1993 lower Cook Inlet geologic field program

Amoco Oil Co.

GMC DATA REPORT 453

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2019
State of Alaska
Department of Natural Resources
Division of Geological & Geophysical Surveys
GEOLOGIC MATERIALS CENTER

1993--Stop and Sample Numbers

1993--Lower Cook Inlet
Geologic Field Program

SECTION NAME	CODE	TRS	QUAD	DATE	MEASURED BY
Douglas River	93 KAT 102	TBA	TBA	8/9/93	GFH, Data entered on computer by MAC
DEPTH	**GR1**	**GR2**	**GR3**	**GR AVE.**	**LITHOLOGY**
0	1687	1685	1710	1694.00	Mudstone
5	1137	1095	1128	1120.00	fg ss
10	1456	1505	1521	1494.00	slts
15	1416	1334	1458	1402.67	slts as above
20	1370	1349	1402	1373.67	slts as above
25	1538	1598	1421	1519.00	slts as above
30	1506	1541	1473	1506.67	slts as above
35	1344	1331	1270	1315.00	vfg ss
40	1397	1338	1326	1353.67	vfg ss a.a., ash beds
45	1462	1498	1433	1464.33	slts
50	1233	1261	1257	1250.33	slts a.a.
55	1410	1344	1292	1348.67	slts a.a.
60	1344	1301	1254	1299.67	slts a.a.
65	1244	1233	1201	1226.00	slts a.a.
70	1233	1225	1267	1241.67	slts a.a.
75	1429	1469	1430	1442.67	slts a.a.
80	1121	1102	1065	1096.00	fg ss
85	0	0	0	0.00	covered section
90	1564	1540	1561	1555.00	slts
95	1468	1558	1491	1505.67	slts a.a.
100	1586	1623	1610	1606.33	slts a.a.
105	1581	1515	1616	1570.67	slts a.a.
110	1608	1612	1620	1613.33	slts a.a.
115	1550	1490	1549	1529.67	slts a.a.
120	1614	1655	1684	1651.00	slts a.a.
125	0	0	0	0.00	No gamma ray obtained
130	0	0	0	0.00	No gamma ray obtained

135	0	0	0	0.00	No gamma ray obtained
140	0	0	0	0.00	No gamma ray obtained
145	0	0	0	0.00	No gamma ray obtained
150	0	0	0	0.00	No gamma ray obtained
155	0	0	0	0.00	No gamma ray obtained
160	0	0	0	0.00	No gamma ray obtained
165	0	0	0	0.00	No gamma ray obtained
170	0	0	0	0.00	No gamma ray obtained
175	0	0	0	0.00	No gamma ray obtained
180	0	0	0	0.00	No gamma ray obtained
185	0	0	0	0.00	No gamma ray obtained
190	0	0	0	0.00	No gamma ray obtained
195	0	0	0	0.00	No gamma ray obtained
200	0	0	0	0.00	No gamma ray obtained
205	0	0	0	0.00	No gamma ray obtained
210	0	0	0	0.00	No gamma ray obtained
215	0	0	0	0.00	No gamma ray obtained
220	0	0	0	0.00	No gamma ray obtained
225	0	0	0	0.00	No gamma ray obtained
230	0	0	0	0.00	No gamma ray obtained
235	0	0	0	0.00	No gamma ray obtained
240	0	0	0	0.00	No gamma ray obtained
245	0	0	0	0.00	No gamma ray obtained
250	0	0	0	0.00	No gamma ray obtained
255	0	0	0	0.00	No gamma ray obtained
260	0	0	0	0.00	No gamma ray obtained
265	0	0	0	0.00	No gamma ray obtained
270	0	0	0	0.00	No gamma ray obtained
275	0	0	0	0.00	No gamma ray obtained
280	1586	1652	1668	1635.33	slts
285	1460	1425	1495	1460.00	slts
290	1683	1653	1678	1671.33	Mud rich slts
295	1654	1675	1684	1671.00	Mud rich slts a.a.

300	1480	1407	1404	1430.33	slts
305	1583	1628	1671	1627.33	slts a.a.
310	0	0	0	0.00	Covered section
315	0	0	0	0.00	Covered section
320	1550	1548	1587	1561.67	slts
325	1551	1585	1530	1555.33	slts a.a.
330	1664	1648	1641	1651.00	Flaggy slty mdst
335	1496	1544	1517	1519.00	slts
340	1517	1601	1501	1539.67	slts a.a.
345	1461	1446	1447	1451.33	vfg ss/slts
350	1510	1589	1570	1556.33	slts
355	1972	1938	1881	1930.33	Highly horizontally bioturb. slts
360	1608	1609	1673	1630.00	slts
365	1512	1629	1605	1582.00	slts a.a.
375	1289	1474	1436	1399.67	slts a.a.
380	1504	1460	1521	1495.00	slts a.a.
385	1628	1604	1695	1642.33	slts a.a.
390	1424	1435	1391	1416.67	v. f. ss, more fossils
395	1444	1469	1465	1459.33	v. f. ss, more fossils a.a.
400	1630	1608	1608	1615.33	sltst
405	1464	1467	1445	1458.67	slst a.a.
410	1243	1249	1236	1242.67	v.f. ss
415	1334	1304	1348	1328.67	v.f. ss a.a.
420	1579	1597	1582	1586.00	slst
425	1373	1366	1372	1370.33	slst
430	1535	1530	1562	1542.33	slst
435	1550	1494	1551	1531.67	slst
440	1324	1338	1340	1334.00	v. f. ss
445	1435	1527	1522	1494.67	slst
450	1336	1391	1314	1347.00	v. f. ss
455	1735	1699	1680	1704.67	slst
460	1412	1478	1487	1459.00	slst
465	1518	1466	1436	1473.33	slst

470	1348	1367	1395	1370.00	v. f. ss
475	1325	1339	1340	1334.67	slst
480	1624	1547	1560	1577.00	slst
485	1487	1489	1512	1496.00	slst
490	1425	1491	1423	1446.33	slst
495	1524	1536	1532	1530.67	slst
500	1572	1591	1542	1568.33	slst
505	1601	1595	1575	1590.33	slst
510	1614	1580	1580	1591.33	slst
515	1748	1758	1796	1767.33	slst, near ash
520	1318	1360	1334	1337.33	slst
525	1470	1459	1492	1473.67	slst
530	1231	1279	1192	1234.00	v. f. ss
535	1442	1402	1444	1429.33	slst
540	1264	1179	1238	1227.00	slst

GR 93lcp1

1993 Lower Cook Inlet Field Program							
Section	93LCP1						
Geographic Area	Saddle Mountain						
Location	27-2S-20W Seldovia D8 quad						
Measured By	Doherty and Van Fleet						
Device	GRS 5000						
Background	711						
DEPTH	**GR1**	**GR2**	**GR3**	**GR AVE.**	**LITHOLOGY**	**COMMENTS**	
5	913	1064	1058	1012	sdst		
9	913	1081	1070	1021	sdst		
10	948	964	914	942	sdst		
12	799	866	846	837	sdst		
14	830	810	769	803	sdst		
15	798	849	793	813	sdst		
16	822	803	836	820	sdst		
18	804	866	873	848	sdst		
20	850	832	844	842	sdst		
22	863	867	793	841	sdst		
24	850	851	804	835	sdst		
26	739	769	765	758	sdst		
28	820	821	829	823	sdst		
30	1081	1112	1161	1118	sdst	looks like increase in altered feldspar	
32	915	1208	998	1040	sdst		
34	1135	1122	1130	1129	sdst		
36	1049	1126	1076	1084	sdst		
38	1269	1326	1352	1316	sdst		
40	1078	1051	1124	1084	sdst		
42	967	957	952	959	sdst		
44	1066	1153	1119	1113	sdst		
46	970	993	1001	988	sdst		

GR 93lcp1

48	1006	999	1092	1032	sdst		
50	1127	1128	1092	1116	sdst		
52	1262	1189	1242	1231	sdst		
54	1007	982	996	995	sdst		
56	1008	1015	1020	1014	sdst		
58	900	927	874	900	sdst		
60	974	965	911	950	sdst		
62	1058	1081	1112	1084	sdst		
64	1121	1079	1148	1116	sdst		
66	978	975	1057	1003	sdst		
68	1084	1304	1260	1216	sdst		
70	1704	1683	1675	1687	sdst		
72	1188	1151	1174	1171	sdst		
74	1669	1657	1619	1648	sdst		
76	1868	1882	1857	1869	sdst		
78	1498	1422	1424	1448	sdst		

GR 93KAT103

1993 Lower Cook Inlet Field Program

Section	93KAT103
Geographic Area	Twin Glacier
Location	12-15S-27W Afognak D6 Quad
Measured By	Hebertson and Kulland
Device	GRS 5000
Background	
Counts	counts/10 seconds

DEPTH	GR1	GR2	GR3	GR AVE.	LITHOLOGY	COMMENTS
0	522	518	555	532	vfg. sdst	
5	512	480	496	496	vfg. sdst	
10	343	362	318	341	f-m gr sdst	
15	528	565	542	545	v fg sdst/slst	
20	622	554	542	573	v fg sdst/slst	
25	600	616	618	611	v fg sdst/slst	
30	532	547	573	551	v fg sdst/slst	
35	463	460	447	457	v fg sdst/slst	
40	484	510	466	487	v fg sdst/slst	
45	508	510	485	501	v fg sdst/slst	
50	408	414	412	411	fg. ss	
55	484	497	485	489	vfg. ss	large scoored and weathered contact between 55 and 60
60	534	527	499	520	vfg. ss	
65	477	447	439	454	vfg. ss	
70	496	465	505	489	vfg. ss	
75	574	598	574	582	slst	
80	448	491	476	472	slst	
85	412	421	368	400	fg ss	
90	529	555	523	536	fg ss	
95	695	676	718	696	slst/mdst	
100	475	494	498	489	slst/mdst	
105	551	491	554	532	slst/mdst	

110	657	660	650	656	slst/mdst				
115	726	705	736	722	slst/mdst				
120	679	691	706	692	mdst				
125	764	755	760	760	slst/mdst				
130	729	752	786	756	slst/mdst	small sd lenses from 130-150			
135	716	723	707	715	slst/mdst				
140	728	740	721	730	slst/mdst				
145	746	753	758	752	slst/mdst				
150	843	847	825	838	slst/mdst				
155	858	817	856	844	slst/mdst				
160	841	857	868	855	slst/mdst				
165	955	957	965	959	slst/mdst				
170	808	863	887	853	slst/mdst				
175	782	780	787	783	slst	82/9s			
180	810	817	805	811	slst				
185	861	834	831	842	slst				
190	735	792	777	768	slst				
195	828	827	830	828	slst				
200	912	926	961	933	slst/mdst	93/6s			
205	987	963	899	950	slst/mdst				
210	948	942	991	960	slst/mdst				
215	1108	1081	1117	1102	slst/mdst				
220	930	946	964	947	slst/mdst				
225	445	534	501	493	lmst	inoceramus rich rx			
230	508	546	537	530	lmst				
235	517	487	506	503	lmst				
240	668	639	624	644	lmst				
245	590	581	568	580	lmst				
250	512	516	565	531	lmst				
255	507	546	554	536	lmst				
260	471	492	524	496	lmst				
265	550	504	531	528	lmst				
270	494	479	442	472	lmst				

275	665	667	650	661	slty lmst				
280	663	715	773	717	slty lmst				
285	500	511	514	508	lmst				
290	424	411	426	420	lmst				
295	464	499	429	464	lmst				
300	560	488	525	524	lmst				
305	849	863	919	877	slty mdst	Khl/Kk contact?			
310	851	998	985	945	slty mdst				
315	990	984	954	976	slty mdst				
320	1030	1056	1053	1046	slty mdst				
325	628	704	709	680	slty mdst				
330	822	918	915	885	slty mdst				
335	938	868	796	867	slty mdst				
340	759	720	823	767	slty mdst				
345	724	882	872	826	slty mdst				
350	734	777	708	740	slty mdst				
355	741	751	761	751	slty mdst				
360	815	792	847	818	slty mdst				
370	759	799	879	812	slty mdst				
375	881	921	933	912	slty mdst				
380	903	855	862	873	slty mdst				
385	960	947	970	959	slty mdst				
390	910	921	932	921	slty mdst				
395	778	787	808	791	slty mdst				
400	538	579	521	546	vfg ss				
405	1045	1022	1038	1035	slty mdst				
Tool started to act up after this point. It was raining.									

gamma ray ms93kat104a

SECTION NAME	CODE	TRS	QUAD	DATE	MEASURED BY	INSTRUMENT
HALLO GLACIER	93KAT104-A	SW/NE 32-20S-30W	MT. KATMAI B1	32735.00	RK, JVF	SCINTEX GIS-5
DEPTH	**GR1**	**GR2**	**GR3**	**GR AVE.**	**LITHOLOGY**	COMMENTS
0	1111	1124	1089	1108.00	SLTST	dip: 13 deg., S5E, observed conj. shear sets.
5	948	961	915	941.33	SLTST	
10	1189	1171	1138	1166.00	SLTST	
20	1019	1013	1035	1022.33	SLTST	
25	1079	1044	1090	1071.00	SLTST	acute angle conjugate shears S20W
30	1201	1304	1344	1283.00	SLTST	
35	1030	998	990	1006.00	SLTST	
40	1023	1000	1045	1022.67	SLTST	conjugate shears S40E
45	1019	1060	1082	1053.67	SLTST	
50	1004	955	950	969.67	SLTST	conjugate shears due S
55	1022	1075	1005	1034.00	SLTST	
60	998	1008	1024	1010.00	SLTST	conjugate shears S10E
65	1017	962	1020	999.67	SLTST	conjugate shears S5E, adjacent 8" dike
70	977	988	989	984.67	SLTST	dike as above
75	997	967	951	971.67	SLTST	vertical fractures
80	1072	1081	1084	1079.00	SLTST	
85	960	1055	985	1000.00	SLTST	
90	1176	1141	1100	1139.00	SLTST	conjugate shears S20E
95	1018	988	986	997.33	SLTST	end of transect A. 100' estimated missing section
195	1489	1487	1516	1497.33	SLTST	begin transect B, dip 17 deg., S14E
200	1484	1429	1467	1460.00	SLTST	
205	1371	1352	1412	1378.33	SLTST	
210	1360	1296	1240	1298.67	SLTST	conjugate shears S10E
215	1370	1317	1302	1329.67	SLTST	
220	1367	1465	1480	1437.33	SLTST	
225	1434	1439	1424	1432.33	SLTST	densely fractured, blocky
230	1240	1212	1266	1239.33	SLTST	densely fractured, blocky

