	381.735	Min jig C-O, "
RF2A0064	14.643	267.732	224.848	+4mesh-A, "
RF2A0065	14.690	247.814	204.423	+4mesh-B, "
RF2A0066	14.619	558.0	436.4	Hutch 1-A, "
RF2A0067	14.654	495.6	389.594	Hutch 1-B, "
RF2A0068	14.594	394.747	324.259	Hutch 2-A, "
RF2A0069	14.876	360.852	296.060	Hutch 2-B, "
RF2A0070	14.699	440.8	374.852	Class. under-A, "
RF2A0071	14.855	496.5	422.2	Class. under-B, "
RF2A0072	14.442	267.318	251.451	Class element A, "
RF2A0073	14.669	321.052	300.251	Class. element B, "

Investigator T. Murarik

Date 8/17/93

Reviewer T. Wenobard

Date 10/5/93

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Sample Source Run #2 + 4

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF2A0034	14.761	540.3	380.692	Hutch 2-A, Run 4
RF2A0035	14.870	510.2	381.988	Hutch 2-B, "
RF2A0036	14.855	491.2	401.389	Class. under-A, "
RF2A0037	14.767	510.4	418.1	Class under-B, "
RF2A0038	14.839	472.4	313.069	Class cleanout-A, "
RF2A0039	14.560	364.414	158.713	Class cleanout-B, "
RF2A0040	14.568	261.384	21.536	Class, sump-A, "
RF2A0041	14.586	286.877	21.777	class, sump-B, "
RF2A0042	14.657	275.874	74.145	Screen, org.-A, "
RF2A0043	14.871	335.785	98.619	Screen, org.-B, "
RF2A0044	14.851	348.902	100.443	Thickener-A, "
RF2A0045	14.661	347.342	119.936	Thickener-B, "
RF2A0046	14.566	251.046	16.907	Org. Floats, Run 2
RF2A0047	14.804	284.250	15.054	Recycle water, "
RF2A0048	14.870	357.030	147.967	Thickener-A, "
RF2A0049	14.622	323.700	80.402	Thickener-B, "
RF2A0050	14.695	281.119	32.743	Org. Floats, Run 4
RF2A0051	14.875	272.959	24.365	Org. Floats, "
RF2A0052	14.843	243.030	15.044	Recycle wat.-B, "
RF2A0053	29.491	300.930	—	Recycle H_2O RF-A, "

Investigator T. Muranik

Reviewer T. Wenohard

Date 8/10/93

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Sample Source Run # 2 + 4

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF21000V	14.6	193.334	174.822	Starting Sample, < 3/8", Run 2
RF2A0007	14.662	251.726	145.036	+4 mesh - A, Run 2
RF2A0008	14.823	279.914	165.524 ~~163.524~~	+4 mesh - B, Run 2
RF2A0009	14.765	472.4	369.803	Hutch 1-A, Run 2
RF2A0010	14.822	576.3	450.2	Hutch 1-B, Run 2
RF2A0011	14.795	554.0	434.0	Hutch 2-A, "
RF2A0012	14.759	571.9	454.4	Hutch 2-B, "
RF2A0013	14.846	482.2	378.401	Class under-A, "
RF2A0014	14.745	526.9	408.740	Class under-B, "
RF2A0015	14.827	362.251	230.786	Class cleanout-A, "
RF2A0016	14.821	451.0	265.108	Class clean out-B, "
RF2A0017	14.661	252.497	63.748	Screen, orgo-A, "
RF2A0018	14.740	305.547	74.732	Screen, org. B, "
RF2A0019	14.591	319.578	318.684	Min. jig cleanout, "
RF2A0028	14.656	243.265	14.861	Recycle H_2O, Run 4
RF2A0029	14.688	299.690	295.940	Min. jig C-O, "
RF2A0030	14.544	293.499	198.424	+4 mesh-A, "
RF2A0031	14.577	345.076	282.311	+4 mesh-B, "
RF2A0032	14.746	442.0	244.988	Hutch 1-A, "
RF2A0033	14.642	388.323	204.120	Hutch 1-B, "

Investigator T. Murarik

Reviewer T. Wenstrand

Date 8/9/93

Date 10/5/93

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Project Rocky Flats

Sample Source Stock for PSA

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF114220	14.809	—	23.856	poly-w - liquid res. from sinks, 3rd - B
RF114221	14.627	—	124.239	poly-w - liquid res. floats, 2nd - A
RF114222	14.821	—	201.450	poly-w - liquid res. floats, 3rd A
RF114223	14.601	—	135.136	poly-w, liquid res floats, 2nd, B
RF114224	14.637	—	194.871	poly w - liquid res. floats, 3rd B
RF114225	14.665	—	23.277	poly-w, filtered rinse sinks, 3rd A

Investigator [signature]

Date Sept. 26, '93

Reviewer T. Wenshant

Date 10/5/93

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Technology Applications Division

Project Rocky Flats

Sample Source Stock for PSA

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF114200	14.574	20.215	19.906	>1 1/2" grass, A leaves (straw)
RF114201	14.826	43.990	42.483	>1 1/2", roots, A grass
RF114202	14.650	25.239	25.239	>1 1/2" grass, A dust (shattered)
RF114203	14.560	—	16.656	20μ pipet, from <325C
RF114204	14.581	—	15.770	5μ pipet, from <325C
RF114205	14.618	—	15.104	2μ pipet, from <325C
RF114206	14.765	—	16.052	Pipet H_2O suspended from <325C
RF114207	14.727	24.370	23.911	>1 1/2" grass, B leaves (straw)
RF114208	14.791	49.691	48.170	>1 1/2" grass, B ~~leaves~~ TM roots
RF114209	14.652	23.070	22.839	>1 1/2" grass, B dust
RF114210	14.608	1.186 (filterpaper)	22.526	Poly-w float material - A (1.90 dens), #1, Organics?
RF114211	14.671	1.159 (filterp)	22.671	Poly-w float material - B (1.90 dens) #1, Organics?
RF114212	14.854	—	86.725	Liquid from #1, A poly w (filtered)
RF114213	14.745	—	90.789	Liquid from #1, B poly w (filtered)
RF114214	14.629	2.317 (filterp)	45.526	Poly-w float material (~2.6 dens) 2nd B
RF114215	14.609	1.178 (filterp)	19.860	poly-w sinks, 3rd wash (~2.9 dens) B
RF114216	14.661	2.374 (")	45.705	poly-w floats, 2nd (density ~2.6) A
RF114217	14.768	1.181 (")	33.486	poly-w floats, 3rd (density ~2.9) A
RF114218	14.893	1.168 (")	20.214	poly-w ~~floats~~ TM sinks, 3rd A (dens=2.9)
RF114219	14.524	1.160 (")	33.746	poly-w-floats 3rd (density ~2.9) B

Investigator [signature]

Reviewer T. Wernobrand

Date Sept 26, '93

Date 10/5/93

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Project Rocky Flats

Sample Source Stock for PSA (wet sieve)

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF114121	14.590	—	89.656	#325B, " "
RF114122	14.683	—	127.202	<325M, ~~wet sieved~~ dry sieved Tm
~~RF12~~ RF114123 Tm	14.756	—	225.328	<325N, ~~" "~~ wet sieved Tm
RF114124	14.513	—	122.913	<325O, " "
RF114125	14.591	—	117.915	<325P, " "
RF114126	14.596	—	260.482	#100D, " "
RF114127	14.680	—	218.686	#140D, " "
RF114128	14.687	—	191.631	#70F, " "
RF114129	14.585	—	148.691	#200C, " "
RF114130	14.810	—	15.592	<325 H_2O, " "
RF114131	14.762	—	225.328	#325C " "

Investigator T. Murarik

Date 7/6/93

Reviewer T. Wenstrand

Date 10/5/93

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Project Rocky Flats

Sample Source Stock for PSA (dry sieve)

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF114101	14.683	—	90.615	#200A, dry sieved
RF114102	14.762	—	124.905	#325A, " "
RF114103	14.673	—	110.949	<325A, " "
RF114104	14.670	—	16.326	<325B, wet sieved
RF114105	14.621	—	126.169	<325C, " "
RF114106	14.556	—	29.280	<325D, " "
RF114107	14.719	—	26.319	<325E, " "
RF114108	14.577	—	121.214	<325F, " "
RF114109	14.660	—	34.618	<325G, " "
RF114110	14.563	—	109.280	<325H, " "
RF114111	14.678	—	171.360	<325I, " "
RF114112	14.760	—	36.673	<325J, " "
RF114113	14.600	—	15.296	<325K, " "
RF114114	14.593	—	164.224	<325L, " "
ϕ RF114115	14.854	—	106.208	<50N, " "
RF114116	14.587	—	278.203	#70D, dry sieved
RF114117	14.603	—	168.988	#70E, " "
RF114118	14.739	—	164.212	#100C, " "
RF114119	14.863	—	125.791	#140C, " "
RF114120	14.585	—	63.349	#200B, " "

Investigator T. Muranik

Date 6/20/93

Reviewer T. Wenstrand

Date 10/5/93

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ϕ = From middle sieve fractions.

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Project Rocky Flats

Sample Source Stock for PSA (wet sieve)

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
++ RF114081	14.702	—	291.933	3/4" wet sieved
RF114082	14.647	—	198.369	#20A, wet sieved
RF114083	14.799	—	151.690	#20B, wet sieved
RF114084	14.417	—	230.731	#40A, " "
RF114085	14.577	—	131.071	#40B, " "
RF114086	14.794	—	124.495	#50A, " "
RF114087	14.672	—	92.247	#50B, " "
RF114088	14.587	—	163.653	<50H, wet sieved
RF114089	14.739	—	171.791	<50I, " "
RF114090	14.590	—	153.424	<50J, " "
RF114091	14.585	—	137.582	<50K, " "
RF114092	14.588	—	149.498	<50L, "
RF114093	14.693	—	140.677	<50M, "
RF114094	14.589	—	261.276	#70A, dry sieved
RF114095	14.687	—	192.391	#70B, dry "
RF114096	14.607	—	49.916	#70C, " "
RF114097	14.810	—	262.144	#100A, " "
RF114098	14.596	—	167.354	#100B, " "
RF114099	14.863		223.234	#140A, " "
RF114100	14.680		47.339	#140B, " "

Investigator T. Muracik

Date 6/4/93

Reviewer T. Wenshard

Date 10/5/93

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++ = From wet sieving of upper fractions

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Technology Applications Division

Project Rocky Flats

Sample Source Stock for PSA (dry/wet sieve)

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF114061	14.794	—	221.469	#50A dry sieved
RF114062	14.462	—	208.798	3/8" B " "
RF114063	14.799	—	251.810	#20B " "
RF114064	14.688	—	186.342	#20C " "
RF114065	14.577	—	238.853	#40B " "
RF114066	14.854	—	261.519	<#50A " "
RF114067	14.587	—	266.090	<#50B " "
RF114068	14.672	—	155.685	#50B " "
RF114069	14.608	—	252.927	#40C " "
RF114070	14.739	—	230.096	<#50C " "
RF114071	14.588	—	251.601	<#50D " "
RF114072	14.590	—	219.977	<#50E " "
RF114073	14.585	—	217.894	<#50F " "
RF114074	14.693	—	67.380	<#50G " "
RF114075	14.567	—	274.448	3/8" A wet sieved
RF114076	14.462	—	185.927	3/8" B wet sieved
RF114077	14.572	—	202.511	1/4" "
RF114078	14.667	—	178.337	#5 "
RF114079	14.833	—	242.559	#10A "
++ RF114080	14.626	—	361.754	1" "

Investigator T. Murarik

Reviewer T. Wenstrand

Date 5/26/93

Date 10/5/93

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++ = From wet sieving of upper fractions

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Technology Applications Division

Project Rocky Flats

Sample Source Stock for P.S.A, wet sieve

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF114041	14.8	—	2500.9	1" wet sieved
RF114042	14.9	—	2543.3	3/4", "
RF114043	14.692	—	166.431	<3/4", wet sieved
† RF114044	14.484	—	355.497	>1 1/2" all grav!
RF114045	15.1	—	1382.6	1", first split
RF114046	15.0	—	549.8	1", second split
RF114047	15.0	—	251.7	1", third split
RF114048	15.1	—	1410.2	3/4" first split
RF114049	15.0	—	637.2	3/4", 2nd split
RF114050	14.8	—	248.6	3/4", 3rd split
RF114051	165.0	—	15132.3	<3/4", 1st split, archived
RF114052	75.0	—	7344.4	<3/4", 2nd split, archived
RF114053	45.0	—	3704.1	<3/4" 3rd split, RFP
RF114054	14.567	—	255.566	3/8" dry sieved
RF114055	14.572	—	205.944	1/4" dry sieved
RF114056	14.667	—	200.717	#5 dry sieved
RF114057	14.833	—	209.591	#10A dry sieved
RF114058	14.647	—	244.900	#20 dry sieved
RF114059	14.775	—	182.929	#10B dry sieved
RF114060	14.417	—	199.230	#40A dry sieved

Investigator [signature]

Date 5/20/93

Reviewer T. Wenstrand

Date 10/5/93

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† = All gravel together in one pan from previous >1 1/2" samples (ie, a subsample).

(2)

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Sample Source Stock for R.S.A., dry sieve + wet sieve

SAMPLE MASS DATA SHEET					
	SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
	RF114021	15.8	—	1419.8	<3/4", air dry O
	RF114022	15.9	—	218.5	>1 1/2", " D
	RF114023	15.8	—	1536.6	<3/4", " P
	RF114024	17.0	—	1957.4	<3/4", " Q
	RF114025	17.2	—	1768.7	<3/4", " R
	RF114026	17.3	—	1466.3	<3/4", " S
01	RF114027 *	14.569	—	44.521	>1 1/2" grass, "
02	RF114028 *	14.562	—	243.603	>1 1/2" gravel, "
03	RF114029 *	14.693	—	367.805	1" B, "
04	RF114030 *	14.640	—	295.241	3/4", "
05	RF114031 *	14.754	—	231.116	<3/4", "
06	RF114032 *	14.559	—	166.584	<3/4", "
07	RF114033 **	14.569	—	36.508	>1 1/2" grass, wet sieve
08	RF114034 **	14.562	—	242.467	>1 1/2" gravel, "
09	RF114035 **	14.693	—	366.718	1", "
10	RF114036 **	14.640	—	294.302	3/4", "
	RF114037	15.8	—	356.7	>1 1/2" gravel, "
	RF114038	14.9	—	94.8	>1 1/2" grass, "
	RF114039	14.9	—	61.8	>1 1/2" grass, "
	RF114040	15.9	—	70.7	>1 1/2" grass, "

Investigator T. [signature]

Reviewer T. [signature]

Date 5/19/93

Date 10/5/93

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* – Subsampled from dry sieve samples.
** – Subsampled from wet sieve samples

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Sample Source Stock for Particle Size Analysis, dry sieve

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF114001	14.9	—	312.9	> 1½", dry sieve, air dry A
RF114002	14.8	—	2509.9	1", " A
RF114003	14.9	—	2078.1	¾", " A
RF114004	14.9	—	1546.3	< ¾", " A
RF114005	15.1	—	1385.0	< ¾", " B
RF114006	14.8	—	1288.9	< ¾", " C
RF114007	14.7	—	1566.8	< ¾", " D
RF114008	14.9	—	72.6	> 1½", " B
RF114009	15.0	—	1805.5	< ¾", " E
RF114010	14.9	—	1711.8	< ¾", " F
RF114011	14.9	—	1502.7	< ¾", " G
RF114012	15.1	—	1548.4	< ¾", " H
RF114013	15.0	—	1570.2	< ¾", " I
RF114014	14.8	—	1675.0	< ¾", " J
RF114015	15.7	—	1556.7	< ¾", " K
RF114016	15.8	—	75.3	> 1½", " C
RF114017	15.7	—	1823.1	< ¾", " L
RF114018	16.0	—	1775.5	< ¾", " M
RF114019	16.0	—	1533.9	< ¾", " N
RF114020	15.9	—	546.8	¾", " B

Investigator T. Munich

Date 5/19/93

Reviewer Tr Wenstrand

Date 10/5/93

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Sample Source Post Second homogeniz.

SAMPLE MASS DATA SHEET				
SUBSAMPLE ID	PAN MASS (TARE), g	WET GROSS MASS, g	DRY GROSS MASS, g	COMMENTS (pan fraction, pH, treatment, etc.)
RF113B00	14.782	179.745	163.109	Bulk Density - RF-1
RF113A00	14.629	168.882	152.738	Bulk Density - RF-2

Investigator T. Murarik

Date 5/12/93

Reviewer Greg Beat

Date 20 April 1994

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SAMPLES RETURNED TO RFP

BARREL #1		
Description	Net Wt (g)	Total Activity (pCi/gm)
Run #4 Thickener	19270.85	650294.83
RFP Jig Bed CO	3014.0	1378.905
Run #2 Thickener	18918.9	734384.401
RFP #26 Oversize	24324.3	19945.93
RFP #13 Tails	11936.93	19218.457
Run #15 Table Tails	11711.7	13292.780
Run #4 Class Sump	260.2	12479.192
Run #6 Class Sump CL	190.1	957.154
Run #4 Thickener A&C	765.6	26317.5
Run #6 Screen Organics	708.6	15560.86
RFP #25 Scrub Heel	7559.15	2229.95
RFP #28 Trommel Oversize	25351.93	3802.7895
RFP #25 Scrub Heel	7612.57	2245.708
RFP #28 Trommel Oversize	25529.47	3829.420
Run #2 Thickener	18853.880	731860.480
Run #4 Thickener	19405.973	654854.550
RFP #26 Oversize	24395.489	20004.300
RFP #13 Tails	11921.698	19193.933
Run #15 Table Tails	11694.900	13273.711
Run #4 Class Sump	260.200	12479.192
Run #4 Thickener A,E,C	765.600	26459.136

BARREL #2		
Description	Net (g)	Total Activity (pCi/gm)
Run #4(A) Thickener	16230.31	563678.67
Run #6 Thickener	10360.35	386389.25
RF-100 Mesh	2546.4	44663.86
Run #27 Trommel Oversize	12514.1	2002.26
Run #2 Classifier Underflow	3336.8	10994.76
Run #4 Screen Organics	97.1	1781.79
Run #8 Classifier Clean Out	3003.0	6786.78
Run #7 Screen Clean Out	9487.68	25426.98
Run #8 +4 Mesh	321.3	861.08
RFP #27 Screen Heel	392.1	384.26
RFP #26 Scrub Heel	3623.8	942.19
RFP #27 Scrub Heel	10036.63	2709.80
RFP #28 Screen Heel	166.4	19.97
RFP #25 Oversize	15937.52	4303.13
RFP #2 +4 Mesh	743.6	2297.72
RFP #8 Class Sump	293.3	4839.45

BARREL #3		
Description	Net Wt (g)	Total Activity (pCi/gm)
Run #6 Thickener-BDEF	14315.9	496117.51
RFP Table Tails	4631.73	8284.11
Run #8 Thickener	4579.61	181467.05
Run #8 Class Underflow	8460.05	13324.58
Run #6 Class Underflow	13316.5	28429.66
Run #4 Class Underflow	9487.68	24335.90
Run #6 Thickener A&C	2239.3	95338.20
RFP #27 US	846.5	5314.45
RFP #4 Shaker +1/4 CL	4082.5	70953.85
Run #8 Screen Organics	452.2	12322.45
Run #5-6 Grass +1 1/4 Organics	601.4	7962.54
Run #3-4 +1 1/4 Organics Grass	913.1	11610.07
Run #2 Class CL	1865.1	12654.70
Run #4 Class CL	2137.2	3088.25
Run #1-2 Grass +1 1/4	545.9	7743.59
Run #1-2 Shaker CL (+3/8)	929.2	501.77
Run #7-8 Grass +1 1/4	400.3	6074.55
Run #6 Class CL	1983.6	9984.91
Run #4 +4 Mesh	1383.1	3201.88
Run #2 Screen Organics	475.4	12493.51
Run #6 +4 Mesh	1256.2	3812.57
RFP Scrub CL "B"	130.2	1723.85
RFP Scrub CL "A"	122.4	1620.58
RFP -100 Mesh	52.8	926.11
RFP -100 Mesh B	897.0	15733.38
RF 317230	612.9	8114.80

BARREL #4		
Description	Net Wt (g)	Total Activity (pCi/gm)
RF 11100	10937.53	61797.045
RF 31X000	13541.73	86396.237
RF ATT Scrub CL "2B"	1018.4	10795.04
RF ATT Scrub CL "5B"	1102.7	11291.12
RF ATT Scrub CL "1B"	1458.9	15464.34
RF ATT Scrub CL "3B"	1139.0	12073.4
RF ATT Scrub CL "4B"	1783.4	18904.04
RF ATT Scrub CL "6B"	1262.3	13380.38
RF ATT Scrub CL "5A"	1488.3	15775.98
RF ATT Scrub CL "7A"	1285.0	13621.0
RF ATT Scrub CL "6A"	1231.5	13053.9
RF ATT Scrub CL "1A"	1425.3	15108.18
RF ATT Scrub CL "3A"	1313.0	13917.8
RF ATT Scrub CL "2A"	1129.1	11968.46
RF ATT Scrub CL "4A"	1323.0	14023.8
RF 606500	3451.8	808.412
RF 6024C	528.0	9261.12
RF 60160C	569.3	5639.07
+20 Mesh 3rd Scrub	161.1	1673.829
RF 6020C	862.7	15131.758
RF 114046	533.4	74.676
RF ATT #1 -100 Sample Prep	1206.2	6730.596
RF 6033C	6.0	105.24
RF 6025C	277.9	4874.366
RFP Run #13 Conc.	940.8	36245.261
RFP Run #9 Conc.	1252.1	4369.829

BARREL #4 (continued)		
Description	Net Wt (g)	Total Activity (pCi/gm)
RF 114045	1366.0	191.24
RFP #27 Trommel Oversize	1189.1	190.256
RFP #26 Trommel Oversize	983.4	806.388
RF 114050	231.9	13.914
RFP #10 Conc.	1852.5	5724.225
RFP #13 Conc.	940.8	36245.261
RFP #12 Conc.	507.7	558.47
+100 Sample Prep Leftover	879.9	8711.01
RF ATT 2 Stage #3	143.7	8.622
RF 114047	235.0	32.9
RFP 17-18A	66.6	693.972
RFP 16 Conc.	54.0	79.38
RFP 6034C	7.3	128.042
RFP 19-20A	55.1	708.586
RF 114048	1393.6	83.616
RF 60170C	906.9	8978.31
RF 114049	620.7	37.242
RFP Run #14 Conc.	224.2	251.104
RFP Run #23-24	193.5	2558.07
RF 6023C	437.8	7679.012
RFP 17 Conc.	288.3	3004.086
RFP 6018C	926.4	16249.056
RF 6019C	1051.6	18445.064
RFP 25 Trommel Oversize	1017.3	681.591
RFP 11 Conc.	1215.0	37809.585
RFP 15 Conc.	785.0	32827.915

BARREL #4 (continued)		
Description	**Net Wt (g)**	**Total Activity (pCi/gm)**
RF 60120G	63.5	2016.125
RF 60110G	88.8	2819.4
RF 60130G	78.3	2486.025
RFP 12 Table Tails	1050.2	2446.966
Unprocessed RF Soil	53603.55	709711.002

BARREL #5 - RF 2A			
Description	Net Wt (g)	pCi/gm	Total Activity
RF 2A0088	0.314	106.57	33.462
RF 2A0110	70.755	41.95	2968.172
RF 2A0207	186.96	1.261	235.757
RF 2A0216	363.751	0.2514	91.447
RF 2A0126	53.306	12.60	671.656
RF 2A0142	39.737	11.31	449.425
RF 2A0225	331.191	5.68	1881.165
RF 2A0155	2.558	14.95	38.242
RF 2A0069	281.184	1.71	480.825
RF 2A0056	79.301	41.38	3281.475
RF 2A0209	108.909	21.28	2317.584
RF 2A0145	382.253	1.28	489.284
RF 2A0139	374.1	0.72	269.352
RF 2A0147	348.258	0.63	219.403
RF 2A0149	30.607	21.20	648.868
RF 2A0135	23.421	18.94	443.594
RF 2A0156	208.068	17.38	3616.222
RF 2A0112	158.695	21.17	3359.573
RF 2A0200	262.581	14.80	3886.199
RF 2A0137	343.007	0.17	58.311
RF 2A0158	91.516	34.39	3147.235
RF 2A0041	7.191	50.25	361.348
RF 2A0224	244.531	9.616	2351.41
RF 2A0010	435.378	2.04	888.171
RF 2A0128	23.743	19.48	462.514
RF 2A0120	68.114	32.17	2191.227

BARREL #5 - RF 2A (continued)			
Description	Net Wt (g)	pCi/gm	Total Activity
RF 2A0144	367.237	0.12	44.068
RF 2A0061	153.108	0.936	143.309
RF 2A0050	18.048	23.49	423.948
RF 2A0083	61.935	50.34	3117.808
RF 2A0070	360.153	1.65	594.25
RF 2A0159	0.146	219.11	31.99
RF 2A0211	35.155	27.53	967.817
RF 2A0202	129.712	0.1252	16.240
RF 2A0204	267.758	1.897	507.937
RF 2A0222	53.215	19.14	1018.535
RF 2A0221	53.673	14.59	783.089
RF 2A0219	122.279	37.54	4590.354
RF 2A0214	180.089	0.9874	177.820
RF 2A0201	333.211	0.9692	322.948
RF 2A0203	252.905	1.105	279.46
RF 2A0218	144.957	30.21	4379.151
RF 2A0208	171.156	1.692	289.599
RF 2A0205	200.955	3.456	694.500
RF 2A0212	34.502	36.34	1253.803
RF 2A0220	124.571	38.95	4852.040
RF 2A0206	195.149	4.131	806.161
RF 2A0215	461.953	0.4839	223.539
RF 2A0009	355.038	1.81	642.619
RF 2A0018	59.992	25.09	1505.199
RF 2A0049	65.78	43.28	2846.96
RF 2A0146	377.824	0.28	105.79

BARREL #5 - RF 2A (continued)			
Description	Net Wt (g)	pCi/gm	Total Activity
RF 2A0012	439.641	1.02	448.434
RF 2A0035	367.118	0.74	271.667
RF 2A0134	25.032	18.52	463.593
RF 2A0118	50.691	45.52	2307.454
RF 2A0064	210.205	3.07	645.329
RF 2A0017	49.087	27.47	1348.420
RF 2A0103	0.214	27.46	5.876
RF 2A0127	19.129	8.89	170.057
RF 2A0060	147.429	11.23	1655.628
RF 2A0076	50.465	24.74	1248.504
RF 2A0011	419.205	1.62	679.112
RF 2A0028	0.205	518.35	106.262
RF 2A0109	312.767	1.88	588.002
RF 2A0007	130.374	2.28	298.149
RF 2A0066	421.781	1.40	590.49
RF 2A0046	2.341	123.81	289.84
RF 2A0078	1.905	56.33	107.309
RF 2A0063	367.119	0.75	275.339
RF 2A0057	0.22	77.52	17.054
RF 2A0062	0.213	548.4	116.809
RF 2A0014	393.995	3.76	1481.42
RF 2A0059	198.191	16.22	3214.658
RF 2A0098	42.314	26.48	1120.475
RF 2A0034	365.931	2.23	816.026
RF 2A0210	101.836	22.09	2249.557
RF 2A0130	462.44	0.19	87.864

To: Derek Skene

BARREL #5 - RF 2A (continued)			
Description	Net Wt (g)	pCi/gm	Total Activity
RF 2A0107	385.458	1.48	570.478
RF 2A0121	0.267	76.79	20.503
RF 2A0038	298.23	1.74	518.92
RF 2A0077	54.94	19.18	1053.749
RF 2A0033	189.478	1.34	253.901
RF 2A0072	237.009	4.78	1132.903
RF 2A0042	59.488	20.76	1234.97
RF 2A0136	335.65	0.88	295.37
RF 2A0111	92.202	31.75	2927.414
RF 2A0082	61.059	43.20	2637.749
RF 2A0153	389.588	0.69	268.157
RF 2A0058	205.281	15.48	3177.74
RF 2A0037	403.333	2.82	1137.3906
RF 2A0065	189.733	3.00	569.199
RF 2A0123	311.29	1.89	588.338
RF 2A0213	115.648	0.9646	111.554
RF 2A0090	51.334	37.78	1939.399
RF 2A0031	267.734	1.31	350.732
RF 2A0039	144.153	1.15	165.776
RF 2A0079	0.226	151.31	34.196
RF 2A0074	149.493	22.72	3396.481
RF 2A0151	396.758	1.23	488.012
RF 2A0047	0.25	385.74	96.435
RF 2A0044	85.592	34.73	2972.61
RF 2A0067	374.94	0.95	356.19
RF 2A0029	281.252	0.21	59.063

BARREL #5 - RF 2A (continued)			
Description	Net Wt (g)	pCi/gm	Total Activity
RF 2A0045	105.275	31.84	3351.956
RF 2A0015	215.959	6.27	1354.063
RF 2A0133	372.523	0.32	119.207
RF 2A0157	92.31	34.02	3140.386
RF 2A0071	407.345	2.62	1067.244
RF 2A0138	314.908	0.90	283.417
RF 2A0223	250.6	19.91	4989.446
RF 2A0113	81.624	35.36	2886.225
RF 2A0154	359.342	0.55	197.638
RF 2A0055	79.697	42.49	3386.326
RF 2A0052	0.201	105.25	21.155
RF 2A0226	269.238	7.20	1938.514
RF 2A0117	68.085	40.15	2733.613
RF 2A0008	150.701	3.90	587.734
RF 2A0102	0.209	765.08	159.902
RF 2A0124	394.873	2.61	1030.618
RF 2A0129	351.37	0.08	28.110
RF 2A0094	14.236	34.53	491.569
RF 2A0068	309.665	1.92	594.557
RF 2A0019	304.093	0.41	124.678
RF 2A0085	213.125	12.01	2559.631
RF 2A0043	83.748	15.94	1334.943
RF 2A0217	140.899	30.78	4336.871
RF 2A0013	363.555	2.83	1028.861
RF 2A0075	169.225	18.24	3086.664
RF 2A0122	144.309	12.28	1772.115

BARREL #5 - RF 2A (continued)			
Description	Net Wt (g)	pCi/gm	Total Activity
RF 2A0016	250.287	7.30	1827.095
RF 2A0131	326.842	0.84	274.547
RF 2A0073	285.582	5.29	1510.729
RF 2A0114	194.17	8.85	1718.405
RF 2A0141	39.922	14.12	564.687
RF 2A0143	359.251	0.08	28.740
RF 2A0032	230.242	1.15	264.778
RF 2A0089	0.347	<MDA	73.89
RF 2A0140	394.203	0.66	260.174
RF 2A0119	63.79	40.62	2588.306
RF 2A0096	210.863	1.59	331.055
RF 2A0051	9.49	40.66	385.86
RF 2A0091	137.649	13.57	1867.897
RF 2A0093	359.177	0.46	165.22
RF 2A0048	133.097	28.12	3742.688
RF 2A0040	6.968	45.67	318.229
RF 2A0132	313.94	0.45	141.273

BARREL #5 - RF 114			
Description	Net Wt (g)	pCi/gm	Total Activity
RF 114078	163.67	0.1659	27.153
RF 114075	259.881	0.821	213.362
RF 114080	347.133	0.404	140.242
RF 114081	277.231	18.25	5059.466
RF 114204	1.189	160.9	191.31
RF 114208	33.379	22.87	763.378
RF 114122	112.519	22.42	2522.676
RF 114087	77.575	19.47	1510.385
RF 114205	0.486	150.3	73.046
RF 114206	1.287	12.48	16.062
RF 114086	109.701	6.481	710.972
RF 114085	116.494	8.56	997.187
RF 114113	0.696	68.62	47.760
RF 114108	106.637	33.70	3593.67
RF 114125	103.324	34.77	3592.575
RF 114079	227.726	1.493	339.995
RF 114077	187.939	0.332	62.396
RF 114207	9.184	17.90	164.394
RF 114130	0.782	168.93	132.103
RF 114109	19.958	53.18	1061.366
RF 114105	111.548	32.50	3625.31
RF 114128	176.944	12.36	2187.028
RF 114124	108.4	28.97	3140.348
RF 114110	94.717	39.81	3780.155
RF 114112	21.913	49.79	1091.048
RF 114111	156.682	30.75	4817.972
RF 114126	245.886	9.964	2450.008
RF 114131	210.566	17.29	3640.686
RF 114107	11.6	57.34	665.144

BARREL #5 - RF 114 (continued)			
Description	Net Wt (g)	pCi/gm	Total Activity
RF 114083	136.891	1.53	209.443
RF 114104	1.656	102.76	170.171
RF 114114	149.631	29.95	4481.448
RF 114103	96.276	44.53	4287.170
RF 114084	216.314	4.84	1046.960
RF 114127	204.006	15.99	3262.056
RF 114129	134.106	17.92	2403.180
RF 114106	14.644	54.75	801.759
RF 114201	27.657	16.96	469.063
RF 114212	71.871	2.846	204.545
RF 114223	120.535	1.237	149.102
RF 114213	76.044	2.50	190.11
RF 114203	2.096	94.39	197.84
RF 114123	154.499	29.41	4543.816
RF 114044	341.013	0.646	220.294
RF 114082	183.722	1.701	312.511
RF 114076	171.465	0.716	122.769
RF 114200	5.332	12.50	66.65

BARREL #5 - RF 2B			
Description	Net Wt (g)	pCi/gm	Total Activity
RF 2B026T	368.827	2.63	970.015
RF 2B027T	369.841	1.68	621.333
RF 2B005C	275.4	3.49	961.146
RF 2B028T	325.922	2.60	847.397
RF 2B029T	293.178	2.43	712.423
RF 2B006C	275.1	3.09	850.059
RF 2B030T	318.627	0.41	130.637
RF 2B031T	314.654	1.37	431.076
RF 2B007C	275.3	<MDA (MDA=31.12)	8567.336
RF 2B032T	292.315	1.85	540.783
RF 2B033T	384.658	2.81	1040.026
RF 2B008C	275.5	1.10	303.05
RF 2B034T	366.388	1.23	450.657
RF 2B035T	347.014	1.99	690.558
RF 2B001C	275.3	<MDA (MDA=40.64)	11188.192
RF 2B036T	403.887	1.10	444.276
RF 2B037T	316.289	2.43	768.582
RF 2B004C	275.4	1.12	308.448
RF 2B041T	325.375	1.50	488.063
RF 2B016C	275.5	10.42	2870.71
RF 2B008C	36.9	29.27	1080.063
RF 2B010C	51.0	26.36	1344.36
RF 2B009C	20.9	22.08	461.472
RF 2B014C	55.3	26.75	1479.275
RF 2B013C	19.3	29.86	576.298
RF 2B012C	53.8	28.63	1540.294
RF 2B011C	20.7	23.80	492.66
RF 2B055C	175.4	30.64	5374.256
RF 2B056C	113.6	44.31	5033.616

BARREL #5 - RF 2B (continued)			
Description	Net Wt (g)	pCi/gm	Total Activity
RF 2B057C	203.4	38.47	7824.798
RF 2B017C	275.2	12.86	3539.072
RF 2B019T	24.9	47.37	1179.513
RF 2B021C	31.4	46.29	1453.506
RF 2B020C	25.2	43.33	1091.916
RF 2B023C	32.9	49.00	1612.1
RF 2B022C	12.9	81.87	1056.123
RF 2B025C	25.0	54.30	1357.5
RF 2B024C	12.9	69.62	898.098
RF 2B058C	181.6	34.74	6308.784
RF 2B059C	37.3	57.30	2137.29
RF 2B060C	216.6	28.75	6227.25
RF 2B033C	275.3	13.07	3598.171
RF 2B042T	15.8	56.13	886.854
RF 2B028C	22.8	52.69	1201.332
RF 2B029C	10.9	80.80	880.72
RF 2B040C	25.4	46.65	1184.91
RF 2B030C	11.8	64.99	766.882
RF 2B031C	22.5	63.14	1420.65
RF 2B032C	10.3	80.82	832.446
RF 2B061C	90.5	41.00	3710.5
RF 2B062C	181.8	36.34	6606.612
RF 2B035C	26.7	54.92	1466.364
RF 2B034C	18.0	65.46	1178.28
RF 2B037C	35.8	43.82	1568.756
RF 2B036C	18.3	65.45	1197.735
RF 2B039C	32.5	47.02	1528.15
RF 2B063C	25.6	51.05	1306.88
RF 2B064C	202.6	30.77	6234.002

BARREL #5 - RF 2B (continued)			
Description	Net Wt (g)	pCi/gm	Total Activity
RF 2B018F	50.7	43.98	2229.786
RF 2B015F	41.3	39.85	1645.805
RF 2B026F	28.0	58.87	1648.36
RF 2B027F	31.5	36.10	1137.15
RF 2B028F	47.1	46.17	2174.607
RF 2B029F	49.4	41.18	2034.292
RF 2B050R	275.4	0.67	184.518
RF 2B042R	337.809	0.01	3.378
RF 2B043R	293.691	0.13	38.180
RF 2B048R	9.8	30.73	301.154
RF 2B046R	379.232	0.23	87.223
RF 2B047R	430.595	0.33	142.096
RF 2B044R	385.227	0.14	53.932
RF 2B045R	335.845	0.45	151.130
RF 2B051R	275.5	0.82	225.91
RF 2B049R	157.4	2.24	352.576
RF 2B066H	411.7	0.26	107.042
RF 2B065H	424.1	0.17	72.097
RF 2B052R	275.4	0.16	44.064
RF 2B053R	83.9	6.28	526.892
RF 2B067H	373.8	0.98	366.324
RF 2B068H	380.4	0.27	102.708
RF 2B068R	399.2	0.15	59.88
RF 2B069H	284.1	0.12	34.092
RF 2B070H	398.9	0.03	11.967

BARREL #5 - Miscellaneous			
Description	Net Wt (g)	pCi/gm	Total Activity
RF 250200	212.3	10.04	2131.492
RF 655T25	285.904	0.1541	44.058
RF 2100V	160.222	13.24	2121.339
RF 31X900	168.426	13.32	2243.434
RF 31X901	220.254	6.155	1355.663
RF 31X902	242.798	8.143	1977.104
RF 31X903	162.688	13.51	2197.915
RF 24H22X	28.2	2.87	80.934
RF 2515SP	181.9	20.37	3705.303
RF 2509SP	284.9	0.40	113.96
RF 2512SP	289.3	0.11	31.823
RF 250300	222.9	10.76	2398.404
RF2508SP (After Split)	377.2	0.9341	352.343
RF 2508SP	260.2	0.12	31.224
RF 2510SP	182.7	0.33	60.291
RF 2510SP	158.3	0.76	120.308
RF 2511SP	261.4	0.33	86.262
RF 25135SP	299.3	0.36	107.748
RF 60210M	218.992	22.02	4822.204
RF 606500	280.2	0.234	65.567
RF 606300	276.3	1.004	277.405
RF 606400	226.5	13.32	3016.98
RF 2B005A	320.9	0.2292	73.55
RF 2B006A	269.9	0.372	100.403
RF 2B008A	11.866	13.52	160.428
RF 2B007A	144.8	0.906	131.189
RF 2B004A	13.1	13.45	176.195
RF 6053TC	135.004	2.503	337.915
RF 6047C	11.236	20.28	227.867

BARREL #5 - Miscellaneous (continued)			
Description	Net Wt (g)	pCi/gm	Total Activity
RF 605700	126.4	28.50	3602.4
RF 649T-4	17.117	2.83	48.441
RF 606100	157.0	3.119	489.683
RF 60310B	348.7	6.35	2214.245
RF 605800	27.5	16.82	462.55
RF 656T-4	8.804	10.88	95.788
RF 6040C	21.268	30.22	642.719
RF6035C	47.352	20.75	982.554
RF 606200	15.6	16.36	255.216
RF 6054C	25.408	7.597	193.024
RF 607100	51.631	47.10	2431.820
RF 605120	307.168	0.5438	167.038
RF 606000	261.5	0.396	103.554
RF 606600	324.8	1.867	606.402
RF 605250	199.483	0.253	50.469
RF 605900	397.7	0.058	23.067
RF 250600 (In Bottle)	384.6	5.069	1949.537
RF 250500 (In Bottle)	386.5	5.323	2057.340

BARREL #6			
Description	Net Wt (g)	pCi/gm	Total Activity
RFP #10 Conc.	1852.5	3.09	5724.225
RFP #9 Conc.	1252.1	3.49	4369.829
RFP #11 Conc.	1215.0	<MDA=31.119	37809.585
RFP #13 Conc.	940.8	<MDA=38.526	36245.26
RFP #15 Conc.	785.0	<MDA=41.819	32827.915
RFP #14 Conc.	224.2	1.12	251.104
RFP #17 Conc.	288.3	10.42	3004.086
RFP #16 Conc.	54.0	1.147	79.38
RFP #12 Conc.	507.7	1.10	558.47
RFP #23-24 Conc.	193.5	13.22	2558.07
RFP #19-20A Conc.	55.1	12.86	708.586
RFP #17-18A Conc.	66.6	10.42	693.972
RFP #26 Trommel Oversize	983.4	0.82	806.388
RFP #25 Trommel Oversize	1017.3	0.67	681.591
RFP #27 Trommel Oversize	1189.1	0.16	190.256
RF 114045	1366.0	0.14	191.24
RF 114050	231.9	0.06	13.914
RF 114047	235.0	0.14	32.9
RF 114046	533.4	0.14	74.676
RF 114048	1393.6	0.06	83.616
RF 114049	620.7	0.06	37.242
+20 Mesh, 3rd Scrub	161.1	10.39	1673.829
RF 60120G	63.5	31.75	2016.125
RF 6019C	1051.6	17.54	18445.064
RF 60130G	78.3	31.75	2486.025
RF 6023C	437.8	17.54	7679.012
RF 6033C	6.0	17.54	105.24
RF 6034C	7.3	17.54	128.042
RF 6025C	277.9	17.54	4874.366

BARREL #6 (continued)			
Description	Net Wt (g)	pCi/gm	Total Activity
+100 Mesh Sample Prep	879.9	9.90	8711.01
RF AH2 Stg #3	143.7	0.06	8.622
-100 Mesh Sample Prep	1206.2	5.58	6730.596
RF 6018C	926.4	17.54	16249.056
RF 6024C	528.0	17.54	9261.12
RF 6020C	862.7	17.54	15131.758
RF 60160C	569.3	9.90	5639.07
RF 60110G	88.8	31.75	2819.4
RF 60170C	906.9	9.90	8978.31

BARREL #7				
Description	Gross Activity (g)	Tare	Net g	Activity
Screen Organics Run #6	15560.856	98.5	708.61	
RFP #25 Scrub Heel	2245.7081	98.5	7612.57	
RFP #28 Trommel Oversize	3829.420	98.5	25529.47	
Run #2 Thickener CL A,C,D	521.3	98.5	422.8	
Run #8 Thickener B-F	2688.6	98.5	2590.1	
RFP #14 Tails	2496.1	37.5	2458.6	
RFP #28 Trommel Undersize	1502.4	98.5	1403.9	
RFP #9 Table Tails	5545.0	98.5	5446.5	
RFP #25 Undersize	758.1	98.5	659.6	
RFP #2 Thickener CL "B"	1073.3	98.5	974.8	
Run #10 Table Tails	1792.5	98.5	1594.0	
RFP #16 Table Tails	873.8	98.5	775.3	
RFP #26 US	2307.0	98.5	2208.5	
Run #8 Thickener	32.5	98.5	14643.25	
RFP #28 Scrub Heel	18.016	98.5	8066.16	
Run #11 Table Tails	7524.0	98.5	7425.5	
Run #4 Thickener	19504.473	98.5	19405.973	658178.440
Run #4(A) Thickener	16442.72	98.5	16344.22	
Run #6 Thickener	10432.62	98.5	10334.125	
RF -100 Mesh	2644.4	98.0	2546.4	
Run #27 Trommel Oversize	12700.59	98.5	12602.09	
Classifier Underflow Run #2	3371.8	35.0	3336.8	
RFP Jig Bed CO	3112.5	98.5	3014.0	1378.91
Run #2 Thickener	19050.88	197.0	18853.88	738860.480
Screen Organics, Run #4	132.1	35.0	97.1	
Classifier CL Run #8	3038.0	35.0	3003.0	
Run #7 Screen CL	9752.24	197.0	7782.24	
Run #8 +4 Mesh	356.3	35.0	321.3	

BARREL #7 (continued)				
Description	Gross Activity (g)	Tare	Net g	Activity
RPF #27 Scrub Heel	10205.839	98.5	10107.33	
#26 Scrub Heel	3722.3	98.5	3623.8	
RFP #27 Screen Heel	409.5	17.4	392.1	
RFP #28 Scrub Heel	16147.89	17.0	166.4	
RFP #25 Oversize	35.616	98.5	16049.39	
RFP #26 Oversize	24493.99	98.5	24395.49	20004.800
RFP #13 Tails	12020.20	98.5	11921.698	19193.933
Run #15 Table Tails	11793.40	98.5	11694.90	13273.71
Run #4 Classifier Sump	295.2	35.0	260.2	12479.192
Run #6 Classifier Screen CL	225.1	35.0	190.1	
Run #4 Thickener AEC	783.0	17.4	765.61	26459.136
Run #2 +4 mesh	778.6	35.0	743.6	
Run #8 Classifier Sump	293.3	35.0	258.3	
RFP Table Tails	4762.72	98.5	4664.22	
Run #6 Thickener B,D,E,F	14514.96	98.5	14416.46	
Run #8 Thickener	4649.32	37.5	4611.82	
RFP #27 Thickener	884.0	37.5	846.50	
RFP Scrub CL "B"	167.7	37.5	130.20	
RFP Scrub CL "A"	159.9	37.5	122.40	
RFP -100 Mesh	90.3	37.5	52.80	
Run #6 +4 Mesh	1265.2	9.0	1256.20	
Run #6 Class CL	1992.6	9.0	1983.60	
Run #2 Screen Organics	484.4	9.0	475.40	
Run #4 +4 Mesh	1392.1	9.0	1383.10	
Run #8 Classifier Underflow	8618.26	98.5	8519.76	
Run #5-6 +1 1/4 Fraction	699.9	98.5	601.40	
Run #4 Shaker CL +1/4	4181.0	98.5	4082.50	
Run #6 Classifier Underflow	13607.77	197.0	11637.77	

BARREL #7 (continued)				
Description	Gross Activity (g)	Tare	Net g	Activity
Run #2 Classifier Cleanout	2062.1	197.0	1865.1	
Run #4 Classifier Underflow	9752.24	197.0	9555.24	
Run #4 Classifier Cleanout	2334.2	197.0	2137.2	
Run #1-2 Shaker CL (+3/8)	1126.2	197.0	929.2	
Run #4 Grass (Orgs) +1 1/4	1011.6	98.5	913.1	
Run #1-2 Grass +1 1/4	742.9	197.0	545.9	
Run #8 Screen Orgs	550.7	98.5	452.2	
Run #7-8 +1 1/4 Grass	498.8	98.5	400.3	
Run #6 A,C Thickener	2276.8	37.5	2239.3	

BARREL #7 Pan Samples				
Description	Gross Activity (g)	Tare	Net g	Activity
RFP #10 Conc	1868.9	16.4	3.09	
RFP #7 Conc	1268.8	16.1	3.49	
RFP #11 Conc	1231.4	16.4	0.00	
RFP #13 Conc	957.3	16.5	0.00	
RFP #15 Conc	801.6	16.6	0.00	
RFP #14 Conc	240.7	16.5	1.12	
RFP #17 Conc	305.8	17.5	10.42	
RFP #16 Conc	70.6	16.6	1.47	
RFP #12 Conc	524.1	16.4	1.10	
RFP #23-24	210.1	16.6	13.22	
RFP #19-20A	72.0	16.9	12.86	
RFP #17-18A	83.2	16.6	10.42	
RFP #26 Trommel Oversize	999.8	16.4	0.82	
RFP #25 Trommel Oversize	1033.8	16.5	0.67	
RFP #27 Trommel Oversize	1205.7	16.6	0.16	
RF 114045	1382.5	16.5	0.14	
RF 114050 3/4	248.4	16.5	0.06	
RF 114047	251.5	16.5	0.14	
RF 114046	549.9	16.5	0.14	
RF 114048	1410.1	16.5	0.06	
RF 114049	637.2	16.5	0.06	
+20 Mesh 3rd Scrub	187.5	26.4	10.39	
RF 60120G	90.0	26.5	31.75	
RF 6019 C	1078.1	26.5	17.54	
RF 60130 G	103.2	24.9	31.75	
RF 6023 C	462.4	24.6	17.54	
RF 6033 C	31.6	25.6	17.54	
RF 6034 C	33.8	26.5	17.54	

BARREL #7 Pan Samples (continued)				
Description	Gross Activity (g)	Tare	Net g	Activity
RF 6025 C	302.4	24.5	17.54	
+100 Mesh Sample Prep Leftover	896.4	16.5	9.90	
RF ATT2 Stg #3	160.3	16.6	0.06	
-100 Mesh Sample Prep	1223.7	17.5	5.58	
RF 6018 C	951.1	24.7	17.54	
RF 6024 C	552.6	24.6	17.54	
RF 6020 C	887.3	24.6	17.54	
RF 60160 C	594.2	24.9	9.90	
RF 60110 G	114.6	25.8	31.75	
RF 60170 C	931.6	24.7	9.90	

RADIOACTIVITY SHIPPING

REPORTS

RADIOACTIVE SHIPPING REPORT

LESAT
Technology Applications Division
900 Grier Drive, Suite B
Las Vegas, Nevada 89119
(702) 361-0740 Fax (702) 361-8034

Total For Each Class: No. of Packages	Total For Each Class: Weight (Pounds)	Proper Shipping Name & Hazard Class (Per 49CFR172.101)	ID Number
		Radioactive Material empty packages	UN2908
		Radioactive Material fissile n.o.s. - Radioactive Material	UN2918
		Radioactive Material low specific activity, n.o.s. - Radioactive Material	UN2912
		Radioactive Material, n.o.s. - Radioactive Material	UN2982
		Radioactive Material, limited quantity, n.o.s. - Radioactive Material	UN2910
1	~~3.2 kg~~ 8	Radioactive Material, special form, n.o.s. - Radioactive Material	UN2974
		Radioactive Material, instruments and articles - Radioactive Material	UN2911
		Other (Specify)	

Materials License 00-16-0112-02 Amended: _____

Consigned to: Thermo Analytical Inc

Address: 2030 Wright Ave

City: Richmond, CA 94804-0040

Consignee License #: 0023-07

Transport Mode: (Check all that apply)

- ☐ Common Carrier
- ☐ Contract Carrier
- ☐ Air Carrier
- ☐ Postal Service
- ☐ United Parcel Service

Restricted Limited Quantities

Carrier Name Federal Express

Address 5870 S. Eastern

City Las Vegas State NV Driver _____

☐ Cargo Aircraft Only (Label Required)

Vehicle
☐ Exclusive Use-Dose Rate
N/A mR/hr Contact
N/A mR/hr 2 Meter
N/A mR/hr Cab

Shipping Record

RSR #

Shipping Date: 9/16/93

Survey Inst. Type: Micro R-Meter

Inst. Ludlum 19 Serial # F2783 /Cal. Date 3 July 93

Surveyed By: R. Semnani

Item No.	Container Type/Spec.	Volume (~~Cu. Ft.~~) mL	Weight (~~lbs~~) grams	Physical Form	Chemical Form	Isotope	Activity ~~mCi~~ pCi	General Description	Source Material (kgs.)	SNM (gms)	Radiation Levels: Con./Surf. mR/hr	Radiation Levels: T.I. 1m mR/hr	Surface Contamination dpm/100 cm² Alpha	Surface Contamination dpm/100 cm² Beta	Fissile Class I, II, III or N/A	Labels/Markings LSA W-I, Y-II YIII, N/A
01	5RRC-tube can	250 mL	216.56	Solids	PuO_2	Pu^{239}	3495.28	RF2A0084	N/A	5.7×10^{-8}	0.007	N/A	4.5	46	N/A	N/A
			158.144				684.76	95		1.1×10^{-8}						
			42.299				1516.8	97		2.5×10^{-8}						
			324.242				618.98	99		1.0×10^{-8}						
			388.141				423.07	100		6.9×10^{-9}						
			358.754				423.3	106		6.9×10^{-9}						
			357.04				606.97	108		1.0×10^{-8}						
			81.06				3235.92	115		5.3×10^{-8}						
			1926.24				11,005.1			1.8×10^{-7}						

Totals

This is to certify that the above materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. 49CFR 172.204(A)

[signature] Prin. Scient. 9-16-93

Authorized Signature Title Date

I hereby certify that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and in proper condition for carriage by air according to applicable national governmental regulations.

Authorized Signature Title Date

LJW/2/93/Rev.2

FM-114

RADIOACTIVE SHIPPING REPORT

LESAT
Technology Applications Division
900 Grier Drive, Suite B
Las Vegas, Nevada 89119
(702) 361-0740 Fax (702) 361-8034

Materials License 00-16-0112-02 Amended: _____

Consigned to: Same as pg 1

Address: _____

City: _____

Consignee License #: _____

Total For Each Class: No. of Packages	Total For Each Class: Weight (Pounds)	Proper Shipping Name & Hazard Class (Per 49CFR172.101)	ID Number
		Radioactive Material empty packages	UN2908
		Radioactive Material fissile n.o.s. - Radioactive Material	UN2918
		Radioactive Material low specific activity, n.o.s. - Radioactive Material	UN2912
		Radioactive Material, n.o.s. - Radioactive Material	UN2982
1	~~3.1 lbs~~ 8 (~~3.2 kg~~)	Radioactive Material, limited quantity, n.o.s. - Radioactive Material	UN2910
		Radioactive Material, special form, n.o.s. - Radioactive Material	UN2974
		Radioactive Material, instruments and articles - Radioactive Material	UN2911
		Other (Specify)	

Shipping Record

RSR #	
Shipping Date:	9/16/93
Survey Inst. Type:	Same as pg 1
Inst.	/Cal. Date
Surveyed By:	

Transport Mode: (Check all that apply)

- [ ] Common Carrier
- [ ] Contract Carrier
- [ ] Air Carrier
- [ ] Postal Service
- [ ] United Parcel Service

Carrier Name: Same as pg 1

Address: _____

City: _____ State: _____ Driver: _____

Restricted Limited Quantities

- [ ] Cargo Aircraft Only (Label Required)

Vehicle
- [ ] Exclusive Use-Dose Rate
- _____ mR/hr Contact
- _____ mR/hr 2 Meter
- _____ mR/hr Cab

Item No.	Container Type/Spec.	Volume (~~Cu. Ft.~~) mL	Weight ~~(Lbs)~~ grams	Physical Form	Chemical Form	Isotope	Activity ~~uCi~~ ~~mCi~~ pCi	General Description	Source Material (kgs.)	SNM (gms)	Radiation Levels: Con./Surf. mR/hr	Radiation Levels: T.I. 1m mR/hr	Surface Contamination dpm/100 cm² Alpha	Surface Contamination dpm/100 cm² Beta	Fissile Class I, II, III or N/A	Labels/Markings LSA W-I, Y-II YIII, N/A
01 cont	SRCC-tung can	250 mL	54.98	Solids	PuO_2	Pu^{239}	3099.2	RF2A0116	N/A	5.1×10^{-8}	—	N/A	—	—	N/A	N/A
			54.045				1504.6	125		2.5×10^{-8}						
			28.23				335.1	148		5.5×10^{-9}						
			361.151				1022.06	150		1.7×10^{-8}						
			323.981				110.15	152		1.8×10^{-9}						
			244.819	Water			42.84	86		2.0×10^{-10}						
			229.15				215.4	104		3.5×10^{-9}						
			1296.36				6329.4			1.0×10^{-7}						
							Grand TTL - 12,334.5			2.8×10^{-7}						

Totals

This is to certify that the above materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. 49CFR 172.204(A)

[signature] Princ. Scient 9-16-93

Authorized Signature Title Date

FM-[illegible]

I hereby certify that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and in proper condition for carriage by air according to applicable national governmental regulations.

Authorized Signature Title Date

LJW/2/93/Rev.2

FIELD CHAIN-OF-CUSTODY FORM

AWC
A Lockheed Company

Date 13 Sept 93
Page 1 of 2

Client Name and Address: Rocky Flats, Golden, Colorado

Contract No.: 98909

Sampling Site: Pilot

Analysis Required

Laboratory Use Only

Client Sample ID	Collection Date	Collection Time	Matrix Code*	Sample Type**	Field Preserved (Y or N)	No. and Volume of Containers	Comments	AWC Sample ID-Aliquot No.
TT00 192 LE	8/24/93	N/A	SL	O	N	1 250cc		
TT00 193 LE	8/24/93					1 250cc		
TT00 194 LE	8/24/93					1 250cc		
TT00 195 LE	8/11/93					1 250cc	see Rocky Flats Custody Sheet	
TT00 196 LE	8/16/93					1 250cc		
TT00 197 LE	8/18/93					1 250cc		
TT00 198 LE	8/18/93					1 250cc		
TT00 199 LE	8/16/93					1 250cc		
TT00 200 LE	8/16/93					1 250cc		

Date Due Results: | Contract No.: | Sow No.: | Received for Laboratory By: (Signature) | Time (24 hr) | Airbill No.

Relinquished by: (Signature) G. L. Reed (Alternate custodian) | Date 16 Sept 93 | Time (24 hr) 2:41 | Method of Shipment

Received By: (Signature) | Date | Time (24 hr) | Cooler Seal Intact (yes/no) — If seal is not intact, contact the Project Manager or Department and the Radiation Safety Officer IMMEDIATELY

Relinquished By: (Signature) | Date | Time (24 hr) | Received By: (Signature) | Date | Time (24 hr)

Received By: (Signature) | Date | Time (24 hr) | Cooler Condition Upon Receipt at Laboratory: Soil Intact (Y/N) ____ Blue Ice Adequate (Y/N) ____ Blue Ice Solid: (Y/N) ____

Relinquished By: (Signature) | Date | Time (24 hr) | Internal Cooler Temp. ____ °C Samples in good condition: (Y/N) ____ : Samples surveyed (yes/no) ____

Comments:

*Sample Matrix Codes
SW - Surface Water
GW - Ground Water
DW - Drinking Water
AR - Air
SL - Soil
SG - Sludge
SD - Sediment
WW - Waste Water
FI - Filter
BI - Blank
O - Other

**Sample Type Codes
G - Grab
C - Composite
O - Other

TLH/5-92/Rev.1

FM-125

Date 13 Sept 93
Page 2 of 2

FIELD CHAIN-OF-CUSTODY FORM

AWC
A Lockheed Company

Client Name and Address: Rocky Flats, Golden, Colorado

Contract No. 98909

Sampling Site: Pilot

Analysis Required

Laboratory Use Only

Client Sample ID	Collection Date	Collection Time	Matrix Code*	Sample Type**	Field Preserved (Y or N)	No. and Volume of Containers	Comments	AWC Sample ID-Aliquot No.
TT00201 LE	8/20/93	N/A	SL	O	N	1 250cc	See Rocky Flats Custody Sheet	
TT00202 LE	8/16/93	↓	↓	↓	↓	1 250cc		
TT00203 LE	8/20/93	↓	↓	↓	↓	1 250cc		
TT00204 LE	8/20/93	↓	↓	↓	↓	1 250cc		
TT00205 LE	8/16/93	↓	O	↓	↓	1 250cc		
TT00206 LE	8/12/93	↓	O	↓	↓	1 250cc		

Date Data Required: | Container No. | Seal No.

Relinquished by: (Signature) [signature] (alternate custodian) | Date 16 Sept 93 | Time (am pm) 2:41

Received By: (Signature) | Date | Time (am pm)

Relinquished By: (Signature) | Date | Time (am pm)

Received By: (Signature) | Date | Time (am pm)

Relinquished By: (Signature) | Date | Time (am pm)

*Sample Matrix Codes
SW - Surface Water
GW - Ground Water
DW - Drinking Water
AR - Air
SL - Soil
SG - Sludge
SD - Sediment
WW - Waste Water
Fl - Filter
Bl - Blow
O - Other

**Sample Type Codes
G - Grab
C - Composite
O - Other

Received for Laboratory By: (Signature) | Date | Time (am pm)

Method of Shipment | Airbill No.

Container Survey (pass/fail) → If FAIL do not open cooler; contact the Program Development Department and the Radiation Safety Officer IMMEDIATELY

Surveyed by: (Signature) | Date | Time (am pm)

Container Condition Upon Receipt at Laboratory:
Seals Intact (Y/N) _____ Blue Ice Adequate (Y/N) _____ Blue Ice Solid: (Y/N) _____
Internal Cooler Temp. ____ °C Samples in good condition: (Y/N) ____ : Samples surveyed (pass/fail) ____

Comments:

TKW/6-92/Rev.1

FM-125

FIGURE FO.13-4

CONTRACTOR Lockheed SAMPLERS Tom Murarik PROJECT # 989098 T.M.

SITE CONTACT/PHONE Tom Murarik (702) 897-7200 LAB/LOCATION TMA / NORCAL

C-O-C NUMBER LE000023

EG&G ROCKY FLATS, CHAIN OF CUSTODY

Corrected Chain of Custody T.M.

BOTTLE CODES: R, B, D — 241Am, 238,239,240Pu

DATE/TIME	SAMPLE NUMBER	LOCATION	CONTAINER TYPE	NUMBER OF CONTAINERS	MEDIA: S=SOIL, W=WATER	F=FILTERED, U=UNFILTERED	R=TURN AROUND RUSH	OUT OF SPEC REPORTS	COOLED TO 4°C	NAOH	HNO_3	H_2SO_4	241Am, 238,239,240Pu
8/24/93	TT00192LE	SS000193	250ml Al/poly	1	S	–	R						X
8/2/93	TT00193LE	SS000193	250ml Al/poly	1	S	–	R						X
8/24/93	TT00194LE	SS000193	"	1	S	–	R						X
8/11/93	TT00195LE	SS000193	"	1	S	–	R						X
8/16/93	TT00196LE	SS000193	"	1	S	–	R						X
8/13/93	TT00197LE	SS000193	"	1	S	–	R						X
8/12/93	TT00198LE	SS000193	"	1	S	–	R						X
8/16/93	TT00199LE	SS000193	"	1	S	–	R						X
8/16/93	TT00200LE	SS000193	"	1	S	–	R						X
8/20/93	TT00201LE	SS000193	"	1	S	–	R						X
8/16/93	TT00202LE	SS000193	"	1	S	–	R						X
8/20/93	TT00203LE	SS000193	"	1	S	–	R						X
8/20/93	TT00204LE	SS000193	"	1	S	–	R						X
8/16/93	TT00205LE	SS000193	250ml poly	1	W	F	R						X
8/18/93	TT00206LE	SS000193	250ml poly	1	W	F	R						X

RELINQUISHED BY	DATE/TIME		RECEIVED BY	DATE/TIME
G. Reed (Calternde custodian)	16 Sept 93	2:41 pm		

SHIPMENT METHOD: Fed Ex, prior. overt.

AIR BILL NO.: 7262487562 T.M.

REMARKS

LABORATORY USE ONLY	Y	N
PCKG REC'D/CUSTODY SEALS INTACT		
SAMPLE LABELS/CC		
TEMPERATURE WIT		
CORRECTED COPY A		
PROBLEMS OR DISCREPANCIES		

5-21000-OPS
FO.13, Rev. 3
30 of 32
April 30, 1993
Environmental Management

SHIP [illegible] AND YELLOW COPIES WITH SAMPLES – RETAIN PINK FIELD COPY

Form: EGGRFP-081292-COCBLANK-v1.0

PROJECT # 989098

CONTRACTOR Lockheed SAMPLERS Thomas Murarik

SITE CONTACT/PHONE Thomas Murarik / 202/897-7200 LAB/LOCATION TMA NorCal

C-O-C NUMBER LE000024

EG&G ROCKY FLATS, CHAIN OF CUSTODY

Corrected Chain of Custody

BOTTLE CODES: R R R / B C S / D C

PRESERVATIVE

DATE/TIME	SAMPLE NUMBER	LOCATION	CONTAINER TYPE	NUMBER OF CONTAINERS	MEDIA: S=SOIL, W=WATER	F=FILTERED, U=UNFILTERED	R=TURN AROUND RUSH	OUT OF SPEC REPORTS	COOLED TO 4°C	NAOH	HNO_3	H_2SO_4	241 Am	238,239,240 Pu		
8/20/93	TT00207LE	SS000193	300mL Al/pa	1	S	–	R						X	X	X	X
8/20/93	TT00208LE	SS000193	"	1	S	–	R						X			
8/23/93	TT00209LE	SS000193	"	1	S	–	R						X			
8/26/93	TT00210LE	SS000193	"	1	S	–	R						X			
8/26/93	TT00211LE	SS000193	"	1	S	–	R						X	X	X	X
8/23/93	TT00212LE	SS000193	"	1	S	–	R						X			
8/26/93	TT00213LE	SS000193	"	1	S	–	R						X			
8/26/93	TT00214LE	SS000193	"	1	S	–	R						X			
9/9/93	TT00215LE	SS000193														

RELINQUISHED BY	DATE/TIME		RECEIVED BY	DATE/TIME	
[signature]	9/23/93	2:00pm			

REMARKS

SHIPMENT METHOD: Fed. Ex. Prior Ount.

AIR BILL NO.: 7262487595

LABORATORY USE ONLY	Y	N
PCKG REC'D/CUSTODY SEALS INTACT		
SAMPLE LABELS/CO		
TEMPERATURE WIT		
CORRECTED COPY A		
PROBLEMS OR DISCREPANCIES		

5-21000-OPS
FO.13, Rev. 3
30 of 32
April 30, 1993
Environmental Management

Form: EGGRFP-081292-COCBLANK-v1.0

SHIP[illegible]TE AND YELLOW COPIES WITH SAMPLES – RETAIN PINK FIELD COPY

MAY- 6-93 THU 10:37 PROJECT CONTROL OFFICE FAX NO. 9668284 P. 01

FIELD CHAIN-OF-CUSTODY FORM

AWC
A Lockheed Company

Date Sept. 23, 93
Page 1 of 1

Client Name and Address: E.G. + G. Rocky Flats, Golden Co

Contract No. 989098

Sampling Site: From Samples at Pilot

Analysis Required: 239,240 Pu

Laboratory Use Only

Client Sample ID	Collection Date	Collection Time	Matrix Code*	Sample Type**	Field Preserved (Y or N)	No. and Volume of Containers	239,240 Pu							Comments	AWC Sample ID-Aliquot No.
TT00207LE	8/20/93		SL	O	N	1-300cc	X								
TT00208LE	8/20/93		SL	O	N	1-300cc	X								
TT00209LE	8/23/93		SL	O	N	1-300cc	X								
TT00210LE	8/26/93		SL	O	N	1-300cc	X								
TT00211LE	8/26/93		SL	O	N	1-300cc	X								
TT00212LE	8/23/93		SL	O	N	1-300cc	X								
TT00213LE	8/26/93		SL	O	N	1-300cc	X								
TT00214LE	8/26/93		SL	O	N	1-300cc	X								
TT00215LE	9/9/93		SL	O	N	1-300cc	X								

Date Data Required: | Courier No. | Seal No.

Relinquished by: (Signature) [signature] Date 9/23/93 Time (am pm) 2:00

Received by: (Signature) Date Time (am pm)

Relinquished By: (Signature) Date Time (am pm)

Received By: (Signature) Date Time (am pm)

Relinquished By: (Signature) Date Time (am pm)

Received for Laboratory By: (Signature) Date Time (am pm)

Method of Shipment: Airbill No.

Courier Survey (pass/fail) → If fail, do not open cooler; contact the Program Development Department and the Radiation Safety Officer IMMEDIATELY

Surveyed by: (Signature) Date Time (am pm)

Container Condition Upon Receipt at Laboratory:
Seals Intact: (Y/N) _____ Blue Ice Adequate: (Y/N) _____ Blue Ice Solid: (Y/N) _____
Internal Cooler Temp. ____ °C Samples in good condition: (Y/N) ____ ; Samples surveyed (pass/fail) ____

Comments:

*Sample Matrix Codes
SW - Surface Water
GW - Ground Water
DW - Drinking Water
AR - Air
SL - Soil
SG - Sludge
SD - Sediment
WW - Waste Water
FI - Filter
BI - Blots
O - Other

**Sample Type Codes
G - Grab
C - Composite
O - Other

TKW/6-92/Rev.1

FM-125

FIGURE FO.13-4

CONTRACTOR Lockheed SAMPLERS Keith Smith PROJECT # 989098

SITE CONTACT/PHONE Tom Murack /(702) 897-7200 LAB/LOCATION TAD Pilot Lab

C-O-C NUMBER LE000007
KLS RF250600

EG&G ROCKY FLATS, CHAIN OF CUSTODY

DATE/TIME		SAMPLE NUMBER	LOCATION	CONTAINER TYPE	NUMBER OF CONTAINERS	MEDIA: S=SOIL, W=WATER	F=FILTERED, U=UNFILTERED	R=TURN AROUND RUSH	OUT OF SPEC REPORTS	COOLED TO 4°C	NAOH	HNO_3	H_2SO_4	Blue ICE	TAL Metals	Volatiles	Semivolatiles
29Jul93	~~3:58~~ 4:10 PM	TT00191LE	LV, NV	Bottle	1	S	U							X	X	X	X

BOTTLE CODES

PRESERVATIVE

RELINQUISHED BY	DATE/TIME		RECEIVED BY	DATE/TIME
Keith L. Smith	7/30/93	1:43pm		

REMARKS

SHIPMENT METHOD :

AIR BILL NO.:

LABORATORY USE ONLY	Y	N
PCKG REC'D/CUSTODY SEALS INTACT		
SAMPLE LABELS/CC		
TEMPERATURE WIT		
CORRECTED COPY A		
PROBLEMS OR DISCREPANCIES		

5-21000-OPS
FO.13, Rev. 3
30 of 32
April 30, 1993
Environmental Management

SHIP WHITE AND YELLOW COPIES WITH SAMPLES — RETAIN PINK FIELD COPY

Form: EGGRFP-081292-COCBLANK-v1.0

MAY- 6-93 THU 10:37 PROJECT CONTROL OFFICE FAX NO. 5000204 P.04

AWC
A Lockheed Company

FIELD CHAIN-OF-CUSTODY FORM

Date _____
Page _____ of _____

Client Name and Address: Rocky Flats c/o Olga Erlich Golden, CO

Contract No.: 989098

Sampling Site: TAD Pilot LAB

Analysis Required: TAL Metals, Volatiles, Semi Volatiles

Laboratory Use Only

Client Sample ID	Collection Date	Collection Time	Matrix Code*	Sample Type**	Field Preserved (Y or N)	No. and Volume of Containers	TAL Metals	Volatiles	Semi Volatiles					Comments	AWC Sample ID-Aliquot No.
TT00191LE	29 Jul 93	4:10 ~~3:58~~ pm	SL	C	Y	1 250ml	X	X	X						

Date Data Required: Res Turn Around
Container No.: RF250600
Seal No.: RF250600

Relinquished by: (Signature) [signature] Date Time (am pm)
Received by: (Signature) Date Time (am pm)
Relinquished By: (Signature) Date Time (am pm)
Received By: (Signature) Date Time (am pm)
Relinquished By: (Signature) Date Time (am pm)

Received for Laboratory By: (Signature) Date Time (am pm)
Method of Shipment Airbill No.
Container Survey (pass/fail) → If FAIL do not open cooler; contact the Program Development Department and the Radiation Safety Officer IMMEDIATELY
Surveyed by: (Signature) Date Time (am pm)
Container Condition Upon Receipt at Laboratory:
Seals Intact (Y/N) _____ Blue Ice Adequate (Y/N) _____ Blue Ice Solid: (Y/N) _____
Internal Cooler Temp. ____ °C Samples in good condition: (Y/N) ____ ; Samples surveyed (pass/fail) _____
Comments:

*Sample Matrix Codes
SW - Surface Water
GW - Ground Water
DW - Drinking Water
AR - Air
SL - Soil
SG - Sludge
SD - Sediment
WW - Waste Water
FI - Filter
BI - Blots
O - Other

**Sample Type Codes
G - Grab
C - Composite
O - Other

TKW/6-92/Rev.1

FM-125

RADIOACTIVE SHIPPING REPORT

AWC
A Lockheed Company
900 Grier Drive, Suite B
950 Pilot Rd., Suite A
Las Vegas, Nevada 89119
(702) 361-0740 Fax (702) 361-8034

Materials License 00-16-0112-02 Amend #: _____

Consigned to: IT Corp. (Dave Korneggay)

Address: 13715 Rider Trail North

City: Earth City, MO 63045

Consignee License #: _____

Total For Each Class: No. of Packages	Total For Each Class: Weight (Pounds)	Proper Shipping Name & Hazard Class (Per 49CFR172.101)	ID Number
		Radioactive Material empty packages	UN2908
		Radioactive Material fissile n.o.s. - Radioactive Material	UN2918
		Radioactive Material low specific activity, n.o.s. - Radioactive Material	UN2912
		Radioactive Material, n.o.s. - Radioactive Material	UN2982
1	19	Radioactive Material, limited quantity, n.o.s. - Radioactive Material	UN2910
		Radioactive Material, special form, n.o.s. - Radioactive Material	UN2974
		Radioactive Material, instruments and articles - Radioactive Material	UN2911
		Other (Specify)	

Shipping Record

RSR #	RF250600
Shipping Date:	7 / 30 / 93
Survey Inst. Type:	Ludlum Mod 19
Inst. # S/N	82783 /Cal. Date 7/3/93
Surveyed By:	M. Giles

Transport Mode: (Check all that apply)

- [ ] Common Carrier
- [ ] Contract Carrier
- [x] Air Carrier
- [ ] Postal Service
- [ ] United Parcel Service

Carrier Name: Federal Express

Address: _____

City: Las Vegas State: NV Driver: _____

Vehicle
- [ ] Exclusive Use-Dose Rate
- N/A mR/hr Contact
- N/A mR/hr 2 Meter
- N/A mR/hr Cab

- [ ] Restricted Limited Quantities
- [x] Cargo Aircraft Only (Label Required)

Item No.	Container Type/Spec	Volume ~~(Cu. Ft.)~~ ml	Weight ~~(Lbs.)~~ gm	Physical Form	Chemical Form	Isotope	Activity ~~(Ci)~~ mCi	General Description	Source Material (kgs.)	SNM (gms)	Radiation Levels Con./Surf. mR/hr	Radiation Levels T.I. 1m. mR/hr	Surface Contamination dpm/100 cm² Alpha	Surface Contamination dpm/100 cm² Beta	Fissile Class I, II, III or N/A	Labels/Markings LSA W-I, Y-II Y-III, N/A
								Soil Sample								
1	Cooler	250	454.6	Solid	Oxide	Pu 239/240	32.5E-3	RF250600	N/A	5E-7	0.006	N/A	24.3	68.5	N/A	N/A
						Am 241	5.83E-3		N/A	N/A						
1		250			Oxide											

Totals: N/A N/A

This is to certify that the above materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. 49CFR 172.204(A)

G.D. Outlaw — RSO — 7/30/93

Authorized Signature — Title — Date

I hereby certify that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and in proper condition for carriage by air according to applicable national governmental regulations.

G.D. Outlaw — RSO — 7/30/93

Authorized Signature — Title — Date

FM-114

GB/2-92/Rev1

PROJECT # 989098

CONTRACTOR Lockheed SAMPLERS Keith Smith

LAB/LOCATION JAD Pilot Lab LV NY

SITE CONTACT/PHONE Tom Murarik / (702) 897-7200

C-O-C NUMBER LE000005 & LE000006
~~RF250400~~ & ~~RF250500~~

EG&G ROCKY FLATS, CHAIN OF CUSTODY

DATE/TIME	SAMPLE NUMBER	LOCATION	CONTAINER TYPE	NUMBER OF CONTAINERS	MEDIA: S=SOIL, W=WATER	F=FILTERED, U=UNFILTERED	R=TURN AROUND RUSH	OUT OF SPEC REPORTS	COOLED TO 4°C	NAOH	HNO_3	H_2SO_4	None	Pu 238	Pu 239	Pu 240	Am 241	U 233	U 234	U 235	U 238
27Jul93 4:00PM	TS00189LE	LV NY	Bottle	1	S	U							X	X	X	X	X	X	X	X	X
27Jul93 4:02PM	TS00190LE	LV NY	Bottle	1	S	U							X	X	X	X	X	X	X	X	X

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
Keith L. Smith	28Jul93		

REMARKS

SHIPMENT METHOD :

AIR BILL NO.:

LABORATORY USE ONLY

	Y	N
PCKG REC'D/CUSTODY SEALS INTACT		
SAMPLE LABELS/C		
TEMPERATURE WIT		
CORRECTED COPY A		
PROBLEMS OR DISCREPANCIES		

SHIP WHITE AND YELLOW COPIES WITH SAMPLES – RETAIN PINK FIELD COPY

Form: EGGRFP-081292-COCBLANK-v1.0

MAY- 6-93 THU 10:37 PROJECT CONTROL OFFICE FAX NO. 9008284 P. 04

FIELD CHAIN-OF-CUSTODY FORM

AWC
A Lockheed Company

Date _____
Page _____ of _____

Client Name and Address: Rocky Flats, Attn Olga Erlich, Golden, CO

Contract No. 989098

Sampling Site: JAD Pilot Lab

Analysis Required

Client Sample ID	Collection Date	Collection Time	Matrix Code*	Sample Type**	Field Preserved (Y or N)	No. and Volume of Containers	PU238	PU239	PU240	AM241	U233	U234	U235,236	Comments	AWC Sample ID-Aliquot No.
TT001894E	27 Jul 93	4:00 pm	SL	C	N	1 250 ml	X	X	X	X	X	X	X		
TT001904E	29 July 93	4:02 pm	SL	C	N	1 250 ml	X	X	X	X	X	X	X		

Laboratory Use Only

Date Data Required: Regular Turn Around

Contract No. RF250400/RF250500

Seal No. RF250400/RF250500

Relinquished by: (Signature) [signature] Date _____ Time (am pm) _____

Received by: (Signature) _____ Date _____ Time (am pm) _____

Relinquished By: (Signature) _____ Date _____ Time (am pm) _____

Received By: (Signature) _____ Date _____ Time (am pm) _____

Relinquished By: (Signature) _____ Date _____ Time (am pm) _____

Received for Laboratory By: (Signature) _____ Date _____ Time (am pm) _____

Method of Shipment _____ Airbill No. _____

Container Survey (pass/fail) → If FAIL do not open cooler; contact the Program Management Department and the Radiation Safety Officer IMMEDIATELY

Surveyed by: (Signature) _____ Date _____ Time (am pm) _____

Container Condition Upon Receipt at Laboratory:

Seals intact: (Y/N) _____ Blue Ice Adequate: (Y/N) _____ Blue Ice Solid: (Y/N) _____

Internal Cooler Temp. _____ °C Samples in good condition: (Y/N) _____ : Samples surveyed (pass/fail) _____

Comments: _____

*Sample Matrix Codes

SW - Surface Water
GW - Ground Water
DW - Drinking Water
AR - Air
SL - Soil
SG - Sludge
SD - Sediment
WW - Waste Water
FI - Filter
BI - Blank
O - Other

**Sample Type Codes

G - Grab
C - Composite
O - Other

FM-125

TXH5-92/Rev.1

AWC
A Lockheed Company
900 Grier Drive, Suite B
950 Pilot Rd., Suite A
Las Vegas, Nevada 89119
(702) 361-0740 Fax (702) 361-8034

RADIOACTIVE SHIPPING REPORT

Materials License 00-16-0112-02 Amend #: _____

Consigned to: IT Corp. (Susan Adlerhold)

Address: 1550 Bear Creek Rd.

City: Kingston, TN 37763

Consignee License #: _____

Total For Each Class: No. of Packages	Total For Each Class: Weight (Pounds)	Proper Shipping Name & Hazard Class (Per 49CFR172.101)	ID Number
		Radioactive Material empty packages	UN2908
		Radioactive Material fissile n.o.s. - Radioactive Material	UN2918
		Radioactive Material low specific activity, n.o.s. - Radioactive Material	UN2912
		Radioactive Material, n.o.s. - Radioactive Material	UN2982
1	3	Radioactive Material, limited quantity, n.o.s. - Radioactive Material	UN2910
		Radioactive Material, special form, n.o.s. - Radioactive Material	UN2974
		Radioactive Material, instruments and articles - Radioactive Material	UN2911
		Other (Specify)	

Shipping Record

RSR #	
Shipping Date:	7/30/93
Survey Inst. Type:	Ludlum Mod 19
Inst. #	82783 /Cal. Date 7/3/93
Surveyed By:	M. Giles

Transport Mode: (Check all that apply)

- [ ] Common Carrier
- [ ] Contract Carrier
- [x] Air Carrier
- [ ] Postal Service
- [ ] United Parcel Service

Carrier Name: Federal Express

Address: _____

City: Las Vegas State: NV Driver: _____

Vehicle

- [ ] Exclusive Use-Dose Rate
- N/A mR/hr Contact
- N/A mR/hr 2 Meter
- N/A mR/hr Cab

Restricted Limited Quantities

- [x] Cargo Aircraft Only (Label Required)

Item No.	Container Type/Spec	Volume ~~(Cu. Ft.)~~ ml	Weight ~~(Lbs.)~~ gm	Physical Form	Chemical Form	Isotope	Activity uCi mCi	General Description	Source Material (kgs.)	SNM (gms)	Radiation Levels Con./Surf. mR/hr	Radiation Levels T.I. 1m. mR/hr	Surface Contamination dpm/100 cm² Alpha	Surface Contamination dpm/100 cm² Beta	Fissile Class I, II, III or N/A	Labels/Markings LSA W-I, Y-II Y-III, N/A
								Soil Samples								
1	Strong-Tight Box	250	333.7	Solid	Oxide	Pu 239/240	1.3×10^{-2}	RF 250400	N/A	2.1×10^{-7}	0.005	N/A	24.3	68.5	N/A	N/A
						Am 241	2.3×10^{-3}	RF 250400	N/A	N/A						
		250	415.7g	Solid	Oxide	Pu 239/240	2.97×10^{-2}	RF 250500	N/A	4.8×10^{-7}						
						Am 241	5.33×10^{-3}	RF 250500	N/A	N/A						
1		500			Oxide				Totals N/A	N/A kgs		N/A				

This is to certify that the above materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation, 49CFR 172.204(A)

G. D. Outlaw RSO 7/30/93

Authorized Signature Title Date

I hereby certify that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and in proper condition for carriage by air according to applicable national governmental regulations.

G. D. Outlaw RSO 7/30/93

Authorized Signature Title Date

FM-114

GB/2-92/Rev1

FIELD CHAIN-OF-CUSTODY FORM

AWC
A Lockheed Company

Date 6/2/93
Page 1 of 1

Client Name and Address: Rocky Flats

Contract No. 989098

Sampling Site: Las Vegas Nevada

Analysis Required: CLP Metals TAL; NONCLP METALS TAL; VOA; SEMI VOA

Client Sample ID	Collection Date	Collection Time	Matrix Code*	Sample Type**	Field Preserved (Y or N)	No. and Volume of Containers	CLP Metals TAL	NONCLP METALS TAL	VOA	SEMI VOA				Comments	Laboratory Use Only: AWC Sample ID-Aliquot No.
TT00001LE	6/2/93	14:40	SL	C	N	1	X	X	X	X					RF31X000

Date Data Required:

Container No. RF31X000

Seal No. LE000001

Relinquished by: (Signature) Keith L. Smith — Date 6/2/93 — Time (am pm) 14:44

Received By: (Signature) — Date — Time (am pm)

Relinquished By: (Signature) — Date — Time (am pm)

Received By: (Signature) — Date — Time (am pm)

Relinquished By: (Signature) — Date — Time (am pm)

Received for Laboratory By: (Signature) — Date — Time (am pm)

Airbill No.

Method of Shipment: UPS

Container Survey (pass/fail) → If FAIL do not open cooler; contact the Program Development Department and the Radiation Safety Officer IMMEDIATELY

Surveyed by: (Signature) — Date — Time (am pm)

Container Condition Upon Receipt at Laboratory:
Seals Intact: (Y/N) _____ Blue Ice Adequate: (Y/N) _____ Blue Ice Solid: (Y/N) _____
Internal Cooler Temp. ____ °C; Samples in good condition: (Y/N) ____ ; Samples surveyed (pass/fail) ____

Comments:

*Sample Matrix Codes
SW - Surface Water
GW - Ground Water
DW - Drinking Water
AR - Air
SL - Soil
SG - Sludge
SD - Sediment
WW - Waste Water
Fl - Filter
Bl - Blow
O - Other

**Sample Type Codes
G - Grab
C - Composite
O - Other

TKW/6-92/Rev.1

FM-125

Page Of

RADIOACTIVE SHIPPING REPORT

AWC
A Lockheed Company
900 Grier Drive, Suite B
950 Pilot Rd., Suite A
Las Vegas, Nevada 89119
(702) 361-0740 Fax (702) 361-8034

Materials License 00-16-0112-02 Amend #: _____

Consigned to: IT Corp. ATTN: Dave Kornegay

Address: 13715 Rider Trail North

City: Earth City MO 63045

Consignee License #: _____

Total For Each Class: No. of Packages	Total For Each Class: Weight (Pounds)	Proper Shipping Name & Hazard Class (Per 49CFR172.101)	ID Number
		Radioactive Material empty packages	UN2908
		Radioactive Material fissile n.o.s. - Radioactive Material	UN2918
		Radioactive Material low specific activity, n.o.s. - Radioactive Material	UN2912
		Radioactive Material, n.o.s. - Radioactive Material	UN2982
1	1.019 ~~0.646~~ kgs	Radioactive Material, limited quantity, n.o.s. - Radioactive Material	UN2910
		Radioactive Material, special form, n.o.s. - Radioactive Material	UN2974
		Radioactive Material, instruments and articles - Radioactive Material	UN2911
		Other (Specify)	

Transport Mode: (Check all that apply)

- ☐ Common Carrier
- ☐ Contract Carrier
- ☐ Air Carrier
- ☐ Postal Service
- ☒ United Parcel Service

Carrier Name UPS

Address _____

City _____ State _____ Driver _____

Restricted Limited Quantities

☐ Cargo Aircraft Only (Label Required)

Vehicle
☐ Exclusive Use-Dose Rate
_____ mR/hr Contact
_____ mR/hr 2 Meter
_____ mR/hr Cab

Shipping Record

RSR # RF31X000

Shipping Date:

Survey Inst. Type: GM (Ludlum 3)

Inst. # 95217 /Cal. Date 15 Mar 93

Surveyed By: D.K. White

Item No.	Container Type/Spec	Volume (Cu. Ft.)	Weight (Lbs.) sample weight	Physical Form	Chemical Form	Isotope	Activity uCi/mCi	General Description	Source Material (kgs.)	SNM (gms)	Radiation Levels Con./Surf. mR/hr	Radiation Levels T.I. 1m. mR/hr	Surface Contamination dpm/100 cm² Alpha	Surface Contamination dpm/100 cm² Beta	Fissile Class I, II, III or N/A	Labels/Markings LSA W-I, Y-II Y-III, N/A
1	Box with Bottle	.0088	0.646 293.029 kg	Soil	Solids	Pu & Am	0.023	Box with a Bottle with Soil RF31X010	N/A	1.72×10^{-7}	0.1	0.1	0.71	27.03	N/A	N/A
								Totals								

This is to certify that the above materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. 49CFR 172.204(A)

G.D. Outlaw — RSO — 6-4-93

Authorized Signature — Title — Date

I hereby certify that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and in proper condition for carriage by air according to applicable national governmental regulations.

G.D. Outlaw — RSO — 6-4-93

Authorized Signature — Title — Date

GB/2-92/Rev1

JUL 14 '93 09:38AM IT ANALYTICAL ST. LOUIS

FIGURE FO.13-4 K17H45011

CONTRACTOR Lockheed SAMPLERS Tom Muracik PROJECT # 989098

SITE CONTACT/PHONE (702) 897-7200 LAB/LOCATION ~~Las Vegas, Nevada~~ IT-St. Louis, MO

C-O-C NUMBER LE 00 0001

EG&G ROCKY FLATS, CHAIN OF CUSTODY

CORRECTED COC

DATE/TIME		SAMPLE NUMBER	LOCATION	CONTAINER TYPE	NUMBER OF CONTAINERS	MEDIA: S=SOIL, W=WATER	F=FILTERED, U=UNFILTERED	R=TURN AROUND RUSH	OUT OF SPEC REPORTS	COOLED TO 4°C	NAOH	HNO_3	H_2SO_4	CLP Metals TAL	Non-CLP Metals TAL	VOA's	Semi-VOA's
														M	M	V	B
														A	B		
6/2/93	14:40	TT00001LE	~~LV, NV~~ SS000193	Bottle	1	S	U							X	X	X	X
			CJ 7-19-93														

BOTTLE CODES: M, A; M, B; V; B; N

PRESERVATIVE

Per Matt Hunton CJ 7-19-93

RELINQUISHED BY	DATE/TIME		RECEIVED BY	DATE/TIME
Keith L. Smith	6/2/93	14:46		

REMARKS

SHIPMENT METHOD:

AIR BILL NO.:

LABORATORY USE ONLY	Y	N
PCKG REC'D/CUSTODY SEALS INTACT		
SAMPLE LABELS/C		
TEMPERATURE WIT		
CORRECTED COPY A		
PROBLEMS OR DISCREPANCIES		

5-21000-OPS
FO.13, Rev. 3
30 of 32
April 30, 1993
Environmental Management

SHIP WHITE AND YELLOW COPIES WITH SAMPLES – RETAIN PINK FIELD COPY

Form: EGGRFP-081292-COCBLANK-v1.0

Page Of

RADIOACTIVE SHIPPING REPORT

AWC
A Lockheed Company
900 Grier Drive, Suite B
950 Pilot Rd., Suite A
Las Vegas, Nevada 89119
(702) 361-0740 Fax (702) 361-8034

Materials License 00-16-0112-02 Amend #: _____

Consigned to: IT Corp. (Andy Kopriva)

Address: 2800 George Washington Way

City: Richland, Washington 99352

Consignee License #: _____

Total For Each Class		Proper Shipping Name & Hazard Class (Per 49CFR172.101)	ID Number
No. of Packages	Weight (Pounds)		
		Radioactive Material empty packages	UN2908
		Radioactive Material fissile n.o.s. - Radioactive Material	UN2918
		Radioactive Material low specific activity, n.o.s. - Radioactive Material	UN2912
		Radioactive Material, n.o.s. - Radioactive Material	UN2982
		Radioactive Material, limited quantity, n.o.s. - Radioactive Material	UN2910
1	.9956	Radioactive Material, special form, n.o.s. - Radioactive Material	UN2974
		Radioactive Material, instruments and articles - Radioactive Material	UN2911
		Other (Specify)	

Shipping Record

RSR # RF111000

Shipping Date:

Survey Inst. Type: GM (Ludlum 3)

Inst. # 95217 /Cal. Date 15 Mar 93

Surveyed By: D.K. White

Transport Mode: (Check all that apply)

- ☐ Common Carrier
- ☐ Contract Carrier
- ☐ Air Carrier
- ☐ Postal Service
- ☒ United Parcel Service

Carrier Name UPS

Address _____

City _____ State _____ Driver _____

Vehicle
- ☐ Exclusive Use-Dose Rate
- _____ mR/hr Contact
- _____ mR/hr 2 Meter
- _____ mR/hr Cab

Restricted Limited Quantities

☐ Cargo Aircraft Only (Label Required)

Item No.	Container Type/Spec	Volume (Cu. Ft.)	Weight (Lbs.) sample weight	Physical Form	Chemical Form	Isotope	Activity uCi mCi	General Description	Source Material (kgs.)	SNM (gms)	Radiation Levels Con./Surf. mR/hr	Radiation Levels T.I. 1m. mR/hr	Surface Contamination dpm/100 cm² Alpha	Surface Contamination dpm/100 cm² Beta	Fissile Class I, II, III or N/A	Labels/Markings LSA W-I, Y-II Y-III, N/A
								Box with a Bottle with soil	N/A	1.54×10^{-7}	0.1	0.1	UNDA	UNDA	N/A	N/A
1	Box with Bottle	.0088	.5776	SOIL	Solids	Pu & Am	0.021	RF111010								
								Totals								

This is to certify that the above materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. 49CFR 172.204(A)

S.D. Outlaw — RSO — 6-4-93

Authorized Signature — Title — Date

I hereby certify that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and in proper condition for carriage by air according to applicable national governmental regulations.

S.D. Outlaw — RSO — 6-4-93

Authorized Signature — Title — Date

FM-114

GB/2-92/Rev1

FIELD CHAIN-OF-CUSTODY FORM

AWC
A Lockheed Company

Date _____
Page _____ of _____

Client Name and Address
IT Corp.
Andy Kopriva
2800 George Washington
Richland, WA 99352

Contract No. 989098

Sampling Site
Las Vegas, Nevada

Analysis Required

Client Sample ID	Collection Date	Collection Time	Matrix Code*	Sample Type**	Field Preserved (Y or N)	No. and Volume of Containers	AM 241	Gross Alpha	Gross Beta					Comments	Laboratory Use Only: AWC Sample ID-Aliquot No.
TT000026E	6/2/93	2:15pm	SL	C	N	1	X	X	X						RF111000

Date Data Required: _____ Container No. RF111000 Seal No. LE000002

Relinquished by: (Signature) Keith R. [illegible] Date 6/2/93 Time (am pm) 2:19 P.M.

Received By: (Signature) Date _____ Time (am pm) _____

Relinquished By: (Signature) Date _____ Time (am pm) _____

Received By: (Signature) Date _____ Time (am pm) _____

Relinquished By: (Signature) Date _____ Time (am pm) _____

Received for Laboratory By: (Signature) Date _____ Time (am pm) _____

Method of Shipment: UPS

Airbill No. _____

Container Survey (pass/fail) → If FAIL do not open cooler, contact the Program Development Department and the Radiation Safety Officer IMMEDIATELY

Surveyed by: (Signature) Date _____ Time (am pm) _____

Container Condition Upon Receipt at Laboratory:
Seals Intact: (Y/N) _____ Blue Ice Adequate: (Y/N) _____ Blue Ice Solid: (Y/N) _____
Internal Cooler Temp. _____ °C Samples in good condition: (Y/N) _____ ; Samples surveyed (pass/fail) _____

Comments:

*Sample Matrix Codes

SW - Surface Water
GW - Ground Water
DW - Drinking Water
AR - Air
SL - Soil
SG - Sludge
SD - Sediment
WW - Waste Water
Fl - Filter
Bl - Blank
O - Other

**Sample Type Codes

G - Grab
C - Composite
O - Other

TKW/6-92/Rev.1

FM-125

FIGURE FO.13-1

CONTRACTOR Lockheed SAMPLERS Tom Murarik PROJECT # 989098

SITE CONTACT/PHONE (702) 897-7200 LAB/LOCATION ~~Las Vegas, Nevada~~ IT - Richland, WA

C-O-C NUMBER LE OCC 002

EG&G ROCKY FLATS, CHAIN OF CUSTODY

CORRECTED COC SDG 981

306185

BOTTLE CODES: R R R / B A A / B A B

	DATE/TIME		SAMPLE NUMBER	LOCATION	CONTAINER TYPE	NUMBER OF CONTAINERS	MEDIA: S=SOIL, W=WATER	F=FILTERED, U=UNFILTERED	R=TURN AROUND RUSH	OUT OF SPEC REPORTS	COOLED TO 4°C	NAOH	HNO_3	H_2SO_4	Am 241	Gross Alpha	Gross Beta
01	6/2/93	14:19	TT000002LE	~~LV NV~~ SS000193	Bottle	1	S	U							X	X	X
				07-19-93													

RELINQUISHED BY	DATE/TIME		RECEIVED BY	DATE/TIME	
Keith L. Smith	6/2/93	14:22	R. Boyd IT	6/9/93	1015

REMARKS

SHIPMENT METHOD: UPS

AIR BILL NO.:

LABORATORY USE ONLY

	Y	N
PCKG REC'D/CUSTODY SEALS INTACT		
SAMPLE LABELS/CO		
TEMPERATURE WIT		
CORRECTED COPY A		
PROBLEMS OR DISCREPANCIES		

5-21000-OPS
FO.13, Rev. 3
30 of 32
April 30, 1993
Environmental Management

Form: EGGRFP-081292-COCBLA 1.0

SHIP WHITE YELLOW COPIES WITH SAMPLES – RETAIN PINK FIELD COPY

AWC
A Lockheed Company

FIELD CHAIN-OF-CUSTODY FORM

Date 5/7/93
Page 1 of 1

Client Name and Address: Rocky Flats % T&E LESAT Pilot RD LV, NV

Contract No.

Sampling Site: Pilot Facility - LESAT T&E

Analysis Required: PU-239 & 240; AM-241

Laboratory Use Only

Client Sample ID	Collection Date	Collection Time	Matrix Code*	Sample Type**	Field Preserved (Y or N)	No. and Volume of Containers	PU-239 & 240	AM-241						Comments	AWC Sample ID-Aliquot No.
RF317240	5/7/93	10:30	SL	C	N	~~2/4g ea.~~ 1-4g	please do HNO3/HF digestion								
RF317250	"	"	"	"	"	1-4g									

Date Data Required: 5/07/93 | Container No. | Seal No.

Received for Laboratory By: (Signature) [signature] | Date 5/07/93 | Time (am pm)

Method of Shipment: HAND CARRY | Airbill No.

Relinquished by: (Signature) [signature] | Date 5/7/93 | Time (am pm)

Container Survey (pass/fail): Pass → If FAIL do not open cooler; contact the Program Development Department and the Radiation Safety Officer IMMEDIATELY

Received By: (Signature) | Date | Time (am pm)

Surveyed by: (Signature) [signature] | Date May | Time (am pm) 1505

Relinquished By: (Signature) | Date | Time (am pm)

Container Condition Upon Receipt at Laboratory: Seals Intact: (Y/N) N Blue Ice Adequate: (Y/N) N Blue Ice Solid: (Y/N) N

Received By: (Signature) | Date | Time (am pm)

Relinquished By: (Signature) | Date | Time (am pm)

Internal Cooler Temp. 20 °C Samples in good condition: (Y/N) Y : Samples surveyed (pass/fail) P

Comments:

*Sample Matrix Codes
SW - Surface Water; GW - Ground Water; DW - Drinking Water; AR - Air; SL - Soil; SG - Sludge; SD - Sediment; WW - Waste Water; FI - Filter; BI - Blots; O - Other

**Sample Type Codes
G - Grab; C - Composite; O - Other

TKW/6-92/Rev.1

FM-125

C507123

RADIOACTIVE SHIPPING REPORT

Page

LESAT
Technology Applications Division
900 Grier Drive, Suite B
Las Vegas, Nevada 89119
(702) 361-0740 Fax (702) 361-8034

Total For Each Class: No. of Packages	Total For Each Class: Weight (Pounds)	Proper Shipping Name & Hazard Class (Per 49CFR172.101)	ID Number
X		Radioactive Material empty packages	UN2908
		Radioactive Material fissile n.o.s. - Radioactive Material	UN2918
		Radioactive Material low specific activity, n.o.s. - Radioactive Material	UN2912
		Radioactive Material, n.o.s. - Radioactive Material	UN2982
2	8 gms	Radioactive Material, limited quantity, n.o.s. - Radioactive Material	UN2910
		Radioactive Material, special form, n.o.s. - Radioactive Material	UN2974
		Radioactive Material, instruments and articles - Radioactive Material	UN2911
		Other (Specify)	

Materials License 00-16-0112-02 Amended: _____

Consigned to: LAL

Address: _____

City: Las Vegas

Consignee License #: _____

Shipping Record

RSR #	
Shipping Date:	5/7/93
Survey Inst. Type:	GM
Inst. Ludlum 3 /Cal. Date	15 Mar 93
Surveyed By:	B.K. White

Transport Mode: (Check all that apply) HAND CARRY

- ☐ Common Carrier
- ☐ Contract Carrier
- ☐ Air Carrier
- ☐ Postal Service
- ☐ United Parcel Service

Carrier Name _____

Address _____

City _____ State _____ Driver _____

Restricted Limited Quantities

☐ Cargo Aircraft Only (Label Required)

Vehicle
☐ Exclusive Use-Dose Rate
_____ mR/hr Contact
_____ mR/hr 2 Meter
_____ mR/hr Cab

Item No.	Container Type/Spec.	Volume (Cu. Ft.)	Weight (Lbs)	Physical Form	Chemical Form	Isotope	Activity ~~uCi~~ ~~mCi~~ pCi	General Description	Source Material (kgs.)	SNM (gms)	Radiation Levels: Con./Surf. mR/hr	Radiation Levels: T.I. 1m. mR/hr	Surface Contamination dpm/100 cm² Alpha	Surface Contamination dpm/100 cm² Beta	Fissile Class I, II, III or N/A	Labels/ Markings LSA W-I, Y-II YIII, N/A
1	7A	N/A	4g	Soil	Solid	PU, AM	320 pCi ~~320 pCi~~	Soil	.004 kg	.004 kg	.02	.02	1.164	LMDL	N/A	N/A
2	7A	N/A	4g	Soil	Solid	PU, AM	320 pCi	Soil	.004 kg	.004 kg	.02	.02	1.164	LMDL	N/A	N/A
								Totals								

This is to certify that the above materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. 49CFR 172.204(A)

Terry Wenshard Mgr TSE 5/7/93

Authorized Signature Title Date

I hereby certify that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and in proper condition for carriage by air according to applicable national governmental regulations.

Authorized Signature Title Date

FM-114

LJW/2/93/Rev.2

G507123

LAL

Page Of

RADIOACTIVE SHIPPING REPORT

AWC
A Lockheed Company
900 Grier Drive, Suite B
950 Pilot Rd., Suite A
Las Vegas, Nevada 89119
(702) 361-0740 Fax (702) 361-8034

Materials License 00-16-0112-02 Amend #: _____

Consigned to: LAL

Address: 975 Kelly Johnson Dr.

City: LV, NV 89119

Consignee License #: _____

Total For Each Class		Proper Shipping Name & Hazard Class (Per 49CFR172.101)	ID Number
No. of Packages	Weight (Pounds)		
		Radioactive Material empty packages	UN2908
		Radioactive Material fissile n.o.s. - Radioactive Material	UN2918
		Radioactive Material low specific activity, n.o.s. - Radioactive Material	UN2912
		Radioactive Material, n.o.s. - Radioactive Material	UN2982
		Radioactive Material, limited quantity, n.o.s. - Radioactive Material	UN2910
2	0.597	Radioactive Material, special form, n.o.s. - Radioactive Material	UN2974
		Radioactive Material, instruments and articles - Radioactive Material	UN2911
		Other (Specify)	

Shipping Record

RSR #	
Shipping Date:	5/10/93
Survey Inst. Type:	GM (Ludlum)
Inst. # 95217	/Cal. Date 6 May 93
Surveyed By:	B.K. Wilkite

Transport Mode: (Check all that apply)

- [ ] Common Carrier
- [ ] Contract Carrier
- [ ] Air Carrier
- [ ] Postal Service
- [ ] United Parcel Service

Carrier Name: Private Vehicle

Address: _____

City: _____ State: _____ Driver: Tom Movarik

Restricted Limited Quantities

- [ ] Cargo Aircraft Only (Label Required)

Vehicle

- [ ] Exclusive Use-Dose Rate
- _____ mR/hr Contact
- _____ mR/hr 2 Meter
- _____ mR/hr Cab

Item No.	Container Type/Spec	Volume (Cu. Ft.)	Weight (Lbs.)	Physical Form	Chemical Form	Isotope	Activity uCi mCi	General Description	Source Material (kgs.)	SNM (gms)	Radiation Levels Con./Surf. mR/hr	Radiation Levels T.I. 1m. mR/hr	Surface Contamination dpm/100 cm² Alpha	Surface Contamination dpm/100 cm² Beta	Fissile Class I, II, III or N/A	Labels/ Markings LSA W-I, Y-II Y-III, N/A
									N/A	1.8E-7	0.02	0.02	5.63	~~N/A~~ DA	N/A	N/A
RF112001	Bottle		128.431g	Soil	Solids	Pu & Am	0.0103	A bottle with soil in it	N/A	1.83E-7	0.02	0.02	1.72	~~N/A~~ DA	N/A	N/A
RF112002	"		140.54g	"	"	Pu & Am	0.0112	" " " " " "								
								Totals								

This is to certify that the above materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. 49CFR 172.204(A)

R.D. Outlaw — RSO — 5-12-93

Authorized Signature — Title — Date

FM-114

I hereby certify that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and in proper condition for carriage by air according to applicable national governmental regulations.

Authorized Signature — Title — Date

GB/2-92/Rev1

AWC
A Lockheed Company

FIELD CHAIN-OF-CUSTODY FORM

Date 5/10/93
Page 1 of 1

Client Name and Address: Rocky Flats Project Colorado

Contract No. 989098

Sampling Site: LV, NV

Analysis Required

Client Sample ID	Collection Date	Collection Time	Matrix Code*	Sample Type**	Field Preserved (Y or N)	No. and Volume of Containers	TCL VOC's	TCL SVOC's	Pu 239	Pu 240				Comments	Laboratory Use Only: AWC Sample ID-Aliquot No.
TT00003LE	5/7/93		SL	C	N	2	X	X	X	X					
TT00004LE	5/7/93		SL	C	N		X	X	X	X					

Date Data Required:

Container No.

Seal No. AWC: RF112000 RFP: LE000003

Received for Laboratory By: (Signature) [signature] Date 5-13-93 Time (am pm) 1005

Relinquished by: (Signature) [signature] Date 5/10/93 Time (am pm) 3:15 PM

Method of Shipment: ~~Hand CARRY~~ KLS Privat Vehicle-T. Muenik

Airbill No.

Received by: (Signature) [signature] Date 5/10/93 Time (am pm) 3:15 pm

Container Survey (pass/fail) DESS → If FAIL do not open cooler; contact the Program Development Department and the Radiation Safety Officer IMMEDIATELY

Relinquished By: (Signature) [signature] Date 5/13/93 Time (am pm) 10:25

Surveyed By: (Signature) [signature] Date Time (am pm)

Received By: (Signature) SEE EG&G FC of C Date Time (am pm)

Container Condition Upon Receipt at Laboratory:
Seals Intact: (Y/N) ____ Blue Ice Adequate: (Y/N) ____ Blue Ice Solid: (Y/N) ____

Relinquished By: (Signature) Date Time (am pm)

Internal Cooler Temp. ____ °C Samples in good condition: (Y/N) ____ : Samples surveyed (pass/fail) ____

Comments:

*Sample Matrix Codes
SW - Surface Water
GW - Ground Water
DW - Drinking Water
AR - Air
SL - Soil
SG - Sludge
SD - Sediment
WW - Waste Water
Fl - Filter
Bl - Blots
O - Other

**Sample Type Codes
G - Grab
C - Composite
O - Other

TKW/6-92/Rev.1

FM-125

MAY- 6-93 THU 10:40 PROJECT CONTROL OFFICE FAX NO. 9668284 P. 06

FIGURE FO.13-2

PROJECT # 989098

CONTRACTOR LESAT SAMPLERS Tom Murarik

SITE CONTACT/PHONE LV NV (702) 897-7200

LAB/LOCATION

C-O-C NUMBER LE000003 & LE000004

EG&G ROCKY FLATS, CHAIN OF CUSTODY

General Chemistry

DATE/TIME		SAMPLE NUMBER	LOCATION	CONTAINER TYPE	NUMBER OF CONTAINERS	MEDIA: S=SOIL, W=WATER	F=FILTERED, U=UNFILTERED	R=TURN AROUND RUSH	OUT OF SPEC REPORTS	COOLED TO 4°C	NAOH	HNO_3	H_2SO_4	VOA - CLP	VOA - 502.2	BNA - CLP	PCB's/PEST. - CLP	CLP TOTAL METALS(1)	CLP DISS. METALS(1)	WATER QUALITY (2)	NO_3/NO_2 as N	Tot. Phosphorus, NH_4	OIL & GREASE	Ortho-Phosphate	NO_2	CYANIDE	TOC	DOC	H_2S	Cr VI	TCL	VOC's	SVOC's	Pu 239	Pu 240
5/10/93	3:16PM	RF112002/TT00003LE	LV NV	Bottle	1	S	U																								X	X	X	X	X
"	"	RF112001/TT00004LE	LV NV	Bottle	1	S	U																								X	X	X	X	X

BOTTLE CODES: V, V D C, B, P, M, M *, W A, W B C, W B, W C, W D A, W D, W E, W H, W I, W J, W K

RELINQUISHED BY	DATE/TIME		RECEIVED BY	DATE/TIME	
Keith L. Smith	5/10/93	3:16PM	[signature]	5/10/93	3:16PM
[signature]	5/10/93	3:16PM			T.M.
[signature]	5/13/93	10:25	[signature]	5-13-93	1045

LABORATORY USE ONLY

	Y	N
PCKG REC'D/CUSTODY SEALS INTACT		
SAMPLE LABELS/COC		
TEMPERATURE WITHIN		
CORRECTED COPY ATT		
PROBLEMS OR DISCREPANCIES		

5-21000-OPS
FO.13, Rev. 3
28 of 32
April 30, 1993
Environmental Management

REMARKS (1) INCLUDES Cs,Li,Sr,Mo,Si,Sn
(2) TSS,TDS,Cl,F,SO_4,CO_3,HCO_3

SHIPMENT METHOD: Hand Carry KCS 5/13/93

AIR BILL NO.:

Form: EGGRFP-081292-COCGC-v1.0

SHIP WHITE AND YELLOW COPIES WITH SAMPLES -- RETAIN PINK FIELD COPY

THIS SHIPPING ORDER must be legibly filled in, in Ink, in Indelible Pencil or in Carbon, and retained by the carrier.

NW TRANSPORT SERVICE, INC.

OPERATORS OF: NORTHWEST TRANSPORT SERVICE, INC., (NWTP); NORTHEASTERN MOTOR FREIGHT, INC., (NEMF); WESTWAY MOTOR FREIGHT INC. (WMFI)

[redacted]

FROM: Lockheed Environmental Systems/Technologies

DATE: 3JAN.94

ADDRESS: 950 Pilot Rd., Suite A

SHIPPER NUMBER:

CITY, STATE AND ZIP CODE: Las Vegas, NV. 89119

Received, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said carrier, (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classification in effect on the date hereof, if this is a rail or rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment. Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, including those on the back thereof, set forth in the classification or tariff which govern the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

CONSIGNED TO (On Collect on Delivery Shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec. 1): EG&G Rocky Flats for the U.S. Department of Energy

COD$ — C.O.D. FEE TO BE PAID BY ☒ CONSIGNEE OR ☐ SHIPPER

DESTINATION (street): Rocky Flats Plant

IF CONSIGNEE'S PERSONAL OR COMPANY CHECK IS ACCEPTABLE FOR C.O.D. PLEASE NOTE:

CITY, STATE AND ZIP CODE: Golden, Co. 80402-0464

REMIT C.O.D. TO:

NUMBER PACKAGES	HM	KIND OF PACKAGE, DESCRIPTION OF ARTICLES, SPECIAL MARKS, AND EXCEPTIONS	WEIGHT (pounds only) (subject to correction)
8	V	7A TYPE 55 GAL.	~~3,240~~ GDO.
		DRUMS, Radioactive Material	3,326.14
		excepted package, limited	
		quantity of material, UN 2910	
		PO # 033-552-375-1	
		EMERGENCY CONTACT: PHIL	
		OUTLAW (702) 897-7200	
		or (702) 891-8668	

Subject to Section 7 of conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement: The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

THE AGREED OR DECLARED VALUE OF THE PROPERTY IS HEREBY SPECIFICALLY STATED BY THE SHIPPER TO BE NOT EXCEEDING $ PER

ROUTING

DELIVERING CARRIER

IF CHARGES ARE TO BE PREPAID WRITE OR STAMP "TO BE PREPAID":

This is to certify that the above-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

SHIPPER OR AGENT SIGN HERE: G.D. Outlaw

NO. POS. RECEIVED	DATE	SINGLE SHIPT	CARRIER SIGN HERE
8	1-3-94		[illegible]

CODE	DATE	POS UNLOADED	UNLOADER #	DAY CARTY #

UNIT	SEQUENCE	POS LOADED	LOADER #

* If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."

NOTE-Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.

[redacted] must detach and retain this Shipping Order and must sign the Original Bill of Lading.

RADIOACTIVE SHIPPING REPORT

LESAT
Technology Applications Division
900 Grier Drive, Suite B
Las Vegas, Nevada 89119
(702) 361-0740 Fax (702) 361-8034

Total For Each Class		Proper Shipping Name & Hazard Class (Per 49CFR172.101)	ID Number
No. of Packages	Weight (Pounds)		
		Radioactive Material, excepted package, empty packaging	UN2910
		Radioactive Material, fissile, n.o.s.	UN2918
		Radioactive Material, low specific activity, LSA, n.o.s.	UN2912
		Radioactive Material, n.o.s.	UN2982
8	3326.14	Radioactive Material, excepted package - limited quantity of material	UN2910
		Radioactive Material, special form, n.o.s.	UN2974
		Radioactive Material, excepted package - instruments or articles	UN2910
		Other (Specify)	

Materials License 00-16-0112-02 Amended: _____

Consigned to: EG&G Rocky Flats, Inc.

Address: Rocky Flats Plant

City: Golden, CO 80402-0464

Consignee License #: _____

Shipping Record

RSR #	
Shipping Date:	1-3-94
Survey Inst. Type:	Ludlum 19
Inst. 82783	/Cal. Date 12-14-93
Surveyed By:	B. Rowsell

Transport Mode: (Check all that apply)

- [ ] Common Carrier
- [ ] Contract Carrier
- [ ] Air Carrier
- [ ] Postal Service
- [ ] United Parcel Service

Carrier Name Northwest Transport Service

Address _____

City _____ State _____ Driver _____

Vehicle
[NA] Exclusive Use-Dose Rate
NA mR/hr Contact
NA mR/hr 2 Meter
NA mR/hr Cab

Restricted Limited Quantities

[ ] Cargo Aircraft Only (Label Required)

Item No.	Container Type/Spec.	Volume (Cu. Ft.)	Weight (Lbs)	Physical Form	Chemical Form	Isotope	Activity uCi mCi	General Description	Source Material (kgs.)	SNM (gms)	Radiation Levels Con./Surf. mR/hr	Radiation Levels T.I. 1m. mR/hr	Surface Contamination dpm/100 cm² Alpha	Surface Contamination dpm/100 cm² Beta	Fissile Class I, II, III or N/A	Labels/ Markings LSA W-I, Y-II YIII, N/A
1	7A	8.6	297.52	Soil	Am_2O_3	Am-241	1.65	Processed Soil	N/A	N/A	.013	.006	<MDA	<MDA	NA	NA
1	"	—	—	"	Pu_2O_2	Pu-239	9.50	" "	"	1.55×10^{-4}	.013	.006				
2	"	8.6	229.27	"	Am_2O_3	Am-241	1.27	" "	"	N/A	.012	.006				
2	"	—	—	"	Pu_2O_2	Pu-239	7.27	" "	"	1.19×10^{-7}	.010	.006				
3	"	8.6	169.16	"	Am_2O_3	Am-241	1.04	" "	"	N/A	.012	.006				
3	"	—	—	"	Pu_2O_2	Pu-239	5.96	" "	"	9.72×10^{-7}	.010	.006				
4	"	8.6	345.51	"	Am_2O_3	Am-241	1.63	" "	"	N/A	.016	.006				
4	"	—	—	"	Pu_2O_2	Pu-239	9.34	" "	"	1.52×10^{-7}	.016	.006				
—		34.4	1041.46		—		37.66		Totals "	5.23×10^{-7}		.006				

This is to certify that the above materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. 49CFR 172.204(A)

G. D. Outlaw — R.S.O. — 1/3/93
Authorized Signature — Title — Date

I hereby certify that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and in proper condition for carriage by air according to applicable national governmental regulations.

G. D. Outlaw — R.S.O. — 1/3/93
Authorized Signature — Title — Date

FM-[illegible]

PO/8/93/Rev.3

MDA β = 67 dpm MDA α = 16.2 dpm

RADIOACTIVE SHIPPING REPORT

LESAT
Technology Applications Division
900 Grier Drive, Suite B
Las Vegas, Nevada 89119
(702) 361-0740 Fax (702) 361-8034

Total For Each Class		Proper Shipping Name & Hazard Class (Per 49CFR172.101)	ID Number
No. of Packages	Weight (Pounds)		
		Radioactive Material, excepted package, empty packaging	UN2910
		Radioactive Material, fissile, n.o.s.	UN2918
		Radioactive Material, low specific activity, LSA, n.o.s.	UN2912
		Radioactive Material, n.o.s.	UN2982
		Radioactive Material, excepted package - limited quantity of material	UN2910
		Radioactive Material, special form, n.o.s.	UN2974
		Radioactive Material, excepted package - instruments or articles	UN2910
		Other (Specify)	

Materials License 00-16-0112-02 Amended: _____

Consigned to: EG&G Rocky Flats

Address: Rocky Flats Plant

City: Golden, CO 80402-0464

Consignee License #: _____

Transport Mode: (Check all that apply)

- ☐ Common Carrier
- ☐ Contract Carrier
- ☐ Air Carrier
- ☐ Postal Service
- ☐ United Parcel Service

Carrier Name Northwest Transport Service

Address _____

City _____ State _____ Driver _____

Vehicle Exclusive Use-Dose Rate: N/A

NA mR/hr Contact
NA mR/hr 2 Meter
NA mR/hr Cab

☐ Restricted Limited Quantities ☐ Cargo Aircraft Only (Label Required)

Shipping Record

RSR #	
Shipping Date:	1-3-94
Survey Inst. Type:	Ludlum 19
Inst. 82783	/Cal. Date 12-14-93
Surveyed By:	B. Rowsell

BALANCE FORWARD 34.4 1041.46 37.66 5.23×10^{-4}

Item No.	Container Type/Spec.	Volume (Cu. Ft.)	Weight (Lbs)	Physical Form	Chemical Form	Isotope	Activity uCi mCi	General Description	Source Material (kgs.)	SNM (gms)	Radiation Levels Con./Surf. mR/hr	Radiation Levels T.I. 1m mR/hr	Surface Contamination dpm/100 cm² Alpha	Surface Contamination dpm/100 cm² Beta	Fissile Class I, II, III or N/A	Labels/ Markings LSA W-I, Y-II YIII, N/A
													<MDA	<MDA	NA	NA
5	7A	8.6	191.28	Soil	Am_2O_3	Am-241	1.26	Processed Soil	N/A	N/A	.010	.006				
5	"	—	—	"	$Pu\ O_2$	Pu-239	7.23	" "	N/A	1.1×10^{-7}	.012	.006				
6	"	8.6	376.50	"	Am_2O_3	Am-241	2.26	Mixed "	N/A	N/A	.010	.006				
6	"	—	—	"	$Pu\ O_2$	Pu-239	12.96	" "	N/A	2.1×10^{-7}	.011	.006				
7	"	8.6	241.50	"	Am_2O_3	Am-241	1.45	" "	N/A	N/A	.014	.006				
7	"	—	—	"	$Pu\ O_2$	Pu-239	8.31	" "	N/A	1.35×10^{-7}	.014	.006				
8	"	8.6	426.00	"	Am_2O_3	Am-241	2.56	" "	N/A	N/A	.012	.006				
8	"	—	—	"	$Pu\ O_2$	Pu-239	14.66	" "	N/A	2.4×10^{-7}	.012	.006				
—		34.4	2276.74				88.35	Totals	N/A	1.15×10^{-3}		.006				

This is to certify that the above materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. 49CFR 172.204(A)

R.D. Outlaw — R.S.O. — 1/3/93
Authorized Signature — Title — Date

I hereby certify that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and in proper condition for carriage by air according to applicable national governmental regulations.

R.D. Outlaw — R.S.O. — 1/3/93
Authorized Signature — Title — Date

FM-11 PO/8/93 Rev.3

MDA β = 6.7 dpm MDA α = 16.2 dpm

LOCKHEED ANALYTICAL LABS

CLP VOC & SVOC, AND

RADIOLOGICAL ANALYSIS

Lockheed Analytical Services

LOCKHEED - TAD

SAMPLE ANALYSIS
SUMMARY PACKAGE

FOR

PLUTONIUM-ISOTOPIC,
VOLATILE AND SEMI-VOLATILE ORGANICS

JOB NAME: TAD-RAD-ORG-05133

QUOTATION NUMBER: Q219901

DOCUMENT FILE NUMBER: 0513123

Lockheed
Environmental Systems & Technologies Co.

Lockheed Analytical Services
975 Kelly Johnson Drive
Las Vegas, Nevada 89119-3705

Phone: (800) 582-7605
Fax: (702) 361-8146

June 22, 1993

Mr. Terry Wendstrand
Lockheed - TAD
900 Grier Drive, Suite B
Las Vegas, NV 89119

RE: Job Name: TAD-RAD-ORG-05133
Quotation No.: Q219901
Document File No.: 0513123

The attached data package contains the results of analyses on samples that were submitted to the Lockheed Analytical Services on May 13, 1993. The samples were received at 20°C.

SUMMARY ANALYSIS STATEMENT:

Organics-

Volatiles

These samples exceeded holding time requirements. Sample RF112002 (A44231) was analyzed at a 1:5 dilution because the undiluted analysis yielded acetone at a concentration that exceeded the calibration range. Surrogate recovery for 1,2-DCE-d4 slightly exceeded the QC limits for the diluted sample and the diluted sample was reanalyzed also yielding a high surrogate recovery. Acetone was not determined to be present in either diluted analysis. All other QC criteria were met.

Semi-Volatiles

Recoveries of the spiked surrogate compounds were within the specified limits for the required compounds. All internal standard performance criteria were met for these analyses. All tuning and calibration requirements were met for these samples. The recovery of Phenol was high outside the QC limits for this method in both the matrix spike and duplicate associated with these samples. The affected recoveries are flagged accordingly. All other recovery criteria were met. There were no other problems associated with the analysis of these samples by this method.

Radiochemistry

Plutonium-isotopic

An aliquot of the dissolved samples was separated and assayed for plutonium by alpha spectroscopy using LAL-91-SOP-0108. There were no problems encountered during analysis. All QC criteria were met.

If you have any questions concerning the analysis or the data please do not hesitate to contact Mary Ford, (702) 361-3955, ext. 326.

Release of this data report has been authorized by the Laboratory Director or the Director's designee as evidenced by the following signature.

Sincerely,

Michael J. Butler, Ph.D.
Client Services Manager

MB/jsf:at

cc: Client Services
Document Control Department

Lockheed Analytical Services

DATA QUALIFIERS FOR ORGANIC ANALYSES

[Revised 04/20/93]

For Use on the Analytical Data Reporting Forms	
A	***For CLP analyses Only*** -- The TIC is a suspected aldol-condensation product.
B	Any constituent that was also detected in the associated blank whose concentration was greater than the practical or reporting detection limit (PQL or RDL).
C	Constituent confirmed by GC/MS analysis. *[pesticide/PCB analyses only]*
D	Constituent detected in the diluted sample. It also indicates that an accurate quantitation is not possible due to surrogates being diluted out of the samples during the course of the analysis.
E	Constituent concentration exceeded the calibration range.
G	The quantitation is not gasoline or diesel but believed to be some other combination of hydrocarbons.
H	Sample analysis performed outside of method- or client-specified maximum holding time requirement.
J	*Estimated value* -- (1) constituent detected at a level less than the RDL or PQL and greater than or equal to the MDL; (2) estimated concentration for TICs ***(For CLP Reporting Only)***.
N	***For CLP Reporting Only*** -- Tentatively identified constituents (TICs) identified based on mass spectral library search.
P	***For CLP Reporting Only*** -- The percent difference between the concentrations detected on both GC columns was greater than 25 percent *[pesticide/PCB analyses only]*.
U	***For CLP Reporting Only*** -- Constituent was analyzed for but not detected (sample quantitation must be corrected for dilution and percent moisture).
X, Y, or Z	Analyst-defined qualifier.
For Use on the QC Data Reporting Forms	
*****	QC data (i.e., percent recovery data for matrix spike, matrix spike duplicate, laboratory control standard, or surrogates; and RPD for matrix spike duplicate or unspiked duplicate) exceeded acceptance limits.
a[1]	The spike recovery and/or RPD for matrix spike and matrix spike duplicates cannot be evaluated due to insufficient spiking level compared to the elevated sample analyte concentration.
b[1]	The RPD cannot be computed because the sample and/or duplicate concentration was below the RDL.

[1] Used as footnote designations on the QC summary form.

Lockheed Analytical Services

DATA QUALIFIERS FOR RADIOCHEMICAL ANALYSES

[Revised 08/28/92]

For Use on the Analytical Data Reporting Forms	
B	Any constituent that was also detected in the associated blank whose concentration was greater than the reporting detection limit (RDL) and/or minimum detectable activity (MDA).
C	Presence of high TDS in sample required reduction of sample size which increased the MDA.
D	Constituent detected in the diluted sample.
E	Constituent concentration exceeded the calibration or attenuation curve range.
F	***For Alpha Spectrometry Only***-- FWHM exceeded acceptance limits.
H	Sample analysis performed outside of method-specified maximum holding time requirement.
Y	Chemical yield exceeded acceptance limits.
For Use on the QC Data Reporting Forms	
*	QC data (i.e., percent recovery data for laboratory control standard and matrix spike; and RPD for replicate analyses) exceeded acceptance limits.
a[1]	The spike recovery and/or RPD for matrix spike and duplicates cannot be evaluated due to insufficient spiking level compared to the elevated sample analyte concentration.
b[1]	The RPD cannot be computed because the sample and/or duplicate concentration was below the MDA.

[1] Used as foot note designations on the QC summary form.

Job Report for: TAD-RAD-ORG-05133

Client Sample ID:	RF112002	LAL Sample ID:	A44231
Date Collected:	10-MAY-93	Date Received:	13-MAY-93
Matrix:	SOLID	Job Name:	TAD-RAD-ORG-05133

Constituent	Batch	Activity	Estimated Uncertainty	MDA	Data Qual	Units
Pu-238	R108Q_8	0.819	0.073	0.003		pCi/g
Pu-239/40	R108Q_8	48.4	1.8	0.010		pCi/g

Comments on Data Qualifiers:

Client Sample ID: RF112001
Date Collected: 10-MAY-93
Matrix: SOLID

LAL Sample ID: A44232
Date Received: 13-MAY-93
Job Name: TAD-RAD-ORG-05133

Constituent	Batch	Activity	Estimated Uncertainty	MDA	Data Qual	Units
Pu-238	R108Q_8	0.626	0.066	0.022		pCi/g
Pu-239/40	R108Q_8	38.7	1.5	0.011		pCi/g

Comments on Data Qualifiers:

FIGURE FO.13-2

PROJECT # 989098

CONTRACTOR LESAT SAMPLERS Tom Murarik

SITE CONTACT/PHONE LV NV (702) 897-7200

LAB/LOCATION

C-O-C NUMBER LE000003 & LE000004

EG&G ROCKY FLATS, CHAIN OF CUSTODY

General Chemistry

DATE/TIME		SAMPLE NUMBER	LOCATION	CONTAINER TYPE	NUMBER OF CONTAINERS	MEDIA: S=SOIL, W=WATER	F=FILTERED, U=UNFILTERED	R=TURN AROUND RUSH	OUT OF SPEC REPORTS	COOLED TO 4°C	NAOH	HNO_3	H_2SO_4	VOA - CLP	VOA - 502.2	BNA - CLP	PCB's/PEST. - CLP	CLP TOTAL METALS(1)	CLP DISS. METALS(1)	WATER QUALITY (2)	NO_3/NO_2 as N	Tot. Phosphorus, NH_4	OIL & GREASE	Ortho-Phosphate	NO_2	CYANIDE	TOC	DOC	H_2S	Cr VI	TCL	VOC's	SVOC's
5/10/93	3:16PM	RF112002/TT000034E	LV NV	Bottle	1	S	U																								X	X	X
"	"	RF112001/TT000041E	LV NV	Bottle	1	S	U																								X	X	X

BOTTLE CODES: V, V D, C, B, P, M, M *, W A, W B C, W B, W C, W D A, W D, W E, W H, W I, W J, W K

PRESERVATIVE

RELINQUISHED BY	DATE/TIME		RECEIVED BY	DATE/TIME	
Keith L. Smith	5/10/93	3:16PM	[signature]	5/10/93	3:16PM
[signature]	5/10/93	3:16PM			T.M.
[signature]	5/13/93	10:25	[signature]	5-13-93	1405
			[signature]	5/13/93	1600

SHIPMENT METHOD: Hand Carry

AIR BILL NO.:

REMARKS (1) INCLUDES Cs,Li,Sr,Mo,Si,Sn
(2) TSS,TDS,Cl,F,SO_4,CO_3,HCO_3

LABORATORY USE ONLY

	Y	N
PCKG REC'D/CUSTODY SEALS INTACT	✓	
SAMPLE LABELS/COC		
TEMPERATURE WITHIN		
CORRECTED COPY ATT		
PROBLEMS OR DISCREPANCIES		

5-21000-OPS
FO.13, Rev. 3
28 of 32
April 30, 1993
Environmental Management

Form: [illegible]P-081292-COCGC-v

SHIP WHITE AND YELLOW COPIES WITH SAMPLES -- RETAIN PINK FIELD COPY

PROJECT CONTROL OFFICE FAX NO. 9668284 P.06
MAY-6-93 THU 10:40
0513123

TAD-RAD-ORG-05133

QC SUMMARIES

CLP VOLATILES

LOCKHEED ANALYTICAL LABORATORY
SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Job Name:TAD-RAD-ORG Contract:_

Lab Code:LAL Case No.: SAS No.: SDG No.:TAD

Level:(low/med) LOW

	CUSTOMER SAMPLE NO.	SMC1 (TOL)#	SMC2 (BFB)#	SMC3 (DCE)#	OTHER	TOT OUT
01	RF112001	108.0	106.0	120.0		0
02	RF112001MS	100.0	90.0	106.0		0
03	RF112001MSD	104.0	98.0	110.0		0
04	RF112002DL	108.0	100.0	124.0*		1
05	RF112002DLRE	104.0	104.0	132.0*		1
06						
07						
08						
09						
10						
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12						
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		QC LIMITS
SMC1 (TOL)	= Toluene-d8	(84-138)
SMC2 (BFB)	= Bromofluorobenzene	(59-113)
SMC3 (DCE)	= 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM II - CLP VOA-2

LOCKHEED ANALYTICAL LABORATORY
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Job Name:TAD-RAD-ORG Contract:_

Lab Code:LAL Case No.: SAS No.: SDG No.:TAD

	CUSTOMER SAMPLE NO.	SMC1 (TOL)#	SMC2 (BFB)#	SMC3 (DCE)#	OTHER	TOT OUT
01	VBLK01	96.0	98.0	110.0		0
02	VBLK02	100.0	100.0	96.0		0
03						
04						
05						
06						
07						
08						
09						
10						
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30						

		QC LIMITS
SMC1 (TOL)	= Toluene-d8	(88-110)
SMC2 (BFB)	= Bromofluorobenzene	(86-115)
SMC3 (DCE)	= 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM II - CLP VOA-2 3/90

LOCKHEED ANALYTICAL LABORATORY
SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Job Name:TAD-RAD-ORG Contract:_

Lab Code:LAL Case No.: SAS No.: SDG No.:TAD

Matrix Spike - Customer Sample No.: RF112001 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethene	50.00	0.000	42.000	84	59-172
Trichloroethene	50.00	0.000	41.000	82	62-137
Benzene	50.00	0.000	43.000	86	66-142
Toluene	50.00	0.000	45.000	90	59-139
Chlorobenzene	50.00	0.000	43.000	86	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50.00	49.000	98	15	22	59-172
Trichloroethene	50.00	47.000	94	14	24	62-137
Benzene	50.00	49.000	98	13	21	66-142
Toluene	50.00	52.000	104	14	21	59-139
Chlorobenzene	50.00	49.000	98	13	21	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS:

FORM III - CLP VOA-2 3/90

LOCKHEED ANALYTICAL LABORATORY
VOLATILE METHOD BLANK SUMMARY

CUSTOMER SAMPLE NO

VBLK01

Lab Job Name:TAD-RAD-ORG Contract:_

Lab Code:LAL Case No.: SAS No.: SDG No.:TAD

Lab File ID:D9789 Lab Sample ID:AD0333

Date Analyzed: 5/24/93 Time Analyzed:1206

GC Column:RTX502.2 ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID:GC/MS-D

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	CUSTOMER SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	RF112001	A44232	D9795	1657
02	RF112001MS	A44232MS	D9791	1331
03	RF112001MSD	A44232MSD	D9792	1414
04	VBLK01	AD0333	D9789	1206
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COMMENTS:

LOCKHEED ANALYTICAL LABORATORY
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Job Name:TAD-RAD-ORG Contract:_

Lab Code:LAL Case No.: SAS No.: SDG No.:TAD

Lab File ID:D8645 BFB Injection Date: 5/13/93

Instrument ID:D BFB Injection Time:0958

GC Column:RTX502.2 ID: 0.53 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	24.2
75	30.0 - 66.0% of mass 95	53.0
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.4
173	Less than 2.0% of mass 174	0.0(0.0)1
174	50.0 - 120.0% of mass 95	60.0
175	4.0 - 9.0% of mass 174	4.8(8.0)1
176	93.0 - 101.0% of mass 174	60.2(100.3)1
177	5.0 - 9.0% of mass 176	4.2(7.1)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD, BLANKS AND STANDARDS

	CUSTOMER SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD010	VSTD010	D8649	5/13/93	1547
02	VSTD020	VSTD020	D8650	5/13/93	1616
03	VSTD050	VSTD050	D8651	5/13/93	1646
04	VSTD100	VSTD100	D8652	5/13/93	1715
05	VSTD200	VSTD200	D8653	5/13/93	1744
06					
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LOCKHEED ANALYTICAL LABORATORY
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Job Name:TAD-RAD-ORG Contract:_

Lab Code:LAL Case No.: SAS No.: SDG No.:TAD

Lab File ID:D9787 BFB Injection Date: 5/24/93

Instrument ID:D BFB Injection Time:1031

GC Column:RTX502.2 ID: 0.53 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	25.0
75	30.0 - 66.0% of mass 95	55.4
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.1
173	Less than 2.0% of mass 174	0.0(0.0)1
174	50.0 - 120.0% of mass 95	65.4
175	4.0 - 9.0% of mass 174	4.6(7.0)1
176	93.0 - 101.0% of mass 174	61.5(94.0)1
177	5.0 - 9.0% of mass 176	3.8(6.2)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD, BLANKS AND STANDARDS

	CUSTOMER SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050A	VSTD050A	D9788	5/24/93	1055
02	VBLK01	AD0333	D9789	5/24/93	1206
03	RF112001MS	A44232MS	D9791	5/24/93	1331
04	RF112001MSD	A44232MSD	D9792	5/24/93	1414
05	RF112001	A44232	D9795	5/24/93	1657
06	RF112001RE	A44232RE	D9798	5/24/93	1941
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LOCKHEED ANALYTICAL LABORATORY
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Job Name:TAD-RAD-ORG Contract:_

Lab Code:LAL Case No.: SAS No.: SDG No.:TAD

Lab File ID:D9815 BFB Injection Date: 5/25/93

Instrument ID:D BFB Injection Time:0859

GC Column:RTX502.2 ID: 0.53 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	23.6
75	30.0 - 66.0% of mass 95	55.3
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.5
173	Less than 2.0% of mass 174	0.0(0.0)1
174	50.0 - 120.0% of mass 95	63.5
175	4.0 - 9.0% of mass 174	4.7(7.4)1
176	93.0 - 101.0% of mass 174	62.0(97.6)1
177	5.0 - 9.0% of mass 176	4.2(6.8)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD, BLANKS AND STANDARDS

	CUSTOMER SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050B	VSTD050B	D9817	5/25/93	1024
02	VBLK02	AD0336	D9819	5/25/93	1152
03	RF112002DL	A44231DL	D9820	5/25/93	1648
04	RF112002DLRE	A44231DLRE	D9821	5/25/93	1802
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LOCKHEED ANALYTICAL LABORATORY
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Job Name:TAD-RAD-ORG Contract:_

Lab Code:LAL Case No.: SAS No.: SDG No.:TAD

Lab File ID: (Standard)D9788 Date Analyzed: 5/24/93

Instrument ID:GC/MS-D Time Analyzed:1055

GC Column:RTX502.2 ID: 0.53 (mm) Heated Purge: (Y/N) N13

		IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	93059	8.46	318270	9.43	237955	12.92
	UPPER LIMIT	186118	8.96	636540	9.93	475910	13.42
	LOWER LIMIT	46530	7.96	159135	8.93	118978	12.42
	CUSTOMER SAMPLE NO.						
01	VBLK01	89872	8.50	317920	9.44	237080	12.93
02	RF112001MS	63502	8.50	215425	9.45	151796	12.93
03	RF112001MSD	55503	8.50	190599	9.45	131444	12.94
04	RF112001	47484	8.51	170392	9.45	121936	12.94
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IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside of QC limits with an asterisk.
* Values outside of QC limits.

LOCKHEED ANALYTICAL LABORATORY
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Job Name:TAD-RAD-ORG Contract:_

Lab Code:LAL Case No.: SAS No.: SDG No.:TAD

Lab File ID: (Standard)D9817 Date Analyzed: 5/25/93

Instrument ID:GC/MS-D Time Analyzed:1024

GC Column:RTX502.2 ID: 0.53 (mm) Heated Purge: (Y/N) N13

		IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	86217	8.47	302178	9.45	217833	12.93
	UPPER LIMIT	172434	8.97	604356	9.95	435666	13.43
	LOWER LIMIT	43109	7.97	151089	8.95	108917	12.43
	CUSTOMER SAMPLE NO.						
01	VBLK02	80674	8.47	275086	9.44	198654	12.93
02	RF112002DL	62799	8.52	235365	9.47	160457	12.94
03	RF112002DLRE	67440	8.53	264370	9.47	188316	12.94
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IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside of QC limits with an asterisk.
* Values outside of QC limits.

LOCKHEED ANALYTICAL LABORATORY
VOLATILE METHOD BLANK SUMMARY

CUSTOMER SAMPLE NO

VBLK02

Lab Job Name:TAD-RAD-ORG Contract:_

Lab Code:LAL Case No.: SAS No.: SDG No.:TAD

Lab File ID:D9819 Lab Sample ID:AD0336

Date Analyzed: 5/25/93 Time Analyzed:1152

GC Column:RTX502.2 ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID:GC/MS-D

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	CUSTOMER SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	RF112002DL	A44231DL	D9820	1648
02	RF112002DLRE	A44231DLRE	D9821	1802
03	VBLK02	AD0336	D9819	1152
04				
05				
06				
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COMMENTS:

SAMPLE DATA

LOCKHEED ANALYTICAL LABORATORY
VOLATILE ORGANICS ANALYSIS DATA SHEET

CUSTOMER SAMPLE NO.

RF112001

Lab Job Name:TAD-RAD-ORG Contract:_

Lab Code:LAL Case No.: SAS No.: SDG No.:TAD

Matrix: (soil/water) SOIL Lab Sample ID:A44232

Sample wt/vol: 5.04 (g/ml) G Lab File ID: D9795

Level: (low/med) LOW Date Received: 5/13/93

% Moisture: not dec. 0 Date Analyzed: 5/24/93

GC Column:RTX502.2 ID: 0.53(mm) Dilution Factor: 1.00

Soil Extract Volume: 1.00 (uL) Soil Aliquot Volume: 1.00(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	10.	U
67-64-1	Acetone	160.	
75-15-0	Carbon Disulfide	10.	U
75-35-4	1,1-Dichloroethene	10.	U
75-34-3	1,1-Dichloroethane	10.	U
540-59-0	1,2-Dichloroethene (total)	10.	U
67-66-3	Chloroform	10.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	33.	
71-55-6	1,1,1-Trichloroethane	10.	U
56-23-5	Carbon Tetrachloride	10.	U
75-27-4	Bromodichloromethane	10.	U
78-87-5	1,2-Dichloropropane	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U
79-01-6	Trichloroethene	10.	U
124-48-1	Dibromochloromethane	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U
71-43-2	Benzene	10.	U
10061-02-6	trans-1,3-Dichloropropene	10.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene	10.	U
108-90-7	Chlorobenzene	10.	U
100-41-4	Ethylbenzene	10.	U
100-42-5	Styrene	10.	U
1330-20-7	Xylenes (total)	10.	U

LOCKHEED ANALYTICAL LABORATORY
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CUSTOMER SAMPLE NO.

RF112001

Lab Job Name:TAD-RAD-ORG Contract:_

Lab Code:LAL Case No.: SAS No.: SDG No.:TAD

Matrix: (soil/water) SOIL Lab Sample ID:A44232

Sample wt/vol: 5.04 (g/ml) G Lab File ID: D9795

Level: (low/med) LOW Date Received: 5/13/93

% Moisture: not dec. 0 Date Analyzed: 5/24/93

GC Column:RTX502.2 ID: 0.53(mm) Dilution Factor: 1.00

Soil Extract Volume: 1.00 (uL) Soil Aliquot Volume: 1.00(uL)

Number TICs Found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
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DNK

QUANT REPORT

Operator ID: DANA
Output File: ^D9795::ME
Data File: >D9795::D3
Name: 3790 A44232
Misc: ALS-08 5 ML PURGE RF112001 5.043G

Quant Rev: 7
Quant Time: 930524 17:14
Injected at: 930524 16:57
Dilution Factor: 1.00000
Instrument ID: GC/MS-D

ID File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32
Last Qual Time: 930524 10:55

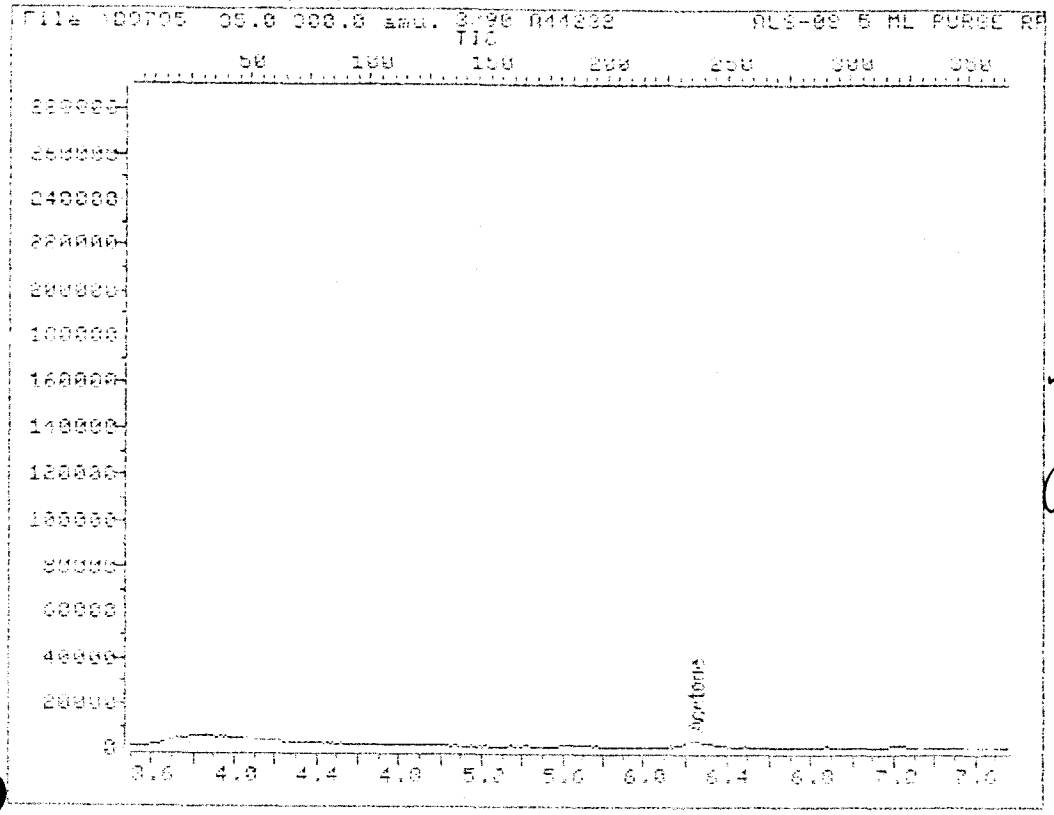
SURR out. Re-Analy

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*Bromochloromethane	8.51	128.0	47484	50.00	ug/L	89
6)	Acetone	6.25	43.0	20629	157.94	ug/L	89
13)	2-Butanone	7.93	43.0	7068	33.39	ug/L	88
16)	1,2-Dichloroethane-d4	9.06	65.0	85125	60.92	ug/L 122 out	
18)	*1,4-Difluorobenzene	9.45	114.0	170392	50.00	ug/L	95
31)	*Chlorobenzene-d5	12.94	117.0	121936	50.00	ug/L	99
33)	Toluene-d8	11.22	98.0	141090	54.82	ug/L 110	97
34)	Toluene	11.32	91.0	1941	~~[illegible]~~	~~ug/L~~ <RDL	99
44)	Bromofluorobenzene	14.14	95.0	125759	53.47	ug/L 106	98

* Compound is ISTD

— see >D9798 for second analysis
OH 5/25/93

TOTAL ION CHROMATOGRAM



AH
5/25/93

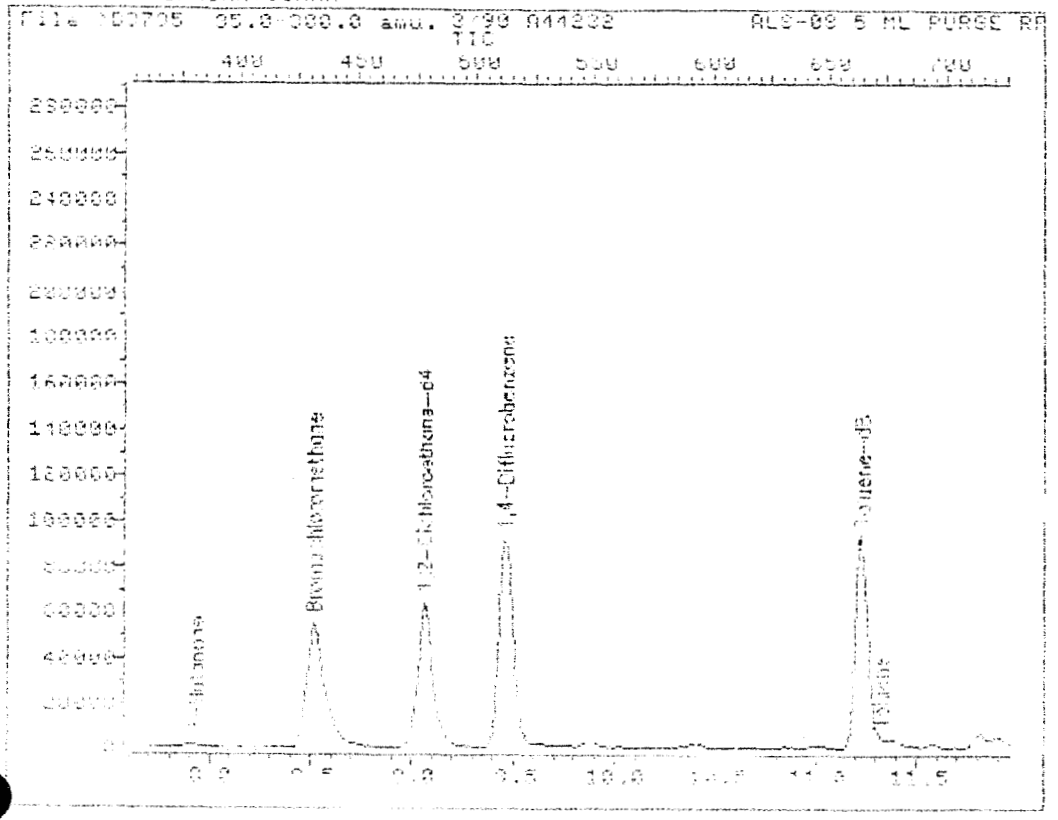
Data File: ^D9795::D3 Quant Output File: ^D9795::ME
Name: 3/90 A44232 Instrument ID: GC/MS-D
Misc: ALS-08 5 ML PURGE RF112001 5.043G

Id File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32 Last Qcal Time: 930524 10:55

Operator ID: DANA
Quant Time : 930524 17:14
Injected at: 930524 16:57

Page 1 of 3

TOTAL ION CHROMATOGRAM



JH
5/25/93

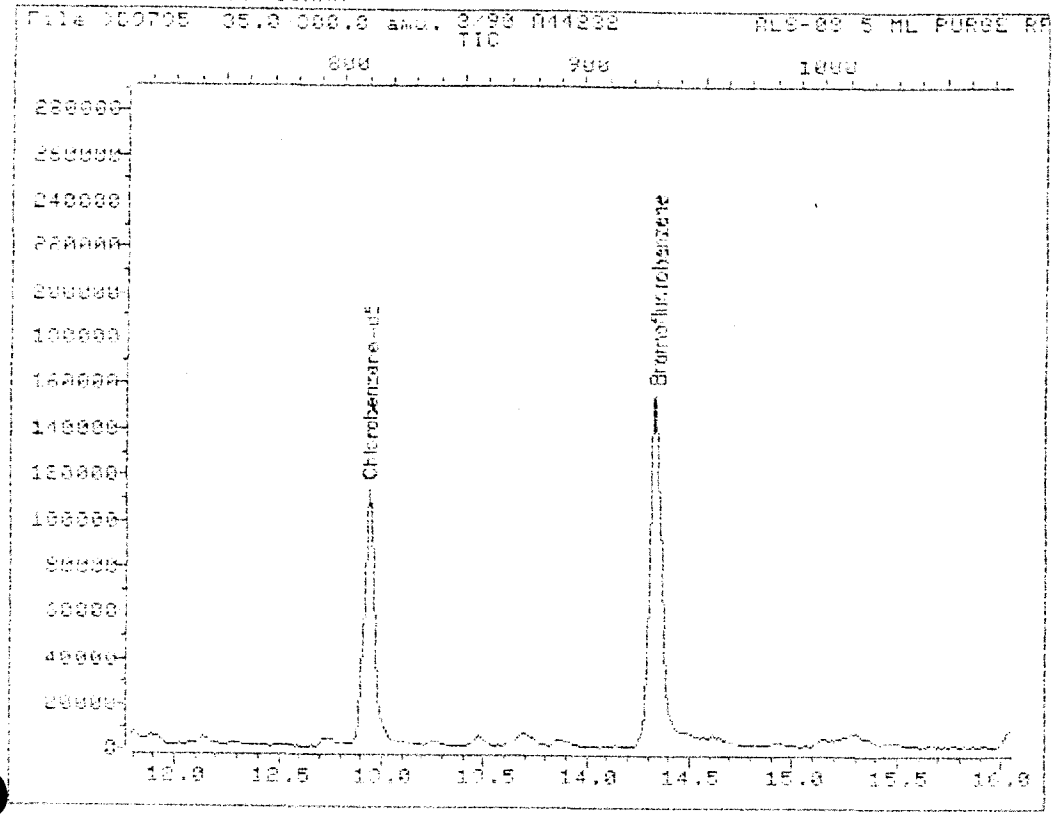
Data File: 100795::09 Quant Output File: 100795::ME
Name: 3/90 A44232 Instrument ID: GC/MS-D
Misc: ALS-08 5 ML PURGE RP(12001) 5.043G

Id File: 100690::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930920 10:32 Last Qcal Time: 930524 10:55

Operator ID: DANA
Quant Time : 930524 17:14
Injected at: 930524 16:57

Page 2 of 3

TOTAL ION CHROMATOGRAM



✓ AH 5/25/93

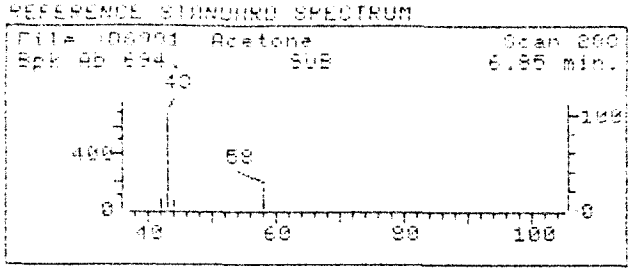
Data File: >D9795::D3 Quant Output File: ^D9795::ME
Name: 3/90 A44232 Instrument ID: GC/MS-D
Misc: ALS-08 5 ML PURGE RF112001 5.043G

Id File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32 Last Qcal Time: 930524 10:55

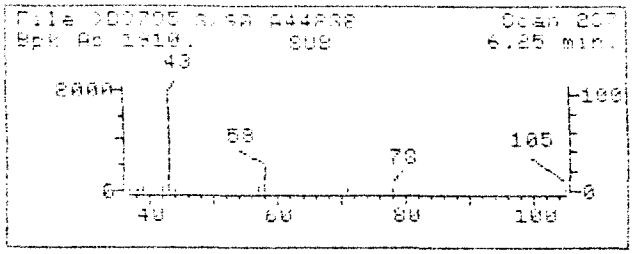
Operator ID: DANA
Quant Time : 930524 17:14
Injected at: 930524 16:57

Page 3 of 3

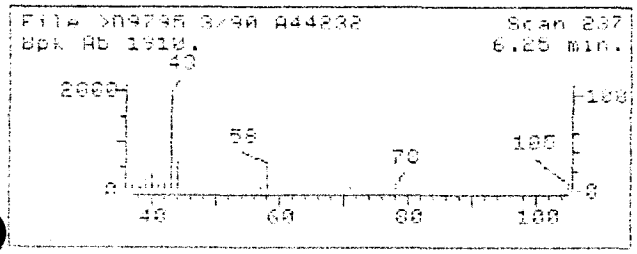
REFERENCE STANDARD SPECTRUM

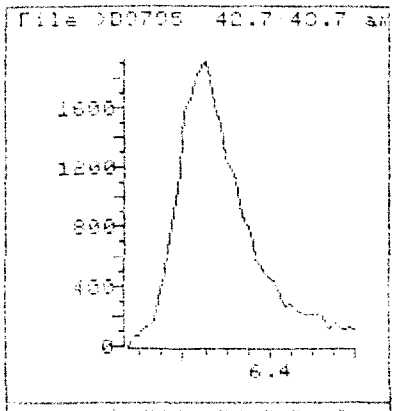


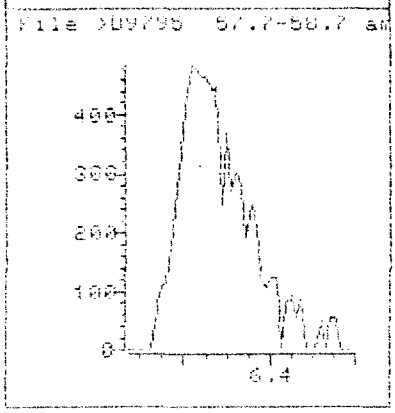
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)



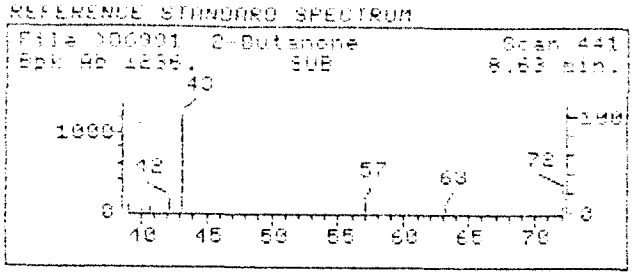


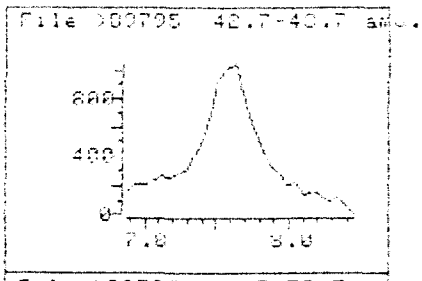


Data File: >D0795::D3 Quant Output File: ^D0795::MA
Name: 3/90 A44232 Instrument ID: GC/MS-D
Misc: ALS-DR 5 ML PURGE RF112001 5.043G
Quant Time: 930524 17:14 Quant ID File: 10D390::ME
Injected at: 930524 16:57 Last Calibration: 930520 10:32
Last Qcal Time: 930524 10:55

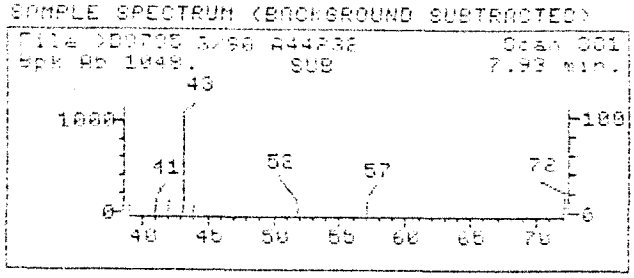
Compound No : 6
Compound Name : Acetone
Scan Number : 237
Retention Time: 6.25 min.
Quant Ion : 43.0
Area : 20629
Concentration : 157.94 ug/L
q-value : 89

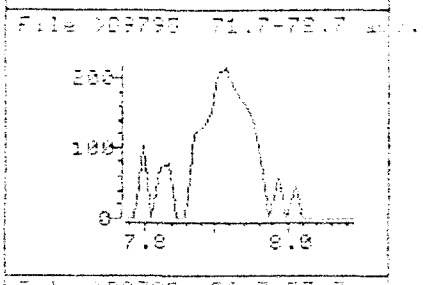
REFERENCE STANDARD SPECTRUM



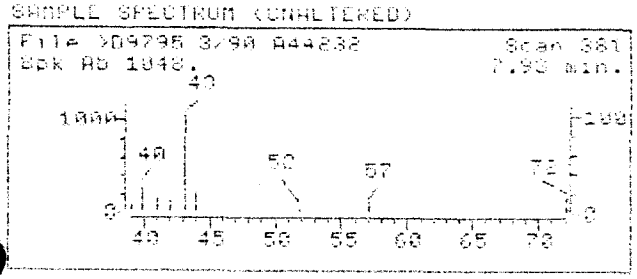


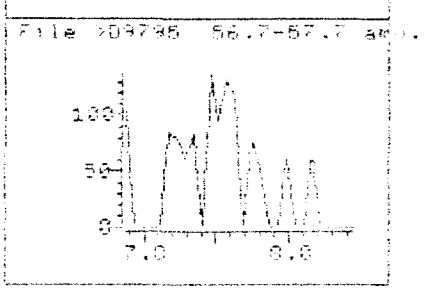
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)





SAMPLE SPECTRUM (UNFILTERED)





Data File: >D9795::D9 Quant Output File: >D9795::MC
Name: 3/90 A44232 Instrument ID: GC/MS-D
Misc: ALS-DR 5 ML PURGE RF112000 5.0436
Quant Time: 930524 17:14 Quant ID File: >D0390::ME
Injected at: 930524 16:52 Last Calibration: 930920 10:32
Last Qcal Time: 930924 10:55

Compound No : 13
Compound Name : 2-Butanone
Scan Number : 381
Retention Time: 7.93 min.
Quant Ion : 43.0
Area : 2068
Concentration : 33.39 ug/L
q-value : 88

LOCKHEED ANALYTICAL LABORATORY
VOLATILE ORGANICS ANALYSIS DATA SHEET

CUSTOMER SAMPLE NO.

RF112002DL

Lab Job Name:TAD-RAD-ORG Contract:_

Lab Code:LAL Case No.: SAS No.: SDG No.:TAD

Matrix: (soil/water) SOIL Lab Sample ID:A44231DL

Sample wt/vol: 1.01 (g/ml) G Lab File ID: D9820

Level: (low/med) LOW Date Received: 5/13/93

% Moisture: not dec. 0 Date Analyzed: 5/25/93

GC Column:RTX502.2 ID: 0.53(mm) Dilution Factor: 5.00

Soil Extract Volume: 1.00 (uL) Soil Aliquot Volume: 1.00(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	50.	U
74-83-9	Bromomethane	50.	U
75-01-4	Vinyl Chloride	50.	U
75-00-3	Chloroethane	50.	U
75-09-2	Methylene Chloride	190.	D
67-64-1	Acetone	50.	U
75-15-0	Carbon Disulfide	50.	U
75-35-4	1,1-Dichloroethene	50.	U
75-34-3	1,1-Dichloroethane	50.	U
540-59-0	1,2-Dichloroethene (total)	50.	U
67-66-3	Chloroform	50.	U
107-06-2	1,2-Dichloroethane	50.	U
78-93-3	2-Butanone	50.	U
71-55-6	1,1,1-Trichloroethane	50.	U
56-23-5	Carbon Tetrachloride	50.	U
75-27-4	Bromodichloromethane	50.	U
78-87-5	1,2-Dichloropropane	50.	U
10061-01-5	cis-1,3-Dichloropropene	50.	U
79-01-6	Trichloroethene	50.	U
124-48-1	Dibromochloromethane	50.	U
79-00-5	1,1,2-Trichloroethane	50.	U
71-43-2	Benzene	50.	U
10061-02-6	trans-1,3-Dichloropropene	50.	U
75-25-2	Bromoform	50.	U
108-10-1	4-Methyl-2-Pentanone	50.	U
591-78-6	2-Hexanone	50.	U
127-18-4	Tetrachloroethene	50.	U
79-34-5	1,1,2,2-Tetrachloroethane	50.	U
108-88-3	Toluene	50.	U
108-90-7	Chlorobenzene	50.	U
100-41-4	Ethylbenzene	50.	U
100-42-5	Styrene	50.	U
1330-20-7	Xylenes (total)	50.	U

LOCKHEED ANALYTICAL LABORATORY
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CUSTOMER SAMPLE NO.

RF112002DLRE

Lab Job Name:TAD-RAD-ORG Contract:_

Lab Code:LAL Case No.: SAS No.: SDG No.:TAD

Matrix: (soil/water) SOIL Lab Sample ID:A44231DLRE

Sample wt/vol: 1.01 (g/ml) G Lab File ID: D9821

Level: (low/med) LOW Date Received: 5/13/93

% Moisture: not dec. 0 Date Analyzed: 5/25/93

GC Column:RTX502.2 ID: 0.53(mm) Dilution Factor: 5.00

Soil Extract Volume: 1.00 (uL) Soil Aliquot Volume: 1.00(uL)

Number TICs Found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Unknown	6.19	60.	DJ
2.		Unknown	15.90	24.	DJ
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

1

QUANT REPORT Page 1

Operator ID: FRED Quant Rev: 7 Quant Time: 930525 17:04
Output File: >D9820::ME Injected at: 930525 16:48
Data File: >D9820::D3 Dilution Factor: 1.00000
Name: 3/90 A44231DL TADRAD Instrument ID: GC/MS-D
Misc: ALS-03 RF112002DL 1.014G/5ML HEATED PURGE

ID File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32 Last Qual Time: 930525 10:24

SURR out, Re-Analyze

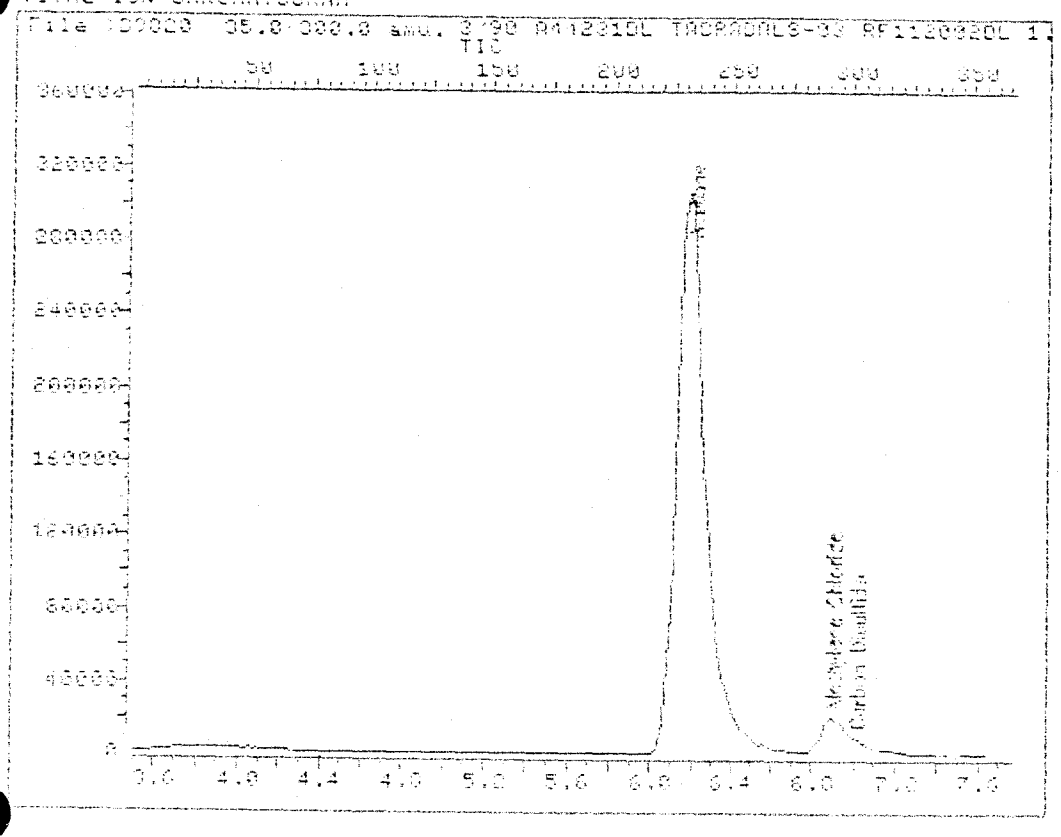
	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*Bromochloromethane	8.52	128.0	62799	50.00	ug/L	89
6)	Acetone	6.15 6.21	43.0	12514	~~63.66~~	~~ug/L~~ ND	83
8)	Carbon Disulfide	6.90 7.02	76.0	16062	~~4.61~~	~~ug/L~~	100
9)	Methylene Chloride	6.81 6.90	84.0	50039	39.26	ug/L	89
16)	1,2-Dichloroethane-d4	9.07	65.0	113550	62.33	ug/L 124 out	89
18)	*1,4-Difluorobenzene	9.47	114.0	235365	50.00	ug/L	95
31)	*Chlorobenzene-d5	12.94	117.0	160457	50.00	ug/L	98
33)	Toluene-d8	11.22	98.0	177227	54.29	ug/L 108	99
44)	Bromofluorobenzene	14.33	95.0	149487	49.58	ug/L 100	98

Compound is ISTD

— See data file >D9796 for initial analysis.
JH 5/27/93

— see >D9821 for 2nd Analysis.
Both had low surrogate recoveries.
JH 5/29/93

TOTAL ION CHROMATOGRAM



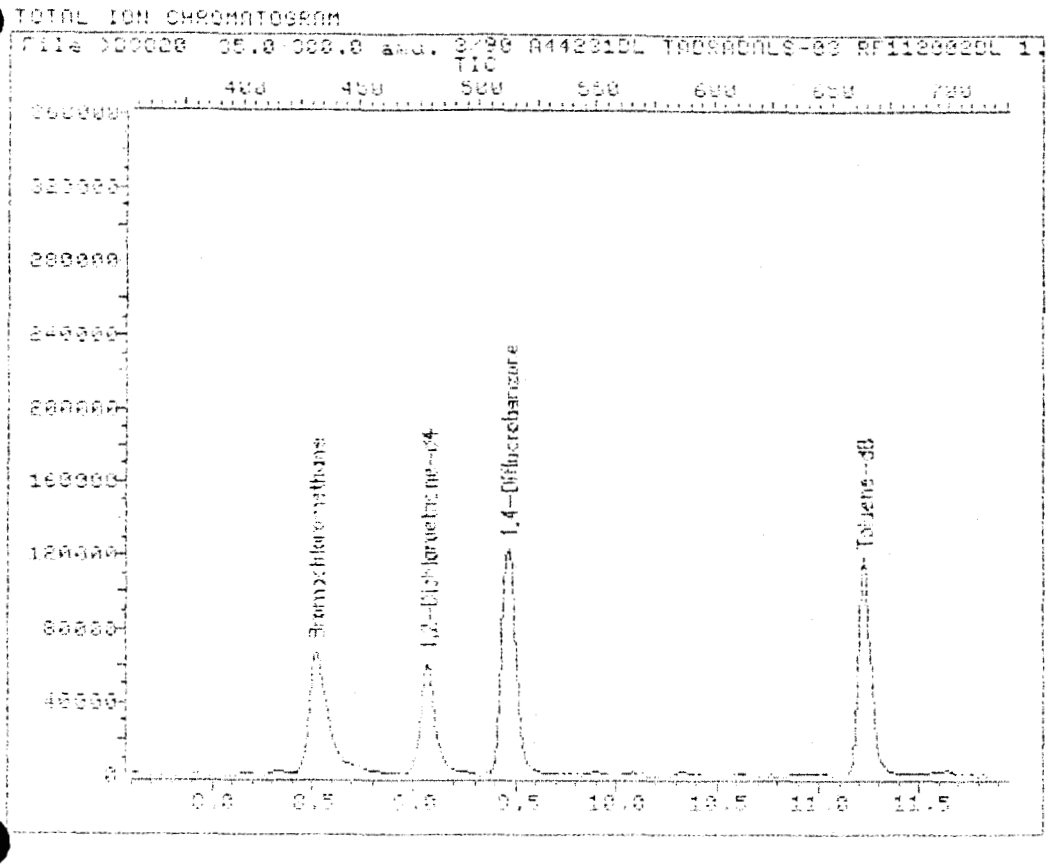
Data File: >D9820::DD Quant Output File: >D9820.:ME
Name: 3/90 A44231DL TADRAD Instrument ID: GC/MS-D
Misc: ALS-03 RF112002DL 1.014G/5ML HEATED PURGE

Id File: ID0390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32 Last Qcal Time: 930525 10:24

Operator ID: FRED
Quant Time : 930525 12:04
Injected at: 930525 16:48

Page 1 of 3

TOTAL ION CHROMATOGRAM



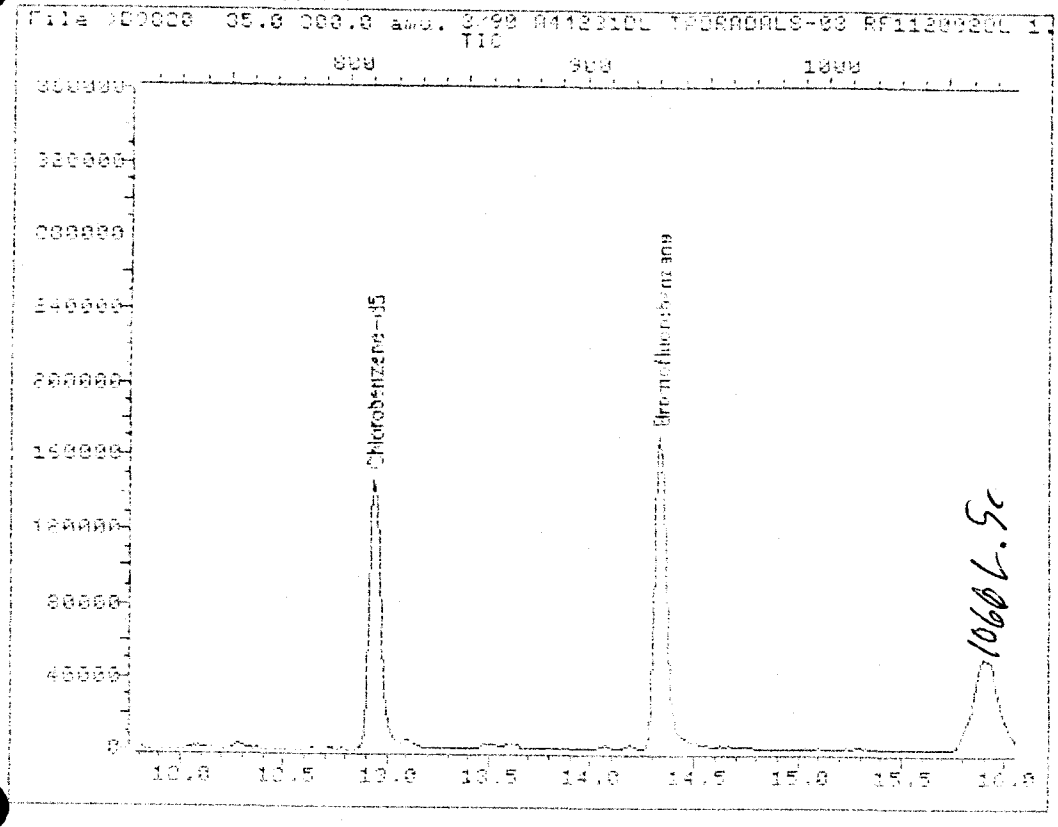
Data File: >D9820::03 Quant Output File: >D9820::ME
Name: 3/90 A44231DL TADRAD Instrument ID: GC/MS-D
Misc: ALS-03 RF112002DL 1.014G/5ML HEATED PURGE

Id File: IOD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32 Last Qcal Time: 930525 10:24

Operator ID: FRED
Quant Time : 930525 17:04
Injected at: 930525 16:48

Page 2 of 3

TOTAL ION CHROMATOGRAM



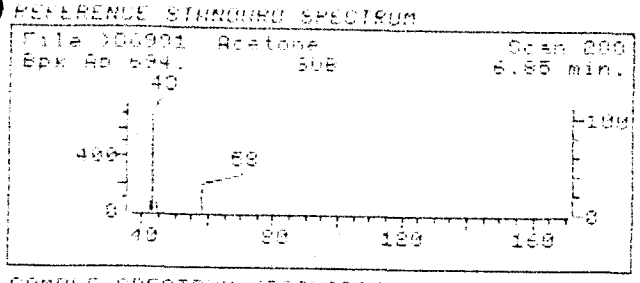
Data File: >D9820::03 Quant Output File: >D9820::ME
Name: 3/90 A44231DL TADRAD Instrument ID: GC/MS-D
Misc: ALS-03 RF112002DL 1.014G/5ML HEATED PURGE

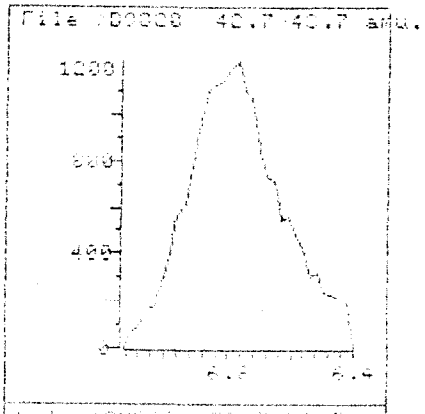
Id File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32 Last Qcal Time: 930525 10:24

Operator ID: FRED
Quant Time : 930525 17:04
Injected at: 930525 16:48

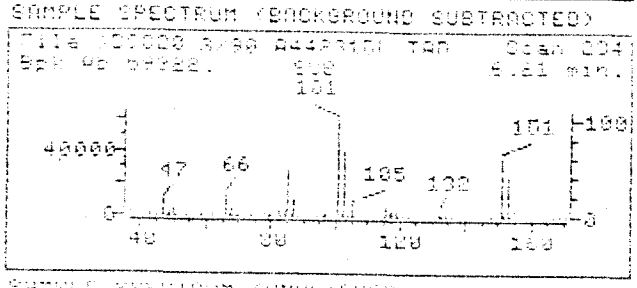
Page 3 of 3

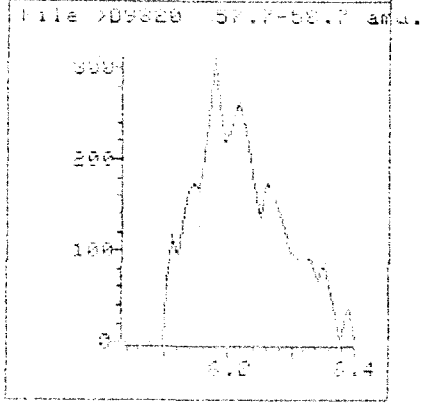
REFERENCE STANDARD SPECTRUM



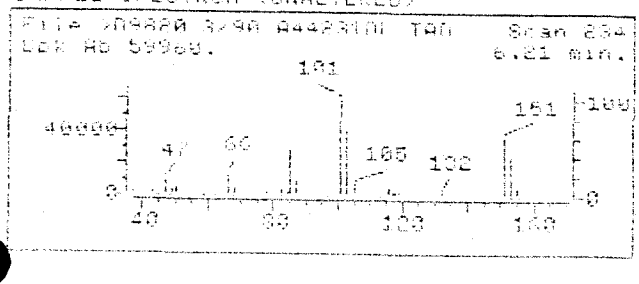


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)





SAMPLE SPECTRUM (UNFILTERED)



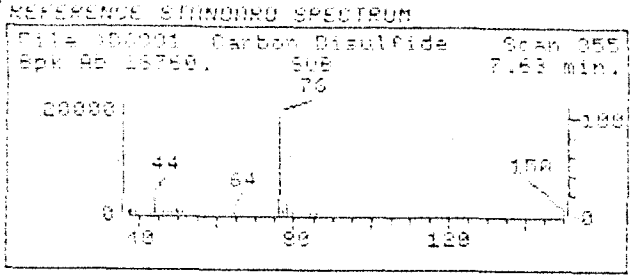
Data File: >09820::05 Quant Output File: >09820::ME
Name: 3/90 A4423110L TADRAD Instrument ID: GC/MS-D
Misc: ALS-03 RF11200020L 1.0146/5ML HEATED PURGE
Quant Time: 930525 17:04 Quant ID File: IOD390::ME
Injected at: 930525 16:48 Last Calibration: 930520 10:32
Last Qual Time: 930525 18:24

Compound No : 6
Compound Name : Acetone
Scan Number : 234
Retention Time: 6.21 min. 6.15
Quant Ion : 43.0
Area : 12914
Concentration : 63.66 ug/L
q-value : 83

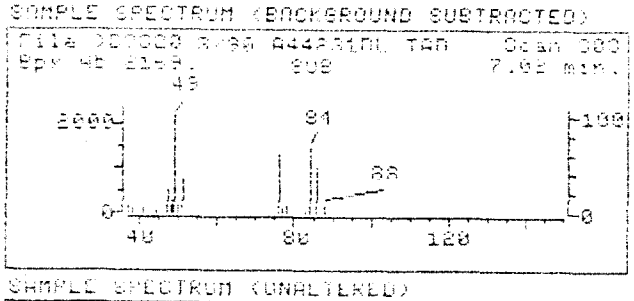
ND

JK 5/25/93

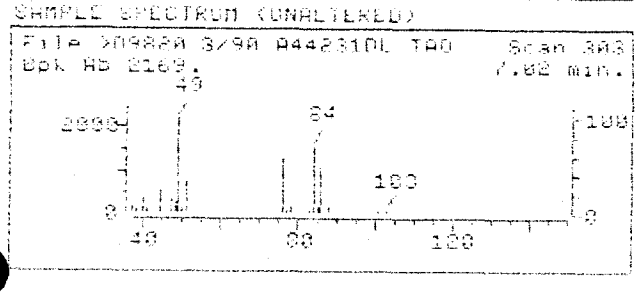
REFERENCE STANDARD SPECTRUM

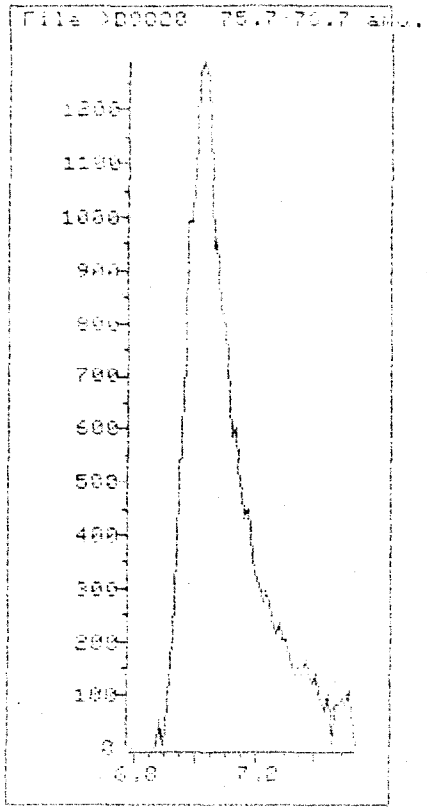


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





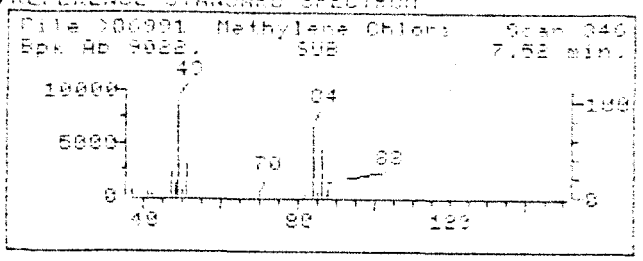
Data File: >D9820::D3 Quant Output File: ^D9820::ME
Name: 3/90 A44231DL TADRAD Instrument ID: GC/MS-D
Misc: ALS-03 RF112002DL 1.014G/5ML HEATED PURGE
Quant Time: 930525 17:04 Quant ID File: IDD390::ME
Injected at: 930525 16:48 Last Calibration: 930520 10:32
Last Qcal Time: 930525 10:24

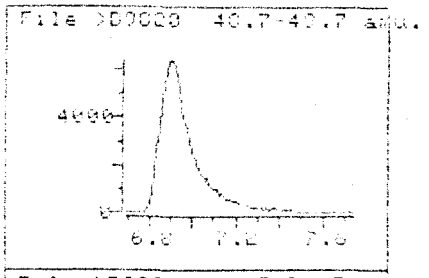
Compound No : 8
Compound Name : Carbon Disulfide
Scan Number : 303
Retention Time: 7.02 min. 6.90
Quant Ion : 76.0
Area : 16062
Concentration : 4.81 ug/L
q-value : 100

ND

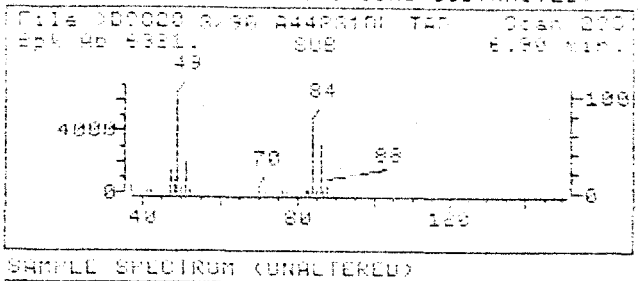
JFH 5/25/93

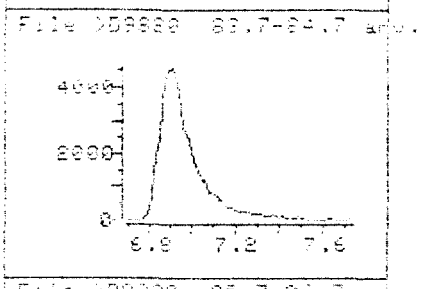
REFERENCE STANDARD SPECTRUM



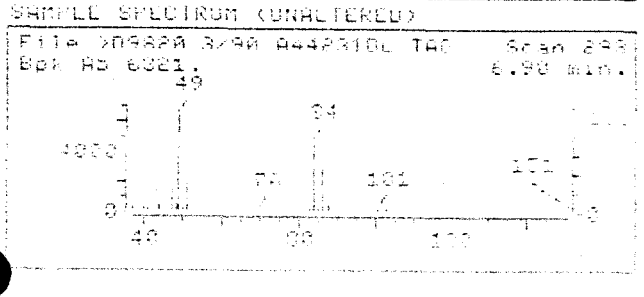


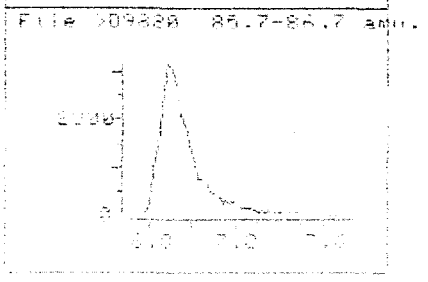
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)





SAMPLE SPECTRUM (UNALTERED)





Data File: [illegible] Output File: [illegible]
Name: 3/90 A44231DL [illegible] Instrument ID: GC/MS-D
Misc: [illegible]
Quant Time: 930525 12:04 [illegible] ID File: IDD390::ME
Injected at: 930525 [illegible] Last Calibration: 930520 10:32
[illegible] Qual Time: 930525 10:24

Compound No : 9
Compound Name : Methylene Chloride
Scan Number : 293
Retention Time: 6.90 min. 0.81
Quant Ion : 84.0
Area : 50039
Concentration : 39.26 ug/L
q-value : 89

OK

JFH 5/24/93

MS data file header from : >D9820::D3

Sample: 3/90 A44231DL TADRAD Operator: FRED SUPER GRP. 5/25/93 16:48
Misc : ALS-03 RF112002DL 1.014G/5ML HEATED PURGE
Sys. #: 1 MS model: 70 SW/HW rev.: LF ALS # : 0 Equip ID: GC/MS-D
Method file: DDDCLP Tuning file: MD0422 No. of extra records: 2
Source temp.: N/A Analyzer temp.: N/A Transfer line temp. : 0

Chromatographic temperatures :	20.	104.	170.	0.	0.
Chromatographic times, min. :	1.0	1.0	10.0	0.0	0.0
Chromatographic rate, deg/min:	12.0	15.0	0.0	.1	0.0

>D9820 3/90 A44231DL TADRADALS-03 RF112002DL 1.014G/5ML HEATED PURG

35.01 300.0 CLP TIC
Upslope: .2000 Area Reject: 47341. Max Peaks: 2 Bunch: -1 Valley >100 %
Dnslope: 0.0000 Results File ID9820 Sorted by Time/Area INT

Peak #	R.T. min.	first scan	max scan	last scan	peak height	raw area	corr. area	corr. % max.	% of total
1	6.19	211	232	276	307036	3118759	3084799	100.00	88.025
2	15.91	1049	1066	1075	50270	438821	419650	13.60	11.975

Sum of corrected areas: 3504449.

Summary of Unknowns PBM Library Search and Quantitation

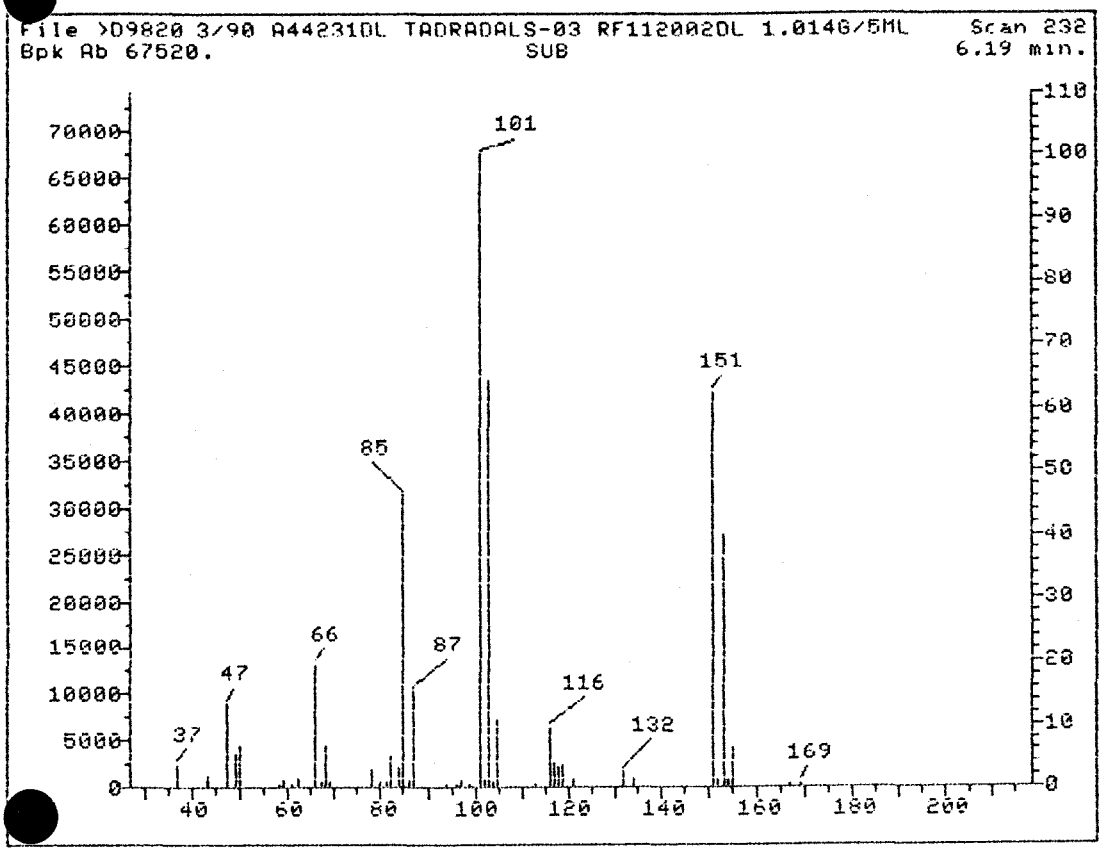
Standard	Concentration	Area	Retention Time	Unknown Window
1	50.0	473409.	8.52	3.50 - 8.99
2	50.0	603700.	9.47	8.99 - 11.20
3	50.0	551613.	12.94	11.20 - 16.05

Dilution Factor = 1.00 This sample was 1000.00 g or mL

Correction Factor = 1.00

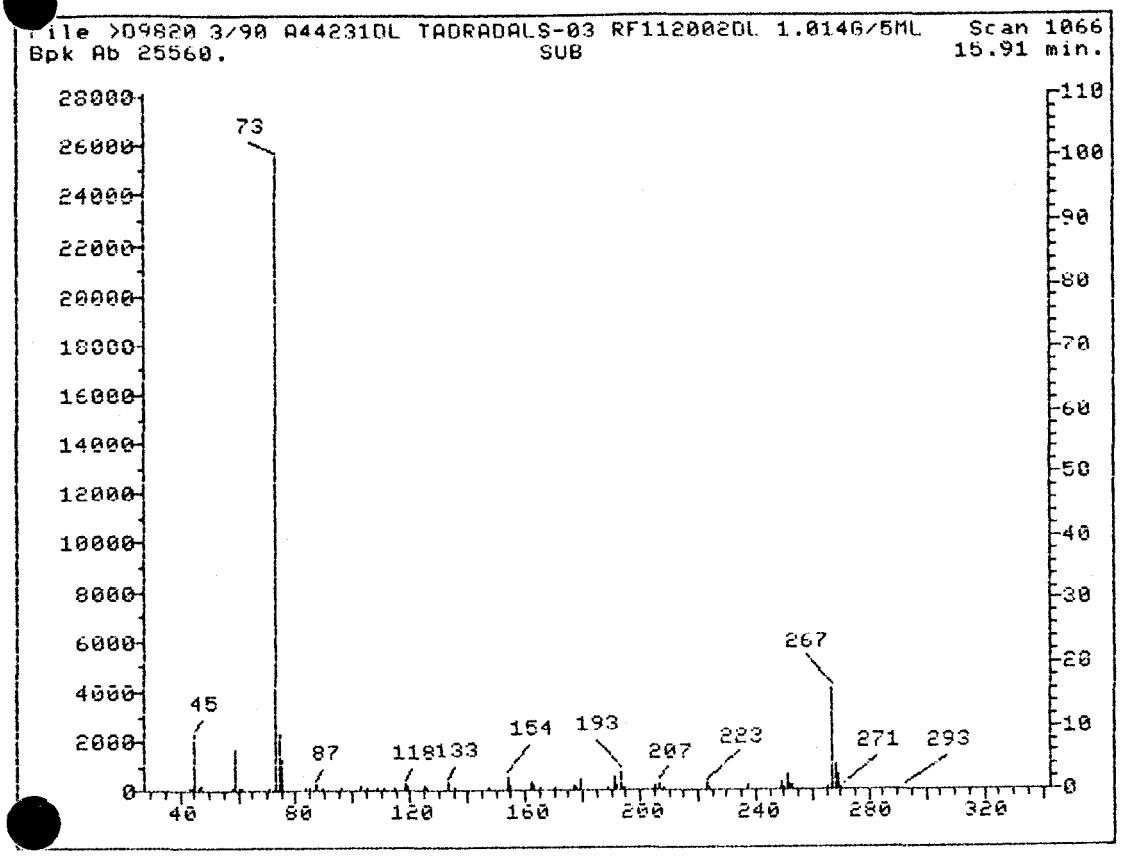
$$\text{Unknown Concentration} = \frac{\text{Conc Int Std} * \text{Area Unknown}}{\text{Area Int Std}} * \text{Correction Factor}$$

5:18 PM SAT., 12 JUNE, 1993



Instrument ID: GC/MS- Analyzed on: 5/25/93 16:48
Result 1 in PBM results file: LD9820
Retention Time: 6.19 Area: 3084799 Tentative Conc: 330.00
The unknown area is 651.61% of the nearest internal standard

Not valid PBM results record



Instrument ID: GC/MS- Analyzed on: 5/25/93 16:48
Result 2 in PBM results file: LD9820
Retention Time: 15.91 Area: 419650 Tentative Conc: 38.00
The unknown area is 76.08% of the nearest internal standard

Not valid PBM results record

LOCKHEED ANALYTICAL LABORATORY
VOLATILE ORGANICS ANALYSIS DATA SHEET

CUSTOMER SAMPLE NO.

RF112002DLRE

Lab Job Name:TAD-RAD-ORG Contract:_

Lab Code:LAL Case No.: SAS No.: SDG No.:TAD

Matrix: (soil/water) SOIL Lab Sample ID:A44231DLRE

Sample wt/vol: 1.01 (g/ml) G Lab File ID: D9821

Level: (low/med) LOW Date Received: 5/13/93

% Moisture: not dec. 0 Date Analyzed: 5/25/93

GC Column:RTX502.2 ID: 0.53(mm) Dilution Factor: 5.00

Soil Extract Volume: 1.00 (uL) Soil Aliquot Volume: 1.00(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	50.	U
74-83-9	Bromomethane	50.	U
75-01-4	Vinyl Chloride	50.	U
75-00-3	Chloroethane	50.	U
75-09-2	Methylene Chloride	41.	DJ
67-64-1	Acetone	50.	U
75-15-0	Carbon Disulfide	50.	U
75-35-4	1,1-Dichloroethene	50.	U
75-34-3	1,1-Dichloroethane	50.	U
540-59-0	1,2-Dichloroethene (total)	50.	U
67-66-3	Chloroform	50.	U
107-06-2	1,2-Dichloroethane	50.	U
78-93-3	2-Butanone	50.	U
71-55-6	1,1,1-Trichloroethane	50.	U
56-23-5	Carbon Tetrachloride	50.	U
75-27-4	Bromodichloromethane	50.	U
78-87-5	1,2-Dichloropropane	50.	U
10061-01-5	cis-1,3-Dichloropropene	50.	U
79-01-6	Trichloroethene	50.	U
124-48-1	Dibromochloromethane	50.	U
79-00-5	1,1,2-Trichloroethane	50.	U
71-43-2	Benzene	50.	U
10061-02-6	trans-1,3-Dichloropropene	50.	U
75-25-2	Bromoform	50.	U
108-10-1	4-Methyl-2-Pentanone	50.	U
591-78-6	2-Hexanone	50.	U
127-18-4	Tetrachloroethene	50.	U
79-34-5	1,1,2,2-Tetrachloroethane	50.	U
108-88-3	Toluene	50.	U
108-90-7	Chlorobenzene	50.	U
100-41-4	Ethylbenzene	50.	U
100-42-5	Styrene	50.	U
1330-20-7	Xylenes (total)	50.	U

LOCKHEED ANALYTICAL LABORATORY
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CUSTOMER SAMPLE NO.

RF112002DL

Lab Job Name:TAD-RAD-ORG Contract:_

Lab Code:LAL Case No.: SAS No.: SDG No.:TAD

Matrix: (soil/water) SOIL Lab Sample ID:A44231DL

Sample wt/vol: 1.01 (g/ml) G Lab File ID: D9820

Level: (low/med) LOW Date Received: 5/13/93

% Moisture: not dec. 0 Date Analyzed: 5/25/93

GC Column:RTX502.2 ID: 0.53(mm) Dilution Factor: 5.00

Soil Extract Volume: 1.00 (uL) Soil Aliquot Volume: 1.00(uL)

Number TICs Found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Unknown	6.19	330.	DJ
2.		Unknown	15.91	38.	DJ
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

①

QUANT REPORT

Operator ID: JUDY
Output File: ^D9821::MF
Data File: >D9821::D3
Name: 3790 A44231DLRE TADR
Misc: ALS-04 RF112002DLRE 1.009G/5ML HEATED PURGE

Quant Rev: 7
Quant Time: 930525 18:19
Injected at: 930525 18:02
Dilution Factor: 1.00000
Instrument ID: GC/MS-D

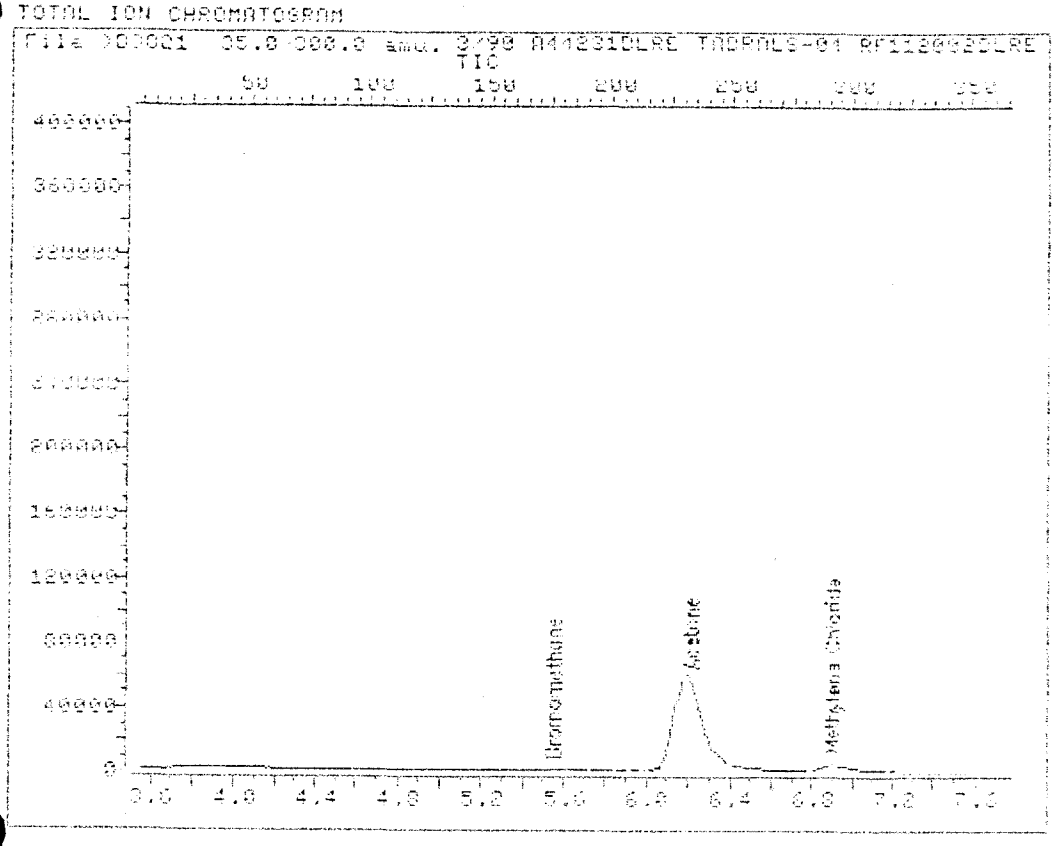
ID File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32
Last Qual Time: 930525 10:24 ✓

SURR out, OK

	Compound	R.T.	Q ion	Area	Conc Report	Units	q
1)	*Bromochloromethane	8.53	128.0	67440 ✓	50.00	ug/L	92
4)	Bromomethane	5.55	94.0	3153	~~2.27~~	~~ug/L~~ LRDL	88
6)	Acetone	6.15 6.21	43.0	4038	~~19.13~~	~~ug/L~~ ND	82
9)	Methylene Chloride	6.81 6.90	84.0	11339	8.28	ug/L	85
16)	1,2-Dichloroethane-d4	9.06	65.0	129905	66.40	ug/L 132 out	89
18)	*1,4-Difluorobenzene	9.47	114.0	264370 ✓	50.00	ug/L	94
31)	*Chlorobenzene-d5	12.94	117.0	188316 ✓	50.00	ug/L	98
33)	Toluene-d8	11.27	98.0	204699	53.43	ug/L 106	97
44)	Bromofluorobenzene	14.34	95.0	188076	53.16	ug/L 106	97

* Compound is ISTD

TOTAL ION CHROMATOGRAM



✓ LH 5/27/93

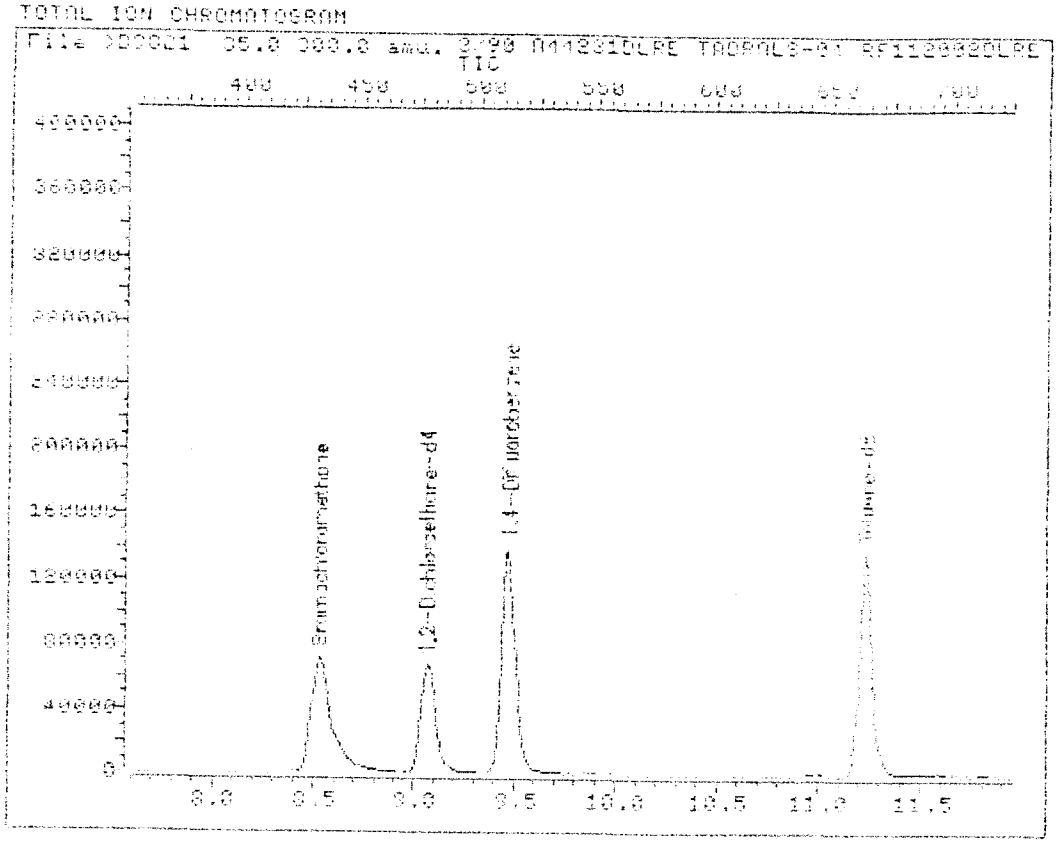
Data File: 1D9821::D3 Quant Output File: 1D9821::ME
Name: 3/90 A44231DLRE TADR Instrument ID: GC/MS-D
Misc: ALS-04 RF112002DLRE 1.0096/5ML HEATED PURGE

Id File: 1DD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32 Last Qcal Time: 930525 10:24

Operator ID: JUDY
Quant Time : 930525 18:19
Injected at: 930525 18:02

Page 1 of 3

TOTAL ION CHROMATOGRAM



✓
AH
5/27/93

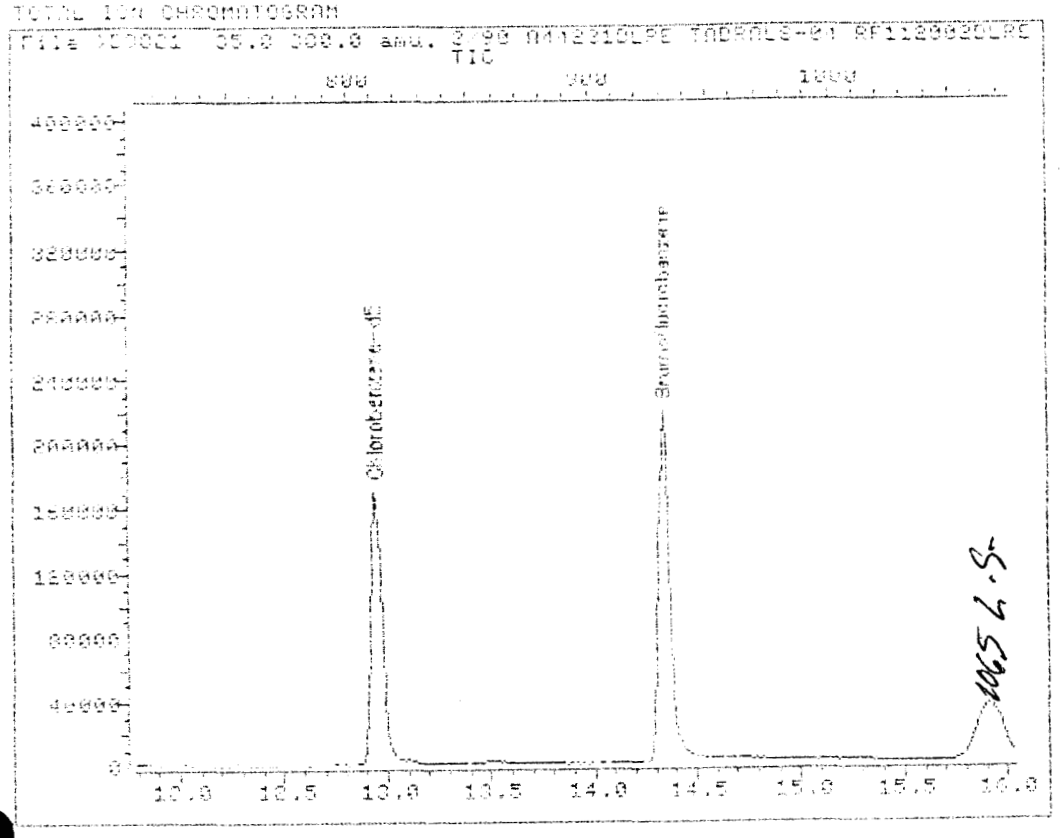
Data File: >D9821::03 Quant Output File: ^D9821::ME
Name: 3/90 A44231DLRE TADR Instrument ID: GC/MS-D
Misc: ALS-04 RF112002DLRE 1.009G/5ML HEATED PURGE

Id File: 100390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32 Last Qual Time: 930525 10:24

Operator ID: JUDY
Quant Time : 930525 18:19
Injected at: 930525 18:02

Page 2 of 3

TOTAL ION CHROMATOGRAM



JH 5/27/93

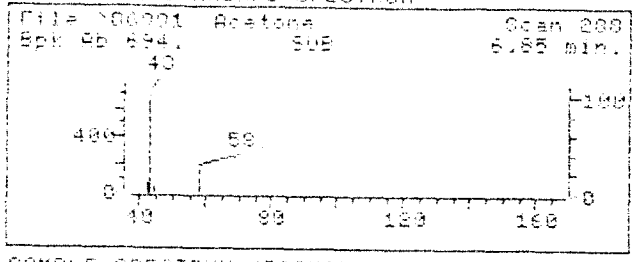
Data File: >D9821::D3 Quant Output File: ^D9821::ME
Name: 3/90 A44231DLRE TADR Instrument ID: GC/MS-D
Misc: ALS-04 RF112002DLRE 1.009G/5ML HEATED PURGE

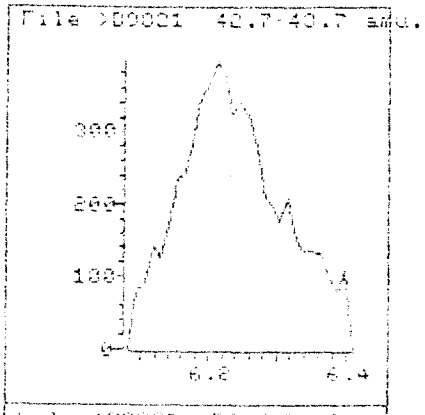
Id File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32 Last Qcal Time: 930525 10:24

Operator ID: JUDY
Quant Time : 930525 18:19
Injected at: 930525 18:02

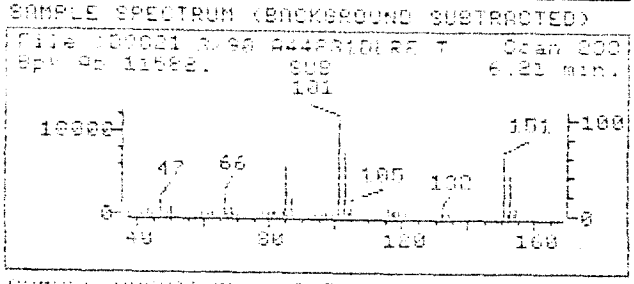
Page 3 of 3

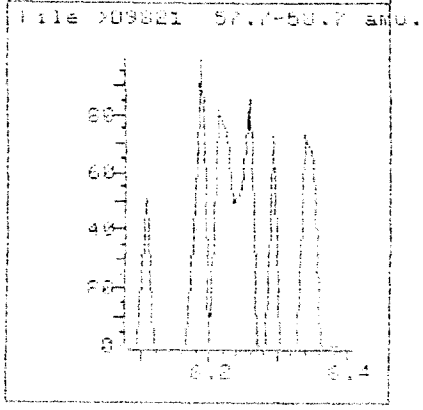
REFERENCE STANDARD SPECTRUM



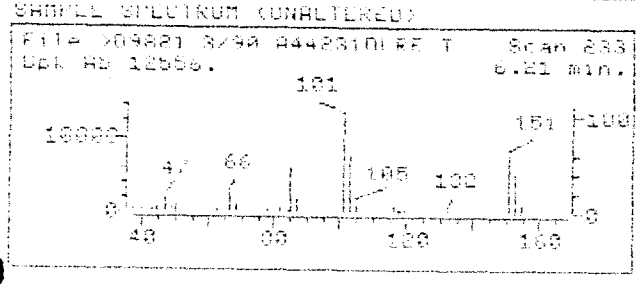


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)





SAMPLE SPECTRUM (UNALTERED)



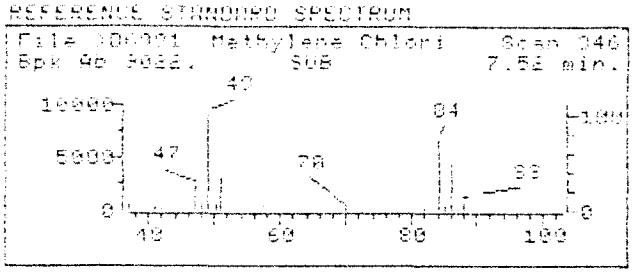
Data File: >09021::D2 Quant Output File: >09021::M2
Name: 3/90 A44231DLRE TADR Instrument ID: GC/MS-D
Misc: ALS-04 RF112002DLRE 1.0096G/5ML HEATED PURGE
Quant Time: 930525 18:19 Quant ID File: 100390::ME
Injected at: 930525 18:02 Last Calibration: 930520 10:32
Last Qual Time: 930525 10:24

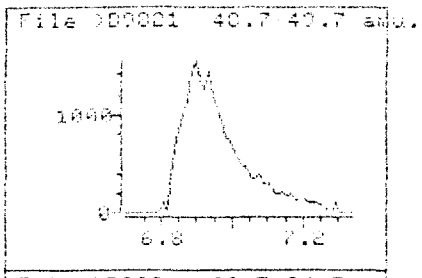
Compound No : 6
Compound Name : Acetone
Scan Number : 233
Retention Time: 6.21 min. 6.15
Quant Ion : 43.0
Area : 4038
Concentration : 19.13 ug/L
q-value : 82

ND

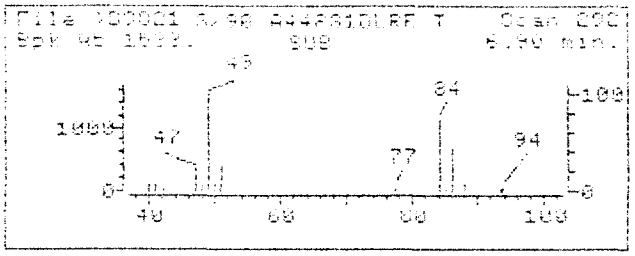
JH 5/25/93

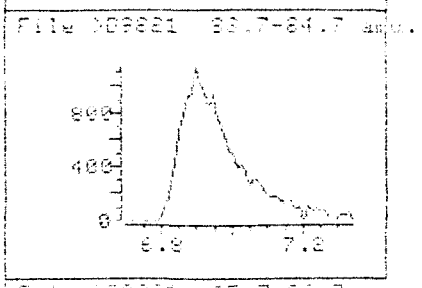
REFERENCE STANDARD SPECTRUM



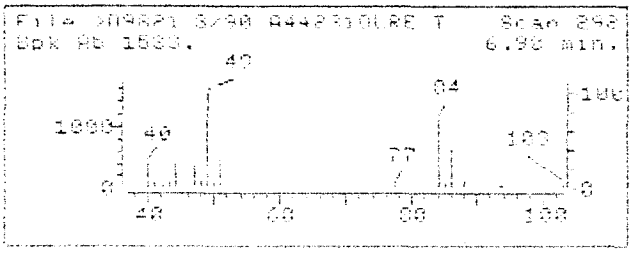


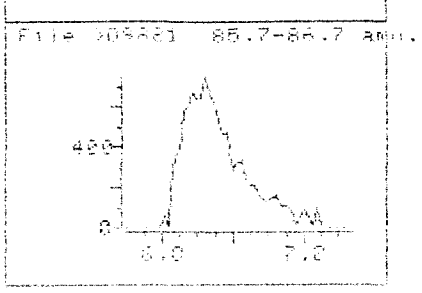
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)





SAMPLE SPECTRUM (UNALTERED)





Data File: >D9821::D3 Quant Output File: >D9821::ME
Name: 3/90 A44231DLRE TADR Instrument ID: GC/MS-D
Misc: ALS-04 RF112002DLRE 1.009G/5ML HEATED PURGE
Quant Time: 930525 18:19 Quant ID File: TDD390::ME
Injected at: 930525 18:02 Last Calibration: 930520 10:32
Last Qcal Time: 930525 10:24

Compound No : 9
Compound Name : Methylene Chloride
Scan Number : 292
Retention Time: 6.90 min. 6.81
Quant Ion : 84.0
Area : 11339
Concentration : 8.28 ug/L
q-value : 85

OK

JFH
5/25/93

MS data file header from : >D9821::D3

Sample: 3/90 A44231DLRE TADR Operator: JUDY SUPER GRP. 5/25/93 18:02
Misc : ALS-04 RF112002DLRE 1.009G/5ML HEATED PURGE
Sys. #: 1 MS model: 70 SW/HW rev.: LF ALS # : 0 Equip ID: GC/MS-D
Method file: DDDCLP Tuning file: MD0422 No. of extra records: 2
Source temp.: N/A Analyzer temp.: N/A Transfer line temp. : 0

Chromatographic temperatures :	20.	104.	170.	0.	0.
Chromatographic times, min. :	1.0	1.0	10.0	0.0	0.0
Chromatographic rate, deg/min:	12.0	15.0	0.0	.1	0.0

>D9821 3/90 A44231DLRE TADRALS-04 RF112002DLRE 1.009G/5ML HEATED PU

35.01 300.0 CLP TIC
Upslope: .2000 Area Reject: 51816. Max Peaks: 2 Bunch: -1 Valley >100 %
Onslope: 0.0000 Results File ID9821 Sorted by Time/Area INT

Peak #	R.T. min.	first scan	max scan	last scan	peak height	raw area	corr. area	corr. % max.	% of total
1	6.19	215	231	276	60907	642997	622597	100.00	66.615
2	15.90	1046	1065	1074	36268	346514	312022	50.12	33.385

Sum of corrected areas: 934619.