235	1278	1254	1317	1283.00	SLTST	densely fractured, blocky
240	1167	1124	1164	1151.67	SLTST	densely fractured, blocky
245	648	608	588	614.67	SLTST	dike
250	1203	1194	1211	1202.67	SLTST	fractures parallel to dip
255	1271	1252	1301	1274.67	SLTST	densely fractured, blocky
260	1235	1255	1325	1271.67	SLTST	densely fractured, blocky
265	1378	1293	1364	1345.00	SLTST	dip 16 degrees S20E
270	1534	1571	1567	1557.33	SLTST	densely fractured, blocky
275	1297	1321	1315	1311.00	SLTST	densely fractured, blocky
280	1307	1423	1398	1376.00	SLTST	densely fractured, blocky
285	1230	1264	1336	1276.67	SLTST	densely fractured, blocky
290	1439	1396	1456	1430.33	SLTST	densely fractured, blocky
295	1303	1266	1251	1273.33	SLTST	densely fractured, blocky
300	1327	1120	1222	1223.00	SLTST	densely fractured, blocky
305	1229	1222	1255	1235.33	SLTST	densely fractured, blocky
310	1428	1304	1293	1341.67	SLTST	densely fractured, blocky
315	1304	1366	1288	1319.33	SLTST	densely fractured, blocky
320	1310	1333	1303	1315.33	SLTST	densely fractured, blocky
325	1406	1436	1413	1418.33	SLTST	densely fractured, blocky
330	1168	1236	1212	1205.33	SLTST	densely fractured, blocky
335	1224	1230	1305	1253.00	SLTST	dip 15 degrees due S
340	1301	1385	1335	1340.33	SLTST	densely fractured, blocky
345	1226	1241	1185	1217.33	SLTST	densely fractured, blocky
350	1447	1381	1382	1403.33	SLTST	weathers splintery-blocky
355	1206	1214	1255	1225.00	SLTST	densely fractured, blocky
360				0.00		covered section
365	1420	1372	1345	1379.00	SLTST	densely fractured, blocky
370	1330	1325	1360	1338.33	SLTST	densely fractured, blocky
377	1365	1308	1371	1348.00	SLTST	densely fractured, blocky
380	1072	1130	1147	1116.33	SLTST	densely fractured, blocky
386	1371	1325	1256	1317.33	SLTST	densely fractured, blocky
390	1409	1369	1345	1374.33	SLTST	densely fractured, blocky
400	1267	1197	1271	1245.00	SLTST	dip 17 degrees S3E

gamma_ray_ms93kat104a

405	1142	1165	1147	1151.33	SLTST	densely fractured, blocky
410	1327	1349	1356	1344.00	SLTST	densely fractured, blocky
415	1119	1116	1174	1136.33	SLTST	densely fractured, blocky
				0.00		
				0.00		
				0.00		
				0.00		
				0.00		

er Cook Inlet Field Program						
Section	MS93LCP4					
Geographic Area	Red Glacier					
Location	33-1S-21W Kenai A8 Quad					
Measured By	Verseput and Van Fleet					
Device	GRS-500					
Background	290,327					
DEPTH	**GR1**	**GR2**	**GR3**	**GR AVE.**	**LITHOLOGY**	**COMMENTS**
0	261	289	287	279	volc	
2.5	407	419	421	416	slst	
5	290	290	251	277	volc	
6.5	336	322	383	347	slst	
7.5	327	308	340	325	shale	
10	479	512	475	489	shale	
15	475	465	479	473	shale	
17	340	350	337	342	volc	
20	664	662	721	682	shale	
25	653	671	649	658	shale	
30	494	509	474	492	shale	
32	504	488	475	489	shale	
32.5	466	419	395	427	clay	
33	423	404	406	411	shale	
35	599	559	626	595	shale	
40	689	645	640	658	shale	
45	592	622	627	614	shale	
50	559	543	558	553	shale	
52.5	553	547	577	559	volc	
55	532	510	576	539	shale	
60	654	668	678	667	shale	
65	590	635	613	613	shale	

68	314	309	308	310	volc sd	
70	282	309	285	292	volc sd	
71	370	386	359	372	volc sd	
75	660	684	710	685	shale	
77.5	481	449	470	467	alt volc	
80	621	593	603	606	shale	
85	664	607	611	627	shale	
90	584	587	545	572	shale	
92.5	313	320	324	319	volc sd	
95	672	640	694	669	shale	
96	544	521	518	528	sd	
100	659	645	695	666	shale	
102	528	526	561	538	shale	
105	550	578	621	583	shale	
110	634	573	582	596	sd	
113.5	477	533	473	494	shale	
115	646	567	612	608	shale	
120	577	557	500	545	shale	
125	554	536	514	535	shale	
130	535	510	506	517	shale	
135	529	543	509	527	shale	
140	441	443	441	442	sd	
145	465	505	466	479	shale	
150	564	588	563	572	shale	
155	543	591	583	572	shale	
160	590	599	637	609	shale	
165	623	642	584	616	shale	
170	791	833	797	807	shale	
172.5	586	598	587	590	sd	
175	711	717	724	717	shale	
178	546	559	555	553	sd	
180	613	665	656	645	shale	
184	652	642	670	655	shale	

185	636	614	666	639	shale	
190	594	610	596	600	shale	
195	554	570	559	561	shale	
200	570	571	595	579	shale	
202.5	470	488	490	483	shale	
205	632	633	636	634	shale	
210	535	522	501	519	shale	
				#DIV/0!		
				#DIV/0!		
				#DIV/0!		

Gamma Ray 93 KAT 105

SECTION NAME	CODE	TRS	QUAD	DATE	MEASURED BY	INSTRUMENT
Mt. Pedmar	93 KAT 105	T25S R34W	Mt. Katmai A-3	8/17/93	MAC, JMVF	SCINTEX GIS-5; Background =679@ 0 Feet
				& 8/19/93	MAC, CDC	

DEPTH	GR1	GR2	GR3	GR AVE.	LITHOLOGY	COMMENTS
0	899	832	863	864.67	Black sandy sltst	App. dip=17 deg, dip dir=S42E
5	848	875	833	852.00	Black sandy sltst	nr corehole;1"sdy bds=2"-6"apart
10	830	843	855	842.67	Thin sdy beds,fresh=grey,weathrs=brown	
15	952	886	854	897.33	As above	
20	943	990	1023	985.33	As above	
25	1153	1091	1069	1104.33	Black sandy sltst	
30	1346	1311	1355	1337.33	4" ss, 20%?lithix,tight,occ. sbrd qtz	trudip=12deg,dip dir=S45E;barn.encr.frac
35	930	939	918	929.00	v. black sltst. (=incr. carb. or volc.?)	conj.frac.shears,acute angle=S41E
40	945	920	863	909.33	as above	
45	770	746	714	743.33	fn ss fresh=lt grey, weathers=gy brown	
50	833	834	802	823.00	fn-med ss, weathers=gy	apparent massive ss
55	709	713	714	712.00	cogl:ig(+?met)peb(+cob)+biv;mtx=fn.ss	55=unc?>55:peb.lag12"aprt grd to mass.ss
60	785	751	784	773.33	ss dk gry, tight as above	
65	821	715	769	768.33	ss a.a.,>12"carb.cmt.concret.6"-8"whl.biv.	
70	752	760	818	776.67	ss as above	
75	880	916	840	878.67	ss as above	
80	927	921	883	910.33	ss a.a. carb. lenses 6"clay lam. in ss	12"fault norm@base, rev.@top (=inver?)
85	909	873	894	892.00	thickng upw. dk. gy sltst. abund. snd lam.	dip=14deg,dipdir:S29E;nr.5'normF;dwn=N
90	920	895	955	923.33	ss lt gy w/lam.dk gy volc or carbonac dep.	
95	876	816	848	846.67	ss a.a. w/ 1'long carb.lens w/ shell hash	
100	795	753	744	764.00	ss lt gy	conj.frac.sets,1st(regnl?)=S40E;2nd=dueE
105	766	782	824	790.67	fract. ss a.a.	
110	858	843	851	850.67	blk sltst; occ snd siz qtz + volc clasts	dens -v. dens fract.prob. adj.fault zone
115	0	0	0	0.00	covered	probable fault zone
120	0	0	0	0.00	covered	probable fault zone
125	0	0	0	0.00	covered	probable fault zone
130	0	0	0	0.00	covered	probable fault zone

135	0	0	0	0.00	covered	probable fault zone	
140	0	0	0	0.00	covered	probable fault zone	
145	0	0	0	0.00	covered	probable fault zone	
150	0	0	0	0.00	covered	probable fault zone	
155	0	0	0	0.00	covered	probable fault zone	
160	1437	1475	1465	1459.00	sltst w/concrts:weathr gr/blk-rust=volc?	dip=8.5deg,dipdir131deg; Bckgrd=724@160'	
165	1472	1504	1515	1497.00	sltst a.a.		
170	1589	1542	1513	1548.00	sltst weathers gy; densely fractured	unit more brittle than units above &below it	
175	1141	1119	1163	1141.00	sltst more silty than units above, bioturb.	dip=11deg; dip dir=149deg	
180	1089	1124	1081	1098.00	v.fn.ss abund cly incl; >1'diam.limey concrt		
185	0	0	0	0.00	No reading/ lithol: 185-190 due to fault		
195	1043	1068	1040	1050.33	sdy sltst		
200	996	970	1012	992.67	sdy sltst a.a.		
205	807	869	908	861.33	lam. fn ss w/ concret, bedng intensly fract	fract due to poss fault zone (covered)	
210	1699	1698	1713	1703.33	dk. gy. blocky slst		
215	1304	1244	1344	1297.33	a.a.		
220	1362	1375	1420	1385.67	a.a.		
225	1758	1781	1852	1797.00	a.a.		
230	1410	1395	1458	1421.00	slst w/ dk gy volc or organic rich deposits		
235	1118	1107	1144	1123.00	a.a.		
240	1042	1068	1026	1045.33	gy slst		
245	988	1024	973	995.00	f-med ss w/ concretions 6"->12" diam		
250	1100	1117	1132	1116.33	gy slst		
255	1239	1160	1223	1207.33	gy slst blocky		
260	1096	1077	1063	1078.67	gy slst		
265	987	1147	1167	1100.33	gy f ss w/ Inoc shells		
270	1077	1078	1188	1114.33	f. ss &slst w/ Inoc shells		
275	1160	1292	1226	1226.00	a.a. + concretions	Fault zone strike slip no vertical displacment	
280	1236	1210	1120	1188.67	gy slst w/gy concr(cob sze)&wht1"concr		
285	1126	1078	1128	1110.67	gy slst & minor fine ss		
290	992	1017	1056	1021.67	gy slst	2' rev. fault down to N	
295	1038	978	990	1002.00	gy f ss & sltst		
300	885	1039	991	971.67	gy f-med ss		

Gamma Ray 93 KAT 105

305	990	1002	1011	1001.00	gy f ss; slmps>305'(=no effect meas.sect.)	2' normal f. down to S	
310	915	969	949	944.33	gy f ss w/ gy concretions		
315	968	1141	1029	1046.00	gy f-m ss	rotated block with exotic slump unit	
320	938	921	936	931.67	gy f ss		
325	1055	1058	1070	1061.00	gy v-f ss		
330	1037	1053	1043	1044.33	gy f ss		
335	1203	1248	1233	1228.00	gy f-m ss		
345	855	905	972	910.67	green-blk volc rich m-crs ss	slump zone @ 340'hence no reading	
350	908	876	904	896.00	a.a.		
355	893	923	977	931.00	a.a.		
360	826	765	770	787.00	a.a.		
365	847	954	920	907.00	a.a.		
370	1288	1214	1329	1277.00	green-gy volc. rich slst	7'-10' normal fault down to S	
375	1115	1143	1092	1116.67	gy slst		
380	1084	1148	1146	1126.00	a.a.		
385	1029	1108	1053	1063.33	a.a.		
390	913	1051	938	967.33	a.a.	slump unit @ 389	
395	892	917	942	917.00	a.a.		
400	905	919	865	896.33	a.a.		
405	1088	1082	1074	1081.33	gy slst		
410	987	1089	1017	1031.00	a.a.		
415	1144	1128	1094	1122.00	dk gy slst & f ss		
420	1040	931	906	959.00	a.a.		
425	805	762	741	769.33	a.a. + bivalves & wood frag		
430	768	831	759	786.00	dk gy slst & f ss		
435	823	801	882	835.33	gy slst		

TABLE 1

Milligal Values for LaCoste & Romberg Model G Gravity Meter #30

Counter Reading*	Value in Milligals	Factor for Interval	Counter Reading*	Value in Milligals	Factor for Interval
000	000	1.04440			
100	104.44	1.04420	3600	3759.08	1.04570
200	208.86	1.04400	3700	3863.65	1.04580
300	313.26	1.04385	3800	3968.23	1.04590
400	417.64	1.04375	3900	4072.82	1.04600
500	522.01	1.04365	4000	4177.42	1.04610
600	626.38	1.04360	4100	4282.03	1.04615
700	730.74	1.04355	4200	4386.64	1.04625
800	835.09	1.04355	4300	4491.27	1.04630
900	939.45	1.04350	4400	4595.90	1.04635
1000	1043.80	1.04350	4500	4700.53	1.04635
1100	1148.15	1.04345	4600	4805.17	1.04640
1200	1252.49	1.04345	4700	4909.81	1.04640
1300	1356.84	1.04345	4800	5014.45	1.04640
1400	1461.19	1.04350	4900	5119.09	1.04640
1500	1565.54	1.04355	5000	5223.73	1.04635
1600	1669.89	1.04360	5100	5328.36	1.04630
1700	1774.25	1.04365	5200	5432.99	1.04625
1800	1878.61	1.04380	5300	5537.62	1.04620
1900	1982.99	1.04390	5400	5642.24	1.04615
2000	2087.38	1.04405	5500	5746.85	1.04605
2100	2191.79	1.04420	5600	5851.45	1.04595
2200	2296.21	1.04430	5700	5956.05	1.04585
2300	2400.64	1.04435	5800	6060.64	1.04580
2400	2505.07	1.04435	5900	6165.22	1.04570
2500	2609.51	1.04445	6000	6269.79	1.04560
2600	2713.95	1.04455	6100	6374.35	1.04550
2700	2818.41	1.04470	6200	6478.90	1.04540
2800	2922.87	1.04480	6300	6583.44	1.04530
2900	3027.36	1.04495	6400	6687.97	1.04515
3000	3131.85	1.04510	6500	6792.48	1.04490
3100	3236.36	1.04525	6600	6896.97	1.04460
3200	3340.89	1.04535	6700	7001.44	1.04430
3300	3445.42	1.04545	6800	7105.87	1.04390
3400	3549.97	1.04550	6900	7210.26	1.04350
3500	3654.52	1.04560	7000	7314.61	

*NOTE: Right hand wheel on counter equals approximately .1 milligal.
AWS 7-18-62

Base Station Data for Kamishak Hills Gravity Survey

Base Station	latitude degrees	latitude dec. min.	longitude degrees	longitude dec. min.	elevation ft	meter reading	observed gravity
Anchorage Airport Post Office	61	10.53	-149	58.87	87.9	5259.77	981906.21
Yugnat	58	21.37	-154	2.60	38.0	5138.49	981779.32