Summary of Unknowns PBM Library Search and Quantitation

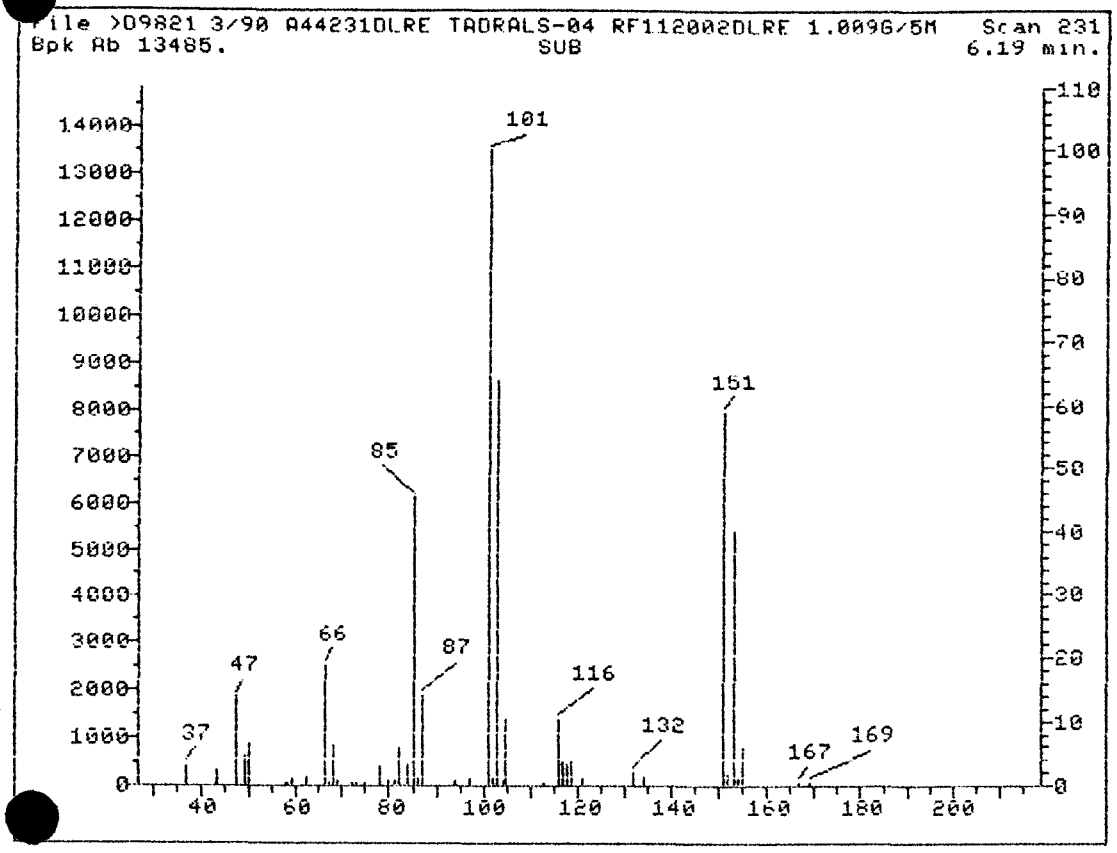
Standard	Concentration	Area	Retention Time	Unknown Window
1	50.0	518157.	8.53	3.51 - 9.00
2	50.0	669700.	9.47	9.00 - 11.21
3	50.0	639781.	12.94	11.21 - 16.04

Dilution Factor = 1.00 This sample was 1000.00 g or mL

Correction Factor = 1.00

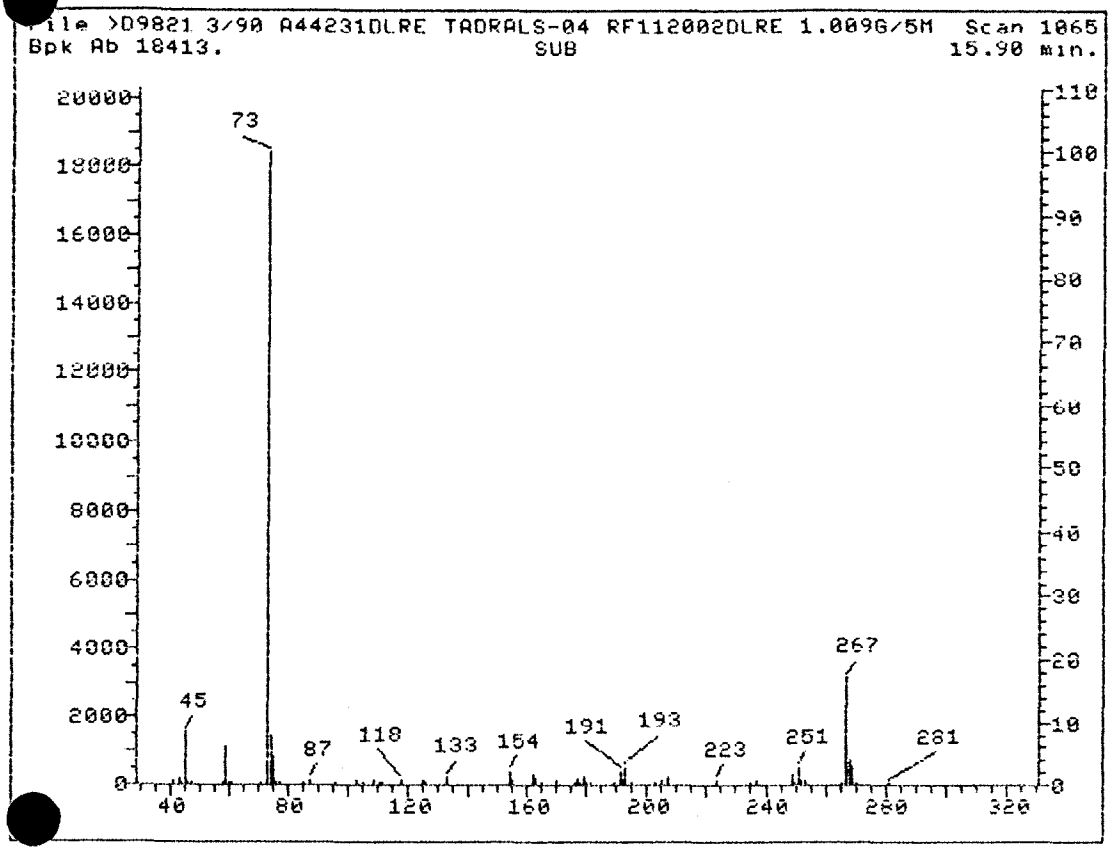
$$\text{Unknown Concentration} = \frac{\text{Conc Int Std} * \text{Area Unknown}}{\text{Area Int Std}} * \text{Correction Factor}$$

5:30 PM SAT., 12 JUNE, 1993



Instrument ID: GC/MS- Analyzed on: 5/25/93 18:02
Result 1 in PBM results file: LD9821
Retention Time: 6.19 Area: 622597 Tentative Conc: 60.00
The unknown area is 120.16% of the nearest internal standard

Not valid PBM results record



Instrument ID: GC/MS- Analyzed on: 5/25/93 18:02
Result 2 in PBM results file: LD9821
Retention Time: 15.90 Area: 312022 Tentative Conc: 24.00
The unknown area is 48.77% of the nearest internal standard

Not valid PBM results record

CALIBRATION DATA

LOCKHEED ANALYTICAL LABORATORY
VOLATILE ORGANICS INITIAL CALIBRATION DATA

Job Name:TAD-RAD-ORG Contract:_

Lab Code:LAL Case No.: SAS No.: SDG No.:TAD

Instrument ID:GC/MS-D Calibration Date(s): 5/13/93 5/13/93

Heated Purge: (Y/N) N Calibration Times: 1547 1744

GC Column:RTX502.2 ID: 0.53 (mm)

LAB FILE ID: RRF10 =D8649 RRF20 =D8650
RRF50 =D8651 RRF100=D8652 RRF200=D8653

COMPOUND		RRF10	RRF20	RRF50	RRF100	RRF200	$\overline{RRF}$	% RSD	
Chloromethane		0.706	0.800	0.596	0.610	0.586	0.660	13.9	
Bromomethane	*	1.458	1.481	1.124	1.206	1.044	1.263	15.6	*
Vinyl Chloride	*	0.882	0.944	0.691	0.709	0.703	0.786	15.1	*
Chloroethane		0.582	0.603	0.465	0.477	0.447	0.515	14.0	
Methylene Chloride		1.318	1.363	1.015	1.062	1.061	1.164	14.0	
Acetone		0.265	0.207	0.137	0.152	0.129	0.178	32.2	
Carbon Disulfide		3.334	3.563	2.760	2.893	3.009	3.112	10.6	
1,1-Dichloroethene	*	1.204	1.277	0.976	1.021	1.057	1.107	11.5	*
1,1-Dichloroethane	*	2.283	2.454	1.876	1.999	2.045	2.131	10.9	*
1,2-Dichloroethene (total)		1.274	1.333	1.023	1.093	1.085	1.162	11.5	
Chloroform	*	3.410	3.561	2.782	2.956	3.047	3.151	10.3	*
1,2-Dichloroethane	*	1.839	2.017	1.514	1.645	1.615	1.726	11.6	*
2-Butanone		0.322	0.276	0.229	0.236	0.224	0.257	16.2	
1,1,1-Trichloroethane	*	0.839	0.882	0.677	0.750	0.756	0.781	10.3	*
Carbon Tetrachloride	*	0.881	0.894	0.701	0.781	0.808	0.813	9.7	*
Bromodichloromethane	*	1.080	1.103	0.884	0.973	0.954	0.999	9.1	*
1,2-Dichloropropane		0.371	0.389	0.306	0.329	0.323	0.344	10.1	
cis-1,3-Dichloropropene	*	0.565	0.596	0.466	0.506	0.504	0.527	9.9	*
Trichloroethene	*	0.552	0.536	0.417	0.450	0.449	0.481	12.4	*
Dibromochloromethane	*	0.963	0.974	0.774	0.868	0.830	0.882	9.8	*
1,1,2-Trichloroethane	*	0.385	0.379	0.302	0.326	0.311	0.341	11.4	*
Benzene	*	0.798	0.815	0.644	0.691	0.709	0.731	10.0	*
trans-1,3-Dichloropropene	*	0.518	0.529	0.418	0.471	0.459	0.479	9.5	*
Bromoform	*	0.636	0.609	0.496	0.559	0.527	0.565	10.2	*
4-Methyl-2-Pentanone		0.310	0.291	0.226	0.251	0.236	0.263	13.8	
2-Hexanone		0.241	0.190	0.150	0.171	0.148	0.180	21.2	
Tetrachloroethene	*	0.575	0.555	0.446	0.476	0.484	0.507	10.9	*
1,1,2,2-Tetrachloroethane	*	0.936	0.828	0.689	0.728	0.688	0.774	13.8	*
Toluene	*	1.186	1.189	0.918	1.009	1.057	1.072	10.9	*
Chlorobenzene	*	1.045	1.032	0.830	0.908	0.907	0.944	9.7	*
Ethylbenzene	*	0.379	0.362	0.311	0.331	0.336	0.344	7.8	*
Styrene	*	0.805	0.794	0.662	0.708	0.716	0.737	8.2	*
Xylenes (total)	*	0.498	0.479	0.383	0.413	0.412	0.437	11.2	*
Toluene-d8		0.937	1.094	1.044	1.043	1.060	1.036	5.7	
Bromofluorobenzene	*	0.969	1.169	1.055	1.041	1.008	1.048	7.2	*
1,2-Dichloroethane-d4		1.471	1.686	1.515	1.499	1.458	1.526	6.1	

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

QUANT REPORT

Operator ID: TANIA
Output File: ^D8649::D1
Data File: >D8649::D2
Name: 3/90 vstd 010
Misc: ALS1 INITCALIB, 5ML PURGE, ROCKY FLATS WASTE

Quant Rev: 7
Quant Time: 930513 16:04
Injected at: 930513 15:47
Dilution Factor: 1.00000
Instrument ID: GC/MS-D

ID File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930512 16:54
Last Qcal Time: 930512 11:43

OK JH 5/13/93

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*Bromochloromethane	8.49	128.0	81706	50.00	ug/L	89
2)	Chloromethane	4.47	50.0	11544	11.53	ug/L	97
3)	Vinyl Chloride	4.57	62.0	14407	12.16	ug/L	86
4)	Bromomethane	5.20	94.0	23833	12.53	ug/L	98
5)	Chloroethane	5.32	64.0	9504	11.59	ug/L	98
6)	Acetone	6.17	43.0	4331	17.96	ug/L	93
7)	1,1-Dichloroethene	6.33	96.0	19677	11.29	ug/L	84
8)	Carbon Disulfide	6.92	76.0	54477	12.15	ug/L	100
9)	Methylene Chloride	6.83	84.0	21536	11.84	ug/L	91
10)	1,2-Dichloroethene (total)	8.15	96.0	41692M	42.52	ug/L	79
11)	trans-1,2-Dichloroethene	7.15	96.0	20270	11.20	ug/L	77
12)	1,1-Dichloroethane	7.55	63.0	37304	11.12	ug/L	95
13)	2-Butanone	7.91	43.0	5270	13.80	ug/L	87
14)	cis-1,2-Dichloroethene	8.15	96.0	21141	10.79	ug/L	87
15)	Chloroform	8.31	83.0	55727	11.16	ug/L	98
16)	1,2-Dichloroethane-d4	9.06	65.0	24038	9.48	ug/L	87
17)	1,2-Dichloroethane	9.17	62.0	30053	10.90	ug/L	96
18)	*1,4-Difluorobenzene	9.47	114.0	278869	50.00	ug/L	95
19)	Vinyl Acetate	7.50	43.0	22926	11.32	ug/L	89
20)	1,1,1-Trichloroethane	8.75	97.0	46813	10.56	ug/L	97
21)	Carbon Tetrachloride	9.06	117.0	49154	10.80	ug/L	97
22)	Benzene	9.23	78.0	44533	11.71	ug/L	100
23)	Trichloroethene	9.90	130.0	30777	11.67	ug/L	91
24)	1,2-Dichloropropane	10.07	63.0	20670	11.38	ug/L	97
25)	Bromodichloromethane	10.34	83.0	60217	10.97	ug/L	93
26)	trans-1,3-Dichloropropene	11.45	75.0	28911	11.17	ug/L	99
27)	cis-1,3-Dichloropropene	10.91	75.0	31537	10.96	ug/L	97
28)	1,1,2-Trichloroethane	11.65	97.0	21500	12.24	ug/L	96
29)	Dibromochloromethane	12.29	129.0	53703	11.29	ug/L	94
30)	Bromoform	14.07	173.0	35472	12.59	ug/L	97
31)	*Chlorobenzene-d5	12.94	117.0	210277	50.00	ug/L	96
32)	4-Methyl-2-pentanone	10.63	43.0	13037	13.41	ug/L	90
33)	Toluene-d8	11.23	98.0	39421	8.80	ug/L	99
34)	Toluene	11.32	91.0	49892	11.59	ug/L	96
35)	2-Hexanone	11.60	43.0	10118	15.84	ug/L	98
36)	Tetrachloroethene	12.08	164.0	24164	10.60	ug/L	93
37)	Chlorobenzene	12.99	112.0	43943	10.90	ug/L	96
38)	Ethylbenzene	13.02	106.0	15921	10.98	ug/L	89
39)	Xylenes (total)	13.10	106.0	62849M	49.54	ug/L	94
40)	m,p-Xylenes	13.10	106.0	42140	22.79	ug/L	95
41)	o-Xylene	13.60	106.0	20350	11.15	ug/L	91
42)	Styrene	13.64	104.0	33867	10.65	ug/L	[illegible]

Operator ID: TANIA Quant Rev: 7 Quant Time: 930513 16:04
Output File: ^D8649::D1 Injected at: 930513 15:47
Data File: >D8649::D2 Dilution Factor: 1.00000
Name: 3/90 vstd 010 Instrument ID: GC/MS-D
Misc: ALS1 INITCALIB, 5ML PURGE, ROCKY FLATS WASTE

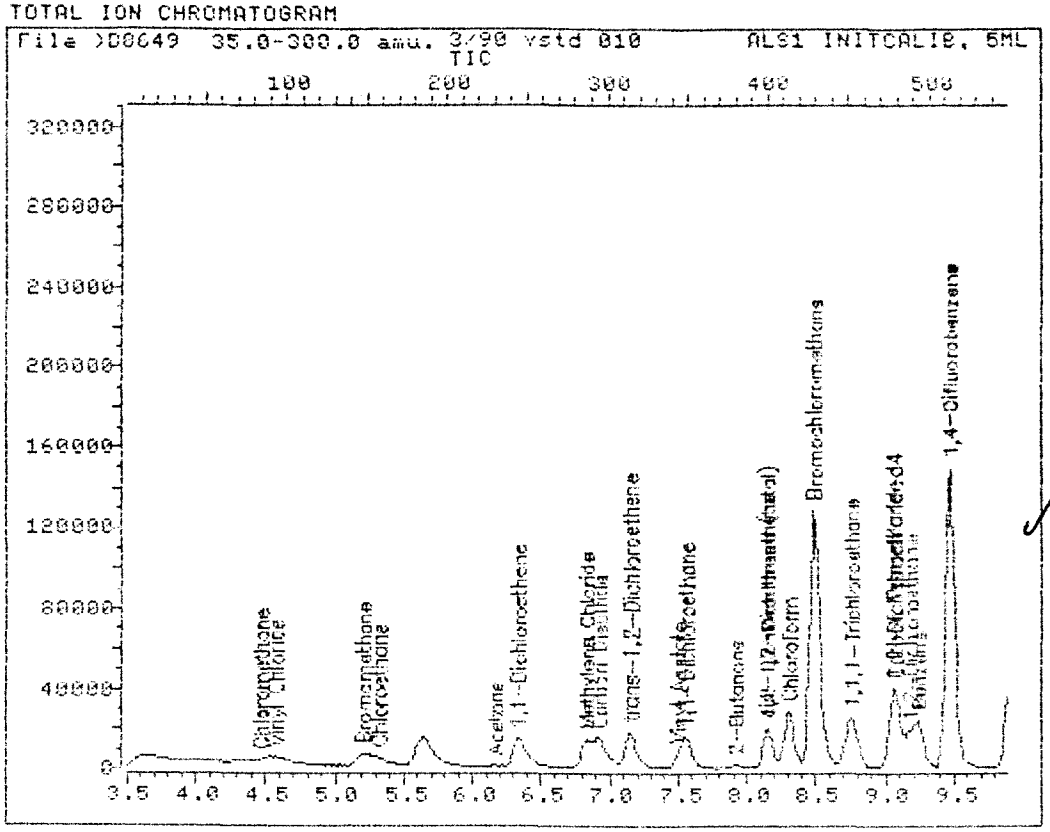
ID File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930512 16:54 Last Qcal Time: 930512 11:43

	Compound	R.T.	Q ion	Area	Conc	Units	q
44)	Bromofluorobenzene	14.34	95.0	40737	9.97	ug/L	91

* Compound is ISTD

OK
JH 5/13/93

TOTAL ION CHROMATOGRAM



OK

Data File: >D8649::D2 Quant Output File: ^D8649::O1
Name: 3/90 vstd 010 Instrument ID: GC/MS-D
Misc: ALS1 INITCALIB, 5ML PURGE, ROCKY FLATS WASTE

Id File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930512 16:54 Last Qcal Time: 930512 11:43

Operator ID: TANIA
Quant Time : 930513 16:04
Injected at: 930513 15:47

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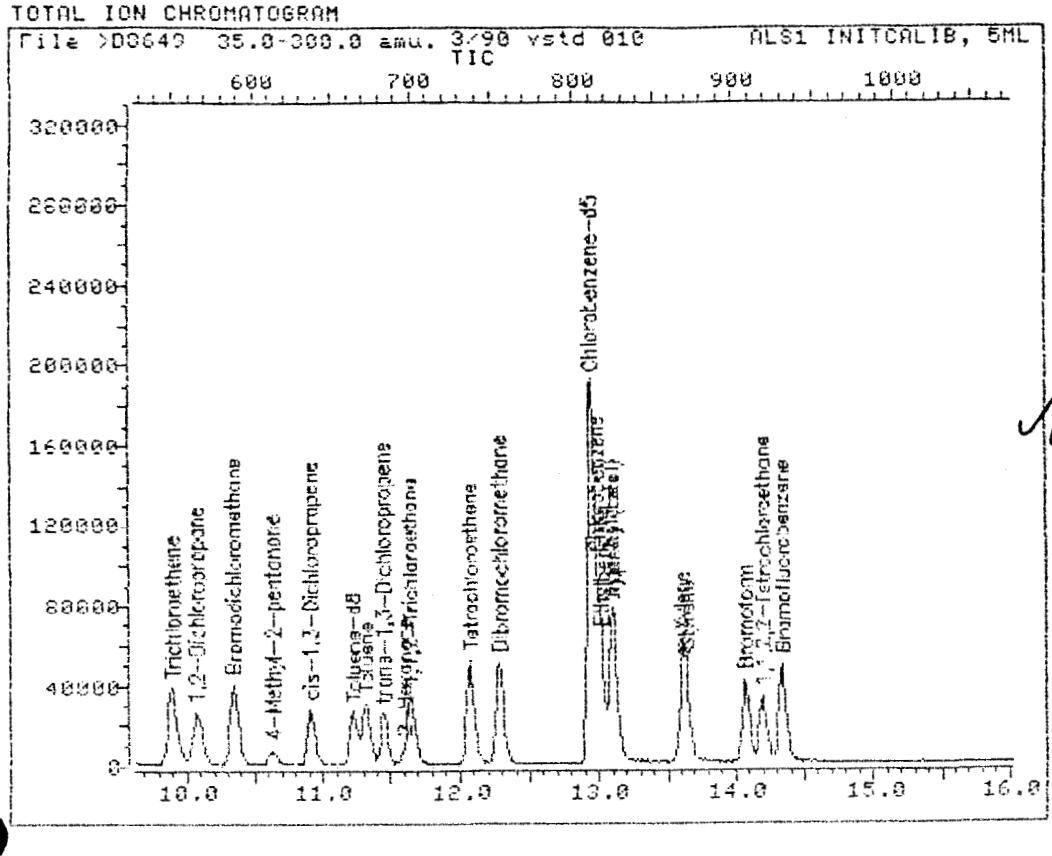
TOTAL ION CHROMATOGRAM



OK

Data File: >D8649::D2 Quant Output File: ^D8649::D1
Name: 3/90 vstd 010 Instrument ID: GC/MS-D
Misc: ALS1 INITCALIB, 5ML PURGE, ROCKY FLATS WASTE

Id File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930512 16:54 Last Qcal Time: 930512 11:43

Operator ID: TANIA
Quant Time : 930513 16:04
Injected at: 930513 15:47

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Operator ID: TANIA Quant Rev: 7 Quant Time: 930513 16:33
Output File: ^D8650::D1 Injected at: 930513 16:16
Data File: >D8650::D2 Dilution Factor: 1.00000
Name: 3/90 VSTD020 Instrument ID: GC/MS-D
Misc: ALS2 INITCALIB, 5ML PURGE, ROCKY FLATS WASTE

ID File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930512 16:54 Last Qcal Time: 930512 11:43

OK JK 5/13/93

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*Bromochloromethane	8.47	128.0	78749	50.00	ug/L	88
2)	Chloromethane	4.51	50.0	25192	26.10	ug/L	86
3)	Vinyl Chloride	4.58	62.0	29735	26.04	ug/L	95
4)	Bromomethane	5.21	94.0	46657	25.46	ug/L	95
5)	Chloroethane	5.32	64.0	19005	24.04	ug/L	98
6)	Acetone	6.16	43.0	6517	28.04	ug/L	85
7)	1,1-Dichloroethene	6.32	96.0	40214	23.95	ug/L	86
8)	Carbon Disulfide	6.92	76.0	112224	25.96	ug/L	100
9)	Methylene Chloride	6.82	84.0	42921	24.48	ug/L	93
10)	1,2-Dichloroethene (total)	8.14	96.0	83980M	88.95	ug/L	76
11)	trans-1,2-Dichloroethene	7.13	96.0	40579	23.25	ug/L	80
12)	1,1-Dichloroethane	7.54	63.0	77305	23.90	ug/L	88
13)	2-Butanone	7.90	43.0	8682	23.60	ug/L	89
14)	cis-1,2-Dichloroethene	8.14	96.0	43032	22.79	ug/L	85
15)	Chloroform	8.30	83.0	112168	23.31	ug/L	98
16)	1,2-Dichloroethane-d4	9.05	65.0	53097	21.73	ug/L	88
17)	1,2-Dichloroethane	9.15	62.0	63523	23.91	ug/L	97
18)	*1,4-Difluorobenzene	9.45	114.0	271391	50.00	ug/L	95
19)	Vinyl Acetate	7.48	43.0	49186	24.95	ug/L	92
20)	1,1,1-Trichloroethane	8.73	97.0	95731	22.19	ug/L	94
21)	Carbon Tetrachloride	9.05	117.0	97095	21.92	ug/L	94
22)	Benzene	9.22	78.0	88466	23.91	ug/L	100
23)	Trichloroethene	9.89	130.0	58137	22.65	ug/L	88
24)	1,2-Dichloropropane	10.06	63.0	42205	23.87	ug/L	93
25)	Bromodichloromethane	10.33	83.0	119784	22.43	ug/L	94
26)	trans-1,3-Dichloropropene	11.44	75.0	57474	22.82	ug/L	95
27)	cis-1,3-Dichloropropene	10.90	75.0	64703	23.11	ug/L	98
28)	1,1,2-Trichloroethane	11.63	97.0	41172	24.08	ug/L	99
29)	Dibromochloromethane	12.28	129.0	105765	22.85	ug/L	93
30)	Bromoform	14.06	173.0	66132	24.11	ug/L	96
31)	*Chlorobenzene-d5	12.94	117.0	201502	50.00	ug/L	93
32)	4-Methyl-2-pentanone	10.62	43.0	23473	25.19	ug/L	86
33)	Toluene-d8	11.22	98.0	88177	20.54	ug/L	96
34)	Toluene	11.31	91.0	95848	23.23	ug/L	97
35)	2-Hexanone	11.59	43.0	15298	24.98	ug/L	94
36)	Tetrachloroethene	12.07	164.0	44748	20.49	ug/L	94
37)	Chlorobenzene	12.98	112.0	83181	21.53	ug/L	94
38)	Ethylbenzene	13.01	106.0	29169	21.00	ug/L	91
39)	Xylenes (total)	13.09	106.0	115768M	95.22	ug/L	99
40)	m,p-Xylenes	13.09	106.0	78011	44.02	ug/L	99
41)	o-Xylene	13.99	106.0	38244	21.87	ug/L	99

43)	1,1,2,2-Tetrachloroethane	14.19	83.0	66714	24.51 ug/L	96

OK
JAH
5/13/93

Operator ID: TANIA Quant Rev: 7 Quant Time: 930513 16:33
Output File: ^D8650::D1 Injected at: 930513 16:16
Data File: >D8650::D2 Dilution Factor: 1.00000
Name: 3/90 VSTD020 Instrument ID: GC/MS-D
Misc: ALS2 INITCALIB, 5ML PURGE, ROCKY FLATS WASTE

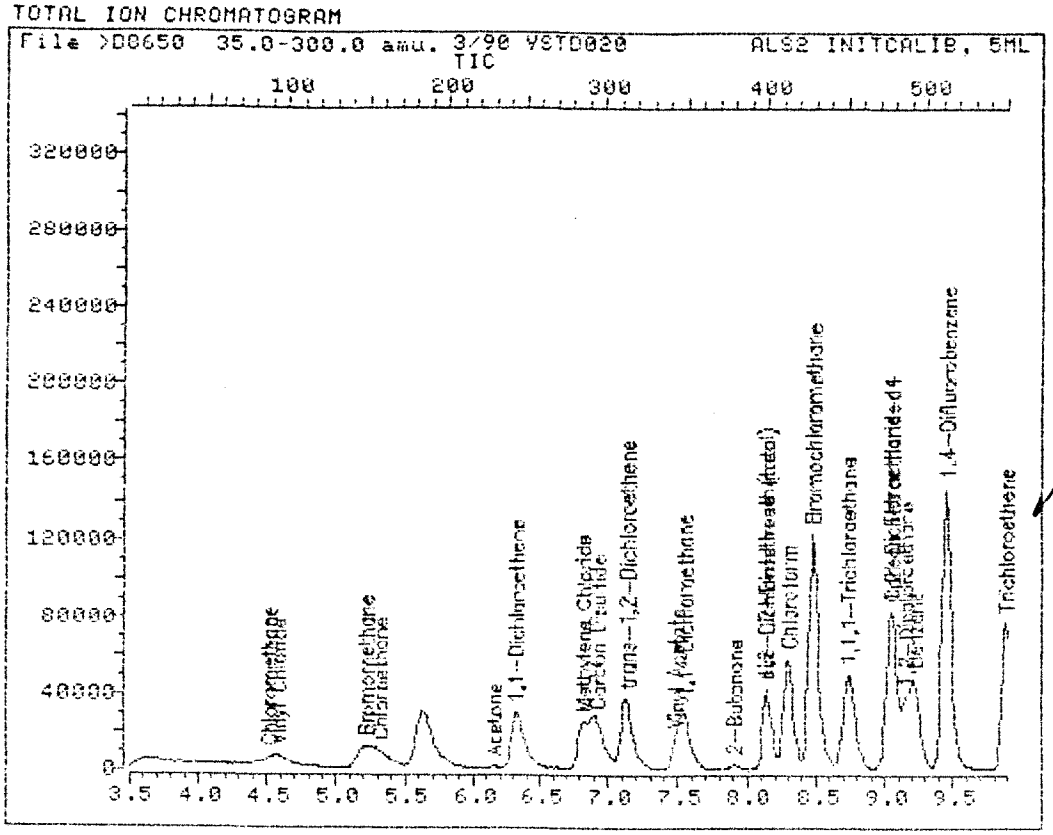
ID File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930512 16:54 Last Qcal Time: 930512 11:43

	Compound	R.T.	Q ion	Area	Conc	Units	q
44)	Bromofluorobenzene	14.33	95.0	94218	24.06	ug/L	96

* Compound is ISTD

OK JH 5/13/93

TOTAL ION CHROMATOGRAM



VOK

Data File: >D8650::02 Quant Output File: ^D8650::D1
Name: 3/90 VSTD020 Instrument ID: GC/MS-D
Misc: ALS2 INITCALIB, 5ML PURGE, ROCKY FLATS WASTE

Id File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930512 16:54 Last Qcal Time: 930512 11:43

Operator ID: TANIA
Quant Time : 930513 16:33
Injected at: 930513 16:16

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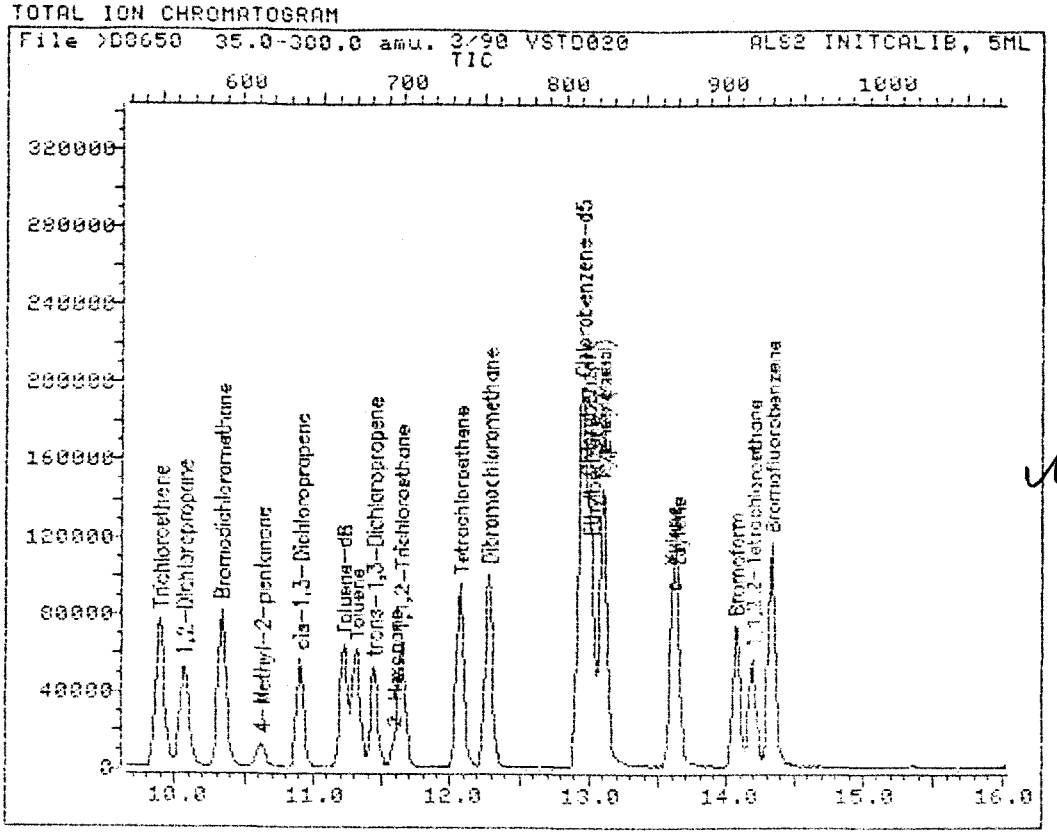
TOTAL ION CHROMATOGRAM



Data File: >D0650::D2 Quant Output File: ^D0650::D1
Name: 3/90 VSTD020 Instrument ID: GC/MS-D
Misc: ALS2 INITCALIB, 5ML PURGE, ROCKY FLATS WASTE

Id File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930512 16:54 Last Qcal Time: 930512 11:43

Operator ID: TANIA
Quant Time : 930513 16:33
Injected at: 930513 16:16

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QUANT REPORT

Operator ID: TANIA
Output File: ^D8651::D1
Data File: >D8651::D2
Name: 3/90 VSTD050
Misc: ALS3 INITCALIB, 5ML PURGE, RFLATSW

Quant Rev: 7
Quant Time: 930513 17:02
Injected at: 930513 16:46
Dilution Factor: 1.00000
Instrument ID: GC/MS-D

ID File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930512 16:54

Last Qcal Time: 930512 11:43

OK JEH 5/13/93

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*Bromochloromethane	8.48	128.0	87558	50.00	ug/L	88
2)	Chloromethane	4.54	50.0	52220	48.66	ug/L	95
3)	Vinyl Chloride	4.58	62.0	60521	47.68	ug/L	96
4)	Bromomethane	5.20	94.0	98456	48.31	ug/L	99
5)	Chloroethane	5.29	64.0	40721	46.34	ug/L	94
6)	Acetone	6.16	43.0	11965	46.30	ug/L	85
7)	1,1-Dichloroethene	6.32	96.0	85418	45.75	ug/L	89
8)	Carbon Disulfide	6.92	76.0	241686	50.28	ug/L	100
9)	Methylene Chloride	6.82	84.0	88907	45.60	ug/L	91
10)	1,2-Dichloroethene (total)	8.14	96.0	179185M	170.70	ug/L	79
11)	trans-1,2-Dichloroethene	7.13	96.0	87351	45.02	ug/L	84
12)	1,1-Dichloroethane	7.54	63.0	164301	45.69	ug/L	93
13)	2-Butanone	7.91	43.0	20065	49.05	ug/L	91
14)	cis-1,2-Dichloroethene	8.14	96.0	91715	43.69	ug/L	87
15)	Chloroform	8.29	83.0	243610	45.54	ug/L	99
16)	1,2-Dichloroethane-d4	9.05	65.0	132622	48.82	ug/L	90
17)	1,2-Dichloroethane	9.15	62.0	132539	44.86	ug/L	98
18)	*1,4-Difluorobenzene	9.44	114.0	302280	50.00	ug/L	94
19)	Vinyl Acetate	7.49	43.0	103274	47.03	ug/L	89
20)	1,1,1-Trichloroethane	8.73	97.0	204614	42.59	ug/L	96
21)	Carbon Tetrachloride	9.05	117.0	211799	42.94	ug/L	94
22)	Benzene	9.22	78.0	194648	47.23	ug/L	100
23)	Trichloroethene	9.89	130.0	126074	44.11	ug/L	90
24)	1,2-Dichloropropane	10.06	63.0	92366	46.90	ug/L	96
25)	Bromodichloromethane	10.33	83.0	267066	44.89	ug/L	97
26)	trans-1,3-Dichloropropene	11.44	75.0	126344	45.03	ug/L	94
27)	cis-1,3-Dichloropropene	10.90	75.0	140899	45.19	ug/L	99
28)	1,1,2-Trichloroethane	11.64	97.0	91418	48.01	ug/L	98
29)	Dibromochloromethane	12.27	129.0	233841	45.35	ug/L	94
30)	Bromoform	14.07	173.0	149870	49.06	ug/L	99
31)	*Chlorobenzene-d5	12.93	117.0	223284	50.00	ug/L	95
32)	4-Methyl-2-pentanone	10.61	43.0	50528	48.94	ug/L	89
33)	Toluene-d8	11.22	98.0	233035	48.98	ug/L	98
34)	Toluene	11.31	91.0	204964	44.83	ug/L	97
35)	2-Hexanone	11.59	43.0	33488	49.36	ug/L	92
36)	Tetrachloroethene	12.06	164.0	99579	41.14	ug/L	97
37)	Chlorobenzene	12.98	112.0	185282	43.28	ug/L	94
38)	Ethylbenzene	13.01	106.0	69407	45.09	ug/L	94
39)	Xylenes (total)	13.10	106.0	256787M	190.60	ug/L	97
40)	m,p-Xylenes	13.10	106.0	168418	85.77	ug/L	97
41)	o-Xylene	13.40	106.0	88369	43.77	ug/L	96

43)	1,1,2,2-Tetrachloroethane	14.18	83.0	153798	50.98 ug/L	98

OK
JFH
5/13/93

Operator ID: TANIA Quant Rev: 7 Quant Time: 930513 17:02
Output File: ^D8651::D1 Injected at: 930513 16:46
Data File: >D8651::D2 Dilution Factor: 1.00000
Name: 3/90 VSTD050 Instrument ID: GC/MS-D
Misc: ALS3 INITCALIB, 5ML PURGE, RFLATSW

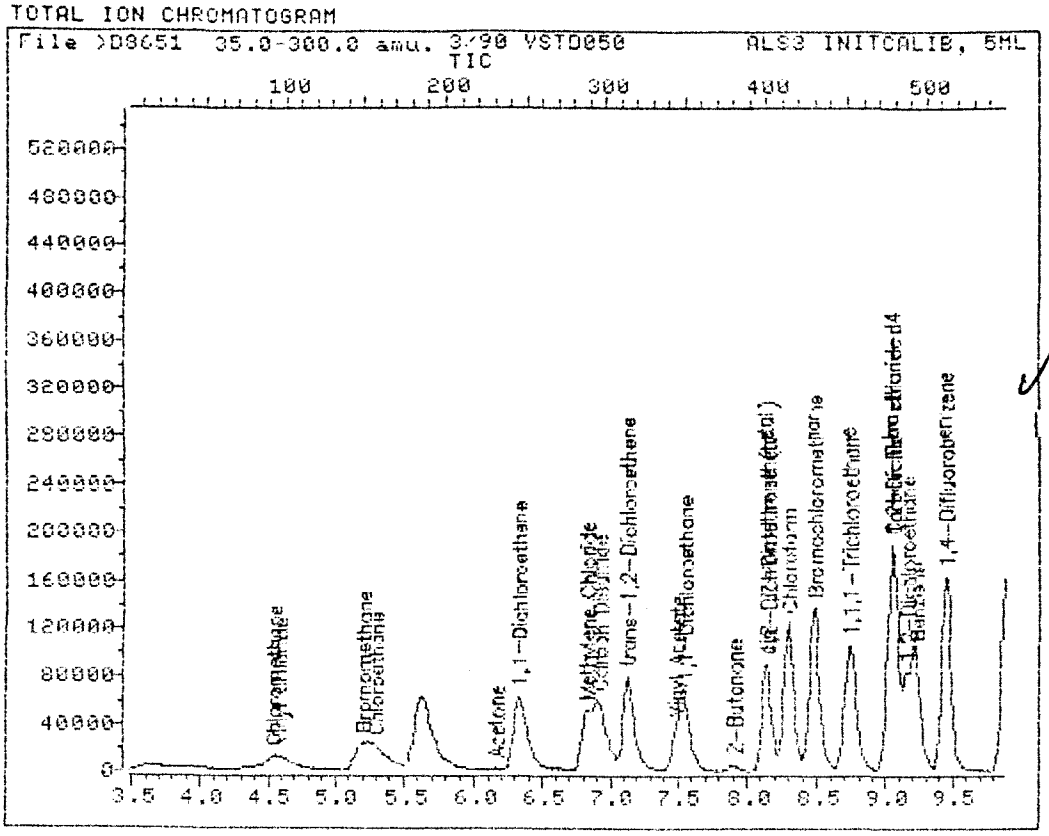
ID File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930512 16:54 Last Qcal Time: 930512 11:43

	Compound	R.T.	Q ion	Area	Conc	Units	q
44)	Bromofluorobenzene	14.33	95.0	235661	54.30	ug/L	98

* Compound is ISTD

OK
JH
5/13/93

TOTAL ION CHROMATOGRAM



OK

Data File: >D8651::D2 Quant Output File: ^D8651::D1
Name: 3/90 VSTD050 Instrument ID: GC/MS-D
Misc: ALS3 INITCALIB, 5ML PURGE, RFLATSW

Id File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930512 16:54 Last Qcal Time: 930512 11:43

Operator ID: TANIA
Quant Time : 930513 17:02
Injected at: 930513 16:46

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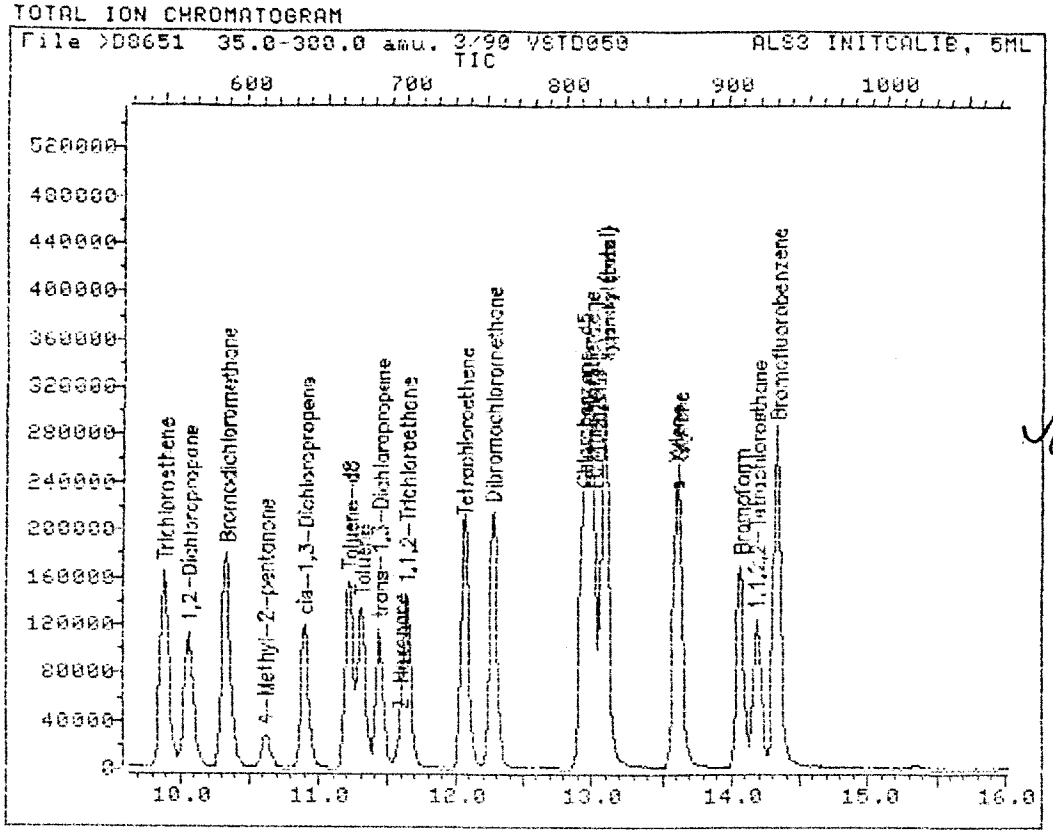
TOTAL ION CHROMATOGRAM



JOK

Data File: >D8651::D2 Quant Output File: ^D8651::D1
Name: 3/90 VSTD050 Instrument ID: GC/MS-D
Misc: ALS3 INITCALIB, 5ML PURGE, RFLATSW

Id File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930512 16:54 Last Qcal Time: 930512 11:43

Operator ID: TANIA
Quant Time : 930513 17:02
Injected at: 930513 16:46

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QUANT REPORT

Operator ID: TANIA
Quant Rev: 7
Quant Time: 930513 17:32
Output File: ^D8652::D1
Injected at: 930513 17:15
Data File: >D8652::D2
Dilution Factor: 1.00000
Name: 3/90 VSTD100
Instrument ID: GC/MS-D
Misc: ALS4 INITCALIB, 5ML PURGE, RFLATSW

ID File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930512 16:54
Last Qual Time: 930512 11:43

OK JTH 5/13/93

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*Bromochloromethane	8.47	128.0	82942	50.00	ug/L	89
2)	Chloromethane	4.51	50.0	101194	99.54	ug/L	90
3)	Vinyl Chloride	4.56	62.0	117551	97.75	ug/L	97
4)	Bromomethane	5.19	94.0	200038	103.62	ug/L	97
5)	Chloroethane	5.28	64.0	79176	95.11	ug/L	94
6)	Acetone	6.17	43.0	25249	103.14	ug/L	90
7)	1,1-Dichloroethene	6.33	96.0	169362	95.75	ug/L	90
8)	Carbon Disulfide	6.91	76.0	479860M	105.39	ug/L	
9)	Methylene Chloride	6.81	84.0	176196	95.41	ug/L	91
10)	1,2-Dichloroethene (total)	8.13	96.0	362753M	364.81	ug/L	75
11)	trans-1,2-Dichloroethene	7.13	96.0	173069	94.16	ug/L	82
12)	1,1-Dichloroethane	7.54	63.0	331575	97.35	ug/L	96
13)	2-Butanone	7.90	43.0	39232	101.24	ug/L	93
14)	cis-1,2-Dichloroethene	8.13	96.0	188813	94.94	ug/L	83
15)	Chloroform	8.30	83.0	490303	96.75	ug/L	98
16)	1,2-Dichloroethane-d4	9.04	65.0	248699	96.64	ug/L	95
17)	1,2-Dichloroethane	9.15	62.0	272961	97.53	ug/L	98
18)	*1,4-Difluorobenzene	9.44	114.0	277436	50.00	ug/L	94
19)	Vinyl Acetate	7.48	43.0	210922	104.66	ug/L	89
20)	1,1,1-Trichloroethane	8.74	97.0	416386	94.42	ug/L	93
21)	Carbon Tetrachloride	9.04	117.0	433184	95.68	ug/L	95
22)	Benzene	9.22	78.0	383669	101.44	ug/L	100
23)	Trichloroethene	9.88	130.0	249463	95.09	ug/L	91
24)	1,2-Dichloropropane	10.06	63.0	182688	101.07	ug/L	97
25)	Bromodichloromethane	10.33	83.0	540128	98.92	ug/L	96
26)	trans-1,3-Dichloropropene	11.44	75.0	261139	101.41	ug/L	95
27)	cis-1,3-Dichloropropene	10.90	75.0	280886	98.15	ug/L	99
28)	1,1,2-Trichloroethane	11.64	97.0	181082	103.62	ug/L	97
29)	Dibromochloromethane	12.28	129.0	481847	101.82	ug/L	93
30)	Bromoform	14.06	173.0	309939	110.55	ug/L	97
31)	*Chlorobenzene-d5	12.93	117.0	204008	50.00	ug/L	99
32)	4-Methyl-2-pentanone	10.62	43.0	102409	108.57	ug/L	89
33)	Toluene-d8	11.21	98.0	425617	97.91	ug/L	98
34)	Toluene	11.31	91.0	411664	98.55	ug/L	97
35)	2-Hexanone	11.59	43.0	69605	112.28	ug/L	94
36)	Tetrachloroethene	12.07	164.0	194137	87.78	ug/L	94
37)	Chlorobenzene	12.98	112.0	370581	94.74	ug/L	94
38)	Ethylbenzene	13.01	106.0	134894	95.91	ug/L	95
39)	Xylenes (total)	13.09	106.0	505659M	410.80	ug/L	99
40)	m,p-Xylenes	13.09	106.0	334471	186.43	ug/L	99
41)	o-Xylene	13.48	106.0	149262	95.79	ug/L	99

43)	1,1,2,2-Tetrachloroethane	14.19	83.0	297151	107.81 ug/L	97

OK JFH 5/13/93

Operator ID: TANIA Quant Rev: 7 Quant Time: 930513 17:32
Output File: ^D8652::D1 Injected at: 930513 17:15
Data File: >D8652::D2 Dilution Factor: 1.00000
Name: 3/90 VSTD100 Instrument ID: GC/MS-D
Misc: ALS4 INITCALIB, 5ML PURGE, RFLATSW

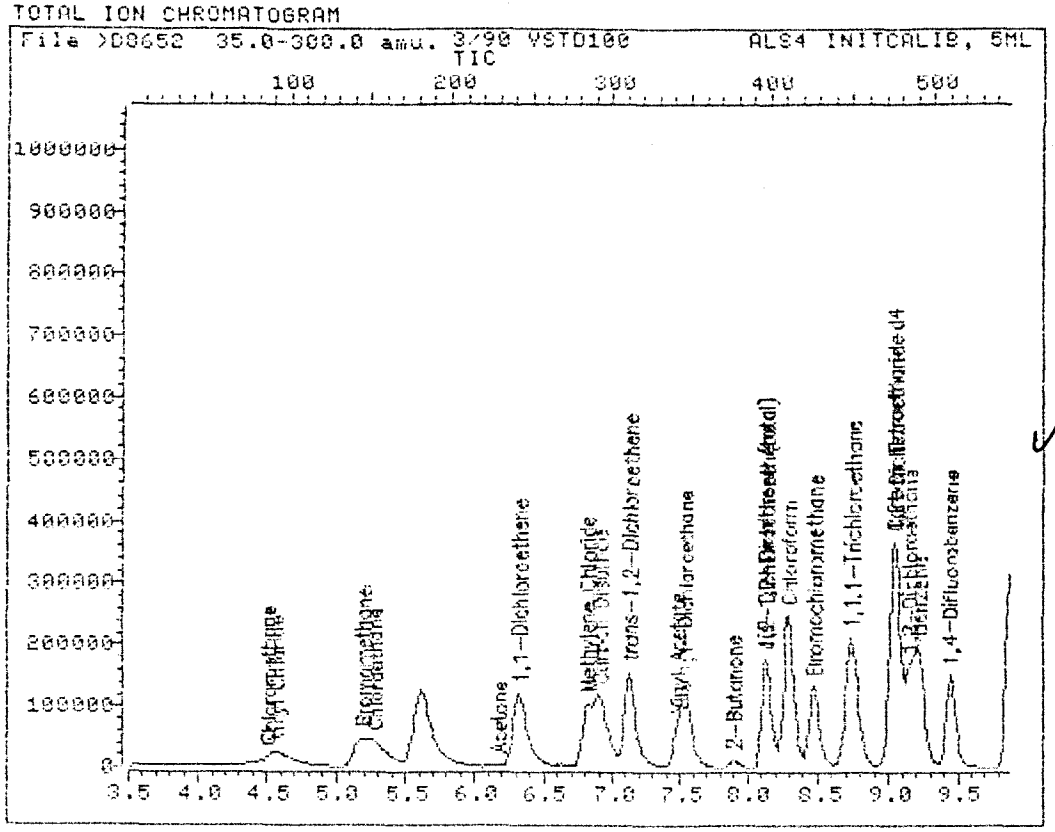
ID File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930512 16:54 Last Qcal Time: 930512 11:43

	Compound	R.T.	Q ion	Area	Conc	Units	q
44)	Bromofluorobenzene	14.33	95.0	424666	107.10	ug/L	99

* Compound is ISTD

OK
OPH
5/13/93

TOTAL ION CHROMATOGRAM



Data File: >D8652::D2 Quant Output File: ^D8652::D1
Name: 3/90 VSTD100 Instrument ID: GC/MS-D
Misc: ALS4 INITCALIB, 5ML PURGE, RFLATSW

Id File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930512 16:54 Last Qcal Time: 930512 11:43

Operator ID: TANIA
Quant Time : 930513 17:32
Injected at: 930513 17:15

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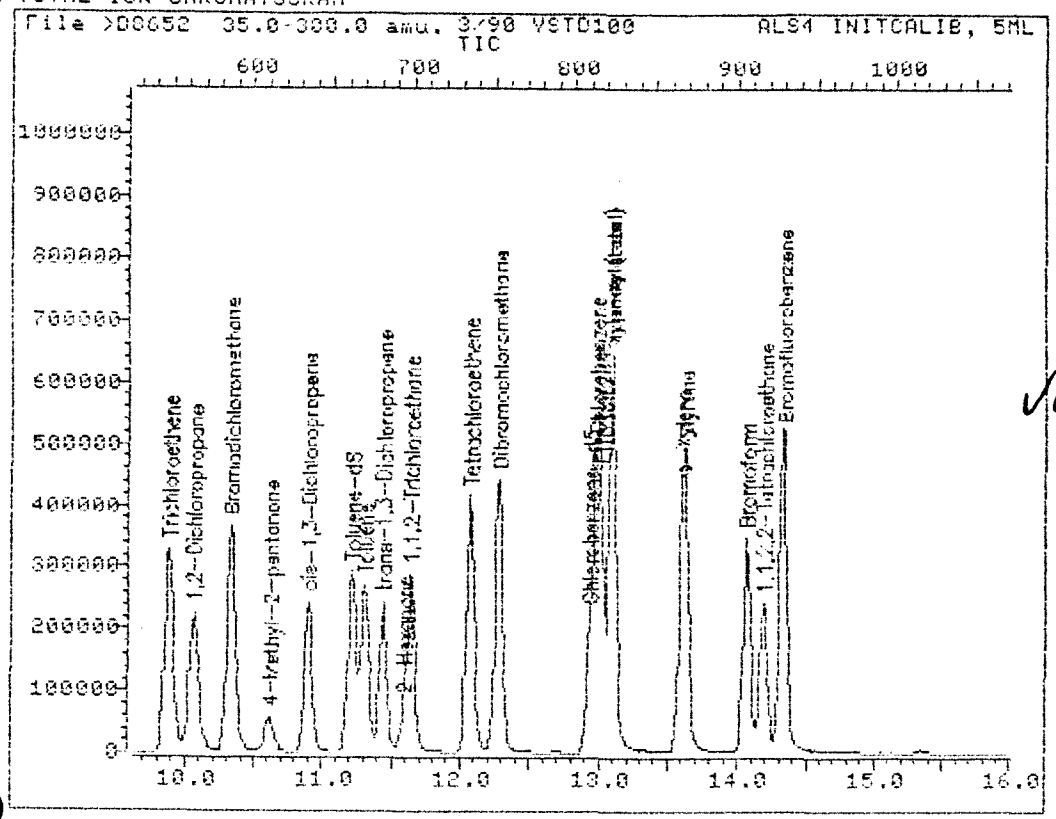
TOTAL ION CHROMATOGRAM



VOK

Data File: >D8652::D2 Quant Output File: ^D8652::D1
Name: 3/90 VSTD100 Instrument ID: GC/MS-D
Misc: ALS4 INITCALIB, 5ML PURGE, RFLATSW

Id File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930512 16:54 Last Qcal Time: 930512 11:43

Operator ID: TANIA
Quant Time : 930513 17:32
Injected at: 930513 17:15

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QUANT REPORT

Operator ID: TANIA
Quant Rev: 7
Quant Time: 930513 18:01
Output File: ^D8653::D1
Injected at: 930513 17:44
Data File: >D8653::D2
Dilution Factor: 1.00000
Name: 3/90 VSTD200
Instrument ID: GC/MS-D
Misc: ALS5 INITCALIB, 5ML PURGE, RFLATSW

ID File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930512 16:54
Last Qcal Time: 930512 11:43

OK JAH 5/13/93

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*Bromochloromethane	8.46	128.0	87795	50.00	ug/L	93
2)	Chloromethane	4.52	50.0	205739	191.19	ug/L	95
3)	Vinyl Chloride	4.55	62.0	246781	193.88	ug/L	96
4)	Bromomethane	5.18	94.0	366530	179.37	ug/L	99
5)	Chloroethane	5.27	64.0	157062	178.24	ug/L	88
6)	Acetone	6.17	43.0	45337	174.96	ug/L	89
7)	1,1-Dichloroethene	6.31	96.0	371269	198.30	ug/L	90
8)	Carbon Disulfide	6.89	76.0	1056653M	219.25	ug/L	
9)	Methylene Chloride	6.81	84.0	372763	190.69	ug/L	87
10)	1,2-Dichloroethene (total)	8.13	96.0	762031M	723.99	ug/L	78
11)	trans-1,2-Dichloroethene	7.12	96.0	363167M	186.67	ug/L	
12)	1,1-Dichloroethane	7.54	63.0	718014	199.15	ug/L	97
13)	2-Butanone	7.91	43.0	78660	191.76	ug/L	93
14)	cis-1,2-Dichloroethene	8.13	96.0	396472	188.34	ug/L	87
15)	Chloroform	8.28	83.0	1070194	199.51	ug/L	99
16)	1,2-Dichloroethane-d4	9.04	65.0	512023	187.97	ug/L	96
17)	1,2-Dichloroethane	9.15	62.0	567141	191.44	ug/L	98
18)	*1,4-Difluorobenzene	9.44	114.0	296464	50.00	ug/L	95
19)	Vinyl Acetate	7.48	43.0	455234	211.40	ug/L	91
20)	1,1,1-Trichloroethane	8.73	97.0	896363	190.22	ug/L	97
21)	Carbon Tetrachloride	9.03	117.0	957896	198.01	ug/L	97
22)	Benzene	9.22	78.0	840611	207.99	ug/L	100
23)	Trichloroethene	9.87	130.0	532971	190.11	ug/L	88
24)	1,2-Dichloropropane	10.06	63.0	382542	198.05	ug/L	97
25)	Bromodichloromethane	10.33	83.0	1131564	193.94	ug/L	89
26)	trans-1,3-Dichloropropene	11.44	75.0	544044	197.72	ug/L	97
27)	cis-1,3-Dichloropropene	10.90	75.0	597233	195.29	ug/L	99
28)	1,1,2-Trichloroethane	11.64	97.0	369173	197.68	ug/L	97
29)	Dibromochloromethane	12.27	129.0	984485	194.69	ug/L	93
30)	Bromoform	14.07	173.0	625408	208.76	ug/L	96
31)	*Chlorobenzene-d5	12.93	117.0	211967	50.00	ug/L	96
32)	4-Methyl-2-pentanone	10.62	43.0	200471	204.55	ug/L	91
33)	Toluene-d8	11.21	98.0	898894	199.02	ug/L	98
34)	Toluene	11.31	91.0	896248	206.49	ug/L	98
35)	2-Hexanone	11.59	43.0	125776	195.28	ug/L	92
36)	Tetrachloroethene	12.06	164.0	410419	178.61	ug/L	94
37)	Chlorobenzene	12.98	112.0	768995	189.22	ug/L	91
38)	Ethylbenzene	13.01	106.0	284757	194.85	ug/L	86
39)	Xylenes (total)	13.10	106.0	1047431M	818.98	ug/L	83
40)	m,p-Xylenes	13.10	106.0	694300M	372.47	ug/L	82
41)	o-Xylene	13.60	106.0	353268	187.69	ug/L	96

62

43)	1,1,2,2-Tetrachloroethane	14.18	83.0	583296	203.68 ug/L	98

!

OK
JFH 5/13/93

Operator ID: TANIA Quant Rev: 7 Quant Time: 930513 18:01
Output File: ^D8653::D1 Injected at: 930513 17:44
Data File: >D8653::D2 Dilution Factor: 1.00000
Name: 3/90 VSTD200 Instrument ID: GC/MS-D
Misc: ALS5 INITCALIB, 5ML PURGE, RFLATSW

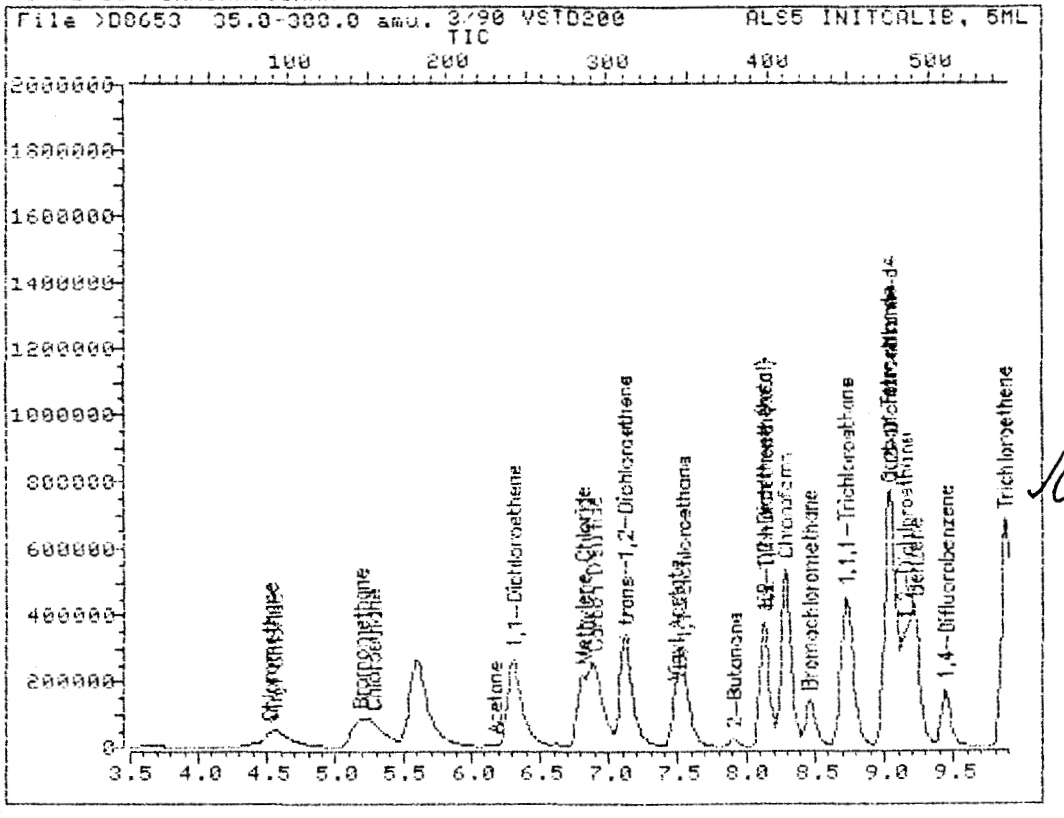
ID File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930512 16:54 Last Qcal Time: 930512 11:43

	Compound	R.T.	Q ion	Area	Conc	Units	q
44)	Bromofluorobenzene	14.32	95.0	854702	207.45	ug/L	94

* Compound is ISTD

OK AH 5/13/93

TOTAL ION CHROMATOGRAM



JOK

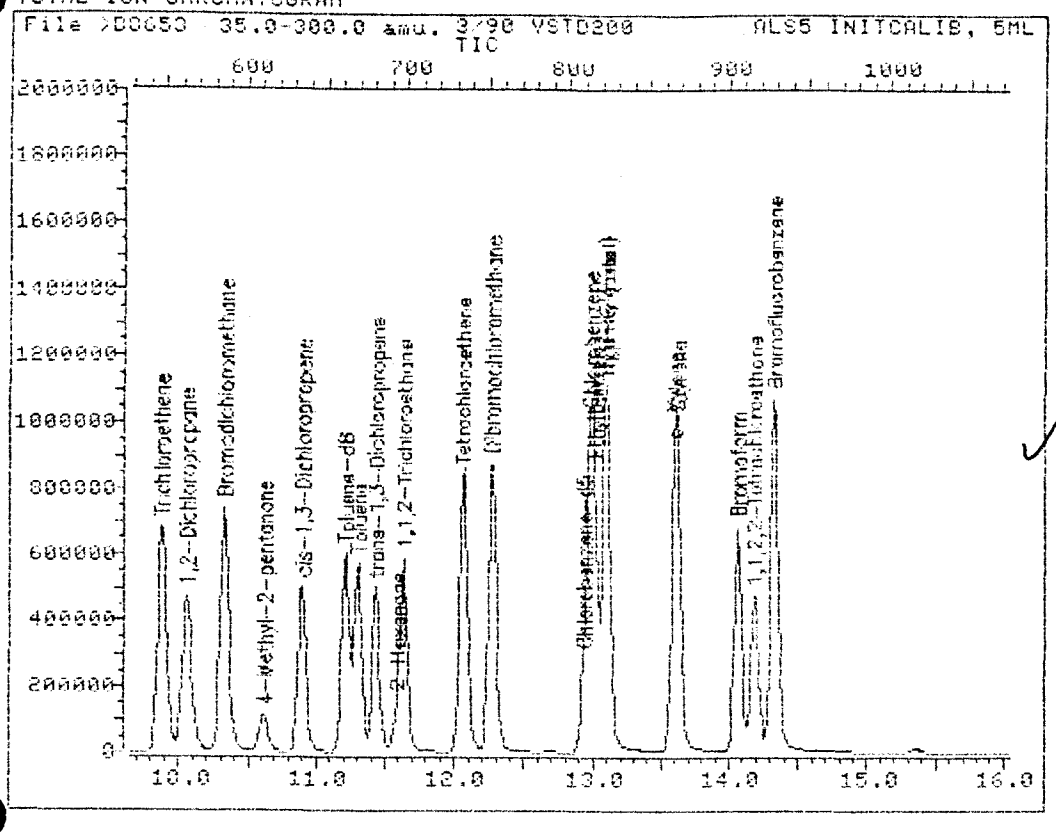
Data File: >D8653::02 Quant Output File: ^D8653::01
Name: 3/90 VSTD200 Instrument ID: GC/MS-D
Misc: ALS5 INITCALIB, 5ML PURGE, RFLATSW

Id File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930512 16:54 Last Qcal Time: 930512 11:43

Operator ID: TANIA
Quant Time : 930513 18:01
Injected at: 930513 17:44

Page 1 of 2

TOTAL ION CHROMATOGRAM



JOK

Data File: >D8653::D2 Quant Output File: ^D8653::D1
Name: 3/90 VSTD200 Instrument ID: GC/MS-D
Misc: ALS5 INITCALIB, 5ML PURGE, RFLATSW

Id File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930512 16:54 Last Qcal Time: 930512 11:43

Operator ID: TANIA
Quant Time : 930513 18:01
Injected at: 930513 17:44

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LOCKHEED ANALYTICAL LABORATORY
VOLATILE CONTINUING CALIBRATION CHECK

Lab Job Name:TAD-RAD-ORG Contract:_

Lab Code:LAL Case No.: SAS No.: SDG No.:TAD

Instrument ID:GC/MS-D Calibration Date: 5/24/93 Time:1055

Lab File ID:D9788 Init. Calib. Date(s): 5/13/93 5/13/93

Heated Purge: (Y/N) N Init. Calib. Times: 1547 1744

GC Column:RTX502.2 ID: 0.53 (mm)

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Chloromethane	0.660	0.571		13.5	
Bromomethane	1.263	1.109	0.100	12.2	25.0
Vinyl Chloride	0.786	0.694	0.100	11.7	25.0
Chloroethane	0.515	0.508		1.4	
Methylene Chloride	1.164	1.189		2.1	
Acetone	0.178	0.138		22.5	
Carbon Disulfide	3.112	2.958		4.9	
1,1-Dichloroethene	1.107	1.090	0.100	1.5	25.0
1,1-Dichloroethane	2.131	2.167	0.200	1.7	25.0
1,2-Dichloroethene (total)	1.162	1.168		0.5	
Chloroform	3.151	3.150	0.200	0.0	25.0
1,2-Dichloroethane	1.726	1.691	0.100	2.0	25.0
2-Butanone	0.257	0.223		13.2	
1,1,1-Trichloroethane	0.781	0.778	0.100	0.4	25.0
Carbon Tetrachloride	0.813	0.827	0.100	1.7	25.0
Bromodichloromethane	0.999	0.990	0.200	0.9	25.0
1,2-Dichloropropane	0.344	0.345		0.3	
cis-1,3-Dichloropropene	0.527	0.535	0.200	1.5	25.0
Trichloroethene	0.481	0.487	0.300	1.2	25.0
Dibromochloromethane	0.882	0.846	0.100	4.1	25.0
1,1,2-Trichloroethane	0.341	0.333	0.100	2.3	25.0
Benzene	0.731	0.751	0.500	2.7	25.0
trans-1,3-Dichloropropene	0.479	0.476	0.100	0.6	25.0
Bromoform	0.565	0.510	0.100	9.7	25.0
4-Methyl-2-Pentanone	0.263	0.227		13.7	
2-Hexanone	0.180	0.143		20.6	
Tetrachloroethene	0.507	0.529	0.200	4.3	25.0
1,1,2,2-Tetrachloroethane	0.774	0.673	0.500	13.0	25.0
Toluene	1.072	1.091	0.400	1.8	25.0
Chlorobenzene	0.944	0.982	0.500	4.0	25.0
Ethylbenzene	0.344	0.353	0.100	2.6	25.0
Styrene	0.737	0.757	0.300	2.7	25.0
Xylenes (total)	0.437	0.462	0.300	5.7	25.0
Toluene-d8	1.036	1.055		1.8	
Bromofluorobenzene	1.048	0.964	0.200	8.0	25.0
1,2-Dichloroethane-d4	1.526	1.471		3.6	

All other compounds must meet a minimum RRF of 0.010

QUANT REPORT

Operator ID: DANA
Output File: ^09788::ME
Data File: >09788::D3
Name: 3/90 US10050
Misc: ALS-01 5 ML PURGE

Quant Rev: 2
Quant Time: 930524 11:12
Injected at: 930524 10:55
Dilution Factor: 1.00000
Instrument ID: GC/MS-D

ID File: 100390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32
Last Qcal Time: 930521 17:53

QC AH 5/24/93

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*Bromochloromethane	8.46	128.0	93059	50.00	ug/L	86
2)	Chloromethane	4.49	50.0	53179	52.06	ug/L	87
3)	Vinyl Chloride	4.56	62.0	64629	52.58	ug/L	98
4)	Bromomethane	5.17	94.0	103182	52.19	ug/L	99
5)	Chloroethane	5.29	64.0	47308	54.86	ug/L	94
6)	Acetone	6.15	43.0	12799	54.49	ug/L	87
7)	1,1-Dichloroethene	6.31	96.0	101401	57.50	ug/L	87
8)	Carbon Disulfide	6.90	76.0	279309	55.01	ug/L	100
9)	Methylene Chloride	6.80	84.0	110625	59.96	ug/L	90
10)	1,2-Dichloroethene (total)	8.12	96.0	114973	59.41	ug/L	74
11)	trans-1,2-Dichloroethene	7.12	96.0	105769	56.73	ug/L	81
12)	1,1-Dichloroethane	7.53	63.0	201703	56.48	ug/L	94
13)	2-Butanone	7.89	43.0	20744	56.03	ug/L	95
14)	cis-1,2-Dichloroethene	8.12	96.0	114973	57.59	ug/L	81
15)	Chloroform	8.28	83.0	293157	56.72	ug/L	99
16)	1,2-Dichloroethane-d4	9.03	65.0	136924	50.61	ug/L	98
17)	1,2-Dichloroethane	9.14	62.0	157408	58.42	ug/L	99
18)	*1,4-Difluorobenzene	9.43	114.0	318270	50.00	ug/L	99
19)	Vinyl Acetate	7.47	43.0	122962	61.49	ug/L	89
20)	1,1,1-Trichloroethane	8.73	97.0	247716	58.92	ug/L	96
21)	Carbon Tetrachloride	9.03	117.0	263337	59.01	ug/L	92
22)	Benzene	9.21	78.0	236913	58.69	ug/L	100
23)	Trichloroethene	9.87	130.0	154860	57.31	ug/L	90
24)	1,2-Dichloropropane	10.05	63.0	109730	58.56	ug/L	99
25)	Bromodichloromethane	10.32	83.0	315212	59.54	ug/L	97
26)	trans-1,3-Dichloropropene	11.42	75.0	151442	59.45	ug/L	94
27)	cis-1,3-Dichloropropene	10.89	75.0	170188	58.92	ug/L	99
28)	1,1,2-Trichloroethane	11.62	97.0	105849	59.95	ug/L	97
29)	Dibromochloromethane	12.27	129.0	269375	58.50	ug/L	93
30)	Bromoform	14.05	173.0	162386	57.67	ug/L	98
31)	*Chlorobenzene-d5	12.92	117.0	237955	50.00	ug/L	98
32)	4-Methyl-2-pentanone	10.61	43.0	54035	60.83	ug/L	91
33)	Toluene-d8	11.20	98.0	251115	51.68	ug/L	99
34)	Toluene	11.30	91.0	299492	58.88	ug/L	97
35)	2-Hexanone	11.58	43.0	34808	59.87	ug/L	91
36)	Tetrachloroethene	12.06	164.0	125913	56.34	ug/L	94
37)	Chlorobenzene	12.97	112.0	233670	58.44	ug/L	93
38)	Ethylbenzene	13.00	106.0	83993	60.24	ug/L	94
39)	Xylenes (total)	13.08	106.0	224981	118.14	ug/L	99
40)	m,p-Xylenes	13.08	106.0	224271	118.43	ug/L	98
41)	o-Xylene	13.58	106.0	102304	59.35	ug/L	96
42)	Styrene	13.67	104.0	[illegible]	58.32	ug/L	[illegible]

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Operator ID: DANA
Output File: ^D9788::ME
Data File: >D9788::D3
Name: 3/90 VSTD050
Misc: ALS-01 5 ML PURGE

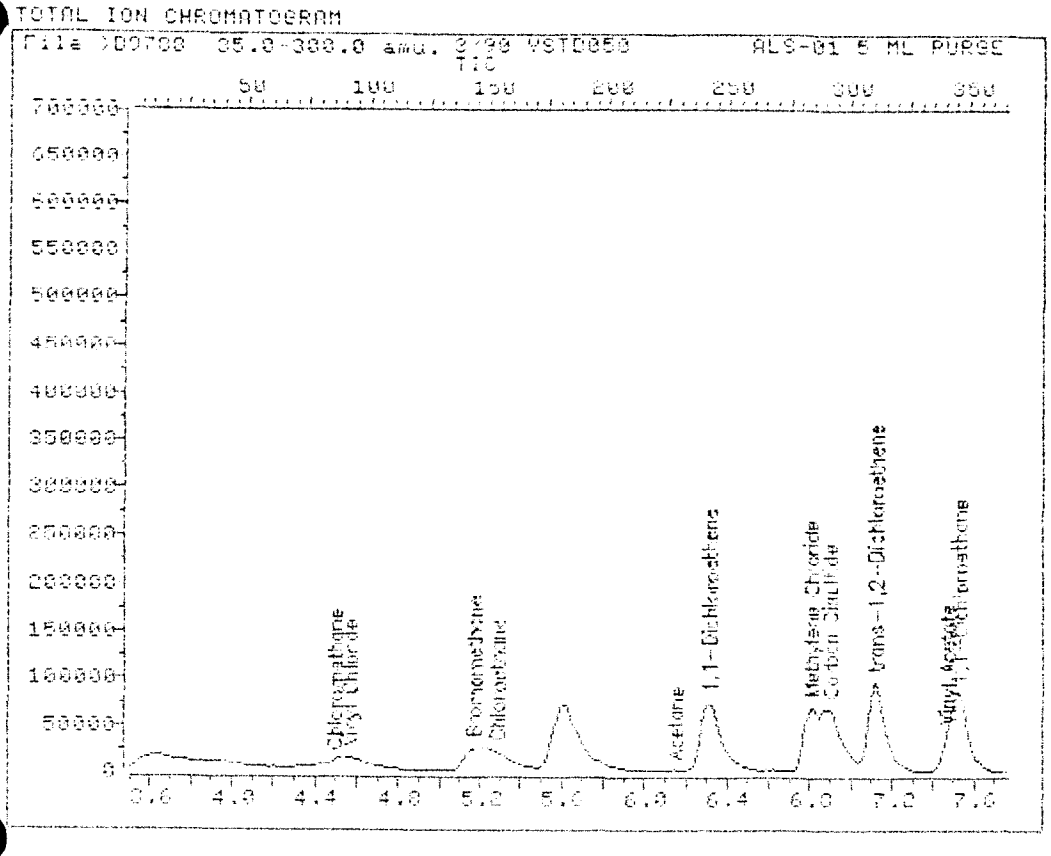
Quant Rev: 2
Quant Time: 930524 11:12
Injected at: 930524 10:55
Dilution Factor: 1.00000
Instrument ID: GC/MS-D

ID File: ID0390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32
Last Cal Time: 930521 12:59

	Compound	R.T.	Q ion	Area	Conc	Units	q
44)	Bromofluorobenzene	14.32	95.0	229506	50.51	ug/L	98

* Compound is ISTD

TOTAL ION CHROMATOGRAM



Data File: >D0788::D3 Quant Output File: "D0788::ME
Name: 3/90 VSTD050 Instrument ID: GC/MS-D
Misc: ALS-01 5 ML PURGE

Id File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32 Last Qcal Time: 930521 17:53

Operator ID: DANA
Quant Time : 930524 11:12
Injected at: 930524 10:55

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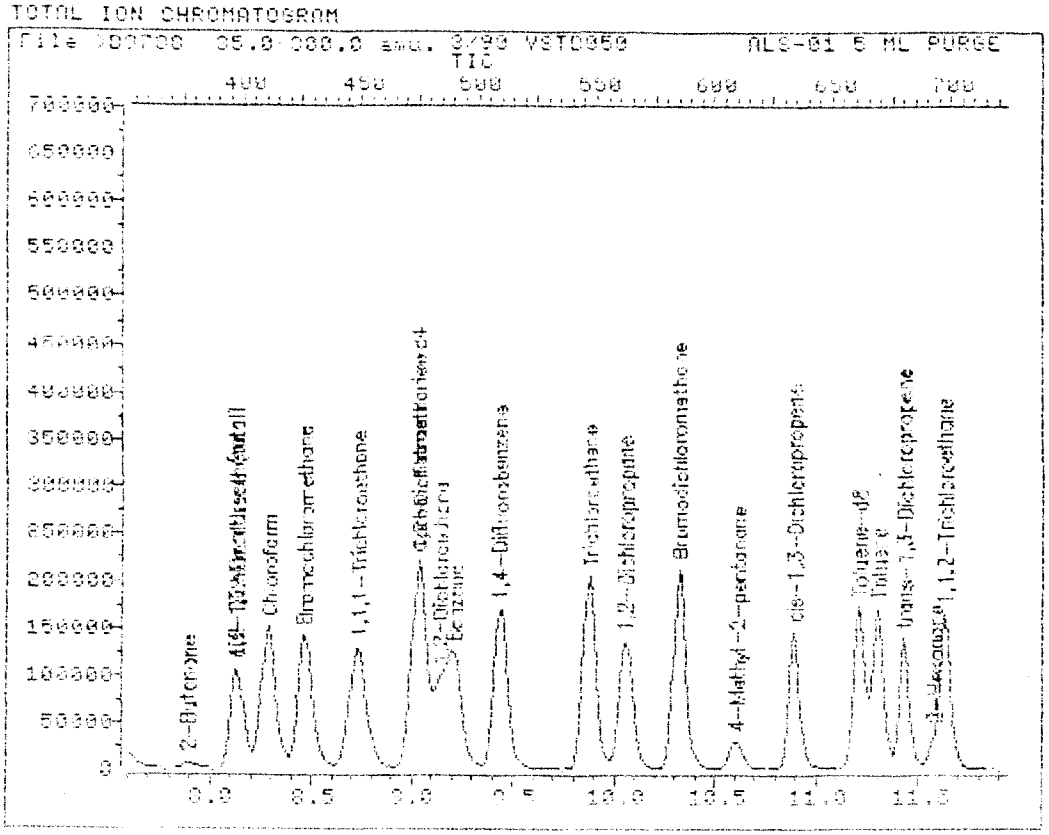
TOTAL ION CHROMATOGRAM



Data File: >D9788::D>
Name: 3/90 VSTD050
Misc: ALS-01 5 ML PURGE

Quant Output File: >D9788::ME
Instrument ID: GC/MS-D

Id File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32 Last Qual Time: 930521 17:53

Operator ID: DANA
Quant Time : 930524 11:12
Injected at: 930524 10:55

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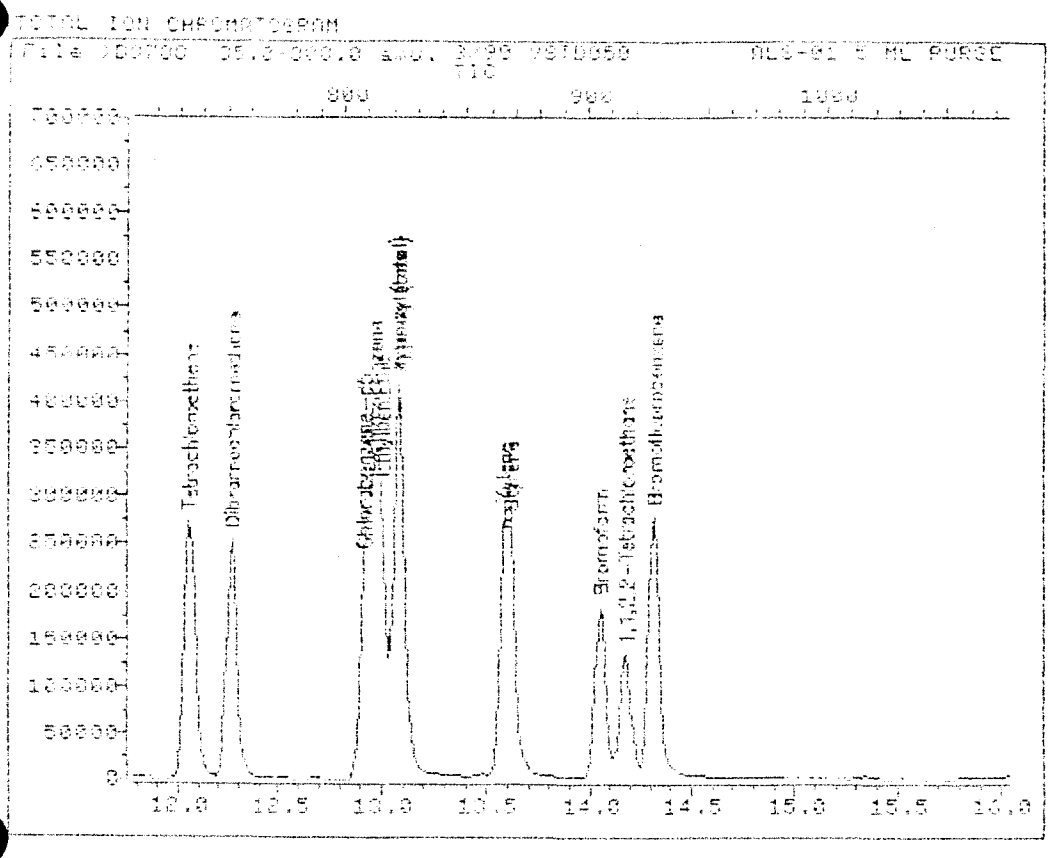


Data File: >D4288::D3 Quant Output File: TD4288::M6
Name: 3/90 VSTD050 Instrument ID: GC/MS-D
Misc: ALS-01 5 ML PURGE

Id File: 100390::ME
Title: I.C. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32 Last Qcal Time: 930521 17:53

Operator ID: DANA
Quant Time : 930524 11:12
Injected at: 930524 10:55

Page 3 of 3

LOCKHEED ANALYTICAL LABORATORY
VOLATILE CONTINUING CALIBRATION CHECK

Lab Job Name:TAD-RAD-ORG Contract:_

Lab Code:LAL Case No.: SAS No.: SDG No.:TAD

Instrument ID:GC/MS-D Calibration Date: 5/25/93 Time:1024

Lab File ID:D9817 Init. Calib. Date(s): 5/13/93 5/13/93

Heated Purge: (Y/N) N Init. Calib. Times: 1547 1744

GC Column:RTX502.2 ID: 0.53 (mm)

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Chloromethane	0.660	0.504		23.6	
Bromomethane	1.263	1.031	0.100	18.4	25.0
Vinyl Chloride	0.786	0.619	0.100	21.2	25.0
Chloroethane	0.515	0.448		13.0	
Methylene Chloride	1.164	1.015		12.8	
Acetone	0.178	0.157		11.8	
Carbon Disulfide	3.112	2.659		14.6	
1,1-Dichloroethene	1.107	0.996	0.100	10.0	25.0
1,1-Dichloroethane	2.131	1.912	0.200	10.3	25.0
1,2-Dichloroethene (total)	1.162	1.053		9.4	
Chloroform	3.151	2.864	0.200	9.1	25.0
1,2-Dichloroethane	1.726	1.530	0.100	11.4	25.0
2-Butanone	0.257	0.214		16.7	
1,1,1-Trichloroethane	0.781	0.711	0.100	9.0	25.0
Carbon Tetrachloride	0.813	0.752	0.100	7.5	25.0
Bromodichloromethane	0.999	0.888	0.200	11.1	25.0
1,2-Dichloropropane	0.344	0.306		11.0	
cis-1,3-Dichloropropene	0.527	0.472	0.200	10.4	25.0
Trichloroethene	0.481	0.438	0.300	8.9	25.0
Dibromochloromethane	0.882	0.753	0.100	14.6	25.0
1,1,2-Trichloroethane	0.341	0.291	0.100	14.7	25.0
Benzene	0.731	0.666	0.500	8.9	25.0
trans-1,3-Dichloropropene	0.479	0.413	0.100	13.8	25.0
Bromoform	0.565	0.441	0.100	21.9	25.0
4-Methyl-2-Pentanone	0.263	0.207		21.3	
2-Hexanone	0.180	0.136		24.4	
Tetrachloroethene	0.507	0.496	0.200	2.2	25.0
1,1,2,2-Tetrachloroethane	0.774	0.591	0.500	23.6	25.0
Toluene	1.072	0.981	0.400	8.5	25.0
Chlorobenzene	0.944	0.885	0.500	6.2	25.0
Ethylbenzene	0.344	0.308	0.100	10.5	25.0
Styrene	0.737	0.691	0.300	6.2	25.0
Xylenes (total)	0.437	0.428	0.300	2.1	25.0
Toluene-d8	1.036	1.017		1.8	
Bromofluorobenzene	1.048	0.939	0.200	10.4	25.0
1,2-Dichloroethane-d4	1.526	1.450		5.0	

All other compounds must meet a minimum RRF of 0.010

QUANT REPORT

Operator ID: LORI
Output File: ^D9812::ME
Data File: >D9812::D3
Name: 3/90 VSTD050
Misc: ALS-01 5 ML PURGE

Quant Rev: 7
Quant Time: 930525 10:41
Injected at: 930525 10:24
Dilution Factor: 1.00000
Instrument ID: GC/MS-D

ID File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32
Last Dial Date: 930524 10:55

OK JH 5/27/93

	Compound	R.T.	Scan#	Area	Conc	Units	q
1)	*Bromochloromethane	8.47	426	86217	50.00	ug/L	88
2)	Chloromethane	4.49	86	43436	44.08	ug/L	87
3)	Vinyl Chloride	4.54	90	53363	44.56	ug/L	94
4)	Bromomethane	5.19	146	88896	46.49	ug/L	99
5)	Chloroethane	5.28	153	38652	44.09	ug/L	90
6)	Acetone	6.15	227	13494	56.90	ug/L	84
7)	1,1-Dichloroethene	6.32	242	85831	45.68	ug/L	85
8)	Carbon Disulfide	6.90	292	229234	44.94	ug/L	100
9)	Methylene Chloride	6.81	284	87498	42.69	ug/L	89
10)	1,2-Dichloroethene (total)	8.13	397	181496M	90.09	ug/L	76
11)	trans-1,2-Dichloroethene	7.13	311	88863	45.34	ug/L	84
12)	1,1-Dichloroethane	7.53	346	164816	44.10	ug/L	94
13)	2-Butanone	7.91	378	18452	48.00	ug/L	91
14)	cis-1,2-Dichloroethene	8.13	397	93685	43.98	ug/L	84
15)	Chloroform	8.28	410	246944	45.46	ug/L	98
16)	1,2-Dichloroethane-d4	9.04	475	125057	49.29	ug/L	93
17)	1,2-Dichloroethane	9.14	484	131907	45.22	ug/L	99
18)	*1,4-Difluorobenzene	9.45	510	302178	50.00	ug/L	95
19)	Vinyl Acetate	7.48	341	99911	42.79	ug/L	90
20)	1,1,1-Trichloroethane	8.74	449	214996	45.71	ug/L	95
21)	Carbon Tetrachloride	9.04	475	227389	45.47	ug/L	96
22)	Benzene	9.21	490	201112	44.33	ug/L	100
23)	Trichloroethene	9.88	547	132407	45.03	ug/L	91
24)	1,2-Dichloropropane	10.05	562	92369	44.33	ug/L	95
25)	Bromodichloromethane	10.32	585	268338	44.83	ug/L	98
26)	trans-1,3-Dichloropropene	11.44	681	124837	43.41	ug/L	96
27)	cis-1,3-Dichloropropene	10.89	634	142766	44.18	ug/L	97
28)	1,1,2-Trichloroethane	11.64	698	87971	43.77	ug/L	96
29)	Dibromochloromethane	12.27	752	227517	44.48	ug/L	93
30)	Bromoform	14.07	906	133154	43.18	ug/L	98
31)	*Chlorobenzene-d5	12.93	809	217833	50.00	ug/L	97
32)	4-Methyl-2-pentanone	10.61	610	44992	45.48	ug/L	92
33)	Toluene-d8	11.21	661	221567	48.19	ug/L	98
34)	Toluene	11.30	669	213737	44.99	ug/L	96
35)	2-Hexanone	11.58	693	29541	47.44	ug/L	93
36)	Tetrachloroethene	12.06	734	108153	46.91	ug/L	95
37)	Chlorobenzene	12.98	813	192742	45.05	ug/L	94
38)	Ethylbenzene	13.02	816	67130	43.65	ug/L	92
39)	Xylenes (total)	13.10	823	279574M	138.96	ug/L	99
40)	m,p-Xylenes	13.10	823	190034	92.56	ug/L	99
41)	o-Xylene	13.60	866	88812	45.21	ug/L	93
42)	Styrene	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

74

Operator ID: LORI
Output File: ^D9817::ME
Data File: >D9817::D3
Name: 3790 VST0050
Misc: ALS-01 5 ML PURGE

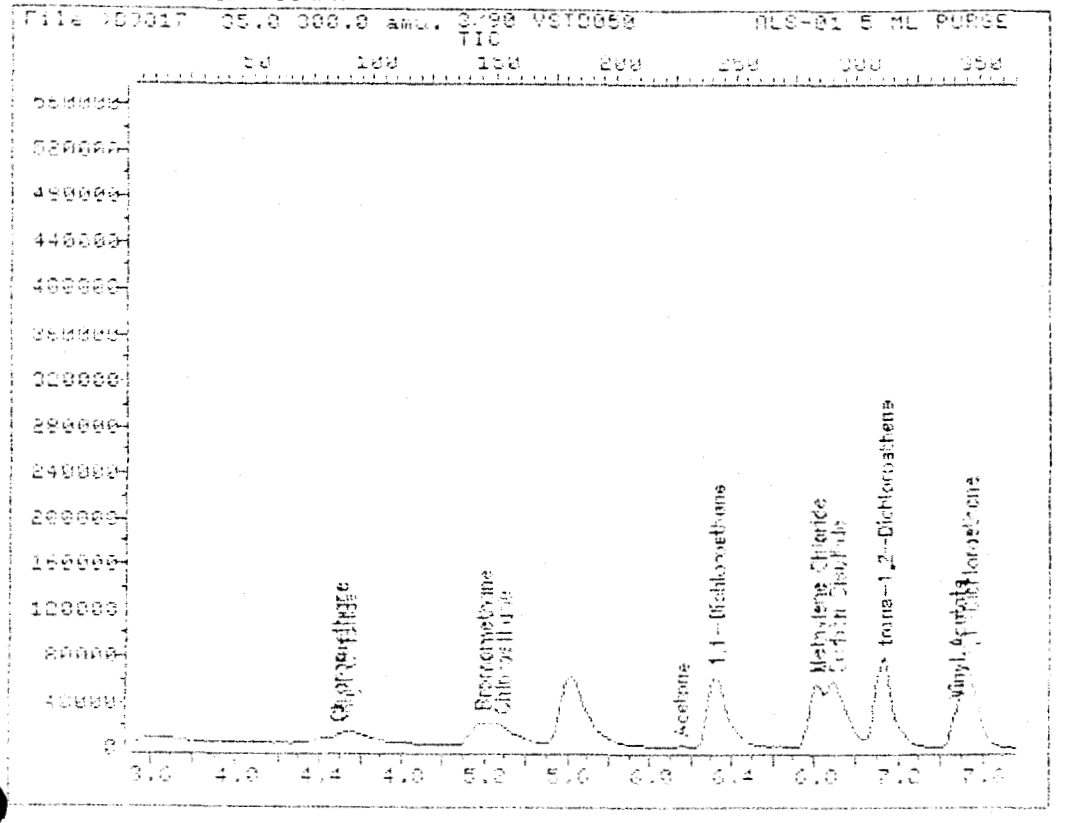
Quant Rev: 2
Quant Time: 930525 10:41
Injected at: 930525 10:24
Dilution Factor: 1.00000
Instrument ID: GC/MS-D

ID File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:37
Last Qual Date: 930524 10:55

	Compound	R.T.	Scan#	Area	Conc	Units	q
44)	Bromofluorobenzene	14.32	928	204642	48.70	ug/L	94

* Compound is ISTD

TOTAL ION CHROMATOGRAM



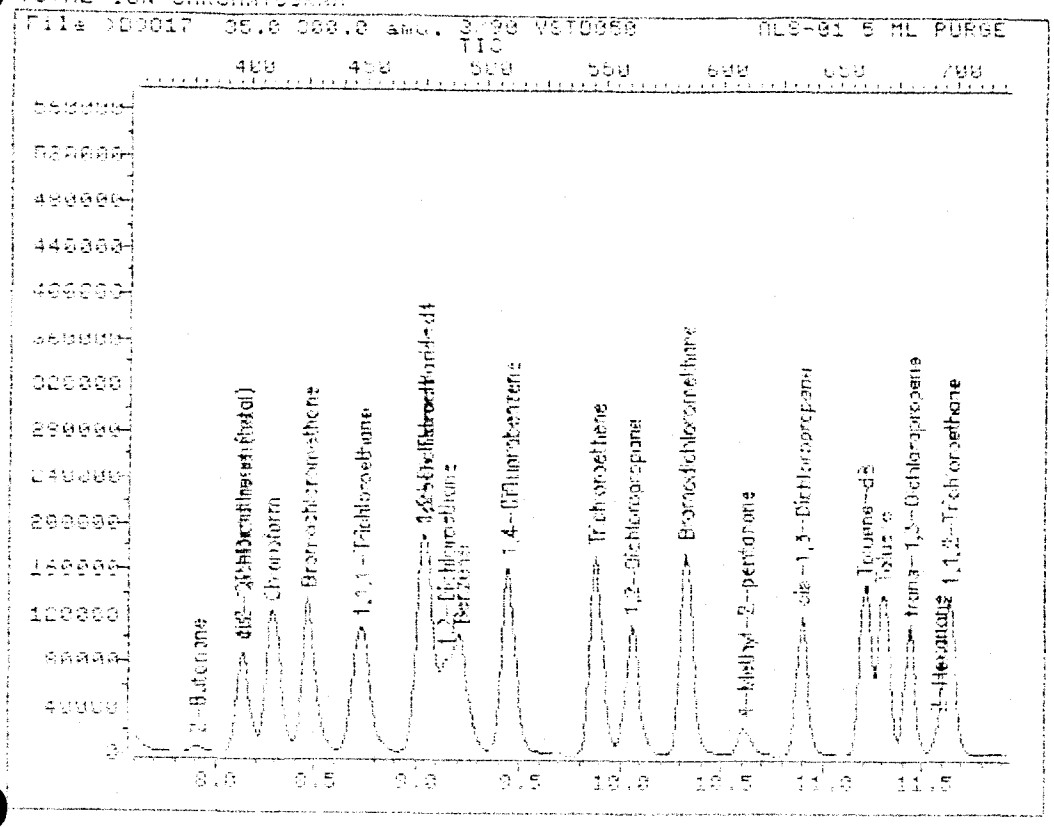
Data File: 207017::03 Quant Output File: 109617::ME
Name: 3/90 VSTD050 Instrument ID: GC/MS-D
Misc: ALS-01 5 ML PURGE

Id File: 100390::ME
Title: I.C. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32 Last Qcal Time: 930524 10:55

Operator ID: LURI
Quant Time : 930525 10:41
Injected at: 930525 10:24

Page 1 of 3

TOTAL ION CHROMATOGRAM



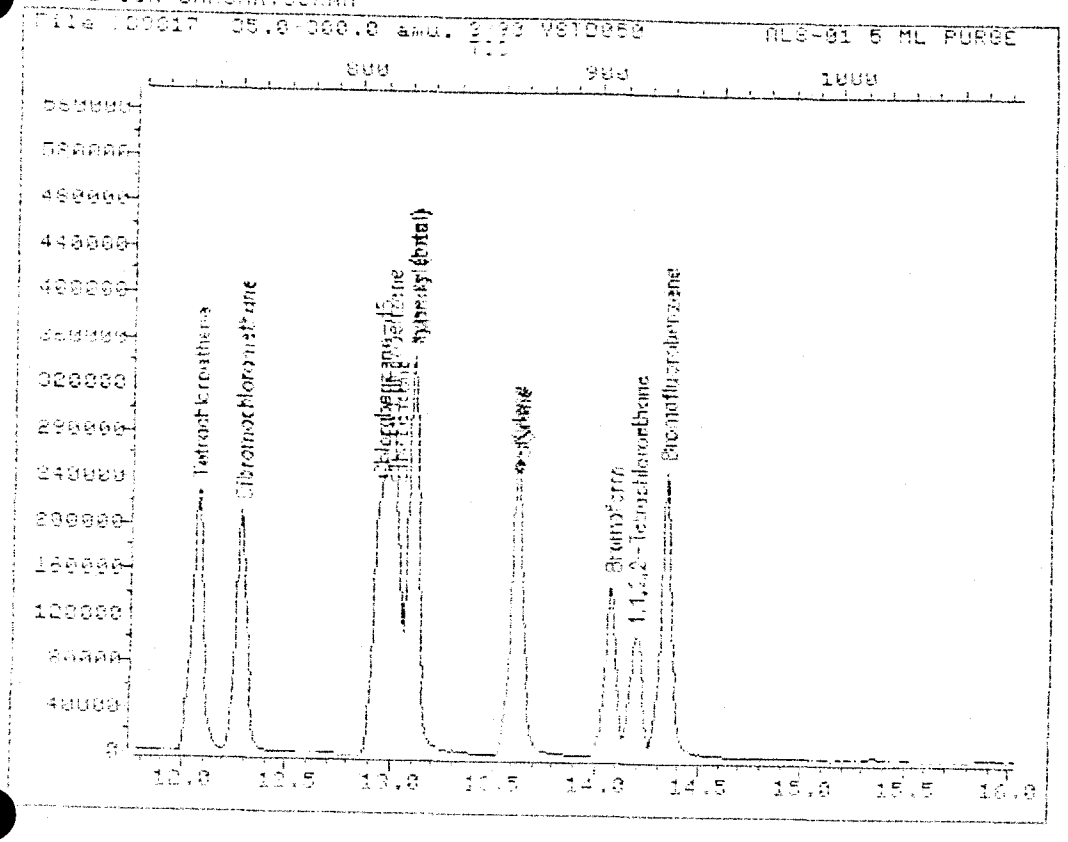
Data File: 100017.D Quant Output File: 100017.ME
Name: 3/90 VST0050 Instrument ID: GC/MS-D
Misc: BLS-01 5 ML PURGE

In File: 100190.ME
Title: I.D. FILE, USA WATER, GC/MS-D
Last Calibration: 930520 10:32 Last Qual Time: 930524 10:55

Operator ID: LORI
Quant Time : 930525 10:41
Injected at: 930525 10:24

Page 2 of 3

TOTAL ION CHROMATOGRAM



Data File: 00617::DX
Name: 3/90 V810050
Misc: ALS-01 5 ML PURGE

Quant Output File: 00617::ME
Instrument ID: GC/MS-D

Id File: 100390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930920 10:32

Last Wcal Time: 930924 10:55

Operator ID: LORI
Quant Time : 930525 10:41
Injected at: 930525 10:24

Page 3 of 3

QC DATA

GC/MS PERFORMANCE STANDARD

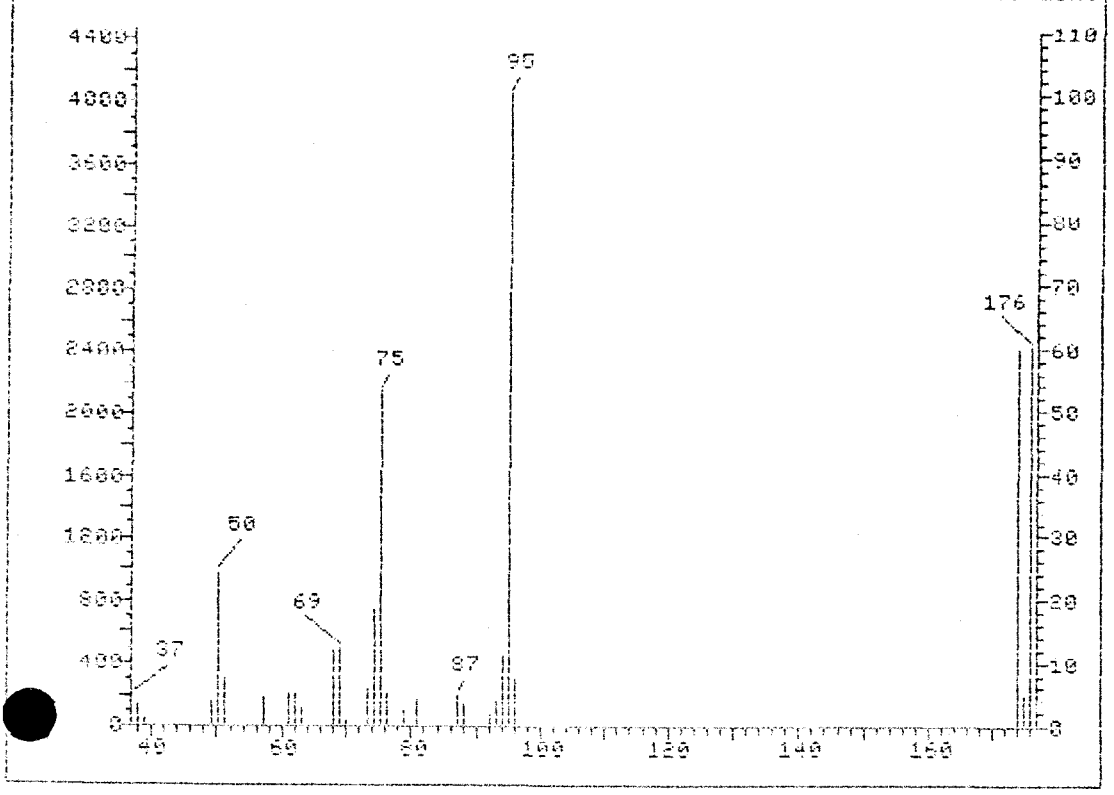
Bromofluorobenzene (BFB)

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
50	8-40% of mass 95	24.19	24.19	Ok
75	30-66% of mass 95	52.99	52.99	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	7.45	7.45	Ok
173	Less than 2% of mass 174	0.00	0.00	Ok
174	50-120% of mass 95	59.97	59.97	Ok
175	4-9% of mass 174	4.81	8.02	Ok
176	93-101% of mass 174	60.18	100.36	Ok
177	5-9% of mass 176	4.25	7.06	Ok

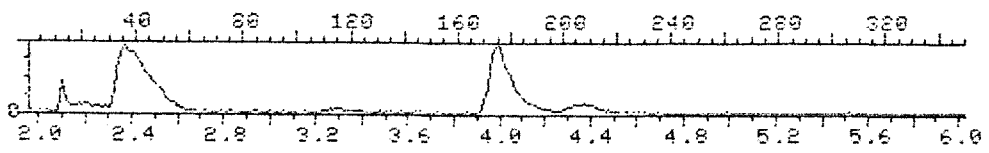
Injection Date: 05/13/93
Injection Time: 09:58
Data File: >D8645
Scan: 175

THIS TUNE PASSES THE TUNING CRITERIA FOR THE 3/90 SOW OK 5/13/93

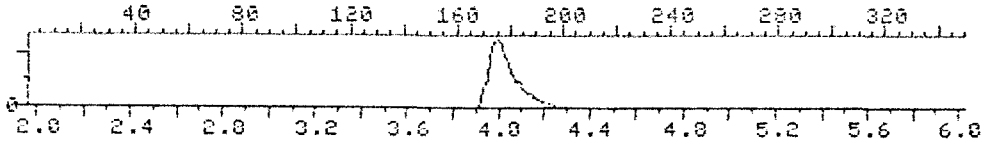
File >D8645 3/90 50 ng BFB INSTRUMENT TUNE RFW Scan 175
Bpk Ab 4057. SUB ADD DVC 3.99 min.



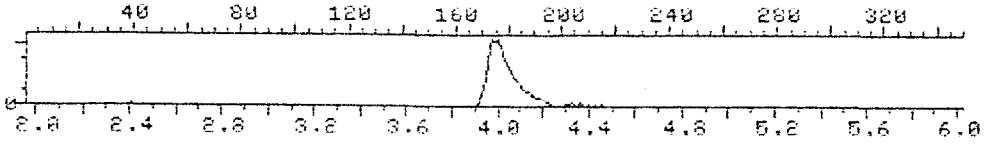
File >D8645 35.0-300.0 amu. 3/90 50 ng BFB INSTRUMENT TUNE RFW



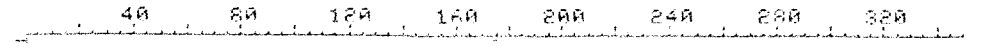
File >D8645 173.7-174.7 amu. 3/90 50 ng BFB INSTRUMENT TUNE RFW



File >D8645 74.7-75.7 amu. 3/90 50 ng BFB INSTRUMENT TUNE RFW



File >D8645 49.7-50.7 amu. 3/90 50 ng BFB INSTRUMENT TUNE RFW



>D8645 3/90 50 ng BFB INSTRUMENT TUNE RFW
175 SUB ADD NRM DUC

File: >D8645 Scan #: 175 Retn. time: 3.99

m/z	Int.	m/z	Int.	m/z	Int.	m/z	Int.	m/z	Int.
37.	4.371	57.	4.560	70.	.624	81.	4.059	95.	100.000
38.	3.410	61.	5.456	73.	5.661	87.	4.741	96.	7.453
39.	1.553	62.	5.308	74.	18.168	88.	3.591	174.	59.967
49.	3.673	63.	2.736	75.	52.991	92.	1.882	175.	4.807
50.	24.191	68.	12.062	76.	5.062	93.	4.306	176.	60.181
51.	7.601	69.	12.177	79.	2.588	94.	11.167	177.	4.248

GC/MS PERFORMANCE STANDARD

Bromofluorobenzene (BFB)

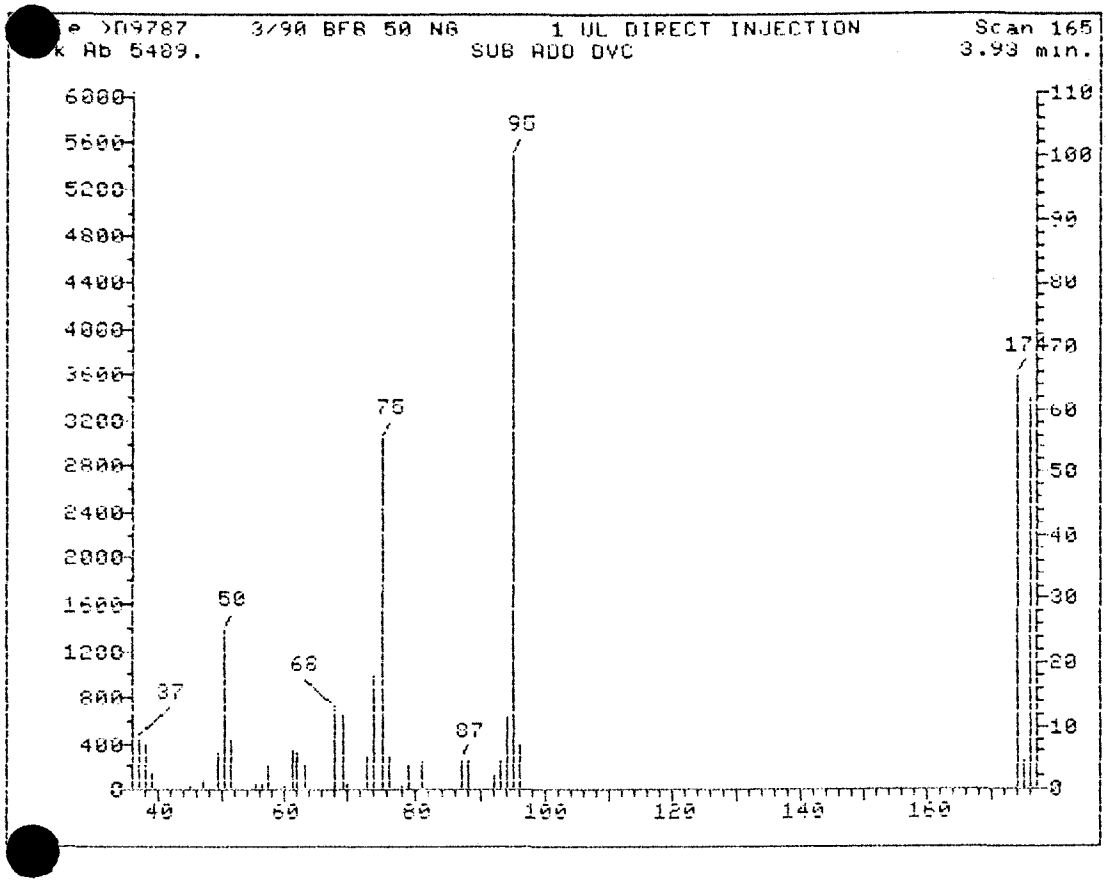
m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
50	8-40% of mass 95	24.99	24.99	Ok
75	30-66% of mass 95	55.45	55.45	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	7.09	7.09	Ok
173	Less than 2% of mass 174	0.00	0.00	Ok
174	50-120% of mass 95	65.38	65.38	Ok
175	4-9% of mass 174	4.62	7.06	Ok
176	93-101% of mass 174	61.51	94.07	Ok
177	5-9% of mass 176	3.82	6.21	Ok

Injection Date: 05/24/93
Injection Time: 10:31
Data File: >D9787
Scan: 165

THIS TUNE PASSES THE TUNING CRITERIA FOR THE 3/90 SOW ✓ OK

AH

5/24/93


e >D9787 3/90 BFB 50 NG 1 UL DIRECT INJECTION Scan 165
k Ab 5489. SUB ADD DVC 3.93 min.
95
75
50
68
37
87
174
6000
5600
5200
4800
4400
4000
3600
3200
2800
2400
2000
1600
1200
800
400
0
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100
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70
60
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30
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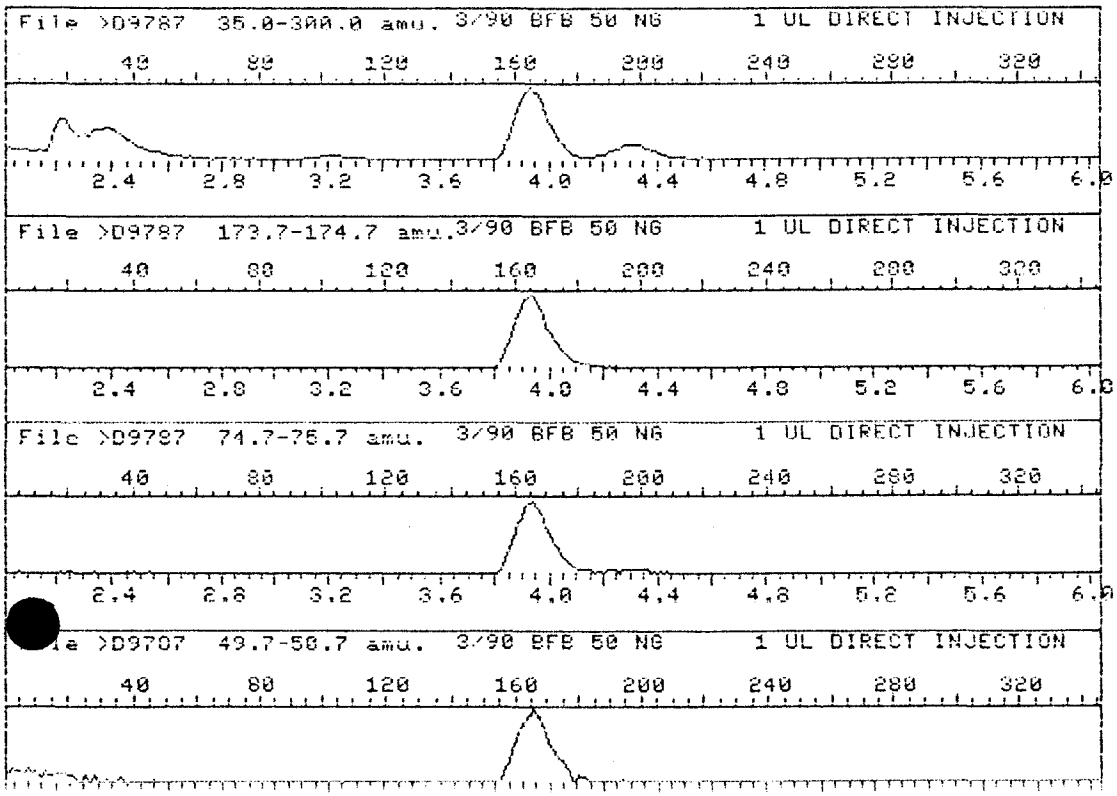
100
120
140
160


File >D9787 35.0-300.0 amu. 3/90 BFB 50 NG 1 UL DIRECT INJECTION
File >D9787 173.7-174.7 amu. 3/90 BFB 50 NG 1 UL DIRECT INJECTION
File >D9787 74.7-75.7 amu. 3/90 BFB 50 NG 1 UL DIRECT INJECTION
le >D9707 49.7-50.7 amu. 3/90 BFB 50 NG 1 UL DIRECT INJECTION
40 80 120 160 200 240 280 320
2.4 2.8 3.2 3.6 4.0 4.4 4.8 5.2 5.6 6.0

>D9787 3/90 BFB 50 NG 1 UL DIRECT INJECTION
165 SUB ADD NRM DVC

File: >D9787 Scan #: 165 Retn. time: 3.93

m/z	Int.	m/z	Int.	m/z	Int.	m/z	Int.	m/z	Int.
36.	.559	51.	7.761	68.	12.485	78.	.401	94.	11.598
37.	7.973	55.	.899	69.	12.054	79.	3.953	95.	100.000
38.	7.105	56.	.638	70.	.874	81.	4.536	96.	7.093
39.	2.417	57.	3.971	73.	5.635	87.	4.542	174.	65.381
45.	.504	60.	.522	74.	17.932	88.	4.530	175.	4.615
47.	1.324	61.	6.042	75.	55.447	92.	2.180	176.	61.507
49.	5.890	62.	5.902	76.	5.113	93.	4.633	177.	3.820
50.	24.988	63.	3.728						

GC/MS PERFORMANCE STANDARD

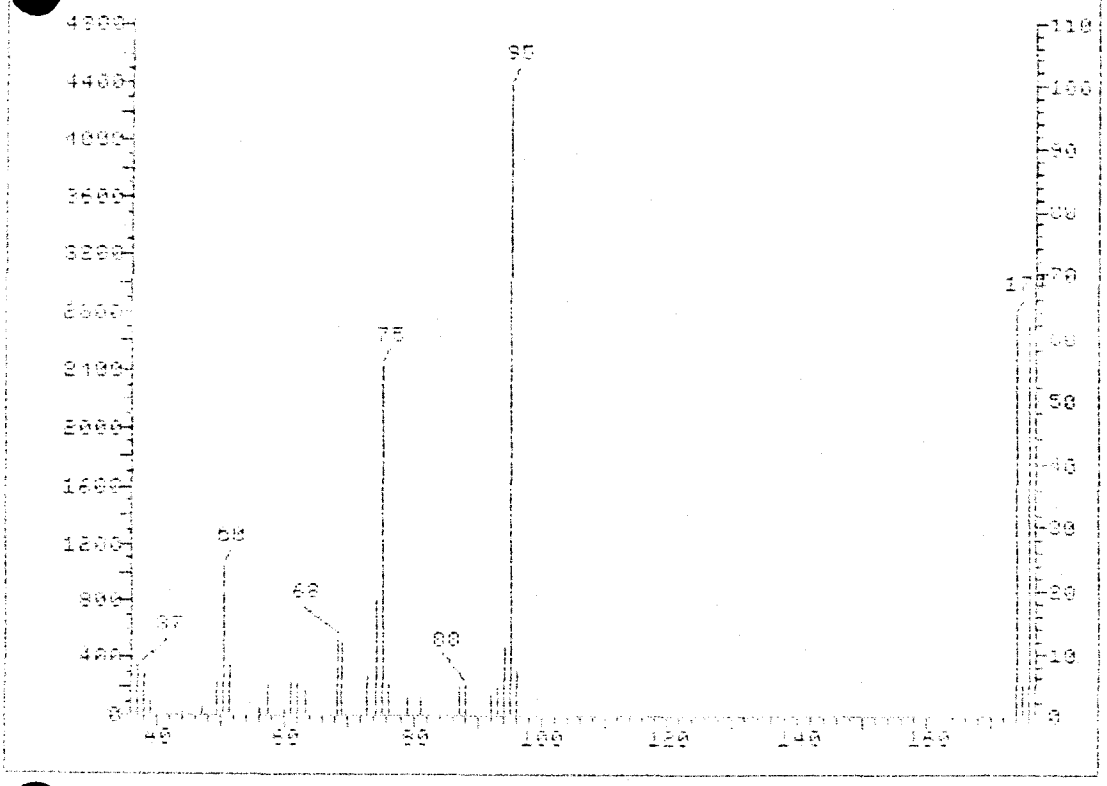
Bromofluorobenzene (BFB)

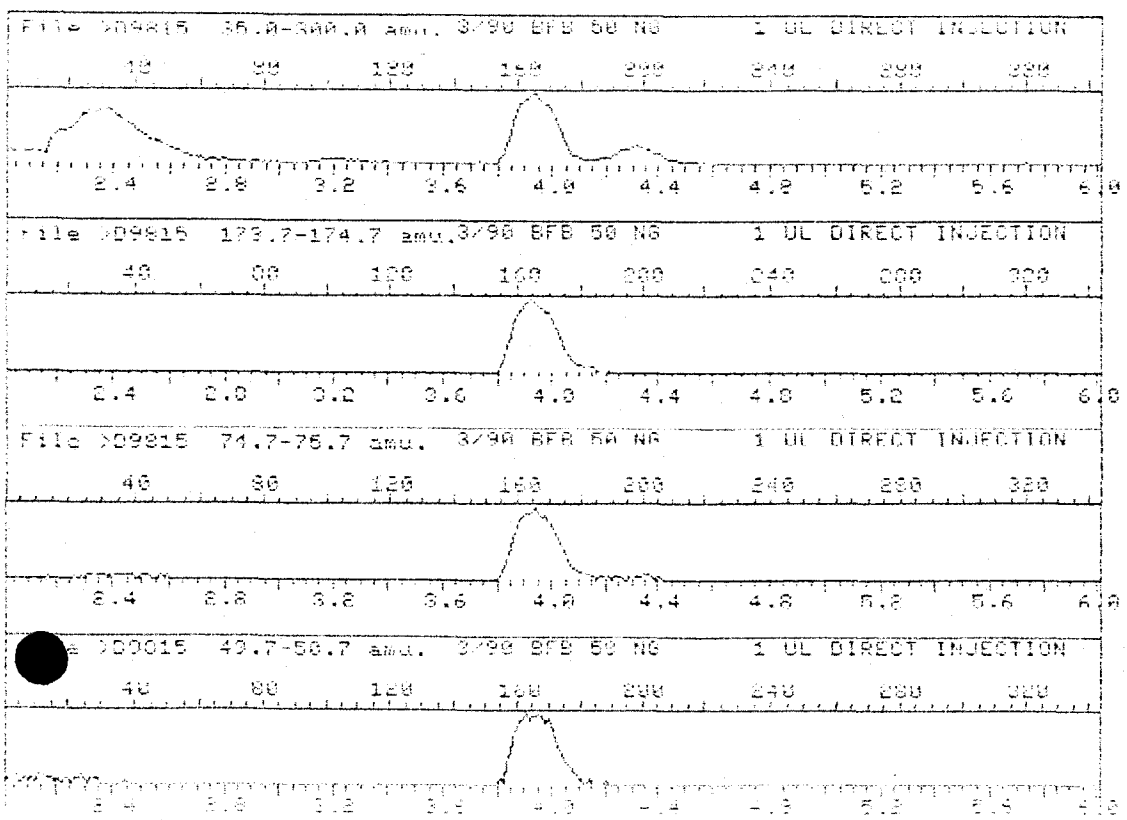
m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
50	8-40% of mass 95	23.59	23.59	Ok
75	30-66% of mass 95	55.22	55.22	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	7.47	7.47	Ok
173	Less than 2% of mass 174	0.00	0.00	Ok
174	50-120% of mass 95	63.47	63.47	Ok
175	4-9% of mass 174	4.72	7.44	Ok
176	93-101% of mass 174	62.01	97.70	Ok
177	5-9% of mass 176	4.24	6.84	Ok

Injection Date: 05/25/93
Injection Time: 08:59
Data File: 209819
Scan: 165

THIS TUNE PASSES THE TUNING CRITERIA FOR THE 3/90 SOW ✓

OK
meets CLP 3/90
criteria
AH 5/27/93


File >D9815 3/90 BFB 50 NG 1 UL DIRECT INJECTION Scan 165
AS 4399. SUB ADD OVC 3.93 min.
95
75
50
68
37
88
173
40
60
80
100
120
140
160


File >D9815 35.0-300.0 amu. 3/90 BFB 50 NG 1 UL DIRECT INJECTION
File >D9815 173.7-174.7 amu. 3/90 BFB 50 NG 1 UL DIRECT INJECTION
File >D9815 74.7-75.7 amu. 3/90 BFB 50 NG 1 UL DIRECT INJECTION
File >D9815 49.7-50.7 amu. 3/90 BFB 50 NG 1 UL DIRECT INJECTION

86
JY

>09815 3/90 BFB 50 NG 1 UL DIRECT INJECTION
165 SUB ADD NRM DUC

File: >09815 Scan #: 165 Retn. time: 3.93

m/z	Int.	m/z	Int.	m/z	Int.	m/z	Int.	m/z	Int.
36.	.682	49.	5.592	62.	5.069	76.	4.781	94.	10.971
37.	7.183	50.	23.594	63.	4.054	79.	2.803	95.	100.000
38.	6.365	51.	8.244	68.	12.403	81.	2.659	96.	7.471
39.	2.023	56.	1.515	69.	11.668	87.	4.508	174.	63.472
40.	.235	57.	4.789	73.	6.145	88.	4.675	175.	4.720
44.	.265	60.	.788	74.	18.313	92.	3.493	176.	62.009
47.	1.440	61.	5.327	75.	55.266	93.	4.326	177.	4.243

LOCKHEED ANALYTICAL LABORATORY
VOLATILE ORGANICS ANALYSIS DATA SHEET

CUSTOMER SAMPLE NO.

VBLK01

Lab Job Name:TAD-RAD-ORG Contract:_

Lab Code:LAL Case No.: SAS No.: SDG No.:TAD

Matrix: (soil/water) WATER Lab Sample ID:AD0333

Sample wt/vol: 5.00 (g/ml) ML Lab File ID: D9789

Level: (low/med) LOW Date Received: / /

% Moisture: not dec. 0 Date Analyzed: 5/24/93

GC Column:RTX502.2 ID: 0.53(mm) Dilution Factor: 1.00

Soil Extract Volume: 1.00 (uL) Soil Aliquot Volume: 1.00(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L_	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	10.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	10.	U
75-35-4	1,1-Dichloroethene	10.	U
75-34-3	1,1-Dichloroethane	10.	U
540-59-0	1,2-Dichloroethene (total)	10.	U
67-66-3	Chloroform	10.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	10.	U
56-23-5	Carbon Tetrachloride	10.	U
75-27-4	Bromodichloromethane	10.	U
78-87-5	1,2-Dichloropropane	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U
79-01-6	Trichloroethene	10.	U
124-48-1	Dibromochloromethane	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U
71-43-2	Benzene	10.	U
10061-02-6	trans-1,3-Dichloropropene	10.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene	10.	U
108-90-7	Chlorobenzene	10.	U
100-41-4	Ethylbenzene	10.	U
100-42-5	Styrene	10.	U
1330-20-7	Xylenes (total)	10.	U

LOCKHEED ANALYTICAL LABORATORY
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CUSTOMER SAMPLE NO.

VBLK01

Lab Job Name:TAD-RAD-ORG Contract:_

Lab Code:LAL Case No.: SAS No.: SDG No.:TAD

Matrix: (soil/water) WATER Lab Sample ID:AD0333

Sample wt/vol: 5.00 (g/ml) ML Lab File ID: D9789

Level: (low/med) LOW Date Received: / /

% Moisture: not dec. 0 Date Analyzed: 5/24/93

GC Column:RTX502.2 ID: 0.53(mm) Dilution Factor: 1.00

Soil Extract Volume: 1.00 (uL) Soil Aliquot Volume: 1.00(uL)

Number TICs Found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L_

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

QUANT REPORT

Operator ID: DANA
Output File: ^D9289::MF
Data File: >D9289::D3
Name: 3/90 AD3332 BLANK 1
Misc: ALS-02 5 ML PURGE

Quant Rev: 7
Quant Time: 930524 12:23
Injected at: 930524 12:06
Dilution Factor: 1.00000
Instrument ID: GC/MS-D

ID File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32

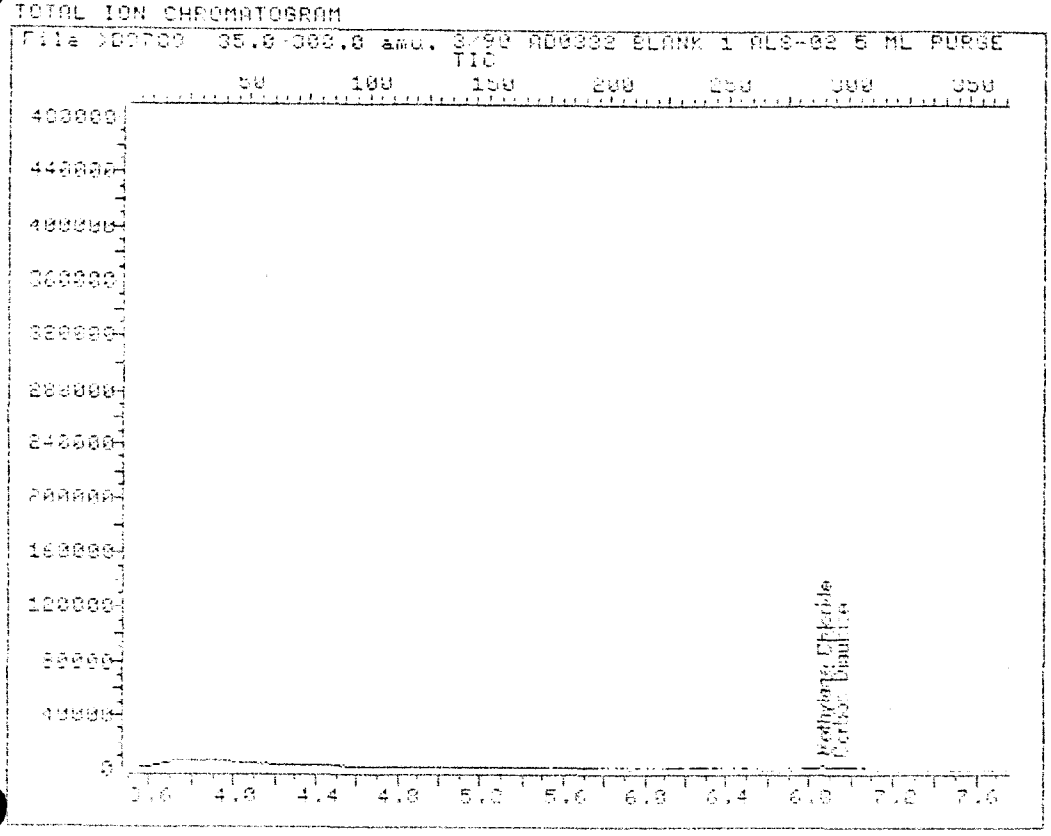
Last Qcal Time: 930524 10:55 ✓

OK DH 5/24/93

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*Bromochloromethane	8.50	128.0	89872 ✓	50.00	ug/L	88
8)	Carbon Disulfide	6.99	76.0	2938	~~.477 ug/L~~	LRDL	100
9)	Methylene Chloride	6.87	84.0	3805	~~1.78 ug/L~~	LRDL	82
16)	1,2-Dichloroethane-d4	9.04	65.0	145473.	55.01	ug/L 110%	89
18)	*1,4-Difluorobenzene	9.44	114.0	317920 ✓	50.00	ug/L	99
22)	Benzene	9.21	78.0	1021	~~.214 ug/L~~	LRDL	100
28)	1,1,2-Trichloroethane	11.63	97.0	1139	~~.539 ug/L~~	LRDL	91
30)	Bromoform	14.05	173.0	1105	~~.341 ug/L~~	LRDL	92
31)	*Chlorobenzene-d5	12.93	117.0	237080 ✓	50.00	ug/L	97
33)	Toluene-d8	11.21	98.0	241939	48.39	ug/L 97%	98
37)	Chlorobenzene	12.98	112.0	1141	~~.249 ug/L~~	LRDL	85
42)	Styrene	13.62	104.0	1166	~~.329 ug/L~~	LRDL	99
44)	Bromofluorobenzene	14.32	95.0	225802	49.31	ug/L 99%	94

* Compound is ISTD

TOTAL ION CHROMATOGRAM



DH 5/24/93

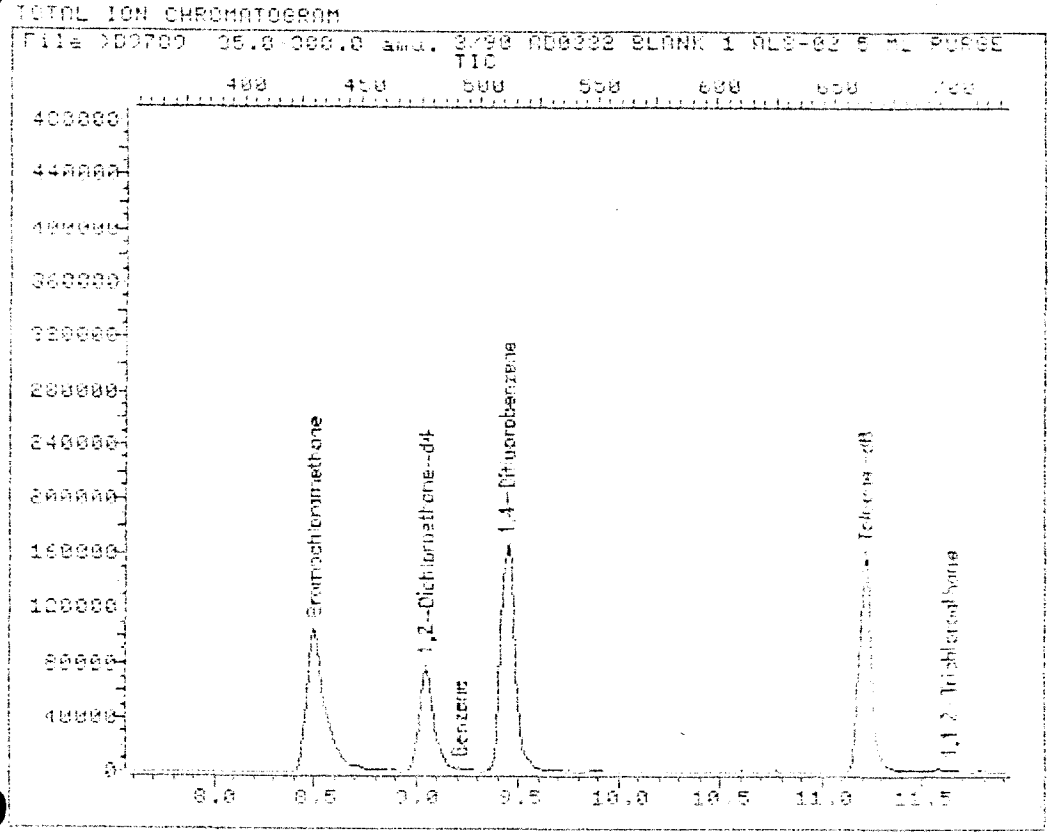
Data File: >D9289::D2 Quant Output File: ^D9289::ME
Name: 3/90 AD0332 BLANK 1 Instrument ID: GC/MS-D
Misc: ALS-02 5 ML PURGE

Id File: IDD390::ME
Title: I.D. FILE, VUA WATER, GC/MS-D
Last Calibration: 930520 10:32 Last Qcal Time: 930524 10:59

Operator ID: DANA
Quant Time : 930524 12:23
Injected at: 930524 12:06

Page 1 of 3

TOTAL ION CHROMATOGRAM



RH 5/24/93

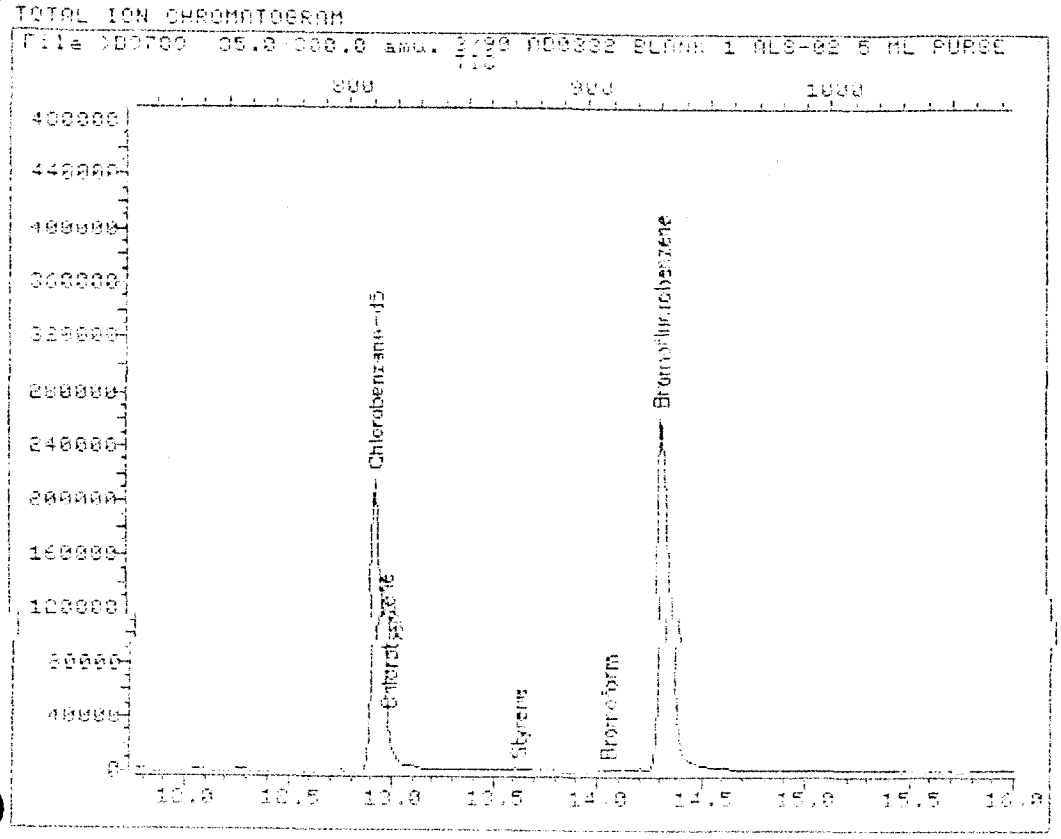
Data File: >D0789::D3 Quant Output File: >D0789::ME
Name: 3/90 AD0332 BLANK 1 Instrument ID: GC/MS-D
Misc: ALS-02 5 ML PURGE

Id File: ID0390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32 Last Qcal Time: 930524 10:55

Operator ID: DANA
Quant Time : 930524 12:23
Injected at: 930524 12:06

Page 2 of 3

TOTAL ION CHROMATOGRAM



AH 5/24/93

Data File: >D0700::MS
Name: 3/90 A00332 BLANK 1
Misc: ALS-02 5 ML PURGE

Quant Output File: ^D0700::ME
Instrument ID: GC/MS-D

Id File: 100390::ME
Title: I.C. FILE, UGA WATER, GC/MS-D
Last Calibration: 930520 10:32
Last Qcal Time: 930524 10:55

Operator ID: DANA
Quant Time : 930524 12:23
Injected at: 930524 12:0A

Page 3 of 3

LOCKHEED ANALYTICAL LABORATORY
VOLATILE ORGANICS ANALYSIS DATA SHEET

CUSTOMER SAMPLE NO.

VBLK02

Lab Job Name:TAD-RAD-ORG Contract:_

Lab Code:LAL Case No.: SAS No.: SDG No.:TAD

Matrix: (soil/water) WATER Lab Sample ID:AD0336

Sample wt/vol: 5.00 (g/ml) ML Lab File ID: D9819

Level: (low/med) LOW Date Received: / /

% Moisture: not dec. 0 Date Analyzed: 5/25/93

GC Column:RTX502.2 ID: 0.53(mm) Dilution Factor: 1.00

Soil Extract Volume: 1.00 (uL) Soil Aliquot Volume: 1.00(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L_	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	10.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	10.	U
75-35-4	1,1-Dichloroethene	10.	U
75-34-3	1,1-Dichloroethane	10.	U
540-59-0	1,2-Dichloroethene (total)	10.	U
67-66-3	Chloroform	10.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	10.	U
56-23-5	Carbon Tetrachloride	10.	U
75-27-4	Bromodichloromethane	10.	U
78-87-5	1,2-Dichloropropane	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U
79-01-6	Trichloroethene	10.	U
124-48-1	Dibromochloromethane	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U
71-43-2	Benzene	10.	U
10061-02-6	trans-1,3-Dichloropropene	10.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene	10.	U
108-90-7	Chlorobenzene	10.	U
100-41-4	Ethylbenzene	10.	U
100-42-5	Styrene	10.	U
1330-20-7	Xylenes (total)	10.	U

LOCKHEED ANALYTICAL LABORATORY
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CUSTOMER SAMPLE NO.

VBLK02

Lab Job Name:TAD-RAD-ORG Contract:_

Lab Code:LAL Case No.: SAS No.: SDG No.:TAD

Matrix: (soil/water) WATER Lab Sample ID:AD0336

Sample wt/vol: 5.00 (g/ml) ML Lab File ID: D9819

Level: (low/med) LOW Date Received: / /

% Moisture: not dec. 0 Date Analyzed: 5/25/93

GC Column:RTX502.2 ID: 0.53(mm) Dilution Factor: 1.00

Soil Extract Volume: 1.00 (uL) Soil Aliquot Volume: 1.00(uL)

Number TICs Found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L_

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
5.					
6.					
7.					
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(10)

QUANT REPORT

Operator ID: LURI
Output File: ^D9819::MF
Data File: >D9819::D3
Name: 3790 AD0337 BLANK 2
Misc: ALS-02 5 ML PURGE

Quant Rev: 7
Quant Time: 930525 12:09
Injected at: 930525 11:52
Dilution Factor: 1.00000
Instrument ID: GC/MS-D

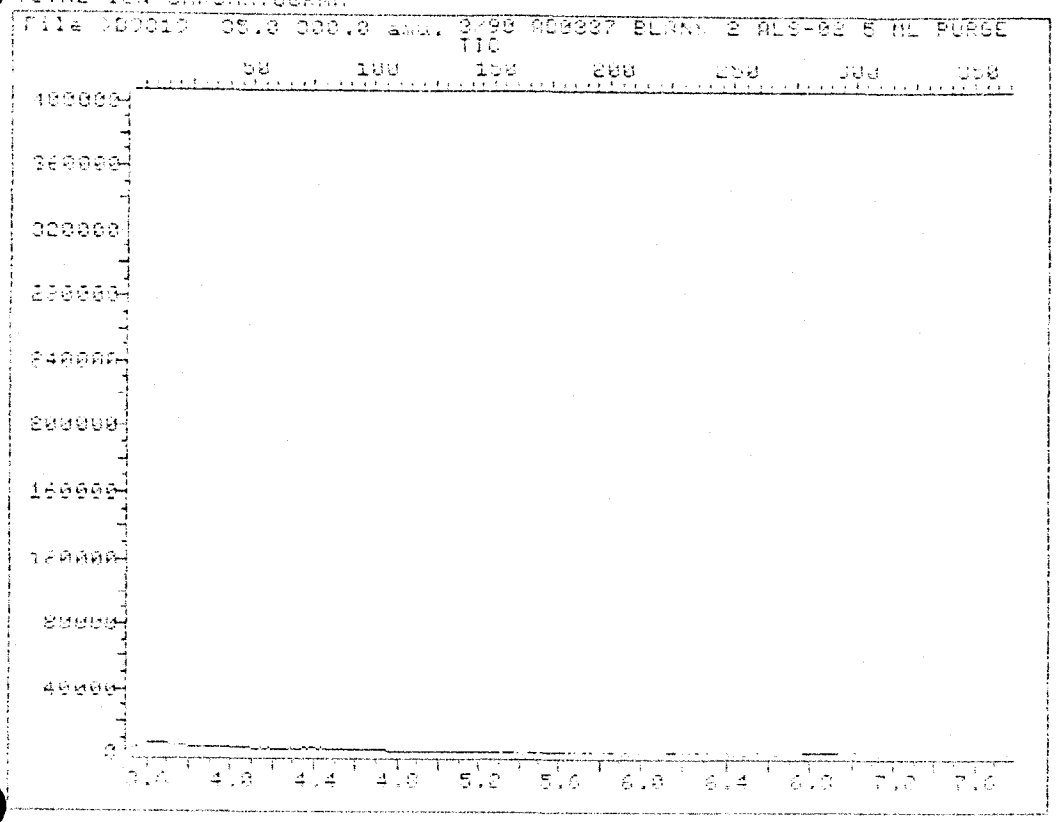
ID File: IDD390::MF
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32
Last Qual Time: 930525 10:24 ✓

OK JH 5/25/93

	Compound	R.T.	Q ion	Area	Conc	Units		q
1)	*Bromochloromethane	8.42	128.0	80674 ✓	50.00	ug/L		87
16)	1,2-Dichloroethane-d4	9.04	65.0	112550	48.09	ug/L	96%	92
18)	*1,4-Difluorobenzene	9.44	114.0	275086 ✓	50.00	ug/L		94
31)	*Chlorobenzene-d5	12.93	117.0	198654 ✓	50.00	ug/L		97
33)	Toluene-d8	11.21	98.0	201271	49.80	ug/L	100%	98
44)	Bromofluorobenzene	14.33	95.0	184898	49.54	ug/L	99%	97

* Compound is ISTD

TOTAL ION CHROMATOGRAM



✓

AH
5/25/93

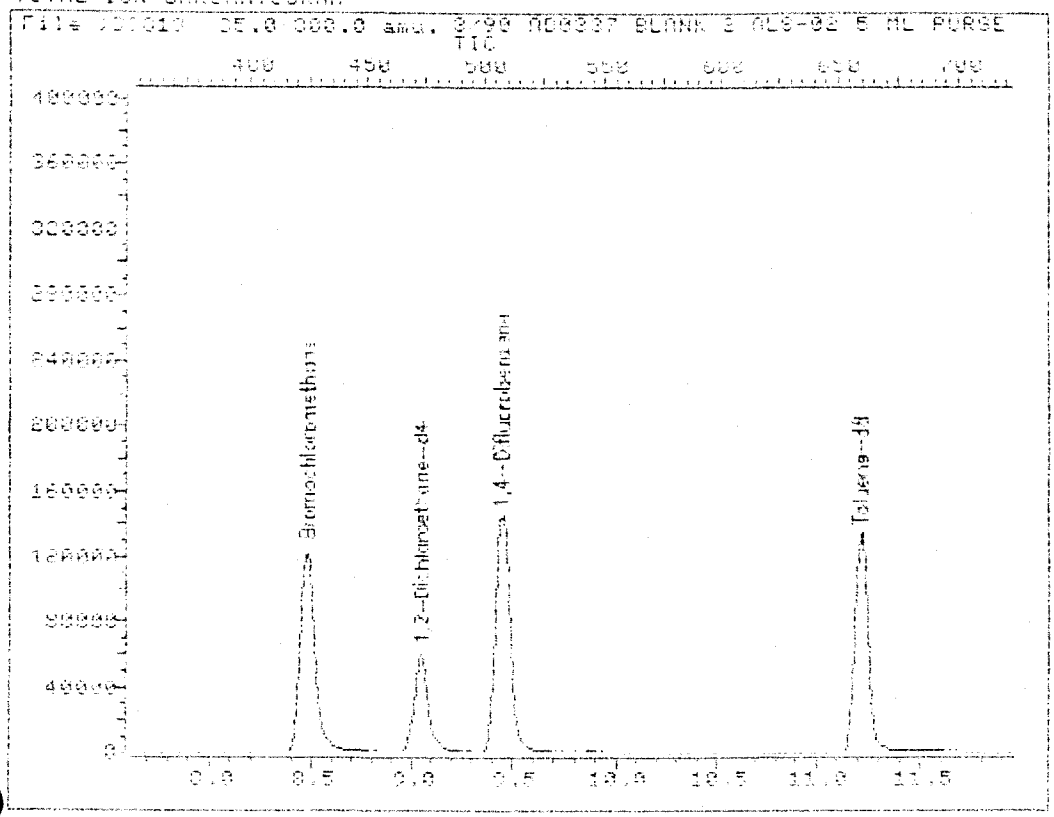
Data File: >D9819::D3 Quant Output File: >D9819::ME
Name: 3/90 AD0337 BLANK 2 Instrument ID: GC/MS-D
Misc: ALS-02 5 ML PURGE

Id File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32 Last Qcal Time: 930525 10:24

Operator ID: LORI
Quant Time : 930525 12:09
Injected at: 930525 11:52

Page 1 of 3

TOTAL ION CHROMATOGRAM



AH 5/25/93

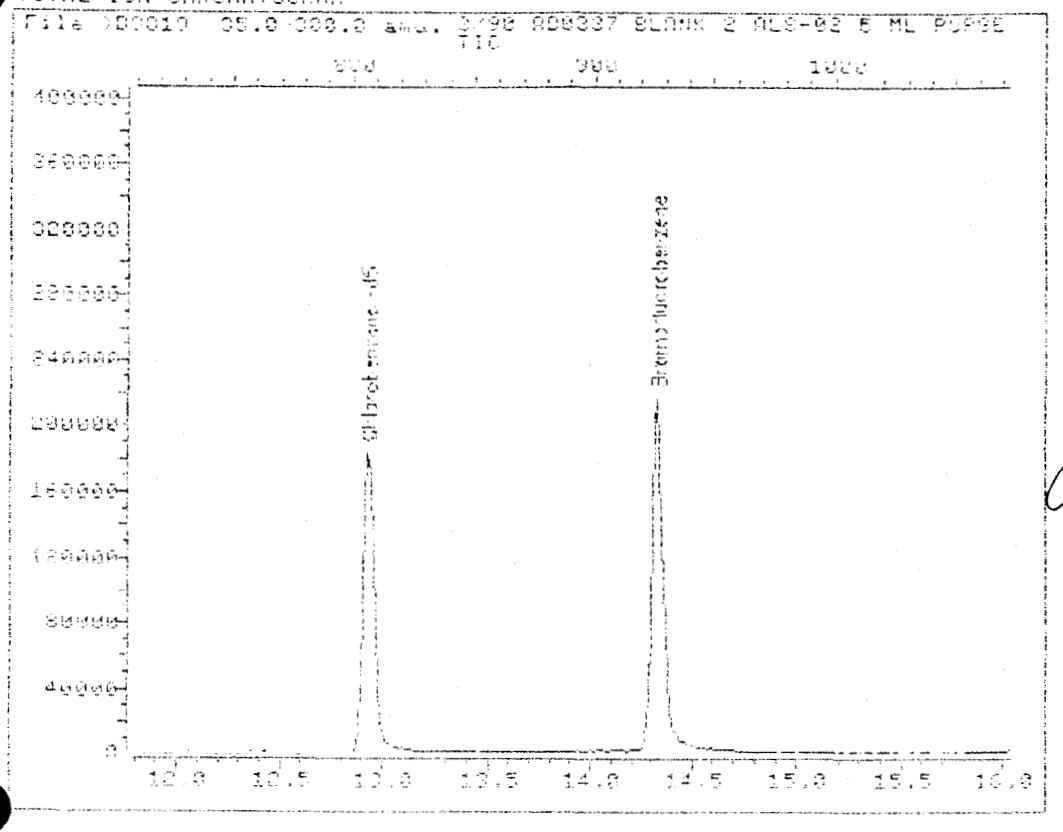
Data File: 1D9819::D3 Quant Output File: 1D9819::ME
Name: 3/90 AD0337 BLANK 2 Instrument ID: GC/MS-D
Misc: ALS-02 5 ML PURGE

Id File: 1DD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32 Last Qcal Time: 930525 10:24

Operator ID: LORI
Quant Time : 930525 12:09
Injected at: 930525 11:52

Page 2 of 3

TOTAL ION CHROMATOGRAM



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AH
5/25/93

Data File: >D9819::D1 Quant Output File: >D9819::ME
Name: 3/90 AD0337 BLANK 2 Instrument ID: GC/MS-D
Misc: ALS-02 5 ML PURGE

Id File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32 Last Qcal Time: 930525 10:24

Operator ID: LURI
Quant Time : 930525 12:09
Injected at: 930525 11:52

Page 3 of 3

LOCKHEED ANALYTICAL LABORATORY
VOLATILE ORGANICS ANALYSIS DATA SHEET

CUSTOMER SAMPLE NO.

RF112001MS

Lab Job Name:TAD-RAD-ORG Contract:_

Lab Code:LAL Case No.: SAS No.: SDG No.:TAD

Matrix: (soil/water) SOIL Lab Sample ID:A44232MS

Sample wt/vol: 5.04 (g/ml) G Lab File ID: D9791

Level: (low/med) LOW Date Received: 5/13/93

% Moisture: not dec. 0 Date Analyzed: 5/24/93

GC Column:RTX502.2 ID: 0.53(mm) Dilution Factor: 1.00

Soil Extract Volume: 1.00 (uL) Soil Aliquot Volume: 1.00(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	10.	U
67-64-1	Acetone	190.	
75-15-0	Carbon Disulfide	10.	U
75-35-4	1,1-Dichloroethene	42.	
75-34-3	1,1-Dichloroethane	10.	U
540-59-0	1,2-Dichloroethene (total)	10.	U
67-66-3	Chloroform	10.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	39.	
71-55-6	1,1,1-Trichloroethane	10.	U
56-23-5	Carbon Tetrachloride	10.	U
75-27-4	Bromodichloromethane	10.	U
78-87-5	1,2-Dichloropropane	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U
79-01-6	Trichloroethene	41.	
124-48-1	Dibromochloromethane	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U
71-43-2	Benzene	43.	
10061-02-6	trans-1,3-Dichloropropene	10.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-Pentanone	3.	J
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene	45.	
108-90-7	Chlorobenzene	43.	
100-41-4	Ethylbenzene	10.	U
100-42-5	Styrene	10.	U
1330-20-7	Xylenes (total)	10.	U

LOCKHEED ANALYTICAL LABORATORY
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CUSTOMER SAMPLE NO.

RF112001MS

Lab Job Name:TAD-RAD-ORG Contract:_

Lab Code:LAL Case No.: SAS No.: SDG No.:TAD

Matrix: (soil/water) SOIL Lab Sample ID:A44232MS

Sample wt/vol: 5.04 (g/ml) G Lab File ID: D9791

Level: (low/med) LOW Date Received: 5/13/93

% Moisture: not dec. 0 Date Analyzed: 5/24/93

GC Column:RTX502.2 ID: 0.53(mm) Dilution Factor: 1.00

Soil Extract Volume: 1.00 (uL) Soil Aliquot Volume: 1.00(uL)

Number TICs Found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
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QUANT REPORT

Operator ID: DANA
Quant Rev: 2
Quant Time: 930524 13:56
Output File: ^09291::MF
Injected at: 930524 13:31
Data File: >09291::D3
Dilution Factor: 1.00000
Name: 3/98 A44232MS
Instrument ID: GC/MS-D
Misc: ALS-04 5 ML PURGE RF1120UMS IAD 5.041G

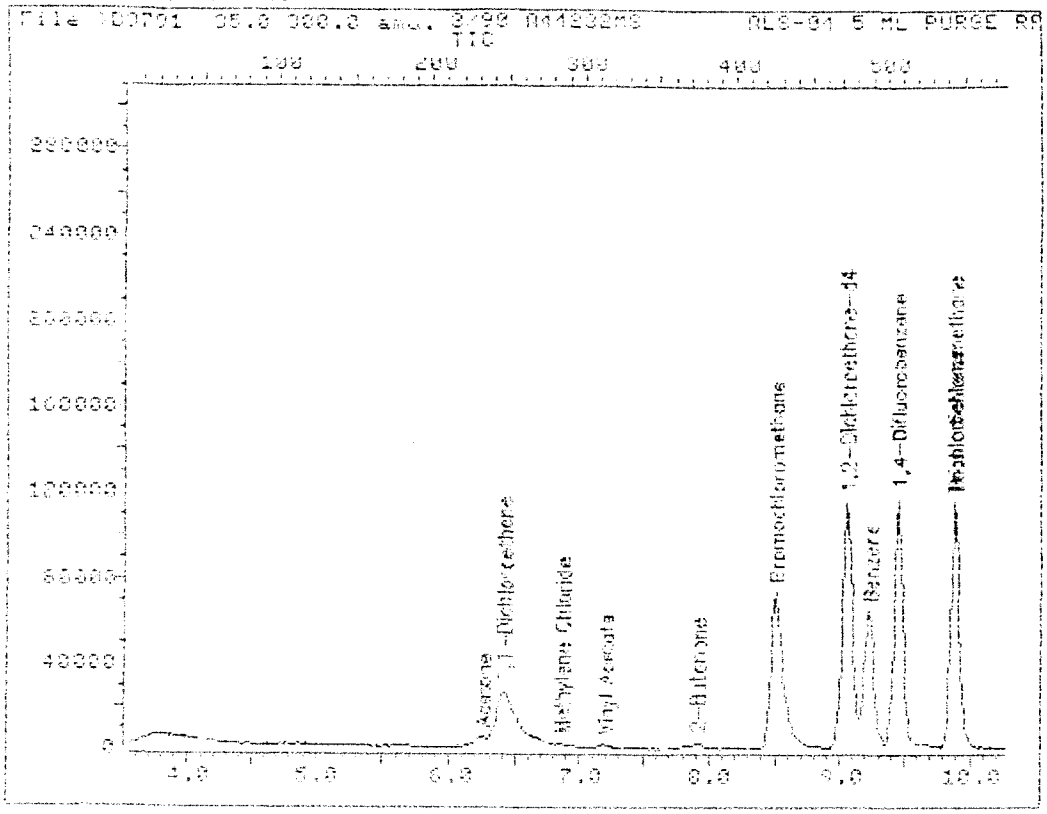
ID File: 100398::MR
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930928 10:32
Last Qual Time: 930524 10:55

OK DH 5/24/93

	Compound	R.T.	Q ion	Area	Conc	Units		q
1)	*Bromochloromethane	8.50	128.0	63502	50.00	ug/L		90
6)	Acetone	6.26	43.0	34421	~~92.06~~	~~ug/L~~		86
7)	1,1-Dichloroethene	6.41	96.0	58568	42.32	ug/L	85%	87
9)	Methylene Chloride	6.86	84.0	1579	~~1.85~~	~~ug/L~~	CRDL	82
13)	2-Butanone	7.91	43.0	11141	~~49.35~~	~~ug/L~~		90
16)	1,2-Dichloroethane-d4	9.09	65.0	100390	53.72	ug/L	107%	88
18)	*1,4-Difluorobenzene	9.45	114.0	215425	50.00	ug/L		94
19)	Vinyl Acetate	7.20	43.0	3031	~~1.02~~	~~ug/L~~	CRDL	93
22)	Benzene	9.23	78.0	139564	43.15	ug/L	86%	100
23)	Trichloroethene	9.86	130.0	87066	41.53	ug/L	83%	91
25)	Bromodichloromethane	9.88	83.0	1251	~~.273~~	~~ug/L~~	CRDL	96
31)	*Chlorobenzene-d5	12.93	117.0	191796	50.00	ug/L		99
32)	4-Methyl-2-pentanone	10.84	43.0	2267	~~3.29~~	~~ug/L~~		79
33)	Toluene-d8	11.22	98.0	160791	50.19	ug/L	100%	96
34)	Toluene	11.30	91.0	148899	44.98	ug/L	90%	96
37)	Chlorobenzene	12.98	112.0	128452	43.09	ug/L	86%	92
39)	Xylenes (total)	13.09	106.0	1062	~~.758~~	~~ug/L~~	CRDL	89
40)	m,p-Xylenes	13.09	106.0	1062	~~.742~~	~~ug/L~~	CRDL	90
44)	Bromofluorobenzene	14.53	95.0	133802	45.70	ug/L	91%	97

* Compound is ISTD

TOTAL ION CHROMATOGRAM



✓

AH 5/24/93

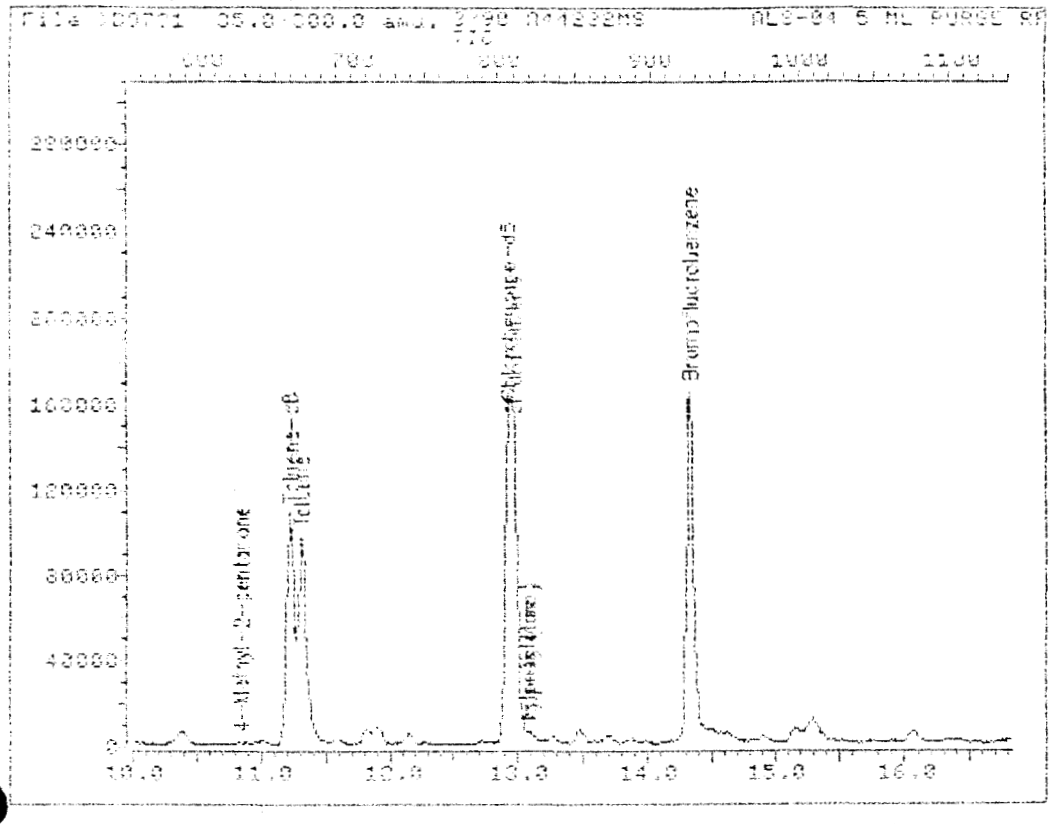
Data File: ID0791::D3 Quant Output File: ^D0791::ME
Name: 3/90 A44232MS Instrument ID: GC/MS-D
Misc: ALS-04 5 ML PURGE RF11200MS TAD 5.041G

Id File: ID0390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32 Last Qcal Time: 930524 10:55

Operator ID: DANA
Quant Time : 930524 13:56
Injected at: 930524 13:31

Page 1 of 3

TOTAL ION CHROMATOGRAM



JH
5/24/93

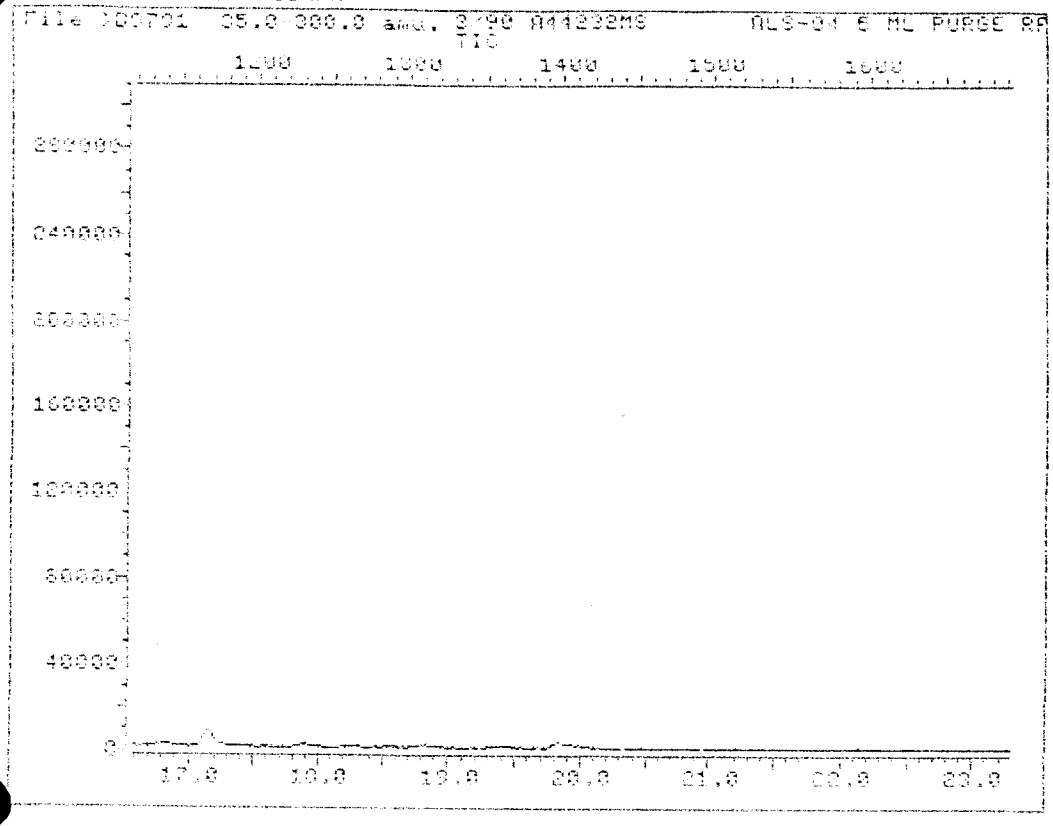
Data File: 3D9791::D3 Quant Output File: 3D9791::ME
Name: 3/90 A44232MS Instrument ID: GC/MS-D
Misc: ALS-04 5 ML PURGE RF11200MS TAD 5.041G

Id File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32 Last Qcal Time: 930524 10:55

Operator ID: DANA
Quant Time : 930524 13:56
Injected at: 930524 13:31

Page 2 of 3

TOTAL ION CHROMATOGRAM



✓

AH 5/24/93

Data File: >D9791::D3 Quant Output File: >D9791::ME
Name: 3/90 A44232MS Instrument ID: GC/MS-D
Misc: ALS-04 5 ML PURGE RF11200MS TAD 5.041G

Id File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32 Last Qcal Time: 930524 10:55

Operator ID: DANA
Quant Time : 930524 13:56
Injected at: 930524 13:31

Page 3 of 3

LOCKHEED ANALYTICAL LABORATORY
VOLATILE ORGANICS ANALYSIS DATA SHEET

CUSTOMER SAMPLE NO.

RF112001MSD

Lab Job Name:TAD-RAD-ORG Contract:_

Lab Code:LAL Case No.: SAS No.: SDG No.:TAD

Matrix: (soil/water) SOIL Lab Sample ID:A44232MSD

Sample wt/vol: 5.09 (g/ml) G Lab File ID: D9792

Level: (low/med) LOW Date Received: 5/13/93

% Moisture: not dec. 0 Date Analyzed: 5/24/93

GC Column:RTX502.2 ID: 0.53(mm) Dilution Factor: 1.00

Soil Extract Volume: 1.00 (uL) Soil Aliquot Volume: 1.00(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	10.	U
67-64-1	Acetone	260.	E
75-15-0	Carbon Disulfide	10.	U
75-35-4	1,1-Dichloroethene	49.	
75-34-3	1,1-Dichloroethane	10.	U
540-59-0	1,2-Dichloroethene (total)	10.	U
67-66-3	Chloroform	10.	U
107-06-2	1,2-Dichloroethane	10.	U
78-93-3	2-Butanone	49.	
71-55-6	1,1,1-Trichloroethane	10.	U
56-23-5	Carbon Tetrachloride	10.	U
75-27-4	Bromodichloromethane	10.	U
78-87-5	1,2-Dichloropropane	10.	U
10061-01-5	cis-1,3-Dichloropropene	10.	U
79-01-6	Trichloroethene	47.	
124-48-1	Dibromochloromethane	10.	U
79-00-5	1,1,2-Trichloroethane	10.	U
71-43-2	Benzene	49.	
10061-02-6	trans-1,3-Dichloropropene	10.	U
75-25-2	Bromoform	10.	U
108-10-1	4-Methyl-2-Pentanone	4.	J
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	10.	U
79-34-5	1,1,2,2-Tetrachloroethane	10.	U
108-88-3	Toluene	52.	
108-90-7	Chlorobenzene	49.	
100-41-4	Ethylbenzene	10.	U
100-42-5	Styrene	10.	U
1330-20-7	Xylenes (total)	10.	U

LOCKHEED ANALYTICAL LABORATORY
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CUSTOMER SAMPLE NO.

RF112001MSD

Lab Job Name:TAD-RAD-ORG Contract:_

Lab Code:LAL Case No.: SAS No.: SDG No.:TAD

Matrix: (soil/water) SOIL Lab Sample ID:A44232MSD

Sample wt/vol: 5.09 (g/ml) G Lab File ID: D9792

Level: (low/med) LOW Date Received: 5/13/93

% Moisture: not dec. 0 Date Analyzed: 5/24/93

GC Column:RTX502.2 ID: 0.53(mm) Dilution Factor: 1.00

Soil Extract Volume: 1.00 (uL) Soil Aliquot Volume: 1.00(uL)

Number TICs Found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
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Operator ID: DANA Quant Rev: 7 Quant Time: 930524 14:31
Output File: ^D9792::ME Injected at: 930524 14:14
Data File: >D9792::D3 Dilution Factor: 1.00000
Name: 3/90 A44232MSD Instrument ID: GC/MS-D
Misc: ALS-05 5 ML PURGE RF11200MSD TAF 5.0906

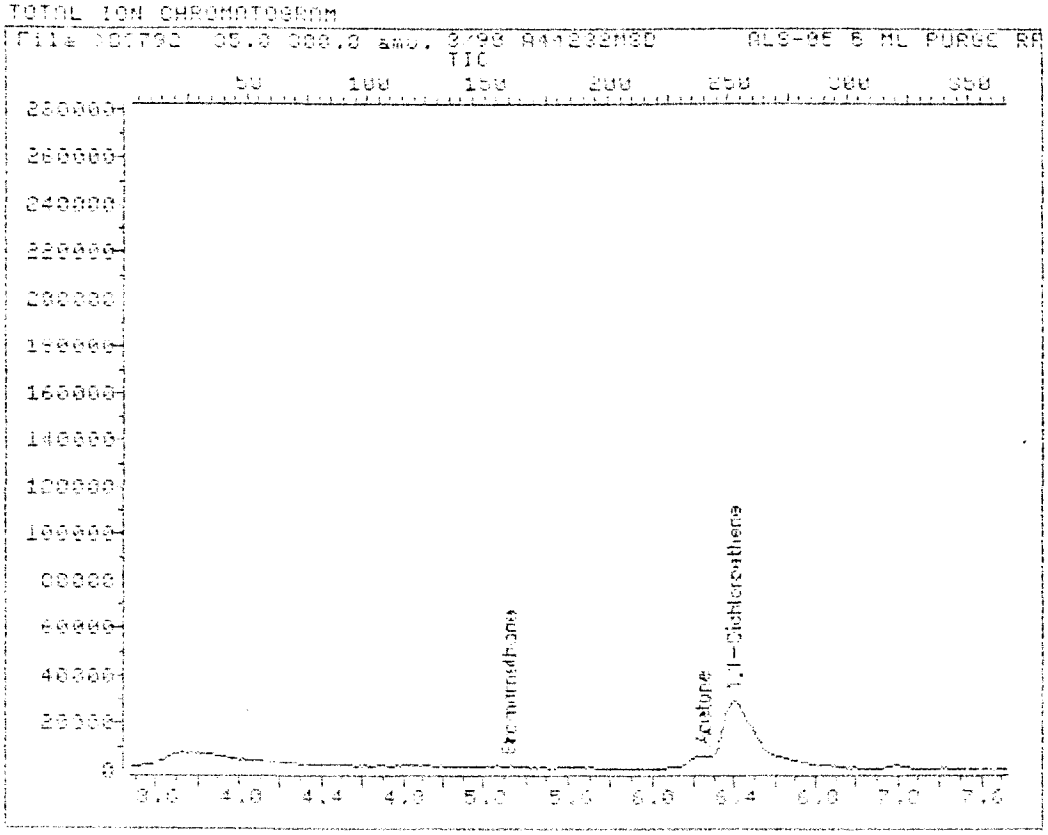
ID File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32 Last Qcal Time: 930524 10:55

OK JH 5/24/93

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*Bromochloromethane	8.50	128.0	55503	50.00	ug/L	87
4)	Bromomethane	5.32	94.0	2568	~~2.09~~	~~ug/L~~ CRDL	94
6)	Acetone	6.24	43.0	40445	264.91	ug/L	92
7)	1,1-Dichloroethene	6.39	96.0	59889	49.51	ug/L 99%	86
13)	2-Butanone	7.91	43.0	12340	49.87	ug/L	90
16)	1,2-Dichloroethane-d4	9.05	65.0	91882	56.26	ug/L 113%	90
17)	1,2-Dichloroethane	9.21	62.0	1452	~~.773~~	~~ug/L~~ CRDL	99
18)	*1,4-Difluorobenzene	9.45	114.0	190599	50.00	ug/L	96
22)	Benzene	9.21	78.0	143015	49.98	ug/L 100%	100
23)	Trichloroethene	9.88	130.0	89465	48.23	ug/L 96%	93
25)	Bromodichloromethane	9.87	83.0	1233	~~.322~~	~~ug/L~~ CRDL	95
31)	*Chlorobenzene-d5	12.94	117.0	131444	50.00	ug/L	94
32)	4-Methyl-2-pentanone	10.85	43.0	[illegible]	3.90	ug/L	94
33)	Toluene-d8	11.21	98.0	147041	53.00	ug/L 106%	97
34)	Toluene	11.30	91.0	153009	53.37	ug/L 107%	97
37)	Chlorobenzene	12.97	112.0	130049	50.38	ug/L 101%	95
39)	Xylenes (total)	13.09	106.0	1030	~~.838~~	~~ug/L~~ CRDL	91
40)	m,p-Xylenes	13.09	106.0	1030	~~.831~~	~~ug/L~~ CRDL	91
44)	Bromofluorobenzene	14.32	95.0	125879	49.65	ug/L 99%	96

* Compound is ISTD

TOTAL ION CHROMATOGRAM



✓ dH 5/24/93

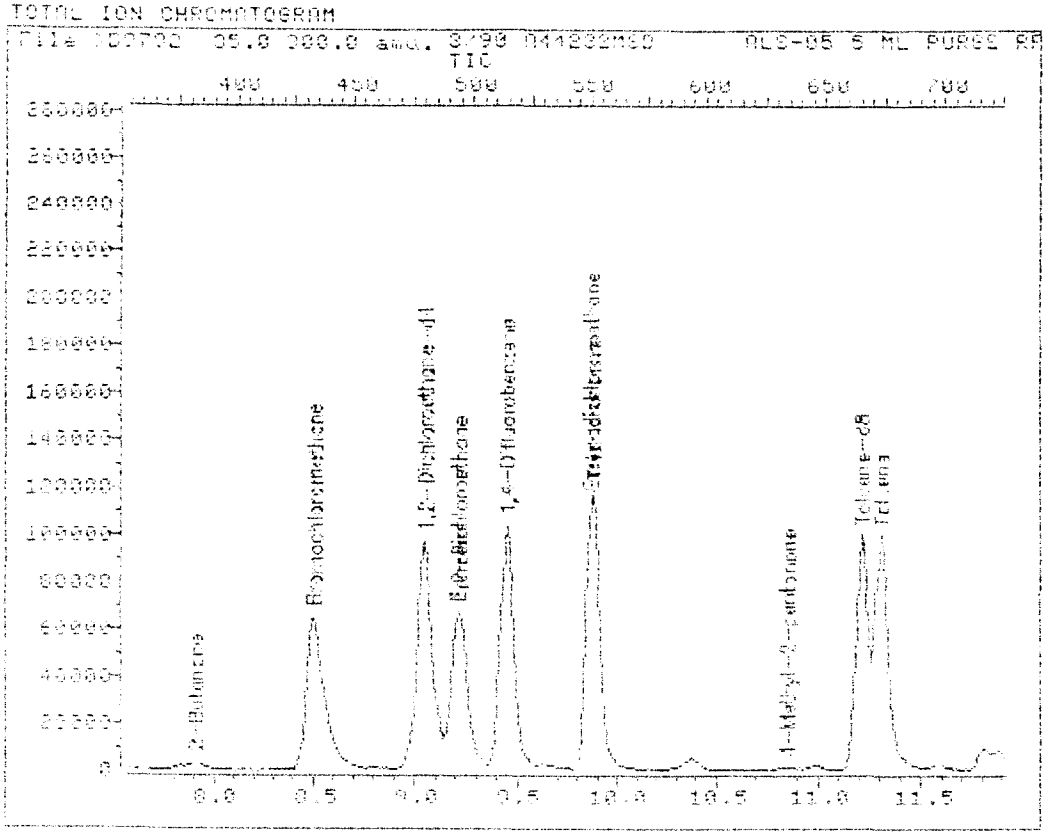
Data File: >D9792::D3 Quant Output File: ^D9792::ME
Name: 3/90 A44232MSD Instrument ID: GC/MS-D
Misc: ALS-05 5 ML PURGE RF11200MSD TAF 5.090G

Id File: ID0390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32 Last Qcal Time: 930524 10:55

Operator ID: DANA
Quant Time : 930524 14:31
Injected at: 930524 14:14

Page 1 of 3

TOTAL ION CHROMATOGRAM



✓ dH 5/24/93

Data File: >D9792::D> Quant Output File: ^D9792::ME
Name: 3/90 A44232MSD Instrument ID: GC/MS-D
Misc: ALS-05 5 ML PURGE RF11200MSD TAF 5.090G

Id File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32 Last Qcal Time: 930524 10:55

Operator ID: DANA
Quant Time : 930524 14:31
Injected at: 930524 14:14

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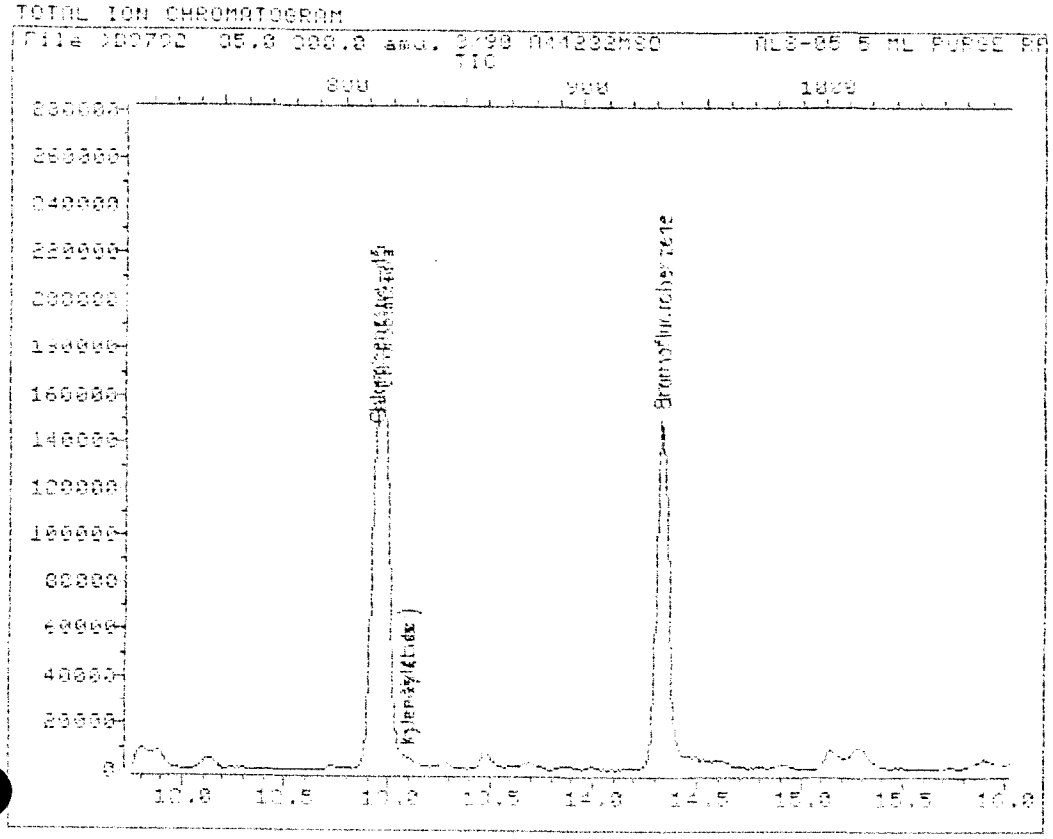
TOTAL ION CHROMATOGRAM



✓ QH 5/24/93

Data File: >D9792::D3 Quant Output File: ^D9792::ME
Name: 3/90 A44232MSD Instrument ID: GC/MS-D
Misc: ALS-05 5 ML PURGE RF11200MSD TAF 5.0/0G

Id File: IDD390::ME
Title: I.D. FILE, VOA WATER, GC/MS-D
Last Calibration: 930520 10:32 Last Qcal Time: 930524 10:55

Operator ID: DANA
Quant Time : 930524 14:31
Injected at: 930524 14:14

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TAD-RAD-ORG-05133

QC SUMMARIES

CLP SVOA's.

LOCKHEED ANALYTICAL LABORATORY
SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Level:(low/med) LOW

	CUSTOMER SAMPLE NO.	SMC1 (NBZ)#	SMC2 (FBP)#	SMC3 (TPH)#	SMC4 (PHL)#	SMC5 (2FP)#	SMC6 (TBP)#	SMC7 (2CP)#	SMC8 (DCB)#	TOT OUT
01	LCS01	74.00	68.00	80.00	67.00	69.00	67.00	67.00	6.00	1
02	RF112001	82.00	82.00	100.00	80.00	80.00	92.00	80.00	5.00	1
03	RF112002	81.00	84.00	104.00	77.00	87.00	89.00	80.00	6.00	1
04	RF112002-MS	91.00	97.00	124.00	100.00	99.00	104.00	97.00	5.00	1
05	RF112002-MSD	83.00	93.00	96.00	92.00	94.00	89.00	89.00	5.00	1
06	SBLK01	72.00	66.00	78.00	67.00	71.00	58.00	69.00	6.00	1
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		QC LIMITS	
S1 (NBZ)	= Nitrobenzene-d5	(23-120)	
S2 (FBP)	= 2-Fluorobiphenyl	(30-115)	
S3 (TPH)	= Terphenyl-d14	(18-137)	
S4 (PHL)	= Phenol-d5	(24-113)	
S5 (2FP)	= 2-Fluorophenol	(25-121)	
S6 (TBP)	= 2,4,6-Tribromophenol	(19-122)	
S7 (2CP)	= 2-Chlorophenol-d4	(20-130)	(advisory)
S8 (DCB)	= 1,2=Dichlorobenzene-d4	(20-130)	(advisory)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D System Monitoring Compound diluted out

112

FORM II - CLP SV-2 3/90

LOCKHEED ANALYTICAL LABORATORY
SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Matrix Spike - Customer Sample No.: RF112002- Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
Phenol	4851.00	0.000	5000.000	103*	26- 90
2-Chlorophenol	4851.00	0.000	4900.000	101	25-102
1,4-Dichlorobenzene	3234.00	0.000	2900.000	90	28-104
N-Nitroso-di-n-prop.(1)	3234.00	0.000	3100.000	96	41-126
1,2,4-Trichlorobenzene	3234.00	0.000	3000.000	93	38-107
4-Chloro-3-methylphenol	4851.00	0.000	4900.000	101	26-103
Acenaphthene	3234.00	0.000	3300.000	102	31-137
4-Nitrophenol	4851.00	0.000	4000.000	82	11-114
2,4-Dinitrotoluene	3234.00	0.000	2700.000	83	28- 89
Pentachlorophenol	4851.00	0.000	4400.000	91	17-109
Pyrene	3234.00	0.000	4000.000	124	35-142

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	4897.00	4600.000	94*	9	35	26- 90
2-Chlorophenol	4897.00	4600.000	94	7	50	25-102
1,4-Dichlorobenzene	3265.00	2600.000	80	12	27	28-104
N-Nitroso-di-n-prop.(1)	3265.00	2900.000	89	7	38	41-126
1,2,4-Trichlorobenzene	3265.00	2900.000	89	4	23	38-107
4-Chloro-3-methylphenol	4897.00	4500.000	92	9	33	26-103
Acenaphthene	3265.00	3100.000	95	7	19	31-137
4-Nitrophenol	4897.00	3900.000	80	2	50	11-114
2,4-Dinitrotoluene	3265.00	2500.000	77	8	47	28- 89
Pentachlorophenol	4897.00	4300.000	88	3	47	17-109
Pyrene	3265.00	3200.000	98	23	36	35-142

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 11 outside limits
Spike Recovery: 2 out of 22 outside limits

COMMENTS:

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE METHOD BLANK SUMMARY

CUSTOMER SAMPLE NO.

SBLK01

Lab Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Lab File ID:B2918 Lab Sample ID:AD1584

Instrument ID:GC/MS-B Date Extracted: 5/20/93

Matrix: (soil/water) SOIL Date Analyzed: 5/25/93

Level:(low/med) LOW Time Analyzed: 1910

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	CUSTOMER SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS01	AD1585	B2919	2008
02	RF112001	A44232	B2930	1340
03	RF112002	A44231	B2929	1242
04	RF112002-MS	AD1586	B2921	2203
05	RF112002-MSD	AD1587	B2922	2300
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COMMENTS:

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Lab File ID:B2904 DFTPP Injection Date: 5/22/93

Instrument ID:GC/MS-B DFTPP Injection Time:1023

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	47.8
68	Less than 2.0% of mass 69	0.0(0.0)1
69	Mass 69 relative abundance	70.7
70	Less than 2.0% of mass 69	0.0(0.0)1
127	25.0 - 75.0% of mass 198	41.4
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.7
275	10.0 - 30.0% of mass 198	27.7
365	Greater than 0.75% of mass 198	2.2
441	Present, but less than mass 443	11.9
442	40.0 - 110.0% of mass 198	74.4
443	15.0 - 24.0% of mass 442	13.4(18.1)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD, BLANKS AND STANDARDS

	CUSTOMER SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD050	SSTD050	B2908	5/22/93	1542
02	SSTD020	SSTD020	B2909	5/22/93	1641
03	SSTD080	SSTD080	B2910	5/22/93	1739
04	SSTD120	SSTD120	B2911	5/22/93	1837
05	SSTD160	SSTD160	B2912	5/22/93	1934
06					
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LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Lab File ID:BD006 DFTPP Injection Date: 5/25/93

Instrument ID:GC/MS-B DFTPP Injection Time:1252

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	41.4
68	Less than 2.0% of mass 69	0.0(0.0)1
69	Mass 69 relative abundance	68.7
70	Less than 2.0% of mass 69	0.2(0.3)1
127	25.0 - 75.0% of mass 198	40.6
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 30.0% of mass 198	26.9
365	Greater than 0.75% of mass 198	1.9
441	Present, but less than mass 443	11.8
442	40.0 - 110.0% of mass 198	67.7
443	15.0 - 24.0% of mass 442	13.0(19.2)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD, BLANKS AND STANDARDS

	CUSTOMER SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD050-A	SSTD050-A	B2913	5/25/93	1330
02	SBLK01	AD1584	B2918	5/25/93	1910
03	LCS01	AD1585	B2919	5/25/93	2008
04	RF112002-MS	AD1586	B2921	5/25/93	2203
05	RF112002-MSD	AD1587	B2922	5/25/93	2300
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LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Lab File ID:BD008 DFTPP Injection Date: 5/27/93

Instrument ID:GC/MS-B DFTPP Injection Time:1118

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	41.3
68	Less than 2.0% of mass 69	0.3(0.5)1
69	Mass 69 relative abundance	64.3
70	Less than 2.0% of mass 69	0.2(0.3)1
127	25.0 - 75.0% of mass 198	39.8
197	Less than 1.0% of mass 198	0.3
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.1
275	10.0 - 30.0% of mass 198	25.1
365	Greater than 0.75% of mass 198	2.3
441	Present, but less than mass 443	11.1
442	40.0 - 110.0% of mass 198	70.1
443	15.0 - 24.0% of mass 442	13.6(19.4)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD, BLANKS AND STANDARDS

	CUSTOMER SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD050-B	SSTD050-B	B2928	5/27/93	1141
02	RF112002	A44231	B2929	5/27/93	1242
03	RF112001	A44232	B2930	5/27/93	1340
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LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Lab File ID: (Standard)B2913 Date Analyzed: 5/25/93

Instrument ID:GC/MS-B Time Analyzed:1330

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	12 HOUR STD	43132	9.32	154292	13.12	64902	18.55
	UPPER LIMIT	86264	9.82	308584	13.62	129804	19.05
	LOWER LIMIT	21566	8.82	77146	12.62	32451	18.05
	CUSTOMER SAMPLE NO.						
01	SBLK01	45894	9.31	157594	13.11	65637	18.55
02	LCS01	49909	9.31	164394	13.11	72081	18.55
03	RF112002-MS	54874	9.32	183047	13.12	72017	18.54
04	RF112002-MSD	55215	9.31	190806	13.10	73282	18.55
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IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside of QC limits with an asterisk.
* Values outside of QC limits.

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Lab File ID: (Standard)B2913 Date Analyzed: 5/25/93

Instrument ID:GC/MS-B Time Analyzed:1330

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	12 HOUR STD	100031	23.05	118997	31.32	124211	35.43
	UPPER LIMIT	200062	23.55	237994	31.82	248422	35.93
	LOWER LIMIT	50016	22.55	59499	30.82	62106	34.93
	CUSTOMER SAMPLE NO.						
01	SBLK01	100626	23.05	110183	31.29	122042	35.42
02	LCS01	114284	23.06	118086	31.30	128597	35.43
03	RF112002-MS	112299	23.04	103956	31.28	110474	35.41
04	RF112002-MSD	112522	23.05	127425	31.29	148015	35.42
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IS1 (PHN) = Phenanthrene-d10
IS2 (CRY) = Chrysene-d12
IS3 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside of QC limits with an asterisk.
* Values outside of QC limits.

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Lab File ID: (Standard)B2928 Date Analyzed: 5/27/93

Instrument ID:GC/MS-B Time Analyzed:1141

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	12 HOUR STD	64088	9.26	229255	13.06	97092	18.49
	UPPER LIMIT	128176	9.76	458510	13.56	194184	18.99
	LOWER LIMIT	32044	8.76	114628	12.56	48546	17.99
	CUSTOMER SAMPLE NO.						
01	RF112002	69267	9.24	233641	13.04	98747	18.47
02	RF112001	72264	9.25	244567	13.06	108599	18.48
03							
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IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside of QC limits with an asterisk.
* Values outside of QC limits.

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Lab File ID: (Standard)B2928 Date Analyzed: 5/27/93

Instrument ID:GC/MS-B Time Analyzed:1141

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	12 HOUR STD	155237	22.98	149568	31.22	143251	35.34
	UPPER LIMIT	310474	23.48	299136	31.72	286502	35.84
	LOWER LIMIT	77619	22.48	74784	30.72	71626	34.84
	CUSTOMER SAMPLE NO.						
01	RF112002	150710	22.97	122191	31.22	110713	35.34
02	RF112001	165050	22.97	141995	31.23	134872	35.36
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IS1 (PHN) = Phenanthrene-d10
IS2 (CRY) = Chrysene-d12
IS3 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside of QC limits with an asterisk.
* Values outside of QC limits.

SAMPLE DATA

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CUSTOMER SAMPLE NO.

RF112001

Lab Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Matrix: (soil/water) SOIL Lab Sample ID:A44232

Sample wt/vol: 30.63 (G/L) G Lab File ID: B2930

Level: (low/med) LOW Date Received: 5/13/93

% Moisture: 14 decanted: (Y/N) N Date Extracted: 5/20/93

Concentrated Extract Volume: 1000.00 (uL) Date Analyzed: 5/27/93

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 0.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	760.	U
111-44-4	bis(2-Chloroethyl)ether	760.	U
95-57-8	2-Chlorophenol	760.	U
541-73-1	1,3-Dichlorobenzene	760.	U
106-46-7	1,4-Dichlorobenzene	760.	U
95-50-1	1,2-Dichlorobenzene	760.	U
95-48-7	2-Methylphenol	760.	U
108-60-1	2,2'-oxybis(1-Chloropropane)	760.	U
106-44-5	4-Methylphenol	760.	U
621-64-7	N-Nitroso-di-n-propylamine	760.	U
67-72-1	Hexachloroethane	760.	U
98-95-3	Nitrobenzene	760.	U
78-59-1	Isophorone	760.	U
88-75-5	2-Nitrophenol	760.	U
105-67-9	2,4-Dimethylphenol	760.	U
111-91-1	bis(2-Chloroethoxy)methane	760.	U
120-83-2	2,4-Dichlorophenol	760.	U
120-82-1	1,2,4-Trichlorobenzene	760.	U
91-20-3	Naphthalene	760.	U
106-47-8	4-Chloroaniline	760.	U
87-68-3	Hexachlorobutadiene	760.	U
59-50-7	4-Chloro-3-methylphenol	760.	U
91-57-6	2-Methylnaphthalene	760.	U
77-47-4	Hexachlorocyclopentadiene	760.	U
88-06-2	2,4,6-Trichlorophenol	760.	U
95-95-4	2,4,5-Trichlorophenol	1900.	U
91-58-7	2-Chloronaphthalene	760.	U
88-74-4	2-Nitroaniline	1900.	U
131-11-3	Dimethylphthalate	760.	U
208-96-8	Acenaphthylene	760.	U
606-20-2	2,6-Dinitrotoluene	760.	U
99-09-2	3-Nitroaniline	1900.	U
83-32-9	Acenaphthene	760.	U

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CUSTOMER SAMPLE NO.

RF112001

Lab Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Matrix: (soil/water) SOIL Lab Sample ID:A44232

Sample wt/vol: 30.63 (G/L) G Lab File ID: B2930

Level: (low/med) LOW Date Received: 5/13/93

% Moisture: 14 decanted: (Y/N) N Date Extracted: 5/20/93

Concentrated Extract Volume: 1000.00 (uL) Date Analyzed: 5/27/93

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 0.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1900.	U
100-02-7	4-Nitrophenol	1900.	U
132-64-9	Dibenzofuran	760.	U
121-14-2	2,4-Dinitrotoluene	760.	U
84-66-2	Diethylphthalate	760.	U
7005-72-3	4-Chlorophenyl-phenylether	760.	U
86-73-7	Fluorene	760.	U
100-01-6	4-Nitroaniline	1900.	U
534-52-1	4,6-Dinitro-2-methylphenol	1900.	U
86-30-6	N-Nitrosodiphenylamine (1)	760.	U
101-55-3	4-Bromophenyl-phenylether	760.	U
118-74-1	Hexachlorobenzene	760.	U
87-86-5	Pentachlorophenol	1900.	U
85-01-8	Phenanthrene	92.	J
120-12-7	Anthracene	760.	U
86-74-8	Carbazole	760.	U
84-74-2	Di-n-butylphthalate	760.	U
206-44-0	Fluoranthene	150.	J
129-00-0	Pyrene	150.	J
85-68-7	Butylbenzylphthalate	760.	U
91-94-1	3,3'-Dichlorobenzidine	760.	U
56-55-3	Benzo(a)anthracene	65.	J
218-01-9	Chrysene	81.	J
117-81-7	bis(2-Ethylhexyl)phthalate	52.	J
117-84-0	Di-n-octylphthalate	760.	U
205-99-2	Benzo(b)fluoranthene	83.	J
207-08-9	Benzo(k)fluoranthene	55.	J
50-32-8	Benzo(a)pyrene	76.	J
193-39-5	Indeno(1,2,3-cd)pyrene	56.	J
53-70-3	Dibenz(a,h)anthracene	760.	U
191-24-2	Benzo(g,h,i)perylene	44.	J

(1) - Cannot be seperated from Diphenylamine

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CUSTOMER SAMPLE NO.

RF112001

Lab Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Matrix: (soil/water) SOIL Lab Sample ID:A44232

Sample wt/vol: 30.63 (g/ml) G Lab File ID: B2930

Level: (low/med) LOW Date Received: 5/13/93

% Moisture: 14 decanted: (Y/N) N16 Date Extracted: 5/20/93

Concentrated Extract Volume: 1000.00 (uL) Date Analyzed: 5/27/93

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 0.0

Number TICs Found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

QUANT REPORT

Operator ID: ARTURO
Output File: ^B2930::F3
Data File: >B2930::D5
Name: 390 A44232 RF112001
Misc: 2UL 30.63G:1ML RE

Quant Rev: 7
Quant Time: 930527 14:26
Injected at: 930527 13:40
Dilution Factor: 1.00000
Instrument ID: GC/MS #2
BTL# 2

ID File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37
Last Qcal Date: 930527 11:41

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*1,4-Dichlorobenzene-d4	9.25	152.0	72264	40.00	ng	97
2)	2-Fluorophenol	6.02	112.0	298920	124.01	ng	90
3)	2-Chlorophenol-d4	8.80	132.0	289106	124.57	ng	99
4)	Phenol-d5	8.86	99.0	419268	124.76	ng	91
10)	1,2-Dichlorobenzene-d4	9.78	152.0	9035	5.43	ng	97
17)	*Naphthalene-d8	13.06	136.0	244567	40.00	ng	86
18)	Nitrobenzene-d5	10.98	82.0	238314	83.62	ng	88
31)	*Acenaphthene-d10	18.48	164.0	108599	40.00	ng	92
36)	2-Fluorobiphenyl	16.54	172.0	340813	84.45	ng	95
37)	2,4,6-Tribromophenol	20.97	330.0	133358	141.09	ng	96
5[illegible])	*Phenanthrene-d10	22.97	188.0	165050	40.00	ng	98
58)	Phenanthrene	23.03	178.0	12576	2.42	ng	94
62)	Fluoranthene	26.74	202.0	20380	3.97	ng	86
63)	*Chrysene-d12	31.23	240.0	141995	40.00	ng	89
64)	Pyrene	27.39	202.0	19433	3.99	ng	84
65)	Terphenyl-d14	28.15	244.0	368246	102.11	ng	91
68)	Benzo(a)anthracene	31.17	228.0	6970	1.73	ng	83
69)	Chrysene	31.29	228.0	8103	2.14	ng	92
70)	bis(2-Ethylhexyl)phthalate	31.90	149.0	4696	1.38	ng	98
71)	*Perylene-d12	35.36	264.0	134872	40.00	ng	95
73)	Benzo(b)fluoranthene	34.34	252.0	8739M	2.19	ng	94
74)	Benzo(k)fluoranthene	34.40	252.0	5019M	1.45	ng	94
75)	Benzo(a)pyrene	35.20	252.0	6876	2.00	ng	88
76)	Indeno(1,2,3-cd)pyrene	38.66	276.0	4642	1.46	ng	81
78)	Benzo(g,h,i)perylene	39.64	276.0	3742	1.15	ng	65

* Compound is ISTD

QUANT REPORT

Operator ID: ARTURO
Output File: ^B2930::F3
Data File: >B2930::D5
Name: 390 A44232 RF112001
Misc: 2UL 30.63G:1ML RE

Quant Rev: 7
Quant Time: 930527 14:26
Injected at: 930527 13:40
Dilution Factor: 1.00000
Instrument ID: GC/MS #2
BTL# 2

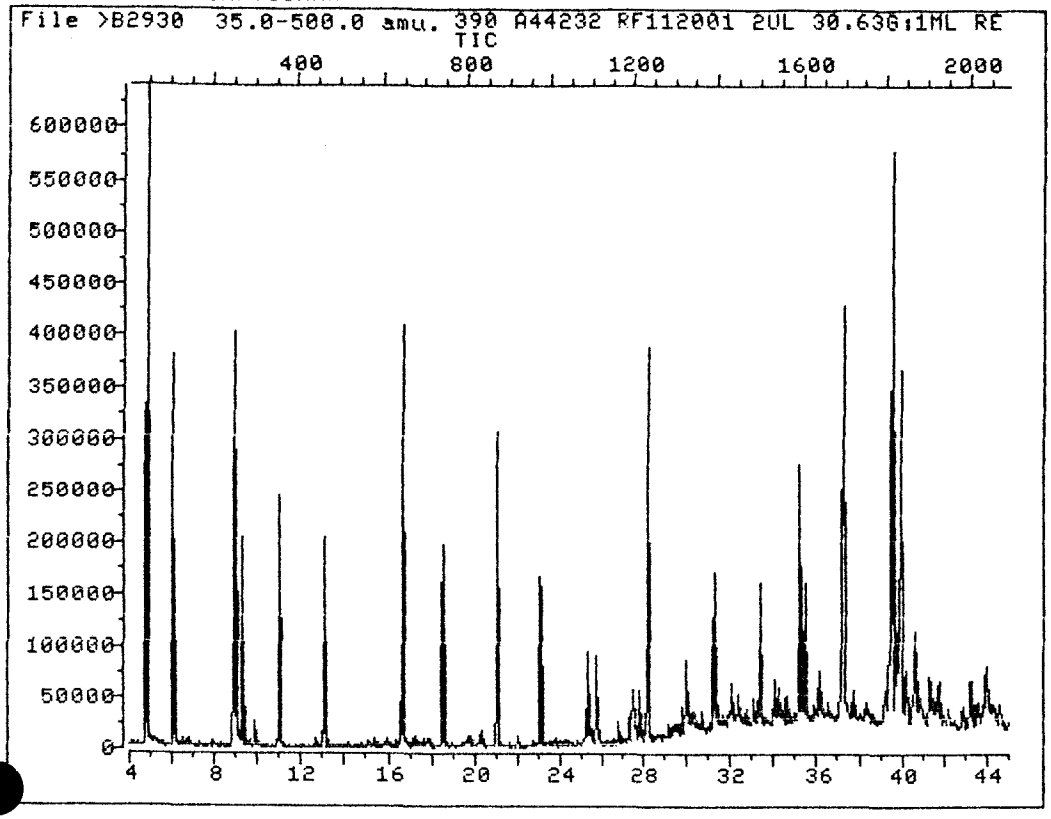
ID File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37
Last Qcal Date: 930527 11:41 ✓

	Compound		R.T.	Q ion	Area	Conc	Units		q
1)	*1,4-Dichlorobenzene-d4		9.25	152.0	72264✓	40.00	ng		97
2)	2-Fluorophenol		6.02	112.0	298920	124.01	ng	83	90
3)	2-Chlorophenol-d4		8.80	132.0	289106	124.57	ng	83	99
4)	Phenol-d5		8.86	99.0	419268	124.76	ng	83	91
10)	1,2-Dichlorobenzene-d4		9.78	152.0	9035	5.43	ng	5 *	97
15)	N-Nitroso-di-n-propylamine		~~10.98~~	70.0	32066	~~13.52 ng~~		ND	53
17)	*Naphthalene-d8		13.06	136.0	244567✓	40.00	ng		86
18)	Nitrobenzene-d5	✓	10.98	82.0	238314	83.62	ng	84	88
31)	*Acenaphthene-d10		18.48	164.0	108599✓	40.00	ng		92
36)	2-Fluorobiphenyl		16.54	172.0	340813	84.45	ng	84	95
37)	2,4,6-Tribromophenol		20.97	330.0	133358	141.09	ng	94	96
39)	Dimethylphthalate	18.04	18.48	163.0	23585	~~5.34 ng~~		ND	44
52)	*Phenanthrene-d10		22.97	188.0	165050✓	40.00	ng		98
58)	Phenanthrene	✓	23.03	178.0	12576	2.42	ng	79	94 µg/Kg
59)	Anthracene	✓	23.17	178.0	1388M	~~.280 ng~~		<RDL	94
62)	Fluoranthene	✓	26.74	202.0	20380	3.97	ng	130	86
63)	*Chrysene-d12		31.23	240.0	141995✓	40.00	ng		89
64)	Pyrene	✓	27.39	202.0	19433	3.99	ng	130	84
65)	Terphenyl-d14		28.15	244.0	368246	102.11	ng	102	91
68)	Benzo(a)anthracene	✓	31.17	228.0	6970	1.73	ng	56	83
69)	Chrysene	✓	31.29	228.0	8103	2.14	ng	70	92
70)	bis(2-Ethylhexyl)phthalate	✓	31.90	149.0	4696	1.38	ng	45	98
71)	*Perylene-d12		35.36	264.0	134872✓	40.00	ng		95
73)	Benzo(b)fluoranthene	✓	34.34	252.0	8739M	2.19	ng	71	94
74)	Benzo(k)fluoranthene	✓	34.40	252.0	5019M	1.45	ng	47	94
75)	Benzo(a)pyrene	✓	35.20	252.0	6876	2.00	ng	65	88
76)	Indeno(1,2,3-cd)pyrene	✓	38.66	276.0	4642	1.46	ng	48	81
78)	Benzo(g,h,i)perylene	✓	39.64	276.0	3742	1.15	ng	38	65

* Compound is ISTD

* SUR. OUT

TOTAL ION CHROMATOGRAM



Data File: >B2930::D5
Name: 390 A44232 RF112001
Misc: 2UL 30.63G:1ML RE

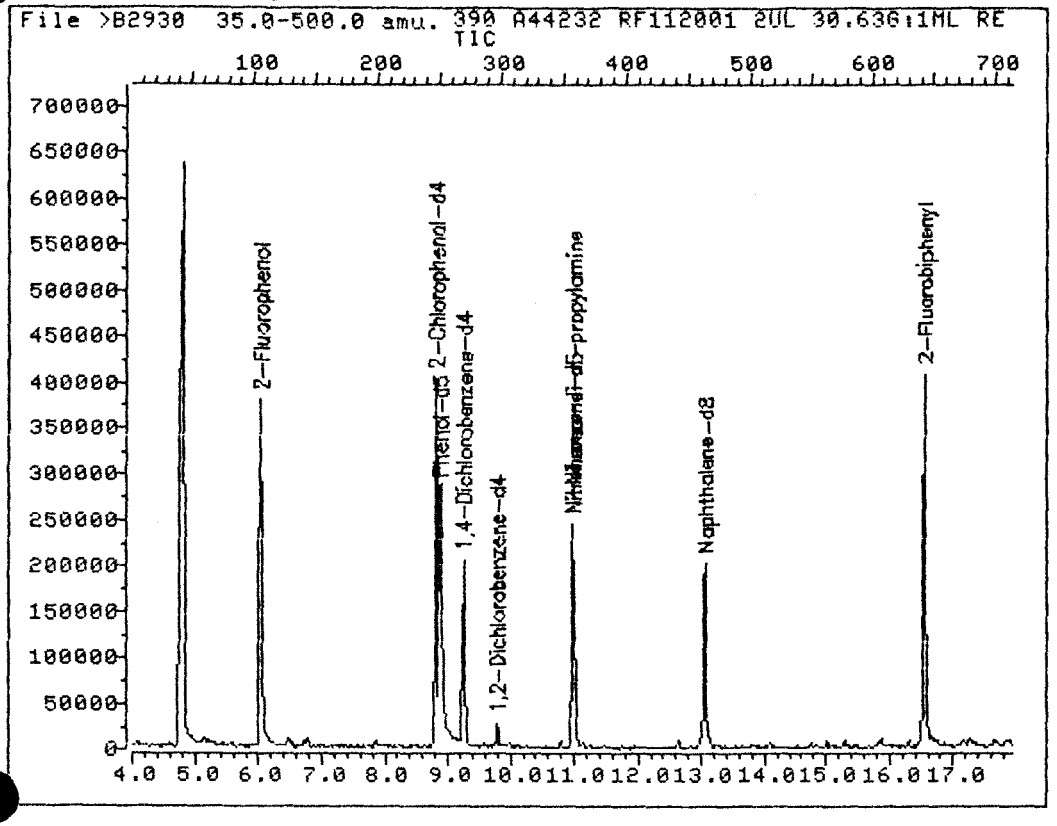
Quant Output File: ^B2930::F3
Instrument ID: GC/MS #2
BTL# 2

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37

Last Qcal Time: 930527 11:41

Operator ID: ARTURO
Quant Time : 930527 14:26
Injected at: 930527 13:40

TOTAL ION CHROMATOGRAM



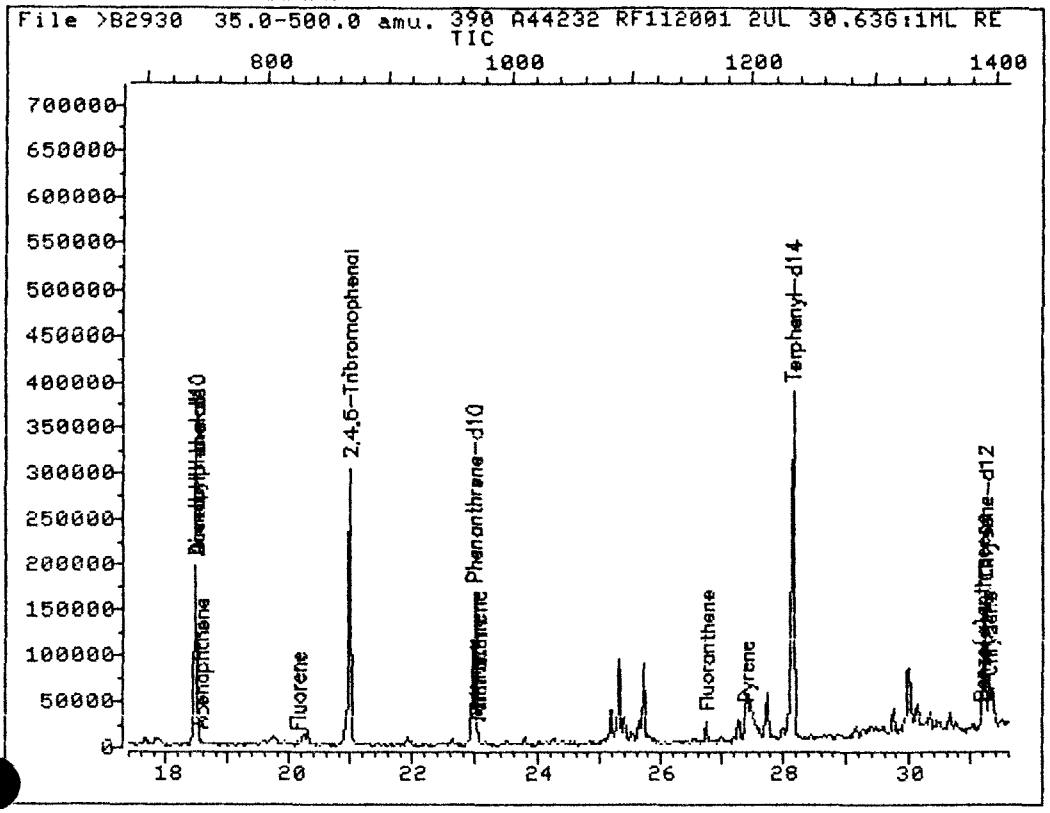
Data File: >B2930::D5 Quant Output File: ^B2930::F3
Name: 390 A44232 RF112001 Instrument ID: GC/MS #2
Misc: 2UL 30.63G:1ML RE BTL# 2

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37 Last Qcal Time: 930527 11:41

Operator ID: ARTURO
Quant Time : 930527 14:26
Injected at: 930527 13:40

Page 1 of 3

TOTAL ION CHROMATOGRAM



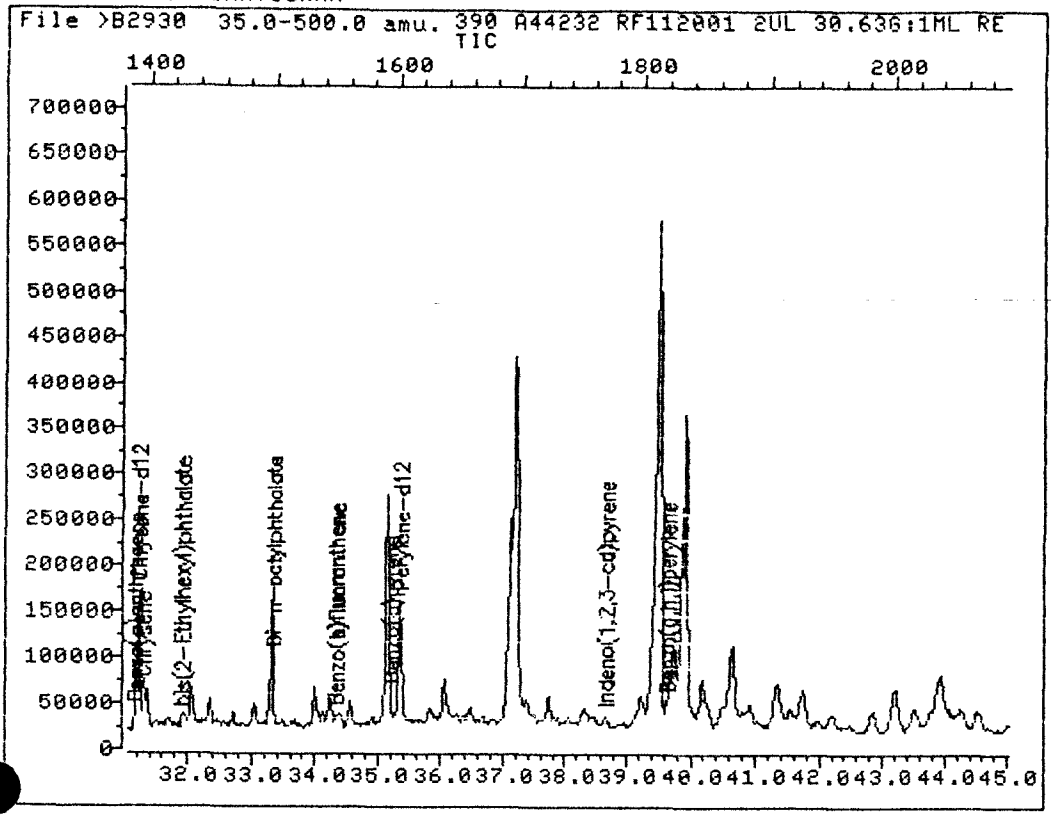
Data File: >B2930::D5 Quant Output File: ^B2930::F3
Name: 390 A44232 RF112001 Instrument ID: GC/MS #2
Misc: 2UL 30.63G:1ML RE BTL# 2

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37 Last Qcal Time: 930527 11:41