Kamishak Hills Gravity Data

station	year	julian date	time hrs-min	latitude degrees	latitude dec. min.	longitude degrees	longitude dec. min.	elevation ft	meter reading
yugnat	93	228	1047	58	21.37	-154	2.60	38.0	5138.39
ia3-01	93	228	1134	59	3.35	-153	54.58	814.0	5135.66
ia3-04	93	228	1149	59	2.76	-154	1.34	1450.0	5098.74
ia3-05	93	228	1204	59	1.07	-153	57.21	2012.0	5060.42
ia3-03	93	228	1219	59	0.65	-153	55.38	1705.0	5078.93
ia3-02	93	228	1231	59	2.20	-153	55.41	1585.0	5089.52
base2	93	228	1249	59	3.87	-153	49.41	5.0	5188.09
isle	93	228	1349	59	6.52	-153	52.58	0.0	5194.18
ia3-06	93	228	1404	59	0.20	-153	52.68	1350.0	5100.35
ad6-01	93	228	1415	58	59.56	-153	56.22	1570.0	5087.53
ad6-02	93	228	1424	58	58.25	-153	56.14	1950.0	5062.15
ad6-03	93	228	1433	58	57.24	-153	59.85	2665.0	5014.09
ad6-04	93	228	1442	58	55.48	-153	59.08	2125.0	5045.11
ad6-05	93	228	1501	58	53.78	-153	56.53	1205.0	5097.00
ad6-07	93	228	1511	58	53.98	-153	52.65	1250.0	5099.57
yugnat	93	228	1632	58	21.37	-154	2.60	38.0	5138.45
yugnat	93	229	947	58	21.37	-154	2.60	38.0	5138.48
ad6-06	93	229	1017	58	52.65	-153	59.92	2065.0	5043.64
ad6-11	93	229	1034	58	59.30	-153	51.68	1230.0	5108.26
base2	93	229	1046	59	3.87	-153	49.41	5.0	5188.09
ia1-01	93	229	1051	59	6.26	-153	43.96	-10.0	5194.63
ia1-02	93	229	1104	59	5.85	-153	43.54	-5.0	5194.01
ia1-03	93	229	1114	59	5.09	-153	42.20	5.0	5192.08
ia1-04	93	229	1122	59	4.26	-153	41.99	10.0	5189.28
ia1-05	93	229	1129	59	3.72	-153	40.92	10.0	5188.71
ia1-06	93	229	1137	59	2.93	-153	40.08	5.0	5187.32
ia1-07	93	229	1149	59	2.24	-153	39.44	5.0	5186.31
ia1-08	93	229	1152	59	1.58	-153	38.58	5.0	5185.80
ia1-09	93	229	1158	59	1.01	-153	37.72	5.0	5184.54
ia1-10	93	229	1205	59	0.47	-153	36.79	5.0	5184.12
ad5-04	93	229	1212	58	59.75	-153	34.85	5.0	5185.20
ad5-05	93	229	1219	58	59.28	-153	33.41	5.0	5186.92
ad5-06	93	229	1226	58	58.58	-153	32.29	10.0	5187.26
ad5-07	93	229	1238	58	58.32	-153	30.16	140.0	5184.02
ad5-08	93	229	1243	58	57.31	-153	31.74	1265.0	5112.66
ad5-09	93	229	1358	58	59.48	-153	30.34	10.0	5191.91
ad5-01	93	229	1533	58	55.48	-153	38.77	2165.0	5050.95
ad5-02	93	229	1541	58	54.28	-153	38.47	2470.0	5030.18
ad5-03	93	229	1552	58	52.24	-153	34.93	3620.0	4958.55
ad6-14	93	229	1608	58	57.89	-153	42.44	90.0	5173.72
ad6-13	93	229	1618	58	58.37	-153	44.83	405.0	5158.61
ad6-12	93	229	1628	58	58.61	-153	48.28	650.0	5142.66
base2	93	229	1639	59	3.87	-153	49.41	5.0	5188.05

HYCO/MMS Joint Survey summer 1993

station	year	julian date	time hrs-min	latitude degrees	latitude dec. min.	longitude degrees	longitude dec. min.	elevation ft	meter reading
ia3-08	93	229	1652	59	1.78	-154	2.71	1980.0	5062.87
ia3-09	93	229	1657	59	1.48	-154	1.44	1815.0	5074.99
ia3-07	93	229	1704	59	0.65	-154	0.68	2454.0	5031.56
kd1-01	93	229	1715	58	56.21	-154	7.39	1220.0	5099.85
kd1-02	93	229	1722	58	55.74	-154	4.75	2470.0	5018.24
kd1-03	93	229	1732	58	54.61	-154	3.70	2915.0	4989.02
kd1-04	93	229	1738	58	54.87	-154	5.46	2470.0	5018.47
kd1-05	93	229	1749	58	55.09	-154	7.94	1220.0	5096.42
yugnat	93	229	1827	58	21.37	-154	2.60	38.0	5138.59
yugnat	93	231	947	58	21.37	-154	2.60	38.0	5138.59
ia1-11	93	231	1033	59	4.89	-153	43.64	-10.0	5191.89
ia1-12	93	231	1039	59	4.46	-153	44.75	-10.0	5190.89
ia3-10	93	231	1044	59	4.65	-153	47.33	-10.0	5191.77
ia3-11	93	231	1051	59	4.47	-153	48.56	-10.0	5191.57
base2	93	231	1057	59	3.87	-153	49.41	5.0	5188.21
ia3-12	93	231	1102	59	3.27	-153	51.50	-5.0	5187.03
ia3-13	93	231	1108	59	3.61	-153	52.91	-5.0	5187.74
ia3-14	93	231	1114	59	3.63	-153	54.49	-5.0	5186.42
ia3-15	93	231	1119	59	3.71	-153	55.52	0.0	5187.84
ia3-16	93	231	1129	59	4.07	-153	56.86	0.0	5186.47
ia3-17a	93	231	1134	59	4.16	-153	57.63	0.0	5185.45
ia3-17b	93	231	1139	59	4.22	-153	58.57	0.0	5186.39
ia3-18	93	231	1144	59	4.35	-153	59.75	0.0	5186.39
ia3-19	93	231	1149	59	4.52	-154	0.94	5.0	5189.60
ia3-20	93	231	1154	59	4.52	-154	2.08	-5.0	5189.25
ia3-21	93	231	1159	59	4.43	-154	3.86	-10.0	5190.25
base2	93	231	1214	59	3.87	-153	49.41	5.0	5188.15
ad6-11	93	231	1232	58	53.73	-153	48.55	495.0	5144.04
ad6-15	93	231	1239	58	54.50	-153	43.07	815.0	5126.88
yugnat	93	231	1515	58	21.37	-154	2.60	38.0	5138.49

GAMMA RAY 93KAT 106

SECTION NAME	CODE	TRS	QUAD	DATE	MEASURED BY	INSTRUMENT	
DOUGLAS R. IS.	93KAT 106	W/SW 2-13S-27	LIAMNA A1/A	8/20/93	ntered on comp	SCINTEX GIS-5; Background =463@ 0 Feet	
DEPTH	**GR1**	**GR2**	**GR3**	**GR AVE.**	**LITHOLOGY**	**COMMENTS**	
0	483	507	530	507	cgr ss		
5	501	505	511	506	cgr ss		
10	504	465	516	495	cgr ss		
15	507	502	495	501	cgr ss		
20	548	550	551	550	cgr ss		
25	592	577	547	572	cgr ss		
30	636	661	654	650	mgr ss		
35	647	643	649	646	mgr ss		
40	662	667	664	664	mgr ss		
45	585	589	604	593	mgr ss		
50	715	796	617	709	fgr ss		
55	567	600	601	589	fgr ss		
60	466	497	509	491	fgr ss		
65	499	529	549	526	fgr ss		
70	491	447	479	472	cgr ss		
75	502	499	527	509	cgr ss		
80	515	495	532	514	cgr ss		
85	562	533	520	538	cgr ss		
90	488	555	537	527	cgr ss		
95	560	534	551	548	cgr ss		
100	563	533	530	542	cgr ss		
105	528	561	526	538	cgr ss		
110	569	530	577	559	cgr ss		
115	597	538	572	569	cgr ss		
120	595	564	538	566	cgr ss		
125	650	670	627	649	cgr ss		
130	572	584	559	572	mgr ss		

135	533	503	499	512	mgr ss		
140	557	600	566	574	mgr ss		
145	530	504	486	507	mgr ss		
150	531	510	537	526	mgr ss		
155	516	510	474	500	mgr ss		
160	519	512	520	517	mgr ss		
165	517	520	551	529	mgr ss		
170	508	501	497	502	mgr ss		
180	457	491	492	480	fgr ss		
185	522	448	508	493	fgr ss		
190	504	505	467	492	fgr ss		
195	505	466	474	482	fgr ss		
200	503	470	454	476	fgr ss		
205	534	532	488	518	fgr ss		
210	498	447	518	488	fgr ss		
215	502	478	475	485	fgr ss		
220	508	486	551	515	fgr ss		
225	466	569	535	523	fgr ss		
230	515	527	493	512	SANDSTONE	DIP: 18DEG. S, STRIKE: 220DEG.	
235	504	516	517	512	SANDSTONE	X-BEDDED	
240	513	550	555	539	SANDSTONE	IN NAKNEK FM.	
245	580	572	563	572	SANDSTONE		
250	584	606	540	577	SANDSTONE		
255	681	578	625	628	SANDSTONE		
260	594	612	602	603	SANDSTONE		
265	606	574	604	595	SANDSTONE	UNCONFORMITY. WITH OVERLYING KAGUYAK FM.	
270	675	626	668	656	SANDSTONE	FAULT ZONE	
275	655	629	658	647	SANDSTONE	MASSIVE SS	
280	624	571	661	619	SANDSTONE	CONCRETION ZONE, CARBONIZED WOOD FRAGS.	
285	608	594	596	599	SANDSTONE		
290	651	624	678	651	SANDSTONE	LRGE. PACHYDISCUS KAMISHAKENSIS	
295	600	558	586	581	SANDSTONE		
300	651	620	609	627	SANDSTONE		

305	600	602	575	592	SANDSTONE		
310	593	652	610	618	SANDSTONE		
315	651	584	614	616	SANDSTONE	2 SPECIES AMMONITES	
320	632	621	617	623	SANDSTONE		
325	615	567	613	598	SANDSTONE		
330	615	586	589	597	SANDSTONE	SAND COARSENS UPWARD F-M GR.	
335	519	612	577	569	SANDSTONE		
340	630	577	598	602	SANDSTONE	PACHYDISCUS KAMISHAKENSIS	
345	640	614	596	617	SANDSTONE	FAULT ZONE @ END OF SEC.	
				0		END BG GR: 466.	
				0			
				0			
				0			
				0			
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Paleocurrent-93 fld prg

Location	Stratigraphic unit	Geographic Area	Sec.	Twnshp	Rng	Quad	Depositional facies	Attitude; major bedding (Dip / Dip dir.)	Depth in Meas. Section	Type of current indicator	Paleocurrent direction (B, = Bidirec.)	Quality	If avg. # of meas. (n > 1)	Average paleocurrent
93KAT1	Kk	Mt. Pedmar	24	25S	34W	Mt. Katmai A3			*50' in*	trough xbdd	164°	moderate		
93KAT1	Kk	Mt. Pedmar	24	25S	34W	Mt. Katmai A3			*meas. sec.*	trough xbdd	160°	moderate		
93KAT1	Kk	Mt. Pedmar	24	25S	34W	Mt. Katmai A3			*93KAT105*	trough xbdd	230°	moderate		
93KAT101	Khl	Kamishak Mountain	23	15S	29W	Mt. Katmai D1			55'	flame	85°			
93KAT103	Jn,Khl	Twin Glaciers	12	15S	27W	Afognak D6		9/172	58'	trough xbdd	300°		3	293
93KAT103	Jn,Khl	Twin Glaciers	12	15S	27W	Afognak D6			58'	trough xbdd	285°			
93KAT103	Jn,Khl	Twin Glaciers	12	15S	27W	Afognak D6			58'	trough xbdd	295°			
93KAT105	Kp,Kk	Mt. Pedmar	24	25S	34W	Mt. Katmai A3		12/35 at 30'	246'	ripples	194°			
93KAT105	Kp,Kk	Mt. Pedmar	24	25S	34W	Mt. Katmai A3		14/119 at 85'	350'	trough xbdd	175°		4	191
93KAT105	Kp,Kk	Mt. Pedmar	24	25S	34W	Mt. Katmai A3		8/131 at 160'	362'	trough xbdd	150°			
93KAT105	Kp,Kk	Mt. Pedmar	24	25S	34W	Mt. Katmai A3		11/149 at 175'	362'	trough xbdd	320°			
93KAT105	Kp,Kk	Mt. Pedmar	24	25S	34W	Mt. Katmai A3			366'	trough xbdd	120°			
93KAT106	Jn	Douglas River Island	2	13S	27W	Iliamna A1&2		8/155	8'	trough xbdd	110°			
93KAT106	Jn	Douglas River Island	2	13S	27W	Iliamna A1&2			11'	ripple	250°		3	208
93KAT106	Jn	Douglas River Island	2	13S	27W	Iliamna A1&2			11'	ripple	269°			
93KAT106	Jn	Douglas River Island	2	13S	27W	Iliamna A1&2			11'	ripple	105°			
93KAT106	Jn	Douglas River Island	2	13S	27W	Iliamna A1&2			12'	trough xbdd	140°		16	230
93KAT106	Jn	Douglas River Island	2	13S	27W	Iliamna A1&2			16'	trough xbdd	305°			
93KAT106	Jn	Douglas River Island	2	13S	27W	Iliamna A1&2			17'	trough xbdd	296°			
93KAT106	Jn	Douglas River Island	2	13S	27W	Iliamna A1&2			35'	trough xbdd	260°			
93KAT106	Jn	Douglas River Island	2	13S	27W	Iliamna A1&2			37'	trough xbdd	255°			
93KAT106	Jn	Douglas River Island	2	13S	27W	Iliamna A1&2			37'	trough xbdd	200°			
93KAT106	Jn	Douglas River Island	2	13S	27W	Iliamna A1&2			37'	trough xbdd	245°			
93KAT106	Jn	Douglas River Island	2	13S	27W	Iliamna A1&2			38'	trough xbdd	265°			
93KAT106	Jn	Douglas River Island	2	13S	27W	Iliamna A1&2			41'	trough xbdd	190°			
93KAT106	Jn	Douglas River Island	2	13S	27W	Iliamna A1&2			43'	trough xbdd	220°			
93KAT106	Jn	Douglas River Island	2	13S	27W	Iliamna A1&2			46'	trough xbdd	340°			
93KAT106	Jn	Douglas River Island	2	13S	27W	Iliamna A1&2			46'	trough xbdd	330°			
93KAT106	Jn	Douglas River Island	2	13S	27W	Iliamna A1&2			97'	trough xbdd	175°			
93KAT106	Jn	Douglas River Island	2	13S	27W	Iliamna A1&2			99'	trough xbdd	195°			
93KAT106	Jn	Douglas River Island	2	13S	27W	Iliamna A1&2			115'	trough xbdd	10°			
93KAT106	Jn	Douglas River Island	2	13S	27W	Iliamna A1&2			117'	trough xbdd	260°			
93KAT106	Jn	Douglas River Island	2	13S	27W	Iliamna A1&2		17/159	226'	trough xbdd	95°		13	133
93KAT106	Ks	Douglas River Island	2	13S	27W	Iliamna A1&2		18/130	245'	tabular xbdd	270°			
93KAT106	Ks	Douglas River Island	2	13S	27W	Iliamna A1&2			245'	tabular xbdd	145°			
93KAT106	Ks	Douglas River Island	2	13S	27W	Iliamna A1&2			245'	tabular xbdd	90°			
93KAT106	Ks	Douglas River Island	2	13S	27W	Iliamna A1&2			245'	tabular xbdd	240°			
93KAT106	Ks	Douglas River Island	2	13S	27W	Iliamna A1&2			245'	tabular xbdd	165°			
93KAT106	Ks	Douglas River Island	2	13S	27W	Iliamna A1&2			245'	tabular xbdd	130°			
93KAT106	Ks	Douglas River Island	2	13S	27W	Iliamna A1&2			258'	tabular xbdd	180°			