Operator ID: ARTURO
Quant Time : 930527 14:26
Injected at: 930527 13:40

Page 2 of 3

TOTAL ION CHROMATOGRAM



Data File: >B2930::D5
Name: 390 A44232 RF112001
Misc: 2UL 30.63G:1ML RE

Quant Output File: ^B2930::F3
Instrument ID: GC/MS #2
BTL# 2

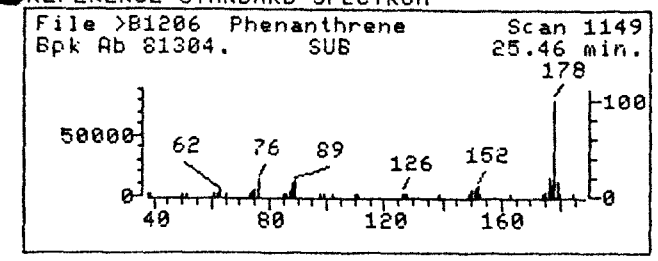
Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37

Last Qcal Time: 930527 11:41

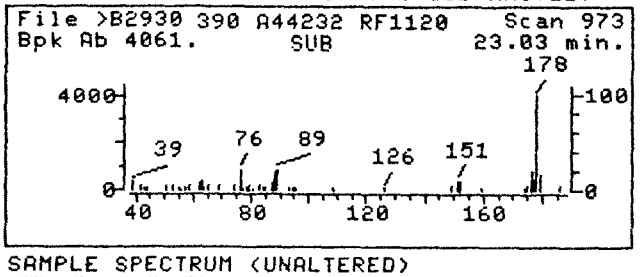
Operator ID: ARTURO
Quant Time : 930527 14:26
Injected at: 930527 13:40

Page 3 of 3

REFERENCE STANDARD SPECTRUM



SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



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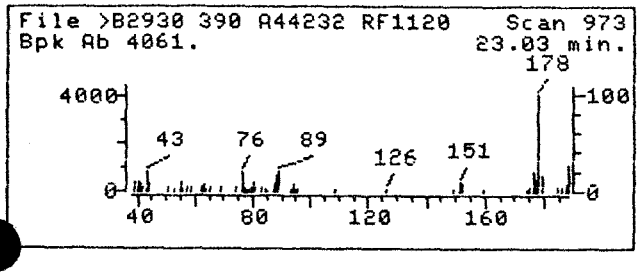
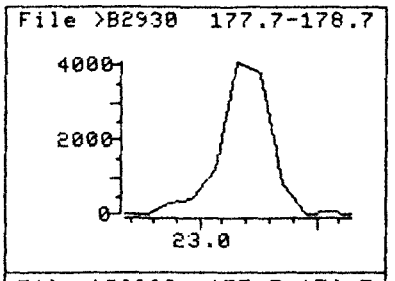
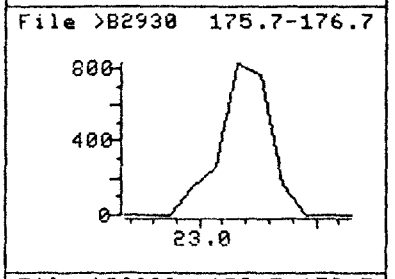
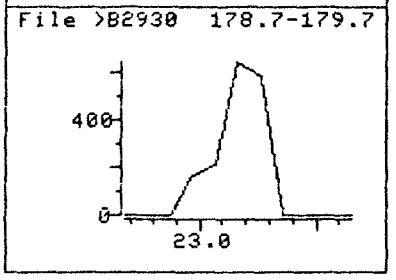








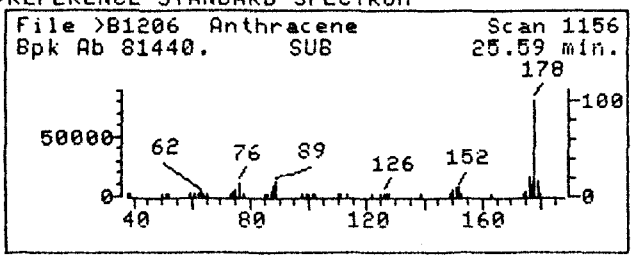
Data File: >B2930::D5
Name: 390 A44232 RF112001
Misc: 2UL 30.63G:1ML RE
Quant Time: 930527 14:26
Injected at: 930527 13:40
Last Qcal Time: 930527 11:41

Quant Output File: ^B2930::F3
Instrument ID: GC/MS #2
BTL# 2
Quant ID File: BID390::OP
Last Calibration: 920731 09:37

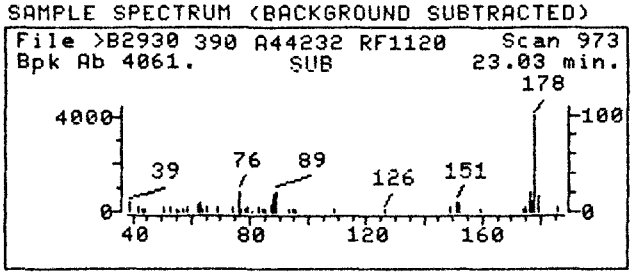
Compound No : 58
Compound Name : Phenanthrene
Scan Number : 973
Retention Time: 23.03 min.
Quant Ion : 178.0
Area : 12576
Concentration : 2.42 ng ✓
q-value : 94

yes

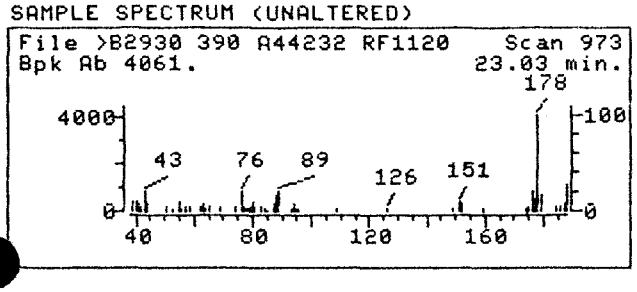
REFERENCE STANDARD SPECTRUM

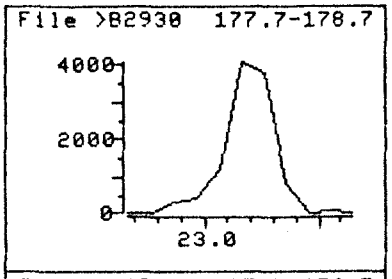


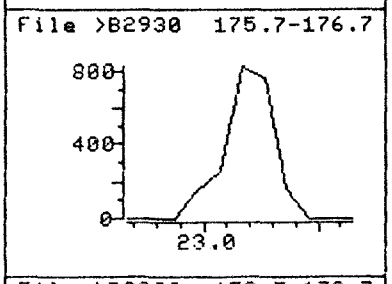
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)

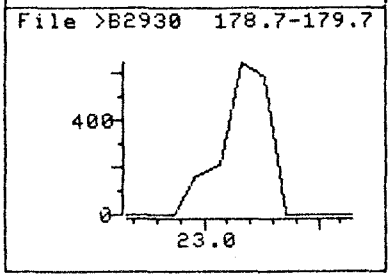


SAMPLE SPECTRUM (UNALTERED)









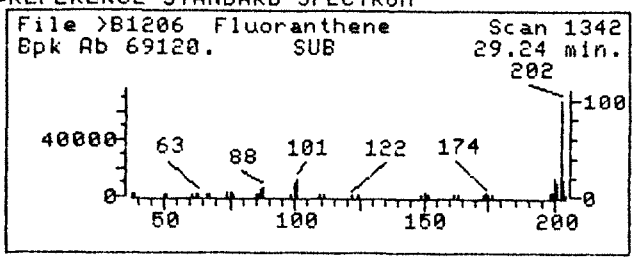
Data File: >B2930::D5
Name: 390 A44232 RF112001
Misc: 2UL 30.63G:1ML RE
Quant Time: 930527 14:26
Injected at: 930527 13:40
Last Qcal Time: 930527 11:41

Quant Output File: ^B2930::F3
Instrument ID: GC/MS #2
BTL# 2
Quant ID File: BID390::DP
Last Calibration: 920731 09:37

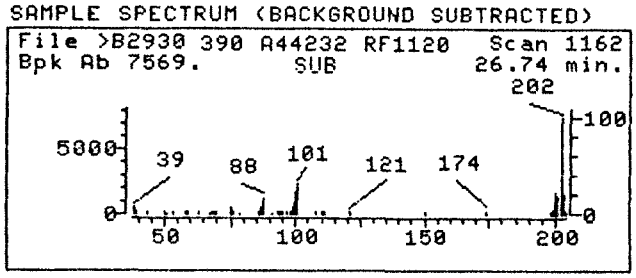
Compound No : 59
Compound Name : Anthracene
Scan Number : 973
Retention Time: 23.03 min.
Quant Ion : 178.0
Area : 12576
Concentration : 2.54 ng √
q-value : 94

Yes

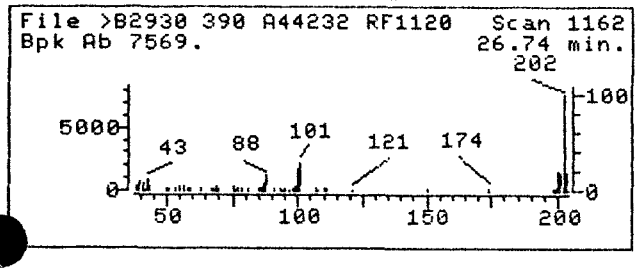
REFERENCE STANDARD SPECTRUM

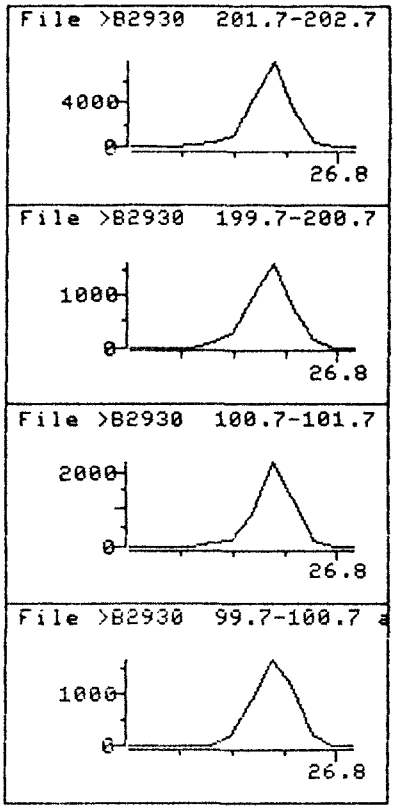


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





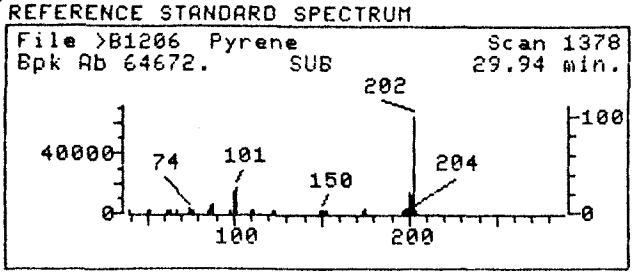
Data File: >B2930::D5
Name: 390 A44232 RF112001
Misc: 2UL 30.63G:1ML RE
Quant Time: 930527 14:26
Injected at: 930527 13:40
Last Qcal Time: 930527 11:41

Quant Output File: ^B2930::F3
Instrument ID: GC/MS #2
BTL# 2
Quant ID File: BID390::OP
Last Calibration: 920731 09:37

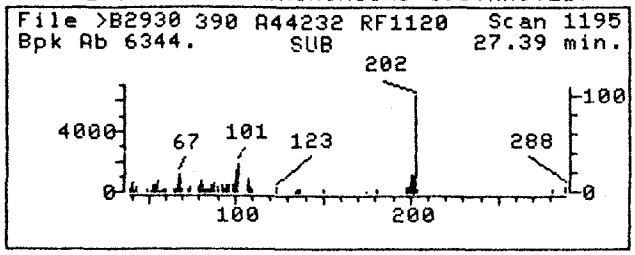
Compound No : 62
Compound Name : Fluoranthene
Scan Number : 1162
Retention Time: 26.74 min.
Quant Ion : 202.0
Area : 20380
Concentration : 3.97 ng √
q-value : 86

yes

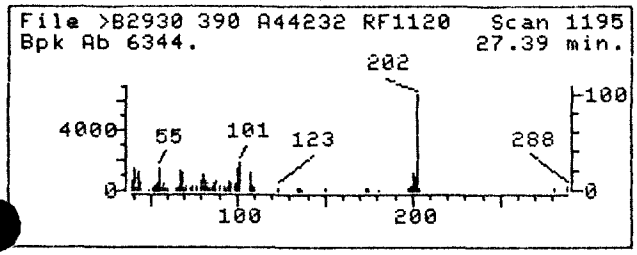
REFERENCE STANDARD SPECTRUM

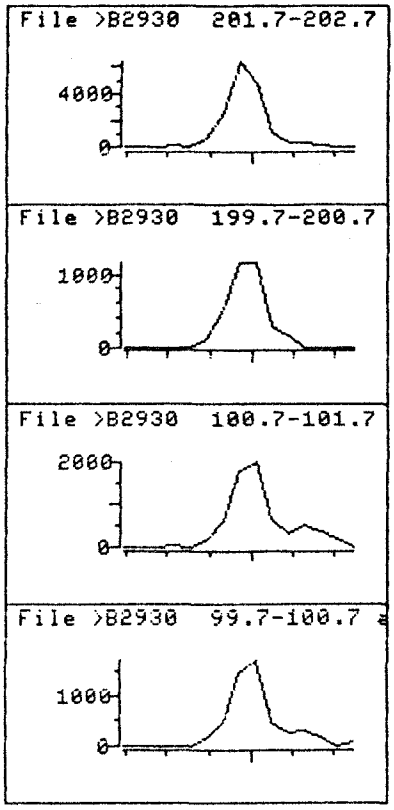


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)



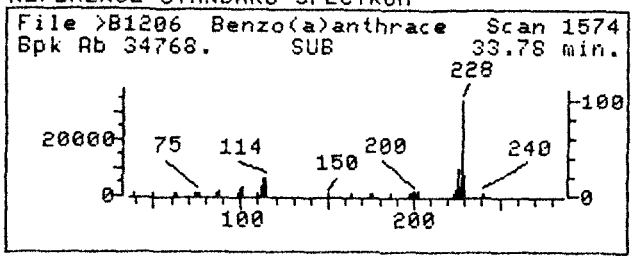


Data File: >B2930::D5
Name: 390 A44232 RF112001
Misc: 2UL 30.63G:1ML RE
Quant Time: 930527 14:26
Injected at: 930527 13:40
Last Qcal Time: 930527 11:41

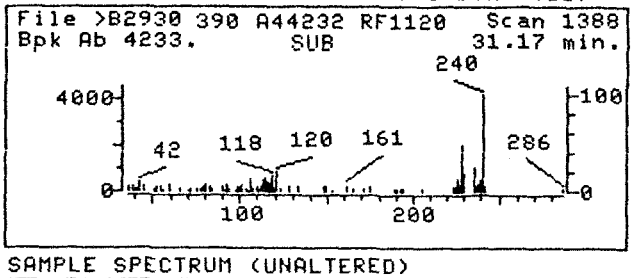
Quant Output File: ^B2930::F3
Instrument ID: GC/MS #2
BTL# 2
Quant ID File: BID390::OP
Last Calibration: 920731 09:37

Compound No : 64
Compound Name : Pyrene
Scan Number : 1195
Retention Time: 27.39 min.
Quant Ion : 202.0
Area : 19433
Concentration : 3.99 ng
q-value : 84

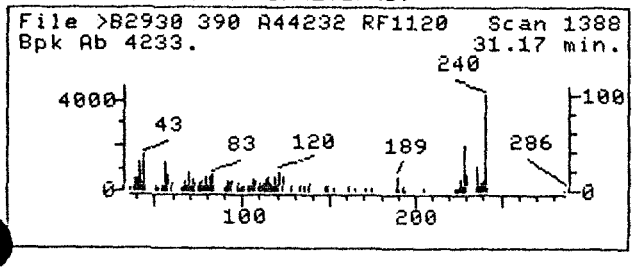
REFERENCE STANDARD SPECTRUM

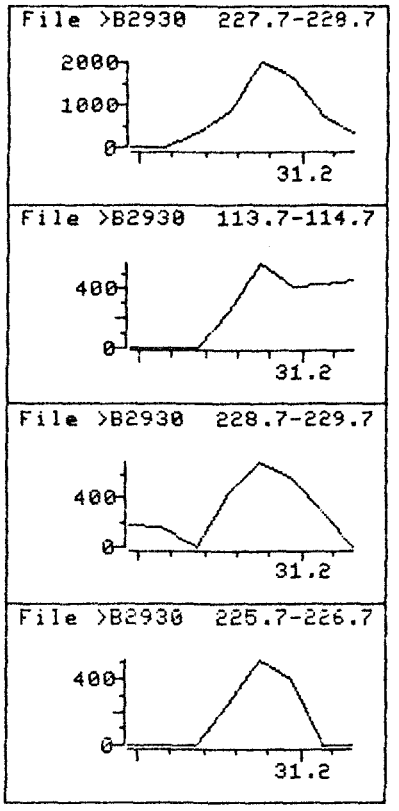


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





Data File: >B2930::D5
Name: 390 A44232 RF112001
Misc: 2UL 30.63G:1ML RE
Quant Time: 930527 14:26
Injected at: 930527 13:40
Last Qcal Time: 930527 11:41

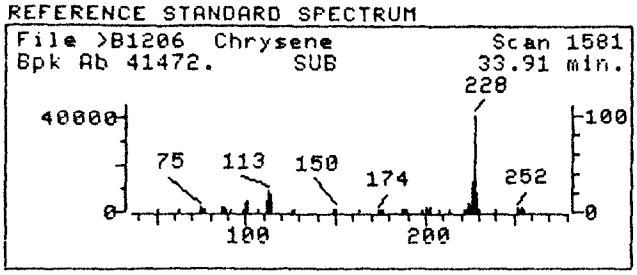
Quant Output File: ^B2930::F3
Instrument ID: GC/MS #2
BTL# 2
Quant ID File: BID390::OP
Last Calibration: 920731 09:37

Compound No : 68
Compound Name : Benzo(a)anthracene
Scan Number : 1388
Retention Time: 31.17 min.
Quant Ion : 228.0
Area : 6970
Concentration : 1.73 ng
q-value : 83

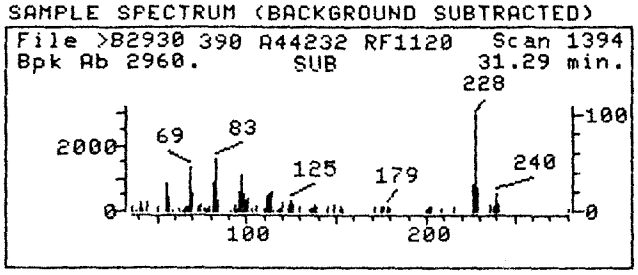
Yes.

$\frac{0.99688}{0.99872} = 0.001$

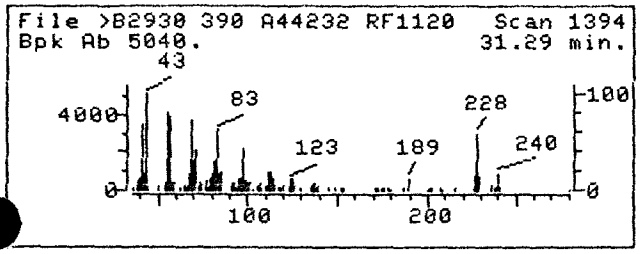
REFERENCE STANDARD SPECTRUM

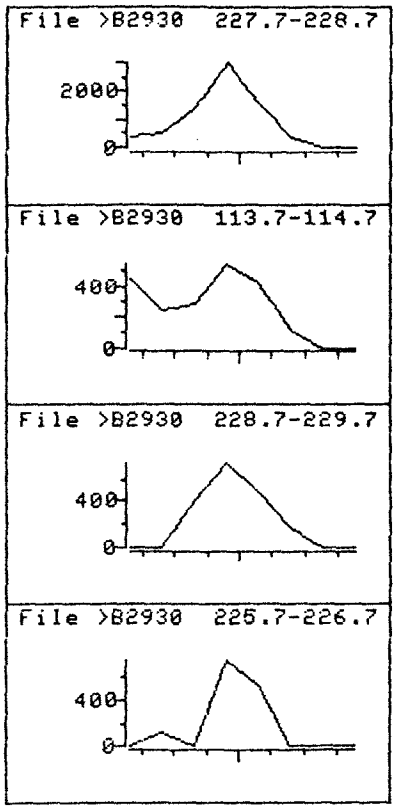


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





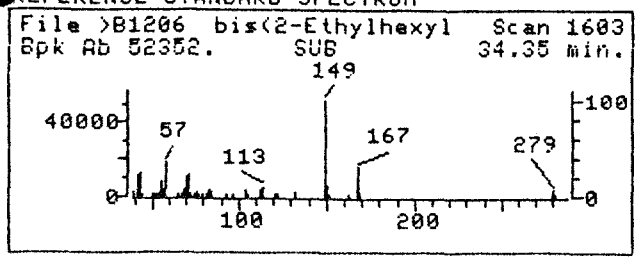
Data File: >B2930::D5
Name: 390 A44232 RF112001
Misc: 2UL 30.63G:1ML RE
Quant Time: 930527 14:26
Injected at: 930527 13:40
Last Qcal Time: 930527 11:41

Quant Output File: ^B2930::F3
Instrument ID: GC/MS #2
BTL# 2
Quant ID File: BID390::OP
Last Calibration: 920731 09:37

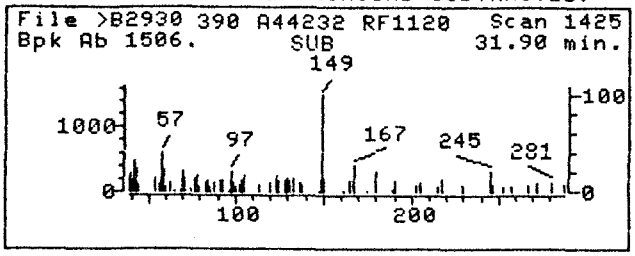
Compound No : 69
Compound Name : Chrysene
Scan Number : 1394
Retention Time: 31.29 min.
Quant Ion : 228.0
Area : 8103
Concentration : 2.14 ng ✓
q-value : 92

Yes.

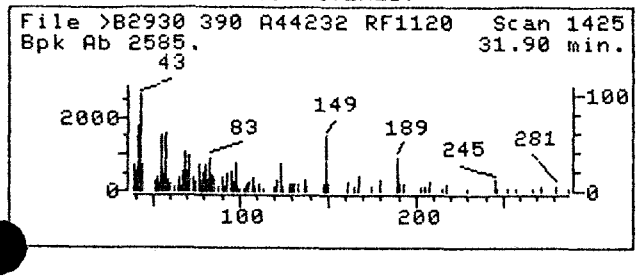
REFERENCE STANDARD SPECTRUM

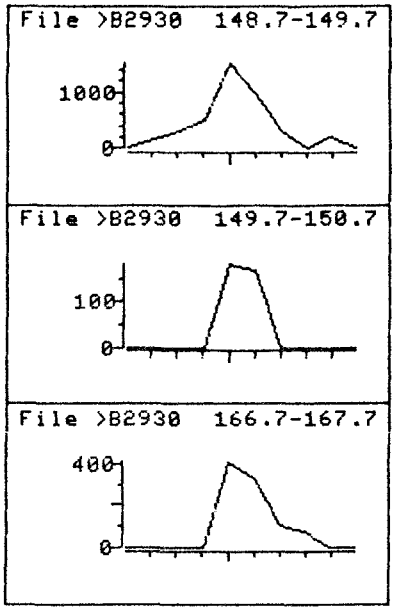


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)



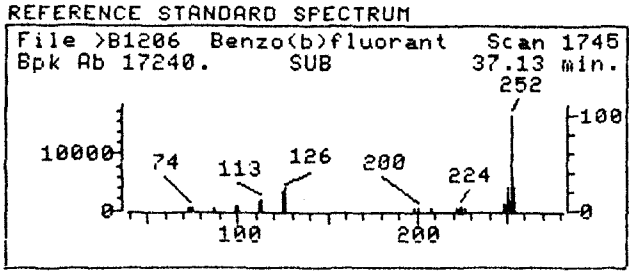


Data File: >B2930::D5
Name: 390 A44232 RF112001
Misc: 2UL 30.63G:1ML RE
Quant Time: 930527 14:26
Injected at: 930527 13:40
Last Qcal Time: 930527 11:41

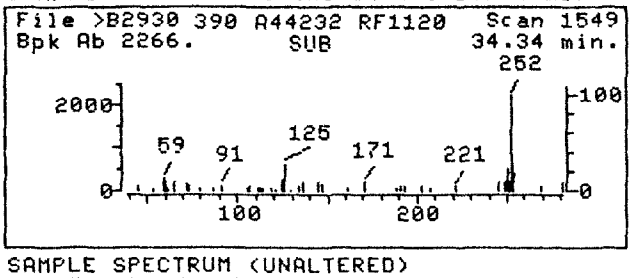
Quant Output File: ^B2930::F3
Instrument ID: GC/MS #2
BTL# 2
Quant ID File: BID390::OP
Last Calibration: 920731 09:37

Compound No : 70
Compound Name : bis(2-Ethylhexyl)phthalate
Scan Number : 1425
Retention Time: 31.90 min.
Quant Ion : 149.0
Area : 4696
Concentration : 1.38 ng ✓ Yes
q-value : 98

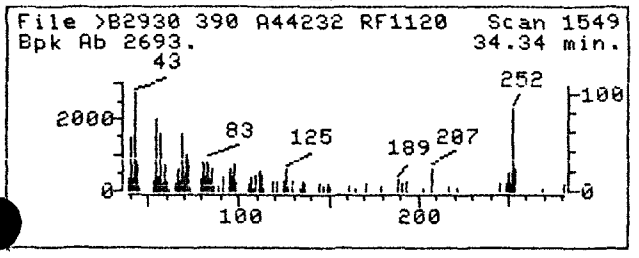
REFERENCE STANDARD SPECTRUM

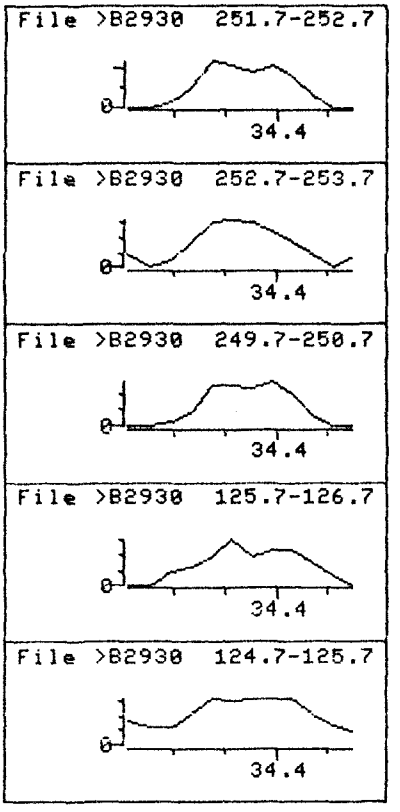


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





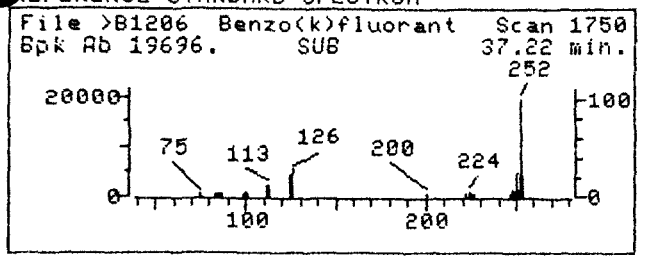
Data File: >B2930::D5
Name: 390 A44232 RF112001
Misc: 2UL 30.63G:1ML RE
Quant Time: 930527 14:26
Injected at: 930527 13:40
Last Qcal Time: 930527 11:41

Quant Output File: ^B2930::F3
Instrument ID: GC/MS #2
BTL# 2
Quant ID File: BID390::OP
Last Calibration: 920731 09:37

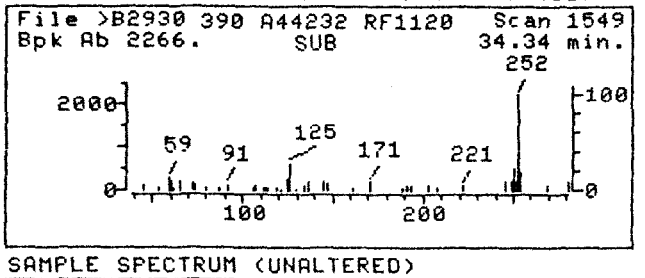
Compound No : 73
Compound Name : Benzo(b)fluoranthene
Scan Number : 1549
Retention Time: 34.34 min.
Quant Ion : 252.0
Area : 13778
Concentration : 3.45 ng
q-value : 94 √

Yes

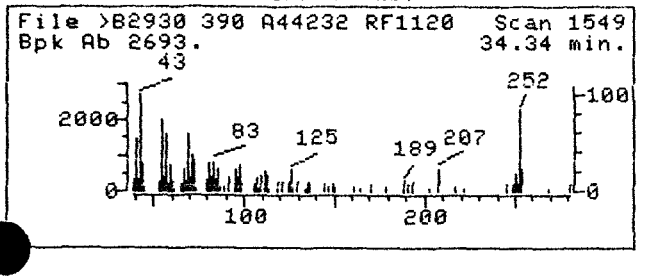
REFERENCE STANDARD SPECTRUM

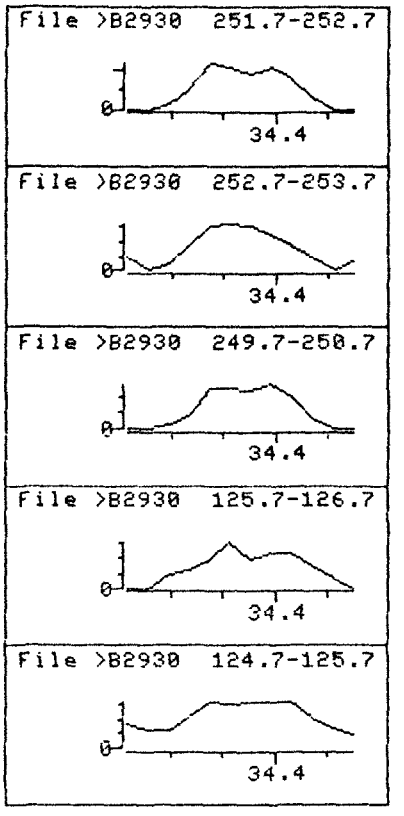


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





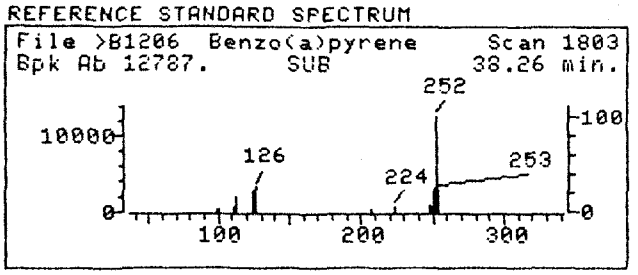
Data File: >B2930::D5
Name: 390 A44232 RF112001
Misc: 2UL 30.63G:1ML RE
Quant Time: 930527 14:26
Injected at: 930527 13:40
Last Qcal Time: 930527 11:41

Quant Output File: ^B2930::F3
Instrument ID: GC/MS #2
BTL# 2
Quant ID File: BID390::OP
Last Calibration: 920731 09:37

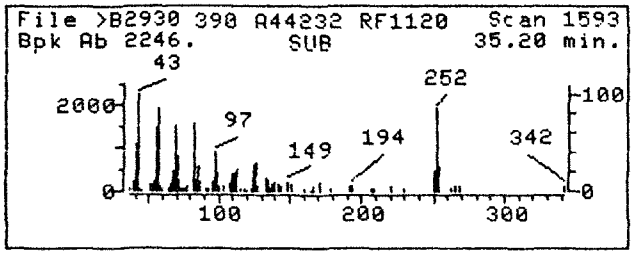
Compound No : 74
Compound Name : Benzo(k)fluoranthene
Scan Number : 1549
Retention Time: 34.34 min.
Quant Ion : 252.0
Area : 13778
Concentration : 3.98 ng ✓
q-value : 94

Yes.

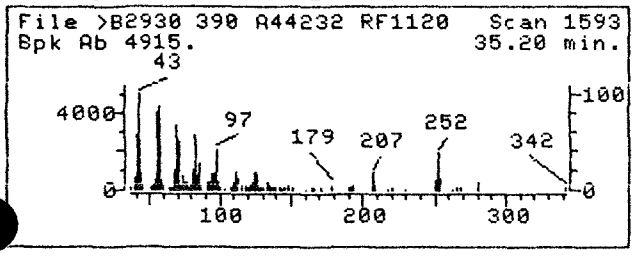
REFERENCE STANDARD SPECTRUM

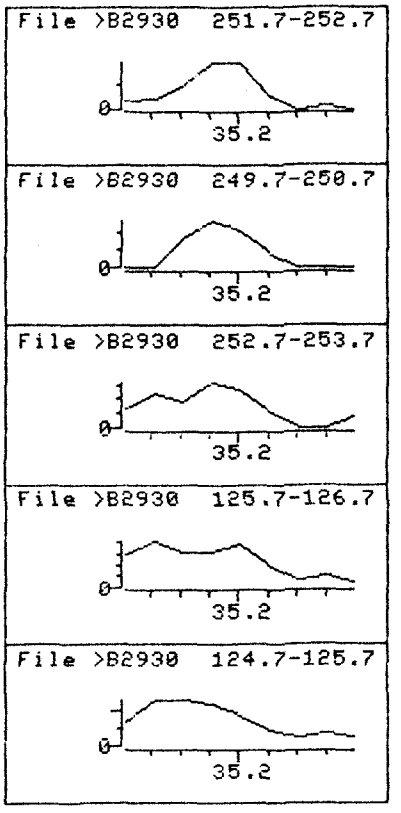


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





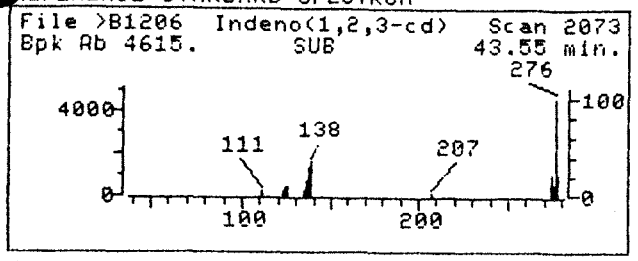
Data File: >B2930::D5
Name: 390 A44232 RF112001
Misc: 2UL 30.63G:1ML RE
Quant Time: 930527 14:26
Injected at: 930527 13:40
Last Qcal Time: 930527 11:41

Quant Output File: ^B2930::F3
Instrument ID: GC/MS #2
BTL# 2
Quant ID File: BID390::OP
Last Calibration: 920731 09:37

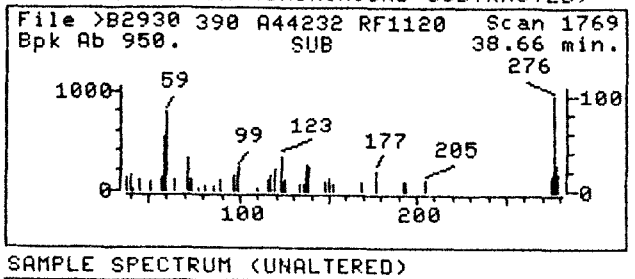
Compound No : 75
Compound Name : Benzo(a)pyrene
Scan Number : 1593
Retention Time: 35.20 min.
Quant Ion : 252.0
Area : 6876
Concentration : 2.00 ng
q-value : 88

Yes

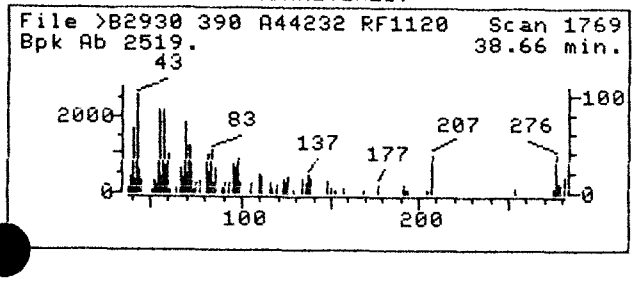
REFERENCE STANDARD SPECTRUM

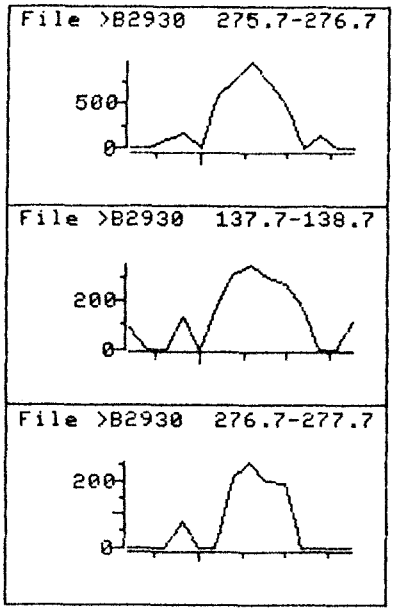


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





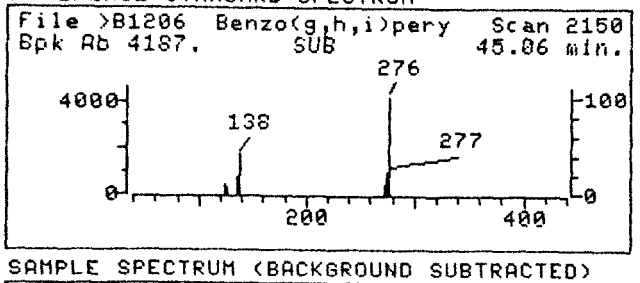
Data File: >B2930::D5
Name: 390 A44232 RF112001
Misc: 2UL 30.63G:1ML RE
Quant Time: 930527 14:26
Injected at: 930527 13:40
Last Qcal Time: 930527 11:41

Quant Output File: ^B2930::F3
Instrument ID: GC/MS #2
BTL# 2
Quant ID File: BID390::OP
Last Calibration: 920731 09:37

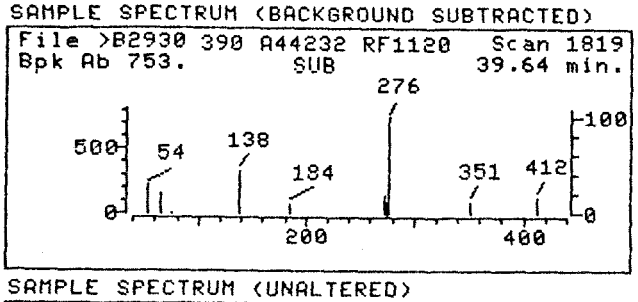
Compound No : 76
Compound Name : Indeno(1,2,3-cd)pyrene
Scan Number : 1769
Retention Time: 38.66 min.
Quant Ion : 276.0
Area : 4642
Concentration : 1.46 ng
q-value : 81

Yes

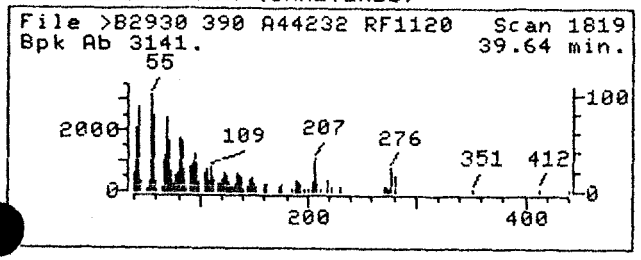
REFERENCE STANDARD SPECTRUM

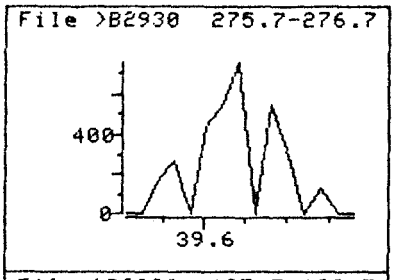


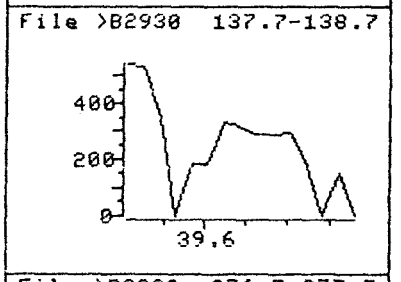
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)

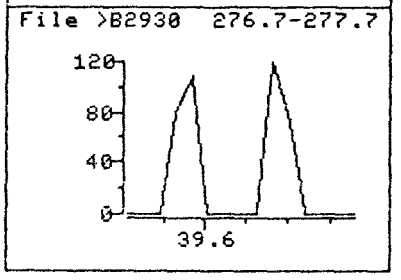


SAMPLE SPECTRUM (UNALTERED)









Data File: >B2930::D5
Name: 390 A44232 RF112001
Misc: 2UL 30.63G:1ML RE
Quant Time: 930527 14:26
Injected at: 930527 13:40
Last Qcal Time: 930527 11:41

Quant Output File: ^B2930::F3
Instrument ID: GC/MS #2
BTL# 2
Quant ID File: BID390::OP
Last Calibration: 920731 09:37

Compound No : 78
Compound Name : Benzo(g,h,i)perylene
Scan Number : 1819
Retention Time: 39.64 min.
Quant Ion : 276.0
Area : 3742
Concentration : 1.15 ng
q-value : 65

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CUSTOMER SAMPLE NO.

RF112002

Lab Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Matrix: (soil/water) SOIL Lab Sample ID:A44231

Sample wt/vol: 30.02 (G/L) G Lab File ID: B2929

Level: (low/med) LOW Date Received: 5/13/93

% Moisture: 13 decanted: (Y/N) N Date Extracted: 5/20/93

Concentrated Extract Volume: 1000.00 (uL) Date Analyzed: 5/27/93

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 0.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	770.	U
111-44-4	bis(2-Chloroethyl)ether	770.	U
95-57-8	2-Chlorophenol	770.	U
541-73-1	1,3-Dichlorobenzene	770.	U
106-46-7	1,4-Dichlorobenzene	770.	U
95-50-1	1,2-Dichlorobenzene	770.	U
95-48-7	2-Methylphenol	770.	U
108-60-1	2,2'-oxybis(1-Chloropropane)	770.	U
106-44-5	4-Methylphenol	770.	U
621-64-7	N-Nitroso-di-n-propylamine	770.	U
67-72-1	Hexachloroethane	770.	U
98-95-3	Nitrobenzene	770.	U
78-59-1	Isophorone	770.	U
88-75-5	2-Nitrophenol	770.	U
105-67-9	2,4-Dimethylphenol	770.	U
111-91-1	bis(2-Chloroethoxy)methane	770.	U
120-83-2	2,4-Dichlorophenol	770.	U
120-82-1	1,2,4-Trichlorobenzene	770.	U
91-20-3	Naphthalene	770.	U
106-47-8	4-Chloroaniline	770.	U
87-68-3	Hexachlorobutadiene	770.	U
59-50-7	4-Chloro-3-methylphenol	770.	U
91-57-6	2-Methylnaphthalene	770.	U
77-47-4	Hexachlorocyclopentadiene	770.	U
88-06-2	2,4,6-Trichlorophenol	770.	U
95-95-4	2,4,5-Trichlorophenol	1900.	U
91-58-7	2-Chloronaphthalene	770.	U
88-74-4	2-Nitroaniline	1900.	U
131-11-3	Dimethylphthalate	770.	U
208-96-8	Acenaphthylene	770.	U
606-20-2	2,6-Dinitrotoluene	770.	U
99-09-2	3-Nitroaniline	1900.	U
83-32-9	Acenaphthene	770.	U

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CUSTOMER SAMPLE NO.

RF112002

Lab Job Name: LOCKHEED - TAD Contract: _

Lab Code: LAS Case No.: SAS No.: SDG No.: RF112002

Matrix: (soil/water) SOIL Lab Sample ID: A44231

Sample wt/vol: 30.02 (G/L) G Lab File ID: B2929

Level: (low/med) LOW Date Received: 5/13/93

% Moisture: 13 decanted: (Y/N) N Date Extracted: 5/20/93

Concentrated Extract Volume: 1000.00 (uL) Date Analyzed: 5/27/93

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 0.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1900.	U
100-02-7	4-Nitrophenol	1900.	U
132-64-9	Dibenzofuran	770.	U
121-14-2	2,4-Dinitrotoluene	770.	U
84-66-2	Diethylphthalate	770.	U
7005-72-3	4-Chlorophenyl-phenylether	770.	U
86-73-7	Fluorene	770.	U
100-01-6	4-Nitroaniline	1900.	U
534-52-1	4,6-Dinitro-2-methylphenol	1900.	U
86-30-6	N-Nitrosodiphenylamine (1)	770.	U
101-55-3	4-Bromophenyl-phenylether	770.	U
118-74-1	Hexachlorobenzene	770.	U
87-86-5	Pentachlorophenol	1900.	U
85-01-8	Phenanthrene	88.	J
120-12-7	Anthracene	770.	U
86-74-8	Carbazole	770.	U
84-74-2	Di-n-butylphthalate	770.	U
206-44-0	Fluoranthene	150.	J
129-00-0	Pyrene	150.	J
85-68-7	Butylbenzylphthalate	770.	U
91-94-1	3,3'-Dichlorobenzidine	770.	U
56-55-3	Benzo(a)anthracene	69.	J
218-01-9	Chrysene	81.	J
117-81-7	bis(2-Ethylhexyl)phthalate	770.	U
117-84-0	Di-n-octylphthalate	770.	U
205-99-2	Benzo(b)fluoranthene	69.	J
207-08-9	Benzo(k)fluoranthene	66.	J
50-32-8	Benzo(a)pyrene	68.	J
193-39-5	Indeno(1,2,3-cd)pyrene	50.	J
53-70-3	Dibenz(a,h)anthracene	770.	U
191-24-2	Benzo(g,h,i)perylene	44.	J

(1) - Cannot be seperated from Diphenylamine

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CUSTOMER SAMPLE NO.

RF112002

Lab Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Matrix: (soil/water) SOIL Lab Sample ID:A44231

Sample wt/vol: 30.02 (g/ml) G Lab File ID: B2929

Level: (low/med) LOW Date Received: 5/13/93

% Moisture: 13 decanted: (Y/N) N16 Date Extracted: 5/20/93

Concentrated Extract Volume: 1000.00 (uL) Date Analyzed: 5/27/93

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 0.0

Number TICs Found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

RR

QUANT REPORT

Operator ID: ARTURO
Output File: ^B2929::F3
Data File: >B2929::D5
Name: 390 A44231 RF112002
Misc: 2UL 30.02G:1ML RE

Quant Rev: 7
Quant Time: 930527 13:28
Injected at: 930527 12:42
Dilution Factor: 1.00000
Instrument ID: GC/MS #2
BTL# 1

ID File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37
Last Qcal Date: 930527 11:41

	Compound	R.T.	Q ion	Area	Conc	Units %	q
1)	*1,4-Dichlorobenzene-d4	9.24	152.0	69267	40.00	ng	97
2)	2-Fluorophenol	6.01	112.0	301509	130.50	ng 87	84
3)	2-Chlorophenol-d4	8.81	132.0	265939	119.54	ng 80	92
4)	Phenol-d5	8.87	99.0	369986	114.86	ng 77	96
10)	1,2-Dichlorobenzene-d4	9.79	152.0	9386	5.89	ng 6 *	94
15)	N-Nitroso-di-n-propylamine	10.99	70.0	29908	~~13.15 ng~~	ND.	50
17)	*Naphthalene-d8	13.04	136.0	233641	40.00	ng	83
18)	Nitrobenzene-d5	10.99	82.0	222614	81.76	ng 82	85
31)	*Acenaphthene-d10	18.47	164.0	98747	40.00	ng	89
36)	2-Fluorobiphenyl	16.55	172.0	307203	83.71	ng 84	94
37)	2,4,6-Tribromophenol	20.98	330.0	114766	133.53	ng 89	93
[illegible]	Dimethylphthalate 18.04	18.49	163.0	21798	~~5.42 ng~~	ND.	46
52)	*Phenanthrene-d10	22.97	188.0	150710	40.00	ng	98
58)	Phenanthrene	23.03	178.0	10864	2.29	ng 76 µg/kg	98
62)	Fluoranthene	26.74	202.0	17996	3.84	ng 128	85
63)	*Chrysene-d12	31.22	240.0	122191	40.00	ng	94
64)	Pyrene	27.38	202.0	16568	3.96	ng 132	84
65)	Terphenyl-d14	28.15	244.0	323349	104.19	ng 104	91
68)	Benzo(a)anthracene	31.18	228.0	6257M	1.80	ng 60	91
69)	Chrysene	31.28	228.0	6862	2.11	ng 70	91
71)	*Perylene-d12	35.34	264.0	110713	40.00	ng	97
73)	Benzo(b)fluoranthene	34.34	252.0	5915M	1.80	ng 60	88
74)	Benzo(k)fluoranthene	34.40	252.0	4867M	1.71	ng 57	88
75)	Benzo(a)pyrene	35.18	252.0	4986	1.77	ng 59	90
76)	Indeno(1,2,3-cd)pyrene	38.64	276.0	3381	1.30	ng 43	76
78)	Benzo(g,h,i)perylene	39.60	276.0	3031	1.14	ng 38	90

* Compound is ISTD

* SUR.OUT (advis.).

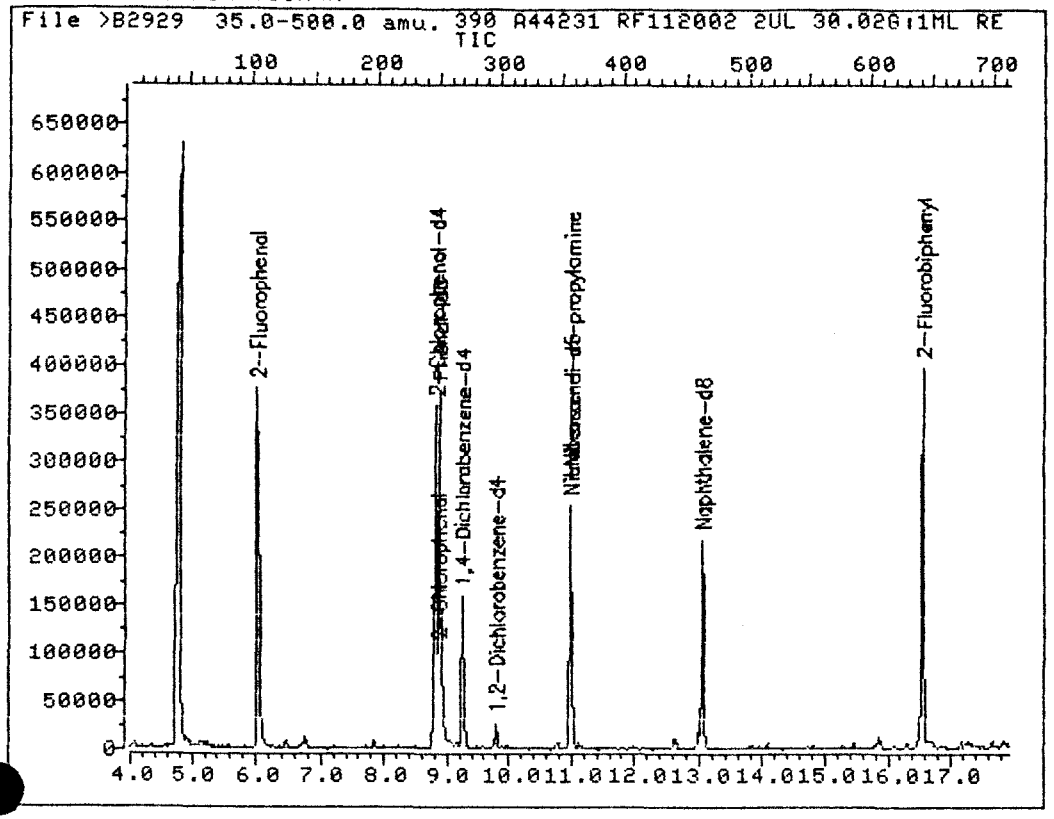
$2FP = \frac{130.50\ ng}{2\ \mu l} = 65.25\ \frac{\mu g}{ml} \times 1\ ml \times \frac{\overset{GPC}{2}}{30.02\ g} = 4.35\ \frac{\mu g}{g}.$

RR see > B2920 (1:10)

added $150\ \frac{ng}{ml} \times \frac{1\ ml}{30.02\ g} = 5$

$\% = \frac{4.35}{5} = 87$

TOTAL ION CHROMATOGRAM



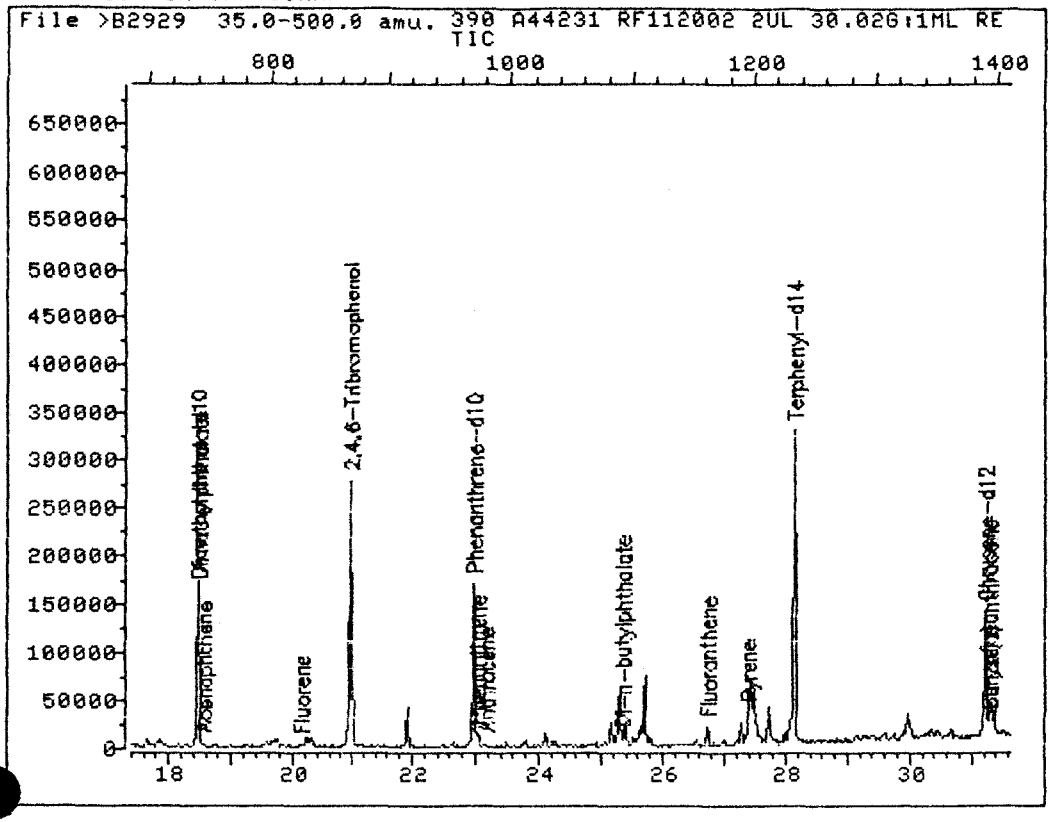
Data File: >B2929::D5 Quant Output File: ^B2929::F3
Name: 390 A44231 RF112002 Instrument ID: GC/MS #2
Misc: 2UL 30.02G:1ML RE BTL# 1

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37 Last Qcal Time: 930527 11:41

Operator ID: ARTURO
Quant Time : 930527 13:28
Injected at: 930527 12:42

Page 1 of 3

TOTAL ION CHROMATOGRAM



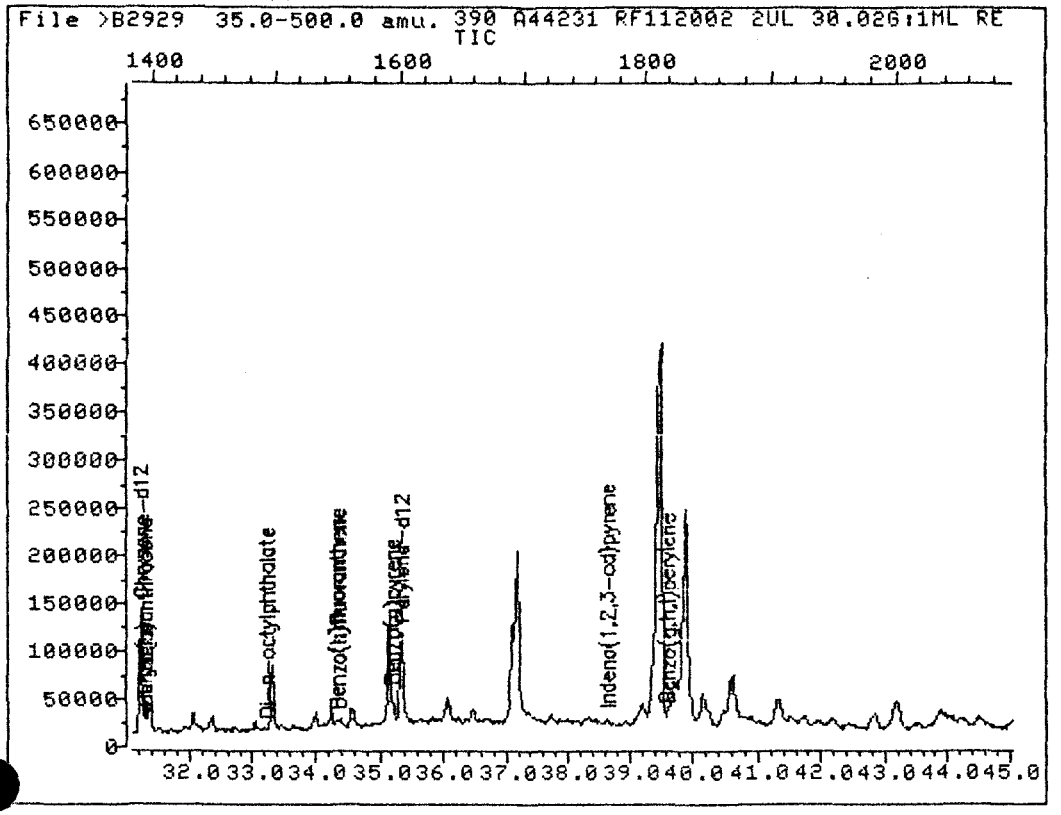
Data File: >B2929::D5 Quant Output File: ^B2929::F3
Name: 390 A44231 RF112002 Instrument ID: GC/MS #2
Misc: 2UL 30.02G:1ML RE BTL# 1

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37 Last Qcal Time: 930527 11:41

Operator ID: ARTURO
Quant Time : 930527 13:28
Injected at: 930527 12:42

Page 2 of 3

TOTAL ION CHROMATOGRAM



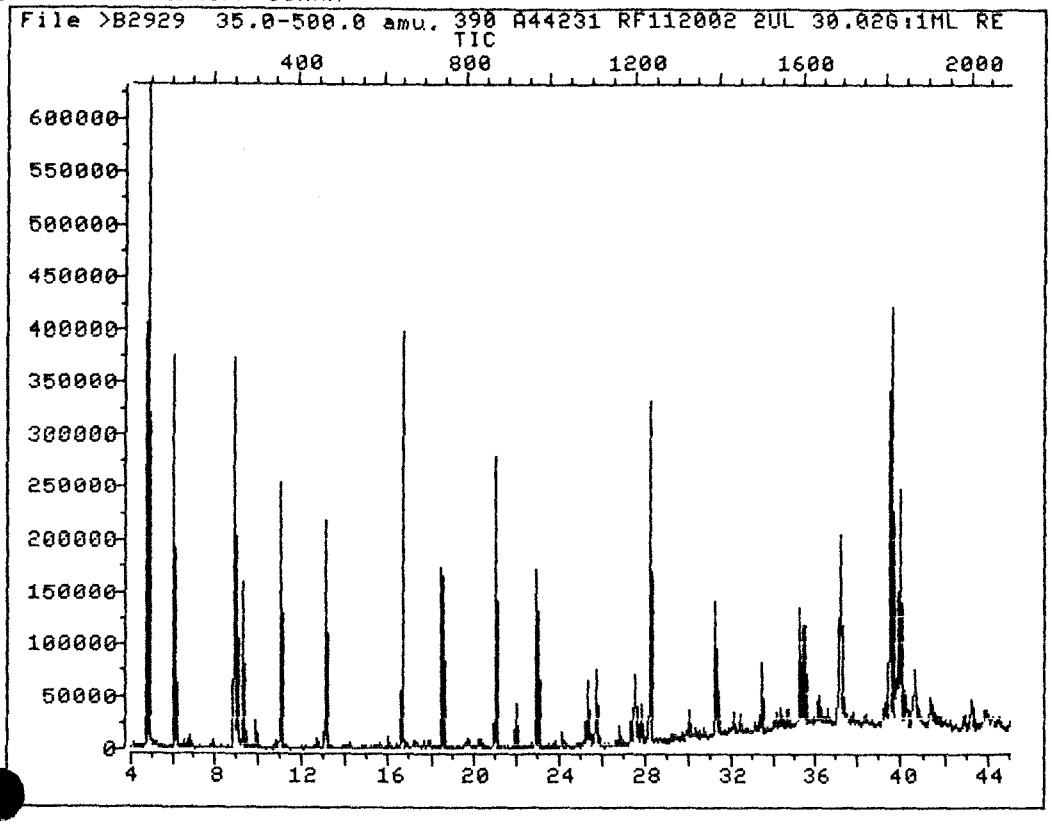
Data File: >B2929::D5 Quant Output File: ^B2929::F3
Name: 390 A44231 RF112002 Instrument ID: GC/MS #2
Misc: 2UL 30.02G:1ML RE BTL# 1

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37 Last Qcal Time: 930527 11:41

Operator ID: ARTURO
Quant Time : 930527 13:28
Injected at: 930527 12:42

Page 3 of 3

TOTAL ION CHROMATOGRAM



Data File: >B2929::D5
Name: 390 A44231 RF112002
Misc: 2UL 30.02G:1ML RE

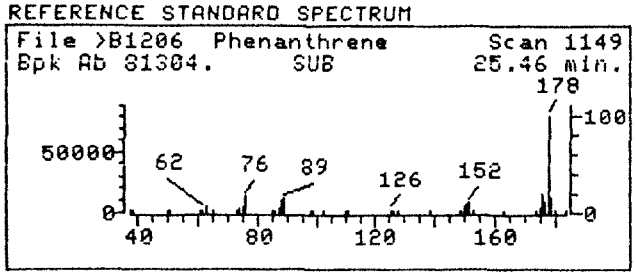
Quant Output File: ^B2929::F3
Instrument ID: GC/MS #2
BTL# 1

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37

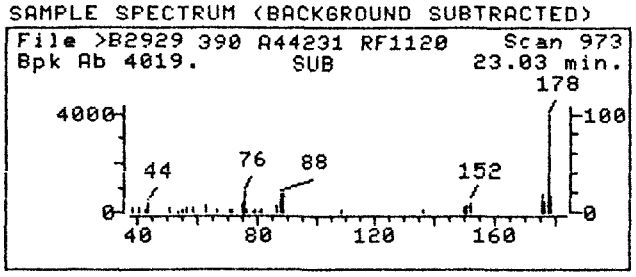
Last Qcal Time: 930527 11:41

Operator ID: ARTURO
Quant Time : 930527 13:28
Injected at: 930527 12:42

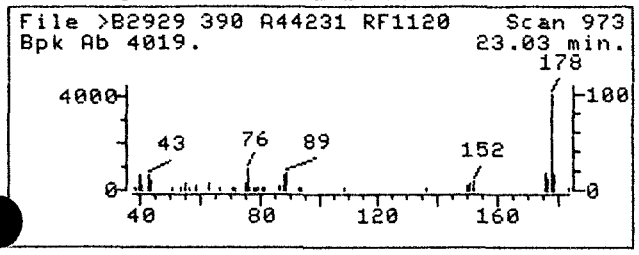
REFERENCE STANDARD SPECTRUM

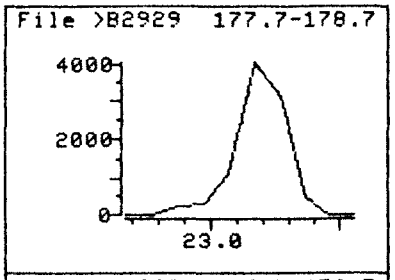


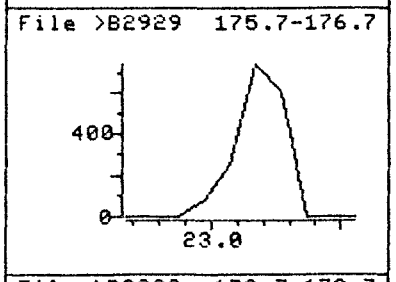
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)

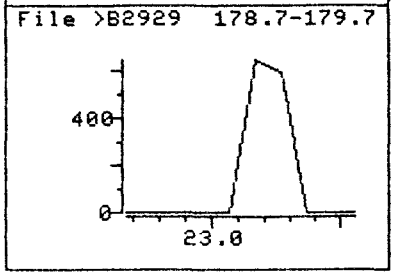


SAMPLE SPECTRUM (UNALTERED)









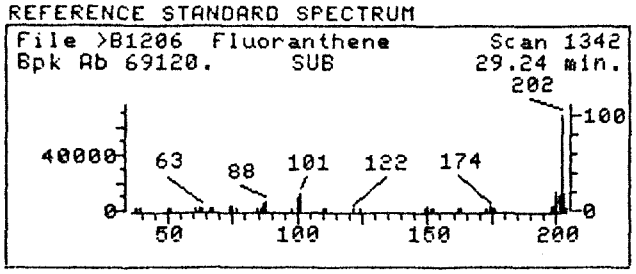
Data File: >B2929::D5
Name: 390 A44231 RF112002
Misc: 2UL 30.02G:1ML RE
Quant Time: 930527 13:28
Injected at: 930527 12:42
Last Qcal Time: 930527 11:41

Quant Output File: ^B2929::F3
Instrument ID: GC/MS #2
BTL# 1
Quant ID File: BID390::DP
Last Calibration: 920731 09:37

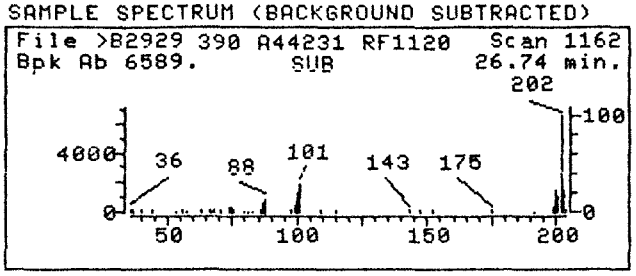
Compound No : 58
Compound Name : Phenanthrene
Scan Number : 973
Retention Time: 23.03 min.
Quant Ion : 178.0
Area : 10864
Concentration : 2.29 ng ✓
q-value : 98

yes

REFERENCE STANDARD SPECTRUM



SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



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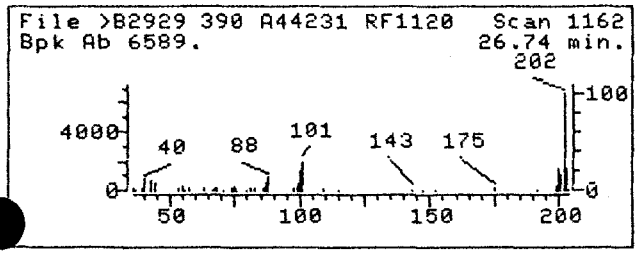
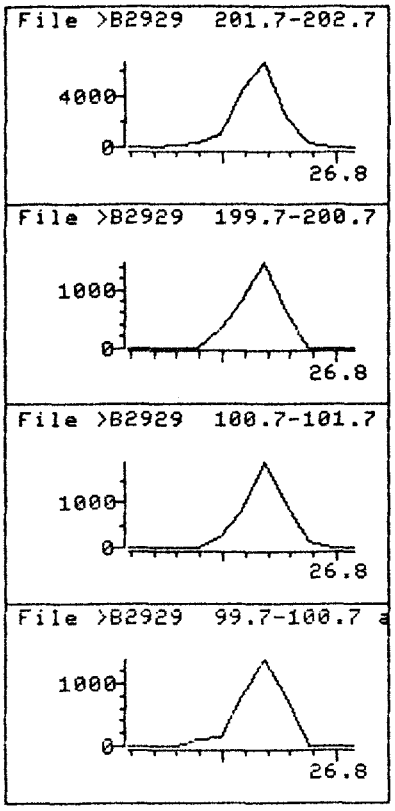




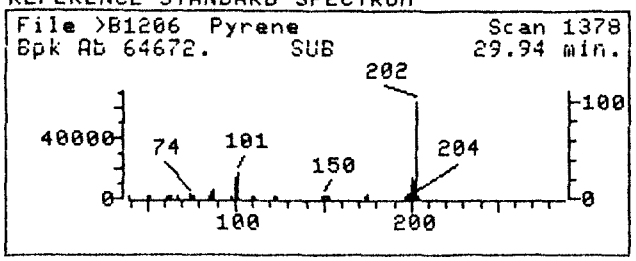
Data File: >B2929::D5
Name: 390 A44231 RF112002
Misc: 2UL 30.02G:1ML RE
Quant Time: 930527 13:28
Injected at: 930527 12:42
Last Qcal Time: 930527 11:41

Quant Output File: ^B2929::F3
Instrument ID: GC/MS #2
BTL# 1
Quant ID File: BID390::OP
Last Calibration: 920731 09:37

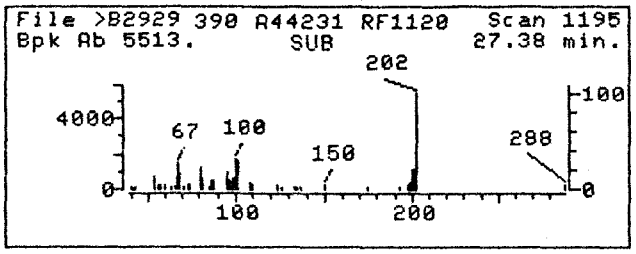
Compound No : 62
Compound Name : Fluoranthene
Scan Number : 1162
Retention Time: 26.74 min.
Quant Ion : 202.0
Area : 17996
Concentration : 3.84 ng ✓
q-value : 85

yes

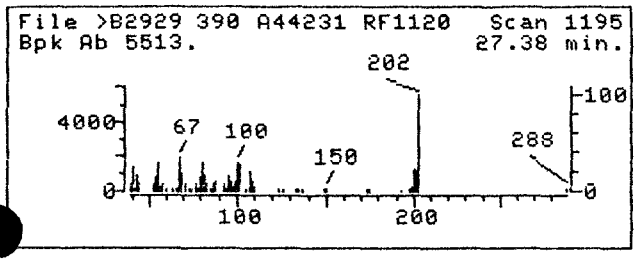
REFERENCE STANDARD SPECTRUM

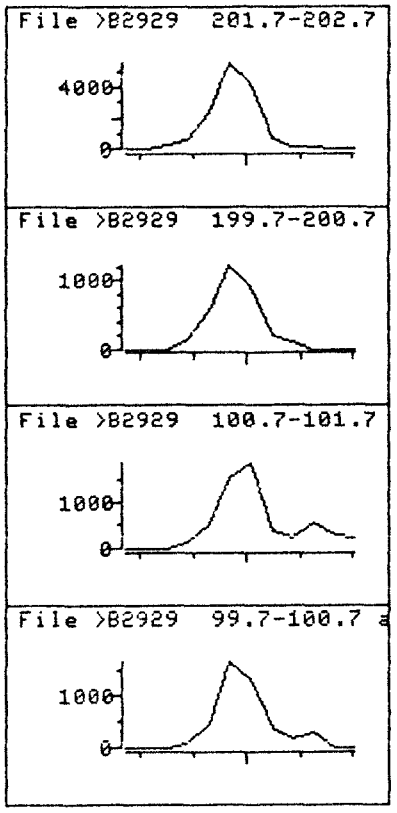


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





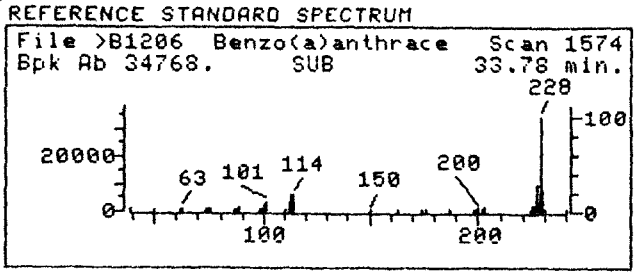
Data File: >B2929::D5
Name: 390 A44231 RF112002
Misc: 2UL 30.02G:1ML RE
Quant Time: 930527 13:28
Injected at: 930527 12:42
Last Qcal Time: 930527 11:41

Quant Output File: ^B2929::F3
Instrument ID: GC/MS #2
BTL# 1
Quant ID File: BID390::OP
Last Calibration: 920731 09:37

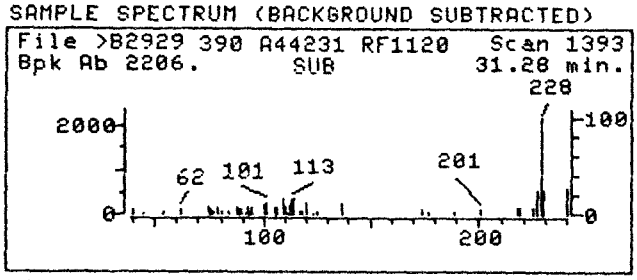
Compound No : 64
Compound Name : Pyrene
Scan Number : 1195
Retention Time: 27.38 min.
Quant Ion : 202.0
Area : 16568
Concentration : 3.96 ng
q-value : 84 ✓

yes.

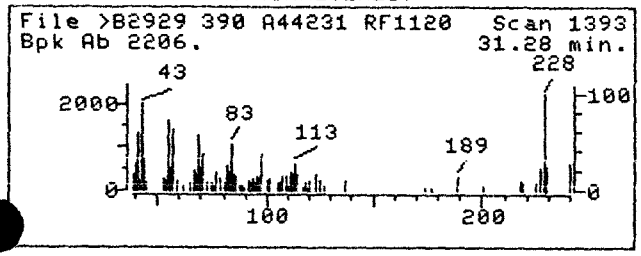
REFERENCE STANDARD SPECTRUM

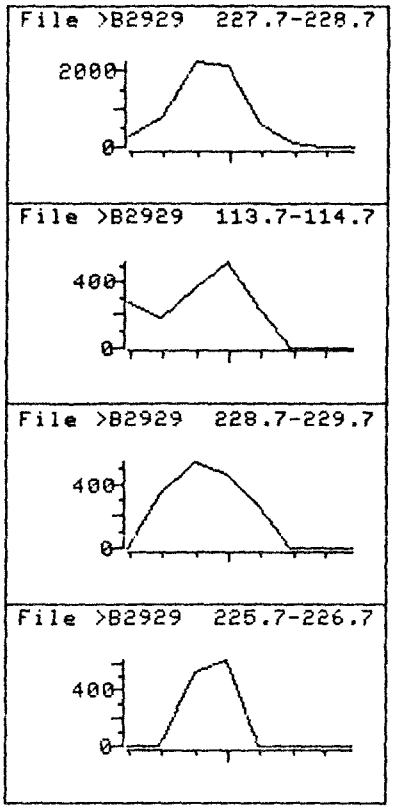


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





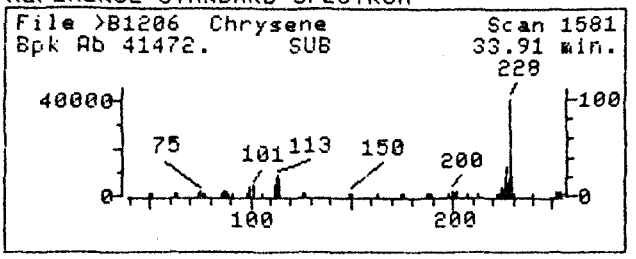
Data File: >B2929::D5
Name: 390 A44231 RF112002
Misc: 2UL 30.02G:1ML RE
Quant Time: 930527 13:28
Injected at: 930527 12:42
Last Qcal Time: 930527 11:41

Quant Output File: ^B2929::F3
Instrument ID: GC/MS #2
BTL# 1
Quant ID File: BID390::QP
Last Calibration: 920731 09:37

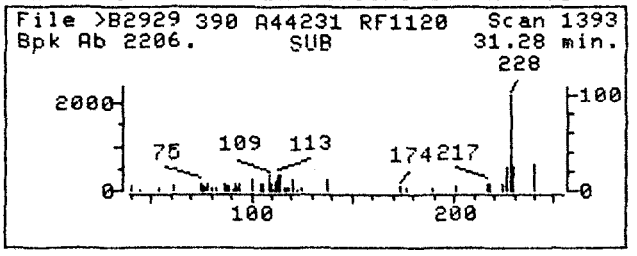
Compound No : 68
Compound Name : Benzo(a)anthracene
Scan Number : 1393
Retention Time: 31.28 min.
Quant Ion : 228.0
Area : 6862
Concentration : 1.97 ng
q-value : 91 √

yes

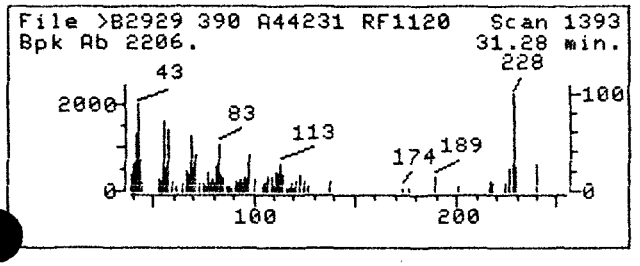
REFERENCE STANDARD SPECTRUM

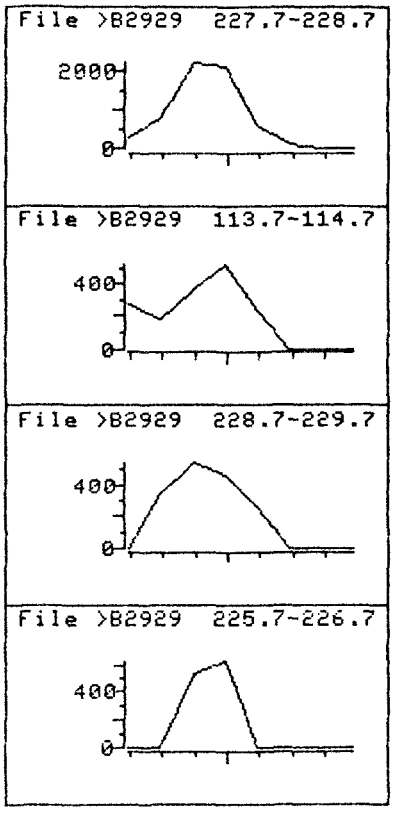


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





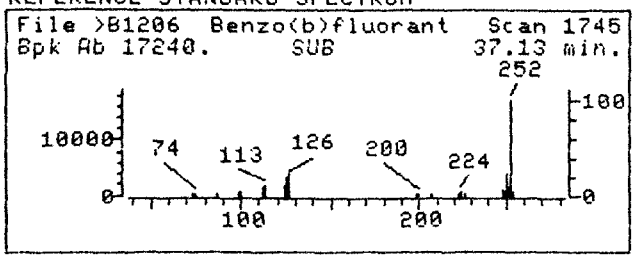
Data File: >B2929::D5
Name: 390 A44231 RF112002
Misc: 2UL 30.02G:1ML RE
Quant Time: 930527 13:28
Injected at: 930527 12:42
Last Qcal Time: 930527 11:41

Quant Output File: ^B2929::F3
Instrument ID: GC/MS #2
BTL# 1
Quant ID File: BID390::OP
Last Calibration: 920731 09:37

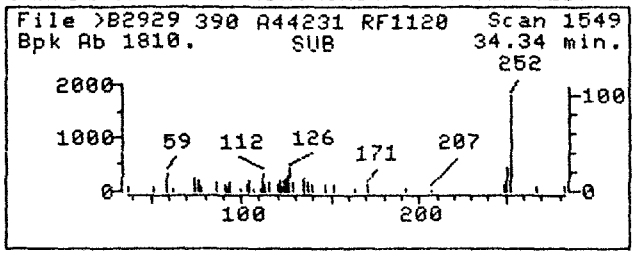
Compound No : 69
Compound Name : Chrysene
Scan Number : 1393
Retention Time: 31.28 min.
Quant Ion : 228.0
Area : 6862
Concentration : 2.11 ng ✓
q-value : 91

Yes

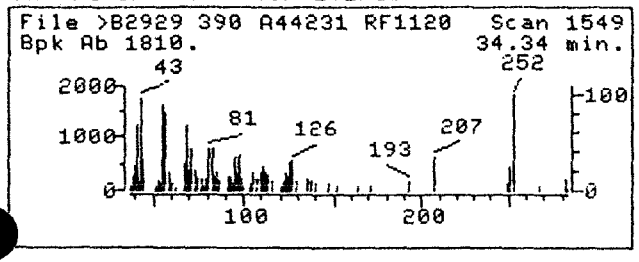
REFERENCE STANDARD SPECTRUM

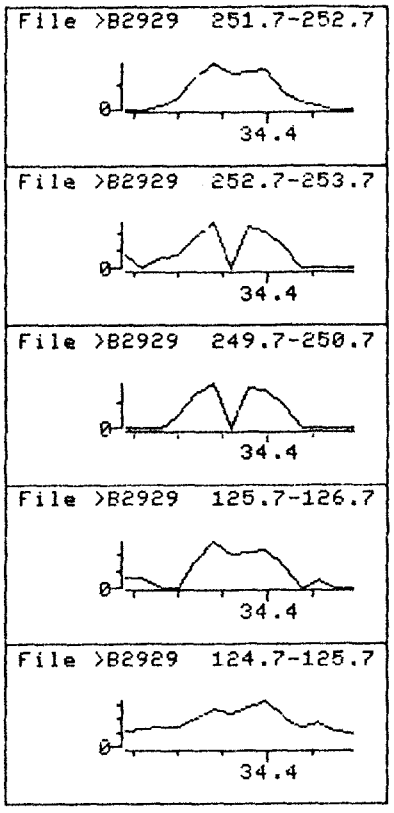


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





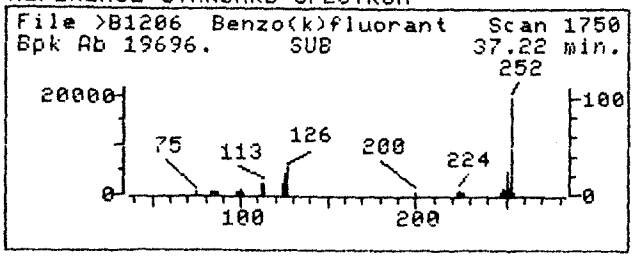
Data File: >B2929::D5
Name: 390 A44231 RF112002
Misc: 2UL 30.02G:1ML RE
Quant Time: 930527 13:28
Injected at: 930527 12:42
Last Qcal Time: 930527 11:41

Quant Output File: ^B2929::F3
Instrument ID: GC/MS #2
BTL# 1
Quant ID File: BID390::DP
Last Calibration: 920731 09:37

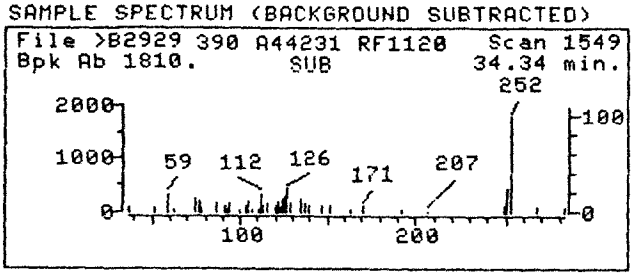
Compound No : 73
Compound Name : Benzo(b)fluoranthene
Scan Number : 1549
Retention Time: 34.34 min.
Quant Ion : 252.0
Area : 10797
Concentration : ~~3.29 ng~~ 1.80 ng.
q-value : 88

Yes.

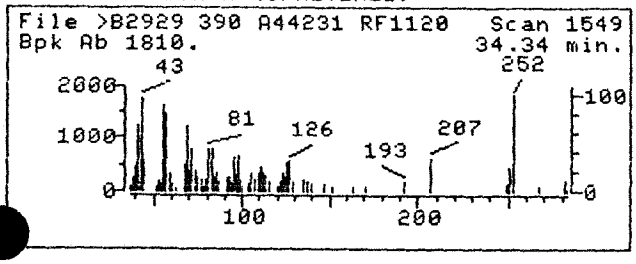
REFERENCE STANDARD SPECTRUM

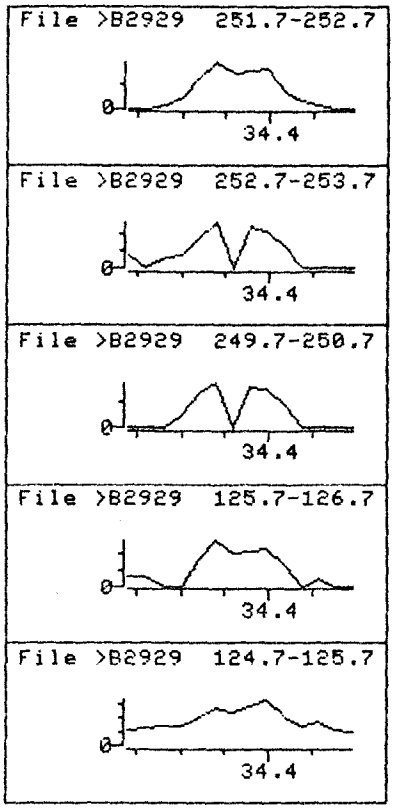


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





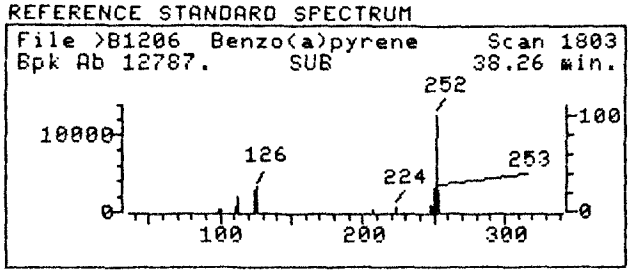
Data File: >B2929::D5
Name: 390 A44231 RF112002
Misc: 2UL 30.02G:1ML RE
Quant Time: 930527 13:28
Injected at: 930527 12:42
Last Qcal Time: 930527 11:41

Quant Output File: ^B2929::F3
Instrument ID: GC/MS #2
BTL# 1
Quant ID File: BID390::OP
Last Calibration: 920731 09:37

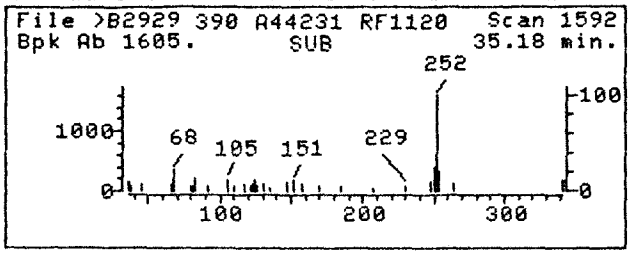
Compound No : 74
Compound Name : Benzo(k)fluoranthene
Scan Number : 1549
Retention Time: 34.~~34 min~~. 34.40
Quant Ion : 252.0
Area : 10797
Concentration : 3.~~80 ng~~ 1.71
q-value : 88

Yes.

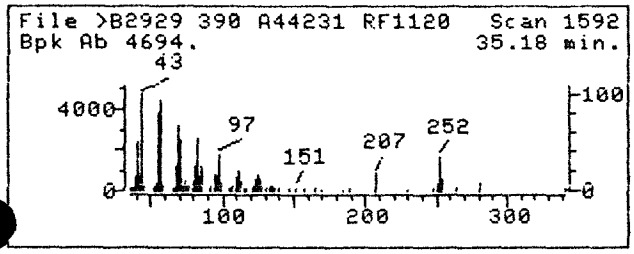
REFERENCE STANDARD SPECTRUM

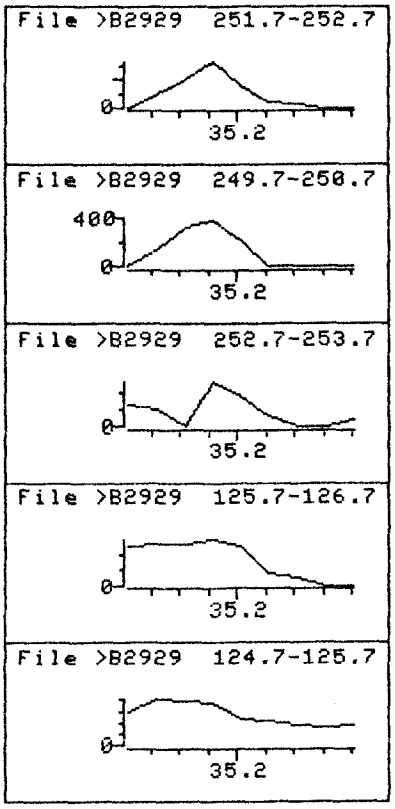


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)



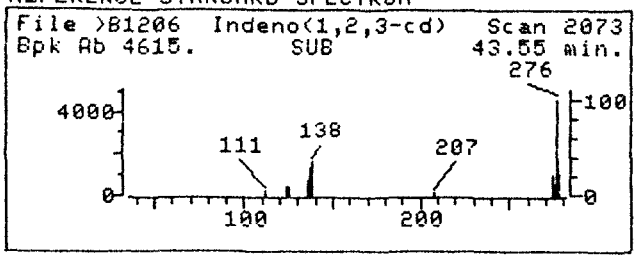


Data File: >B2929::D5
Name: 390 A44231 RF112002
Misc: 2UL 30.02G:1ML RE
Quant Time: 930527 13:28
Injected at: 930527 12:42
Last Qcal Time: 930527 11:41

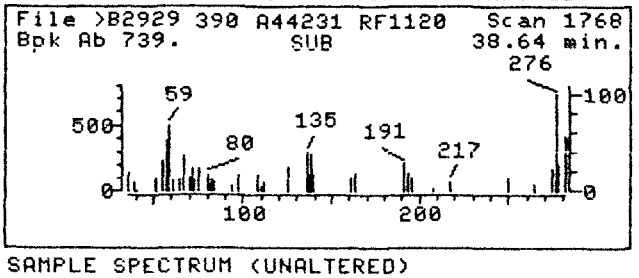
Quant Output File: ^B2929::F3
Instrument ID: GC/MS #2
BTL# 1
Quant ID File: BID390::OP
Last Calibration: 920731 09:37

Compound No : 75
Compound Name : Benzo(a)pyrene
Scan Number : 1592
Retention Time: 35.18 min.
Quant Ion : 252.0
Area : 4986
Concentration : 1.77 ng √ YS
q-value : 90

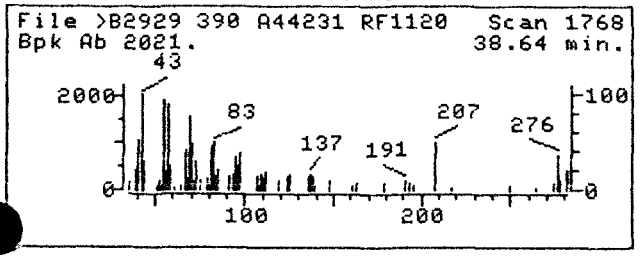
REFERENCE STANDARD SPECTRUM

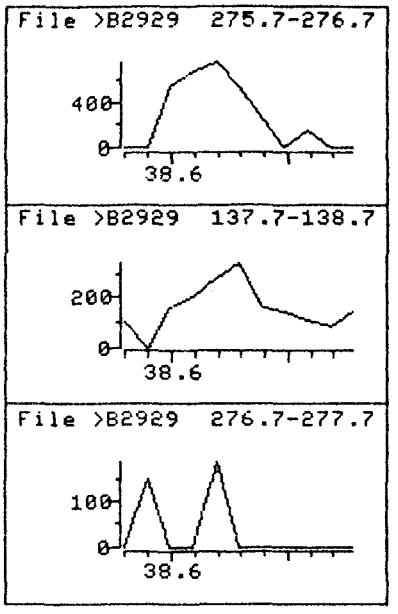


SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)



SAMPLE SPECTRUM (UNALTERED)





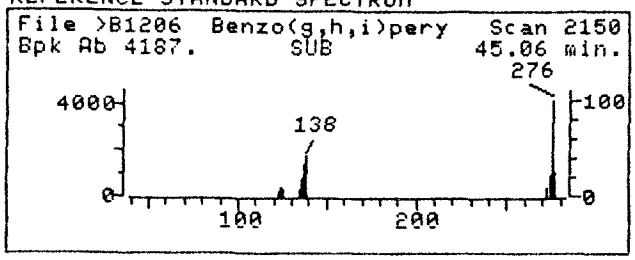
Data File: >B2929::D5
Name: 390 A44231 RF112002
Misc: 2UL 30.02G:1ML RE
Quant Time: 930527 13:28
Injected at: 930527 12:42
Last Qcal Time: 930527 11:41

Quant Output File: ^B2929::F3
Instrument ID: GC/MS #2
BTL# 1
Quant ID File: BID390::OP
Last Calibration: 920731 09:37

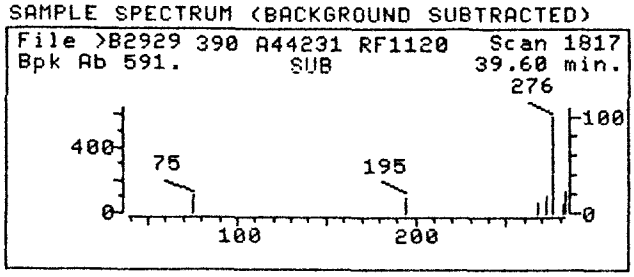
Compound No : 76
Compound Name : Indeno(1,2,3-cd)pyrene
Scan Number : 1768
Retention Time: 38.64 min.
Quant Ion : 276.0
Area : 3381
Concentration : 1.30 ng ✓
q-value : 76

Yes

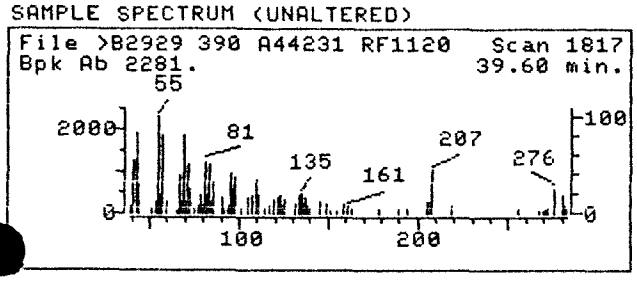
REFERENCE STANDARD SPECTRUM

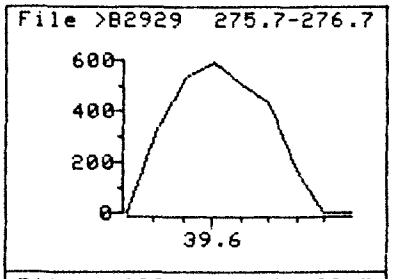


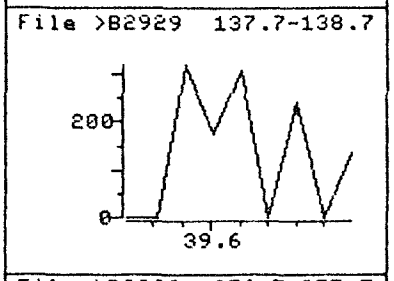
SAMPLE SPECTRUM (BACKGROUND SUBTRACTED)

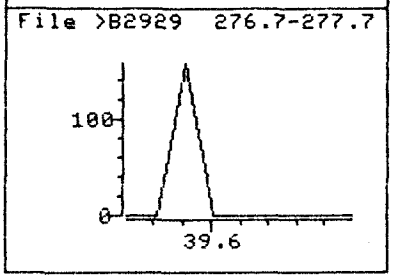


SAMPLE SPECTRUM (UNALTERED)









Data File: >B2929::D5
Name: 390 A44231 RF112002
Misc: 2UL 30.02G:1ML RE
Quant Time: 930527 13:28
Injected at: 930527 12:42
Last Qcal Time: 930527 11:41

Quant Output File: ^B2929::F3
Instrument ID: GC/MS #2
BTL# 1
Quant ID File: BID390::OP
Last Calibration: 920731 09:37

Compound No : 78
Compound Name : Benzo(g,h,i)perylene
Scan Number : 1817
Retention Time: 39.60 min.
Quant Ion : 276.0
Area : 3031
Concentration : 1.14 ng ✓
q-value : 90

Yes

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Instrument ID:GC/MS-B Calibration Date(s): 5/22/93 5/22/93

Calibration Times: 1542 1934

LAB FILE ID: RRF20 =B2909 RRF50 =B2908
RRF80 =B2910 RRF120=B2911 RRF160=B2912

COMPOUND		RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD	
Phenol	*	1.491	2.194	2.040	2.148	1.955	1.966	14.3	*
bis(2-Chloroethyl)ether	*	1.259	1.884	1.749	1.800	1.665	1.671	14.6	*
2-Chlorophenol	*	1.114	1.508	1.420	1.422	1.335	1.360	11.1	*
1,3-Dichlorobenzene	*	1.496	1.538	1.465	1.500	1.422	1.484	2.9	*
1,4-Dichlorobenzene	*	1.145	1.584	1.489	1.575	1.463	1.451	12.3	*
1,2-Dichlorobenzene	*	1.035	1.492	1.392	1.458	1.342	1.344	13.6	*
2-Methylphenol	*	0.979	1.390	1.309	1.404	1.300	1.276	13.5	*
2,2'-oxybis(1-Chloropropane)		1.534	2.464	2.304	2.524	2.320	2.229	17.9	
4-Methylphenol	*	1.013	1.490	1.389	1.462	1.325	1.336	14.3	*
N-Nitroso-di-n-propylamine	*	0.396	1.341	1.199	1.308	1.200	1.089	36.0	*
Hexachloroethane	*	0.342	0.726	0.687	0.727	0.675	0.631	25.9	*
Nitrobenzene	*	0.692	0.651	0.619	0.643	0.636	0.648	4.2	*
Isophorone	*	1.010	0.964	0.943	0.975	0.960	0.970	2.6	*
2-Nitrophenol	*	0.226	0.220	0.208	0.220	0.224	0.220	3.2	*
2,4-Dimethylphenol	*	0.392	0.361	0.337	0.337	0.333	0.352	7.1	*
bis(2-Chloroethoxy)methane	*	0.628	0.624	0.606	0.630	0.626	0.623	1.6	*
2,4-Dichlorophenol	*	0.343	0.288	0.282	0.293	0.293	0.300	8.2	*
1,2,4-Trichlorobenzene	*	0.392	0.320	0.305	0.316	0.311	0.329	10.9	*
Naphthalene	*	1.148	1.097	1.037	1.098	1.082	1.092	3.6	*
4-Chloroaniline		0.491	0.465	0.446	0.464	0.462	0.466	3.5	
Hexachlorobutadiene		0.203	0.189	0.186	0.184	0.183	0.189	4.3	
4-Chloro-3-methylphenol	*	0.337	0.322	0.303	0.307	0.290	0.312	5.8	*
2-Methylnaphthalene	*	0.879	0.841	0.797	0.792	0.768	0.815	5.4	*
Hexachlorocyclopentadiene		0.518	0.528	0.538	0.536	0.554	0.535	2.5	
2,4,6-Trichlorophenol	*	0.517	0.491	0.482	0.504	0.511	0.501	2.9	*
2,4,5-Trichlorophenol	*	0.584	0.536	0.506	0.534	0.533	0.539	5.2	*
2-Chloronaphthalene	*	1.331	1.391	1.311	1.378	1.400	1.362	2.9	*
2-Nitroaniline		0.674	0.685	0.640	0.701	0.701	0.680	3.7	
Dimethylphthalate		1.530	1.570	1.510	1.559	1.590	1.552	2.1	
Acenaphthylene	*	2.304	2.160	2.125	2.228	2.229	2.209	3.1	*
2,6-Dinitrotoluene	*	0.388	0.386	0.371	0.382	0.429	0.391	5.7	*
3-Nitroaniline		0.472	0.325	0.283	0.305	0.319	0.341	22.0	
Acenaphthene	*	1.428	1.356	1.309	1.330	1.325	1.350	3.5	*
2,4-Dinitrophenol		0.184	0.215	0.221	0.269	0.269	0.232	15.9	
4-Nitrophenol		0.151	0.149	0.136	0.152	0.150	0.148	4.5	
Dibenzofuran	*	1.897	1.792	1.730	1.813	1.820	1.810	3.3	*
2,4-Dinitrotoluene	*	0.516	0.503	0.491	0.514	0.531	0.511	2.9	*

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Instrument ID:GC/MS-B Calibration Date(s): 5/22/93 5/22/93

Calibration Times: 1542 1934

LAB FILE ID: RRF20 =B2909 RRF50 =B2908
RRF80 =B2910 RRF120=B2911 RRF160=B2912

COMPOUND		RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD	
Diethylphthalate		1.823	1.563	1.501	1.526	1.503	1.583	8.6	
4-Chlorophenyl-phenylether	*	0.855	0.700	0.666	0.687	0.644	0.710	11.8	*
Fluorene	*	1.693	1.345	1.316	1.360	1.377	1.418	10.9	*
4-Nitroaniline		0.384	0.292	0.264	0.280	0.273	0.299	16.3	
4,6-Dinitro-2-methylphenol		0.190	0.203	0.199	0.227	0.217	0.207	7.1	
N-Nitrosodiphenylamine (1)		0.586	0.586	0.578	0.592	0.566	0.582	1.7	
4-Bromophenyl-phenylether	*	0.352	0.338	0.323	0.325	0.327	0.333	3.6	*
Hexachlorobenzene	*	0.517	0.474	0.455	0.464	0.455	0.473	5.5	*
Pentachlorophenol	*	0.239	0.250	0.249	0.273	0.281	0.258	6.9	*
Phenanthrene	*	1.318	1.243	1.214	1.257	1.277	1.262	3.1	*
Anthracene	*	1.255	1.199	1.156	1.210	1.206	1.205	2.9	*
Carbazole		1.376	0.952	0.868	0.766	0.706	0.934	28.3	
Di-n-butylphthalate		1.880	1.673	1.696	1.727	1.821	1.759	5.0	
Fluoranthene	*	1.393	1.259	1.252	1.305	1.292	1.300	4.3	*
Pyrene	*	1.924	1.212	1.220	1.143	1.168	1.333	24.9	*
Butylbenzylphthalate		0.698	0.625	0.627	0.618	0.623	0.638	5.3	
3,3'-Dichlorobenzidine		0.407	0.221	0.197	0.189	0.176	0.238	40.3	
Benzo(a)anthracene	*	1.244	1.107	1.080	1.099	1.110	1.128	5.8	*
Chrysene	*	1.139	1.068	1.055	1.035	0.988	1.057	5.2	*
bis(2-Ethylhexyl)phthalate		0.856	0.882	0.877	0.902	0.873	0.878	1.9	
Di-n-octylphthalate		1.141	1.266	1.338	1.390	1.366	1.300	7.7	
Benzo(b)fluoranthene	*	1.105	1.101	1.120	1.387	1.368	1.216	12.1	*
Benzo(k)fluoranthene	*	1.117	1.030	1.049	0.865	0.796	0.971	13.9	*
Benzo(a)pyrene	*	1.027	0.998	1.025	1.034	1.012	1.019	1.4	*
Indeno(1,2,3-cd)pyrene	*	0.921	0.934	1.001	1.027	1.182	1.013	10.3	*
Dibenz(a,h)anthracene	*	0.917	0.903	0.953	0.959	0.951	0.937	2.7	*
Benzo(g,h,i)perylene	*	0.865	0.983	1.009	1.019	0.979	0.971	6.3	*
Nitrobenzene-d5	*	0.479	0.478	0.456	0.469	0.473	0.471	2.0	*
2-Fluorobiphenyl	*	1.471	1.481	1.434	1.433	1.436	1.451	1.6	*
Terphenyl-d14	*	1.030	0.922	0.948	0.866	0.855	0.924	7.6	*
Phenol-d5	*	1.360	1.934	1.871	1.887	1.724	1.755	13.4	*
2-Fluorophenol	*	0.969	1.373	1.375	1.344	1.343	1.281	13.7	*
2,4,6-Tribromophenol		0.260	0.343	0.338	0.364	0.352	0.331	12.4	
2-Chlorophenol-d4	*	0.756	1.339	1.293	1.319	1.238	1.189	20.6	*
1,2-Dichlorobenzene-d4	*	0.659	0.944	0.888	0.897	0.866	0.851	13.0	*

(1) Cannot be seperated from Diphenylamine
* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

Initial Calibration Data
HSL Compounds

6/3/93

Case No: _____ Instrument ID: _____

Contractor: _____ Calibration Date: 06/03/93

Contract No: _____

Minimum $\overline{RF}$ for SPCC is 0.01 Maximum % RSD for CCC is 20.5%

Laboratory ID:	>B2909	>B2908	>B2910	>B2911	>B2912					
Compound	RF 20.00	RF 50.00	RF 80.00	RF 120.00	RF 160.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC
2-Fluorophenol	.96902	1.37294	1.37939	1.34378	1.34271	.650	1.28077	13.660	*	
2-Chlorophenol-d4	.75553	1.33876	1.29285	1.31936	1.23759	.950	1.18882	20.624	*	1
Phenol-d5	1.35973	1.93389	1.87110	1.88719	1.72430	.957	1.75524	13.365	*	
Phenol	1.49076	2.19433	2.04037	2.14751	1.95456	.960	1.96551	14.313	*	
bis(2-Chloroethyl)ether	1.25937	1.88402	1.74928	1.79980	1.66485	.947	1.67146	14.581	*	
2-Chlorophenol	1.11437	1.50783	1.42050	1.42222	1.33506	.955	1.36000	11.050	*	
1,3-Dichlorobenzene	1.49640	1.53800	1.46498	1.49986	1.42202	.987	1.48425	2.922	*	
1,4-Dichlorobenzene	1.14451	1.58357	1.48892	1.57487	1.46294	1.005	1.45096	12.350	*	
1,2-Dichlorobenzene-d4	.65885	.94407	.88755	.89653	.86582	1.058	.85056	13.041	*	
[illegible]-Dichlorobenzene	1.03501	1.49214	1.39156	1.45806	1.34220	1.062	1.34379	13.554	*	
2-Methylphenol	.97855	1.38971	1.30926	1.40419	1.29951	1.135	1.27624	13.543	*	
2,2'-oxybis(1-chloropropane)	1.53385	2.46388	2.30441	2.52438	2.32016	1.120	2.22933	17.938		**
4-Methylphenol	1.01290	1.49047	1.38945	1.46173	1.32516	1.185	1.33594	14.352	*	
N-Nitroso-di-n-propylamine	.39555	1.34101	1.19930	1.30792	1.19982	1.164	1.08872	36.067	*	2
Hexachloroethane	.34225	.72556	.68719	.72659	.67549	1.159	.63141	25.853	*	3
Nitrobenzene-d5	.47853	.47800	.45589	.46867	.47251	.843	.47072	1.962	*	
Nitrobenzene	.69225	.65092	.61942	.64276	.63561	.846	.64819	4.200	*	
Isophorone	1.00975	.96382	.94260	.97483	.95968	.905	.97014	2.577	*	
2-Nitrophenol	.22629	.22011	.20806	.22044	.22441	.921	.21986	3.231	*	
2,4-Dimethylphenol	.39221	.36053	.33681	.33719	.33319	.956	.35199	7.093	*	
bis(2-Chloroethoxy)methane	.62780	.62415	.60582	.63044	.62625	.969	.62289	1.576	*	
2,4-Dichlorophenol	.34267	.28804	.28174	.29315	.29252	.984	.29962	8.175	*	
1,2,4-Trichlorobenzene	.39197	.32024	.30533	.31582	.31097	.994	.32887	10.859	*	
Naphthalene	1.14844	1.09706	1.03741	1.09848	1.08225	1.004	1.09273	3.639	*	
4-Chloroaniline	.49097	.46546	.44576	.46415	.46246	1.033	.46576	3.477		**
Hexachlorobutadiene	.20347	.18942	.18599	.18426	.18275	1.056	.18918	4.422		**
4-Chloro-3-methylphenol	.33657	.32199	.30317	.30699	.28968	1.167	.31168	5.793	*	
2-Methylnaphthalene	.87878	.84075	.79732	.79184	.76798	1.167	.81533	5.413	*	
Hexachlorocyclopentadiene	.51769	.52833	.53803	.53578	.55418	.868	.53480	2.512		**
2,4,6-Trichlorophenol	.51680	.49092	.48208	.50378	.51085	.884	.50089	2.848	*	

RF - Response Factor (Subscript is amount in ng)

$\overline{RRT}$ - Average Relative Retention Time (RT Std/RT Istd)

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Initial Calibration Data
HSL Compounds

Case No: _____ Instrument ID: _____

Contractor: _____ Calibration Date: 06/03/93

Contract No: _____

Minimum $\overline{RF}$ for SPCC is 0.01 Maximum % RSD for CCC is 20.5%

Laboratory ID:	>B2909	>B2908	>B2910	>B2911	>B2912					
	RF	RF	RF	RF	RF					
Compound	20.00	50.00	80.00	120.00	160.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC
2,4,5-Trichlorophenol	.58361	.53564	.50572	.53387	.53317	.892	.53840	5.227	*	
2-Chloronaphthalene	1.33061	1.39058	1.31079	1.37751	1.40042	.905	1.36198	2.877	*	
2-Fluorobiphenyl	1.47103	1.48135	1.43409	1.43298	1.43567	.896	1.45102	1.604	*	
2,4,6-Tribromophenol	.26027	.34317	.33837	.36427	.35243	1.134	.33170	12.401		**
2-Nitroaniline	.67428	.68519	.63964	.70106	.70082	.935	.68020	3.723		**
Dimethylphthalate	1.52985	1.57005	1.51021	1.55936	1.59018	.977	1.55193	2.057		**
Acenaphthylene	2.30390	2.15992	2.12470	2.22763	2.22902	.973	2.20904	3.142	*	
2,6-Dinitrotoluene	.38754	.38577	.37145	.38235	.42879	.983	.39118	5.607	*	
3-Nitroaniline	.47169	.32482	.28292	.30536	.31922	1.005	.34080	21.987		**
Acenaphthene	1.42801	1.35600	1.30866	1.33029	1.32464	1.005	1.34952	3.488	*	
2,4-Dinitrophenol	.18414	.21502	.22138	.26943	.26933	1.019	.23186	15.973		**
4-Nitrophenol	.15115	.14881	.13560	.15164	.14980	1.053	.14736	4.534		**
Dibenzofuran	1.89651	1.79152	1.73041	1.81317	1.82045	1.033	1.81041	3.300	*	
2,4-Dinitrotoluene	.51581	.50327	.49066	.51408	.53129	1.046	.51102	2.964	*	
Diethylphthalate	1.82324	1.56309	1.50143	1.52576	1.50321	1.096	1.58334	8.614		**
4-Chlorophenyl-phenylether	.85464	.69958	.66607	.68710	.64432	1.097	.71034	11.736	*	
Fluorene	1.69339	1.34488	1.31632	1.35980	1.37667	1.090	1.41821	10.959	*	
4-Nitroaniline	.38415	.29174	.26350	.28031	.27324	1.107	.29859	16.387		**
4,6-Dinitro-2-methylphenol	.19050	.20251	.19891	.22652	.21672	.895	.20703	6.972		**
N-Nitrosodiphenylamine (1)	.58649	.58590	.57775	.59200	.56568	.901	.58156	1.760		**
4-Bromophenyl-phenylether	.35248	.33831	.32329	.32532	.32686	.946	.33325	3.670	*	
Hexachlorobenzene	.51660	.47367	.45507	.46375	.45526	.961	.47287	5.415	*	
Pentachlorophenol	.23891	.25041	.24851	.27287	.28113	.989	.25837	6.890	*	
Phenanthrene	1.31787	1.24294	1.21431	1.25659	1.27743	1.003	1.26183	3.076	*	
Anthracene	1.25492	1.19946	1.15627	1.21039	1.20588	1.009	1.20538	2.912	*	
Carbazole	1.37618	.95232	.86782	.76607	.70642	1.036	.93376	28.346		**
Di-n-butylphthalate	1.88019	1.67344	1.69556	1.72667	1.82081	1.102	1.75934	4.995		**
Fluoranthene	1.39252	1.25884	1.25247	1.30452	1.29166	1.163	1.30000	4.318	*	
Pyrene	1.92434	1.21180	1.22042	1.14330	1.16778	.878	1.33353	24.880	*	4
Terphenyl-d14	1.03036	.92168	.94768	.86625	.85482	.901	.92416	7.651	*	

RF - Response Factor (Subscript is amount in ng)

$\overline{RRT}$ - Average Relative Retention Time (RT Std/RT Istd)

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

AB 6/3/93

Initial Calibration Data
HSL Compounds

Case No: Instrument ID:

Contractor: Calibration Date: 06/03/93

Contract No:

Minimum $\overline{RF}$ for SPCC is 0.01 Maximum % RSD for CCC is 20.5%

Laboratory ID:	>B2909	>B2908	>B2910	>B2911	>B2912					
Compound	RF 20.00	RF 50.00	RF 80.00	RF 120.00	RF 160.00	$\overline{RRT}$	$\overline{RF}$	% RSD	CCC	SPCC
Butylbenzylphthalate	.69825	.62470	.62701	.61768	.62349	.958	.63823	5.285		**
3,3'-Dichlorobenzidine	.40705	.22075	.19699	.18932	.17585	1.002	.23799	40.297		**
Benzo(a)anthracene	1.24423	1.10718	1.08038	1.09883	1.10971	.998	1.12806	5.846	*	
Chrysene	1.13889	1.06801	1.05497	1.03516	.98768	1.003	1.05694	5.207	*	
bis(2-Ethylhexyl)phthalate	.85570	.88214	.87736	.90195	.87313	1.021	.87806	1.899		**
Di-n-octylphthalate	1.14101	1.26598	1.33753	1.39024	1.36618	.953	1.30019	7.726		**
Benzo(b)fluoranthene	1.10467	1.10101	1.11963	1.38694	1.36766	.972	1.21598	12.137	*	
Benzo(k)fluoranthene	1.11710	1.03000	1.04914	.86480	.79553	.974	.97131	13.908	*	
Benzo(a)pyrene	1.02721	.99756	1.02491	1.03367	1.01156	.996	1.01898	1.416	*	
Indeno(1,2,3-cd)pyrene	.92076	.93355	1.00060	1.02745	1.18205	1.095	1.01288	10.327	*	
Dibenz(a,h)anthracene	.91719	.90335	.95300	.95859	.95079	1.098	.93658	2.635	*	
Benzo(g,h,i)perylene	.86480	.98263	1.00859	1.01874	.97862	1.123	.97068	6.343	*	

25 < 4/66 < 40

4 allowed out per 390 CLP

RF - Response Factor (Subscript is amount in ng)

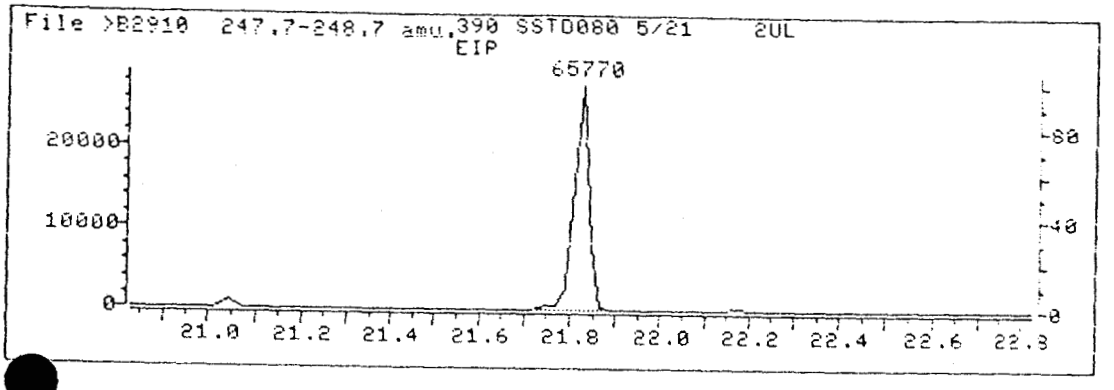
$\overline{RRT}$ - Average Relative Retention Time (RT Std/RT Istd)

$\overline{RF}$ - Average Response Factor

%RSD - Percent Relative Standard Deviation

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

AP 6/3/93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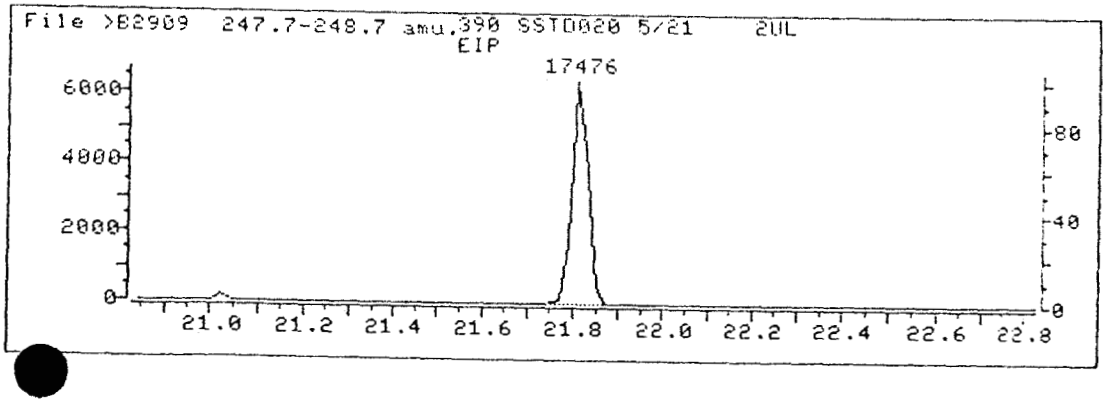
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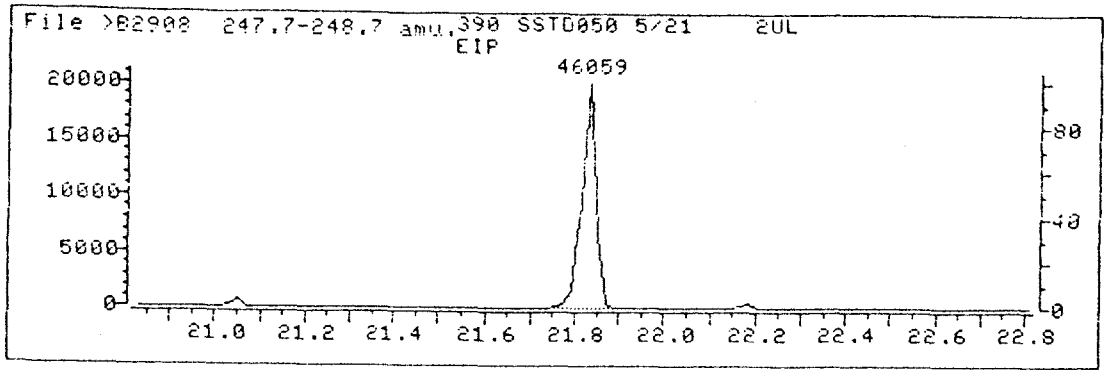
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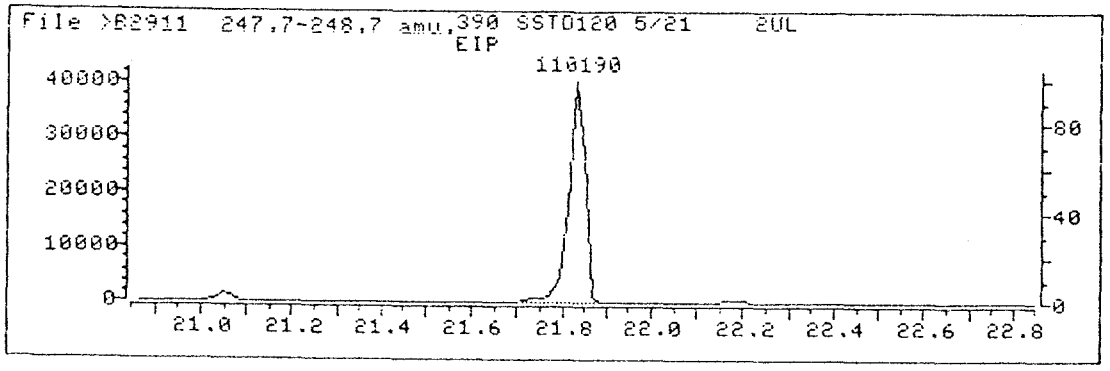
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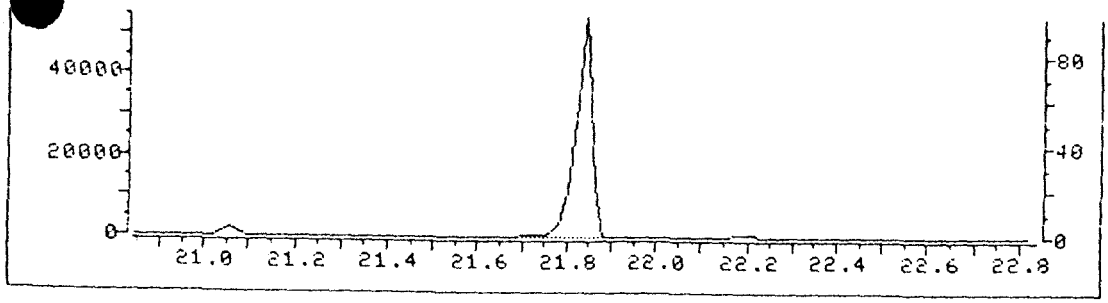

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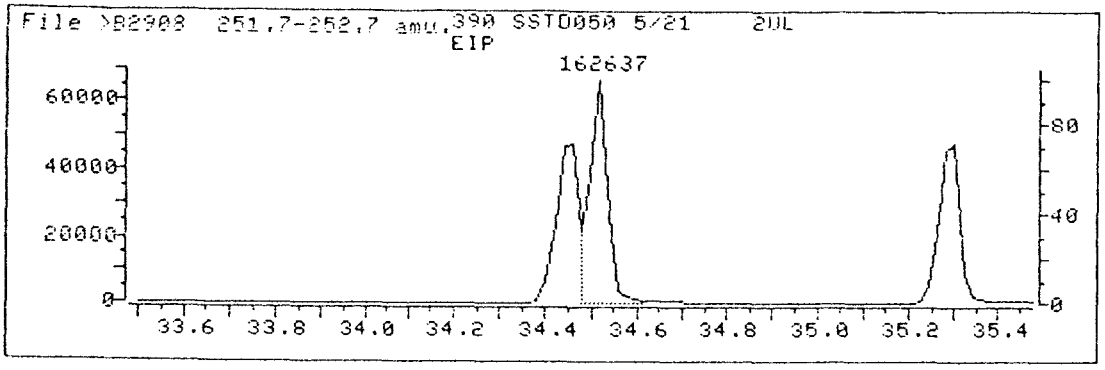
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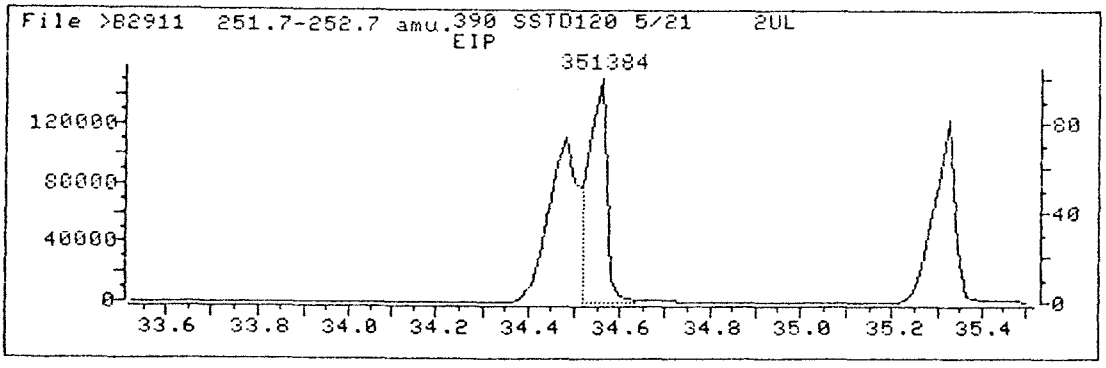
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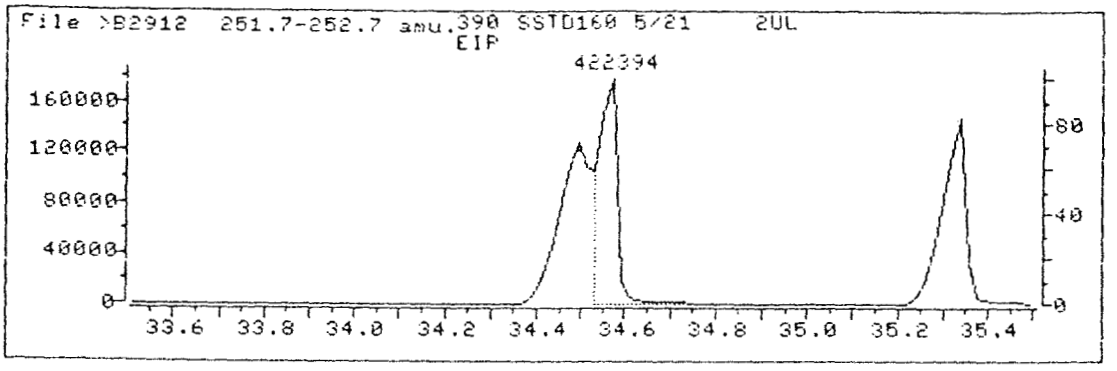
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34.4
34.6
34.8
35.0
35.2
35.4

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QUANT REPORT

Operator ID: MEL
Output File: ^B2909::F3
Data File: >B2909::D5
Name: 390 SSTD020 5/21
Misc: 2UL

Quant Rev: 7
Quant Time: 930523 15:23
Injected at: 930522 16:41
Dilution Factor: 1.00000
Instrument ID: GC/MS #2
BTL# 2

ID File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37
Last Qcal Date: 930522 15:42

	Compound	R.T.	Scan#	Area	Conc	Units	q
1)	*1,4-Dichlorobenzene-d4	9.32	260	68471	40.00	ng	97
2)	2-Fluorophenol	6.07	104	33175	14.12	ng	90
3)	2-Chlorophenol-d4	8.85	239	25866	11.29	ng	96
4)	Phenol-d5	8.90	241	46551	14.06	ng	93
5)	Phenol	8.94	243	51037	13.59	ng	94
6)	bis(2-Chloroethyl)ether	8.81	237	43115	13.37	ng	96
[illegible]	2-Chlorophenol	8.90	241	38151	14.78	ng	99
[illegible]	1,3-Dichlorobenzene	9.19	256	51230	19.46	ng	94
9)	1,4-Dichlorobenzene	9.36	262	39183	14.45	ng	95
10)	1,2-Dichlorobenzene-d4	9.86	286	22556	13.96	ng	95
11)	1,2-Dichlorobenzene	9.90	288	35434	13.87	ng	96
12)	2-Methylphenol	10.57	321	33501	14.08	ng	97
13)	2,2'-oxybis(1-chloropropane)	10.44	314	52512	12.45	ng	97
14)	4-Methylphenol	11.03	342	34677	13.59	ng	99
15)	N-Nitroso-di-n-propylamine	10.81	332	13542	5.90	ng	98
16)	Hexachloroethane	10.81	332	11717	9.43	ng	89
17)	*Naphthalene-d8	13.13	447	157981	40.00	ng	84
18)	Nitrobenzene-d5	11.05	343	37799	20.02	ng	86
19)	Nitrobenzene	11.09	345	54681	21.27	ng	90
20)	Isophorone	11.86	384	79761	20.95	ng	95
21)	2-Nitrophenol	12.08	395	17875	20.56	ng	92
22)	2,4-Dimethylphenol	12.54	418	30981	21.76	ng	95
23)	bis(2-Chloroethoxy)methane	12.70	426	49590	20.12	ng	90
24)	2,4-Dichlorophenol	12.91	437	27068	23.79	ng	93
25)	1,2,4-Trichlorobenzene	13.05	443	30962	24.48	ng	88
26)	Naphthalene	13.17	449	90716	20.94	ng	95
27)	4-Chloroaniline	13.55	468	38782	21.10	ng	97
28)	Hexachlorobutadiene	13.87	484	16072	21.48	ng	86
29)	4-Chloro-3-methylphenol	15.33	557	26586	20.91	ng	100
30)	2-Methylnaphthalene	15.33	557	69415	20.90	ng	93
31)	*Acenaphthene-d10	18.56	720	65047	40.00	ng	92
32)	Hexachlorocyclopentadiene	16.09	596	16837	19.60	ng	92
33)	2,4,6-Trichlorophenol	16.39	611	16808	21.05	ng	94
34)	2,4,5-Trichlorophenol	16.55	619	18981	21.79	ng	96
35)	2-Chloronaphthalene	16.79	631	43276	19.14	ng	98
36)	2-Fluorobiphenyl	16.61	622	47843	19.86	ng	96
37)	2,4,6-Tribromophenol	21.02	843	8465	15.17	ng	97
38)	2-Nitroaniline	17.32	657	21930	19.68	ng	93

[illegible]	[illegible]	[illegible]	12804	20.09 ng	[illegible]

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[illegible])	3-Nitroaniline	18.61	723	15341	29.04 ng	98
43)	Acenaphthene	18.65	725	46444	21.06 ng	98

JB 6/3/93

QUANT REPORT

Operator ID: MEL
Output File: ^B2909::F3
Data File: >B2909::D5
Name: 390 SSTD020 5/21
Misc: 2UL

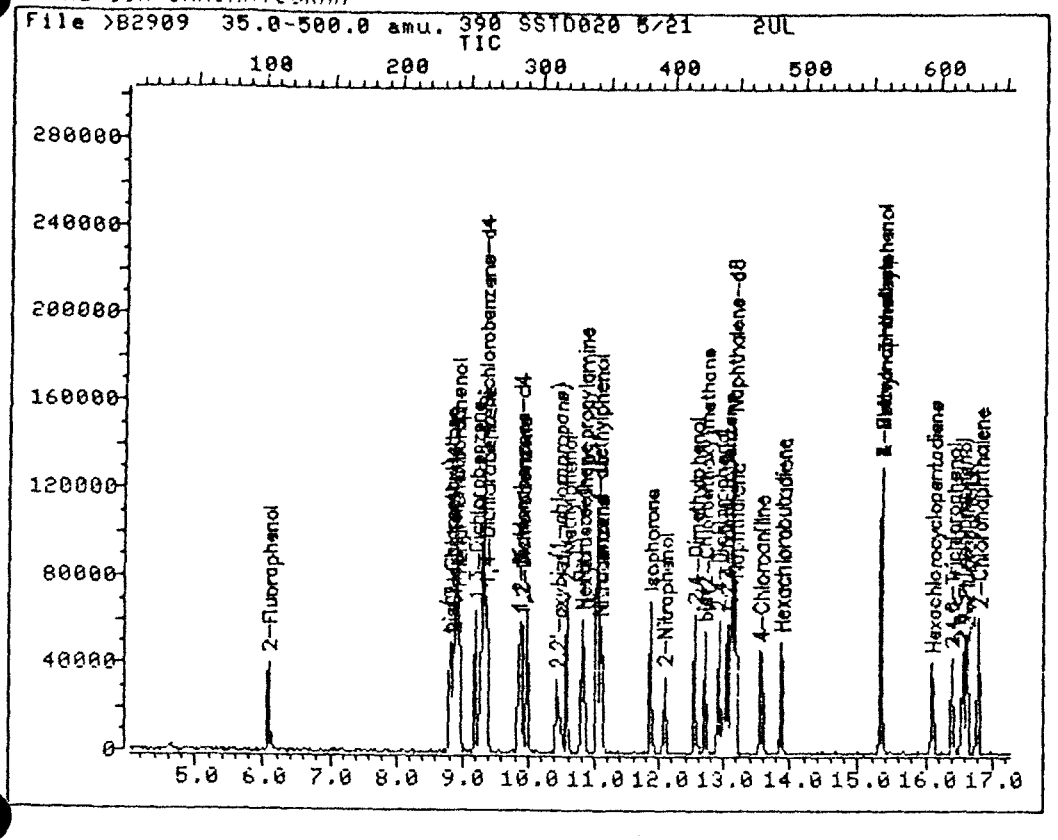
Quant Rev: 7
Quant Time: 930523 15:23
Injected at: 930522 16:41
Dilution Factor: 1.00000
Instrument ID: GC/MS #2
BTL# 2

ID File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37
Last Qcal Date: 930522 15:42

	Compound	R.T.	Scan#	Area	Conc	Units	q
44)	2,4-Dinitrophenol	18.89	737	5989	17.13	ng	85
45)	4-Nitrophenol	19.54	770	4916	20.34	ng	63
46)	Dibenzofuran	19.15	750	61681	21.17	ng	83
47)	2,4-Dinitrotoluene	19.38	762	16776	20.50	ng	75
48)	Diethylphthalate	20.32	807	59298	23.33	ng	92
49)	4-Chlorophenyl-phenylether	20.34	808	27796	24.43	ng	75
50)	Fluorene	20.21	803	55075	25.18	ng	98
[illegible]	4-Nitroaniline	20.51	817	12494	26.33	ng	82
[illegible]	*Phenanthrene-d10	23.06	946	99160	40.00	ng	99
53)	4,6-Dinitro-2-methylphenol	20.61	822	9445	18.81	ng	91
54)	N-Nitrosodiphenylamine (1)	20.77	830	29078	20.02	ng	89
55)	4-Bromophenyl-phenylether	21.81	882	17476M	20.84	ng	
56)	Hexachlorobenzene	22.16	900	25613	21.81	ng	97
57)	Pentachlorophenol	22.79	932	11845	19.08	ng	97
58)	Phenanthrene	23.12	949	65340	21.21	ng	97
59)	Anthracene	23.26	956	62219	20.92	ng	98
60)	Carbazole	23.88	987	68231	28.90	ng	95
61)	Di-n-butylphthalate	25.41	1060	93220	22.47	ng	98
62)	Fluoranthene	26.82	1129	69041	22.12	ng	94
63)	*Chrysene-d12	31.31	1343	111235	40.00	ng	96
64)	Pyrene	27.48	1157	107027	31.76	ng	81
65)	Terphenyl-d14	28.22	1192	57306	22.36	ng	90
66)	Butylbenzylphthalate	29.99	1280	38835	22.35	ng	90
67)	3,3'-Dichlorobenzidine	31.39	1347	22639	36.88	ng	99
68)	Benzo(a)anthracene	31.25	1340	69201	22.48	ng	98
69)	Chrysene	31.39	1347	63342	21.33	ng	96
70)	bis(2-Ethylhexyl)phthalate	31.99	1377	47592	19.40	ng	94
71)	*Perylene-d12	35.44	1549	126295	40.00	ng	95
72)	Di-n-octylphthalate	33.79	1466	72052	18.03	ng	88
73)	Benzo(b)fluoranthene	34.44	1498	69757	20.07	ng	95
74)	Benzo(k)fluoranthene	34.50	1501	70542	21.69	ng	93
75)	Benzo(a)pyrene	35.26	1540	64866	20.59	ng	98
76)	Indeno(1,2,3-cd)pyrene	38.77	1711	58144	19.73	ng	87
[illegible]	Dibenz(a,h)anthracene	38.87	1716	57918	20.31	ng	98
[illegible]	Benzo(g,h,i)perylene	39.73	1758	54610	17.60	ng	82

* Compound is ISTD

TOTAL ION CHROMATOGRAM



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Data File: >B2909::D5
Name: 390 SSTD020 5/21
Misc: 2UL

Quant Output File: ^B2909::F3
Instrument ID: GC/MS #2
BTL# 2

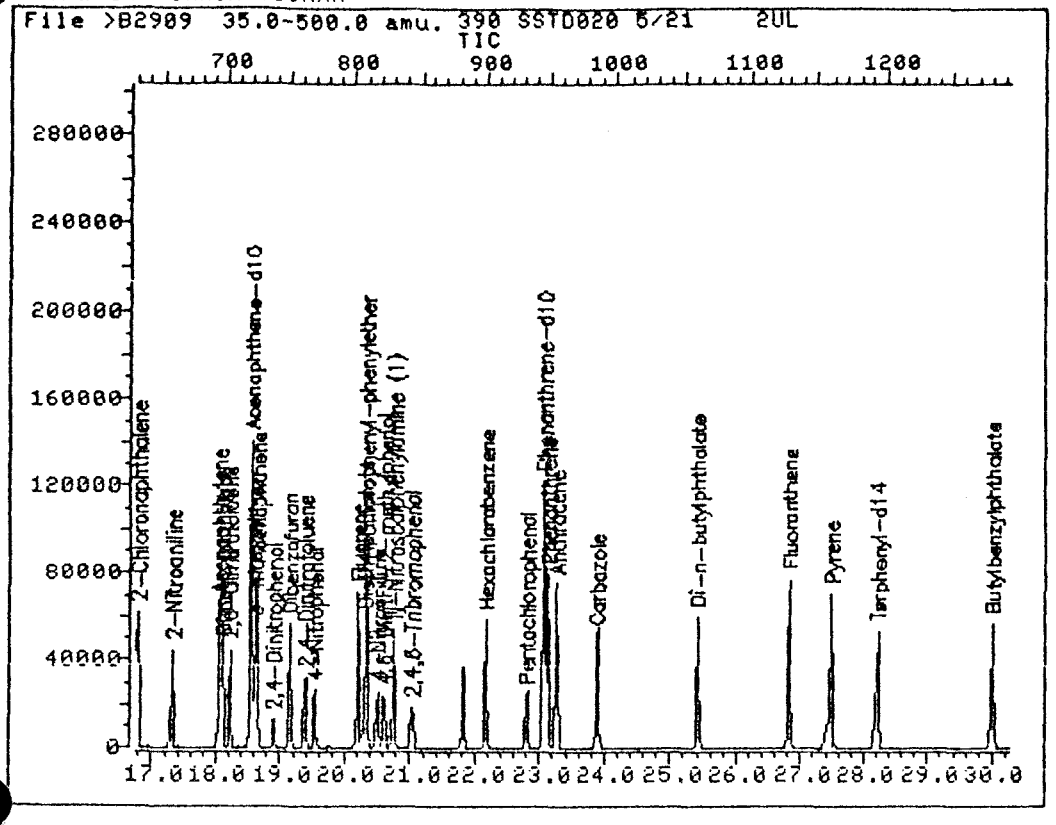
Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37

Last Qcal Time: 930522 15:42

Operator ID: MEL
Quant Time : 930523 15:23
Injected at: 930522 16:41

Page 1 of 3

TOTAL ION CHROMATOGRAM



6/3/93

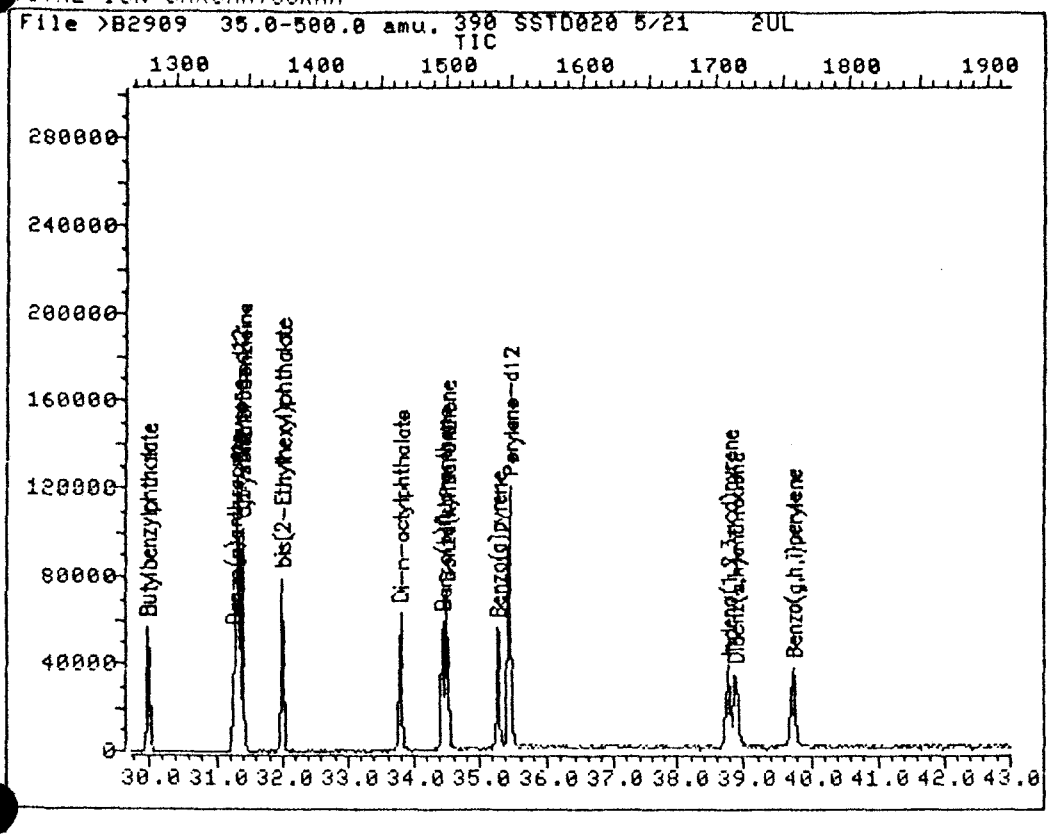
Data File: >B2909::D5 Quant Output File: ^B2909::F3
Name: 390 SSTD020 5/21 Instrument ID: GC/MS #2
Misc: 2UL BTL# 2

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37 Last Qcal Time: 930522 15:42

Operator ID: MEL
Quant Time : 930523 15:23
Injected at: 930522 16:41

Page 2 of 3

TOTAL ION CHROMATOGRAM



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Data File: >B2909::D5 Quant Output File: ^B2909::F3
Name: 390 SSTD020 5/21 Instrument ID: GC/MS #2
Misc: 2UL BTL# 2

Id File: BID390::DP
Title: 3/90 BNA
Last Calibration: 920731 09:37 Last Qcal Time: 930522 15:42

Operator ID: MEL
Quant Time : 930523 15:23
Injected at: 930522 16:41

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QUANT REPORT

Operator ID: MEL
Output File: ^B2908::F3
Data File: >B2908::D5
Name: 390 SSTD050 5/21
Misc: 2UL

Quant Rev: 7
Quant Time: 930522 16:32
Injected at: 930522 15:42
Dilution Factor: 1.00000
Instrument ID: GC/MS #2
BTL# 1

ID File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37
Last Qcal Date: 930130 04:00

	Compound	R.T.	Scan#	Area	Conc	Units	q
1)	*1,4-Dichlorobenzene-d4	9.32	273	46489	40.00	ng	98
2)	2-Fluorophenol	6.07	107	79783	59.71	ng	89
3)	2-Chlorophenol-d4	8.87	250	77797	51.62	ng	95
4)	Phenol-d5	8.93	253	112381	65.04	ng	99
5)	Phenol	8.95	254	127515	65.45	ng	98
6)	bis(2-Chloroethyl)ether	8.83	248	109483	64.69	ng	88
7)	2-Chlorophenol	8.91	252	87622	58.05	ng	95
8)	1,3-Dichlorobenzene	9.20	267	89375	49.76	ng	94
9)	1,4-Dichlorobenzene	9.38	276	92023	49.81	ng	99
10)	1,2-Dichlorobenzene-d4	9.87	301	54861	50.17	ng	96
11)	1,2-Dichlorobenzene	9.91	303	86710	51.24	ng	99
12)	2-Methylphenol	10.59	338	80758	54.30	ng	96
13)	2,2'-oxybis(1-chloropropane)	10.44	330	143179	94.00	ng	94
14)	4-Methylphenol	11.04	361	86613	57.20	ng	97
15)	N-Nitroso-di-n-propylamine	10.85	351	77928	65.74	ng	87
16)	Hexachloroethane	10.81	349	42163	50.98	ng	98
17)	*Naphthalene-d8	13.14	468	169278	40.00	ng	84
18)	Nitrobenzene-d5	11.06	362	101143	63.86	ng	87
19)	Nitrobenzene	11.12	365	137732	59.30	ng	86
20)	Isophorone	11.88	404	203942	57.13	ng	94
21)	2-Nitrophenol	12.10	415	46574	50.82	ng	95
22)	2,4-Dimethylphenol	12.55	438	76287	50.14	ng	96
23)	bis(2-Chloroethoxy)methane	12.73	447	132069	63.79	ng	97
24)	2,4-Dichlorophenol	12.92	457	60949	46.31	ng	93
25)	1,2,4-Trichlorobenzene	13.06	464	67762	45.89	ng	95
26)	Naphthalene	13.20	471	232136	53.02	ng	96
27)	4-Chloroaniline	13.57	490	98491	57.87	ng	99
28)	Hexachlorobutadiene	13.88	506	40081	47.17	ng	92
29)	4-Chloro-3-methylphenol	15.33	580	68133	48.71	ng	100
30)	2-Methylnaphthalene	15.33	580	177900	50.32	ng	98
31)	*Acenaphthene-d10	18.56	745	70607	40.00	ng	86
32)	Hexachlorocyclopentadiene	16.11	620	46630	69.57	ng	96
33)	2,4,6-Trichlorophenol	16.41	635	43328	55.72	ng	95
34)	2,4,5-Trichlorophenol	16.56	643	47275	57.08	ng	89
35)	2-Chloronaphthalene	16.80	655	122731	55.32	ng	96
36)	2-Fluorobiphenyl	16.62	646	130742	57.96	ng	95
37)	2,4,6-Tribromophenol	21.05	872	30288	730.27	ng	93
38)	2-Nitroaniline	17.35	683	60474	74.18	ng	91
39)	Dimethylphthalate	18.11	722	138571	53.73	ng	76

CALIBRATION DATA

427	5-Nitroaniline	18.64	749	26668	94.73 ng	97

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	Acenaphthene	18.66	750	119679	50.04 ng	97

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QUANT REPORT

Operator ID: MEL
Output File: ^B2908::F3
Data File: >B2908::D5
Name: 390 SSTD050 5/21
Misc: 2UL

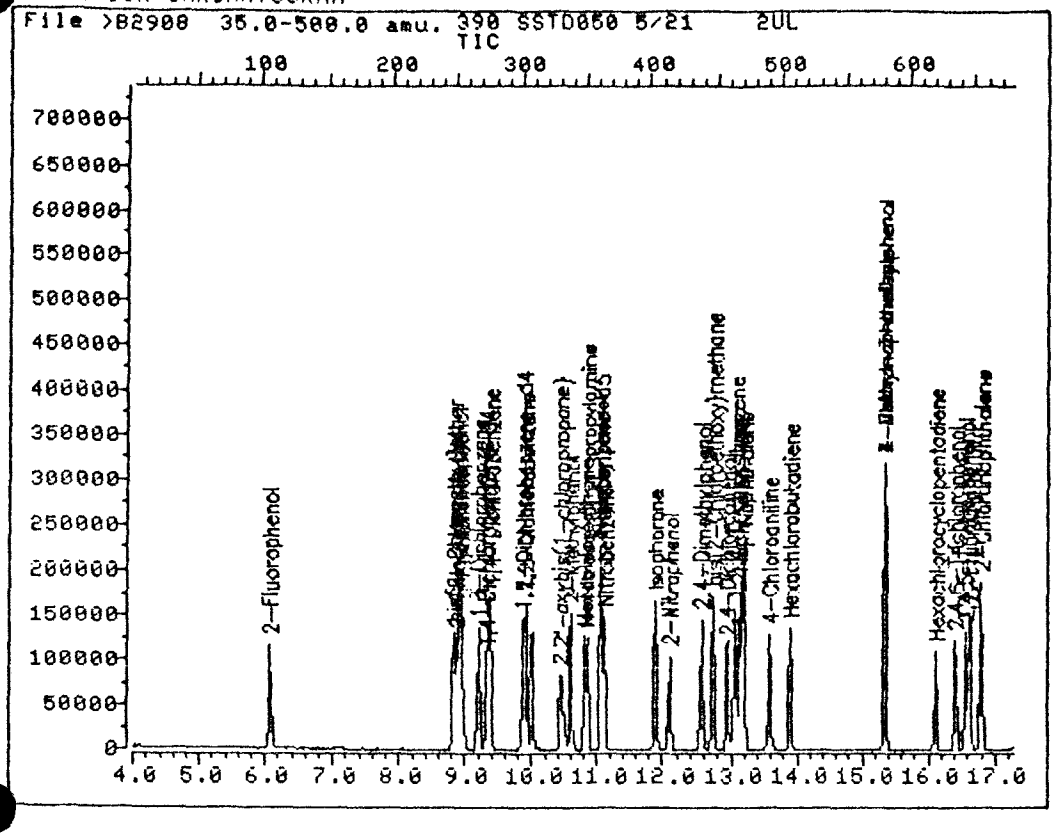
Quant Rev: 7
Quant Time: 930522 16:32
Injected at: 930522 15:42
Dilution Factor: 1.00000
Instrument ID: GC/MS #2
BTL# 1

ID File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37
Last Qcal Date: 930130 04:00

	Compound	R.T.	Scan#	Area	Conc	Units	q
44)	2,4-Dinitrophenol	18.91	763	18977	41.85	ng	91
45)	4-Nitrophenol	19.54	795	13116	41.33	ng	60
46)	Dibenzofuran	19.17	776	158117	47.00	ng	81
47)	2,4-Dinitrotoluene	19.40	788	44418	39.13	ng	83
48)	Diethylphthalate	20.34	836	137956	43.19	ng	92
49)	4-Chlorophenyl-phenylether	20.36	837	61744	51.72	ng	83
50)	Fluorene	20.23	830	118697	46.41	ng	96
[illegible]	4-Nitroaniline	20.54	846	25749	56.41	ng	81
52)	*Phenanthrene-d10	23.06	975	108915	40.00	ng	99
53)	4,6-Dinitro-2-methylphenol	20.64	851	27571	50.55	ng	86
54)	N-Nitrosodiphenylamine (1)	20.79	859	79767	51.83	ng	90
55)	4-Bromophenyl-phenylether	21.83	912	46059M	68.23	ng	
56)	Hexachlorobenzene	22.18	930	64487	72.52	ng	96
57)	Pentachlorophenol	22.81	962	34092	63.06	ng	96
58)	Phenanthrene	23.14	979	169218	52.31	ng	97
59)	Anthracene	23.28	986	163299	49.16	ng	99
60)	Carbazole	23.91	1018	129653	70.82	ng	93
61)	Di-n-butylphthalate	25.43	1096	227829	47.90	ng	95
62)	Fluoranthene	26.84	1168	171383	50.08	ng	90
63)	*Chrysene-d12	31.33	1397	116764	40.00	ng	97
64)	Pyrene	27.49	1201	176868	40.79	ng	89
65)	Terphenyl-d14	28.23	1239	134524	44.95	ng	91
66)	Butylbenzylphthalate	30.01	1330	91178	35.94	ng	88
67)	3,3'-Dichlorobenzidine	31.40	1401	32219	80.31	ng	94
68)	Benzo(a)anthracene	31.29	1395	161598	44.71	ng	99
69)	Chrysene	31.40	1401	155881	45.46	ng	96
70)	bis(2-Ethylhexyl)phthalate	31.99	1431	128753	36.98	ng	95
71)	*Perylene-d12	35.46	1608	126320	40.00	ng	95
72)	Di-n-octylphthalate	33.79	1523	199899	31.10	ng	87
73)	Benzo(b)fluoranthene	34.46	1557	173850	46.69	ng	92
74)	Benzo(k)fluoranthene	34.52	1560	162637M	39.38	ng	92
75)	Benzo(a)pyrene	35.30	1600	157514	45.56	ng	93
76)	Indeno(1,2,3-cd)pyrene	38.81	1779	147407	61.33	ng	86
[illegible]	Dibenz(a,h)anthracene	38.92	1785	142639	60.37	ng	98
78)	Benzo(g,h,i)perylene	39.79	1829	155158	60.95	ng	85

* Compound is ISTD

TOTAL ION CHROMATOGRAM



Data File: >B2908::D5
Name: 390 SSTD050 5/21
Misc: 2UL

Quant Output File: ^B2908::F3
Instrument ID: GC/MS #2
BTL# 1

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37

Last Qcal Time: 930130 04:00

Operator ID: MEL
Quant Time : 930522 16:32
Injected at: 930522 15:42

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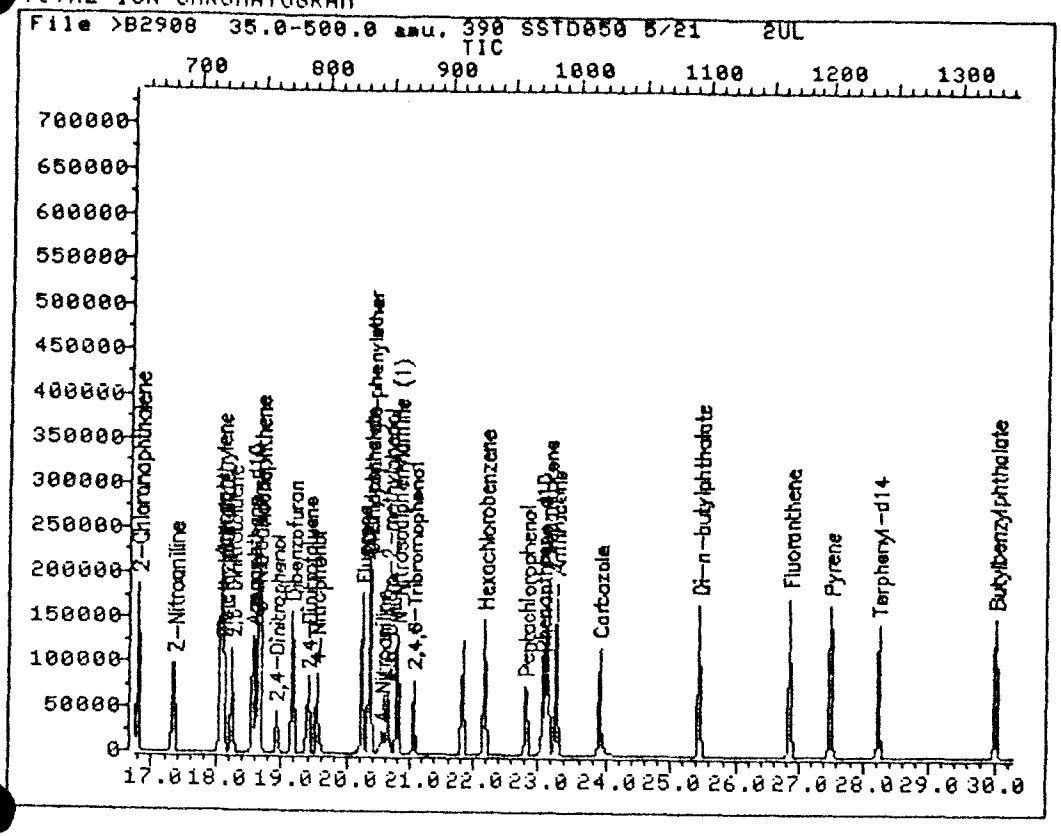
TOTAL ION CHROMATOGRAM



Data File: >B2908::D5
Name: 390 SSTD050 5/21
Misc: 2UL

Quant Output File: ^B2908::F3
Instrument ID: GC/MS #2
BTL# 1

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37

Last Qcal Time: 930130 04:00

Operator ID: MEL
Quant Time : 930522 16:32
Injected at: 930522 15:42

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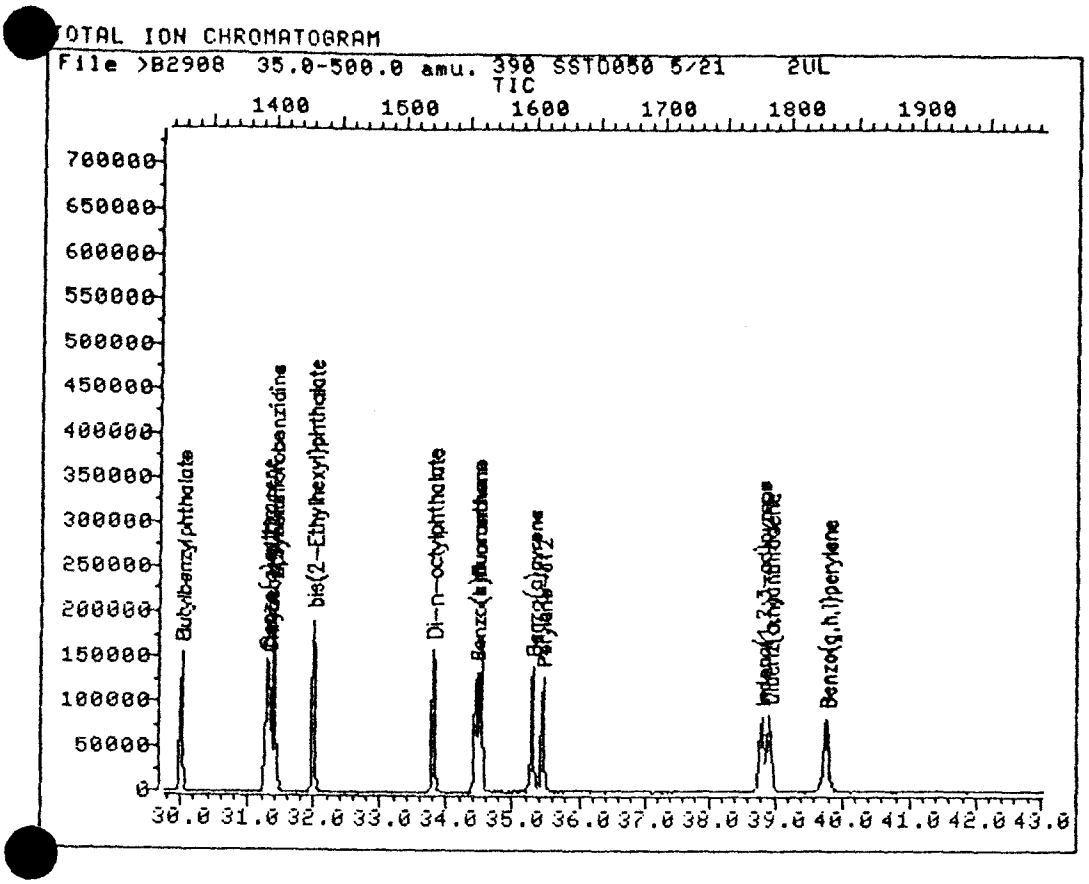

Data File: >B2908::D5
Name: 390 SSTD050 5/21
Misc: 2UL

Quant Output File: ^B2908::F3
Instrument ID: GC/MS #2
BTL# 1

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37

Last Qcal Time: 930130 04:00

Operator ID: MEL
Quant Time : 930522 16:32
Injected at: 930522 15:42

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QUANT REPORT

Operator ID: MEL
Output File: ^B2910::F3
Data File: >B2910::D5
Name: 390 SSTD080 5/21
Misc: 2UL

Quant Rev: 7
Quant Time: 930523 15:25
Injected at: 930522 17:39
Dilution Factor: 1.00000
Instrument ID: GC/MS #2
BTL# 3

ID File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37
Last Qcal Date: 930522 15:42

	Compound	R.T.	Scan#	Area	Conc	Units	q
1)	*1,4-Dichlorobenzene-d4	9.33	275	46801	40.00	ng	98
2)	2-Fluorophenol	6.06	108	128739	80.14	ng	89
3)	2-Chlorophenol-d4	8.86	251	121013	77.26	ng	95
4)	Phenol-d5	8.92	254	175139	77.40	ng	94
5)	Phenol	8.96	256	190983	74.39	ng	99
6)	bis(2-Chloroethyl)ether	8.82	249	163736	74.28	ng	84
7)	2-Chlorophenol	8.90	253	132962	75.37	ng	99
8)	1,3-Dichlorobenzene	9.19	268	137125	76.20	ng	94
9)	1,4-Dichlorobenzene	9.37	277	139366	75.22	ng	97
10)	1,2-Dichlorobenzene-d4	9.86	302	83076	75.21	ng	98
11)	1,2-Dichlorobenzene	9.90	304	130253	74.61	ng	96
12)	2-Methylphenol	10.58	339	122549	75.37	ng	99
13)	2,2'-oxybis(1-chloropropane)	10.45	332	215697	74.82	ng	91
14)	4-Methylphenol	11.06	363	130055	74.58	ng	98
15)	N-Nitroso-di-n-propylamine	10.86	353	112257	71.55	ng	85
16)	Hexachloroethane	10.80	350	64322	75.77	ng	97
17)	*Naphthalene-d8	13.13	469	166194	40.00	ng	82
18)	Nitrobenzene-d5	11.07	364	151534	76.30	ng	85
19)	Nitrobenzene	11.11	366	205888	76.13	ng	91
20)	Isophorone	11.88	405	313309	78.24	ng	94
21)	2-Nitrophenol	12.09	416	69155	75.62	ng	90
22)	2,4-Dimethylphenol	12.56	440	111953	74.74	ng	96
23)	bis(2-Chloroethoxy)methane	12.72	448	201367	77.65	ng	91
24)	2,4-Dichlorophenol	12.94	459	93646	78.25	ng	97
25)	1,2,4-Trichlorobenzene	13.05	465	101489	76.28	ng	93
26)	Naphthalene	13.19	472	344823	75.65	ng	96
27)	4-Chloroaniline	13.56	491	148165	76.61	ng	98
28)	Hexachlorobutadiene	13.88	507	61821	78.55	ng	93
29)	4-Chloro-3-methylphenol	15.32	581	100771	75.32	ng	100
30)	2-Methylnaphthalene	15.32	581	265018	75.87	ng	99
31)	*Acenaphthene-d10	18.56	746	67965	40.00	ng	91
32)	Hexachlorocyclopentadiene	16.11	621	73135	81.47	ng	98
33)	2,4,6-Trichlorophenol	16.40	636	65529	78.56	ng	97
34)	2,4,5-Trichlorophenol	16.56	644	68742	75.53	ng	93
35)	2-Chloronaphthalene	16.79	656	178176	75.41	ng	95
36)	2-Fluorobiphenyl	16.64	648	194936	77.45	ng	95
37)	2,4,6-Tribromophenol	21.05	873	45994	78.88	ng	95
38)	2-Nitroaniline	17.34	684	86946	74.68	ng	93
39)	Dimethylphthalate	18.13	724	205283	76.95	ng	84

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)	Acenaphthene	18.66	751	177886	77.21 ng	96

MJ 6/3/99

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QUANT REPORT

Operator ID: MEL
Output File: ^B2910::F3
Data File: >B2910::D5
Name: 390 SSTD080 5/21
Misc: 2UL

Quant Rev: 7
Quant Time: 930523 15:25
Injected at: 930522 17:39
Dilution Factor: 1.00000
Instrument ID: GC/MS #2
BTL# 3

ID File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37
Last Qcal Date: 930522 15:42

	Compound	R.T.	Scan#	Area	Conc	Units	q
44)	2,4-Dinitrophenol	18.93	765	30092	82.37	ng	86
45)	4-Nitrophenol	19.54	796	18432	73.00	ng	57
46)	Dibenzofuran	19.16	777	235215	77.27	ng	84
47)	2,4-Dinitrotoluene	19.42	790	66695	77.99	ng	92
48)	Diethylphthalate	20.34	837	204089	76.84	ng	93
49)	4-Chlorophenyl-phenylether	20.36	838	90539	76.17	ng	83
50)	Fluorene	20.22	831	178928	78.30	ng	99
[illegible]	4-Nitroaniline	20.56	848	35817	72.25	ng	80
52)	*Phenanthrene-d10	23.06	976	101719	40.00	ng	97
53)	4,6-Dinitro-2-methylphenol	20.63	852	40466	78.58	ng	88
54)	N-Nitrosodiphenylamine (1)	20.79	860	117537	78.89	ng	91
55)	4-Bromophenyl-phenylether	21.83	913	65770M	76.45	ng	
56)	Hexachlorobenzene	22.18	931	92578	76.86	ng	93
57)	Pentachlorophenol	22.81	963	50557	79.39	ng	97
58)	Phenanthrene	23.14	980	247037	78.16	ng	97
59)	Anthracene	23.28	987	235229	77.12	ng	98
60)	Carbazole	23.91	1019	176548	72.90	ng	95
61)	Di-n-butylphthalate	25.43	1097	344942	81.06	ng	95
62)	Fluoranthene	26.84	1169	254800	79.60	ng	93
63)	*Chrysene-d12	31.33	1398	107423	40.00	ng	94
64)	Pyrene	27.49	1202	262203	80.57	ng	88
65)	Terphenyl-d14	28.23	1240	203605	82.26	ng	91
66)	Butylbenzylphthalate	30.02	1331	134710	80.30	ng	83
67)	3,3'-Dichlorobenzidine	31.39	1401	42322	71.39	ng	95
68)	Benzo(a)anthracene	31.29	1396	232115	78.06	ng	98
69)	Chrysene	31.41	1402	226656	79.02	ng	96
70)	bis(2-Ethylhexyl)phthalate	31.99	1432	188498	79.57	ng	93
71)	*Perylene-d12	35.44	1608	110015	40.00	ng	95
72)	Di-n-octylphthalate	33.80	1524	294296	84.52	ng	87
73)	Benzo(b)fluoranthene	34.46	1558	246352	81.35	ng	93
74)	Benzo(k)fluoranthene	34.52	1561	230843	81.49	ng	94
75)	Benzo(a)pyrene	35.30	1601	225512	82.19	ng	95
76)	Indeno(1,2,3-cd)pyrene	38.81	1780	220162	85.75	ng	88
[illegible]	Dibenz(a,h)anthracene	38.93	1786	209689	84.40	ng	97
78)	Benzo(g,h,i)perylene	39.79	1830	221920	82.11	ng	85

* Compound is ISTD

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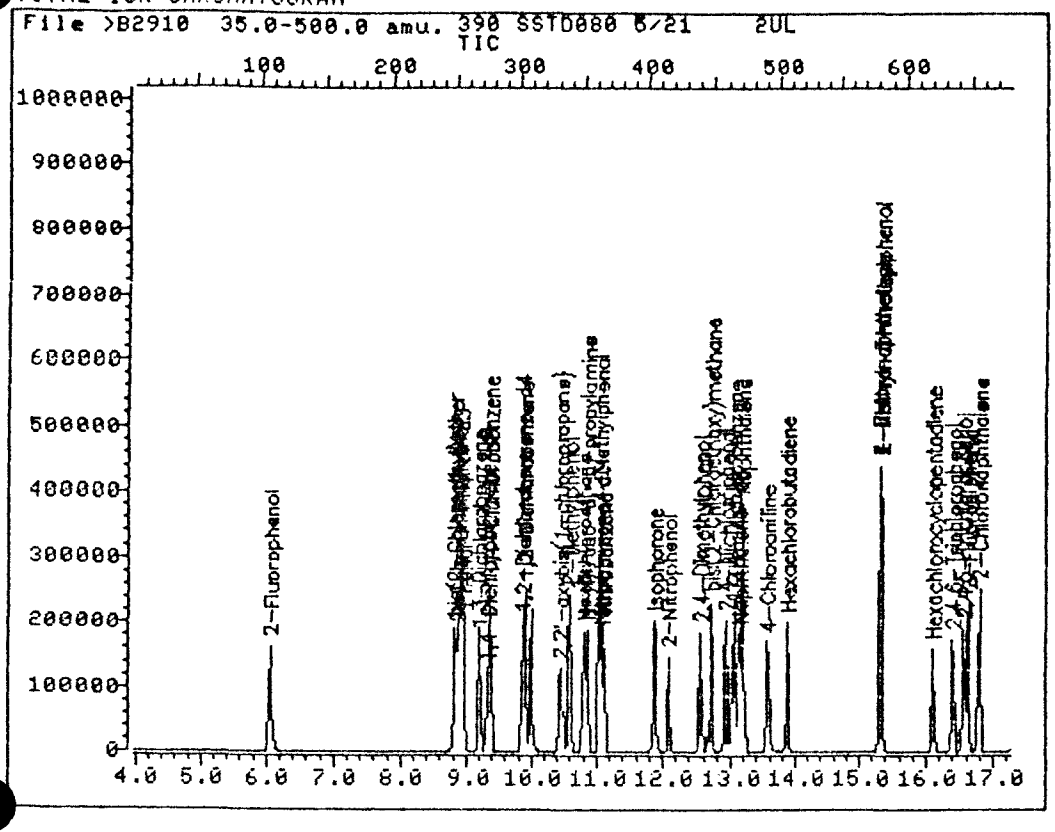
TOTAL ION CHROMATOGRAM



Data File: >B2910::D5
Name: 390 SSTD080 5/21
Misc: 2UL

Quant Output File: ^B2910::F3
Instrument ID: GC/MS #2
BTL# 3

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37

Last Qcal Time: 930522 15:42

Operator ID: MEL
Quant Time : 930523 15:25
Injected at: 930522 17:39

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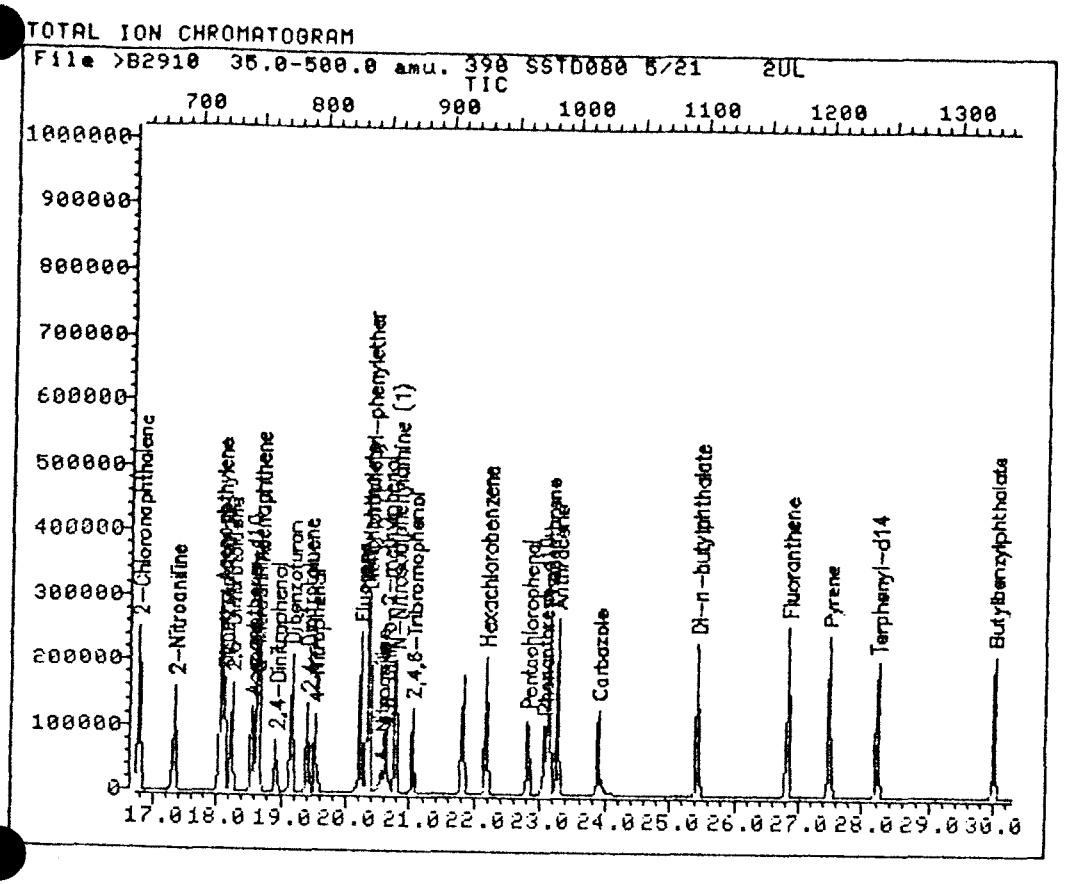

Data File: >B2910::D5
Name: 390 SSTD080 5/21
Misc: 2UL

Quant Output File: ^B2910::F3
Instrument ID: GC/MS #2
BTL# 3

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37

Last Qcal Time: 930522 15:42

Operator ID: MEL
Quant Time : 930523 15:25
Injected at: 930522 17:39

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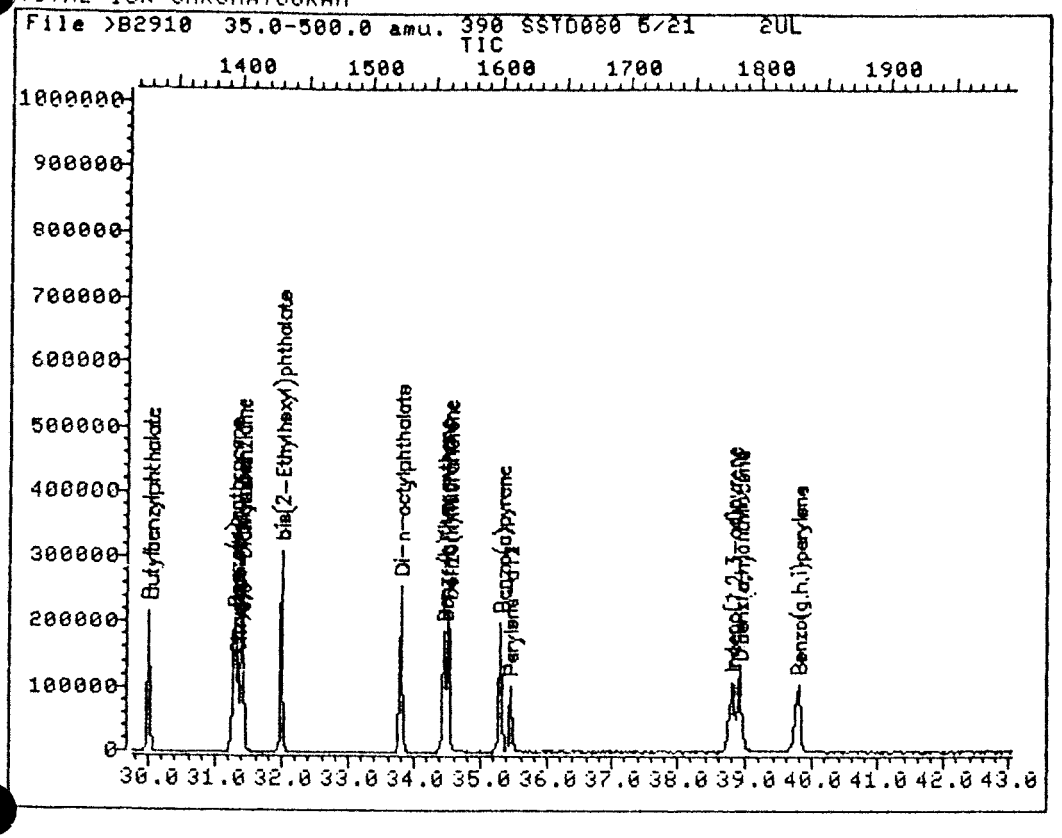
TOTAL ION CHROMATOGRAM



Data File: >B2910::D5
Name: 390 SSTD080 5/21
Misc: 2UL

Quant Output File: ^B2910::F3
Instrument ID: GC/MS #2
BTL# 3

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37

Last Qcal Time: 930522 15:42

Operator ID: MEL
Quant Time : 930523 15:25
Injected at: 930522 17:39

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QUANT REPORT

Operator ID: MEL
Output File: ^B2911::F3
Data File: >B2911::D5
Name: 390 SSTD120 5/21
Misc: 2UL

Quant Rev: 7
Quant Time: 930523 15:29
Injected at: 930522 18:37
Dilution Factor: 1.00000
Instrument ID: GC/MS #2
BTL# 4

ID File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37
Last Qcal Date: 930522 15:42

	Compound	R.T.	Scan#	Area	Conc	Units	q
1)	*1,4-Dichlorobenzene-d4	9.33	274	51330	40.00	ng	97
2)	2-Fluorophenol	6.06	107	206928	117.45	ng	87
3)	2-Chlorophenol-d4	8.88	251	203168	118.26	ng	98
4)	Phenol-d5	8.94	254	290608	117.10	ng	96
5)	Phenol	8.98	256	330695	117.44	ng	99
6)	bis(2-Chloroethyl)ether	8.84	249	277151	114.64	ng	85
7)	2-Chlorophenol	8.92	253	219007	113.19	ng	96
8)	1,3-Dichlorobenzene	9.21	268	230964	117.02	ng	97
9)	1,4-Dichlorobenzene	9.39	277	242515	119.34	ng	97
10)	1,2-Dichlorobenzene-d4	9.88	302	138057	113.96	ng	95
11)	1,2-Dichlorobenzene	9.92	304	224526	117.26	ng	98
12)	2-Methylphenol	10.58	338	216231	121.25	ng	97
13)	2,2'-oxybis(1-chloropropane)	10.44	331	388730	122.95	ng	89
14)	4-Methylphenol	11.07	363	225092	117.69	ng	96
15)	N-Nitroso-di-n-propylamine	10.88	353	201406	117.04	ng	85
16)	Hexachloroethane	10.82	350	111887	120.17	ng	85
17)	*Naphthalene-d8	13.15	469	185755	40.00	ng	84
18)	Nitrobenzene-d5	11.09	364	261173	117.66	ng	85
19)	Nitrobenzene	11.13	366	358187	118.50	ng	91
20)	Isophorone	11.91	406	543241	121.37	ng	99
21)	2-Nitrophenol	12.11	416	122844	120.18	ng	97
22)	2,4-Dimethylphenol	12.56	439	187906	112.23	ng	96
23)	bis(2-Chloroethoxy)methane	12.74	448	351323	121.21	ng	90
24)	2,4-Dichlorophenol	12.93	458	163360	122.13	ng	89
25)	1,2,4-Trichlorobenzene	13.07	465	175996	118.34	ng	94
26)	Naphthalene	13.21	472	612146	120.16	ng	95
27)	4-Chloroaniline	13.58	491	258655	119.66	ng	97
28)	Hexachlorobutadiene	13.87	506	102681	116.73	ng	90
29)	4-Chloro-3-methylphenol	15.34	581	171072	114.41	ng	100
30)	2-Methylnaphthalene	15.34	581	441262	113.02	ng	95
31)	*Acenaphthene-d10	18.58	746	74194	40.00	ng	87
32)	Hexachlorocyclopentadiene	16.11	620	119256	121.69	ng	97
33)	2,4,6-Trichlorophenol	16.42	636	112133	123.14	ng	93
34)	2,4,5-Trichlorophenol	16.56	643	118830	119.60	ng	93
35)	2-Chloronaphthalene	16.81	656	306610	118.87	ng	96
36)	2-Fluorobiphenyl	16.64	647	318956	116.08	ng	96
37)	2,4,6-Tribromophenol	21.05	872	81081	127.38	ng	96
38)	2-Nitroaniline	17.36	684	156043	122.78	ng	94
39)	Dimethylphthalate	18.14	724	347085	119.18	ng	84

[illegible]	[illegible]	18.67	751	67968	112.61 ng	98
[illegible]	Acenaphthene	18.67	751	296099	117.72 ng	97

4/3/93

QUANT REPORT

Operator ID: MEL
Output File: ^B2911::F3
Data File: >B2911::D5
Name: 390 SSTD120 5/21
Misc: 2UL

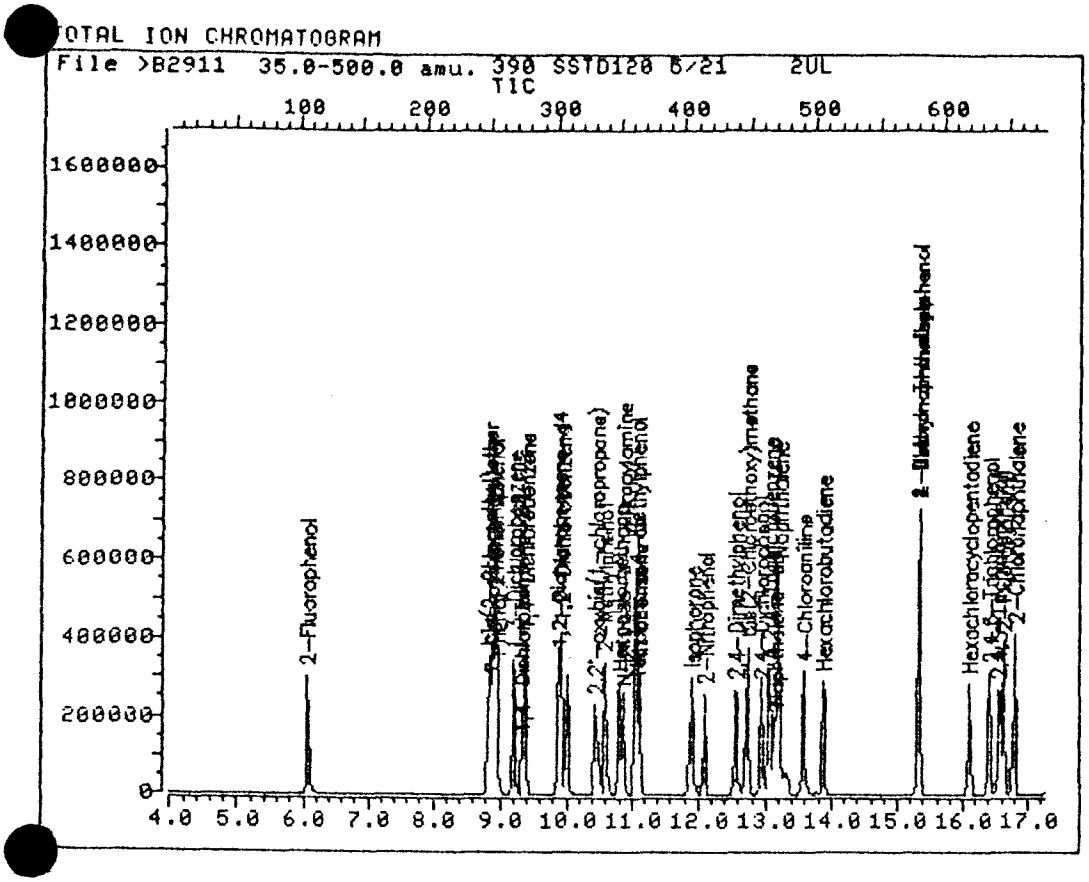
Quant Rev: 7
Quant Time: 930523 15:29
Injected at: 930522 18:37
Dilution Factor: 1.00000
Instrument ID: GC/MS #2
BTL# 4

ID File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37
Last Qcal Date: 930522 15:42

	Compound	R.T.	Scan#	Area	Conc	Units	q
44)	2,4-Dinitrophenol	18.93	764	59971	150.37	ng	91
45)	4-Nitrophenol	19.56	796	33752	122.45	ng	57
46)	Dibenzofuran	19.18	777	403578	121.45	ng	84
47)	2,4-Dinitrotoluene	19.42	789	114425	122.58	ng	81
48)	Diethylphthalate	20.36	837	339607	117.13	ng	93
49)	4-Chlorophenyl-phenylether	20.36	837	152935	117.86	ng	80
50)	Fluorene	20.24	831	302666	121.33	ng	99
[illegible])	4-Nitroaniline	20.58	848	62393	115.30	ng	85
52)	*Phenanthrene-d10	23.08	976	112903	40.00	ng	99
53)	4,6-Dinitro-2-methylphenol	20.67	853	76725	134.23	ng	84
54)	N-Nitrosodiphenylamine (1)	20.79	859	200515	121.25	ng	93
55)	4-Bromophenyl-phenylether	21.83	912	110190M	115.39	ng	
56)	Hexachlorobenzene	22.18	930	157076	117.49	ng	98
57)	Pentachlorophenol	22.83	963	92423	130.76	ng	97
58)	Phenanthrene	23.16	980	425618	121.32	ng	98
59)	Anthracene	23.30	987	409971	121.09	ng	99
60)	Carbazole	23.91	1018	259476	96.53	ng	94
61)	Di-n-butylphthalate	25.43	1096	584840	123.82	ng	95
62)	Fluoranthene	26.84	1168	441854	124.35	ng	95
63)	*Chrysene-d12	31.35	1398	130277	40.00	ng	90
64)	Pyrene	27.51	1202	446839	113.22	ng	88
65)	Terphenyl-d14	28.23	1239	338558	112.78	ng	88
66)	Butylbenzylphthalate	30.02	1330	241410	118.65	ng	89
67)	3,3'-Dichlorobenzidine	31.41	1401	73994	102.92	ng	94
68)	Benzo(a)anthracene	31.29	1395	429457	119.10	ng	99
69)	Chrysene	31.43	1402	404571	116.31	ng	96
70)	bis(2-Ethylhexyl)phthalate	31.99	1431	352511	122.69	ng	94
71)	*Perylene-d12	35.46	1608	135440	40.00	ng	96
72)	Di-n-octylphthalate	33.82	1524	564882	131.78	ng	85
73)	Benzo(b)fluoranthene	34.48	1558	563542	151.16	ng	95
74)	Benzo(k)fluoranthene	34.56	1562	351384M	100.75	ng	95
75)	Benzo(a)pyrene	35.32	1601	420000	124.34	ng	97
76)	Indeno(1,2,3-cd)pyrene	38.85	1781	417473	132.07	ng	88
[illegible])	Dibenz(a,h)anthracene	38.97	1787	389494	127.34	ng	98
78)	Benzo(g,h,i)perylene	39.85	1832	413933	124.41	ng	83

* Compound is ISTD

TOTAL ION CHROMATOGRAM



Data File: >B2911::D5
Name: 390 SSTD120 5/21
Misc: 2UL

Quant Output File: ^B2911::F3
Instrument ID: GC/MS #2
BTL# 4

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37

Last Qcal Time: 930522 15:42

Operator ID: MEL
Quant Time : 930523 15:29
Injected at: 930522 18:37

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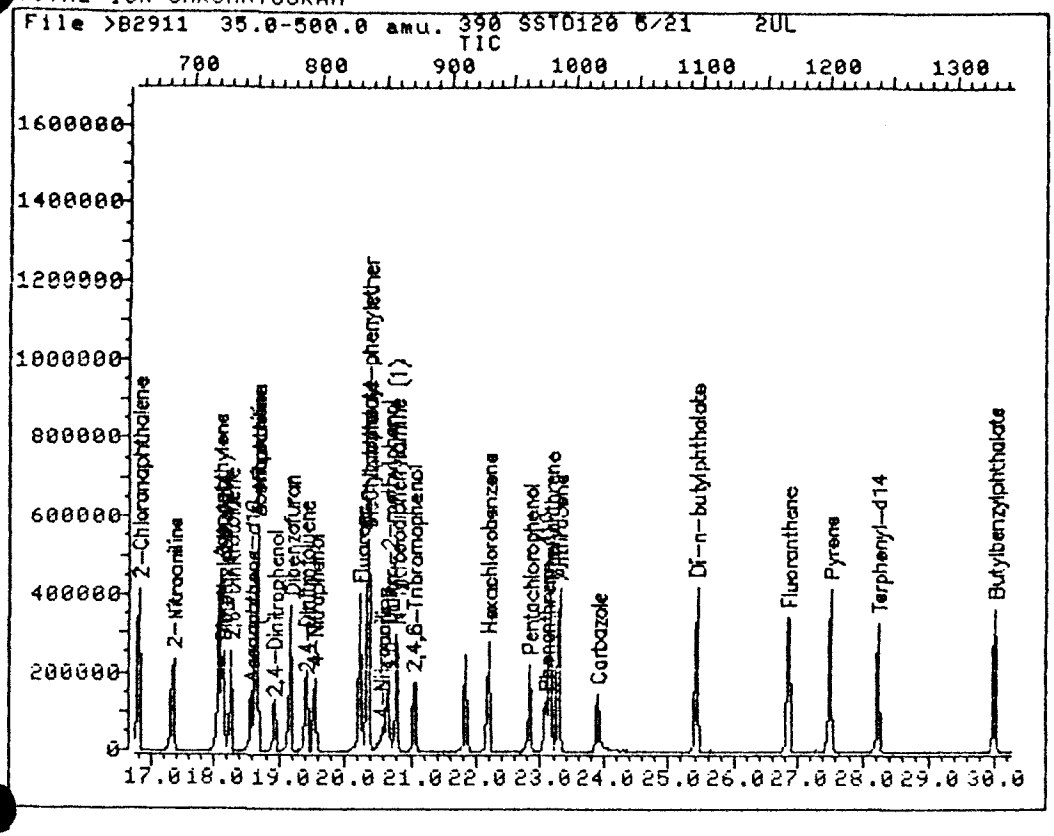
TOTAL ION CHROMATOGRAM



Data File: >B2911::D5 Quant Output File: ^B2911::F3
Name: 390 SSTD120 5/21 Instrument ID: GC/MS #2
Misc: 2UL BTL# 4

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37 Last Qcal Time: 930522 15:42

Operator ID: MEL
Quant Time : 930523 15:29
Injected at: 930522 18:37

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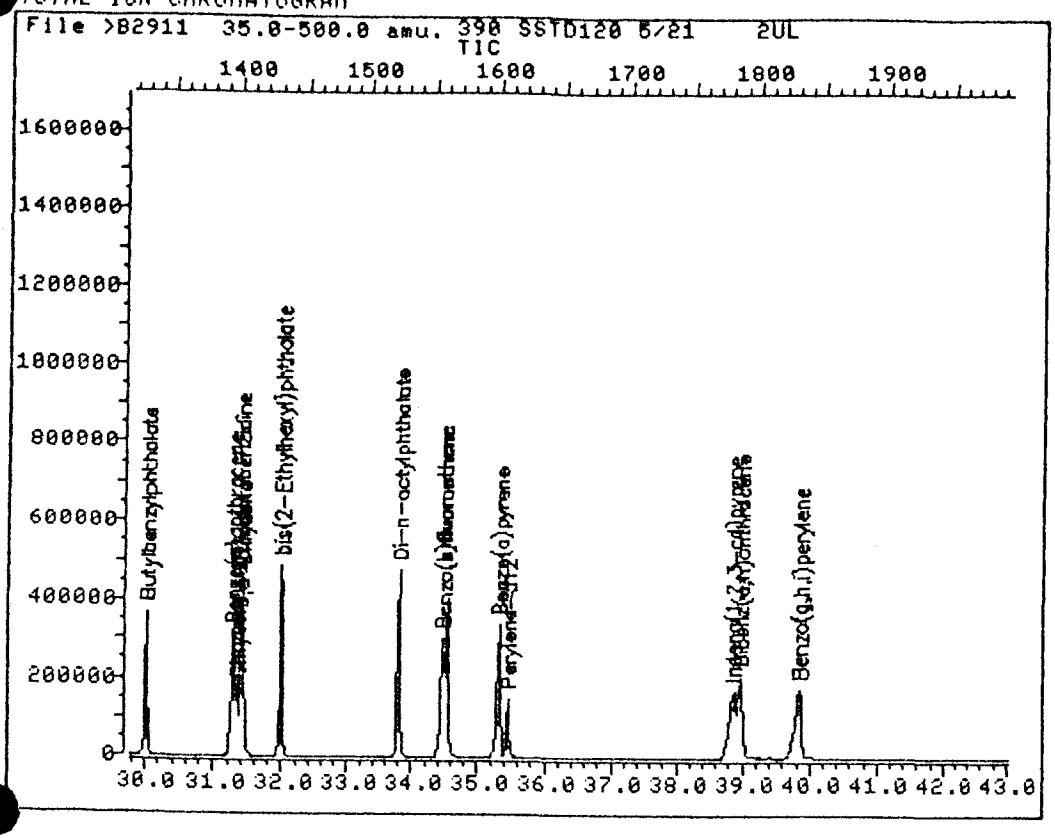
TOTAL ION CHROMATOGRAM



6/3/93

Data File: >B2911::D5
Name: 390 SSTD120 5/21
Misc: 2UL

Quant Output File: ^B2911::F3
Instrument ID: GC/MS #2
BTL# 4

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37

Last Qcal Time: 930522 15:42

Operator ID: MEL
Quant Time : 930523 15:29
Injected at: 930522 18:37

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GP 6/3/93

QUANT REPORT

Operator ID: MEL
Output File: ^B2912::F3
Data File: >B2912::D5
Name: 390 SSTD160 5/21
Misc: 2UL

Quant Rev: 7
Quant Time: 930523 15:33
Injected at: 930522 19:34
Dilution Factor: 1.00000
Instrument ID: GC/MS #2
BTL# 5

ID File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37
Last Qcal Date: 930522 15:42

	Compound	R.T.	Scan#	Area	Conc	Units	q
1)	*1,4-Dichlorobenzene-d4	9.34	273	54862	40.00	ng	98
2)	2-Fluorophenol	6.05	105	294656	156.48	ng	84
3)	2-Chlorophenol-d4	8.87	249	271586	147.91	ng	93
4)	Phenol-d5	8.95	253	378394	142.66	ng	94
5)	Phenol	8.97	254	428924	142.52	ng	98
6)	bis(2-Chloroethyl)ether	8.85	248	365347	141.39	ng	86
7)	2-Chlorophenol	8.93	252	292976	141.67	ng	99
8)	1,3-Dichlorobenzene	9.22	267	312059	147.93	ng	98
9)	1,4-Dichlorobenzene	9.38	275	321039	147.81	ng	94
10)	1,2-Dichlorobenzene-d4	9.87	300	190002	146.74	ng	98
11)	1,2-Dichlorobenzene	9.91	302	294544	143.92	ng	97
12)	2-Methylphenol	10.59	337	285174	149.61	ng	99
13)	2,2'-oxybis(1-chloropropane)	10.46	330	509154	150.67	ng	90
14)	4-Methylphenol	11.06	361	290804	142.25	ng	98
15)	N-Nitroso-di-n-propylamine	10.91	353	263299	143.15	ng	81
16)	Hexachloroethane	10.81	348	148236	148.96	ng	97
17)	*Naphthalene-d8	13.14	467	181114	40.00	ng	84
18)	Nitrobenzene-d5	11.08	362	342311	158.16	ng	87
19)	Nitrobenzene	11.14	365	460472	156.24	ng	92
20)	Isophorone	11.93	405	695244	159.31	ng	97
21)	2-Nitrophenol	12.12	415	162577	163.13	ng	93
22)	2,4-Dimethylphenol	12.57	438	241379	147.87	ng	93
23)	bis(2-Chloroethoxy)methane	12.75	447	453691	160.54	ng	93
24)	2,4-Dichlorophenol	12.95	457	211919	162.49	ng	89
25)	1,2,4-Trichlorobenzene	13.06	463	225281	155.37	ng	93
26)	Naphthalene	13.20	470	784039	157.84	ng	96
27)	4-Chloroaniline	13.59	490	335031	158.97	ng	98
28)	Hexachlorobutadiene	13.89	505	132392	154.36	ng	92
29)	4-Chloro-3-methylphenol	15.34	579	209864	143.95	ng	100
30)	2-Methylnaphthalene	15.34	579	556369	146.15	ng	99
31)	*Acenaphthene-d10	18.57	744	71521	40.00	ng	88
32)	Hexachlorocyclopentadiene	16.10	618	158543	167.83	ng	97
33)	2,4,6-Trichlorophenol	16.41	634	146147	166.50	ng	94
34)	2,4,5-Trichlorophenol	16.57	642	152532	159.26	ng	94
35)	2-Chloronaphthalene	16.81	654	400639	161.13	ng	94
36)	2-Fluorobiphenyl	16.65	646	410722	155.07	ng	95
37)	2,4,6-Tribromophenol	21.06	871	100825	164.32	ng	97
38)	2-Nitroaniline	17.37	683	200494	163.65	ng	93
39)	Dimethylphthalate	18.16	723	454924	162.05	ng	83

[illegible]	18.69	750	91929	152.24 ng	96
Acenaphthene	18.69	750	378957	156.30 ng	97

MB 6/3/93

mf 6/3/93

QUANT REPORT

Operator ID: MEL
Output File: ^B2912::F3
Data File: >B2912::D5
Name: 390 SSTD160 5/21
Misc: 2UL

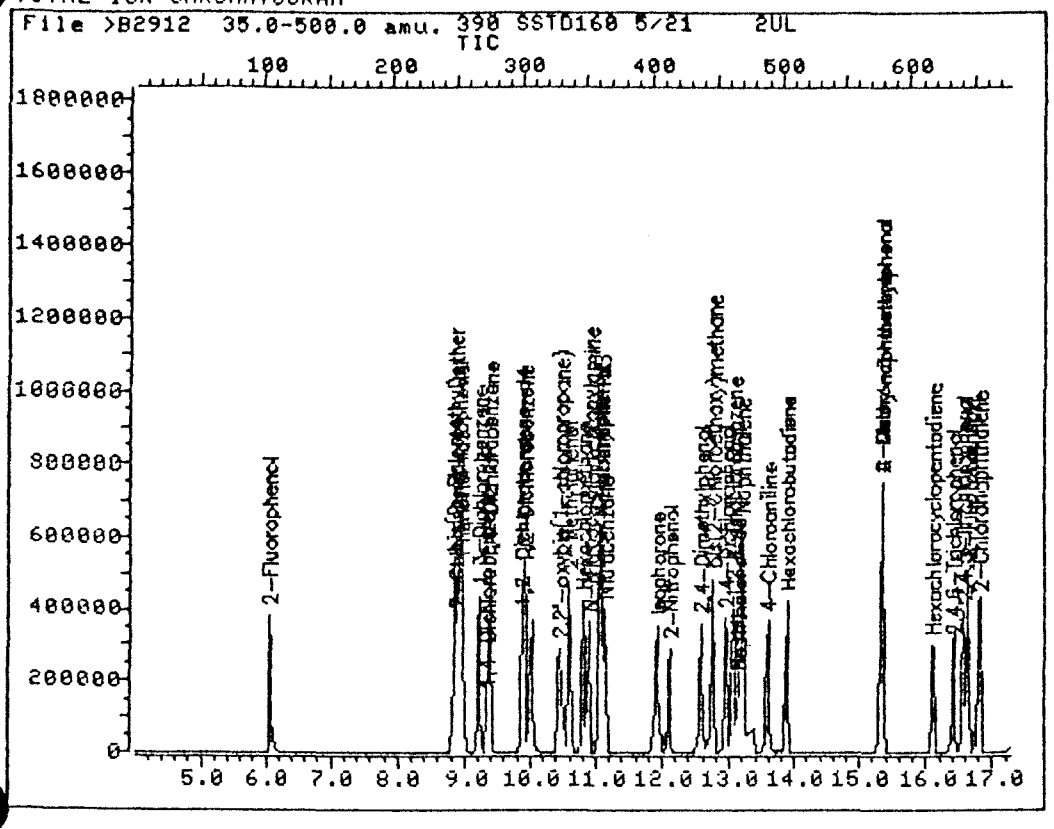
Quant Rev: 7
Quant Time: 930523 15:33
Injected at: 930522 19:34
Dilution Factor: 1.00000
Instrument ID: GC/MS #2
BTL# 5

ID File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37
Last Qcal Date: 930522 15:42

	Compound	R.T.	Scan#	Area	Conc	Units	q
44)	2,4-Dinitrophenol	18.94	763	77052	200.42	ng	90
45)	4-Nitrophenol	19.57	795	42856	161.29	ng	55
46)	Dibenzofuran	19.20	776	520801	162.58	ng	84
47)	2,4-Dinitrotoluene	19.43	788	151994	168.91	ng	81
48)	Diethylphthalate	20.37	836	430044	153.87	ng	92
49)	4-Chlorophenyl-phenylether	20.37	836	184329	147.36	ng	81
50)	Fluorene	20.25	830	393843	163.78	ng	97
[illegible]	4-Nitroaniline	20.61	848	78170	149.85	ng	86
[illegible]	*Phenanthrene-d10	23.08	974	107321	40.00	ng	99
53)	4,6-Dinitro-2-methylphenol	20.69	852	93033	171.22	ng	86
54)	N-Nitrosodiphenylamine (1)	20.80	858	242836	154.48	ng	91
55)	4-Bromophenyl-phenylether	21.84	911	140314M	154.58	ng	
56)	Hexachlorobenzene	22.19	929	195436	153.78	ng	96
57)	Pentachlorophenol	22.84	962	120684	179.63	ng	97
58)	Phenanthrene	23.15	978	548380	164.44	ng	98
59)	Anthracene	23.29	985	517665	160.86	ng	99
60)	Carbazole	23.90	1016	303253	118.68	ng	96
61)	Di-n-butylphthalate	25.45	1095	781644	174.09	ng	94
62)	Fluoranthene	26.86	1167	554489	164.17	ng	96
63)	*Chrysene-d12	31.34	1396	123903	40.00	ng	96
64)	Pyrene	27.52	1201	578766	154.19	ng	85
65)	Terphenyl-d14	28.25	1238	423657	148.39	ng	90
66)	Butylbenzylphthalate	30.03	1329	309011	159.69	ng	89
67)	3,3'-Dichlorobenzidine	31.40	1399	87153	127.46	ng	99
68)	Benzo(a)anthracene	31.30	1394	549984	160.37	ng	99
69)	Chrysene	31.44	1401	489506	147.97	ng	95
70)	bis(2-Ethylhexyl)phthalate	32.01	1430	432733	158.37	ng	94
71)	*Perylene-d12	35.45	1606	132740	40.00	ng	94
72)	Di-n-octylphthalate	33.81	1522	725388	172.66	ng	85
73)	Benzo(b)fluoranthene	34.49	1557	726174	198.75	ng	95
74)	Benzo(k)fluoranthene	34.57	1561	422394M	123.58	ng	95
75)	Benzo(a)pyrene	35.34	1600	537098	162.25	ng	97
76)	Indeno(1,2,3-cd)pyrene	38.88	1781	627622	202.59	ng	86
[illegible]	Dibenz(a,h)anthracene	39.00	1787	504834	168.40	ng	98
[illegible]	Benzo(g,h,i)perylene	39.88	1832	519609	159.35	ng	82

* Compound is ISTD

TOTAL ION CHROMATOGRAM



Data File: >B2912::D5 Quant Output File: ^B2912::F3
Name: 390 SSTD160 5/21 Instrument ID: GC/MS #2
Misc: 2UL BTL# 5

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37 Last Qcal Time: 930522 15:42

Operator ID: MEL
Quant Time : 930523 15:33
Injected at: 930522 19:34

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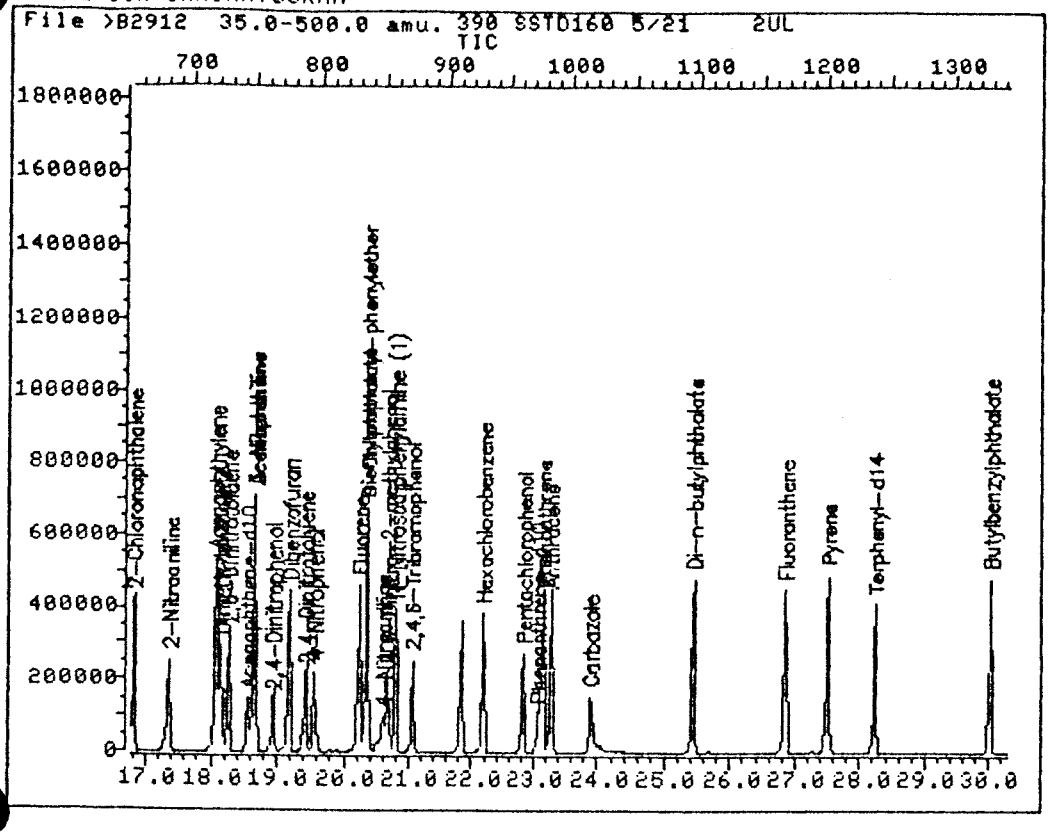
TOTAL ION CHROMATOGRAM



Data File: >B2912::D5
Name: 390 SSTD160 5/21
Misc: 2UL

Quant Output File: ^B2912::F3
Instrument ID: GC/MS #2
BTL# 5

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37

Last Qcal Time: 930522 15:42

Operator ID: MEL
Quant Time : 930523 15:33
Injected at: 930522 19:34

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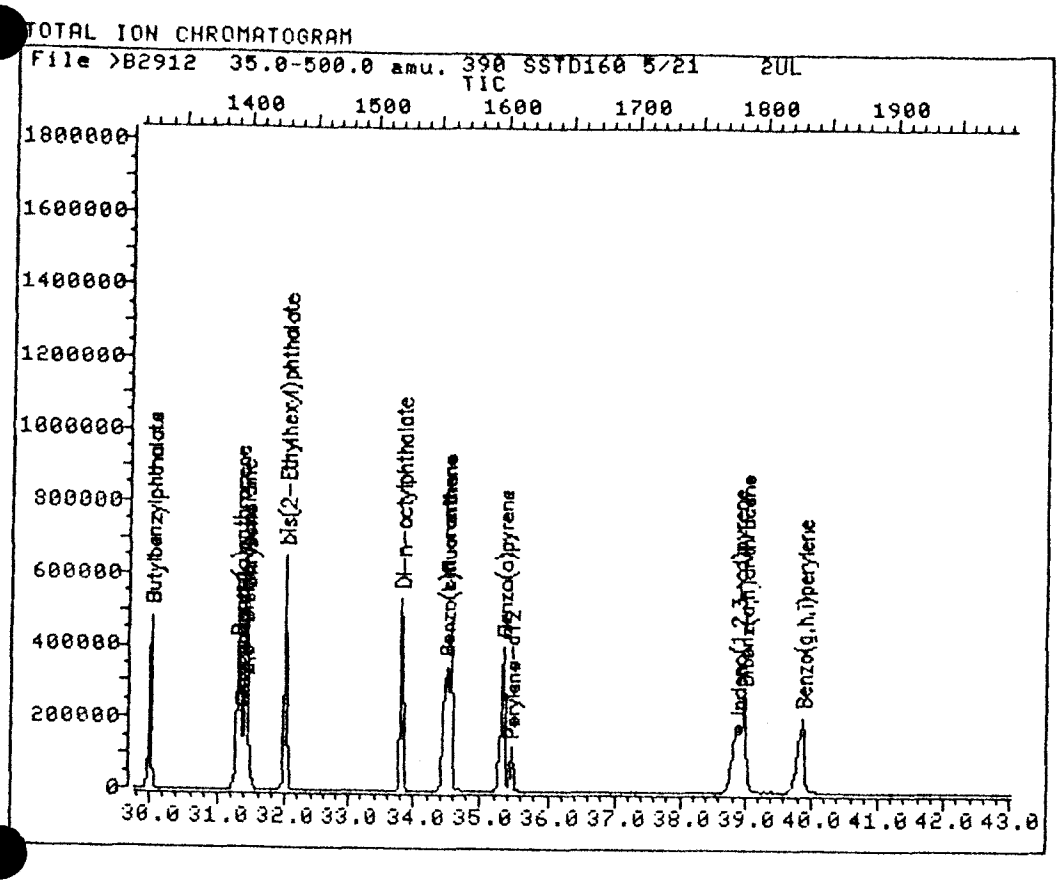

Data File: >B2912::D5
Name: 390 SSTD160 5/21
Misc: 2UL

Quant Output File: ^B2912::F3
Instrument ID: GC/MS #2
BTL# 5

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37

Last Qcal Time: 930522 15:42

Operator ID: MEL
Quant Time : 930523 15:33
Injected at: 930522 19:34

Page 3 of 3

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Instrument ID:GC/MS-B Calibration Date: 5/25/93 Time:1330

Lab File ID:B2913 Init. Calib. Date(s): 5/22/93 5/22/93

Init. Calib. Times: 1542 1934

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Phenol	1.966	2.039	0.800	3.7	25.0
bis(2-Chloroethyl)ether	1.671	1.763	0.700	5.5	25.0
2-Chlorophenol	1.360	1.405	0.800	3.3	25.0
1,3-Dichlorobenzene	1.484	1.550	0.600	4.4	25.0
1,4-Dichlorobenzene	1.451	1.543	0.500	6.3	25.0
1,2-Dichlorobenzene	1.344	1.513	0.400	12.6	25.0
2-Methylphenol	1.276	1.329	0.700	4.2	25.0
2,2'-oxybis(1-Chloropropane)	2.229	2.166		2.8	
4-Methylphenol	1.336	1.385	0.600	3.7	25.0
N-Nitroso-di-n-propylamine	1.089	1.265	0.500	16.2	25.0
Hexachloroethane	0.631	0.703	0.300	11.4	25.0
Nitrobenzene	0.648	0.636	0.200	1.9	25.0
Isophorone	0.970	0.962	0.400	0.8	25.0
2-Nitrophenol	0.220	0.204	0.100	7.3	25.0
2,4-Dimethylphenol	0.352	0.346	0.200	1.7	25.0
bis(2-Chloroethoxy)methane	0.623	0.636	0.300	2.1	25.0
2,4-Dichlorophenol	0.300	0.299	0.200	0.3	25.0
1,2,4-Trichlorobenzene	0.329	0.339	0.200	3.0	25.0
Naphthalene	1.092	1.117	0.700	2.3	25.0
4-Chloroaniline	0.466	0.462		0.9	
Hexachlorobutadiene	0.189	0.200		5.8	
4-Chloro-3-methylphenol	0.312	0.313	0.200	0.3	25.0
2-Methylnaphthalene	0.815	0.864	0.400	6.0	25.0
Hexachlorocyclopentadiene	0.535	0.544		1.7	
2,4,6-Trichlorophenol	0.501	0.505	0.200	0.8	25.0
2,4,5-Trichlorophenol	0.539	0.538	0.200	0.2	25.0
2-Chloronaphthalene	1.362	1.417	0.800	4.0	25.0
2-Nitroaniline	0.680	0.634		6.8	
Dimethylphthalate	1.552	1.644		5.9	
Acenaphthylene	2.209	2.296	1.300	3.9	25.0
2,6-Dinitrotoluene	0.391	0.393	0.200	0.5	25.0
3-Nitroaniline	0.341	0.381		11.7	
Acenaphthene	1.350	1.437	0.800	6.4	25.0
2,4-Dinitrophenol	0.232	0.224		3.4	
4-Nitrophenol	0.148	0.141		4.7	
Dibenzofuran	1.810	1.913	0.800	5.7	25.0
2,4-Dinitrotoluene	0.511	0.512	0.200	0.2	25.0

All other compounds must meet a minimum RRF of 0.010.

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Instrument ID:GC/MS-B Calibration Date: 5/25/93 Time:1330

Lab File ID:B2913 Init. Calib. Date(s): 5/22/93 5/22/93

Init. Calib. Times: 1542 1934

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Diethylphthalate	1.583	1.567		1.0	
4-Chlorophenyl-phenylether	0.710	0.728	0.400	2.5	25.0
Fluorene	1.418	1.391	0.900	1.9	25.0
4-Nitroaniline	0.299	0.247		17.4	
4,6-Dinitro-2-methylphenol	0.207	0.198		4.3	
N-Nitrosodiphenylamine (1)	0.582	0.612		5.2	
4-Bromophenyl-phenylether	0.333	0.335	0.100	0.6	25.0
Hexachlorobenzene	0.473	0.468	0.100	1.1	25.0
Pentachlorophenol	0.258	0.252	0.050	2.3	25.0
Phenanthrene	1.262	1.250	0.700	1.0	25.0
Anthracene	1.205	1.218	0.700	1.1	25.0
Carbazole	0.934	1.057		13.2	
Di-n-butylphthalate	1.759	1.693		3.8	
Fluoranthene	1.300	1.330	0.600	2.3	25.0
Pyrene	1.333	1.165	0.600	12.6	25.0
Butylbenzylphthalate	0.638	0.588		7.8	
3,3'-Dichlorobenzidine	0.238	0.265		11.3	
Benzo(a)anthracene	1.128	1.108	0.800	1.8	25.0
Chrysene	1.057	1.088	0.700	2.9	25.0
bis(2-Ethylhexyl)phthalate	0.878	0.851		3.1	
Di-n-octylphthalate	1.300	1.282		1.4	
Benzo(b)fluoranthene	1.216	1.205	0.700	0.9	25.0
Benzo(k)fluoranthene	0.971	1.004	0.700	3.4	25.0
Benzo(a)pyrene	1.019	1.009	0.700	1.0	25.0
Indeno(1,2,3-cd)pyrene	1.013	0.941	0.500	7.1	25.0
Dibenz(a,h)anthracene	0.937	0.920	0.400	1.8	25.0
Benzo(g,h,i)perylene	0.971	0.987	0.500	1.6	25.0
Nitrobenzene-d5	0.471	0.466	0.200	1.1	25.0
2-Fluorobiphenyl	1.451	1.510	0.700	4.1	25.0
Terphenyl-d14	0.924	0.893	0.500	3.4	25.0
Phenol-d5	1.755	1.761	0.800	0.3	25.0
2-Fluorophenol	1.281	1.241	0.600	3.1	25.0
2,4,6-Tribromophenol	0.331	0.344		3.9	
2-Chlorophenol-d4	1.189	1.242	0.800	4.5	25.0
1,2-Dichlorobenzene-d4	0.851	0.910	0.400	6.9	25.0

(1) Cannot be seperated from Diphenylamine
All other compounds must meet a minimum RRF of 0.010.