93KAT106	Ks	Douglas River Island	2	13S	27W	Iliamna A1&2		Paleocurrent-93 fld prg	261'	tabular xbdd	28°			
93KAT106	Ks	Douglas River Island	2	13S	27W	Iliamna A1&2			261'	tabular xbdd	29°			
93KAT106	Ks	Douglas River Island	2	13S	27W	Iliamna A1&2			261'	tabular xbdd	30°			
93KAT106	Ks	Douglas River Island	2	13S	27W	Iliamna A1&2	*w/in the*		267'	tabular xbdd	170°			
93KAT106	Ks	Douglas River Island	2	13S	27W	Iliamna A1&2	*channels*		267'	tabular xbdd	155°			
93KAT107	Jn/Ks	Douglas River	10	13S	27W	Iliamna A3	*channel margins*			channel margin	150°	fair	10	131
93KAT107	Jn/Ks	Douglas River	10	13S	27W	Iliamna A3	*in the Jn and*			channel margin	137°	poor		
93KAT107	Jn/Ks	Douglas River	10	13S	27W	Iliamna A3	*filled with Ks*			channel margin	106°	good		
93KAT107	Jn/Ks	Douglas River	10	13S	27W	Iliamna A3	*and directions*			channel margin	123°	good		
93KAT107	Jn/Ks	Douglas River	10	13S	27W	Iliamna A3	*are bidirec.*			channel margin	137°	fair		
93KAT107	Jn/Ks	Douglas River	10	13S	27W	Iliamna A3				channel margin	134°	poor		
93KAT107	Jn/Ks	Douglas River	10	13S	27W	Iliamna A3				channel margin	149°	poor		
93KAT107	Jn/Ks	Douglas River	10	13S	27W	Iliamna A3				channel margin	122°	good		
93KAT107	Jn/Ks	Douglas River	10	13S	27W	Iliamna A3				channel margin	109°	fair		
93KAT107	Jn/Ks	Douglas River	10	13S	27W	Iliamna A3				channel margin	147°	good		
93KAT107	Ks	Douglas River	10	13S	27W	Iliamna A3				pebble imbrication	165°		7	149
93KAT107	Ks	Douglas River	10	13S	27W	Iliamna A3				pebble imbrication	158°			
93KAT107	Ks	Douglas River	10	13S	27W	Iliamna A3				pebble imbrication	155°			
93KAT107	Ks	Douglas River	10	13S	27W	Iliamna A3				pebble imbrication	56°			
93KAT107	Ks	Douglas River	10	13S	27W	Iliamna A3				pebble imbrication	154°			
93KAT107	Ks	Douglas River	10	13S	27W	Iliamna A3				pebble imbrication	175°			
93KAT107	Ks	Douglas River	10	13S	27W	Iliamna A3				pebble imbrication	181°			
93KAT107	Ks	Douglas River	10	13S	27W	Iliamna A3				belemn. lineations	250°		16	158
93KAT107	Ks	Douglas River	10	13S	27W	Iliamna A3				belemn. lineations	230°			
93KAT107	Ks	Douglas River	10	13S	27W	Iliamna A3				belemn. lineations	232°			
93KAT107	Ks	Douglas River	10	13S	27W	Iliamna A3				belemn. lineations	50°			
93KAT107	Ks	Douglas River	10	13S	27W	Iliamna A3				belemn. lineations	68°	*measurments*		
93KAT107	Ks	Douglas River	10	13S	27W	Iliamna A3				belemn. lineations	250°	*in dir. of*		
93KAT107	Ks	Douglas River	10	13S	27W	Iliamna A3				belemn. lineations	237°	*pointed end*		
93KAT107	Ks	Douglas River	10	13S	27W	Iliamna A3				belemn. lineations	239°	*of belem.*		
93KAT107	Ks	Douglas River	10	13S	27W	Iliamna A3				belemn. lineations	69°			
93KAT107	Ks	Douglas River	10	13S	27W	Iliamna A3				belemn. lineations	26°			
93KAT107	Ks	Douglas River	10	13S	27W	Iliamna A3				belemn. lineations	74°			
93KAT107	Ks	Douglas River	10	13S	27W	Iliamna A3				belemn. lineations	242°			
93KAT107	Ks	Douglas River	10	13S	27W	Iliamna A3				belemn. lineations	262°			
93KAT107	Ks	Douglas River	10	13S	27W	Iliamna A3				belemn. lineations	71°			
93KAT107	Ks	Douglas River	10	13S	27W	Iliamna A3				belemn. lineations	109°			
93KAT107	Ks	Douglas River	10	13S	27W	Iliamna A3				belemn. lineations	113°			
93KAT110	Ks	N Kamishak hills	31	13S	28W	Iliamna A3			94'	ripple	155°	poor		
93KAT3	Kk	Mt. Pedmar	17	25S	33W	Mt. Katmai A3				ripple	156°	poor		
93KAT3	Kk	Mt. Pedmar	17	25S	33W	Mt. Katmai A3				ripple	180°	poor		
93KAT3	Kk	Mt. Pedmar	17	25S	33W	Mt. Katmai A3				ripple (Tc)	90°	fair		
93KAT6C	Kk	Mt. Pedmar	17	25S	33W	Mt. Katmai A3			*near base*	Tcd,Tbc,Tc	105°	good	9	103
93KAT6C	Kk	Mt. Pedmar	17	25S	33W	Mt. Katmai A3			*of cong.*	Tcd,Tbc,Tc	100°	good		
93KAT6C	Kk	Mt. Pedmar	17	25S	33W	Mt. Katmai A3			*at 430' in*	Tcd,Tbc,Tc	116°	good		

93KAT6C	Kk	Mt. Pedmar	17	25S	33W	Mt. Katmai A3		Paleocurrent-93 fld prg	section	Tcd,Tbc,Tc	74°	good		
93KAT6C	Kk	Mt. Pedmar	17	25S	33W	Mt. Katmai A3			93KAT105	Tcd,Tbc,Tc	88°	fair		
93KAT6C	Kk	Mt. Pedmar	17	25S	33W	Mt. Katmai A3				Tcd,Tbc,Tc	94°	fair		
93KAT6C	Kk	Mt. Pedmar	17	25S	33W	Mt. Katmai A3				Tcd,Tbc,Tc	119°	good		
93KAT6C	Kk	Mt. Pedmar	17	25S	33W	Mt. Katmai A3				Tcd,Tbc,Tc	125°	good		
93KAT6C	Kk	Mt. Pedmar	17	25S	33W	Mt. Katmai A3				Tcd,Tbc,Tc	110°	fair		
93LCP1	Ksm	Saddle Mountain	27	2S	20W	Seldovia D8			45'	trough xbdd	210°			

93KAT107 CLAST TYPE COUNT		
LITHOLOGY	**TOTAL**	**PERCENT**
Porphyritic Dacite	10	10%
Aphanitic Volcanic	5	5%
Micro-diorite	6	6%
Green Silicic Tuff	28	28%
Silicic Volcanic	3	3%
White Quartz	15	15%
Porphyritic Andesite	19	19%
Red Silicic Volcanic	5	5%
Silicic Volcanic	6	6%
Epidote	1	1%
Volcanic Sandstone	1	1%
Dark Grey Chert	1	1%
Total Count	**100**	

CORE LABORATORIES

ARCO ALASKA, INC.
SURFACE SAMPLES
LCI MESOZOIC
COOK INLET, ALASKA

FILE: AK1528
DATE: 12-OCT-93
ANALYST: PB, DS, TR

DEAN STARK ANALYSIS
SURFACE SAMPLES

SAMPLE NUMBER	DEPTH FT	Age/Fm	PERMEABILITY KAIR MD	POROSITY (HELIUM) (%)	GRAIN DENSITY GM/CC	DESCRIPTION
19	93KAT101B-2	Khl-Ebarr-haut	3.87	10.2	2.69	SS-ltgy,vf-mgr,predfgr,wsrtd,sbrnd,vwcmt,qtz,dk mafic gr,calc
15	93KAT101D-1	Kk	0.18	14.0	2.71	SS-dkyelbrn,vf-fgr,predfgr,wsrtd,rnd,modcmt,qtz,dk mafic gr,mic,tr hem
20	93KAT102A-1	Kk	<0.01	5.8	2.72	SS-ltgy,vf-fgr,predfgr,wsrtd,rnd,wcmt,qtz,occ dk mafic gr & calc
26	93KAT102C-2	Kk	<0.01	1.4	2.73	Sltst-mdkgy,hd,mass,qtz,tr pyr
51	93KAT103A-1	Jn	<0.01	3.3	2.70	
49	93KAT103A-2	Ks	<0.01	1.8	2.70	
22	93KAT103E-1	Khl/Kk?	<0.01	2.6	2.67	SS-mdkgy,vf-fgr,predfgr,wsrtd,rnd,vwcmt,qtz,calc,occ pyr,tr chlor
61	93KAT104C-1	Kk	<0.01	1.6	2.71	
55	93KAT106/C-1	Ks	1.32	9.5	2.70	
47	93KAT106A-1	Ks	0.10	4.7	2.57	
65	93KAT106A-2	Ks	0.86	7.9	2.64	
82	93KAT106B-1	Jn	5.83	9.4	2.56	
53	93KAT106B-6	Jn	0.71	6.5	2.60	
64	93KAT106B4	Jn	2.46	9.2	2.57	
84	93KAT107A-3			NO PLUG		
73	93KAT107A-4	Jn	0.45	4.1	2.62	
72	93KAT107A-5	Ks	3.32	6.8	2.61	
60	93KAT109A-1	Khl	4.32	5.4	2.71	
30	93KAT10B-1	Kk-emaes	0.07	9.2	2.66	SS-ltgy,vf-fgr,predvfgr,wsrtd,rnd,wcmt,qtz,dk mafic gr,tr chlor
28	93KAT10C-1	Kk-emaes	0.06	8.9	2.69	SS-mgy,vfgr,vwsrtd,rnd,vwcmt,qtz,dk mafic gr,occ mic & calc
29	93KAT10D-1	Kk-emaes	11.32	9.0	2.62	SS-ltgy,vf-fgr,predvfgr,wsrtd,rnd,wcmt,qtz,dk mafic gr,tr chlor,frac
27	93KAT10E-1	Kk-emaes	0.01	7.8	2.71	SS-ltbrngy,vfgr,vwsrtd,rnd,vwcmt,qtz,dk mafic gr,occ mic
24	93KAT10F-1	Kk-emaes	43.67	9.3	2.66	SS-mgy,vf-mgr,predfgr,wsrtd,rnd,vwcmt,qtz,dk mafic gr,occ mic,frac
13	93KAT10G-1	Kk-emaes	0.37	10.8	2.65	SS-ltbrngy,vf-mgr,predfgr,wsrtd,sbrnd,vwcmt,qtz,dk mafic gr,tr calc

	33	93KAT10I-1	Kk	0.05	5.9			2.71	SS-mdkgy,vf-fgr,predvfgr,wsrtd,rnd,vwcmt,qtz,dk mafic gr,tr calc	
	31	93KAT10J-1	Kk	0.02	9.4			2.71	SS-mdkgy,vfgr,vwsrtd,rnd,vwcmt,qtz,dk mafic gr,occ mic & calc	
	32	93KAT10L-1	Khl-ebarr	1.41	18.9			2.67	SS-ltgy,vf-fgr,predvfgr,wsrtd,rnd,wcmt,qtz,calc,dk mafic gr,occ chlor	
	21	93KAT10M-1	Khl-ebarr	0.57	11.9			2.67	SS-mltgy,fgr,vwsrtd,rnd,vwcmt,qtz,calc,dk mafic gr	
	18	93KAT10N-1	Khl-ebarr	0.55	11.8			2.67	SS-mltgy,fgr,vwsrtd,rnd,vwcmt,qtz,calc,dk mafic gr	
	74	93KAT110A-1	Ks	0.02	12.9			2.72		
	62	93KAT110A-2	Ks	2.42	9.0			2.68		
	79	93KAT111A-1	Kk	<0.01	3.9			2.72		
	54	93KAT112/A-1	Ks	0.31	12.1			2.73		
	87	93KAT112A-4			NO PLUG					
	16	93KAT11A-1	Khl-ebarr	0.23	16.1			2.68	SS-brngy,vf-vcgr,psrtd,sbrnd,wcmt,qtz,occ calc & mic	
	14	93KAT11A-2	Khl-ebarr	0.07	17.4			2.67	SS-mltgy,vf-cgr,predfgr,wsrtd,sbrnd,vwcmt,qtz,dk mafic gr,occ calc	
	17	93KAT11A-4	Khl-ebarr	2.81	19.9			2.67	SS-ltgy,vf-fgr,predfgr,wsrtd,rnd,wcmt,qtz,occ dk mafic gr & calc	
	23	93KAT11B-1	Khl-ebarr	0.13	12.0			2.64	SS-ltgy,fgr,vwsrtd,sbrnd,wcmt,qtz,calc,dk mafic gr	
	4	93KAT11C-1	Khl-ebarr	0.96	15.9			2.61	SS-ltgy,vf-mgr,predfgr,wsrtd,rnd,vwcmt,qtz,dk arg gr,occ calc	
	25	93KAT13C-1	Kk	<0.01	1.4			2.72	Ls-mdkgy,hd,mass,gran	
	46	93KAT15A-1	Kk	0.02	11.0			2.74	SS-brngy,vf-fgr,predvfgr,wsrtd,rnd,wcmt,qtz,dk mafic gr,mic	
	48	93KAT183-1		0.24	3.3			2.74		
	50	93KAT18A-1		0.01	11.8			2.76		
	10	93KAT1A-2	Jn?	<0.01	7.6			2.75	SS-mdkgy,vf-mgr,predfgr,wsrtd,rnd,vwcmt,qtz,dk mafic gr,occ pyr,tr hem	
	3	93KAT1D-2	Kp	0.19	14.9			2.67	SS-ltolvgy,vf-mgr,predfgr,wsrtd,rnd,vwcmt,qtz,chlor,occ brn mic,tr calc	
	71	93KAT20A-1	Jn	0.26	4.4			2.59		
	57	93KAT21A-1	Jn	469.22	9.4			2.64	FRAC	
	58	93KAT22A-1	Jn	1.25	6.2			2.67		
	69	93KAT26/A-1	Jn	0.02	5.1			2.54		
	5	93KAT3A-2	Kcamp	0.01	3.8			2.78	SS-ltgy,vf-fgr,predvfgr,vwsrtd,rnd,vwcmt,qtz,calc,occ dk arg gr,sid	
	7	93KAT3A-4	Kcamp	0.61	6.4			2.72	SS-ltgy,vf-mgr,predfgr,wsrtd,rnd,vwcmt,qtz,dk arg gr,calc,tr sid	
	43	93KAT4B-2	Kk	0.48	5.1			2.73	SS-ltgy,vf-vcgr,predmgr,psrtd,sbang,vwcmt,qtz,calc,dk mafic gr	
	6	93KAT6B-1	Klcamp	0.28	16.3			2.69	SS-ltgy,f-cgr,predmgr,wsrtd,rnd,vwcmt,qtz,dk mafic gr,occ calc	
	9	93KAT6C-2	Klcamp	0.04	13.2			2.68	SS-mltgy,vf-mgr,predfgr,wsrtd,rnd,vwcmt,qtz,dk arg gr,tr calc	
	35	93KAT6C-5	Kemaes	0.02	12.3			2.70	SS-ltgy,f-cgr,predmgr,wsrtd,sbrnd,vwcmt,qtz,dk mafic gr,lim,calc	
	44	93KAT8A-1	Jn	1.24	8.4			2.64	SS-ltgy,vf-mgr,predfgr,wsrtd,sbrnd,wcmt,qtz,dk mafic gr,chlor	
	39	93KAT8B-1	Jn	1.43	6.7			2.64	SS-ltgy,f-cgr,predmgr,wsrtd,sbrnd,vwcmt,qtz,dk mafic gr,chlor	
	40	93KAT8C-1	Jn	0.02	5.6			2.66	SS-ltbrngy,vfgr,vwsrtd,sbrnd,vwcmt,qtz,dk mafic gr,chlor	
	38	93KAT8D-1	Jn	0.72	7.0			2.64	SS-ltgy,f-cgr,predmgr,wsrtd,sbrnd,vwcmt,qtz,dk mafic gr,calc,occ chlor	
	41	93KAT8E-1	Jn	0.76	5.9			2.67	SS-mltgy,f-cgr,predmgr,wsrtd,sbrnd,wcmt,qtz,chlor,calc,dk mafic gr	
	37	93KAT8H-1	Jn	1.29	6.5			2.64	SS-ltgy,f-cgr,predmgr,wsrtd,sbrnd,vwcmt,qtz,chlor,mic	