Continuing Calibration Check
HSL Compounds

Case No:

Calibration Date: 05/25/93

Contractor:

Time: 13:30

Contract No:

Laboratory ID: >B2913

Instrument ID:

Initial Calibration Date: 05/23/93

Minimum $\overline{RF}$ for SPCC is 0.01 Maximum % Diff for CCC is 25%

OR
AM

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
2-Fluorophenol	1.28077	1.24080	3.12	*	
2-Chlorophenol-d4	1.18882	1.24225	4.49	*	
Phenol-d5	1.75524	1.76053	.30	*	
Phenol	1.96551	2.03943	3.76	*	
bis(2-Chloroethyl)ether	1.67146	1.76329	5.49	*	
2-Chlorophenol	1.36000	1.40480	3.29	•	
1,3-Dichlorobenzene	1.48425	1.55033	4.45	•	
1,4-Dichlorobenzene	1.45096	1.54284	6.33	*	
1,2-Dichlorobenzene-d4	.85056	.91025	7.02	*	
1,2-Dichlorobenzene	1.34379	1.51283	12.58	*	
[illegible]ethylphenol	1.27624	1.32891	4.13	*	
2,2'-oxybis(1-chloropropane)	2.22933	2.16589	2.85		**
4-Methylphenol	1.33594	1.38509	3.68	*	
N-Nitroso-di-n-propylamine	1.08872	1.26547	16.23	•	
Hexachloroethane	.63141	.70257	11.27	*	
Nitrobenzene-d5	.47072	.46576	1.05	*	
Nitrobenzene	.64819	.63557	1.95	*	
Isophorone	.97014	.96233	.81	•	
2-Nitrophenol	.21986	.20438	7.04	•	
2,4-Dimethylphenol	.35199	.34620	1.64	•	
bis(2-Chloroethoxy)methane	.62289	.63580	2.07	*	
2,4-Dichlorophenol	.29962	.29868	.32	*	
1,2,4-Trichlorobenzene	.32887	.33884	3.03	*	
Naphthalene	1.09273	1.11655	2.18	*	
4-Chloroaniline	.46576	.46175	.86		**
Hexachlorobutadiene	.18918	.20050	5.99		**
4-Chloro-3-methylphenol	.31168	.31328	.51	•	
2-Methylnaphthalene	.81533	.86361	5.92	*	
Hexachlorocyclopentadiene	.53480	.54421	1.76		**
2,4,6-Trichlorophenol	.50089	.50483	.79	•	
2,4,5-Trichlorophenol	.53840	.53794	.09	•	
2-Chloronaphthalene	1.36198	1.41675	4.02	*	

RF - Response Factor from daily standard file at 50.00 ng

• - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

Case No:

Calibration Date: 05/25/93

Contractor:

Time: 13:30

Contract No:

Laboratory ID: >B2913

Instrument ID:

Initial Calibration Date: 05/23/93

Minimum $\overline{RF}$ for SPCC is 0.01 Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
2-Fluorobiphenyl	1.45102	1.50978	4.05	*	
2,4,6-Tribromophenol	.33170	.34382	3.65		**
2-Nitroaniline	.68020	.63429	6.75		**
Dimethylphthalate	1.55193	1.64382	5.92		**
Acenaphthylene	2.20904	2.29577	3.93	*	
2,6-Dinitrotoluene	.39118	.39332	.55	*	
3-Nitroaniline	.34080	.38103	11.80		**
Acenaphthene	1.34952	1.43712	6.49	*	
2,4-Dinitrophenol	.23186	.22431	3.26		**
4-Nitrophenol	.14736	.14114	4.22		**
Dibenzofuran	1.81041	1.91324	5.68	*	
2,4-Dinitrotoluene	.51102	.51229	.25	*	
Diethylphthalate	1.58334	1.56683	1.04		**
4-Chlorophenyl-phenylether	.71034	.72833	2.53	*	
Fluorene	1.41821	1.39061	1.95	*	
4-Nitroaniline	.29859	.24718	17.22		**
4,6-Dinitro-2-methylphenol	.20703	.19842	4.16		**
N-Nitrosodiphenylamine (1)	.58156	.61199	5.23		**
4-Bromophenyl-phenylether	.33831	.33456	1.11	*	
Hexachlorobenzene	.47287	.46845	.94	*	
Pentachlorophenol	.25837	.25183	2.53	*	
Phenanthrene	1.26183	1.24995	.94	*	
Anthracene	1.20538	1.21802	1.05	*	
Carbazole	.93376	1.05707	13.21		**
Di-n-butylphthalate	1.75934	1.69304	3.77		**
Fluoranthene	1.30000	1.32957	2.27	*	
Pyrene	1.33353	1.16457	12.67	*	
Terphenyl-d14	.92416	.89332	3.34	*	
Butylbenzylphthalate	.63823	.58795	7.88		**
3,3'-Dichlorobenzidine	.23799	.26489	11.30		**
Benzo(a)anthracene	1.12806	1.10819	1.76	*	
Chrysene	1.05694	1.08761	2.90	*	

OK
AM

RF - Response Factor from daily standard file at 50.00 ng

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

Case No:

Calibration Date: 05/25/93

Contractor:

Time: 13:30

Contract No:

Laboratory ID: >B2913

Instrument ID:

Initial Calibration Date: 05/23/93

Minimum $\overline{RF}$ for SPCC is 0.01 Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
bis(2-Ethylhexyl)phthalate	.87806	.85083	3.10		**
Di-n-octylphthalate	1.30019	1.28152	1.44		**
Benzo(b)fluoranthene	1.21598	1.20462	.93	*	
Benzo(k)fluoranthene	.97131	1.00366	3.33	*	
Benzo(a)pyrene	1.01898	1.00937	.94	*	
Indeno(1,2,3-cd)pyrene	1.01288	.94068	7.13	*	
Dibenz(a,h)anthracene	.93658	.91963	1.81	*	
Benzo(g,h,i)perylene	.97068	.98658	1.64	*	

RF - Response Factor from daily standard file at 50.00 ng

- Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

QUANT REPORT

Operator ID: MEL
Output File: ^B2913::F3
Data File: >B2913::D5
Name: 390 SSTD025 5/21
Misc: 2UL

Quant Rev: 7
Quant Time: 930525 14:17
Injected at: 930525 13:30
Dilution Factor: 1.00000
Instrument ID: GC/MS #2
BTL# 1

ID File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37
Last Qcal Time: 930522 15:42

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*1,4-Dichlorobenzene-d4	9.32	152.0	43132✓	40.00	ng	98
2)	2-Fluorophenol	6.05	112.0	66898	45.19	ng	82
3)	2-Chlorophenol-d4	8.85	132.0	66976	46.40	ng	95
4)	Phenol-d5	8.91	99.0	94919	45.52	ng	97
5)	Phenol	8.95	94.0	109956	46.47	ng	96
6)	bis(2-Chloroethyl)ether	8.81	93.0	95068	46.80	ng	82
7)	2-Chlorophenol	8.89	128.0	75740	46.58	ng	97
8)	1,3-Dichlorobenzene	9.21	146.0	83586	50.40	ng	94
9)	1,4-Dichlorobenzene	9.36	146.0	83182	48.71	ng	96
10)	1,2-Dichlorobenzene-d4	9.85	152.0	49076	48.21	ng	95
11)	1,2-Dichlorobenzene	9.89	146.0	81564	50.69	ng	95
12)	2-Methylphenol	10.58	108.0	71648	47.81	ng	99
13)	2,2'-oxybis(1-chloropropane)	10.44	45.0	116774	43.95	ng	94
14)	4-Methylphenol	11.05	108.0	74677	46.46	ng	95
15)	N-Nitroso-di-n-propylamine	10.85	70.0	68228	47.18	ng	80
16)	Hexachloroethane	10.81	117.0	37879	48.42	ng	88
17)	*Naphthalene-d8	13.12	136.0	154292✓	40.00	ng	85
18)	Nitrobenzene-d5	11.07	82.0	89829	48.72	ng	83
19)	Nitrobenzene	11.11	77.0	122579	48.82	ng	92
20)	Isophorone	11.87	82.0	185599	49.92	ng	95
21)	2-Nitrophenol	12.09	139.0	39418	46.43	ng	90
22)	2,4-Dimethylphenol	12.56	107.0	66770	48.01	ng	94
23)	bis(2-Chloroethoxy)methane	12.71	93.0	122623	50.93	ng	88
24)	2,4-Dichlorophenol	12.93	162.0	57604	51.85	ng	97
25)	1,2,4-Trichlorobenzene	13.05	180.0	65351	52.90	ng	96
26)	Naphthalene	13.18	128.0	215344	50.89	ng	96
27)	4-Chloroaniline	13.55	127.0	89056	49.60	ng	98
28)	Hexachlorobutadiene	13.87	225.0	38670	52.93	ng	92
29)	4-Chloro-3-methylphenol	15.32	107.0	60421	48.65	ng	100
30)	2-Methylnaphthalene	15.32	142.0	166560	51.36	ng	97
31)	*Acenaphthene-d10	18.55	164.0	64902✓	40.00	ng	92
32)	Hexachlorocyclopentadiene	16.10	237.0	44150	51.50	ng	98
33)	2,4,6-Trichlorophenol	16.39	196.0	40956	51.42	ng	94
34)	2,4,5-Trichlorophenol	16.55	196.0	43642	50.21	ng	93
35)	2-Chloronaphthalene	16.79	162.0	114937	50.94	ng	94
36)	2-Fluorobiphenyl	16.63	172.0	122485	50.96	ng	95
37)	2,4,6-Tribromophenol	21.04	330.0	27893	50.09	ng	97
38)	2-Nitroaniline	17.33	65.0	51458	46.29	ng	93
39)	Dimethylphthalate	18.12	163.0	133359	52.35	ng	86
40)	Acenaphthylene	18.06	152.0	186250	53.14	ng	94

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Operator ID: MEL
Output File: ^B2913::F3
Data File: >B2913::D5
Name: 390 SSTD025 5/21
Misc: 2UL

Quant Rev: 7
Quant Time: 930525 14:17
Injected at: 930525 13:30
Dilution Factor: 1.00000
Instrument ID: GC/MS #2
BTL# 1

ID File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37
Last Qcal Time: 930522 15:42

	Compound	R.T.	Q ion	Area	Conc	Units	q
41)	2,6-Dinitrotoluene	18.24	165.0	31909	50.98	ng	96
42)	3-Nitroaniline	18.63	138.0	30912	58.65	ng	86
43)	Acenaphthene	18.65	153.0	116590	52.99	ng	97
44)	2,4-Dinitrophenol	18.90	184.0	18198	52.16	ng	91
45)	4-Nitrophenol	19.53	109.0	11450	47.49	ng	57
46)	Dibenzofuran	19.16	168.0	155216	53.40	ng	84
47)	2,4-Dinitrotoluene	19.39	165.0	41561	50.90	ng	77
48)	Diethylphthalate	20.33	149.0	127113	50.12	ng	95
49)	4-Chlorophenyl-phenylether	20.35	204.0	59088	52.06	ng	82
50)	Fluorene	20.21	166.0	112817	51.70	ng	96
51)	4-Nitroaniline	20.53	138.0	20053	42.36	ng	82
52)	*Phenanthrene-d10	23.05	188.0	100031 ✓	40.00	ng	98
53)	4,6-Dinitro-2-methylphenol	20.63	198.0	24810	48.99	ng	86
54)	N-Nitrosodiphenylamine (1)	20.76	169.0	76523	52.23	ng	93
55)	4-Bromophenyl-phenylether	21.82	248.0	41833	49.45	ng	78
56)	Hexachlorobenzene	22.17	284.0	58574	49.45	ng	95
57)	Pentachlorophenol	22.80	266.0	31489	50.28	ng	98
58)	Phenanthrene	23.13	178.0	156292	50.28	ng	95
59)	Anthracene	23.27	178.0	152300	50.77	ng	97
60)	Carbazole	23.90	167.0	132175	55.50	ng	94
61)	Di-n-butylphthalate	25.42	149.0	211696	50.59	ng	96
62)	Fluoranthene	26.83	202.0	166248	52.81	ng	89
63)	*Chrysene-d12	31.32	240.0	118997 ✓	40.00	ng	93
64)	Pyrene	27.48	202.0	173225	48.05	ng	86
65)	Terphenyl-d14	28.22	244.0	132878	48.46	ng	92
66)	Butylbenzylphthalate	29.99	149.0	87455	47.06	ng	93
67)	3,3'-Dichlorobenzidine	31.38	252.0	39401	60.00	ng	99
68)	Benzo(a)anthracene	31.26	228.0	164839	50.05	ng	97
69)	Chrysene	31.40	228.0	161778	50.92	ng	96
70)	bis(2-Ethylhexyl)phthalate	31.99	149.0	126558	48.23	ng	93
71)	*Perylene-d12	35.43	264.0	124211 ✓	40.00	ng	94
72)	Di-n-octylphthalate	33.79	149.0	198974	50.61	ng	86
73)	Benzo(b)fluoranthene	34.44	252.0	187034	54.71	ng	96
74)	Benzo(k)fluoranthene	34.51	252.0	155832	48.72	ng	91
75)	Benzo(a)pyrene	35.28	252.0	156718	50.59	ng	97
76)	Indeno(1,2,3-cd)pyrene	38.78	276.0	146053	50.38	ng	86
77)	Dibenz(a,h)anthracene	38.90	278.0	142785	50.90	ng	99
78)	Benzo(g,h,i)perylene	39.76	276.0	153180	50.20	ng	78

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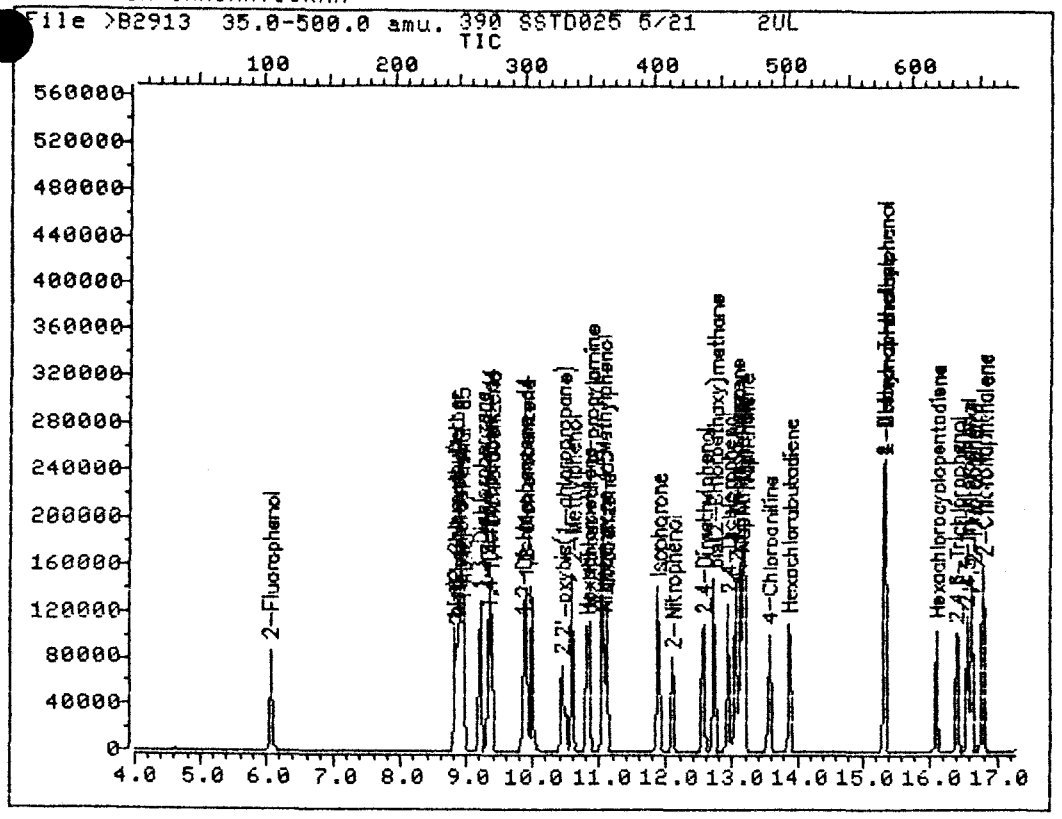
* Compound is ISTD

TOTAL ION CHROMATOGRAM



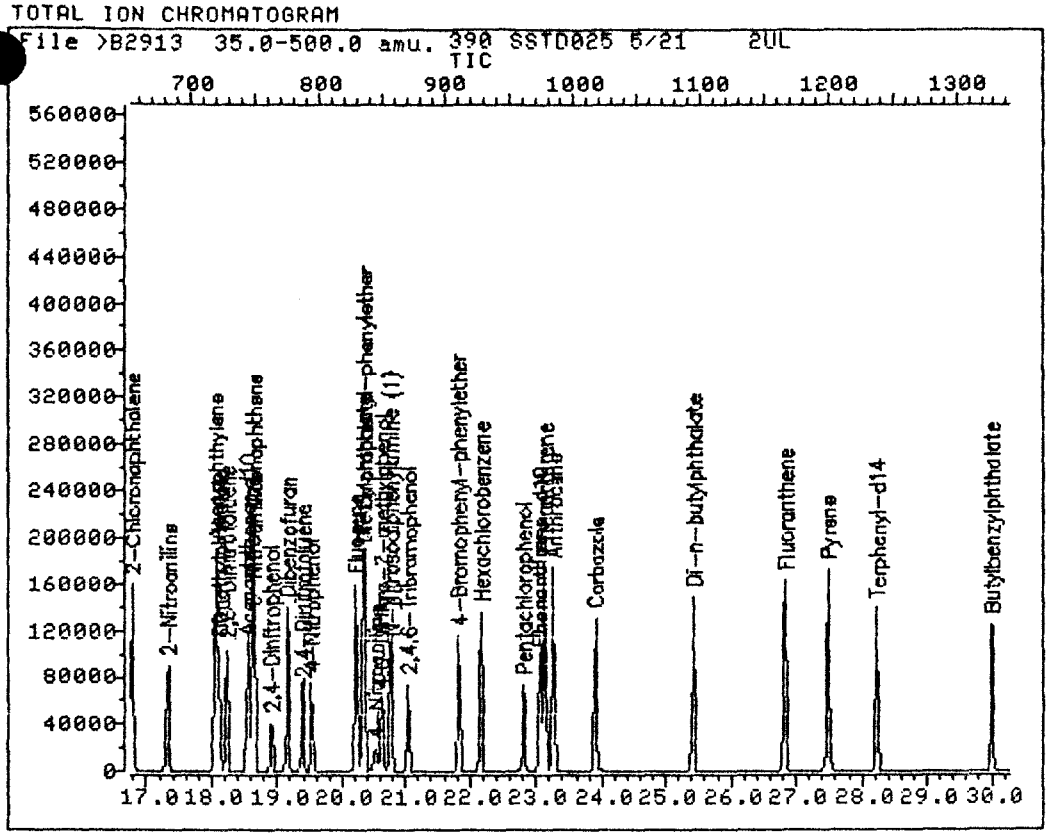
Data File: >B2913::D5 Quant Output File: ^B2913::F3
Name: 390 SSTD025 5/21 Instrument ID: GC/MS #2
Misc: 2UL BTL# 1

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37 Last Qcal Time: 930522 15:42

Operator ID: MEL
Quant Time : 930525 14:17
Injected at: 930525 13:30

Page 1 of 3

TOTAL ION CHROMATOGRAM



Data File: >B2913::D5 Quant Output File: ^B2913::F3
Name: 390 SSTD025 5/21 Instrument ID: GC/MS #2
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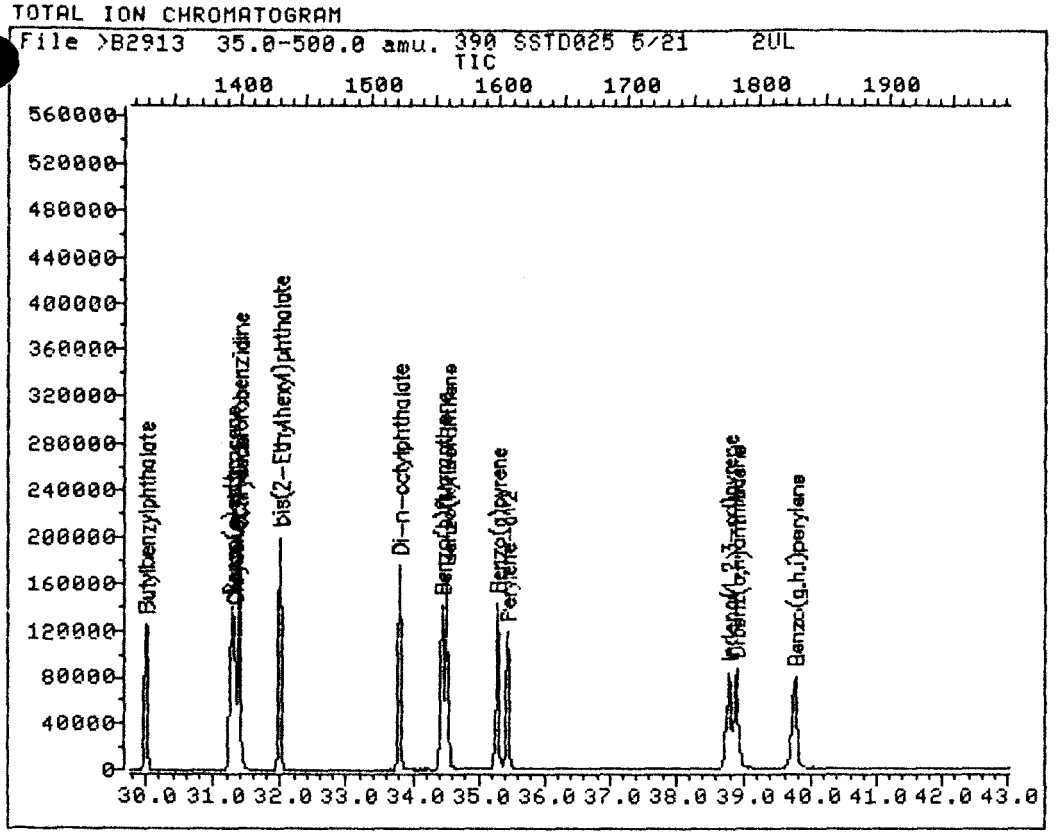
Title: 3/90 BNA
Last Calibration: 920731 09:37 Last Qcal Time: 930522 15:42

Operator ID: MEL
Quant Time : 930525 14:17
Injected at: 930525 13:30

Page 2 of 3

TOTAL ION CHROMATOGRAM



Data File: >B2913::D5 Quant Output File: ^B2913::F3
Name: 390 SSTD025 5/21 Instrument ID: GC/MS #2
Misc: 2UL BTL# 1

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37 Last Qcal Time: 930522 15:42

Operator ID: MEL
Quant Time : 930525 14:17
Injected at: 930525 13:30

Page 3 of 3

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Instrument ID:GC/MS-B Calibration Date: 5/27/93 Time:1141

Lab File ID:B2928 Init. Calib. Date(s): 5/22/93 5/22/93

Init. Calib. Times: 1542 1934

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Phenol	1.966	2.172	0.800	10.5	25.0
bis(2-Chloroethyl)ether	1.671	1.893	0.700	13.3	25.0
2-Chlorophenol	1.360	1.472	0.800	8.2	25.0
1,3-Dichlorobenzene	1.484	1.555	0.600	4.8	25.0
1,4-Dichlorobenzene	1.451	1.592	0.500	9.7	25.0
1,2-Dichlorobenzene	1.344	1.478	0.400	10.0	25.0
2-Methylphenol	1.276	1.368	0.700	7.2	25.0
2,2'-oxybis(1-Chloropropane)	2.229	2.349		5.4	
4-Methylphenol	1.336	1.466	0.600	9.7	25.0
N-Nitroso-di-n-propylamine	1.089	1.313	0.500	20.6	25.0
Hexachloroethane	0.631	0.729	0.300	15.5	25.0
Nitrobenzene	0.648	0.654	0.200	0.9	25.0
Isophorone	0.970	1.012	0.400	4.3	25.0
2-Nitrophenol	0.220	0.197	0.100	10.5	25.0
2,4-Dimethylphenol	0.352	0.365	0.200	3.7	25.0
bis(2-Chloroethoxy)methane	0.623	0.660	0.300	5.9	25.0
2,4-Dichlorophenol	0.300	0.293	0.200	2.3	25.0
1,2,4-Trichlorobenzene	0.329	0.329	0.200	0.0	25.0
Naphthalene	1.092	1.118	0.700	2.4	25.0
4-Chloroaniline	0.466	0.441		5.4	
Hexachlorobutadiene	0.189	0.185		2.1	
4-Chloro-3-methylphenol	0.312	0.328	0.200	5.1	25.0
2-Methylnaphthalene	0.815	0.882	0.400	8.2	25.0
Hexachlorocyclopentadiene	0.535	0.452		15.5	
2,4,6-Trichlorophenol	0.501	0.493	0.200	1.6	25.0
2,4,5-Trichlorophenol	0.539	0.528	0.200	2.0	25.0
2-Chloronaphthalene	1.362	1.404	0.800	3.1	25.0
2-Nitroaniline	0.680	0.624		8.2	
Dimethylphthalate	1.552	1.628		4.9	
Acenaphthylene	2.209	2.272	1.300	2.9	25.0
2,6-Dinitrotoluene	0.391	0.389	0.200	0.5	25.0
3-Nitroaniline	0.341	0.327		4.1	
Acenaphthene	1.350	1.429	0.800	5.9	25.0
2,4-Dinitrophenol	0.232	0.219		5.6	
4-Nitrophenol	0.148	0.136		8.1	
Dibenzofuran	1.810	1.934	0.800	6.9	25.0
2,4-Dinitrotoluene	0.511	0.511	0.200	0.0	25.0

All other compounds must meet a minimum RRF of 0.010.

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Instrument ID:GC/MS-B Calibration Date: 5/27/93 Time:1141

Lab File ID:B2928 Init. Calib. Date(s): 5/22/93 5/22/93

Init. Calib. Times: 1542 1934

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Diethylphthalate	1.583	1.636		3.3	
4-Chlorophenyl-phenylether	0.710	0.748	0.400	5.4	25.0
Fluorene	1.418	1.441	0.900	1.6	25.0
4-Nitroaniline	0.299	0.280		6.4	
4,6-Dinitro-2-methylphenol	0.207	0.194		6.3	
N-Nitrosodiphenylamine (1)	0.582	0.609		4.6	
4-Bromophenyl-phenylether	0.333	0.328	0.100	1.5	25.0
Hexachlorobenzene	0.473	0.448	0.100	5.3	25.0
Pentachlorophenol	0.258	0.247	0.050	4.3	25.0
Phenanthrene	1.262	1.260	0.700	0.2	25.0
Anthracene	1.205	1.199	0.700	0.5	25.0
Carbazole	0.934	1.036		10.9	
Di-n-butylphthalate	1.759	1.624		7.7	
Fluoranthene	1.300	1.244	0.600	4.3	25.0
Pyrene	1.333	1.370	0.600	2.8	25.0
Butylbenzylphthalate	0.638	0.704		10.3	
3,3'-Dichlorobenzidine	0.238	0.242		1.7	
Benzo(a)anthracene	1.128	1.138	0.800	0.9	25.0
Chrysene	1.057	1.065	0.700	0.8	25.0
bis(2-Ethylhexyl)phthalate	0.878	0.959		9.2	
Di-n-octylphthalate	1.300	1.524		17.2	
Benzo(b)fluoranthene	1.216	1.185	0.700	2.5	25.0
Benzo(k)fluoranthene	0.971	1.026	0.700	5.7	25.0
Benzo(a)pyrene	1.019	1.018	0.700	0.1	25.0
Indeno(1,2,3-cd)pyrene	1.013	0.940	0.500	7.2	25.0
Dibenz(a,h)anthracene	0.937	0.872	0.400	6.9	25.0
Benzo(g,h,i)perylene	0.971	0.961	0.500	1.0	25.0
Nitrobenzene-d5	0.471	0.466	0.200	1.1	25.0
2-Fluorobiphenyl	1.451	1.487	0.700	2.5	25.0
Terphenyl-d14	0.924	1.016	0.500	10.0	25.0
Phenol-d5	1.755	1.860	0.800	6.0	25.0
2-Fluorophenol	1.281	1.334	0.600	4.1	25.0
2,4,6-Tribromophenol	0.331	0.348		5.1	
2-Chlorophenol-d4	1.189	1.285	0.800	8.1	25.0
1,2-Dichlorobenzene-d4	0.851	0.920	0.400	8.1	25.0

(1) Cannot be seperated from Diphenylamine
All other compounds must meet a minimum RRF of 0.010.

Continuing Calibration Check
HSL Compounds

e No: Calibration Date: 05/27/93

Contractor: Time: 11:41

Contract No: Laboratory ID: >B2928

Instrument ID: Initial Calibration Date: 05/23/93

Minimum $\overline{RF}$ for SPCC is 0.01 Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
2-Fluorophenol	1.28077	1.33422	4.17	•	
2-Chlorophenol-d4	1.18882	1.28466	8.06	*	
Phenol-d5	1.75524	1.86013	5.98	•	
Phenol	1.96551	2.17189	10.50	*	
bis(2-Chloroethyl)ether	1.67146	1.89278	13.24	•	
2-Chlorophenol	1.36000	1.47153	8.20	•	
1,3-Dichlorobenzene	1.48425	1.55479	4.75	•	
1,4-Dichlorobenzene	1.45096	1.59186	9.71	*	
1,2-Dichlorobenzene-d4	.85056	.92048	8.22	*	
1,2-Dichlorobenzene	1.34379	1.47830	10.01	•	
2-Methylphenol	1.27624	1.36759	7.16	•	
2,2'-oxybis(1-chloropropane)	2.22933	2.34862	5.35		**
ethylphenol	1.33594	1.46580	9.72	*	
Nitroso-di-n-propylamine	1.08872	1.31306	20.61	•	
Hexachloroethane	.63141	.72880	15.42	*	
Nitrobenzene-d5	.47072	.46614	.97	•	
Nitrobenzene	.64819	.65350	.82	•	
Isophorone	.97014	1.01213	4.33	*	
2-Nitrophenol	.21986	.19746	10.19	*	
2,4-Dimethylphenol	.35199	.36489	3.66	•	
bis(2-Chloroethoxy)methane	.62289	.66047	6.03	*	
2,4-Dichlorophenol	.29962	.29335	2.09	•	
1,2,4-Trichlorobenzene	.32887	.32851	.11	*	
Naphthalene	1.09273	1.11806	2.32	•	
4-Chloroaniline	.46576	.44129	5.25		**
Hexachlorobutadiene	.18918	.18512	2.14		**
4-Chloro-3-methylphenol	.31168	.32773	5.15	*	
2-Methylnaphthalene	.81533	.88226	8.21	•	
Hexachlorocyclopentadiene	.53480	.45220	15.45		**
2,4,6-Trichlorophenol	.50089	.49343	1.49	*	
2,4,5-Trichlorophenol	.53840	.52849	1.84	*	
2-Chloronaphthalene	1.36198	1.40404	3.09	•	

OK.
AM

RF - Response Factor from daily standard file at 50.00 ng

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

ff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

Case No: | Calibration Date: 05/27/93

Contractor: | Time: 11:41

Contract No: | Laboratory ID: >B2928

Instrument ID: | Initial Calibration Date: 05/23/93

Minimum $\overline{RF}$ for SPCC is 0.01 | Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
2-Fluorobiphenyl	1.45102	1.48651	2.45	*	
2,4,6-Tribromophenol	.33170	.34815	4.96		**
2-Nitroaniline	.68020	.62428	8.22		**
Dimethylphthalate	1.55193	1.62775	4.89		**
Acenaphthylene	2.20904	2.27214	2.86	*	
2,6-Dinitrotoluene	.39118	.38856	.67	*	
3-Nitroaniline	.34080	.32739	3.93		**
Acenaphthene	1.34952	1.42887	5.88	*	
2,4-Dinitrophenol	.23186	.21926	5.44		**
4-Nitrophenol	.14736	.13628	7.52		**
Dibenzofuran	1.81041	1.93426	6.84	*	
2,4-Dinitrotoluene	.51102	.51127	.05	*	
Diethylphthalate	1.58334	1.63618	3.34		**
4-Chlorophenyl-phenylether	.71034	.74757	5.24	*	
Fluorene	1.41821	1.44084	1.60	*	
4-Nitroaniline	.29859	.28045	6.07		**
4,6-Dinitro-2-methylphenol	.20703	.19385	6.37		**
N-Nitrosodiphenylamine (1)	.58156	.60903	4.72		**
4-Bromophenyl-phenylether	.33831	.32767	3.14	*	
Hexachlorobenzene	.47287	.44805	5.25	*	
Pentachlorophenol	.25837	.24693	4.43	*	
Phenanthrene	1.26183	1.25969	.17	*	
Anthracene	1.20538	1.19933	.50	*	
Carbazole	.93376	1.03637	10.99		**
Di-n-butylphthalate	1.75934	1.62392	7.70		**
Fluoranthene	1.30000	1.24394	4.31	*	
Pyrene	1.33353	1.37046	2.77	*	
Terphenyl-d14	.92416	1.01589	9.93	*	
Butylbenzylphthalate	.63823	.70369	10.26		**
3,3'-Dichlorobenzidine	.23799	.24181	1.61		**
Benzo(a)anthracene	1.12806	1.13754	.84	*	
Chrysene	1.05694	1.06453	.72	*	

RF - Response Factor from daily standard file at 50.00 ng

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

Continuing Calibration Check
HSL Compounds

e No: Calibration Date: 05/27/93

Contractor: Time: 11:41

Contract No: Laboratory ID: >B2928

Instrument ID: Initial Calibration Date: 05/23/93

Minimum $\overline{RF}$ for SPCC is 0.01 Maximum % Diff for CCC is 25%

Compound	$\overline{RF}$	RF	%Diff	CCC	SPCC
bis(2-Ethylhexyl)phthalate	.87806	.95913	9.23		**
Di-n-octylphthalate	1.30019	1.52354	17.18		**
Benzo(b)fluoranthene	1.21598	1.18457	2.58	*	
Benzo(k)fluoranthene	.97131	1.02590	5.62	*	
Benzo(a)pyrene	1.01898	1.01850	.05	*	
Indeno(1,2,3-cd)pyrene	1.01288	.93997	7.20	*	
Dibenz(a,h)anthracene	.93658	.87196	6.90	*	
Benzo(g,h,i)perylene	.97068	.96145	.95	*	

RF - Response Factor from daily standard file at 50.00 ng

$\overline{RF}$ - Average Response Factor from Initial Calibration Form VI

ff - % Difference from original average or curve

CCC - Calibration Check Compounds (*) SPCC - System Performance Check Compounds (**)

QUANT REPORT

Operator ID: ARTURO
Output File: ^B2928::F3
Data File: >B2928::D5
Name: 390 SSTD050 5/21
Misc: 2UL

Quant Rev: 7
Quant Time: 930527 12:27
Injected at: 930527 11:41
Dilution Factor: 1.00000
Instrument ID: GC/MS #2
BTL# 1

ID File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37
Last Qcal Time: 930526 10:22 ✓

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*1,4-Dichlorobenzene-d4	9.26	152.0	64088 ✓	40.00	ng	97
2)	2-Fluorophenol	6.01	112.0	106884	53.07	ng	87
3)	2-Chlorophenol-d4	8.81	132.0	102914	53.54	ng	97
4)	Phenol-d5	8.87	99.0	149015	53.60	ng	94
5)	Phenol	8.91	94.0	173990	53.82	ng	99
6)	bis(2-Chloroethyl)ether	8.75	93.0	151631	52.73	ng	84
7)	2-Chlorophenol	8.85	128.0	117884	54.23	ng	98
8)	1,3-Dichlorobenzene	9.13	146.0	124554	49.20	ng	94
9)	1,4-Dichlorobenzene	9.30	146.0	127524	48.34	ng	96
10)	1,2-Dichlorobenzene-d4	9.79	152.0	73740	49.15	ng	99
11)	1,2-Dichlorobenzene	9.83	146.0	118427	47.79	ng	98
12)	2-Methylphenol	10.54	108.0	109558	48.95	ng	97
13)	2,2'-oxybis(1-chloropropane)	10.38	45.0	188148	50.40	ng	88
14)	4-Methylphenol	11.01	108.0	117425	49.57	ng	95
15)	N-Nitroso-di-n-propylamine	10.79	70.0	105189	48.88	ng	86
16)	Hexachloroethane	10.73	117.0	58384	49.61	ng	97
17)	*Naphthalene-d8	13.06	136.0	229255 ✓	40.00	ng	86
18)	Nitrobenzene-d5	10.99	82.0	133581	51.01	ng	89
19)	Nitrobenzene	11.05	77.0	187273	51.81	ng	88
20)	Isophorone	11.81	82.0	290044	53.60	ng	98
21)	2-Nitrophenol	12.03	139.0	56585	48.75	ng	98
22)	2,4-Dimethylphenol	12.50	107.0	104565	52.38	ng	93
23)	bis(2-Chloroethoxy)methane	12.65	93.0	189269	50.98	ng	93
24)	2,4-Dichlorophenol	12.89	162.0	84065	50.15	ng	97
25)	1,2,4-Trichlorobenzene	12.99	180.0	94142	49.64	ng	93
26)	Naphthalene	13.12	128.0	320400	51.01	ng	95
27)	4-Chloroaniline	13.50	127.0	126460	46.56	ng	97
28)	Hexachlorobutadiene	13.81	225.0	53051	47.77	ng	93
29)	4-Chloro-3-methylphenol	15.30	107.0	93916	49.93	ng	100
30)	2-Methylnaphthalene	15.26	142.0	252827	49.82	ng	67
31)	*Acenaphthene-d10	18.49	164.0	97092 ✓	40.00	ng	91
32)	Hexachlorocyclopentadiene	16.02	237.0	54881	41.86	ng	95
33)	2,4,6-Trichlorophenol	16.34	196.0	59885	48.77	ng	98
34)	2,4,5-Trichlorophenol	16.53	196.0	64140	49.85	ng	96
35)	2-Chloronaphthalene	16.71	162.0	170401	50.66	ng	94
36)	2-Fluorobiphenyl	16.55	172.0	180410	49.30	ng	95
37)	2,4,6-Tribromophenol	20.96	330.0	42253	49.16	ng	97
38)	2-Nitroaniline	17.26	65.0	75766	50.43	ng	88
39)	Dimethylphthalate	18.04	163.0	197552	50.93	ng	81
40)	Acenaphthylene	17.98	152.0	275758	50.61	ng	94

Operator ID: ARTURO
Output File: ^B2928::F3
Data File: >B2928::D5
Name: 390 SSTD050 5/21
Misc: 2UL

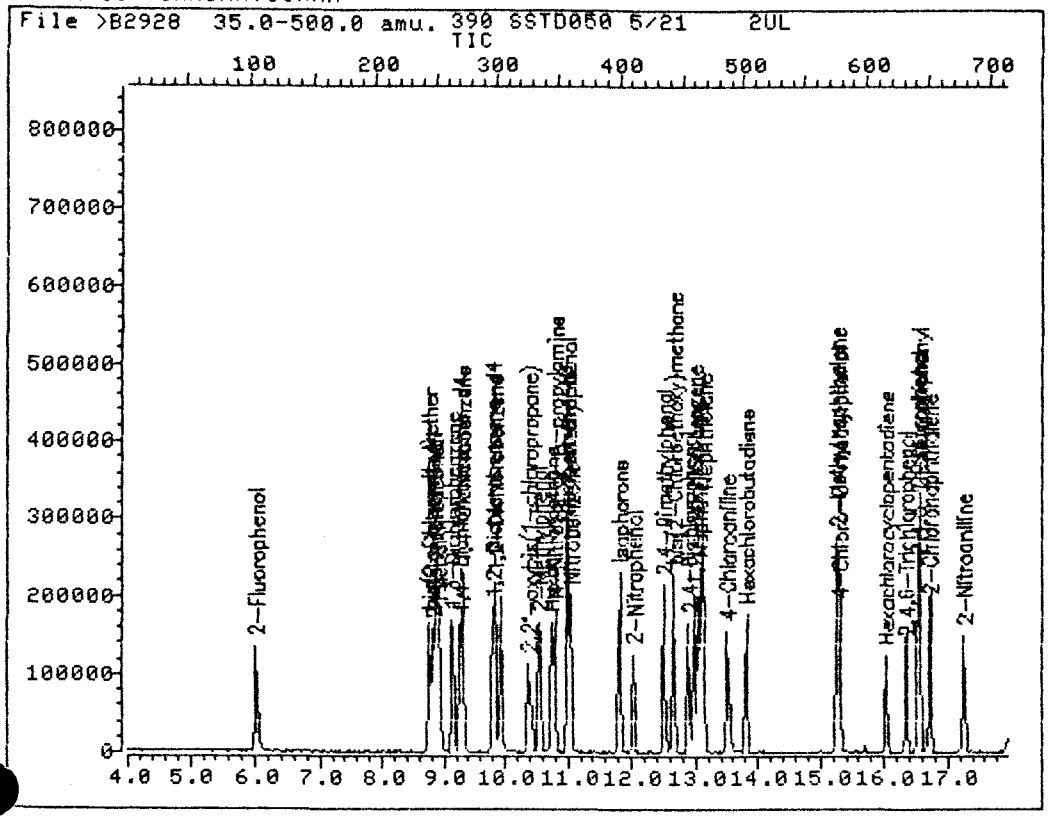
Quant Rev: 7
Quant Time: 930527 12:27
Injected at: 930527 11:41
Dilution Factor: 1.00000
Instrument ID: GC/MS #2
BTL# 1

ID File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37
Last Qcal Time: 930526 10:22

	Compound	R.T.	Q ion	Area	Conc	Units	q
41)	2,6-Dinitrotoluene	18.16	165.0	47158	51.78	ng	87
42)	3-Nitroaniline	18.57	138.0	39734	40.43	ng	97
43)	Acenaphthene	18.59	153.0	173415	50.63	ng	97
44)	2,4-Dinitrophenol	18.84	184.0	26610	47.60	ng	91
45)	4-Nitrophenol	19.53	109.0	16540	46.96	ng	57
46)	Dibenzofuran	19.08	168.0	234751	50.05	ng	79
47)	2,4-Dinitrotoluene	19.33	165.0	62050	48.06	ng	81
48)	Diethylphthalate	20.25	149.0	198575	51.85	ng	95
[illegible])	4-Chlorophenyl-phenylether	20.27	204.0	90729	50.37	ng	79
50)	Fluorene	20.14	166.0	174867	50.65	ng	97
51)	4-Nitroaniline	20.47	138.0	34037	41.06	ng	88
52)	*Phenanthrene-d10	22.98	188.0	155237	40.00	ng	99
53)	4,6-Dinitro-2-methylphenol	20.57	198.0	37616	52.56	ng	87
54)	N-Nitrosodiphenylamine (1)	20.71	169.0	118180	52.47	ng	94
55)	4-Bromophenyl-phenylether	21.74	248.0	63584M	50.58	ng	
56)	Hexachlorobenzene	22.10	284.0	86943	52.61	ng	95
57)	Pentachlorophenol	22.74	266.0	47915	51.12	ng	94
58)	Phenanthrene	23.06	178.0	244438	50.11	ng	97
59)	Anthracene	23.19	178.0	232726	49.39	ng	99
60)	Carbazole	23.82	167.0	201103	48.89	ng	94
61)	Di-n-butylphthalate	25.35	149.0	315115	48.57	ng	95
62)	Fluoranthene	26.76	202.0	241382	49.30	ng	87
63)	*Chrysene-d12	31.22	240.0	149568	40.00	ng	96
64)	Pyrene	27.40	202.0	256222	57.69	ng	84
65)	Terphenyl-d14	28.15	244.0	189931	55.19	ng	93
66)	Butylbenzylphthalate	29.91	149.0	131562	56.18	ng	91
67)	3,3'-Dichlorobenzidine	31.30	252.0	45209	51.97	ng	93
68)	Benzo(a)anthracene	31.18	228.0	212675	50.93	ng	99
69)	Chrysene	31.30	228.0	199025	50.26	ng	96
70)	bis(2-Ethylhexyl)phthalate	31.91	149.0	179319	52.87	ng	93
71)	*Perylene-d12	35.34	264.0	143251	40.00	ng	94
72)	Di-n-octylphthalate	33.71	149.0	272811	56.90	ng	85
73)	Benzo(b)fluoranthene	34.36	252.0	212113	44.36	ng	93
74)	Benzo(k)fluoranthene	34.42	252.0	183701M	59.93	ng	94
[illegible])	Benzo(a)pyrene	35.19	252.0	182376	50.51	ng	97
76)	Indeno(1,2,3-cd)pyrene	38.64	276.0	168314	52.98	ng	82
77)	Dibenz(a,h)anthracene	38.76	278.0	156136	52.10	ng	99
78)	Benzo(g,h,i)perylene	39.59	276.0	172160	53.54	ng	84

* Compound is ISTD

TOTAL ION CHROMATOGRAM



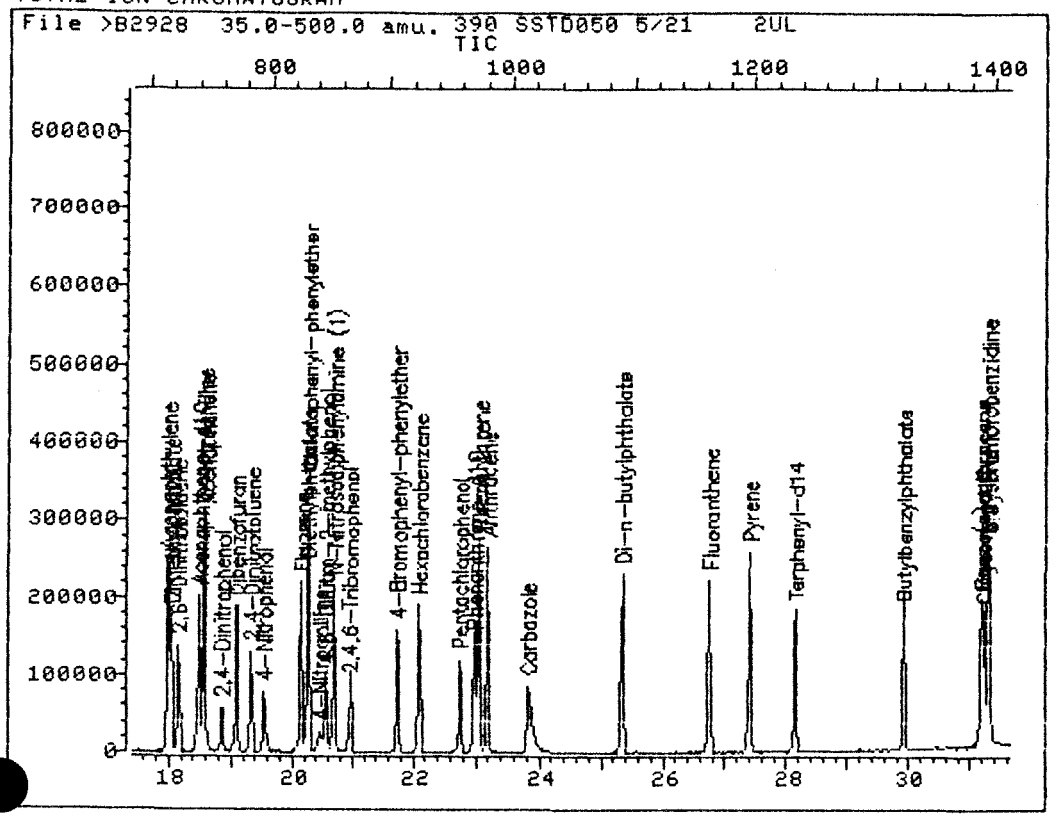
Data File: >B2928::D5 Quant Output File: ^B2928::F3
Name: 390 SSTD050 5/21 Instrument ID: GC/MS #2
Misc: 2UL BTL# 1

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37 Last Qcal Time: 930526 10:22

Operator ID: ARTURO
Quant Time : 930527 12:27
Injected at: 930527 11:41

Page 1 of 3

TOTAL ION CHROMATOGRAM



Data File: >B2928::D5 Quant Output File: ^B2928::F3
Name: 390 SSTD050 5/21 Instrument ID: GC/MS #2
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Last Calibration: 920731 09:37 Last Qcal Time: 930526 10:22

Operator ID: ARTURO
Quant Time : 930527 12:27
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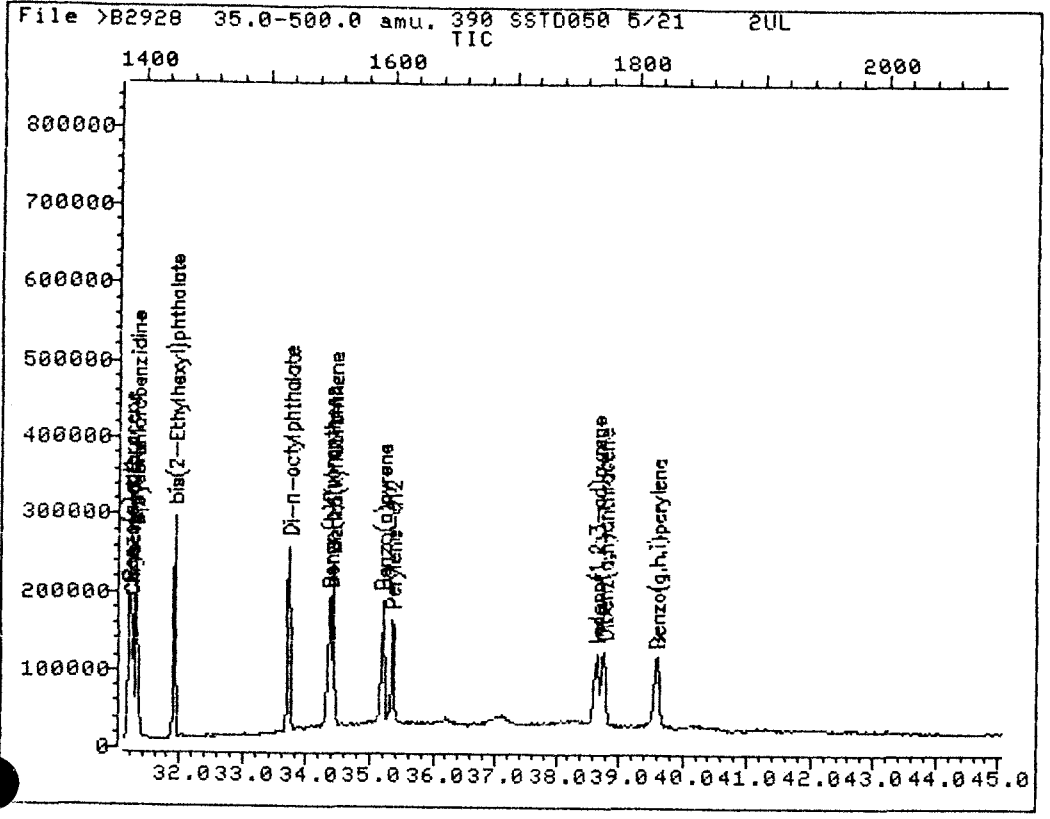
Page 2 of 3

TOTAL ION CHROMATOGRAM



Data File: >B2928::D5
Name: 390 SSTD050 5/21
Misc: 2UL

Quant Output File: ^B2928::F3
Instrument ID: GC/MS #2
BTL# 1

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37

Last Qcal Time: 930526 10:22

Operator ID: ARTURO
Quant Time : 930527 12:27
Injected at: 930527 11:41

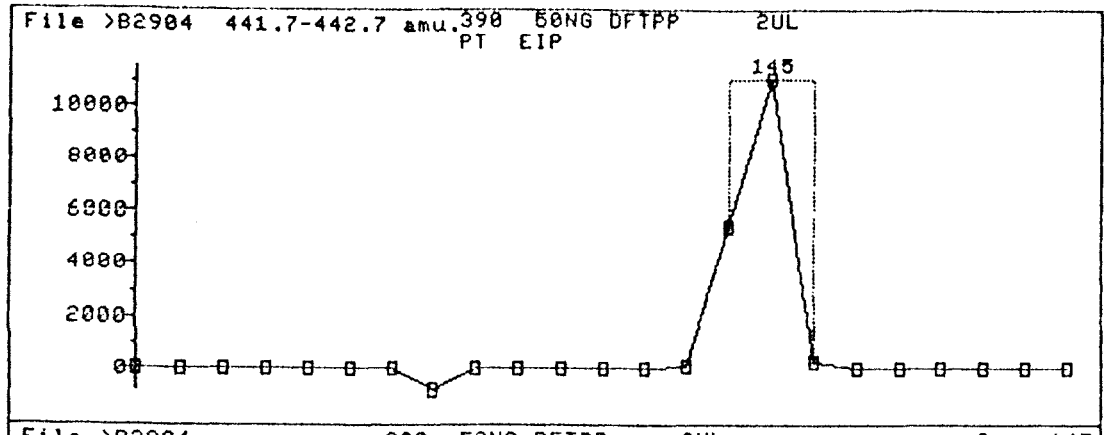
Page 3 of 3

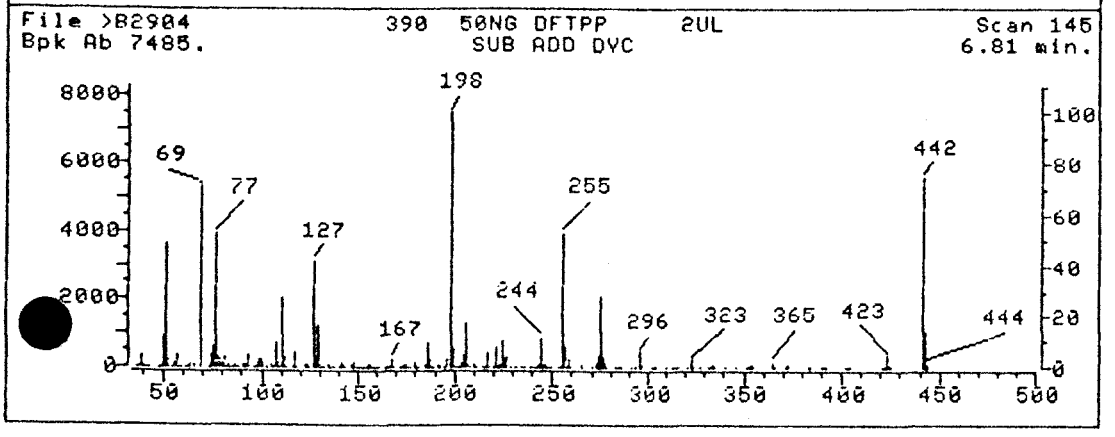
QC DATA

CLP 390

6/3/93

[DFTPP Tuning Operator Report]





MB0520

>B2904

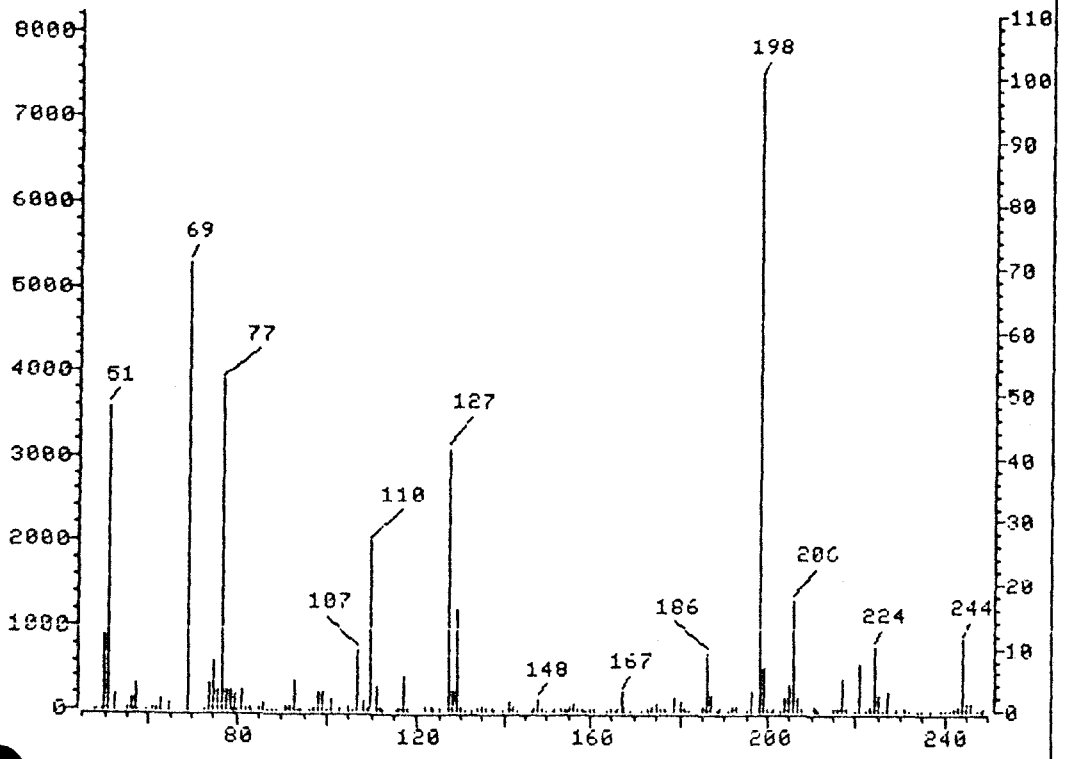
Instrument ID: GC/MS Analyzed on: 5/22/93 10:23

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
51	30-80% of mass 198	47.79	47.79	Ok
68	Less than 2% of mass 69	0.00	0.00	Ok
69	(reference only)	70.72	70.72	Ok
70	Less than 2% of mass 69	0.00	0.00	Ok
127	25-75% of mass 198	41.44	41.44	Ok
197	Less than 1% of mass 198	0.00	0.00	Ok
198	Base peak, 100% relative abundance	100.00	100.00	Ok
199	5-9% of mass 198	6.68	6.68	Ok
275	10-30% of mass 198	27.70	27.70	Ok
365	Greater than 1% of mass 198	2.20	2.20	Ok
441	0-100% of mass 443	11.89	88.44	Ok
442	40-110% of mass 198	74.37	74.37	Ok
443	15-24% of mass 442	13.45	18.08	Ok

>B2904
Ab 7485.

390 50NG DFTPP 2UL
SUB ADD DVC

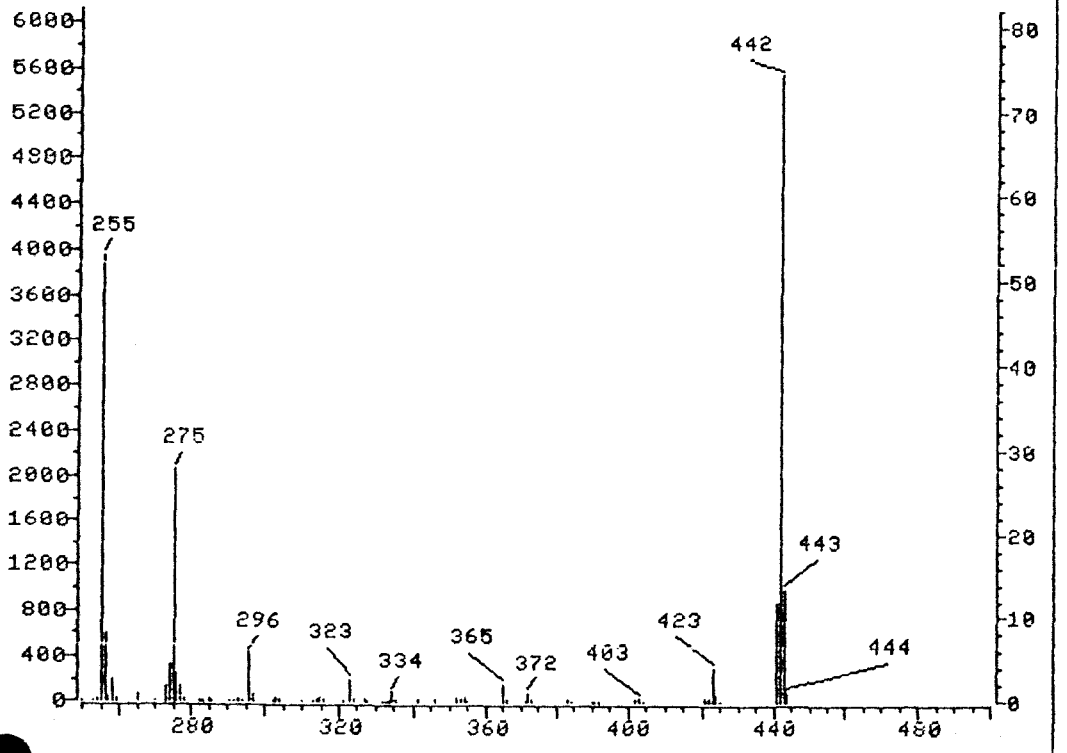
Scan 145
6.81 min.



>B2904
Bpk Ab 5567.

390 50NG DFTPP 2UL
SUB ADD DVC

Scan 145
6.81 min.



Instrument ID: GC/MS Analyzed on: 5/22/93 10:23

B2904 390 50NG DFTPP 2UL
145 SUB ADD NRM DVC

6/3/93

File: >B2904 Scan #: 145 Retn. time: 6.81

m/z	Int.	m/z	Int.	m/z	Int.	m/z	Int.	m/z	Int.
36.90	.143	97.90	2.779	157.90	.356	219.80	.111	296.05	5.749
37.90	.579	98.90	2.708	158.50	.125	221.05	7.401	296.95	.762
38.75	4.240	100.00	.191	158.75	.143	222.05	.209	302.05	.076
39.90	.659	101.00	1.777	160.00	.405	223.05	.713	303.05	.592
41.00	.352	102.90	.459	161.00	.561	224.05	10.345	304.05	.205
42.00	.098	104.90	.717	164.00	.107	225.05	2.423	310.05	.116
43.15	.249	106.00	.169	165.00	.539	226.05	.209	312.70	.067
47.75	.120	107.00	9.584	165.65	.067	227.05	3.278	313.05	.053
48.25	.098	108.00	1.514	166.00	.379	229.05	.561	314.05	.276
49.00	.169	109.00	.485	167.00	3.073	230.95	.374	314.95	.579
49.90	12.028	109.90	26.707	167.90	.917	231.95	.062	315.70	.067
50.90	47.793	111.00	3.817	169.00	.174	234.05	.160	316.05	.298
51.90	2.334	111.90	.428	171.65	.094	234.95	.165	320.95	.138
52.25	.125	112.50	.049	173.00	.267	236.95	.209	323.05	2.605
54.90	.294	115.65	.062	174.00	.672	239.05	.120	324.05	.338
55.90	1.857	116.00	.539	174.15	.062	239.95	.080	326.95	.312
56.40	.200	117.00	5.567	175.00	1.136	241.05	.223	327.95	.187
56.90	4.106	117.90	.468	176.00	.428	242.05	.405	332.05	.125
57.65	.178	121.90	.762	177.00	.387	243.05	.726	333.05	.165
59.15	.111	123.00	.895	179.00	2.231	244.05	11.418	333.45	.062
60.90	.263	123.90	.396	180.00	1.363	245.05	1.202	334.05	1.309
61.90	.561	125.00	.428	181.00	.592	246.05	1.202	335.05	.254
62.90	1.715	127.00	41.438	182.00	.089	247.20	.218	341.05	.196
64.90	1.118	128.00	3.175	185.00	.873	248.20	.049	346.05	.370
68.90	70.724	129.00	16.001	186.00	9.223	249.05	.343	352.05	.610
72.90	.058	130.00	.904	187.00	2.391	250.05	.111	353.05	.410
73.90	4.039	131.00	.196	188.50	.107	253.05	.160	354.05	.681
74.90	7.998	132.25	.089	189.00	.321	254.05	.312	355.05	.178
76.00	3.233	134.00	.534	191.00	.169	255.05	52.612	365.05	2.200
76.90	52.037	135.00	.851	192.00	.922	256.05	7.954	365.95	.307
77.90	3.260	136.00	.423	193.00	.695	257.05	.615	371.20	.058
78.90	3.064	137.00	.361	195.00	.125	258.05	2.636	372.05	1.171
79.40	.080	137.90	.169	196.00	3.010	259.05	.436	372.95	.191
79.90	2.293	139.50	.071	198.00	100.000	265.05	.922	382.95	.303
80.15	.143	141.00	1.599	199.00	6.680	270.05	.062	384.20	.062
80.90	3.246	142.00	.708	200.00	.370	273.05	1.728	390.05	.147
81.90	.566	142.90	.223	201.15	.151	274.05	4.431	390.95	.138
82.90	.855	146.25	.085	201.50	.574	275.05	27.695	391.80	.076
83.65	.156	146.90	.770	202.90	.102	276.05	3.438	401.95	.281
84.90	.352	148.00	1.853	204.00	2.049	277.05	1.857	402.95	.441
85.90	.953	148.90	.325	205.00	4.115	278.05	.245	404.05	.156
87.15	.040	150.00	.062	206.05	17.372	282.05	.098	421.05	.503
87.75	.080	151.15	.160	207.05	2.053	282.95	.151	421.95	.543
[illegible].90	.147	151.50	.316	207.95	.445	283.30	.125	423.05	4.164
90.90	.699	151.75	.174	210.70	.637	285.20	.338	423.95	.802
91.90	.735	153.00	.539	210.95	.517	285.80	.045	424.80	.098
92.90	4.654	153.90	.316	211.45	.067	290.80	.134	441.05	11.895
93.50	.089	154.40	.045	215.05	.267	291.55	.049	442.05	74.371
94.15	.111	155.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

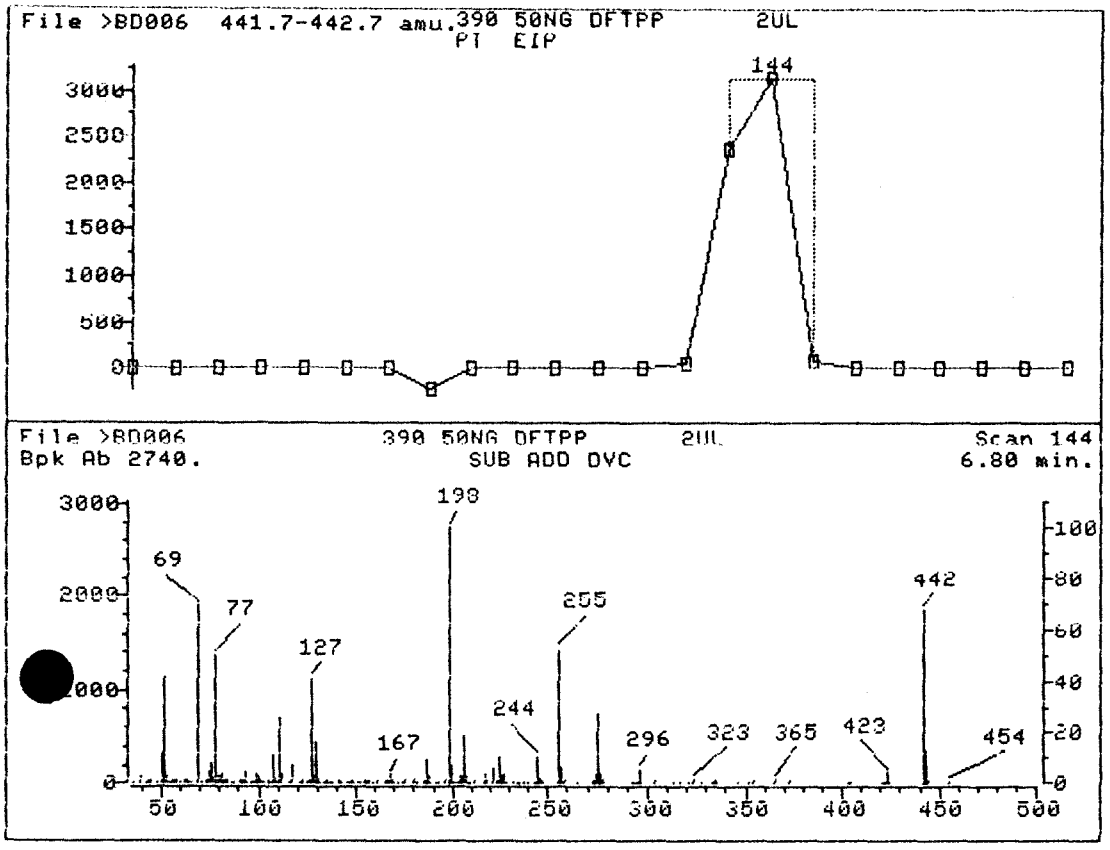
97.00 .281 157.00 .325 218.05 .263

Instrument ID: GC/MS Analyzed on: 5/22/93 10:23

6/3/93

[DFTPP Tuning Operator Report]

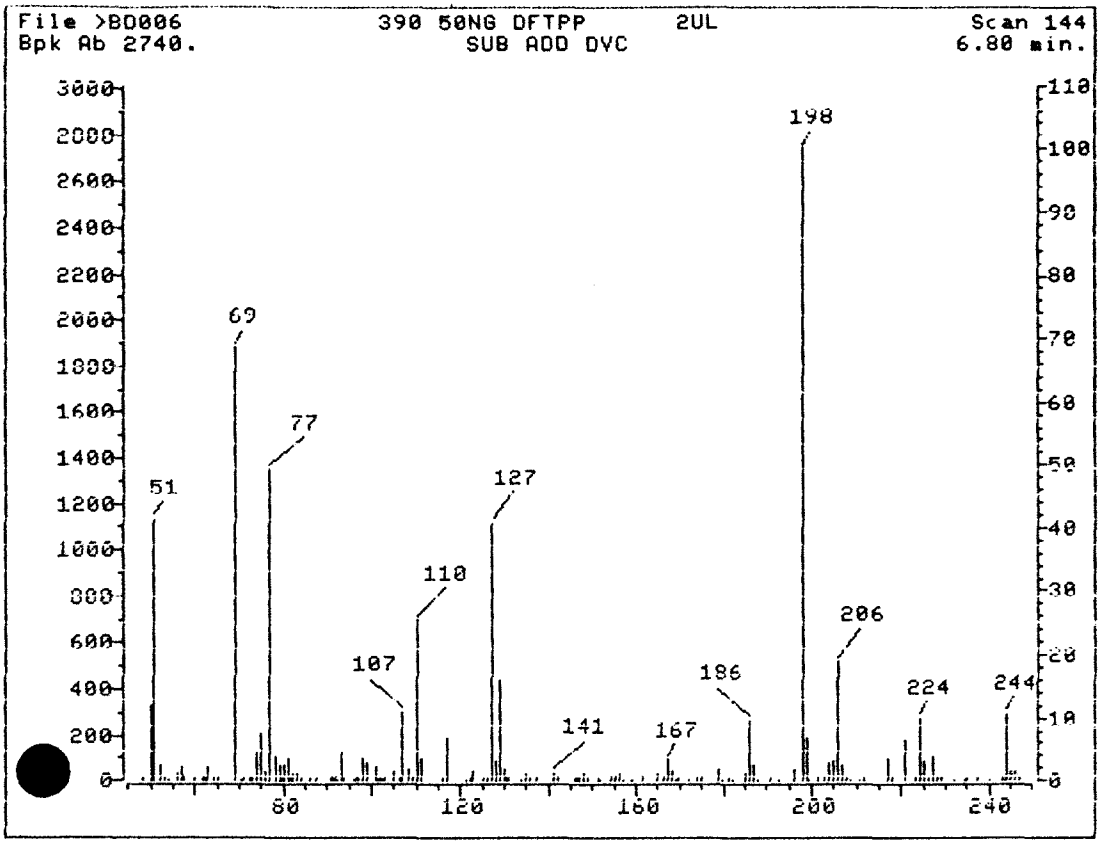
For: 3/90

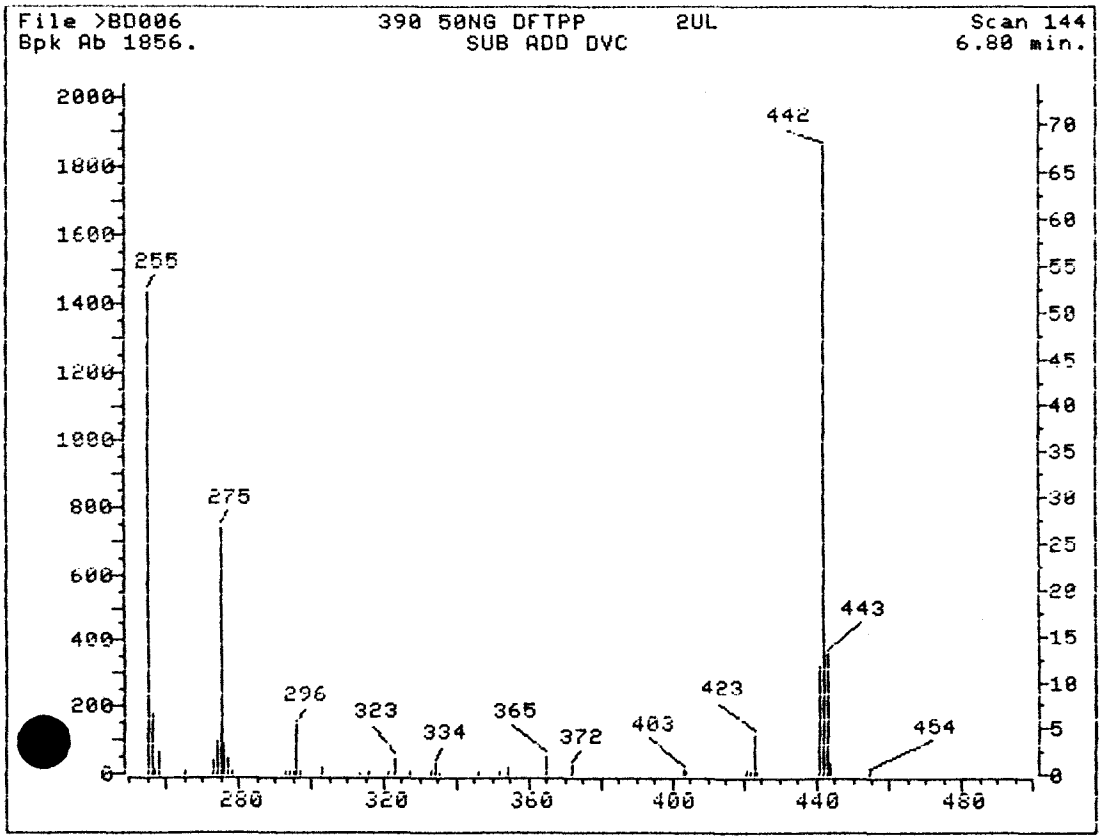


SOW: CLP 3/90

Instrument ID: GC/MS Analyzed on: 5/25/93 12:52

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	Appropriate Peak	Status
51	30-80% of mass 198	41.38	41.38	Ok
68	Less than 2% of mass 69	0.00	0.00	Ok
69	(reference only)	68.67	68.67	Ok
70	Less than 2% of mass 69	.23	.34	Ok
127	25-75% of mass 198	40.57	40.57	Ok
197	Less than 1% of mass 198	0.00	0.00	Ok
198	Base peak, 100% relative abundance	100.00	100.00	Ok
199	5-9% of mass 198	6.78	6.78	Ok
275	10-30% of mass 198	26.87	26.87	Ok
365	Greater than 1% of mass 198	1.90	1.90	Ok
441	0-100% of mass 443	11.79	90.56	Ok
442	40-110% of mass 198	67.73	67.73	Ok
443	15-24% of mass 442	13.02	19.22	Ok





Instrument ID: GC/MS Analyzed on: 5/25/93 12:52

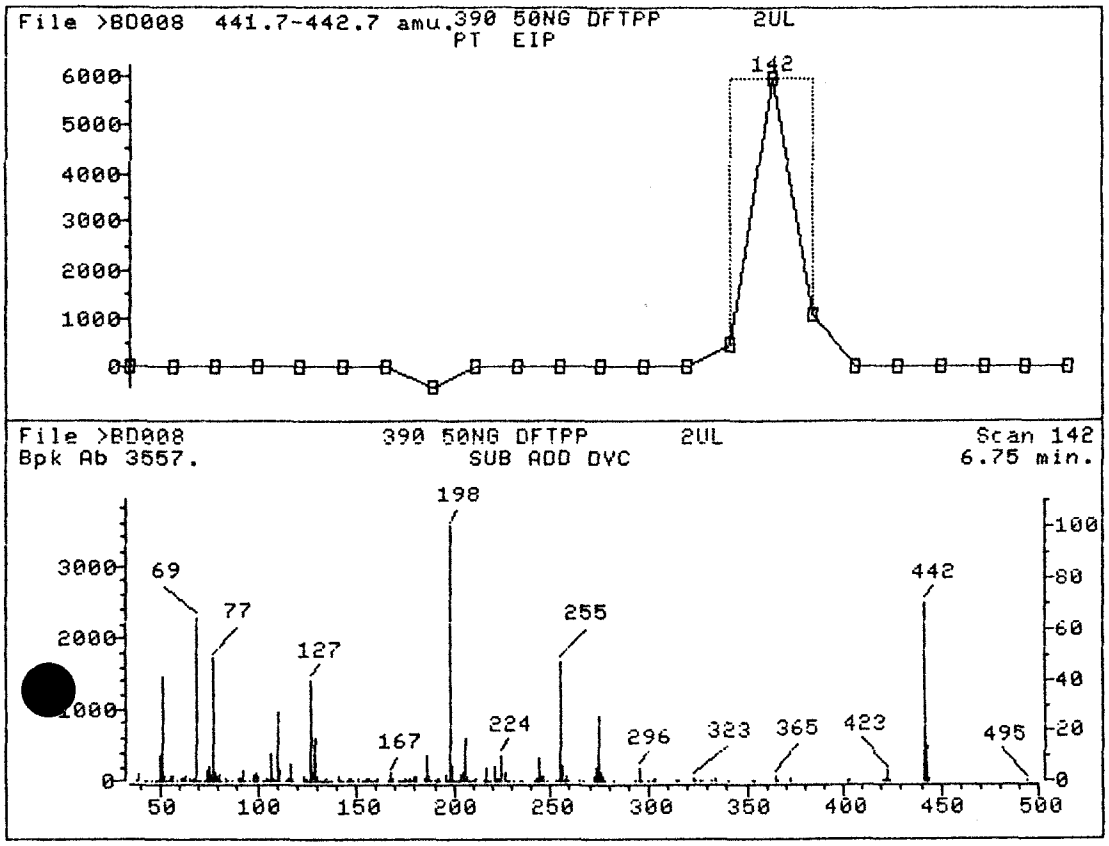
>BD006 390 50NG DFTPP 2UL
144 SUB ADD NRM DVC

File: >BD006 Scan #: 144 Retn. time: 6.80

m/z	Int.	m/z	Int.	m/z	Int.	m/z	Int.	m/z	Int.
35.50	.231	84.00	.778	133.90	.243	192.80	.158	264.95	.450
38.90	2.421	86.00	.450	135.00	1.131	196.05	1.873	272.95	1.387
42.25	.547	87.65	.377	135.90	.328	197.95	100.000	274.05	3.479
42.40	.280	90.90	.730	137.00	.633	198.95	6.775	275.05	26.870
43.90	.645	91.15	.377	137.40	.195	199.80	.255	275.95	3.260
44.75	.937	92.00	.730	141.00	1.216	201.30	.353	277.05	1.776
48.15	.389	92.40	.243	142.25	.608	202.95	.328	278.30	.207
50.00	11.921	93.00	4.634	145.90	.389	204.05	2.664	292.95	.341
50.90	41.382	93.90	.268	146.25	.341	205.05	3.017	294.05	.207
51.90	2.506	95.90	.219	147.00	.584	206.05	18.927	295.05	.207
53.15	.377	96.65	.268	148.00	1.216	207.05	2.530	296.05	5.316
53.90	.243	97.00	.462	148.90	.511	207.95	.438	296.95	.584
54.25	.134	98.00	3.479	151.15	.316	208.80	.207	303.05	.657
56.00	1.034	99.00	2.786	151.75	.243	210.80	.231	313.55	.134
56.90	2.190	100.90	2.104	154.15	.754	211.45	.669	316.05	.341
57.40	.742	101.40	.146	155.15	.730	216.95	3.467	320.95	.231
59.90	.608	102.00	.438	156.00	.985	217.95	.730	321.20	.219
61.90	.791	102.50	.219	156.90	.219	221.05	6.496	323.05	1.776
62.50	.426	103.00	.365	159.00	.231	223.05	.888	327.05	.389
62.90	2.092	105.00	1.314	161.15	.815	224.05	9.962	332.95	.487
64.00	.438	106.15	.268	165.00	1.229	225.05	3.138	334.05	1.107
64.25	.450	107.00	10.984	166.00	.864	225.95	.304	335.05	.158
65.15	.268	108.00	1.910	166.15	.243	227.05	3.722	345.80	.268
68.90	68.666	109.15	.535	167.15	3.296	227.95	.608	351.95	.243
70.50	.231	110.00	25.301	168.15	1.411	228.95	.620	354.05	.669
71.00	.572	111.00	3.552	169.15	.243	231.95	.182	364.95	1.898
72.65	.645	116.15	.462	169.65	.316	234.30	.207	372.05	.864
72.90	.353	117.00	6.715	172.20	.134	235.05	.304	402.95	.438
74.00	4.330	121.40	.195	174.05	.438	237.05	.462	403.95	.292
75.00	7.663	122.15	.620	175.05	.742	239.95	.219	420.95	.511
76.00	1.569	122.90	1.277	178.95	1.739	243.05	.608	422.20	.316
77.00	49.361	125.00	.426	179.95	.255	244.05	10.704	423.05	4.282
78.00	3.722	126.00	.669	181.05	.584	245.05	1.569	424.05	.304
79.00	2.360	127.00	40.567	181.95	.146	245.95	1.399	441.05	11.787
79.50	.316	128.15	3.041	185.05	1.034	246.95	.426	442.05	67.729
80.00	2.579	129.00	15.910	186.05	9.597	255.05	52.342	443.05	13.015
81.00	3.455	130.00	1.654	187.05	2.579	256.05	6.483	444.05	1.143
81.65	.316	130.25	.316	187.95	.182	256.95	.608	454.20	.401
82.00	1.070	131.15	.377	191.05	.414	257.95	2.238	454.55	.255
83.00	.937								

Instrument ID: GC/MS Analyzed on: 5/25/93 12:52

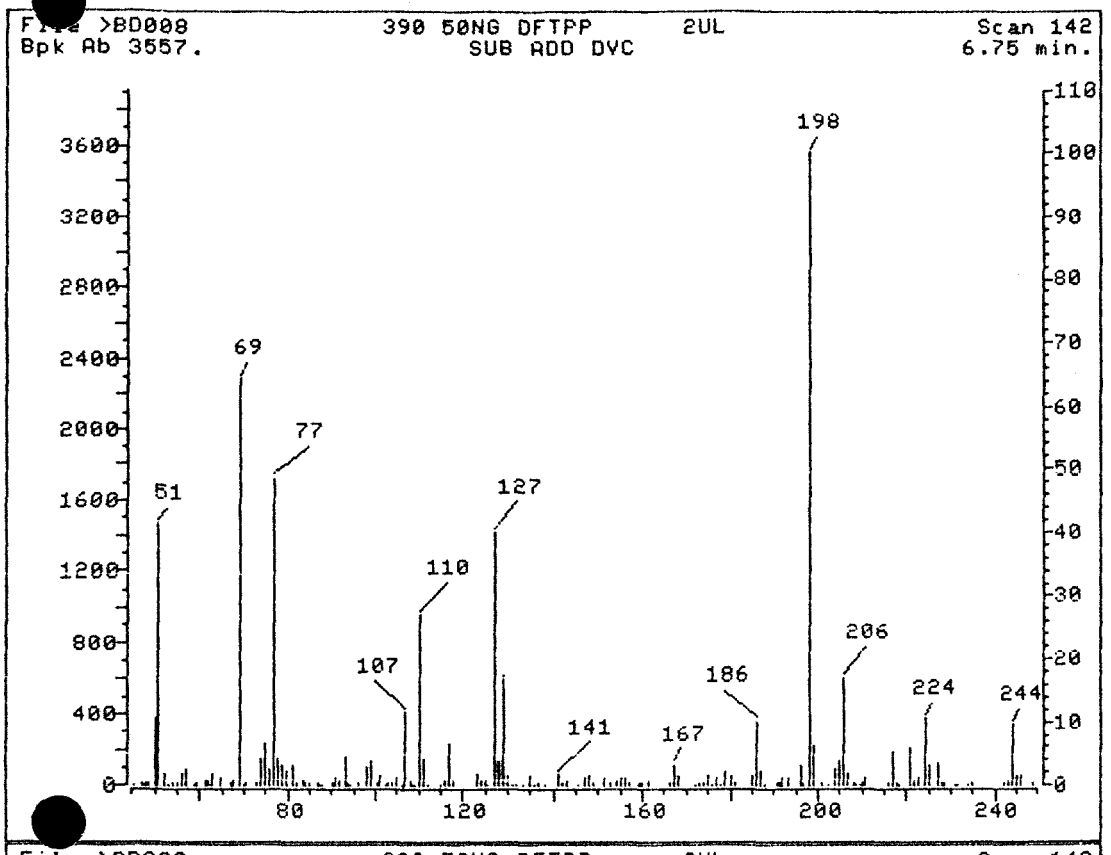
[DFTPP Tuning Operator Report]

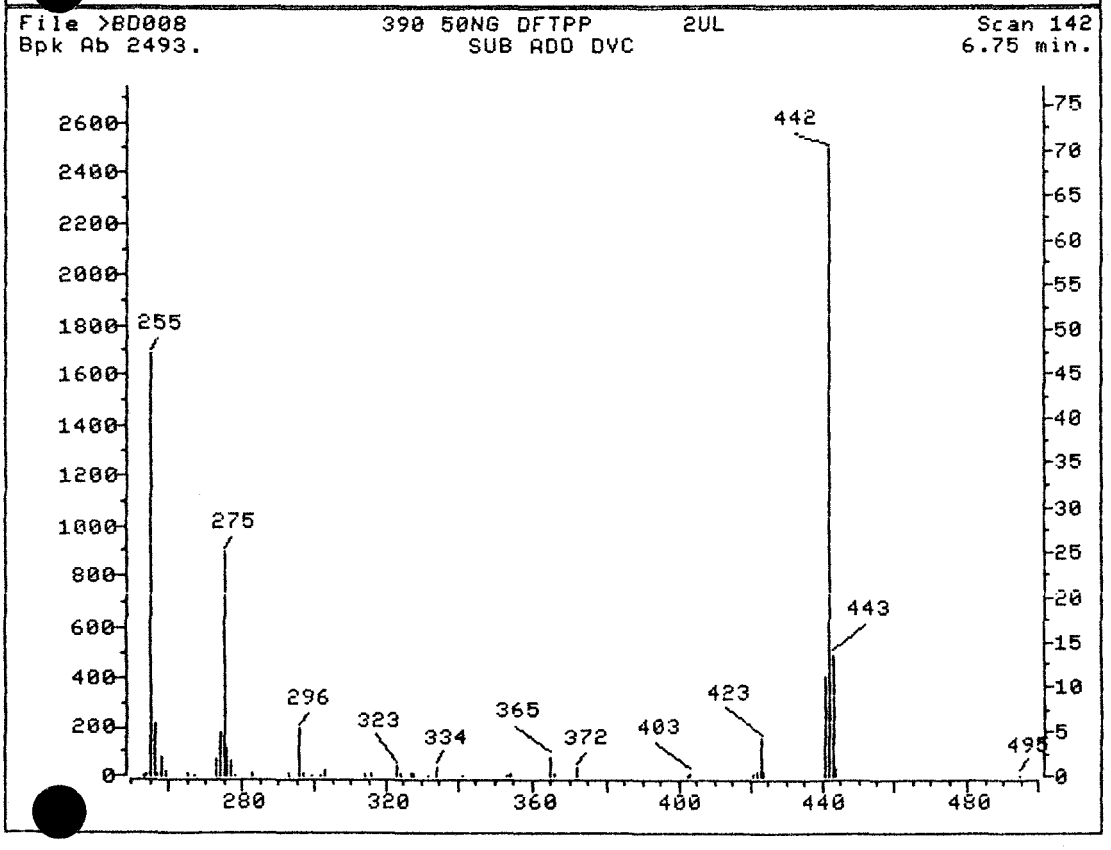


SOW CLP 3/90.

Instrument ID: GC/MS Analyzed on: 5/27/93 11:18

m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
51	30-80% of mass 198	41.31	41.31	Ok
68	Less than 2% of mass 69	0.00	0.00	Ok
69	(reference only)	64.27	64.27	Ok
70	Less than 2% of mass 69	.19	.29	Ok
127	25-75% of mass 198	39.85	39.85	Ok
197	Less than 1% of mass 198	.35	.35	Ok
198	Base peak, 100% relative abundance	100.00	100.00	Ok
199	5-9% of mass 198	6.09	6.09	Ok
275	10-30% of mass 198	25.06	25.06	Ok
365	Greater than 1% of mass 198	2.30	2.30	Ok
441	0-100% of mass 443	11.09	81.53	Ok
442	40-110% of mass 198	70.08	70.08	Ok
443	15-24% of mass 442	13.60	19.40	Ok





Instrument ID: GC/MS Analyzed on: 5/27/93 11:18

>BD008 390 50NG DFTPP 2UL
142 SUB ADD NRM DVC

File: >BD008 Scan #: 142 Retn. time: 6.75

m/z	Int.	m/z	Int.	m/z	Int.	m/z	Int.	m/z	Int.
37.75	.206	86.90	.365	136.90	.375	196.80	.347	258.05	2.080
38.90	2.914	87.25	.244	138.15	.122	197.95	100.000	259.05	.497
41.90	.253	87.90	.187	140.90	1.659	198.95	6.091	264.95	.365
43.90	.066	90.50	.300	141.90	.178	200.80	.112	266.70	.150
45.40	.206	90.90	1.068	142.25	.572	201.20	.394	273.05	1.987
47.50	.394	91.75	.834	143.15	.628	202.30	.159	274.05	4.957
47.65	.253	93.00	4.601	145.65	.187	204.05	2.474	275.05	25.059
48.25	.328	93.90	.562	147.00	1.125	205.05	3.739	276.05	3.158
48.75	.291	94.15	.216	148.00	1.349	206.05	16.821	276.95	1.743
50.00	10.655	96.00	.497	149.00	.525	207.05	1.696	277.95	.178
50.90	41.308	98.00	2.774	151.25	1.087	208.05	.347	283.05	.281
51.90	1.743	99.00	3.748	152.90	.309	208.95	.122	293.05	.356
53.00	.150	100.40	.544	154.00	.600	209.70	.244	296.05	5.398
54.00	.319	100.90	1.537	155.15	.956	210.05	.469	296.95	.225
55.00	.525	102.40	.150	156.00	.975	210.45	.253	299.55	.122
55.90	1.612	103.00	.553	157.15	.309	210.80	1.106	301.95	.103
[illegible].90	2.305	103.90	.544	159.00	.122	216.05	.365	303.05	.881
58.90	.234	105.00	1.031	159.65	.281	216.95	5.070	313.95	.394
59.25	.365	106.25	.216	160.00	.412	217.95	.337	315.95	.328
61.40	.787	107.00	11.423	161.15	.825	218.45	.112	323.05	1.200
61.90	.665	108.00	.900	166.15	.272	220.95	5.923	323.95	.187
62.25	.169	108.50	.159	167.00	3.252	221.80	.750	326.80	.291
62.75	1.612	109.15	.075	168.15	1.359	222.95	1.190	327.95	.291
63.00	.506	110.00	27.045	171.95	.225	224.05	10.514	331.70	.159
64.90	1.021	111.00	4.217	172.95	.347	224.95	3.064	334.05	1.106
67.00	.581	112.00	.225	174.05	.384	227.05	3.486	334.30	.328
67.40	.731	115.15	.150	175.05	1.415	228.05	.300	341.05	.150
67.65	.309	116.00	.722	175.80	.234	228.80	.365	353.05	.131
68.90	64.268	117.00	6.597	177.05	.956	231.05	.206	354.05	.375
70.15	.187	118.00	.750	177.95	.225	231.30	.187	364.95	2.296
70.50	.384	123.00	1.855	178.95	2.183	233.80	.131	365.80	.225
73.00	.394	124.00	.609	180.05	1.593	235.05	.375	372.05	.937
73.90	4.198	125.15	.665	181.05	.478	241.95	.309	402.45	.131
75.00	6.485	125.50	.141	184.95	1.321	243.05	.722	402.95	.375
76.00	2.371	127.00	39.846	186.05	9.943	244.05	9.427	421.05	.403
77.00	48.524	128.00	3.692	187.05	2.099	244.95	1.518	421.80	.440
77.90	4.180	129.00	17.215	187.95	.150	245.95	1.528	423.05	4.292
78.90	3.186	130.00	1.528	190.70	.281	249.05	.291	424.05	.609
79.90	2.165	131.00	.159	191.20	.544	253.20	.141	441.05	11.086
81.00	3.008	132.00	.159	191.30	.178	253.80	.300	441.95	70.078
82.00	.375	133.50	.103	191.95	1.059	255.05	47.353	443.05	13.598
83.65	.797	135.00	1.312	193.05	.937	256.05	5.894	443.95	.806
[illegible].15	.328	135.90	.122	196.05	2.961	256.95	.225	494.70	.112
85.00	.365								

Instrument ID: GC/MS Analyzed on: 5/27/93 11:18

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CUSTOMER SAMPLE NO.

SBLK01

Lab Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Matrix: (soil/water) SOIL Lab Sample ID:AD1584

Sample wt/vol: 31.19 (G/L) G Lab File ID: B2918

Level: (low/med) LOW Date Received: / /

% Moisture: 0 decanted: (Y/N) N Date Extracted: 5/20/93

Concentrated Extract Volume: 1000.00 (uL) Date Analyzed: 5/25/93

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 0.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	640.	U
111-44-4	bis(2-Chloroethyl)ether	640.	U
95-57-8	2-Chlorophenol	640.	U
541-73-1	1,3-Dichlorobenzene	640.	U
106-46-7	1,4-Dichlorobenzene	640.	U
95-50-1	1,2-Dichlorobenzene	640.	U
95-48-7	2-Methylphenol	640.	U
108-60-1	2,2'-oxybis(1-Chloropropane)	640.	U
106-44-5	4-Methylphenol	640.	U
621-64-7	N-Nitroso-di-n-propylamine	640.	U
67-72-1	Hexachloroethane	640.	U
98-95-3	Nitrobenzene	640.	U
78-59-1	Isophorone	640.	U
88-75-5	2-Nitrophenol	640.	U
105-67-9	2,4-Dimethylphenol	640.	U
111-91-1	bis(2-Chloroethoxy)methane	640.	U
120-83-2	2,4-Dichlorophenol	640.	U
120-82-1	1,2,4-Trichlorobenzene	640.	U
91-20-3	Naphthalene	640.	U
106-47-8	4-Chloroaniline	640.	U
87-68-3	Hexachlorobutadiene	640.	U
59-50-7	4-Chloro-3-methylphenol	640.	U
91-57-6	2-Methylnaphthalene	640.	U
77-47-4	Hexachlorocyclopentadiene	640.	U
88-06-2	2,4,6-Trichlorophenol	640.	U
95-95-4	2,4,5-Trichlorophenol	1600.	U
91-58-7	2-Chloronaphthalene	640.	U
88-74-4	2-Nitroaniline	1600.	U
131-11-3	Dimethylphthalate	640.	U
208-96-8	Acenaphthylene	640.	U
606-20-2	2,6-Dinitrotoluene	640.	U
99-09-2	3-Nitroaniline	1600.	U
83-32-9	Acenaphthene	640.	U

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CUSTOMER SAMPLE NO.

SBLK01

Lab Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Matrix: (soil/water) SOIL Lab Sample ID:AD1584

Sample wt/vol: 31.19 (G/L) G Lab File ID: B2918

Level: (low/med) LOW Date Received: / /

% Moisture: 0 decanted: (Y/N) N Date Extracted: 5/20/93

Concentrated Extract Volume: 1000.00 (uL) Date Analyzed: 5/25/93

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 0.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1600.	U
100-02-7	4-Nitrophenol	1600.	U
132-64-9	Dibenzofuran	640.	U
121-14-2	2,4-Dinitrotoluene	640.	U
84-66-2	Diethylphthalate	640.	U
7005-72-3	4-Chlorophenyl-phenylether	640.	U
86-73-7	Fluorene	640.	U
100-01-6	4-Nitroaniline	1600.	U
534-52-1	4,6-Dinitro-2-methylphenol	1600.	U
86-30-6	N-Nitrosodiphenylamine (1)	640.	U
101-55-3	4-Bromophenyl-phenylether	640.	U
118-74-1	Hexachlorobenzene	640.	U
87-86-5	Pentachlorophenol	1600.	U
85-01-8	Phenanthrene	640.	U
120-12-7	Anthracene	640.	U
86-74-8	Carbazole	640.	U
84-74-2	Di-n-butylphthalate	640.	U
206-44-0	Fluoranthene	640.	U
129-00-0	Pyrene	640.	U
85-68-7	Butylbenzylphthalate	640.	U
91-94-1	3,3'-Dichlorobenzidine	640.	U
56-55-3	Benzo(a)anthracene	640.	U
218-01-9	Chrysene	640.	U
117-81-7	bis(2-Ethylhexyl)phthalate	640.	U
117-84-0	Di-n-octylphthalate	640.	U
205-99-2	Benzo(b)fluoranthene	640.	U
207-08-9	Benzo(k)fluoranthene	640.	U
50-32-8	Benzo(a)pyrene	640.	U
193-39-5	Indeno(1,2,3-cd)pyrene	640.	U
53-70-3	Dibenz(a,h)anthracene	640.	U
191-24-2	Benzo(g,h,i)perylene	640.	U

(1) - Cannot be seperated from Diphenylamine

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CUSTOMER SAMPLE NO.

SBLK01

Lab Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Matrix: (soil/water) SOIL Lab Sample ID:AD1584

Sample wt/vol: 31.19 (g/ml) G Lab File ID: B2918

Level: (low/med) LOW Date Received: / /

% Moisture: 0 decanted: (Y/N) N16 Date Extracted: 5/20/93

Concentrated Extract Volume: 1000.00 (uL) Date Analyzed: 5/25/93

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 0.0

Number TICs Found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
5.					
6.					
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24.					
25.					
26.					
27.					
28.					
29.					
30.					

QUANT REPORT

Operator ID: MEL
Output File: ^B2918::F3
Data File: >B2918::D5
Name: 390 AD1584 BLK
Misc: 2UL 31.19G:1ML

Quant Rev: 7
Quant Time: 930525 19:57
Injected at: 930525 19:10
Dilution Factor: 1.00000
Instrument ID: GC/MS #2
BTL# 5

ID File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37
Last Qcal Date: 930525 13:30

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*1,4-Dichlorobenzene-d4	9.31	152.0	45894	40.00	ng	98
2)	2-Fluorophenol	6.08	112.0	151150	106.17	ng	86
3)	2-Chlorophenol-d4	8.86	132.0	144996	101.73	ng	94
4)	Phenol-d5	8.90	99.0	202932	100.46	ng	96
10)	1,2-Dichlorobenzene-d4	9.84	152.0	5713	5.47	ng	95
17)	*Naphthalene-d8	13.11	136.0	157594	40.00	ng	84
18)	Nitrobenzene-d5	11.03	82.0	131015	71.40	ng	88
31)	*Acenaphthene-d10	18.55	164.0	65637	40.00	ng	90
36)	2-Fluorobiphenyl	16.61	172.0	162334	65.52	ng	95
[illegible]	2,4,6-Tribromophenol	21.02	330.0	48561	86.07	ng	93
52)	*Phenanthrene-d10	23.05	188.0	100626	40.00	ng	98
63)	*Chrysene-d12	31.29	240.0	110183	40.00	ng	95
65)	Terphenyl-d14	28.22	244.0	192486	78.22	ng	91
71)	*Perylene-d12	35.42	264.0	122042	40.00	ng	95

* Compound is ISTD

QUANT REPORT

Operator ID: MEL
Output File: ^B2918::F3
Data File: >B2918::D5
Name: 390 AD1584 BLK
Misc: 2UL 31.19G:1ML

Quant Rev: 7
Quant Time: 930525 19:57
Injected at: 930525 19:10
Dilution Factor: 1.00000
Instrument ID: GC/MS #2
BTL# 5

ID File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37
Last Qcal Time: 930525 13:30 ✓

	Compound	R.T.	Q ion	Area	Conc	Units	%	q
1)	*1,4-Dichlorobenzene-d4	9.31	152.0	45894 ✓	40.00	ng		98
2)	2-Fluorophenol	6.08	112.0	151150	106.17	ng	71	86
3)	2-Chlorophenol-d4	8.86	132.0	144996	101.73	ng	68	94
4)	Phenol-d5	8.90	99.0	202932	100.46	ng	67	96
10)	1,2-Dichlorobenzene-d4	9.84	152.0	5713	5.47	ng	5*	95
15)	N-Nitroso-di-n-propylamine 10.85	11.03	70.0	17065	~~11.75 ng~~ ND.			52
17)	*Naphthalene-d8	13.11	136.0	157594 ✓	40.00	ng		84
18)	Nitrobenzene-d5	11.03	82.0	131015	71.40	ng	71	88
31)	*Acenaphthene-d10	18.55	164.0	65637 ✓	40.00	ng		90
36)	2-Fluorobiphenyl	16.61	172.0	162334	65.52	ng	66	95
[illegible])	2,4,6-Tribromophenol	21.02	330.0	48561	86.07	ng	57	93
[illegible])	Dimethylphthalate 18.12	18.55	163.0	14218	~~5.27 ng~~ ND.			47
52)	*Phenanthrene-d10	23.05	188.0	100626 ✓	40.00	ng		98
63)	*Chrysene-d12	31.29	240.0	110183 ✓	40.00	ng		95
65)	Terphenyl-d14	28.22	244.0	192486	78.22	ng	78	91
71)	*Perylene-d12	35.42	264.0	122042 ✓	40.00	ng		95

* Compound is ISTD

* SUR.OUT (advisory). OK

$$\frac{ng}{2\,\mu l} = \frac{\mu g}{\cancel{ml}} \times \frac{1\,\cancel{ml} \cdot \times 2}{31.19\,g} = \frac{\mu g}{kg}$$

SPC.

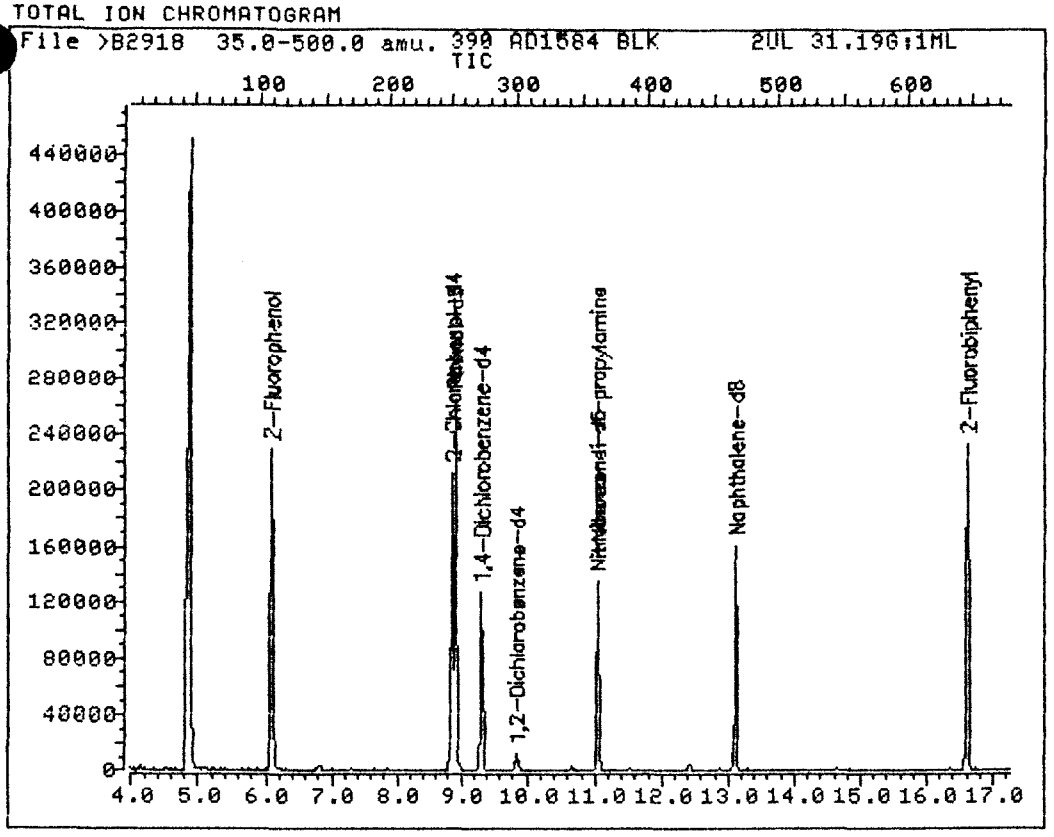
$$\text{Sur. Spk } 2FP = \frac{106.17\,ng}{2\,\mu l} = 53.1\,\frac{\mu g}{\cancel{ml}} \times \frac{2 \times 1\,\cancel{ml}}{31.19\,g} = \frac{106.2}{31.19} = 3.40\,\mu g/\cancel{ml}\,g \left(\frac{m}{kg}\right)$$

SPC

$$\text{Sur. added} = 150\,\frac{\mu g}{ml} \times 31.19\,g = 4.81\,\mu g/\cancel{ml}\,g$$

$$\%\,Rec = \frac{3.40}{4.81} \times 100 = 71$$

TOTAL ION CHROMATOGRAM



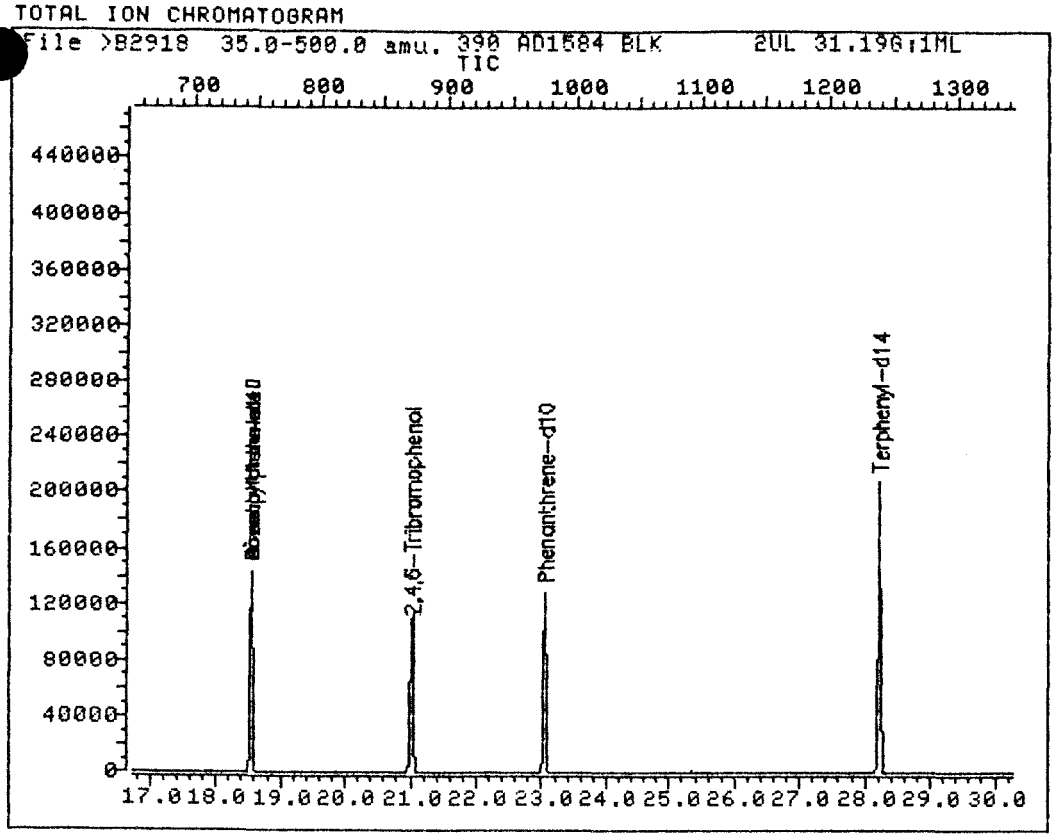
Data File: >B2918::D5 Quant Output File: ^B2918::F3
Name: 390 AD1584 BLK Instrument ID: GC/MS #2
Misc: 2UL 31.19G:1ML BTL# 5

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37 Last Qcal Time: 930525 13:30

Operator ID: MEL
Quant Time : 930525 19:57
Injected at: 930525 19:10

Page 1 of 3

TOTAL ION CHROMATOGRAM



Data File: >B2918::D5
Name: 390 AD1584 BLK
Misc: 2UL 31.19G:1ML

Quant Output File: ^B2918::F3
Instrument ID: GC/MS #2
BTL# 5

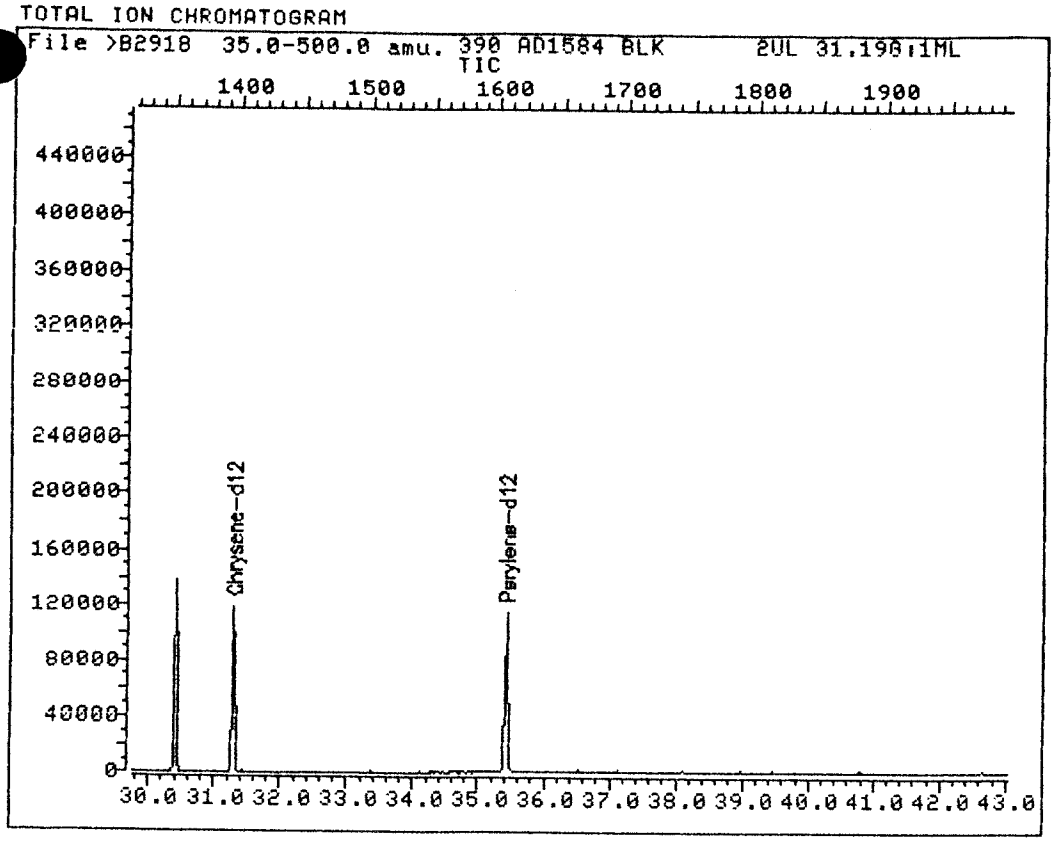
Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37

Last Qcal Time: 930525 13:30

Operator ID: MEL
Quant Time : 930525 19:57
Injected at: 930525 19:10

Page 2 of 3

TOTAL ION CHROMATOGRAM



Data File: >B2918::D5
Name: 390 AD1584 BLK
Misc: 2UL 31.19G:1ML

Quant Output File: ^B2918::F3
Instrument ID: GC/MS #2
BTL# 5

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37

Last Qcal Time: 930525 13:30

Operator ID: MEL
Quant Time : 930525 19:57
Injected at: 930525 19:10

Page 3 of 3

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CUSTOMER SAMPLE NO.