	42	93KAT8I-1	Jn	0.01	3.6			2.63		SS-ltgy,vf-fgr,predfgr,wsrtd,sbrnd,vwcmt,qtz,occ dk mafic gr,tr chlor
	66	93LCP1/10	Ksm	3.32	13.1			2.70		
	86	93LCP1/2	Ksm		NO PLUG					
	68	93LCP1/6	Ksm	0.36	5.5			2.67		
	83	93LCP1/7	Ksm	2.57	8.3			2.71		
	52	93LCP1/8	Ksm	0.26	9.0			2.75		
	63	93LCP1/9	Ksm	1.07	11.0			2.74		
	59	93LCP2/1	Ksm	504.21	8.2			2.48		FRAC
	70	93LCP3/2	Jrg	0.37	8.9			2.77		
	56	93LCP4/1	Jrg	0.01	3.6			2.73		

CORE LABORATORIES

ARCO ALASKA, INC.
SURFACE SAMPLES
LCI MESOZOIC
COOK INLET, ALASKA

FILE: AK1528
DATE: 12-OCT-93
ANALYST: PB, DS, TR

DEAN STARK ANALYSIS
SURFACE SAMPLES

SAMPLE NUMBER	DEPTH FT	Age/Fm	PERMEABILITY KAIR MD	POROSITY (HELIUM) (%)	GRAIN DENSITY GM/CC	DESCRIPTION
19	93KAT101B-2	Khl-Ebarr-haut	3.87	10.2	2.69	SS-ltgy,vf-mgr,predfgr,wsrtd,sbrnd,vwcmt,qtz,dk mafic gr,calc
15	93KAT101D-1	Kk	0.18	14.0	2.71	SS-dkyelbrn,vf-fgr,predfgr,wsrtd,rnd,modcmt,qtz,dk mafic gr,mic,tr hem
20	93KAT102A-1	Kk	<0.01	5.8	2.72	SS-ltgy,vf-fgr,predfgr,wsrtd,rnd,wcmt,qtz,occ dk mafic gr & calc
26	93KAT102C-2	Kk	<0.01	1.4	2.73	Sltst-mdkgy,hd,mass,qtz,tr pyr
51	93KAT103A-1	Jn	<0.01	3.3	2.70	
49	93KAT103A-2	Ks	<0.01	1.8	2.70	
22	93KAT103E-1	Khl/Kk?	<0.01	2.6	2.67	SS-mdkgy,vf-fgr,predfgr,wsrtd,rnd,vwcmt,qtz,calc,occ pyr,tr chlor
61	93KAT104C-1	Kk	<0.01	1.6	2.71	
55	93KAT106/C-1	Ks	1.32	9.5	2.70	
47	93KAT106A-1	Ks	0.10	4.7	2.57	
65	93KAT106A-2	Ks	0.86	7.9	2.64	
82	93KAT106B-1	Jn	5.83	9.4	2.56	
53	93KAT106B-6	Jn	0.71	6.5	2.60	
64	93KAT106B4	Jn	2.46	9.2	2.57	
84	93KAT107A-3			NO PLUG		
73	93KAT107A-4	Jn	0.45	4.1	2.62	
72	93KAT107A-5	Ks	3.32	6.8	2.61	
60	93KAT109A-1	Khl	4.32	5.4	2.71	
30	93KAT10B-1	Kk-emaes	0.07	9.2	2.66	SS-ltgy,vf-fgr,predvfgr,wsrtd,rnd,wcmt,qtz,dk mafic gr,tr chlor
28	93KAT10C-1	Kk-emaes	0.06	8.9	2.69	SS-mgy,vfgr,vwsrtd,rnd,vwcmt,qtz,dk mafic gr,occ mic & calc
29	93KAT10D-1	Kk-emaes	11.32	9.0	2.62	SS-ltgy,vf-fgr,predvfgr,wsrtd,rnd,wcmt,qtz,dk mafic gr,tr chlor,frac
27	93KAT10E-1	Kk-emaes	0.01	7.8	2.71	SS-ltbrngy,vfgr,vwsrtd,rnd,vwcmt,qtz,dk mafic gr,occ mic
24	93KAT10F-1	Kk-emaes	43.67	9.3	2.66	SS-mgy,vf-mgr,predfgr,wsrtd,rnd,vwcmt,qtz,dk mafic gr,occ mic,frac
13	93KAT10G-1	Kk-emaes	0.37	10.8	2.65	SS-ltbrngy,vf-mgr,predfgr,wsrtd,sbrnd,vwcmt,qtz,dk mafic gr,tr calc

	33	93KAT10I-1	Kk	0.05	5.9			2.71	SS-mdkgy,vf-fgr,predvfgr,wsrtd,rnd,vwcmt,qtz,dk mafic gr,tr calc	
	31	93KAT10J-1	Kk	0.02	9.4			2.71	SS-mdkgy,vfgr,vwsrtd,rnd,vwcmt,qtz,dk mafic gr,occ mic & calc	
	32	93KAT10L-1	Khl-ebarr	1.41	18.9			2.67	SS-ltgy,vf-fgr,predvfgr,wsrtd,rnd,wcmt,qtz,calc,dk mafic gr,occ chlor	
	21	93KAT10M-1	Khl-ebarr	0.57	11.9			2.67	SS-mltgy,fgr,vwsrtd,rnd,vwcmt,qtz,calc,dk mafic gr	
	18	93KAT10N-1	Khl-ebarr	0.55	11.8			2.67	SS-mltgy,fgr,vwsrtd,rnd,vwcmt,qtz,calc,dk mafic gr	
	74	93KAT110A-1	Ks	0.02	12.9			2.72		
	62	93KAT110A-2	Ks	2.42	9.0			2.68		
	79	93KAT111A-1	Kk	<0.01	3.9			2.72		
	54	93KAT112/A-1	Ks	0.31	12.1			2.73		
	87	93KAT112A-4			NO PLUG					
	16	93KAT11A-1	Khl-ebarr	0.23	16.1			2.68	SS-brngy,vf-vcgr,psrtd,sbrnd,wcmt,qtz,occ calc & mic	
	14	93KAT11A-2	Khl-ebarr	0.07	17.4			2.67	SS-mltgy,vf-cgr,predfgr,wsrtd,sbrnd,vwcmt,qtz,dk mafic gr,occ calc	
	17	93KAT11A-4	Khl-ebarr	2.81	19.9			2.67	SS-ltgy,vf-fgr,predfgr,wsrtd,rnd,wcmt,qtz,occ dk mafic gr & calc	
	23	93KAT11B-1	Khl-ebarr	0.13	12.0			2.64	SS-ltgy,fgr,vwsrtd,sbrnd,wcmt,qtz,calc,dk mafic gr	
	4	93KAT11C-1	Khl-ebarr	0.96	15.9			2.61	SS-ltgy,vf-mgr,predfgr,wsrtd,rnd,vwcmt,qtz,dk arg gr,occ calc	
	25	93KAT13C-1	Kk	<0.01	1.4			2.72	Ls-mdkgy,hd,mass,gran	
	46	93KAT15A-1	Kk	0.02	11.0			2.74	SS-brngy,vf-fgr,predvfgr,wsrtd,rnd,wcmt,qtz,dk mafic gr,mic	
	48	93KAT183-1		0.24	3.3			2.74		
	50	93KAT18A-1		0.01	11.8			2.76		
	10	93KAT1A-2	Jn?	<0.01	7.6			2.75	SS-mdkgy,vf-mgr,predfgr,wsrtd,rnd,vwcmt,qtz,dk mafic gr,occ pyr,tr hem	
	3	93KAT1D-2	Kp	0.19	14.9			2.67	SS-ltolvgy,vf-mgr,predfgr,wsrtd,rnd,vwcmt,qtz,chlor,occ brn mic,tr calc	
	71	93KAT20A-1	Jn	0.26	4.4			2.59		
	57	93KAT21A-1	Jn	469.22	9.4			2.64	FRAC	
	58	93KAT22A-1	Jn	1.25	6.2			2.67		
	69	93KAT26/A-1	Jn	0.02	5.1			2.54		
	5	93KAT3A-2	Kcamp	0.01	3.8			2.78	SS-ltgy,vf-fgr,predvfgr,vwsrtd,rnd,vwcmt,qtz,calc,occ dk arg gr,sid	
	7	93KAT3A-4	Kcamp	0.61	6.4			2.72	SS-ltgy,vf-mgr,predfgr,wsrtd,rnd,vwcmt,qtz,dk arg gr,calc,tr sid	
	43	93KAT4B-2	Kk	0.48	5.1			2.73	SS-ltgy,vf-vcgr,predmgr,psrtd,sbang,vwcmt,qtz,calc,dk mafic gr	
	6	93KAT6B-1	Klcamp	0.28	16.3			2.69	SS-ltgy,f-cgr,predmgr,wsrtd,rnd,vwcmt,qtz,dk mafic gr,occ calc	
	9	93KAT6C-2	Klcamp	0.04	13.2			2.68	SS-mltgy,vf-mgr,predfgr,wsrtd,rnd,vwcmt,qtz,dk arg gr,tr calc	
	35	93KAT6C-5	Kemaes	0.02	12.3			2.70	SS-ltgy,f-cgr,predmgr,wsrtd,sbrnd,vwcmt,qtz,dk mafic gr,lim,calc	
	44	93KAT8A-1	Jn	1.24	8.4			2.64	SS-ltgy,vf-mgr,predfgr,wsrtd,sbrnd,wcmt,qtz,dk mafic gr,chlor	
	39	93KAT8B-1	Jn	1.43	6.7			2.64	SS-ltgy,f-cgr,predmgr,wsrtd,sbrnd,vwcmt,qtz,dk mafic gr,chlor	
	40	93KAT8C-1	Jn	0.02	5.6			2.66	SS-ltbrngy,vfgr,vwsrtd,sbrnd,vwcmt,qtz,dk mafic gr,chlor	
	38	93KAT8D-1	Jn	0.72	7.0			2.64	SS-ltgy,f-cgr,predmgr,wsrtd,sbrnd,vwcmt,qtz,dk mafic gr,calc,occ chlor	
	41	93KAT8E-1	Jn	0.76	5.9			2.67	SS-mltgy,f-cgr,predmgr,wsrtd,sbrnd,wcmt,qtz,chlor,calc,dk mafic gr	
	37	93KAT8H-1	Jn	1.29	6.5			2.64	SS-ltgy,f-cgr,predmgr,wsrtd,sbrnd,vwcmt,qtz,chlor,mic	

	42	93KAT8I-1	Jn	0.01	3.6		2.63		SS-ltgy,vf-fgr,predfgr,wsrtd,sbrnd,vwcmt,qtz,occ dk mafic gr,tr chlor
	66	93LCP1/10	Ksm	3.32	13.1		2.70		
	86	93LCP1/2	Ksm		NO PLUG				
	68	93LCP1/6	Ksm	0.36	5.5		2.67		
	83	93LCP1/7	Ksm	2.57	8.3		2.71		
	52	93LCP1/8	Ksm	0.26	9.0		2.75		
	63	93LCP1/9	Ksm	1.07	11.0		2.74		
	59	93LCP2/1	Ksm	504.21	8.2		2.48		FRAC
	70	93LCP3/2	Jrg	0.37	8.9		2.77		
	56	93LCP4/1	Jrg	0.01	3.6		2.73		

COASTAL SCIENCE LABORATORIES, INC.

6000 Mountain Shadows Drive • Austin, Texas 78735 • (512) 288-5533

October 8, 1993

Arco Oil and Gas Company
Attn: Mr. Chuck Roberts
2300 West Plano Parkway
Plano, TX 75075

Dear Mr. Roberts:

We have completed stable carbon isotope analysis of your samples received recently. The data are reported relative to the PDB standard and are believed accurate to 0.2 per mil.

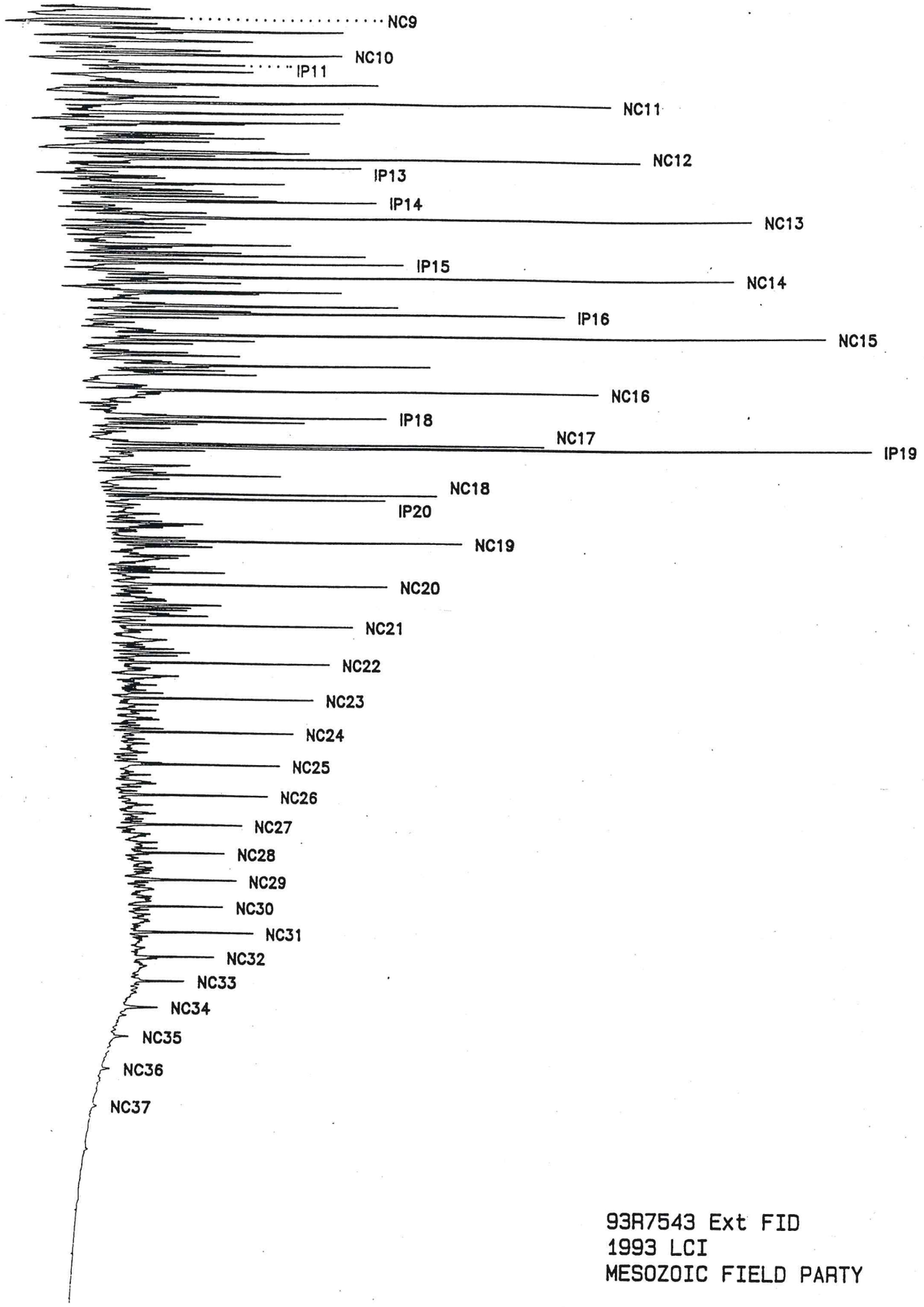
YO3400 Sample		del $^{13}C_{PDB}$
93R7542	sat	-29.9
	aro	-28.9
93R7543	sat	-29.9
	aro	-28.8
93R7545	sat	-29.9
	aro	-28.9

Yours truly,

Kenneth Winters
Laboratory Manager

KW:lp

CSL Ref:AT0



93R7543 Ext FID
1993 LCI
MESOZOIC FIELD PARTY

SAMPLE: 93R7543 RESULT FILE: E93R7543.RES

	AREA%
NORMAL PARAFFINS	20.876
ISOPRENOIDS	9.107
RESOLVED UNKNOWNS	70.016

NAME	AREA%	NAME	AREA%
NC9	1.194	NC20	.677
NC10	1.368	NC21	.555
IP11	.907	NC22	.466
NC11	1.646	NC23	.435
NC12	1.551	NC24	.394
IP13	.934	NC25	.361
IP14	.697	NC26	.363
NC13	1.903	NC27	.341
IP15	.898	NC28	.210
NC14	1.940	NC29	.371
IP16	1.366	NC30	.226
NC15	1.964	NC31	.297
NC16	1.438	NC32	.177
IP18	.985	NC33	.134
NC17	1.100	NC34	.144
IP19	2.393	NC35	.043
NC18	.762	NC36	.031
IP20	.928	NC37	.025
NC19	.759		

REQUESTED CALCULATIONS USING AREA PERCENT VALUES FROM:

SAMPLE: 93R7543 RESULT FILE: E93R7543.RES

RATIOS:

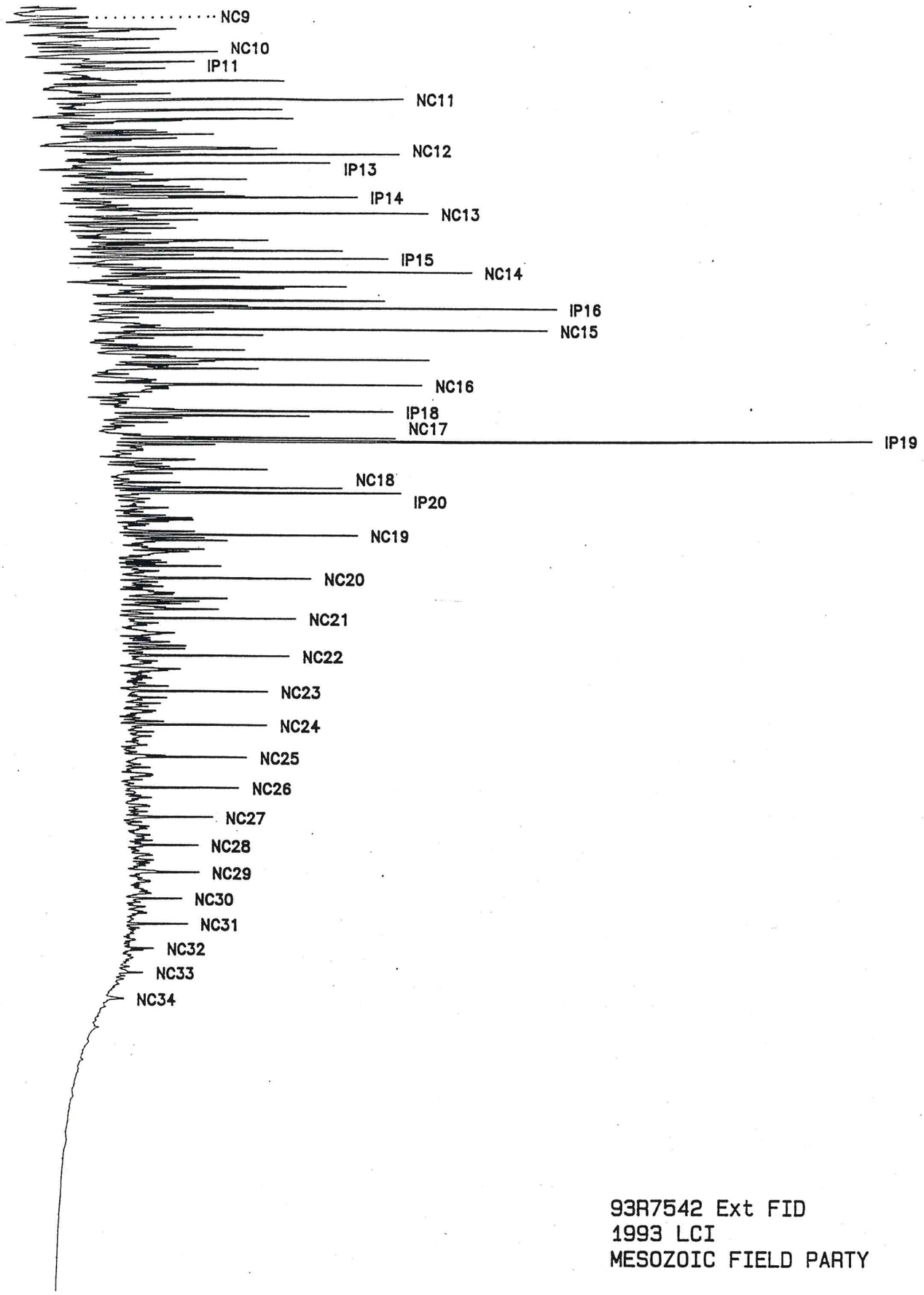
PRISTANE / PHYTANE	=	2.580
NC17 / IP19	=	.459
NC18 / IP20	=	.821
NC18 / NC19	=	1.004

CPI = 1.219

NORMALIZATION OF NC17, IP19, AND NC21:

NC17	=	27.167
IP19	=	59.124
NC21	=	13.709

GENERAL FILE NAME: E93R7543.GEN



93R7542 Ext FID
1993 LCI
MESOZOIC FIELD PARTY

SAMPLE: 93R7542 RESULT FILE: E93R7542.RES

	AREA%
NORMAL PARAFFINS	16.767
ISOPRENOIDS	10.529
RESOLVED UNKNOWNS	72.704

NAME	AREA%	NAME	AREA%
NC9	.720	IP20	1.127
NC10	1.021	NC19	.611
IP11	.821	NC20	.552
NC11	1.319	NC21	.513
NC12	1.362	NC22	.453
IP13	1.000	NC23	.398
IP14	.787	NC24	.419
NC13	1.189	NC25	.336
IP15	1.056	NC26	.314
NC14	1.631	NC27	.303
IP16	1.551	NC28	.181
NC15	1.635	NC29	.301
NC16	1.270	NC30	.156
IP18	1.189	NC31	.176
NC17	.988	NC32	.088
IP19	2.999	NC33	.097
NC18	.618	NC34	.118

REQUESTED CALCULATIONS USING AREA PERCENT VALUES FROM:

SAMPLE: 93R7542 RESULT FILE: E93R7542.RES

RATIOS:

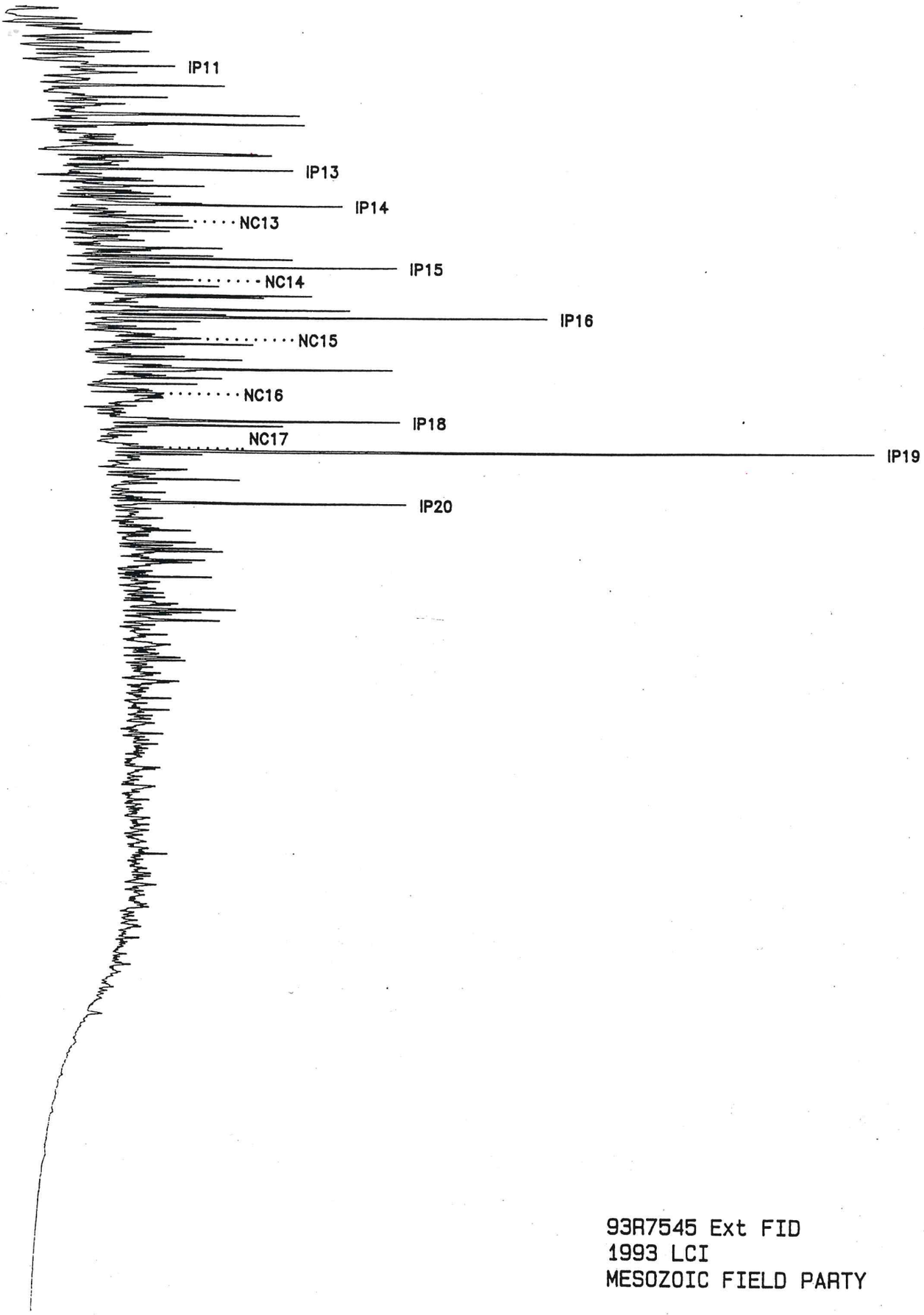
PRISTANE / PHYTANE	=	2.661
NC17 / IP19	=	.330
NC18 / IP20	=	.548
NC18 / NC19	=	1.011

CPI = 1.233

NORMALIZATION OF NC17, IP19, AND NC21:

NC17	=	21.963
IP19	=	66.637
NC21	=	11.399

GENERAL FILE NAME: E93R7542.GEN



93R7545 Ext FID
1993 LCI
MESOZOIC FIELD PARTY

SAMPLE: 93R7545 RESULT FILE: E93R7545.RES

	AREA%
NORMAL PARAFFINS	3.361
ISOPRENOIDS	11.610
RESOLVED UNKNOWNS	85.029

NAME	AREA%	NAME	AREA%
IP11	.434	NC15	.868
IP13	1.070	NC16	.215
IP14	.906	IP18	1.405
NC13	.966	NC17	.345
IP15	1.193	IP19	3.544
NC14	.967	IP20	1.364
IP16	1.695		

REQUESTED CALCULATIONS USING AREA PERCENT VALUES FROM:

SAMPLE: 93R7545 RESULT FILE: E93R7545.RES

RATIOS:

PRISTANE / PHYTANE	=	2.599
NC17 / IP19	=	.097
NC18 / IP20	=	0.000
NC18 / NC19	=	********

CPI = ********

NORMALIZATION OF NC17, IP19, AND NC21:

NC17	=	8.874
IP19	=	91.126
NC21	=	0.000

GENERAL FILE NAME: E93R7545.GEN

COASTAL SCIENCE LABORATORIES, INC.
6000 Mountain Shadows Drive • Austin, Texas 78735 • (512) 288-5533
October 8, 1993

Arco Oil and Gas Company
Attn: Mr. Chuck Roberts
2300 West Plano Parkway
Plano, TX 75075

Dear Mr. Roberts:

We have completed stable carbon isotope analysis of your samples received recently. The data are reported relative to the PDB standard and are believed accurate to 0.2 per mil.

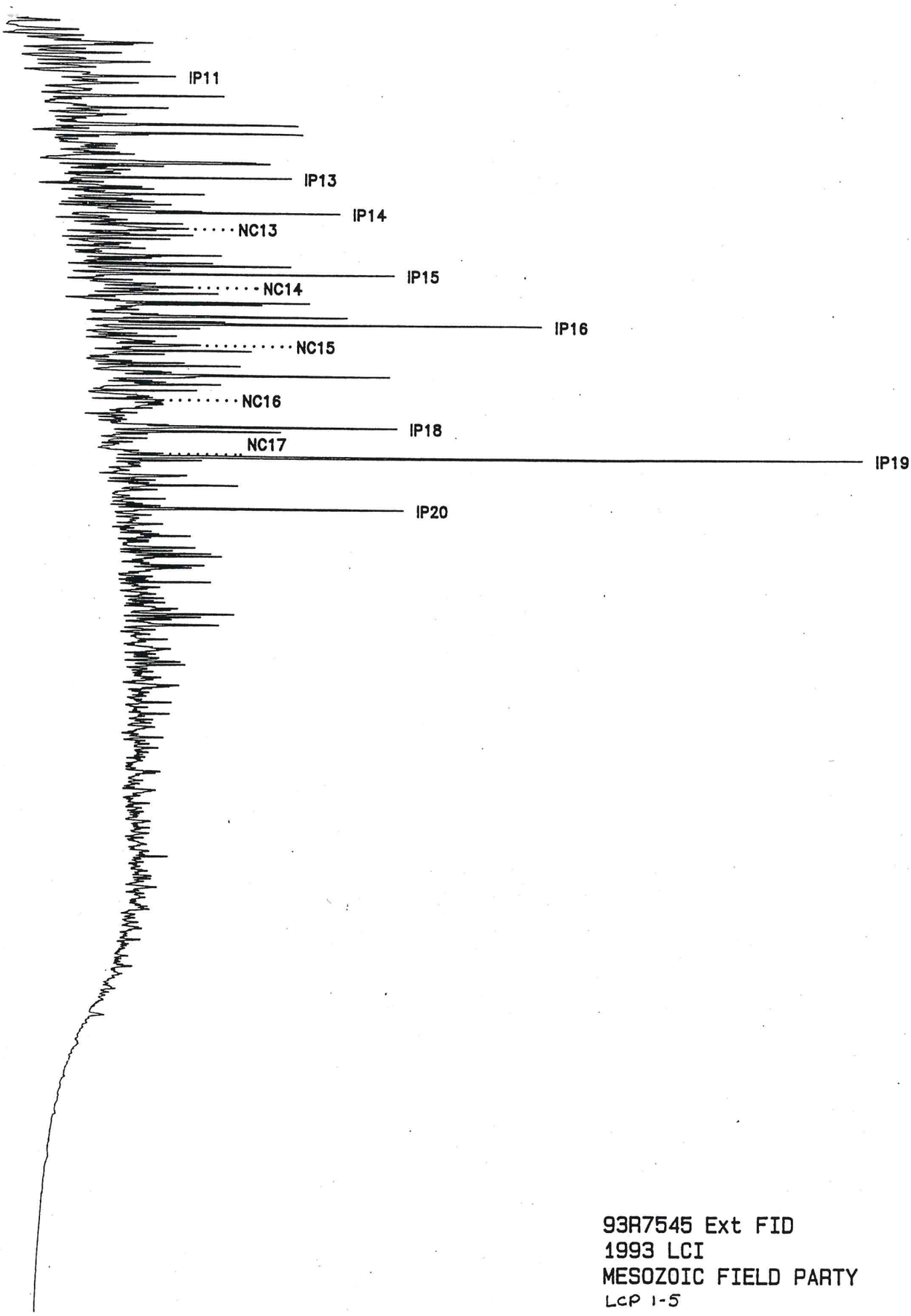
YO3400	Sample		del $^{13}C_{PDB}$
93LCP 1-1	93R7542	sat	-29.9
		aro	-28.9
93LCP 1-3	93R7543	sat	-29.9
		aro	-28.8
93LCP 1-5	93R7545	sat	-29.9
		aro	-28.9