LCS01

Lab Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Matrix: (soil/water) SOIL Lab Sample ID:AD1585

Sample wt/vol: 29.53 (G/L) G Lab File ID: B2919

Level: (low/med) LOW Date Received: / /

% Moisture: 0 decanted: (Y/N) N Date Extracted: 5/20/93

Concentrated Extract Volume: 1000.00 (uL) Date Analyzed: 5/25/93

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 0.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	3300.	
111-44-4	bis(2-Chloroethyl)ether	680.	U
95-57-8	2-Chlorophenol	3100.	
541-73-1	1,3-Dichlorobenzene	680.	U
106-46-7	1,4-Dichlorobenzene	2100.	
95-50-1	1,2-Dichlorobenzene	680.	U
95-48-7	2-Methylphenol	680.	U
108-60-1	2,2'-oxybis(1-Chloropropane)	680.	U
106-44-5	4-Methylphenol	680.	U
621-64-7	N-Nitroso-di-n-propylamine	2100.	
67-72-1	Hexachloroethane	680.	U
98-95-3	Nitrobenzene	680.	U
78-59-1	Isophorone	680.	U
88-75-5	2-Nitrophenol	680.	U
105-67-9	2,4-Dimethylphenol	680.	U
111-91-1	bis(2-Chloroethoxy)methane	680.	U
120-83-2	2,4-Dichlorophenol	680.	U
120-82-1	1,2,4-Trichlorobenzene	2100.	
91-20-3	Naphthalene	680.	U
106-47-8	4-Chloroaniline	680.	U
87-68-3	Hexachlorobutadiene	680.	U
59-50-7	4-Chloro-3-methylphenol	3600.	
91-57-6	2-Methylnaphthalene	680.	U
77-47-4	Hexachlorocyclopentadiene	680.	U
88-06-2	2,4,6-Trichlorophenol	680.	U
95-95-4	2,4,5-Trichlorophenol	1700.	U
91-58-7	2-Chloronaphthalene	680.	U
88-74-4	2-Nitroaniline	1700.	U
131-11-3	Dimethylphthalate	680.	U
208-96-8	Acenaphthylene	680.	U
606-20-2	2,6-Dinitrotoluene	680.	U
99-09-2	3-Nitroaniline	1700.	U
83-32-9	Acenaphthene	2100.	

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CUSTOMER SAMPLE NO.

LCS01

Lab Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Matrix: (soil/water) SOIL Lab Sample ID:AD1585

Sample wt/vol: 29.53 (G/L) G Lab File ID: B2919

Level: (low/med) LOW Date Received: / /

% Moisture: 0 decanted: (Y/N) N Date Extracted: 5/20/93

Concentrated Extract Volume: 1000.00 (uL) Date Analyzed: 5/25/93

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 0.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1700.	U
100-02-7	4-Nitrophenol	3800.	
132-64-9	Dibenzofuran	680.	U
121-14-2	2,4-Dinitrotoluene	2200.	
84-66-2	Diethylphthalate	680.	U
7005-72-3	4-Chlorophenyl-phenylether	680.	U
86-73-7	Fluorene	680.	U
100-01-6	4-Nitroaniline	1700.	U
534-52-1	4,6-Dinitro-2-methylphenol	1700.	U
86-30-6	N-Nitrosodiphenylamine (1)	680.	U
101-55-3	4-Bromophenyl-phenylether	680.	U
118-74-1	Hexachlorobenzene	680.	U
87-86-5	Pentachlorophenol	3600.	
85-01-8	Phenanthrene	680.	U
120-12-7	Anthracene	680.	U
86-74-8	Carbazole	680.	U
84-74-2	Di-n-butylphthalate	680.	U
206-44-0	Fluoranthene	680.	U
129-00-0	Pyrene	2300.	
85-68-7	Butylbenzylphthalate	680.	U
91-94-1	3,3'-Dichlorobenzidine	680.	U
56-55-3	Benzo(a)anthracene	680.	U
218-01-9	Chrysene	680.	U
117-81-7	bis(2-Ethylhexyl)phthalate	680.	U
117-84-0	Di-n-octylphthalate	680.	U
205-99-2	Benzo(b)fluoranthene	680.	U
207-08-9	Benzo(k)fluoranthene	680.	U
50-32-8	Benzo(a)pyrene	680.	U
193-39-5	Indeno(1,2,3-cd)pyrene	680.	U
53-70-3	Dibenz(a,h)anthracene	680.	U
191-24-2	Benzo(g,h,i)perylene	680.	U

(1) - Cannot be seperated from Diphenylamine

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CUSTOMER SAMPLE NO.

LCS01

Lab Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Matrix: (soil/water) SOIL Lab Sample ID:AD1585

Sample wt/vol: 29.53 (g/ml) G Lab File ID: B2919

Level: (low/med) LOW Date Received: / /

% Moisture: 0 decanted: (Y/N) N16 Date Extracted: 5/20/93

Concentrated Extract Volume: 1000.00 (uL) Date Analyzed: 5/25/93

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 0.0

Number TICs Found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
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29.					
30.					

QUANT REPORT

Operator ID: MEL
Output File: ^B2919::F3
Data File: >B2919::D5
Name: 390 AD1585 LCS
Misc: 2UL 29.53G:1ML

Quant Rev: 7
Quant Time: 930525 20:54
Injected at: 930525 20:08
Dilution Factor: 1.00000
Instrument ID: GC/MS #2
BTL# 6

ID File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37
Last Qcal Date: 930525 13:30

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*1,4-Dichlorobenzene-d4	9.31	152.0	49909	40.00	ng	97
2)	2-Fluorophenol	6.08	112.0	161748	104.48	ng	89
3)	2-Chlorophenol-d4	8.86	132.0	156011	100.65	ng	97
4)	Phenol-d5	8.92	99.0	222377	101.23	ng	96
5)	Phenol	8.94	94.0	245139	96.34	ng	99
7)	2-Chlorophenol	8.90	128.0	158992	90.71	ng	99
9)	1,4-Dichlorobenzene	9.37	146.0	119050	61.84	ng	97
10)	1,2-Dichlorobenzene-d4	9.84	152.0	6213	5.47	ng	98
15)	N-Nitroso-di-n-propylamine	10.84	70.0	97623	61.83	ng	77
17)	*Naphthalene-d8	13.11	136.0	164394	40.00	ng	86
[illegible]	Nitrobenzene-d5	11.06	82.0	141665	74.01	ng	85
25)	1,2,4-Trichlorobenzene	13.03	180.0	85025	61.06	ng	94
29)	4-Chloro-3-methylphenol	15.32	107.0	135158	104.97	ng	100
31)	*Acenaphthene-d10	18.55	164.0	72081	40.00	ng	86
36)	2-Fluorobiphenyl	16.62	172.0	183595	67.48	ng	95
37)	2,4,6-Tribromophenol	21.02	330.0	62040	100.13	ng	95
43)	Acenaphthene	18.65	153.0	159533	61.60	ng	98
45)	4-Nitrophenol	19.51	109.0	28605	112.47	ng	61
47)	2,4-Dinitrotoluene	19.40	165.0	58599	63.48	ng	91
52)	*Phenanthrene-d10	23.06	188.0	114284	40.00	ng	98
57)	Pentachlorophenol	22.80	266.0	76741	106.66	ng	98
63)	*Chrysene-d12	31.30	240.0	118086	40.00	ng	94
64)	Pyrene	27.48	202.0	234422	68.19	ng	85
65)	Terphenyl-d14	28.22	244.0	211556	80.22	ng	92
71)	*Perylene-d12	35.43	264.0	128597	40.00	ng	96

* Compound is ISTD

QUANT REPORT

Operator ID: MEL
Output File: ^B2919::F3
Data File: >B2919::D5
Name: 390 AD1585 LCS
Misc: 2UL 29.53G:1ML

Quant Rev: 7
Quant Time: 930525 20:54
Injected at: 930525 20:08
Dilution Factor: 1.00000
Instrument ID: GC/MS #2
BTL# 6

ID File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37
Last Qcal Time: 930525 13:30 ✓

	Compound	R.T.	Q ion	Area	Conc	Units %	q
1)	*1,4-Dichlorobenzene-d4	9.31	152.0	49909 ✓	40.00	ng	97
2)	2-Fluorophenol	6.08	112.0	161748	104.48	ng 70	89
3)	2-Chlorophenol-d4	8.86	132.0	156011	100.65	ng 67	97
4)	Phenol-d5	8.92	99.0	222377	101.23	ng 67	96
5)	Phenol	8.94	94.0	245139	96.34	ng 64	99
7)	2-Chlorophenol	8.90	128.0	158992	90.71	ng 60	99
8)	1,3-Dichlorobenzene	~~9.37~~	146.0	119050	~~61.54 ng~~	ND	97
9)	1,4-Dichlorobenzene	9.37	146.0	119050	61.84	ng 62	97
10)	1,2-Dichlorobenzene-d4	9.84	152.0	6213	5.47	ng 5 *	98
15)	N-Nitroso-di-n-propylamine ✓	10.84	70.0	97623	61.83	ng 62	77
[illegible])	*Naphthalene-d8	13.11	136.0	164394 ✓	40.00	ng	86
18)	Nitrobenzene-d5	11.06	82.0	141665	74.01	ng 74	85
22)	2,4-Dimethylphenol	13.03	107.0	1210	.850	ng	72
25)	1,2,4-Trichlorobenzene	13.03	180.0	85025	61.06	ng 61	94
29)	4-Chloro-3-methylphenol	15.32	107.0	135158	104.97	ng 70	100
31)	*Acenaphthene-d10	18.55	164.0	72081 ✓	40.00	ng	86
36)	2-Fluorobiphenyl	16.62	172.0	183595	67.48	ng 67	95
37)	2,4,6-Tribromophenol	21.02	330.0	62040	100.13	ng 67	95
39)	Dimethylphthalate 18.12	18.55	163.0	16062	~~5.42 ng~~	ND	46
43)	Acenaphthene	18.65	153.0	159533	61.60	ng 62	98
45)	4-Nitrophenol	19.51	109.0	28605	112.47	ng 75	61
47)	2,4-Dinitrotoluene	19.40	165.0	58599	63.48	ng 63	91
52)	*Phenanthrene-d10	23.06	188.0	114284 ✓	40.00	ng	98
57)	Pentachlorophenol	22.80	266.0	76741	106.66	ng 71	98
63)	*Chrysene-d12	31.30	240.0	118086 ✓	40.00	ng	94
64)	Pyrene	27.48	202.0	234422	68.19	ng 68	85
65)	Terphenyl-d14	28.22	244.0	211556	80.22	ng 80	92
71)	*Perylene-d12	35.43	264.0	128597 ✓	40.00	ng	96

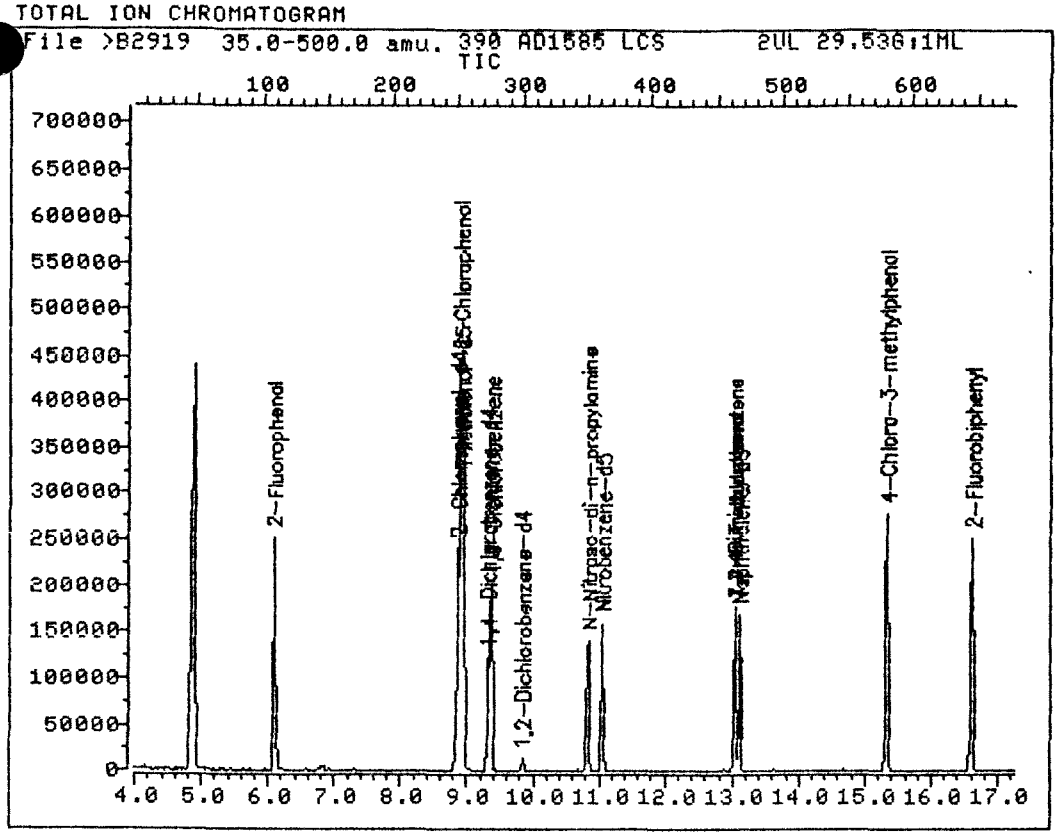
* Compound is ISTD

* 1 SUR.00 (advis

SPC.

$$\frac{ng}{\mu l} = \frac{\mu g}{ml} \times \frac{2 \times 1\ ml}{29.53\ g} = 0.067 \times \frac{ng}{2\mu l} = \frac{\mu g}{g}$$

TOTAL ION CHROMATOGRAM



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Name: 390 AD1585 LCS
Misc: 2UL 29.53G:1ML

Quant Output File: ^B2919::F3
Instrument ID: GC/MS #2
BTL# 6

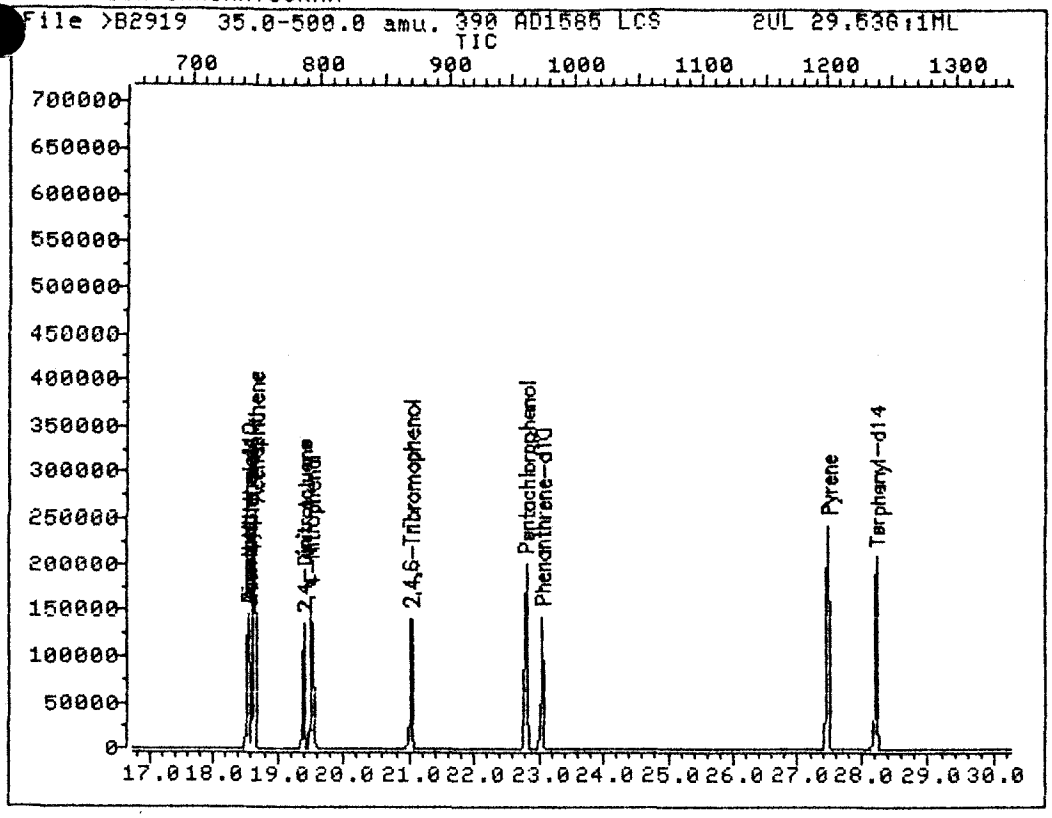
Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37

Last Qcal Time: 930525 13:30

Operator ID: MEL
Quant Time : 930525 20:54
Injected at: 930525 20:08

Page 1 of 3

TOTAL ION CHROMATOGRAM



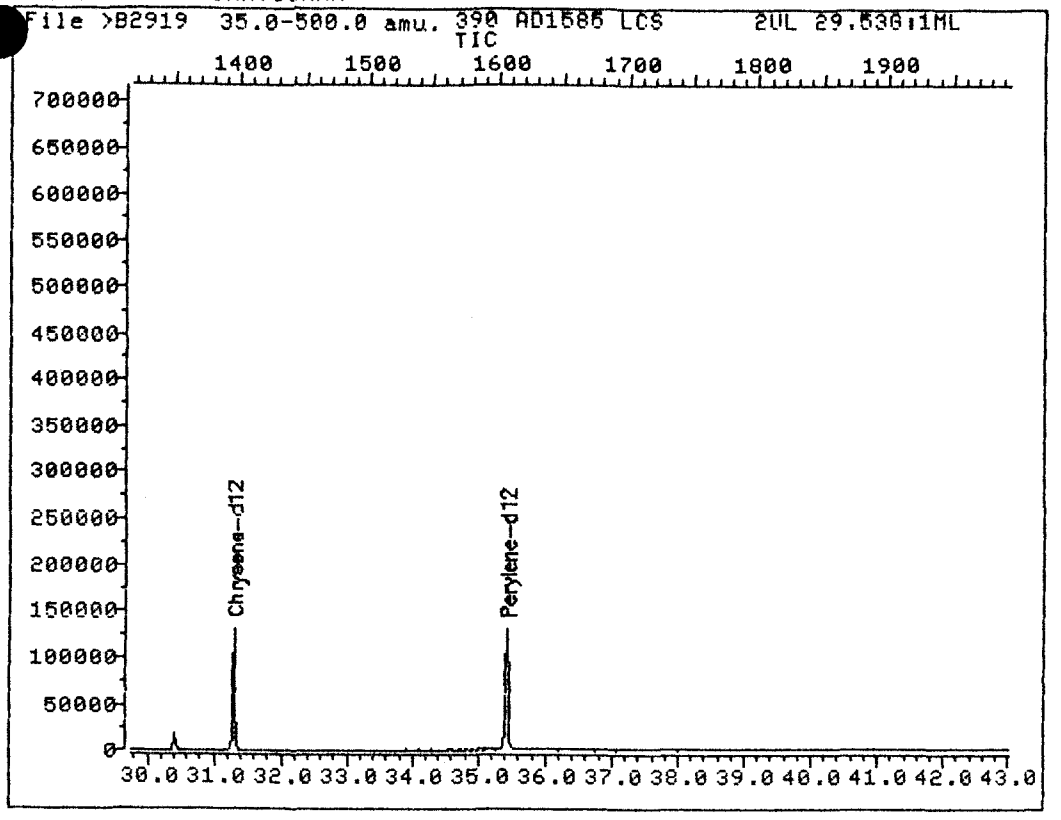
Data File: >B2919::D5 Quant Output File: ^B2919::F3
Name: 390 AD1585 LCS Instrument ID: GC/MS #2
Misc: 2UL 29.53G:1ML BTL# 6

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37 Last Qcal Time: 930525 13:30

Operator ID: MEL
Quant Time : 930525 20:54
Injected at: 930525 20:08

Page 2 of 3

TOTAL ION CHROMATOGRAM



Data File: >B2919::D5
Name: 390 AD1585 LCS
Misc: 2UL 29.53G:1ML

Quant Output File: ^B2919::F3
Instrument ID: GC/MS #2
BTL# 6

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37

Last Qcal Time: 930525 13:30

Operator ID: MEL
Quant Time : 930525 20:54
Injected at: 930525 20:08

Page 3 of 3

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CUSTOMER SAMPLE NO.

RF112002-MS

Lab Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Matrix: (soil/water) SOIL Lab Sample ID:AD1586

Sample wt/vol: 29.71 (G/L) G Lab File ID: B2921

Level: (low/med) LOW Date Received: / /

% Moisture: 13 decanted: (Y/N) N Date Extracted: 5/20/93

Concentrated Extract Volume: 1000.00 (uL) Date Analyzed: 5/25/93

Injection Volume: 2.00 (uL) Dilution Factor: 10.00

GPC Cleanup: (Y/N) Y pH: 0.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	5000.	J
111-44-4	bis(2-Chloroethyl)ether	7700.	U
95-57-8	2-Chlorophenol	4900.	J
541-73-1	1,3-Dichlorobenzene	7700.	U
106-46-7	1,4-Dichlorobenzene	2900.	J
95-50-1	1,2-Dichlorobenzene	7700.	U
95-48-7	2-Methylphenol	7700.	U
108-60-1	2,2'-oxybis(1-Chloropropane)	7700.	U
106-44-5	4-Methylphenol	7700.	U
621-64-7	N-Nitroso-di-n-propylamine	3100.	J
67-72-1	Hexachloroethane	7700.	U
98-95-3	Nitrobenzene	7700.	U
78-59-1	Isophorone	7700.	U
88-75-5	2-Nitrophenol	7700.	U
105-67-9	2,4-Dimethylphenol	7700.	U
111-91-1	bis(2-Chloroethoxy)methane	7700.	U
120-83-2	2,4-Dichlorophenol	7700.	U
120-82-1	1,2,4-Trichlorobenzene	3000.	J
91-20-3	Naphthalene	7700.	U
106-47-8	4-Chloroaniline	7700.	U
87-68-3	Hexachlorobutadiene	7700.	U
59-50-7	4-Chloro-3-methylphenol	4900.	J
91-57-6	2-Methylnaphthalene	7700.	U
77-47-4	Hexachlorocyclopentadiene	7700.	U
88-06-2	2,4,6-Trichlorophenol	7700.	U
95-95-4	2,4,5-Trichlorophenol	19000.	U
91-58-7	2-Chloronaphthalene	7700.	U
88-74-4	2-Nitroaniline	19000.	U
131-11-3	Dimethylphthalate	7700.	U
208-96-8	Acenaphthylene	7700.	U
606-20-2	2,6-Dinitrotoluene	7700.	U
99-09-2	3-Nitroaniline	19000.	U
83-32-9	Acenaphthene	3300.	J

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CUSTOMER SAMPLE NO.

RF112002-MS

Lab Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Matrix: (soil/water) SOIL Lab Sample ID:AD1586

Sample wt/vol: 29.71 (G/L) G Lab File ID: B2921

Level: (low/med) LOW Date Received: / /

% Moisture: 13 decanted: (Y/N) N Date Extracted: 5/20/93

Concentrated Extract Volume: 1000.00 (uL) Date Analyzed: 5/25/93

Injection Volume: 2.00 (uL) Dilution Factor: 10.00

GPC Cleanup: (Y/N) Y pH: 0.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	19000.	U
100-02-7	4-Nitrophenol	4000.	J
132-64-9	Dibenzofuran	7700.	U
121-14-2	2,4-Dinitrotoluene	2700.	J
84-66-2	Diethylphthalate	7700.	U
7005-72-3	4-Chlorophenyl-phenylether	7700.	U
86-73-7	Fluorene	7700.	U
100-01-6	4-Nitroaniline	19000.	U
534-52-1	4,6-Dinitro-2-methylphenol	19000.	U
86-30-6	N-Nitrosodiphenylamine (1)	7700.	U
101-55-3	4-Bromophenyl-phenylether	7700.	U
118-74-1	Hexachlorobenzene	7700.	U
87-86-5	Pentachlorophenol	4400.	J
85-01-8	Phenanthrene	7700.	U
120-12-7	Anthracene	7700.	U
86-74-8	Carbazole	7700.	U
84-74-2	Di-n-butylphthalate	7700.	U
206-44-0	Fluoranthene	7700.	U
129-00-0	Pyrene	4000.	J
85-68-7	Butylbenzylphthalate	7700.	U
91-94-1	3,3'-Dichlorobenzidine	7700.	U
56-55-3	Benzo(a)anthracene	7700.	U
218-01-9	Chrysene	7700.	U
117-81-7	bis(2-Ethylhexyl)phthalate	7700.	U
117-84-0	Di-n-octylphthalate	7700.	U
205-99-2	Benzo(b)fluoranthene	7700.	U
207-08-9	Benzo(k)fluoranthene	7700.	U
50-32-8	Benzo(a)pyrene	7700.	U
193-39-5	Indeno(1,2,3-cd)pyrene	7700.	U
53-70-3	Dibenz(a,h)anthracene	7700.	U
191-24-2	Benzo(g,h,i)perylene	7700.	U

(1) - Cannot be seperated from Diphenylamine

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CUSTOMER SAMPLE NO.

RF112002-MS

Lab Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Matrix: (soil/water) SOIL Lab Sample ID:AD1586

Sample wt/vol: 29.71 (g/ml) G Lab File ID: B2921

Level: (low/med) LOW Date Received: / /

% Moisture: 13 decanted: (Y/N) N16 Date Extracted: 5/20/93

Concentrated Extract Volume: 1000.00 (uL) Date Analyzed: 5/25/93

Injection Volume: 2.00 (uL) Dilution Factor: 10.00

GPC Cleanup: (Y/N) Y pH: 0.0

Number TICs Found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
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QUANT REPORT

Operator ID: MEL
Output File: ^B2921::F3
Data File: >B2921::D5
Name: 390 AD1586 MSA44231
Misc: 2UL 29.71G:1ML 1:10

Quant Rev: 7
Quant Time: 930525 22:49
Injected at: 930525 22:03
Dilution Factor: 1.00000
Instrument ID: GC/MS #2
BTL# 8

ID File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37
Last Qcal Date: 930525 13:30

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*1,4-Dichlorobenzene-d4	9.32	152.0	54874	40.00	ng	95
2)	2-Fluorophenol	6.07	112.0	24328	14.29	ng	89
3)	2-Chlorophenol-d4	8.85	132.0	23820	13.98	ng	98
4)	Phenol-d5	8.89	99.0	34742	14.38	ng	93
5)	Phenol	8.93	94.0	36224	12.95	ng	96
7)	2-Chlorophenol	8.89	128.0	24251	12.58	ng	98
9)	1,4-Dichlorobenzene	9.36	146.0	15982	7.55	ng	97
10)	1,2-Dichlorobenzene-d4	9.85	152.0	621	.497	ng	79
15)	N-Nitroso-di-n-propylamine	10.81	70.0	13684	7.88	ng	91
17)	*Naphthalene-d8	13.12	136.0	183047	40.00	ng	85
1[illegible])	Nitrobenzene-d5	11.04	82.0	18671	8.76	ng	86
25)	1,2,4-Trichlorobenzene	13.04	180.0	11923	7.69	ng	93
29)	4-Chloro-3-methylphenol	15.31	107.0	18076	12.61	ng	100
31)	*Acenaphthene-d10	18.54	164.0	72017	40.00	ng	89
36)	2-Fluorobiphenyl	16.60	172.0	25117	9.24	ng	95
37)	2,4,6-Tribromophenol	21.02	330.0	9321	15.06	ng	91
43)	Acenaphthene	18.64	153.0	21747	8.40	ng	98
45)	4-Nitrophenol	19.52	109.0	2648	10.42	ng	71
47)	2,4-Dinitrotoluene	19.38	165.0	6491	7.04	ng	89
52)	*Phenanthrene-d10	23.04	188.0	112299	40.00	ng	99
57)	Pentachlorophenol	22.79	266.0	8053	11.39	ng	96
63)	*Chrysene-d12	31.28	240.0	103956	40.00	ng	96
64)	Pyrene	27.46	202.0	31359	10.36	ng	81
65)	Terphenyl-d14	28.19	244.0	27669	11.92	ng	85
71)	*Perylene-d12	35.41	264.0	110474	40.00	ng	95

* Compound is ISTD

QUANT REPORT

Operator ID: MEL
Output File: ^B2921::F3
Data File: >B2921::D5
Name: 390 AD1586 MSA44231
Misc: 2UL 29.71G:1ML 1:10

Quant Rev: 7
Quant Time: 930525 22:49
Injected at: 930525 22:03
Dilution Factor: 1.00000
Instrument ID: GC/MS #2
BTL# 8

ID File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37
Last Qcal Time: 930525 13:30 ✓

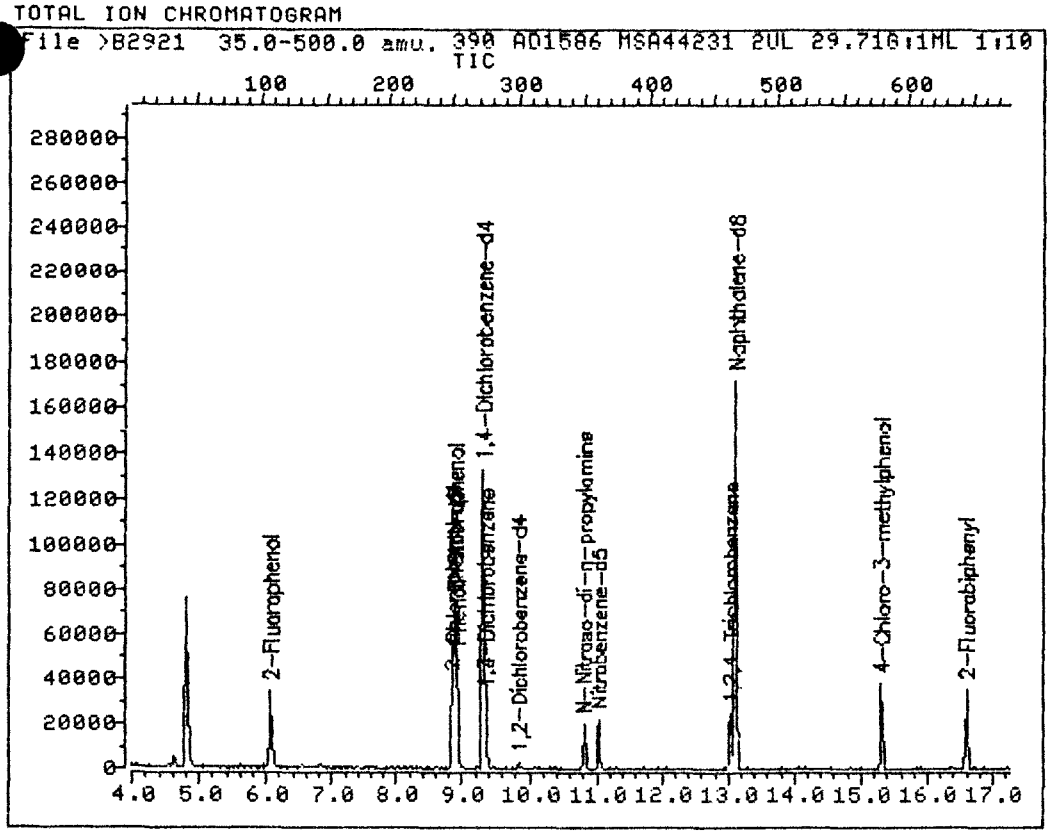
2×10 = ×20

	Compound	R.T.	Q ion	Area	Conc	Units	%	q
1)	*1,4-Dichlorobenzene-d4	9.32	152.0	54874 ✓	40.00	ng		95
2)	2-Fluorophenol	6.07	112.0	24328	14.29	ng	95	89
3)	2-Chlorophenol-d4	8.85	132.0	23820	13.98	ng	93	98
4)	Phenol-d5	8.89	99.0	34742	14.38	ng	96	93
5)	Phenol	8.93	94.0	36224	12.95	ng	86	96
7)	2-Chlorophenol	8.89	128.0	24251	12.58	ng	84	98
8)	1,3-Dichlorobenzene	~~9.36~~	146.0	15982	~~7.51 ng~~	ND		97
9)	1,4-Dichlorobenzene	9.36	146.0	15982	7.55	ng	76	97
10)	1,2-Dichlorobenzene-d4	9.85	152.0	621	.497	ng	5*	79
15)	N-Nitroso-di-n-propylamine	10.81	70.0	13684	7.88	ng	79	91
17)	*Naphthalene-d8	13.12	136.0	183047 ✓	40.00	ng		85
18)	Nitrobenzene-d5	11.04	82.0	18671	8.76	ng	88	86
25)	1,2,4-Trichlorobenzene	13.04	180.0	11923	7.69	ng	77	93
29)	4-Chloro-3-methylphenol	15.31	107.0	18076	12.61	ng	84	100
31)	*Acenaphthene-d10	18.54	164.0	72017 ✓	40.00	ng		89
36)	2-Fluorobiphenyl	16.60	172.0	25117	9.24	ng	92	95
37)	2,4,6-Tribromophenol	21.02	330.0	9321	15.06	ng	101	91
39)	Dimethylphthalate	18.12 18.56	163.0	16636	~~5.62 ng~~	ND		44
43)	Acenaphthene	18.64	153.0	21747	8.40	ng	84	98
45)	4-Nitrophenol	19.52	109.0	2648	10.42	ng	69	71
47)	2,4-Dinitrotoluene	19.38	165.0	6491	7.04	ng	70	89
52)	*Phenanthrene-d10	23.04	188.0	112299 ✓	40.00	ng		99
57)	Pentachlorophenol	22.79	266.0	8053	11.39	ng	76	96
63)	*Chrysene-d12	31.28	240.0	103956 ✓	40.00	ng		96
64)	Pyrene	27.46	202.0	31359	10.36	ng	104	81
65)	Terphenyl-d14	28.19	244.0	27669	11.92	ng	119	85
71)	*Perylene-d12	35.41	264.0	110474 ✓	40.00	ng		95

* Compound is ISTD

*1 SUR. OUT. (adv.). OK

TOTAL ION CHROMATOGRAM



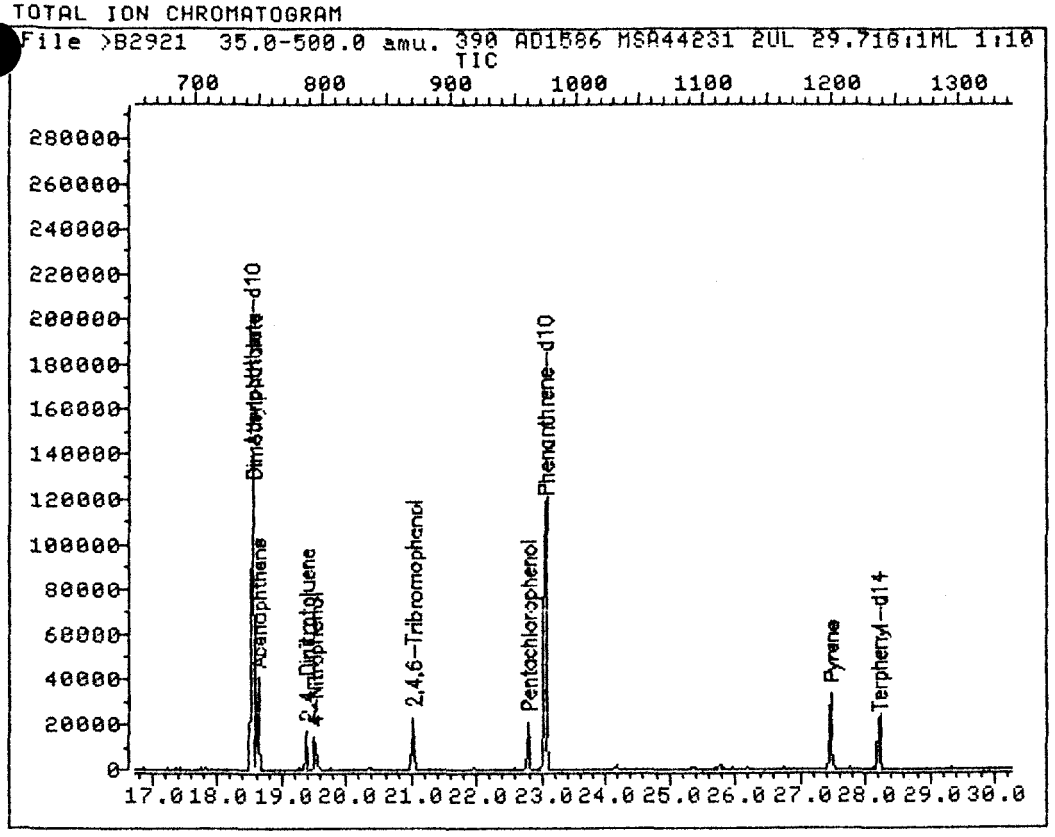
Data File: >B2921::D5 Quant Output File: ^B2921::F3
Name: 390 AD1586 MSA44231 Instrument ID: GC/MS #2
Misc: 2UL 29.71G:1ML 1:10 BTL# 8

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37 Last Qcal Time: 930525 13:30

Operator ID: MEL
Quant Time : 930525 22:49
Injected at: 930525 22:03

Page 1 of 3

TOTAL ION CHROMATOGRAM



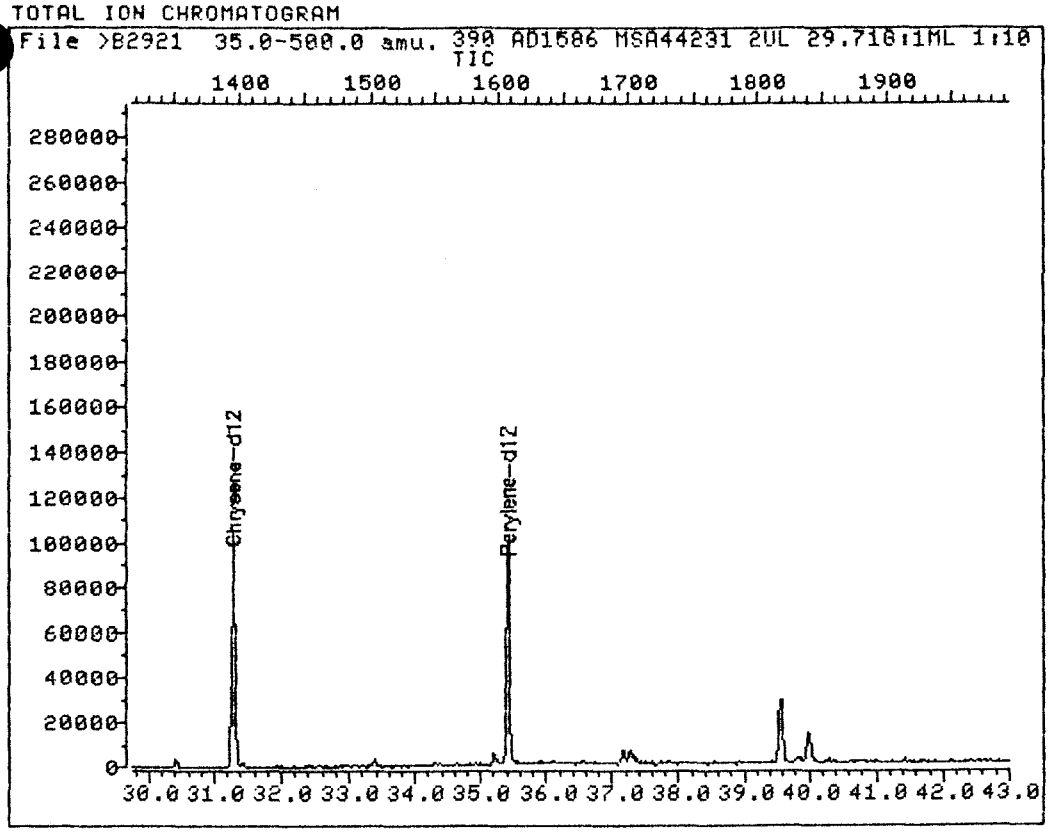
Data File: >B2921::D5 Quant Output File: ^B2921::F3
Name: 390 AD1586 MSA44231 Instrument ID: GC/MS #2
Misc: 2UL 29.71G:1ML 1:10 BTL# 8

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37 Last Qcal Time: 930525 13:30

Operator ID: MEL
Quant Time : 930525 22:49
Injected at: 930525 22:03

Page 2 of 3

TOTAL ION CHROMATOGRAM



Data File: >B2921::D5 Quant Output File: ^B2921::F3
Name: 390 AD1586 MSA44231 Instrument ID: GC/MS #2
Misc: 2UL 29.71G:1ML 1:10 BTL# 8

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37 Last Qcal Time: 930525 13:30

Operator ID: MEL
Quant Time : 930525 22:49
Injected at: 930525 22:03

Page 3 of 3

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CUSTOMER SAMPLE NO.

RF112002-MSD

Lab Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Matrix: (soil/water) SOIL Lab Sample ID:AD1587

Sample wt/vol: 30.92 (G/L) G Lab File ID: B2922

Level: (low/med) LOW Date Received: / /

% Moisture: 13 decanted: (Y/N) N Date Extracted: 5/20/93

Concentrated Extract Volume: 1000.00 (uL) Date Analyzed: 5/25/93

Injection Volume: 2.00 (uL) Dilution Factor: 10.00

GPC Cleanup: (Y/N) Y pH: 0.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	4600.	J
111-44-4	bis(2-Chloroethyl)ether	7400.	U
95-57-8	2-Chlorophenol	4600.	J
541-73-1	1,3-Dichlorobenzene	7400.	U
106-46-7	1,4-Dichlorobenzene	2600.	J
95-50-1	1,2-Dichlorobenzene	7400.	U
95-48-7	2-Methylphenol	7400.	U
108-60-1	2,2'-oxybis(1-Chloropropane)	7400.	U
106-44-5	4-Methylphenol	7400.	U
621-64-7	N-Nitroso-di-n-propylamine	2900.	J
67-72-1	Hexachloroethane	7400.	U
98-95-3	Nitrobenzene	7400.	U
78-59-1	Isophorone	7400.	U
88-75-5	2-Nitrophenol	7400.	U
105-67-9	2,4-Dimethylphenol	7400.	U
111-91-1	bis(2-Chloroethoxy)methane	7400.	U
120-83-2	2,4-Dichlorophenol	7400.	U
120-82-1	1,2,4-Trichlorobenzene	2900.	J
91-20-3	Naphthalene	7400.	U
106-47-8	4-Chloroaniline	7400.	U
87-68-3	Hexachlorobutadiene	7400.	U
59-50-7	4-Chloro-3-methylphenol	4500.	J
91-57-6	2-Methylnaphthalene	7400.	U
77-47-4	Hexachlorocyclopentadiene	7400.	U
88-06-2	2,4,6-Trichlorophenol	7400.	U
95-95-4	2,4,5-Trichlorophenol	19000.	U
91-58-7	2-Chloronaphthalene	7400.	U
88-74-4	2-Nitroaniline	19000.	U
131-11-3	Dimethylphthalate	7400.	U
208-96-8	Acenaphthylene	7400.	U
606-20-2	2,6-Dinitrotoluene	7400.	U
99-09-2	3-Nitroaniline	19000.	U
83-32-9	Acenaphthene	3100.	J

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CUSTOMER SAMPLE NO.

RF112002-MSD

Lab Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Matrix: (soil/water) SOIL Lab Sample ID:AD1587

Sample wt/vol: 30.92 (G/L) G Lab File ID: B2922

Level: (low/med) LOW Date Received: / /

% Moisture: 13 decanted: (Y/N) N Date Extracted: 5/20/93

Concentrated Extract Volume: 1000.00 (uL) Date Analyzed: 5/25/93

Injection Volume: 2.00 (uL) Dilution Factor: 10.00

GPC Cleanup: (Y/N) Y pH: 0.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	19000.	U
100-02-7	4-Nitrophenol	3900.	J
132-64-9	Dibenzofuran	7400.	U
121-14-2	2,4-Dinitrotoluene	2500.	J
84-66-2	Diethylphthalate	7400.	U
7005-72-3	4-Chlorophenyl-phenylether	7400.	U
86-73-7	Fluorene	7400.	U
100-01-6	4-Nitroaniline	19000.	U
534-52-1	4,6-Dinitro-2-methylphenol	19000.	U
86-30-6	N-Nitrosodiphenylamine (1)	7400.	U
101-55-3	4-Bromophenyl-phenylether	7400.	U
118-74-1	Hexachlorobenzene	7400.	U
87-86-5	Pentachlorophenol	4300.	J
85-01-8	Phenanthrene	7400.	U
120-12-7	Anthracene	7400.	U
86-74-8	Carbazole	7400.	U
84-74-2	Di-n-butylphthalate	7400.	U
206-44-0	Fluoranthene	7400.	U
129-00-0	Pyrene	3200.	J
85-68-7	Butylbenzylphthalate	7400.	U
91-94-1	3,3'-Dichlorobenzidine	7400.	U
56-55-3	Benzo(a)anthracene	7400.	U
218-01-9	Chrysene	7400.	U
117-81-7	bis(2-Ethylhexyl)phthalate	7400.	U
117-84-0	Di-n-octylphthalate	7400.	U
205-99-2	Benzo(b)fluoranthene	7400.	U
207-08-9	Benzo(k)fluoranthene	7400.	U
50-32-8	Benzo(a)pyrene	7400.	U
193-39-5	Indeno(1,2,3-cd)pyrene	7400.	U
53-70-3	Dibenz(a,h)anthracene	7400.	U
191-24-2	Benzo(g,h,i)perylene	7400.	U

(1) - Cannot be seperated from Diphenylamine

LOCKHEED ANALYTICAL LABORATORY
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CUSTOMER SAMPLE NO.

RF112002-MSD

Lab Job Name:LOCKHEED - TAD Contract:_

Lab Code:LAS Case No.: SAS No.: SDG No.:RF112002

Matrix: (soil/water) SOIL Lab Sample ID:AD1587

Sample wt/vol: 30.92 (g/ml) G Lab File ID: B2922

Level: (low/med) LOW Date Received: / /

% Moisture: 13 decanted: (Y/N) N16 Date Extracted: 5/20/93

Concentrated Extract Volume: 1000.00 (uL) Date Analyzed: 5/25/93

Injection Volume: 2.00 (uL) Dilution Factor: 10.00

GPC Cleanup: (Y/N) Y pH: 0.0

Number TICs Found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
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QUANT REPORT

Operator ID: MEL
Output File: ^B2922::F3
Data File: >B2922::D5
Name: 390 AD1587 MSD44231
Misc: 2UL 30.92G:1ML 1:10

Quant Rev: 7
Quant Time: 930525 23:46
Injected at: 930525 23:00
Dilution Factor: 1.00000
Instrument ID: GC/MS #2
BTL# 9

ID File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37
Last Qcal Date: 930525 13:30

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*1,4-Dichlorobenzene-d4	9.31	152.0	55215	40.00	ng	98
2)	2-Fluorophenol	6.06	112.0	24577	14.35	ng	79
3)	2-Chlorophenol-d4	8.84	132.0	22868	13.34	ng	92
4)	Phenol-d5	8.90	99.0	33835	13.92	ng	90
5)	Phenol	8.93	94.0	34991	12.43	ng	99
7)	2-Chlorophenol	8.90	128.0	23932	12.34	ng	97
9)	1,4-Dichlorobenzene	9.35	146.0	15137	7.11	ng	93
10)	1,2-Dichlorobenzene-d4	9.85	152.0	689	.548	ng	87
15)	N-Nitroso-di-n-propylamine	10.81	70.0	13507	7.73	ng	88
17)	*Naphthalene-d8	13.10	136.0	190806	40.00	ng	84
1[illegible])	Nitrobenzene-d5	11.03	82.0	18455	8.31	ng	90
29)	1,2,4-Trichlorobenzene	13.03	180.0	12473	7.72	ng	95
29)	4-Chloro-3-methylphenol	15.32	107.0	18150	12.15	ng	100
31)	*Acenaphthene-d10	18.55	164.0	73282	40.00	ng	87
36)	2-Fluorobiphenyl	16.61	172.0	26372	9.53	ng	94
37)	2,4,6-Tribromophenol	21.01	330.0	8560	13.59	ng	91
43)	Acenaphthene	18.62	153.0	22123	8.40	ng	98
45)	4-Nitrophenol	19.52	109.0	2731	10.56	ng	61
47)	2,4-Dinitrotoluene	19.37	165.0	6207	6.61	ng	78
52)	*Phenanthrene-d10	23.05	188.0	112522	40.00	ng	98
57)	Pentachlorophenol	22.77	266.0	8135	11.48	ng	98
63)	*Chrysene-d12	31.29	240.0	127425	40.00	ng	97
64)	Pyrene	27.45	202.0	32385	8.73	ng	87
65)	Terphenyl-d14	28.20	244.0	27777	9.76	ng	89
71)	*Perylene-d12	35.42	264.0	148015	40.00	ng	96

* Compound is ISTD

QUANT REPORT

Operator ID: MEL
Output File: ^B2922::F3
Data File: >B2922::D5
Name: 390 AD1587 MSD44231
Misc: 2UL 30.92G:1ML 1:10

Quant Rev: 7
Quant Time: 930525 23:46
Injected at: 930525 23:00
Dilution Factor: 1.00000
Instrument ID: GC/MS #2
BTL# 9

ID File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37
Last Qcal Time: 930525 13:30 ✓

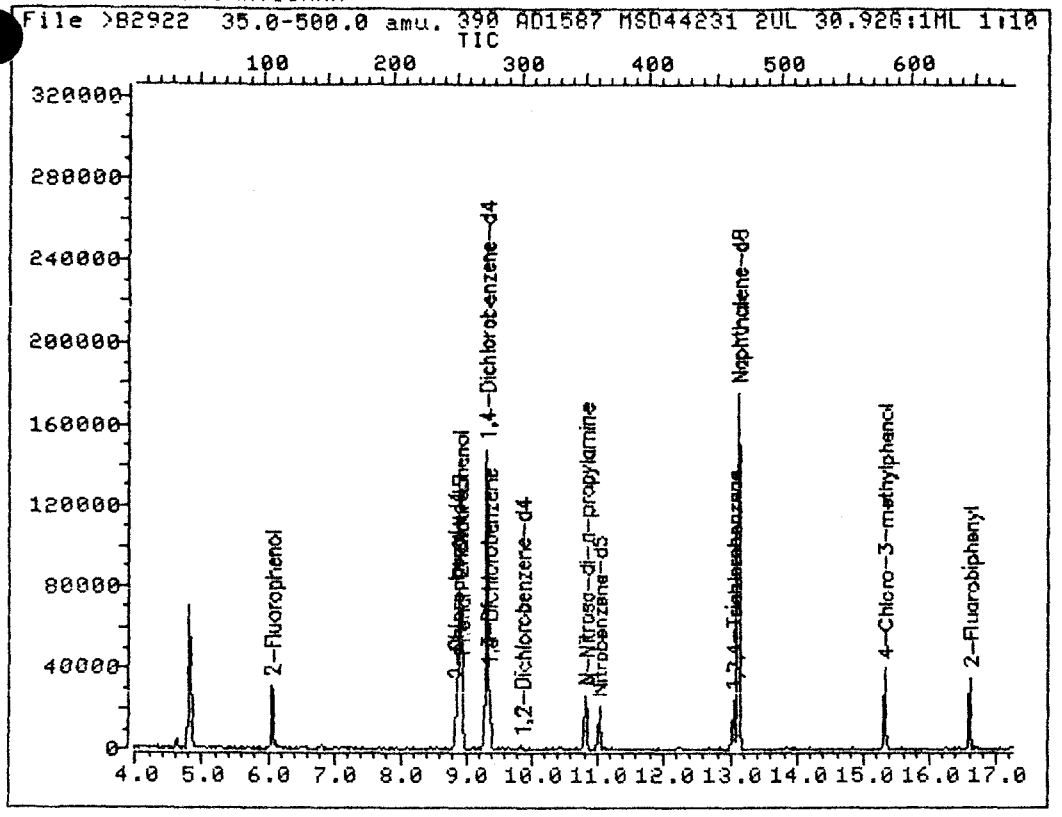
2 x 10 = x 20

	Compound	R.T.	Q ion	Area	Conc	Units	%	q
1)	*1,4-Dichlorobenzene-d4	9.31	152.0	55215 ✓	40.00	ng		98
2)	2-Fluorophenol	6.06	112.0	24577	14.35	ng	96	79
3)	2-Chlorophenol-d4	8.84	132.0	22868	13.34	ng	89	92
4)	Phenol-d5	8.90	99.0	33835	13.92	ng	93	90
5)	Phenol	8.93	94.0	34991	12.43	ng	83	99
7)	2-Chlorophenol	8.90	128.0	23932	12.34	ng	82	97
8)	1,3-Dichlorobenzene	9.35	146.0	15137	~~7.07 ng~~		ND	94
9)	1,4-Dichlorobenzene	9.35	146.0	15137	7.11	ng	71	93
10)	1,2-Dichlorobenzene-d4	9.85	152.0	689	.548	ng	5*	87
15)	N-Nitroso-di-n-propylamine	10.81	70.0	13507	7.73	ng	77	88
[illegible])	*Naphthalene-d8	13.10	136.0	190806 ✓	40.00	ng		84
18)	Nitrobenzene-d5	11.03	82.0	18455	8.31	ng	83	90
25)	1,2,4-Trichlorobenzene	13.03	180.0	12473	7.72	ng	77	95
29)	4-Chloro-3-methylphenol	15.32	107.0	18150	12.15	ng	81	100
31)	*Acenaphthene-d10	18.55	164.0	73282 ✓	40.00	ng		87
36)	2-Fluorobiphenyl	16.61	172.0	26372	9.53	ng	95	94
37)	2,4,6-Tribromophenol	21.01	330.0	8560	13.59	ng	91	91
39)	Dimethylphthalate 18.12	18.55	163.0	17018	~~5.65 ng~~		ND	45
43)	Acenaphthene	18.62	153.0	22123	8.40	ng	84	98
45)	4-Nitrophenol	19.52	109.0	2731	10.56	ng	70	61
47)	2,4-Dinitrotoluene	19.37	165.0	6207	6.61	ng	66	78
52)	*Phenanthrene-d10	23.05	188.0	112522 ✓	40.00	ng		98
57)	Pentachlorophenol	22.77	266.0	8135	11.48	ng	77	98
63)	*Chrysene-d12	31.29	240.0	127425 ✓	40.00	ng		97
64)	Pyrene	27.45	202.0	32385	8.73	ng	87	87
65)	Terphenyl-d14	28.20	244.0	27777	9.76	ng	98	89
71)	*Perylene-d12	35.42	264.0	148015 ✓	40.00	ng		96

* Compound is ISTD

* 1 SUR. OUT (adj.) OK.

TOTAL ION CHROMATOGRAM



Data File: >B2922::D5 Quant Output File: ^B2922::F3
Name: 390 AD1587 MSD44231 Instrument ID: GC/MS #2
Misc: 2UL 30.92G:1ML 1:10 BTL# 9

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37 Last Qcal Time: 930525 13:30

Operator ID: MEL
Quant Time : 930525 23:46
Injected at: 930525 23:00

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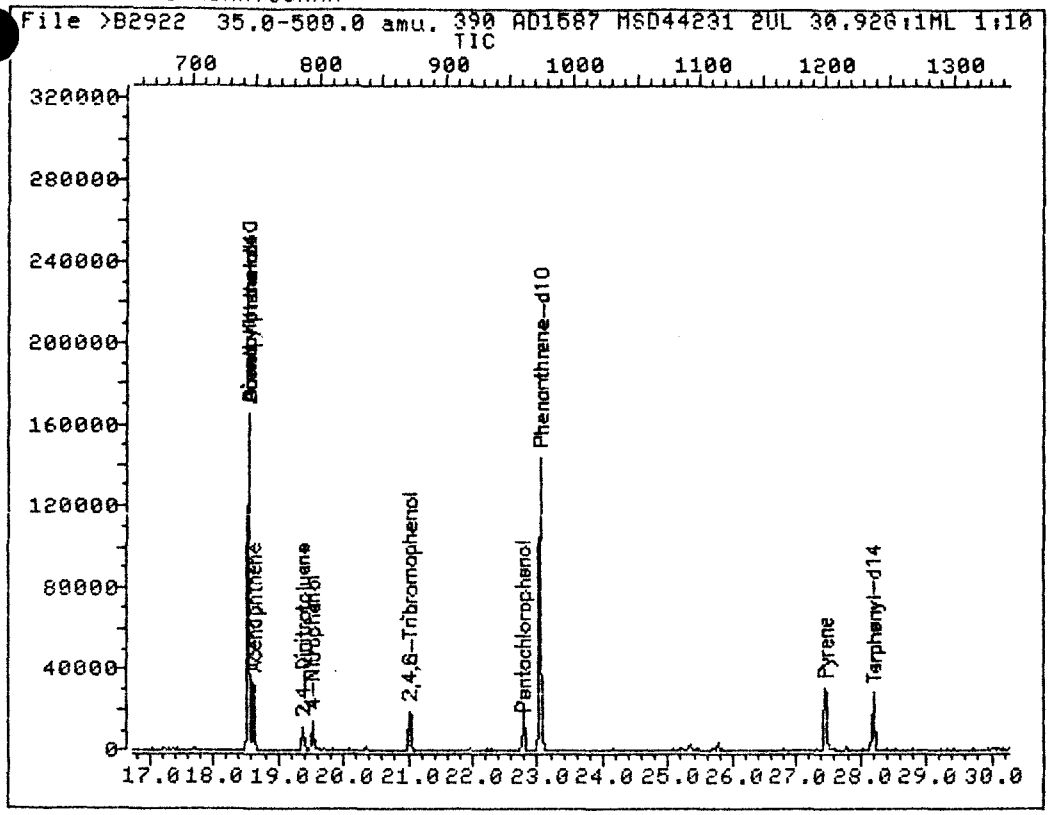
TOTAL ION CHROMATOGRAM



Data File: >B2922::D5 Quant Output File: ^B2922::F3
Name: 390 AD1587 MSD44231 Instrument ID: GC/MS #2
Misc: 2UL 30.92G:1ML 1:10 BTL# 9

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37 Last Qcal Time: 930525 13:30

Operator ID: MEL
Quant Time : 930525 23:46
Injected at: 930525 23:00

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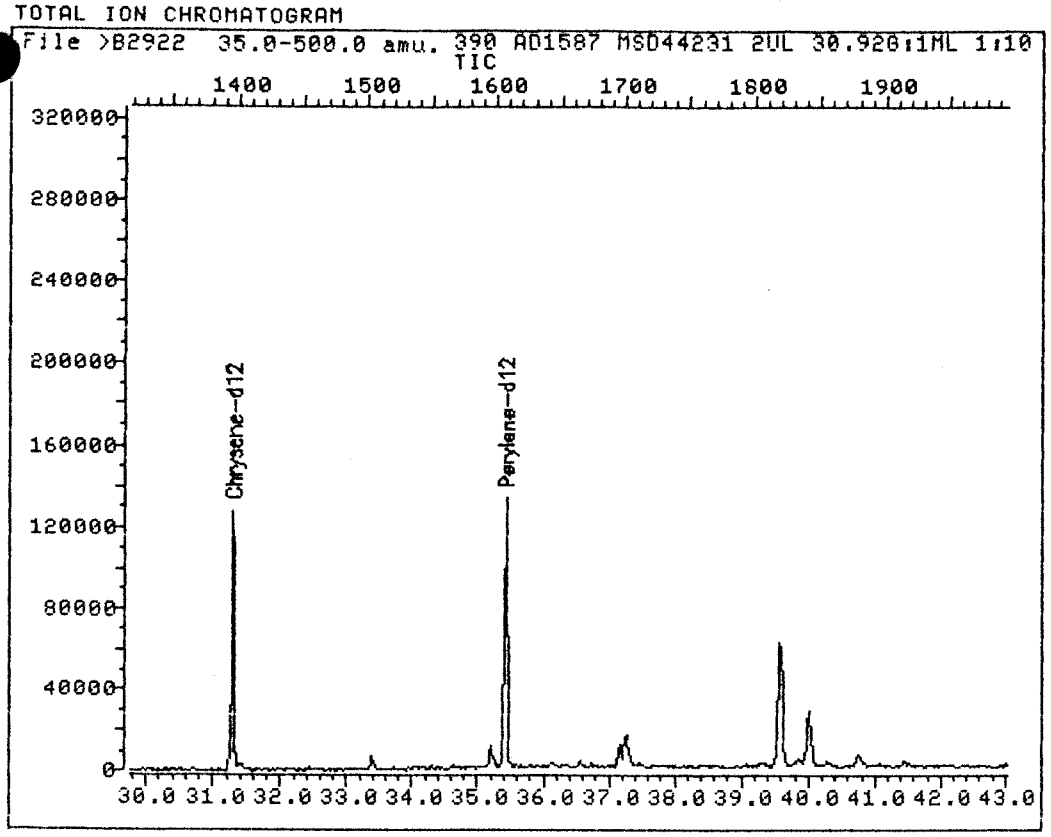
TOTAL ION CHROMATOGRAM



Data File: >B2922::D5 Quant Output File: ^B2922::F3
Name: 390 AD1587 MSD44231 Instrument ID: GC/MS #2
Misc: 2UL 30.92G:1ML 1:10 BTL# 9

Id File: BID390::OP
Title: 3/90 BNA
Last Calibration: 920731 09:37 Last Qcal Time: 930525 13:30

Operator ID: MEL
Quant Time : 930525 23:46
Injected at: 930525 23:00

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INDEPENDENT LABORATORY CLP VOC & SVOC, TAL METALS, AND RADIOLOGICAL ANALYSIS

Analytical DATA - March 3,1994

oc	ST	MATRIX	QC	Sample Number	Smpl Date	Anal Date	ID	2ID	Group	Chemical	Result	Unit	Error	Qual	D.LMT	VA	RN1	RN2	RN3	RN4
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	1,1,1-TRICHLOROETHANE	6	UG/KG		U	5	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	1,1,2,2-TETRACHLOROETHANE	6	UG/KG		U	5	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	1,1,2-TRICHLOROETHANE	6	UG/KG		U	5	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	1,1-DICHLOROETHANE	6	UG/KG		U	5	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	1,1-DICHLOROETHENE	6	UG/KG		U	5	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	1,2,4-TRICHLOROBENZENE	370	UG/KG		U	330	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	1,2-DICHLOROBENZENE	370	UG/KG		U	330	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	1,2-DICHLOROETHANE	6	UG/KG		U	5	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	1,2-DICHLOROETHENE	6	UG/KG		U	5	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	1,2-DICHLOROPROPANE	6	UG/KG		U	5	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	1,3-DICHLOROBENZENE	370	UG/KG		U	330	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	1,4-DICHLOROBENZENE	370	UG/KG		U	330	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	2,4,5-TRICHLOROPHENOL	1800	UG/KG		U	1600	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	2,4,6-TRICHLOROPHENOL	370	UG/KG		U	330	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	2,4-DICHLOROPHENOL	370	UG/KG		U	330	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	2,4-DIMETHYLPHENOL	370	UG/KG		U	330	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	2,4-DINITROPHENOL	1800	UG/KG		U	1600	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	2,4-DINITROTOLUENE	370	UG/KG		U	330	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	2,6-DINITROTOLUENE	370	UG/KG		U	330	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	2-BUTANONE	11	UG/KG		U	10	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	2-CHLORONAPHTHALENE	370	UG/KG		U	330	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	2-CHLOROPHENOL	370	UG/KG		U	330	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	2-HEXANONE	11	UG/KG		U	10	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	2-METHYLNAPHTHALENE	370	UG/KG		U	330	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	2-METHYLPHENOL	370	UG/KG		U	330	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	2-NITROANILINE	1800	UG/KG		U	1600	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	2-NITROPHENOL	370	UG/KG		U	330	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	3,3'-DICHLOROBENZIDINE	750	UG/KG		U	660	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	3-NITROANILINE	1800	UG/KG		U	1600	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	4,6-DINITRO-2-METHYLPHENO	1800	UG/KG		U	1600	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	4-CHLORO-3-METHYLPHENOL	370	UG/KG		U	330	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	4-CHLOROANILINE	370	UG/KG		U	330	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	4-CHLOROPHENYL PHENYL ETH	370	UG/KG		U	330	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	4-METHYL-2-PENTANONE	11	UG/KG		U	10	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	4-METHYLPHENOL	370	UG/KG		U	330	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	4-NITROANILINE	1800	UG/KG		U	1600	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	4-NITROPHENOL	1800	UG/KG		U	1600	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	ACENAPHTHENE	370	UG/KG		U	330	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	ACENAPHTHYLENE	370	UG/KG		U	330	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	ACETONE	31	UG/KG		U	10	JA	49	1		
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	24-JUN-93	TRG		SMETCLP	ALUMINUM	9170	MG/KG			40	V				
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	ANTHRACENE	370	UG/KG		U	330	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	24-JUN-93	TRG		SMETCLP	ANTIMONY	14.8	MG/KG			12	JA	12			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	24-JUN-93	TRG		SMETCLP	ARSENIC	3.5	MG/KG			2	JA	12			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	24-JUN-93	TRG		SMETCLP	BARIUM	102	MG/KG			40	JA	12	11		
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	BENZENE	6	UG/KG		U	5	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	BENZO(a)ANTHRACENE	370	UG/KG		J	330	A	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	BENZO(a)PYRENE	440	UG/KG			330	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	BENZO(b)FLUORANTHENE	570	UG/KG			330	JA	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	BENZO(ghi)PERYLENE	360	UG/KG		J	330	A	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	BENZO(k)FLUORANTHENE	140	UG/KG		J	330	A	1			
S000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	BENZOIC ACID	1800	UG/KG		U	1600	JA	1			

Analytical DATA - March 3,1994

oc	ST	MATRIX	QC	Sample Number	Smpl Date	Anal Date	ID	2ID	Group	Chemical	Result	Unit	Error	Qual	D.LMT	VA	RN1	RN2	RN3	RN4
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	BENZYL ALCOHOL	370	UG/KG		U	330	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	24-JUN-93	TRG		SMETCLP	BERYLLIUM	.63	MG/KG		U	1	JA	7			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	BIS(2-CHLOROETHOXY)METHAN	370	UG/KG		U	330	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	BIS(2-CHLOROETHYL)ETHER	370	UG/KG		U	330	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	BIS(2-CHLOROISOPROPYL)ETH	370	UG/KG		U	330	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	BIS(2-ETHYLHEXYL)PHTHALAT	370	UG/KG		U	330	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	BROMODICHLOROMETHANE	6	UG/KG		U	5	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	BROMOFORM	6	UG/KG		U	5	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	BROMOMETHANE	11	UG/KG		U	10	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	BUTYL BENZYL PHTHALATE	370	UG/KG		U	330	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	24-JUN-93	TRG		SMETCLP	CADMIUM	.78	MG/KG		U	1	JA	7			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	24-JUN-93	TRG		SMETCLP	CALCIUM	11800	MG/KG			1000	V				
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	CARBON DISULFIDE	6	UG/KG		U	5	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	CARBON TETRACHLORIDE	6	UG/KG		U	5	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	12-JUL-93	TRG		METADD	CESIUM	6.9	MG/KG		U	200	JA	10			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	CHLOROBENZENE	6	UG/KG		U	5	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	CHLOROETHANE	11	UG/KG		U	10	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	CHLOROFORM	6	UG/KG		U	5	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	CHLOROMETHANE	11	UG/KG		U	10	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	24-JUN-93	TRG		SMETCLP	CHROMIUM	8.5	MG/KG			2	V				
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	CHRYSENE	490	UG/KG			330	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	24-JUN-93	TRG		SMETCLP	COBALT	6.3	MG/KG		B	10	V				
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	24-JUN-93	TRG		SMETCLP	COPPER	12.8	MG/KG			5	V				
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	DI-n-BUTYL PHTHALATE	370	UG/KG		U	330	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	DI-n-OCTYL PHTHALATE	370	UG/KG		U	330	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	DIBENZO(a,h)ANTHRACENE	370	UG/KG		U	330	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	DIBENZOFURAN	370	UG/KG		U	330	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	DIBROMOCHLOROMETHANE	6	UG/KG		U	5	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	DIETHYL PHTHALATE	370	UG/KG		U	330	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	DIMETHYL PHTHALATE	370	UG/KG		U	330	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	ETHYLBENZENE	6	UG/KG		U	5	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	FLUORANTHENE	630	UG/KG			330	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	FLUORENE	370	UG/KG		U	330	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	HEXACHLOROBENZENE	370	UG/KG		U	330	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	HEXACHLOROBUTADIENE	370	UG/KG		U	330	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	HEXACHLOROCYCLOPENTADIENE	370	UG/KG		U	330	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	HEXACHLOROETHANE	370	UG/KG		U	330	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	INDENO(1,2,3-cd)PYRENE	290	UG/KG		J	330	A	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	24-JUN-93	TRG		SMETCLP	IRON	10200	MG/KG			20	V				
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	ISOPHORONE	370	UG/KG		U	330	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	25-JUN-93	DIL		SMETCLP	LEAD	26.9	MG/KG			1	JA	12			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	23-JUN-93	TRG		METADD	LITHIUM	7.5	MG/KG		B	20	JA	10			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	24-JUN-93	TRG		SMETCLP	MAGNESIUM	2370	MG/KG			1000	V				
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	24-JUN-93	TRG		SMETCLP	MANGANESE	241	MG/KG			3	JA	11			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	24-JUN-93	TRG		SMETCLP	MERCURY	.06	MG/KG		U	.1	V				
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	METHYLENE CHLORIDE	6	UG/KG		U	5	JA	49	1		
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	24-JUN-93	TRG		METADD	MOLYBDENUM	1.5	MG/KG		U	40	V				
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	N-NITROSO-DI-n-PROPYLAMIN	370	UG/KG		U	330	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	N-NITROSODIPHENYLAMINE	370	UG/KG		U	330	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	NAPHTHALENE	370	UG/KG		U	330	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	24-JUN-93	TRG		SMETCLP	NICKEL	9.9	MG/KG			8	V				
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	NITROBENZENE	370	UG/KG		U	330	JA	1			

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.oc	ST	MATRIX	QC	Sample Number	Smpl Date	Anal Date	ID	2ID	Group	Chemical	Result	Unit	Error	Qual	D.LMT	VA	RN1	RN2	RN3	RN4
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	PENTACHLOROPHENOL	1800	UG/KG		U	1600	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	PHENANTHRENE	190	UG/KG		J	330	A	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	PHENOL	370	UG/KG		U	330	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	24-JUN-93	TRG		SMETCLP	POTASSIUM	1750	MG/KG			1000	V				
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	PYRENE	620	UG/KG			330	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	23-JUN-93	TRG		SMETCLP	SELENIUM	.47	MG/KG		U	1	JA	7			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	24-JUN-93	TRG		SMETCLP	SILVER	.8	MG/KG		U	2	JA	5			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	24-JUN-93	TRG		SMETCLP	SODIUM	425	MG/KG		B	1000	V				
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	24-JUN-93	TRG		METADD	STRONTIUM	28.3	MG/KG		B	40	JA	10			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	STYRENE	6	UG/KG		U	5	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	TETRACHLOROETHENE	6	UG/KG		U	5	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	23-JUN-93	TRG		SMETCLP	THALLIUM	.24	MG/KG		B	2	V				
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	24-JUN-93	TRG		METADD	TIN	7.6	MG/KG		U	40	JA	10	8		
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	TOLUENE	6	UG/KG		U	5	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	TOTAL XYLENES	6	UG/KG		U	5	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	TRICHLOROETHENE	6	UG/KG		U	5	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TIC	TIC	BNACLP	Unknown C18H28	520	UG/KG		J						
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TIC	TIC	BNACLP	Unknown-1	340	UG/KG		J						
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TIC	TIC	BNACLP	Unknown-10	3600	UG/KG		J						
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TIC	TIC	BNACLP	Unknown-13	7200	UG/KG		J						
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TIC	TIC	BNACLP	Unknown-14	3800	UG/KG		J						
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TIC	TIC	BNACLP	Unknown-15	1200	UG/KG		J						
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TIC	TIC	BNACLP	Unknown-16	750	UG/KG		J						
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TIC	TIC	BNACLP	Unknown-18	1400	UG/KG		J						
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TIC	TIC	BNACLP	Unknown-19	600	UG/KG		J						
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TIC	TIC	BNACLP	Unknown-3	950	UG/KG		J						
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TIC	TIC	BNACLP	Unknown-5	210	UG/KG		BJ						
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TIC	TIC	BNACLP	Unknown-7	740	UG/KG		J						
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TIC	TIC	BNACLP	Unknown-9	390	UG/KG		J						
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	24-JUN-93	TRG		SMETCLP	VANADIUM	30	MG/KG			10	V				
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	VINYL ACETATE	11	UG/KG		U	10	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	VINYL CHLORIDE	11	UG/KG		U	10	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	24-JUN-93	TRG		SMETCLP	ZINC	43.5	MG/KG			4	JA	17			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	cis-1,3-DICHLOROPROPENE	6	UG/KG		U	5	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	29-JUN-93	TRG		BNACLP	p-BROMODIPHENYL ETHER	370	UG/KG		U	330	JA	1			
SS000193	SS	SOIL	REAL	TT00001LE	02-JUN-93	17-JUN-93	TRG		VOACLP	trans-1,3-DICHLOROPROPENE	6	UG/KG		U	5	JA	1			
SS000193	SS	SED	REAL	TT00002LE	02-JUN-93	20-JUL-93	TRG		TRADS	AMERICIUM-241	17.88	PCI/G	1.76		.0039					
SS000193	SS	SED	REAL	TT00002LE	02-JUN-93	18-JUN-93	TRG		TRADS	GROSS ALPHA	123.1	PCI/G	23.1		2.902	A	31	32		
SS000193	SS	SED	REAL	TT00002LE	02-JUN-93	17-JUN-93	TRG		TRADS	GROSS BETA	32.89	PCI/G	3.69		2.296	A	31	32		
SS000193	TT	SOIL	REAL	TT00189LE	27-JUL-93	30-AUG-93	TRG		TRADS	AMERICIUM-241	7.9	PCI/G	1.68		.0044	A	18			
SS000193	TT	SOIL	REAL	TT00189LE	27-JUL-93	17-SEP-93	TRG		TRADS	PLUTONIUM-238	1.05	PCI/G	.39		.066	Z				
SS000193	TT	SOIL	REAL	TT00189LE	27-JUL-93	17-SEP-93	TRG		TRADS	PLUTONIUM-239/240	57.1	PCI/G	11.9		.066	A	18	31	21	
SS000193	TT	SOIL	REAL	TT00189LE	27-JUL-93	25-AUG-93	TRG		TRADS	URANIUM-233,-234	.685	PCI/G	.176		.048	A	18	62		
SS000193	TT	SOIL	REAL	TT00189LE	27-JUL-93	25-AUG-93	TRG		TRADS	URANIUM-235	.0222	PCI/G	.0204		.012	A	18	62		
SS000193	TT	SOIL	REAL	TT00189LE	27-JUL-93	25-AUG-93	TRG		TRADS	URANIUM-238	.876	PCI/G	.216		.036	A	18	21	62	
SS000193	TT	SOIL	REAL	TT00190LE	29-JUL-93	30-AUG-93	TRG		TRADS	AMERICIUM-241	8.84	PCI/G	1.87		.0042	A	18			
SS000193	TT	SOIL	REAL	TT00190LE	29-JUL-93	25-AUG-93	TRG		TRADS	URANIUM-233,-234	.837	PCI/G	.22		.034	A	18	62		
SS000193	TT	SOIL	REAL	TT00190LE	29-JUL-93	09-SEP-93	REX		TRADS	URANIUM-233,-234	.611	PCI/G	.185		.074	A	18	62		
SS000193	TT	SOIL	REAL	TT00190LE	29-JUL-93	25-AUG-93	TRG		TRADS	URANIUM-235	.0591	PCI/G	.0412		.035	A	18	62		
SS000193	TT	SOIL	REAL	TT00190LE	29-JUL-93	09-SEP-93	REX		TRADS	URANIUM-235	.0173	PCI/G	.0248		.023	A	18	62		
SS000193	TT	SOIL	REAL	TT00190LE	29-JUL-93	25-AUG-93	TRG		TRADS	URANIUM-238	1.02	PCI/G	.26		.034	A	18	62		
SS000193	TT	SOIL	REAL	TT00190LE	29-JUL-93	09-SEP-93	REX		TRADS	URANIUM-238	.669	PCI/G	.198		.074	A	18	21	62	

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.oc	ST	MATRIX	QC	Sample Number	Smpl Date	Anal Date	ID	2ID	Group	Chemical	Result	Unit	Error	Qual	D.LMT	VA	RN1	RN2	RN3	RN4
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	1,1,1-TRICHLOROETHANE	5	UG/KG		U	5	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	1,1,2,2-TETRACHLOROETHANE	5	UG/KG		U	5	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	1,1,2-TRICHLOROETHANE	5	UG/KG		U	5	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	1,1-DICHLOROETHANE	5	UG/KG		U	5	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	1,1-DICHLOROETHENE	5	UG/KG		U	5	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	1,2,4-TRICHLOROBENZENE	350	UG/KG		U	330	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	1,2-DICHLOROBENZENE	350	UG/KG		U	330	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	1,2-DICHLOROETHANE	5	UG/KG		U	5	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	1,2-DICHLOROETHENE	5	UG/KG		U	5	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	1,2-DICHLOROPROPANE	5	UG/KG		U	5	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	1,3-DICHLOROBENZENE	350	UG/KG		U	330	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	1,4-DICHLOROBENZENE	350	UG/KG		U	330	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	2,4,5-TRICHLOROPHENOL	1700	UG/KG		U	1600	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	2,4,6-TRICHLOROPHENOL	350	UG/KG		U	330	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	2,4-DICHLOROPHENOL	350	UG/KG		U	330	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	2,4-DIMETHYLPHENOL	350	UG/KG		U	330	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	2,4-DINITROPHENOL	1700	UG/KG		U	1600	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	2,4-DINITROTOLUENE	350	UG/KG		U	330	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	2,6-DINITROTOLUENE	350	UG/KG		U	330	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	2-BUTANONE	11	UG/KG		U	10	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	2-CHLORONAPHTHALENE	350	UG/KG		U	330	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	2-CHLOROPHENOL	350	UG/KG		U	330	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	2-HEXANONE	11	UG/KG		U	10	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	2-METHYLNAPHTHALENE	350	UG/KG		U	330	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	2-METHYLPHENOL	350	UG/KG		U	330	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	2-NITROANILINE	1700	UG/KG		U	1600	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	2-NITROPHENOL	350	UG/KG		U	330	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	3,3'-DICHLOROBENZIDINE	700	UG/KG		U	660	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	3-NITROANILINE	1700	UG/KG		U	1600	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	4,6-DINITRO-2-METHYLPHENO	1700	UG/KG		U	1600	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	4-CHLORO-3-METHYLPHENOL	350	UG/KG		U	330	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	4-CHLOROANILINE	350	UG/KG		U	330	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	4-CHLOROPHENYL PHENYL ETH	350	UG/KG		U	330	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	4-METHYL-2-PENTANONE	11	UG/KG		U	10	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	4-METHYLPHENOL	350	UG/KG		U	330	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	4-NITROANILINE	1700	UG/KG		U	1600	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	4-NITROPHENOL	1700	UG/KG		U	1600	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	ACENAPHTHENE	350	UG/KG		U	330	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	ACENAPHTHYLENE	350	UG/KG		U	330	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	ACETONE	36	UG/KG		U	10	JA	49			
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	25-AUG-93	TRG		SMETCLP	ALUMINUM	4360	MG/KG			40	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	ANTHRACENE	350	UG/KG		U	330	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	25-AUG-93	TRG		SMETCLP	ANTIMONY	5.4	MG/KG		U	12	JA	12			
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	13-SEP-93	TRG		SMETCLP	ARSENIC	3.5	MG/KG			2.0	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TIC	TIC	BNACLP	Aldol Condensation	19000	UG/KG		AJ						
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	25-AUG-93	TRG		SMETCLP	BARIUM	79.4	MG/KG			40	JA	12	11		
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	BENZENE	5	UG/KG		U	5	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	BENZO(a)ANTHRACENE	52	UG/KG		J	330	A				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	BENZO(a)PYRENE	47	UG/KG		J	330	A				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	BENZO(b)FLUORANTHENE	62	UG/KG		J	330	A				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	BENZO(ghi)PERYLENE	350	UG/KG		U	330	V				
;S000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	BENZO(k)FLUORANTHENE	350	UG/KG		U	330	V				

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.oc	ST	MATRIX	QC	Sample Number	Smpl Date	Anal Date	ID	2ID	Group	Chemical	Result	Unit	Error	Qual	D.LMT	VA	RN1	RN2	RN3	RN4
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	BENZOIC ACID	1700	UG/KG		U	1600	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	BENZYL ALCOHOL	350	UG/KG		U	330	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	25-AUG-93	TRG		SMETCLP	BERYLLIUM	.96	MG/KG		B	1	JA	5			
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	BIS(2-CHLOROETHOXY)METHAN	350	UG/KG		U	330	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	BIS(2-CHLOROETHYL)ETHER	350	UG/KG		U	330	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	BIS(2-CHLOROISOPROPYL)ETH	350	UG/KG		U	330	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	BIS(2-ETHYLHEXYL)PHTHALAT	37	UG/KG		J	330	A				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	BROMODICHLOROMETHANE	5	UG/KG		U	5	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	BROMOFORM	5	UG/KG		U	5	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	BROMOMETHANE	11	UG/KG		U	10	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	BUTYL BENZYL PHTHALATE	350	UG/KG		U	330	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	25-AUG-93	TRG		SMETCLP	CADMIUM	.72	MG/KG		U	1	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	25-AUG-93	TRG		SMETCLP	CALCIUM	9640	MG/KG			1000	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	CARBON DISULFIDE	5	UG/KG		U	5	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	CARBON TETRACHLORIDE	5	UG/KG		U	5	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	15-SEP-93	TRG		METADD	CESIUM	8.7	MG/KG		U	200	JA	7			
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	CHLOROBENZENE	5	UG/KG		U	5	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	CHLOROETHANE	11	UG/KG		U	10	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	CHLOROFORM	5	UG/KG		U	5	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	CHLOROMETHANE	11	UG/KG		U	10	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	25-AUG-93	TRG		SMETCLP	CHROMIUM	2.9	MG/KG			2	JA	5		8	
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	CHRYSENE	57	UG/KG		J	330	A				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	25-AUG-93	TRG		SMETCLP	COBALT	4.3	MG/KG		B	10	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	25-AUG-93	TRG		SMETCLP	COPPER	9.8	MG/KG			5	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	DI-n-BUTYL PHTHALATE	350	UG/KG		U	330	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	DI-n-OCTYL PHTHALATE	350	UG/KG		U	330	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	DIBENZO(a,h)ANTHRACENE	350	UG/KG		U	330	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	DIBENZOFURAN	350	UG/KG		U	330	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	DIBROMOCHLOROMETHANE	5	UG/KG		U	5	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	DIETHYL PHTHALATE	350	UG/KG		U	330	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	DIMETHYL PHTHALATE	350	UG/KG		U	330	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	ETHYLBENZENE	5	UG/KG		U	5	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	FLUORANTHENE	120	UG/KG		J	330	A				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	FLUORENE	350	UG/KG		U	330	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	HEXACHLOROBENZENE	350	UG/KG		U	330	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	HEXACHLOROBUTADIENE	350	UG/KG		U	330	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	HEXACHLOROCYCLOPENTADIENE	350	UG/KG		U	330	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	HEXACHLOROETHANE	350	UG/KG		U	330	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	INDENO(1,2,3-cd)PYRENE	350	UG/KG		U	330	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	25-AUG-93	TRG		SMETCLP	IRON	6450	MG/KG			20	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	ISOPHORONE	350	UG/KG		U	330	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	14-SEP-93	DIL		SMETCLP	LEAD	23.9	MG/KG			1.0	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	26-AUG-93	TRG		METADD	LITHIUM	3.8	MG/KG		B	20	JA	10			
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	25-AUG-93	TRG		SMETCLP	MAGNESIUM	1400	MG/KG			1000	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	25-AUG-93	TRG		SMETCLP	MANGANESE	193	MG/KG			3	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	24-AUG-93	TRG		SMETCLP	MERCURY	.05	MG/KG		U	0.1	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	METHYLENE CHLORIDE	6	UG/KG		U	5	JA	49			
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	25-AUG-93	TRG		METADD	MOLYBDENUM	.87	MG/KG		U	40	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	N-NITROSO-DI-n-PROPYLAMIN	350	UG/KG		U	330	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	N-NITROSODIPHENYLAMINE	350	UG/KG		U	330	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	NAPHTHALENE	350	UG/KG		U	330	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	25-AUG-93	TRG		SMETCLP	NICKEL	7.3	MG/KG		U	8	JA	7			

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Loc	ST	MATRIX	QC	Sample Number	Smpl Date	Anal Date	ID	2ID	Group	Chemical	Result	Unit	Error	Qual	D.LMT	VA	RN1	RN2	RN3	RN4
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	NITROBENZENE	350	UG/KG		U	330	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	PENTACHLOROPHENOL	1700	UG/KG		U	1600	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	PHENANTHRENE	74	UG/KG		J	330	A				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	PHENOL	350	UG/KG		U	330	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	25-AUG-93	TRG		SMETCLP	POTASSIUM	1620	MG/KG			1000	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	PYRENE	99	UG/KG		J	330	A	40	41		
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	07-SEP-93	TRG		SMETCLP	SELENIUM	.4	MG/KG		U	1.0	JA	7			
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	25-AUG-93	TRG		SMETCLP	SILVER	.98	MG/KG		U	2	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	25-AUG-93	TRG		SMETCLP	SODIUM	196	MG/KG		B	1000	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	25-AUG-93	TRG		METADD	STRONTIUM	21.4	MG/KG		B	40	JA	10			
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	STYRENE	5	UG/KG		U	5	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TIC	TIC	BNACLP	Stigmast-5-en-3-ol, (3.be	1500	UG/KG		J						
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	TETRACHLOROETHENE	5	UG/KG		U	5	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	14-SEP-93	TRG		SMETCLP	THALLIUM	.21	MG/KG		U	2.0	JA	14			
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	25-AUG-93	TRG		METADD	TIN	8.3	MG/KG		U	40	JA	10			
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	TOLUENE	1	UG/KG		J	5	A				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	TOTAL XYLENES	5	UG/KG		U	5	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	TRICHLOROETHENE	5	UG/KG		U	5	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TIC	TIC	VOACLP	Unknown	11	UG/KG		J						
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TIC	TIC	BNACLP	Unknown-1	1200	UG/KG		J						
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TIC	TIC	BNACLP	Unknown-10	870	UG/KG		J						
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TIC	TIC	BNACLP	Unknown-11	1800	UG/KG		J						
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TIC	TIC	BNACLP	Unknown-12	520	UG/KG		J						
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TIC	TIC	BNACLP	Unknown-13	410	UG/KG		J						
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TIC	TIC	BNACLP	Unknown-14	6500	UG/KG		J						
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TIC	TIC	BNACLP	Unknown-15	570	UG/KG		J						
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TIC	TIC	BNACLP	Unknown-16	4900	UG/KG		J						
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TIC	TIC	BNACLP	Unknown-17	1200	UG/KG		J						
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TIC	TIC	BNACLP	Unknown-18	710	UG/KG		J						
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TIC	TIC	BNACLP	Unknown-19	920	UG/KG		J						
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TIC	TIC	BNACLP	Unknown-2	590	UG/KG		J						
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TIC	TIC	BNACLP	Unknown-3	560	UG/KG		J						
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TIC	TIC	BNACLP	Unknown-4	380	UG/KG		J						
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TIC	TIC	BNACLP	Unknown-5	200	UG/KG		J						
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TIC	TIC	BNACLP	Unknown-6	310	UG/KG		J						
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TIC	TIC	BNACLP	Unknown-7	2200	UG/KG		J						
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TIC	TIC	BNACLP	Unknown-8	260	UG/KG		J						
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TIC	TIC	BNACLP	Unknown-9	760	UG/KG		J						
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	25-AUG-93	TRG		SMETCLP	VANADIUM	16.5	MG/KG			10	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	VINYL ACETATE	11	UG/KG		U	10	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	VINYL CHLORIDE	11	UG/KG		U	10	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	25-AUG-93	TRG		SMETCLP	ZINC	29.2	MG/KG			4	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	cis-1,3-DICHLOROPROPENE	5	UG/KG		U	5	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	27-AUG-93	TRG		BNACLP	p-BROMODIPHENYL ETHER	350	UG/KG		U	330	V				
SS000193	TT	SOIL	REAL	TT00191LE	29-JUL-93	10-AUG-93	TRG		VOACLP	trans-1,3-DICHLOROPROPENE	5	UG/KG		U	5	V				
SS000193	TT	SOIL	REAL	TT00192LE	24-AUG-93	28-OCT-93	TRG		TRADS	AMERICIUM-241	3.5	PCI/G	0.25		0.02	Y				
SS000193	TT	SOIL	REAL	TT00192LE	24-AUG-93	26-OCT-93	TRG		TRADS	PLUTONIUM-238	0.39	PCI/G	0.15		0.1	Y				
SS000193	TT	SOIL	REAL	TT00192LE	24-AUG-93	26-OCT-93	TRG		TRADS	PLUTONIUM-239/240	21	PCI/G	4.5		0.06	Y				
SS000193	TT	SOIL	REAL	TT00193LE	24-AUG-93	12-NOV-93	TRG		TRADS	AMERICIUM-241	28	PCI/G	3.3		0.05	Y				
SS000193	TT	SOIL	REAL	TT00193LE	24-AUG-93	01-DEC-93	TRG		TRADS	PLUTONIUM-238	2.3	PCI/G	0.54		0.2	Y				
SS000193	TT	SOIL	REAL	TT00193LE	24-AUG-93	01-DEC-93	TRG		TRADS	PLUTONIUM-239/240	140	PCI/G	29		0.06	Y				
SS000193	TT	SOIL	REAL	TT00194LE	24-AUG-93	12-NOV-93	TRG		TRADS	AMERICIUM-241	17	PCI/G	4.2		0.02	Y				

.oc	ST	MATRIX	QC	Sample Number	Smpl Date	Anal Date	ID	2ID	Group	Chemical	Result	Unit	Error	Qual	D.LMT	VA	RN1	RN2	RN3	RN4
;S000193	TT	SOIL	REAL	TT00194LE	24-AUG-93	02-NOV-93	TRG		TRADS	PLUTONIUM-238	0.78	PCI/G	0.16		0.09	Y				
;S000193	TT	SOIL	REAL	TT00194LE	24-AUG-93	02-NOV-93	TRG		TRADS	PLUTONIUM-239/240	52	PCI/G	7.3		0.04	Y				
;S000193	TT	SOIL	REAL	TT00195LE	11-AUG-93	02-NOV-93	TRG		TRADS	AMERICIUM-241	17	PCI/G	2.2		0.06	Y				
;S000193	TT	SOIL	REAL	TT00195LE	11-AUG-93	01-DEC-93	TRG		TRADS	PLUTONIUM-238	0.98	PCI/G	0.14		0.04	Y				
;S000193	TT	SOIL	REAL	TT00195LE	11-AUG-93	01-DEC-93	TRG		TRADS	PLUTONIUM-239/240	64	PCI/G	6.9	B	0.02	Y				
;S000193	TT	SOIL	REAL	TT00196LE	16-AUG-93	08-NOV-93	TRG		TRADS	AMERICIUM-241	7.8	PCI/G	0.50		0.01	Y				
;S000193	TT	SOIL	REAL	TT00196LE	16-AUG-93	28-OCT-93	TRG		TRADS	PLUTONIUM-238	0.54	PCI/G	0.071		0.03	Y				
;S000193	TT	SOIL	REAL	TT00196LE	16-AUG-93	28-OCT-93	TRG		TRADS	PLUTONIUM-239/240	34	PCI/G	3.0		0.02	Y				
;S000193	TT	SOIL	REAL	TT00197LE	18-AUG-93	10-NOV-93	TRG		TRADS	AMERICIUM-241	0.88	PCI/G	0.079		0.006	Y				
;S000193	TT	SOIL	REAL	TT00197LE	18-AUG-93	21-OCT-93	TRG		TRADS	PLUTONIUM-238	0.084	PCI/G	0.020		0.008	Y				
;S000193	TT	SOIL	REAL	TT00197LE	18-AUG-93	21-OCT-93	TRG		TRADS	PLUTONIUM-239/240	4.3	PCI/G	0.35	B	0.008	Y				
;S000193	TT	SOIL	REAL	TT00198LE	18-AUG-93	08-NOV-93	TRG		TRADS	AMERICIUM-241	1.7	PCI/G	0.16		0.02	Y				
;S000193	TT	SOIL	REAL	TT00198LE	18-AUG-93	30-NOV-93	TRG		TRADS	PLUTONIUM-238	0.20	PCI/G	0.046		0.03	Y				
;S000193	TT	SOIL	REAL	TT00198LE	18-AUG-93	30-NOV-93	TRG		TRADS	PLUTONIUM-239/240	14	PCI/G	1.5	B	0.02	Y				
;S000193	TT	SOIL	REAL	TT00199LE	16-AUG-93	08-NOV-93	TRG		TRADS	AMERICIUM-241	1.9	PCI/G	0.12		0.008	Y				
;S000193	TT	SOIL	REAL	TT00199LE	16-AUG-93	01-DEC-93	TRG		TRADS	PLUTONIUM-238	0.25	PCI/G	0.030		0.01	Y				
;S000193	TT	SOIL	REAL	TT00199LE	16-AUG-93	01-DEC-93	TRG		TRADS	PLUTONIUM-239/240	13	PCI/G	0.78	B	0.006	Y				
;S000193	TT	SOIL	DUP	TT00200LE	16-AUG-93	29-OCT-93	TRG		TRADS	AMERICIUM-241	1.4	PCI/G	0.10		0.009	Y				
;S000193	TT	SOIL	DUP	TT00200LE	16-AUG-93	27-OCT-93	TRG		TRADS	PLUTONIUM-238	0.097	PCI/G	0.049		0.06	Y				
;S000193	TT	SOIL	DUP	TT00200LE	16-AUG-93	27-OCT-93	TRG		TRADS	PLUTONIUM-239/240	7.2	PCI/G	1.0		0.02	Y				
;S000193	TT	SOIL	REAL	TT00201LE	20-AUG-93	15-NOV-93	TRG		TRADS	AMERICIUM-241	11	PCI/G	1.4		0.05	Y				
;S000193	TT	SOIL	REAL	TT00201LE	20-AUG-93	10-DEC-93	TRG		TRADS	PLUTONIUM-238	0.83	PCI/G	0.17		0.08	Y				
;S000193	TT	SOIL	REAL	TT00201LE	20-AUG-93	10-DEC-93	TRG		TRADS	PLUTONIUM-239/240	54	PCI/G	7.6	B	0.04	Y				
;S000193	TT	SOIL	REAL	TT00202LE	16-AUG-93	02-NOV-93	TRG		TRADS	AMERICIUM-241	20	PCI/G	2.7		0.07	Y				
;S000193	TT	SOIL	REAL	TT00202LE	16-AUG-93	01-DEC-93	TRG		TRADS	PLUTONIUM-238	1.1	PCI/G	0.55		0.7	Y				
;S000193	TT	SOIL	REAL	TT00202LE	16-AUG-93	01-DEC-93	TRG		TRADS	PLUTONIUM-239/240	100	PCI/G	16	B	0.3	Y				
;S000193	TT	SOIL	REAL	TT00203LE	20-AUG-93	02-NOV-93	TRG		TRADS	AMERICIUM-241	19	PCI/G	1.9		0.04	Y				
;S000193	TT	SOIL	REAL	TT00203LE	20-AUG-93	29-OCT-93	TRG		TRADS	PLUTONIUM-238	1.4	PCI/G	0.25		0.07	Y				
;S000193	TT	SOIL	REAL	TT00203LE	20-AUG-93	29-OCT-93	TRG		TRADS	PLUTONIUM-239/240	94	PCI/G	13		0.03	Y				
;S000193	TT	SOIL	REAL	TT00204LE	20-AUG-93	15-NOV-93	TRG		TRADS	AMERICIUM-241	20	PCI/G	2.3		0.05	Y				
;S000193	TT	SOIL	REAL	TT00204LE	20-AUG-93	03-NOV-93	TRG		TRADS	PLUTONIUM-238	1.7	PCI/G	0.27		0.07	Y				
;S000193	TT	SOIL	REAL	TT00204LE	20-AUG-93	03-NOV-93	TRG		TRADS	PLUTONIUM-239/240	100	PCI/G	14		0.03	Y				
;S000193	TT	WATER	REAL	TT00205LE	16-AUG-93	12-OCT-93	TRG		DRADS	AMERICIUM-241	1.6	PCI/L	2.4	U	4	V			36	52
;S000193	TT	WATER	REAL	TT00205LE	16-AUG-93	07-OCT-93	TRG		DRADS	PLUTONIUM-239/240	9.9	PCI/L	2.9		2	V			36	52
;S000193	TT	WATER	REAL	TT00206LE	12-AUG-93	08-OCT-93	TRG		DRADS	AMERICIUM-241	6.0	PCI/L	1.4		0.5	V			36	52
;S000193	TT	WATER	REAL	TT00206LE	12-AUG-93	05-OCT-93	TRG		DRADS	PLUTONIUM-239/240	33	PCI/L	2.9		0.3	V			36	52
;S000193	TT	SOIL	REAL	TT00207LE	20-AUG-93	29-OCT-93	TRG		TRADS	AMERICIUM-241	.72	PCI/G	0.29		0.2	Y				
;S000193	TT	SOIL	REAL	TT00207LE	20-AUG-93	27-OCT-93	TRG		TRADS	PLUTONIUM-238	-.25	PCI/G	0.59	U	1	Y				
;S000193	TT	SOIL	REAL	TT00207LE	20-AUG-93	27-OCT-93	TRG		TRADS	PLUTONIUM-239/240	2.9	PCI/G	0.82		0.4	Y				
;S000193	TT	SOIL	REAL	TT00208LE	20-AUG-93	29-OCT-93	TRG		TRADS	AMERICIUM-241	.39	PCI/G	0.053		0.01	Y				
;S000193	TT	SOIL	REAL	TT00208LE	20-AUG-93	27-OCT-93	TRG		TRADS	PLUTONIUM-238	.013	PCI/G	0.031	U	0.05	Y				
;S000193	TT	SOIL	REAL	TT00208LE	20-AUG-93	27-OCT-93	TRG		TRADS	PLUTONIUM-239/240	2	PCI/G	0.18		0.02	Y				
;S000193	TT	SOIL	REAL	TT00209LE	23-AUG-93	29-OCT-93	TRG		TRADS	AMERICIUM-241	1.5	PCI/G	0.16		0.08	Y				
;S000193	TT	SOIL	REAL	TT00209LE	23-AUG-93	27-OCT-93	TRG		TRADS	PLUTONIUM-238	.18	PCI/G	0.082		0.1	Y				
;S000193	TT	SOIL	REAL	TT00209LE	23-AUG-93	27-OCT-93	TRG		TRADS	PLUTONIUM-239/240	7.5	PCI/G	0.75		0.06	Y				
;S000193	TT	SOIL	REAL	TT00210LE	26-AUG-93	29-OCT-93	TRG		TRADS	AMERICIUM-241	37	PCI/G	3.7		1	Y				
;S000193	TT	SOIL	REAL	TT00210LE	26-AUG-93	27-OCT-93	TRG		TRADS	PLUTONIUM-238	2.9	PCI/G	1.1		1	Y				
;S000193	TT	SOIL	REAL	TT00210LE	26-AUG-93	27-OCT-93	TRG		TRADS	PLUTONIUM-239/240	200	PCI/G	15		0.5	Y				
;S000193	TT	SOIL	DUP	TT00211LE	26-AUG-93	29-OCT-93	TRG		TRADS	AMERICIUM-241	1.6	PCI/G	0.17		0.06	Y				
;S000193	TT	SOIL	DUP	TT00211LE	26-AUG-93	27-OCT-93	TRG		TRADS	PLUTONIUM-238	.1	PCI/G	0.059		0.09	Y				
;S000193	TT	SOIL	DUP	TT00211LE	26-AUG-93	27-OCT-93	TRG		TRADS	PLUTONIUM-239/240	8.5	PCI/G	0.66		0.04	Y				
;S000193	TT	SOIL	REAL	TT00212LE	23-AUG-93	29-OCT-93	TRG		TRADS	AMERICIUM-241	.85	PCI/G	0.086		0.03	Y				

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oc	ST	MATRIX	QC	Sample Number	Smpl Date	Anal Date	ID	2ID	Group	Chemical	Result	Unit	Error	Qual	D.LMT	VA	RN1	RN2	RN3	RN4
S000193	TT	SOIL	REAL	TT00212LE	23-AUG-93	27-OCT-93	TRG		TRADS	PLUTONIUM-238	.077	PCI/G	0.029		0.03	Y				
S000193	TT	SOIL	REAL	TT00212LE	23-AUG-93	27-OCT-93	TRG		TRADS	PLUTONIUM-239/240	4.6	PCI/G	0.36		0.02	Y				
S000193	TT	SOIL	REAL	TT00213LE	26-AUG-93	29-OCT-93	TRG		TRADS	AMERICIUM-241	7.2	PCI/G	0.59		0.2	Y				
S000193	TT	SOIL	REAL	TT00213LE	26-AUG-93	27-OCT-93	TRG		TRADS	PLUTONIUM-238	.69	PCI/G	0.25		0.3	Y				
S000193	TT	SOIL	REAL	TT00213LE	26-AUG-93	27-OCT-93	TRG		TRADS	PLUTONIUM-239/240	41	PCI/G	3.4		0.2	Y				
S000193	TT	SOIL	REAL	TT00214LE	26-AUG-93	29-OCT-93	TRG		TRADS	AMERICIUM-241	9.2	PCI/G	1.0		0.4	Y				
S000193	TT	SOIL	REAL	TT00214LE	26-AUG-93	27-OCT-93	TRG		TRADS	PLUTONIUM-238	2.8	PCI/G	0.75		0.7	Y				
S000193	TT	SOIL	REAL	TT00214LE	26-AUG-93	27-OCT-93	TRG		TRADS	PLUTONIUM-239/240	180	PCI/G	13		0.5	Y				
S000193	TT	SOIL	REAL	TT00215LE	09-SEP-93	02-NOV-93	TRG		TRADS	AMERICIUM-241	34	PCI/G	2.3		0.4	Y				
S000193	TT	SOIL	REAL	TT00215LE	09-SEP-93	27-OCT-93	TRG		TRADS	PLUTONIUM-238	.8	PCI/G	0.44		0.6	Y				
S000193	TT	SOIL	REAL	TT00215LE	09-SEP-93	27-OCT-93	TRG		TRADS	PLUTONIUM-239/240	51	PCI/G	4.1		0.3	Y				