Yours truly,

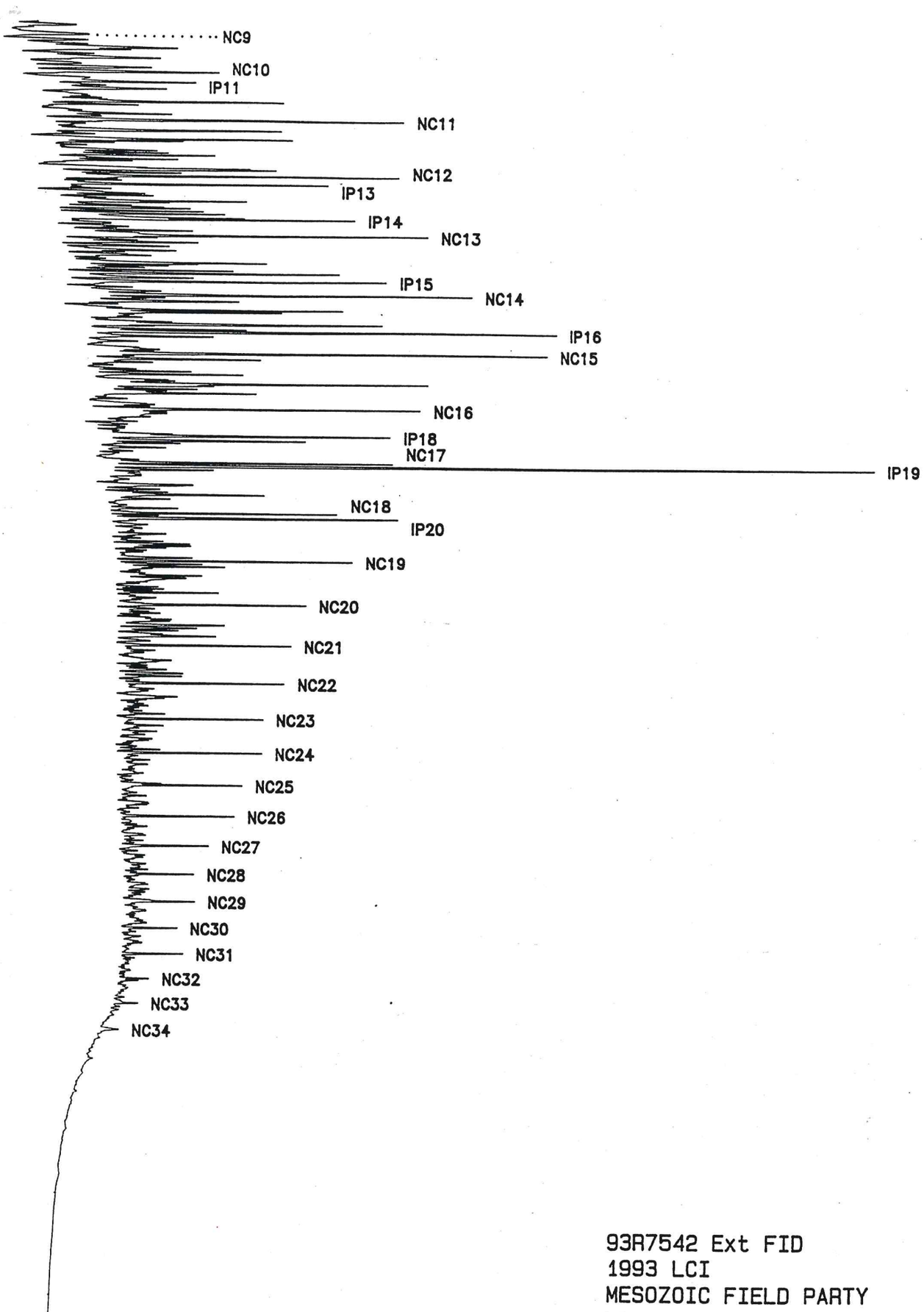
Kenneth Winters
Laboratory Manager

KW:lp

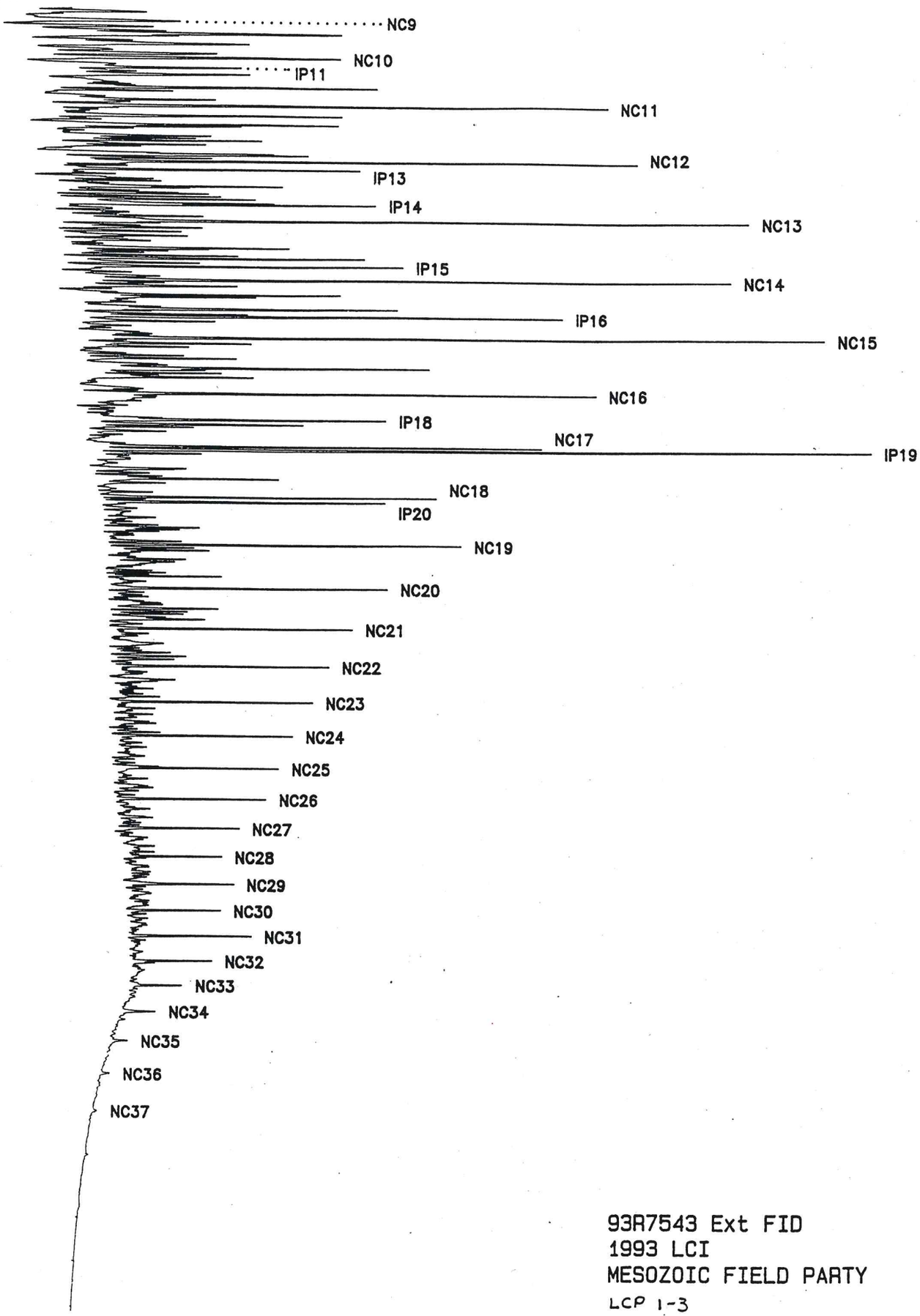
CSL Ref:ATO



93R7545 Ext FID
1993 LCI
MESOZOIC FIELD PARTY
LCP 1-5



93R7542 Ext FID
1993 LCI
MESOZOIC FIELD PARTY
LCP 1-1



93R7543 Ext FID
1993 LCI
MESOZOIC FIELD PARTY
LCP 1-3

Stop #	Spl	Purpose	Deg.	Min.	Sec.	Latitude	Deg.	Min.	Sec.	Longitude	Geographic Area	Scn	Twp	N-S	Rng	E-W	Quad.	Fm.	Coll. By	
		All paleo,paly, etc. will be processed for paly and forams																		
93KAT106B	5	VIT	59	4	34	59.07611	153	45	39	153.760833	Douglas River Island	3	13	S	27	W	ILIAMNA (A-1&2)	Jn	TDV,BM	
93KAT106C	4	VIT	59	4	28	59.07444	153	44	51	153.7475	Douglas River Island	2	13	S	27	W	ILIAMNA (A-1&2)	Ks	DD,SK	
93KAT10H	2	VITRINITE	58	50	47	58.84639	153	56	40	153.944444	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK	
93KAT10K	2	VITRINITE	58	51	1	58.85028	153	57	18	153.955	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK	
93KAT11A	3	VITRINITE	58	51	7	58.85194	153	57	51	153.964167	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk		
93KAT1A	1	VITRINITE	58	0	9	58.0025	154	47	8	154.785556	MT. PEDMAR	24	25	S	34	W	MT. KATMAI (A3)	Jn?	GVK	
93KAT1D	1	VITRINITE	58	0	7	58.00194	154	46	41	154.778056	MT. PEDMAR	19	25	S	33	W	MT. KATMAI (A3)	Kk?	GVK	
93KAT3A	3	VITRINITE	58	0	46	58.01278	154	44	15	154.7375	MT. PEDMAR	17	25	S	33	W	MT. KATMAI (A3)	Kk		
93KAT4B	1	VITRINITE	58	1	47	58.02972	154	36	39	154.610833	CAPE ILKTUGITAK	7	25	S	33	W	MT. KATMAI (A2)	Kk	GVK	
93KAT6C	3	VIT.	58	0	9	58.0025	154	46	15	154.770833	MT. PEDMAR	17	25	S	33	W	MT. KATMAI (A3)	Kp/Kk?	GVK	
93KAT8G	1A	VITRINITE	58	33	22	58.55611	154	6	26	154.107222	S. KAGUYAK CRATER	5	19	S	29	W	MT. KATMAI (C1)	Jn	GVK	
93LCP1	1	EXTRACT	59	58	57	59.9825	152	41	51	152.6975	SADDLE MOUNTAIN	27	2	S	20	W	SELDOVIA (D-8)	Ksm	TDV,SK,DD,BM	
93LCP1	3	EXTRACT	59	58	57	59.9825	152	41	51	152.6975	SADDLE MOUNTAIN	27	2	S	20	W	SELDOVIA (D-8)	Ksm	TDV,SK,DD,BM	
93LCP1	4	EXTRACT	59	58	57	59.9825	152	41	51	152.6975	SADDLE MOUNTAIN	27	2	S	20	W	SELDOVIA (D-8)	Ksm	TDV,SK,DD,BM	
93LCP1	5	EXTRACT	59	58	57	59.9825	152	41	51	152.6975	SADDLE MOUNTAIN	27	2	S	20	W	SELDOVIA (D-8)	Ksm	TDV,SK,DD,BM	
93LCP4	2	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM	
93LCP4	3	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM	
93LCP4	4	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM	
93LCP4	5	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM	
93LCP4	6	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM	
93LCP4	7	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM	
93LCP4	8	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM	
93LCP4	9	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM	
93LCP4	10	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM	
93LCP4	11	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM	
93LCP4	12	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM	
93LCP4	13	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM	
93LCP4	14	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM	
93LCP4	15	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM	
93LCP4	16	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM	

Description & Comments	Lab #	VR	S1	S2	TOC	TMAX	HI	OI	S3	HC	Stop #
DOUGLAS RIVER ISLAND SECTION	93R7531	0.29									93KAT106B
DOUGLAS RIVER ISLAND SECTION	93R7532	0.43									93KAT106C
	93R7533	0.36									93KAT10H
	93R7534	0.44									93KAT10K
	93R7535	0.46									93KAT11A
KAT=KATMAI AREA	93R7536	0.54									93KAT1A
	93R7537	0.71									93KAT1D
	93R7538	0.67									93KAT3A
	93R7539	1.34									93KAT4B
	93R7540	0.72									93KAT6C
	93R7544	0.59									93KAT8G
9' IN SADDLE MT. SEC.											93LCP1
8' IN SADDLE MT. SEC.											93LCP1
8' IN SADDLE MT. SEC.											93LCP1
20' IN SADDLE MT. SEC.											93LCP1
	93R8212	0.55	0.04	0.33	0.97	499	34	54	0.52	4.1	93LCP4
	93R8213	1	0.1	0.34	1.03	496	33	51	0.52	9.7	93LCP4
		No sample									93LCP4
		No sample									93LCP4
	93R8214	1.09	0.2	0.54	1.49	491	36	41	0.61	13.4	93LCP4
	93R8215	1.17	0.18	0.48	1.58	491	30	37	0.59	11.4	93LCP4
	93R8216	1.26	0.13	0.21	1.17	458	18	41	0.48	11.1	93LCP4
	93R8217	1.3	0.03	0.17	0.35	490	49	140	0.49	8.6	93LCP4
	93R8218	1.04	0.14	0.24	1.07	498	22	41	0.44	13.1	93LCP4
	93R8219	1.22	0.02	0.14	0.83	499	17	87	0.72	2.4	93LCP4
	93R8220	1	0.01	0.05	0.08	472	63	438	0.35	12.5	93LCP4
	93R8221	0.76	0.16	0.43	1.44	485	30	44	0.63	11.1	93LCP4
	93R8222	1.15	0.03	0.29	1.39	480	21	112	1.55	2.2	93LCP4
	93R8223	1.32	0.02	0.15	1.24	487	12	70	0.87	1.6	93LCP4
	93R8224	1.05	0.02	0.11	0.28	493	39	111	0.31	7.1	93LCP4

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93 LCI-paly sample

Stop #	Spl#	Purpose	Deg.	Min.	Sec.	Latitude	Deg.	Min.	Sec.	Longitude	Geographic Area	Scn	Twp	N-S	Rng	E-W	Quad.	Fm.	Coll. By		Description & Comments	Palynology	
		All paleo,paly, etc. will be processed for paly and forams																					
93KAT100	Stop		58	44	2	58.73389	153	57	48	153.963333	S. FORK KAMISHAK RIV.	6	17	S	28	W	AFOGNAK (C6)						
93KAT101A	Stop		58	51	55	58.86528	154	3	27	154.0575	KAMISHAK MTN.	23	15	S	29	W	MT. KATMAI (D1)	Khl,Kk			MEASURED SECTION (Kh/Kk)		
93KAT101B	1	PALEO	58	52	0	58.86667	154	3	31	154.058611	KAMISHAK MTN.	23	15	S	29	W	MT. KATMAI (D1)	Khl,Kk	TV,BM,GH			E. Barremian	
93KAT101B	2	P&P/TS	58	52	0	58.86667	154	3	31	154.058611	KAMISHAK MTN.	23	15	S	29	W	MT. KATMAI (D1)	Khl,Kk	TV,BM,GH				
93KAT101B	3	PALEO	58	52	0	58.86667	154	3	31	154.058611	KAMISHAK MTN.	23	15	S	29	W	MT. KATMAI (D1)	Khl,Kk	TV,BM,GH			E. Barr.-Haut.	
93KAT101C	2	PALEO	58	52	3	58.8675	154	3	36	154.06	KAMISHAK MTN.	23	15	S	29	W	MT. KATMAI (D1)	Khl,Kk	TV,BM,GH			Not Processed	
93KAT101D	1	P&P/TS	58	52	7	58.86861	154	3	39	154.060833	KAMISHAK MTN.	23	15	S	29	W	MT. KATMAI (D1)	Khl,Kk	TV,BM,GH				
93KAT102	Stop		58	54	56	58.91556	153	36	31	153.608611	SPOTTED GLACIER	34	14	S	26	W	AFOGNAK (D5)	Kk			DOUGLAS RIVER MEASURED SECTION		
93KAT102A	1	P&P/TS	58	54	56	58.91556	153	36	31	153.608611	SPOTTED GLACIER	34	14	S	26	W	AFOGNAK (D5)	Kk	TV,BM,GH		DOUGLAS RIVER MEASURED SECTION		
93KAT102A	2	PALEO.	58	54	56	58.91556	153	36	31	153.608611	SPOTTED GLACIER	34	14	S	26	W	AFOGNAK (D5)	Kk	TV,BM,GH		DOUGLAS RIVER MEASURED SECTION	Therm. Alt.	
93KAT102B	Stop		58	54	56	58.91556	153	36	31	153.608611	SPOTTED GLACIER	34	14	S	26	W	AFOGNAK (D5)	Kk			DOUGLAS RIVER MEASURED SECTION		
93KAT102C	1	PALEO.	58	54	48	58.91333	153	36	28	153.607778	SPOTTED GLACIER	3	15	S	26	W	AFOGNAK (D5)	Kk	TV,BM,GH		DOUGLAS RIVER MEASURED SECTION	Therm. Alt.	
93KAT102C	2	TS	58	54	48	58.91333	153	36	28	153.607778	SPOTTED GLACIER	3	15	S	26	W	AFOGNAK (D5)	Kk	TV,BM,GH		DOUGLAS RIVER MEASURED SECTION		
93KAT102D	1	PALEO.	58	54	42	58.91167	153	36	27	153.6075	SPOTTED GLACIER	3	15	S	26	W	AFOGNAK (D5)	Kk	TV,BM,GH		DOUGLAS RIVER MEASURED SECTION	Therm. Alt.	
93KAT103A	1	P&P/TS	58	53	8	58.88556	153	41	42	153.695	TWIN GLACIER	12	15	S	27	W	AFOGNAK (D6)	Jn, Khl	TV,BM,GH		TWIN GLACIERS MEASURED SECTION		
93KAT103A	2	P&P/TS	58	53	8	58.88556	153	41	42	153.695	TWIN GLACIER	12	15	S	27	W	AFOGNAK (D6)	Jn, Khl	TV,BM,GH		TWIN GLACIERS MEASURED SECTION		
93KAT103B	1	PALEO.	58	53	8	58.88556	153	41	42	153.695	TWIN GLACIER	12	15	S	27	W	AFOGNAK (D6)	Jn, Khl	TV,BM,GH		TWIN GLACIERS MEASURED SECTION	Therm. Alt.	
93KAT103C	STOP		58	53	6	58.885	153	41	40	153.694444	TWIN GLACIER	12	15	S	27	W	AFOGNAK (D6)	Jn, Khl	TV,BM,GH		TWIN GLACIERS MEASURED SECTION		
93KAT103D	1	PALEO.	58	53	5	58.88472	153	41	38	153.693889	TWIN GLACIER	12	15	S	27	W	AFOGNAK (D6)	Jn, Khl	TV,BM,GH		TWIN GLACIERS MEASURED SECTION	Therm. Alt.	
93KAT103E	1	P&P/TS	58	53	3	58.88417	153	41	30	153.691667	TWIN GLACIER	18	15	S	26	W	AFOGNAK (D6)	Jn, Khl	TV,BM,GH		TWIN GLACIERS MEASURED SECTION		
93KAT103E	2	PALEO.	58	53	3	58.88417	153	41	30	153.691667	TWIN GLACIER	18	15	S	26	W	AFOGNAK (D6)	Jn, Khl	TV,BM,GH		TWIN GLACIERS MEASURED SECTION	Therm. Alt.	
93KAT104A	1	Paleo	58	24	11	58.40306	154	15	40	154.261111	Hallo Glacier	32	20	S	30	W	Mt. Katmai B-1	Kk	Tdv, JVF, BM		HALLO GLACIER MEASURED SECTION	Therm. Alt.	
93KAT104B	1	Paleo	58	23	56	58.39889	154	16	8	154.268889	Hallo Glacier	32	20	S	30	W	Mt. Katmai B-1	Kk	Tdv, JVF, BM		HALLO GLACIER MEASURED SECTION	Therm. Alt.	
93KAT104B	2	Paleo	58	23	56	58.39889	154	16	8	154.268889	Hallo Glacier	32	20	S	30	W	Mt. Katmai B-1	Kk	Tdv, JVF, BM		HALLO GLACIER MEASURED SECTION	Therm. Alt.	
93KAT104C	1	P&P, TS	58	23	6	58.385	154	16	19	154.271944	Hallo Glacier	1	21	S	31	W	Mt. Katmai B-1	Kk	TDV,BM		HALLO GLACIER MEASURED SECTION		
93KAT104C	2	Paleo	58	23	6	58.385	154	16	19	154.271944	Hallo Glacier	1	21	S	31	W	Mt. Katmai B-1	Kk	TDV,BM		HALLO GLACIER MEASURED SECTION	Therm. Alt.	
93KAT104C	3	Paleo	58	23	6	58.385	154	16	19	154.271944	Hallo Glacier	1	21	S	31	W	Mt. Katmai B-1	Kk	TDV,BM		HALLO GLACIER MEASURED SECTION	Therm. Alt.	
93KAT105	Stop		58	0	9	58.0025	154	47	8	154.785556	MT. PEDMAR	24	25	S	34	W	MT. KATMAI (A3)	Kp,Kk			Remeas. of section #14 from 1991		
																					fld prog. see stop 93KAT1&6		
																					for sample locations.		
93KAT106A	1	P&P, TS	59	4	28	59.07444	153	44	51	153.7475	Douglas River Island	2	13	S	27	W	ILIAMNA (A-1&2)	Ks	TDV,BM		DOUGLAS RIVER ISLAND SECTION		
93KAT106A	2	P&P, TS	59	4	25	59.07361	153	44	42	153.745	Douglas River Island	2	13	S	27	W	ILIAMNA (A-1&2)	Ks	TDV,BM		DOUGLAS RIVER ISLAND SECTION		
93KAT106A	3	Fission Track	59	4	25	59.07361	153	44	42	153.745	Douglas River Island	2	13	S	27	W	ILIAMNA (A-3)	Ks	TDV,BM		DOUGLAS RIVER ISLAND SECTION		
93KAT106B	1	P&P,TS	59	4	34	59.07611	153	45	39	153.760833	Douglas River Island	3	13	S	27	W	ILIAMNA (A-1&2)	Jn	TDV,BM		DOUGLAS RIVER ISLAND SECTION		
93KAT106B	2	PALEO	59	4	34	59.07611	153	45	39	153.760833	Douglas River Island	3	13	S	27	W	ILIAMNA (A-1&2)	Jn	TDV,BM		DOUGLAS RIVER ISLAND SECTION	Therm. Alt.	
93KAT106B	3	FISSION TRACK	59	4	34	59.07611	153	45	39	153.760833	Douglas River Island	3	13	S	27	W	ILIAMNA (A-1&2)	Jn	TDV,BM		57' IN SECTION		
93KAT106B	4	P&P,TS	59	4	34	59.07611	153	45	39	153.760833	Douglas River Island	3	13	S	27	W	ILIAMNA (A-1&2)	Jn	TDV,BM		DOUGLAS RIVER ISLAND SECTION		
93KAT106B	5	VIT	59	4	34	59.07611	153	45	39	153.760833	Douglas River Island	3	13	S	27	W	ILIAMNA (A-1&2)	Jn	TDV,BM		DOUGLAS RIVER ISLAND SECTION		
93KAT106B	6	P&P,TS	59	4	34	59.07611	153	45	39	153.760833	Douglas River Island	3	13	S	27	W	ILIAMNA (A-1&2)	Jn	TDV,BM		DOUGLAS RIVER ISLAND SECTION		
93KAT106C	1	P&P,TS	59	4	28	59.07444	153	44	51	153.7475	Douglas River Island	2	13	S	27	W	ILIAMNA (A-1&2)	Ks	DD,SK		DOUGLAS RIVER ISLAND SECTION		
93KAT106C	2	MACRO	59	4	28	59.07444	153	44	51	153.7475	Douglas River Island	2	13	S	27	W	ILIAMNA (A-1&2)	Ks	DD,SK		DOUGLAS RIVER ISLAND SECTION		
93KAT106C	3	MACRO	59	4	28	59.07444	153	44	51	153.7475	Douglas River Island	2	13	S	27	W	ILIAMNA (A-1&2)	Ks	DD,SK		DOUGLAS RIVER ISLAND SECTION		
93KAT106C	4	VIT	59	4	28	59.07444	153	44	51	153.7475	Douglas River Island	2	13	S	27	W	ILIAMNA (A-1&2)	Ks	DD,SK		DOUGLAS RIVER ISLAND SECTION		
93KAT107A	1	PALEO FRM CLAST	59	3	46	59.06278	153	45	48	153.763333	Douglas River Island	10	13	S	27	W	ILIAMNA (A-3)	Ks	TDV,BM		Douglas River Ks Channel Complex	Therm. Alt.	
93KAT107A	2	PALEO	59	3	46	59.06278	153	45	48	153.763333	Douglas River Island	10	13	S	27	W	ILIAMNA (A-3)	Ks	TDV,BM		Douglas River Ks Channel Complex	JR-Tithonian?	
93KAT107A	3	TS	59	3	46	59.06278	153	45	48	153.763333	Douglas River Island	10	13	S	27	W	ILIAMNA (A-3)	Ks	TDV,BM		Douglas River Ks Channel Complex		
93KAT107A	4	P&P,TS	59	3	46	59.06278	153	45	48	153.763333	Douglas River Island	10	13	S	27	W	ILIAMNA (A-3)	Ks	TDV,BM		Douglas River Ks Channel Complex		
93KAT107A	5	P&P,TS	59	3	46	59.06278	153	45	48	153.763333	Douglas River Island	10	13	S	27	W	ILIAMNA (A-3)	Ks	TDV,BM		Douglas River Ks Channel Complex		
93KAT108	Stop		58	44	56	58.74889	154	5	52	154.097778	N. KAGUYAK CRATER	5	17	S	29	W	MT. KATMAI (C-1)	Khl			Visual insepction from helicopter		
93KAT109A	1	P&P,TS	58	41	51	58.6975	154	0	39	154.010833	N. KAGUYAK CRATER	23	17	S	29	W	MT. KATMAI (C-1)	Khl	TDV, BM		Recon measured section of Herendeen		
93KAT109A	2	PALY	58	41	51	58.6975	154	0	39	154.010833	N. KAGUYAK CRATER		17	S	29	W	MT. KATMAI (C-1)	Khl	TDV, BM			Not Processed	
93KAT10A	Stop	P&P,TS	58	51	2	58.85056	153	57	39	153.960833	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk					
93KAT10B	1	P&P,TS	58	50	30	58.84167	153	56	10	153.936111	W. DOUGLAS RIVER	27	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK				

93 LCI-paly sample

93KAT10C	1	P&P/TS	58	50	36	58.84333	153	56	16	153.937778	W. DOUGLAS RIVER	27	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK				
93KAT10D	1	P&P,TS	58	50	37	58.84361	153	56	20	153.938889	W. DOUGLAS RIVER	27	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK				
93KAT10E	1	P&P,TS	58	50	38	58.84389	153	56	24	153.94	W. DOUGLAS RIVER	27	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK				
93KAT10F	1	P&P/TS	58	50	42	58.845	153	56	30	153.941667	W. DOUGLAS RIVER	27	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK				
93KAT10G	1	P&P/TS	58	50	45	58.84583	153	56	36	153.943333	W. DOUGLAS RIVER	27	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK				
93KAT10H	1	Paleo	58	50	47	58.84639	153	56	40	153.944444	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK			E. Maestrichtian	
93KAT10H	2	VITRINITE	58	50	47	58.84639	153	56	40	153.944444	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK				
93KAT10I	1	P&P,TS	58	50	56	58.84889	153	57	6	153.951667	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK				
93KAT10J	1	P&P,TS	58	50	59	58.84972	153	57	12	153.953333	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK				
93KAT10K	1	PALEO.	58	51	1	58.85028	153	57	18	153.955	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK			E. Barremian	
93KAT10K	2	VITRINITE	58	51	1	58.85028	153	57	18	153.955	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK				
93KAT10L	1	P&P,TS	58	51	1	58.85028	153	57	25	153.956944	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK				
93KAT10M	1	P&P,TS	58	51	1	58.85028	153	57	25	153.956944	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK				
93KAT10N	1	P&P,TS	58	51	1	58.85028	153	57	34	153.959444	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK				
93KAT110A	1	P&P,TS	59	0	47	59.01306	154	1	23	154.023056	N. Kamishak Hills	31	13	S	28	W	ILIAMNA (A-3)	K	TDV,BM,JVF,DC		RECON SECTION		
93KAT110A	2	TS	59	0	47	59.01306	154	1	23	154.023056	N. Kamishak Hills	31	13	S	28	W	ILIAMNA (A-3)	K	TDV,BM,JVF,DC		RECON SECTION		
93KAT110A	3	PALEO	59	0	47	59.01306	154	1	23	154.023056	N. Kamishak Hills	31	13	S	28	W	ILIAMNA (A-3)	K	TDV,BM,JVF,DC		RECON SECTION	Indeterminate	
93KAT111A	1	TS	58	53	41	58.89472	153	37	12	153.62	SPOTTED GLACIER	9	15	S	26	W	AFOGNAK (D5)		TDV,BM		Cont. of section from 93KAT102		
93KAT112A	1	P&P/TS	58	58	1	58.96694	153	59	39	153.994167	Kamishak Hills	17	14	S	28	W	AFOGNAK (D6)	Kst ?	TDV, BM,DD		Cret. Channels in Naknek.		
93KAT112A	2	MACRO	58	58	1	58.96694	153	59	39	153.994167	Kamishak Hills	17	14	S	28	W	AFOGNAK (D6)	Kst ?	TDV, BM,DD		Cret. Channels in Naknek.		
93KAT112A	3	PALEO	58	58	1	58.96694	153	59	39	153.994167	Kamishak Hills	17	14	S	28	W	AFOGNAK (D6)	Kst ?	TDV, BM,DD		Cret. Channels in Naknek.	Barren	
93KAT112A	4	TS	58	58	1	58.96694	153	59	39	153.994167	Kamishak Hills	17	14	S	28	W	AFOGNAK (D6)	Kst ?	TDV, BM,DD		Cret. Channels in Naknek.		
93KAT11A	1	P&P/TS	58	51	7	58.85194	153	57	51	153.964167	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk					
93KAT11A	2	P&P/TS	58	51	7	58.85194	153	57	51	153.964167	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk					
93KAT11A	3	VITRINITE	58	51	7	58.85194	153	57	51	153.964167	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk					
93KAT11A	4		58	51	7	58.85194	153	57	51	153.964167	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk					
93KAT11A	5		58	51	7	58.85194	153	57	51	153.964167	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk				E. Barremian	
93KAT11B	1	P&P/TS	58	51	13	58.85361	153	57	59	153.966389	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk					
93KAT11C	1	PALEO	58	51	18	58.855	153	58	8	153.968889	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk				E. Barremian	
93KAT12A	Stop		58	50	38	58.84389	153	57	20	153.955556	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk					
93KAT13A	Stop		58	50	30	58.84167	153	56	10	153.936111	W. DOUGLAS RIVER	27	15	S	28	W	AFOGNAK (D6)	Kk					
93KAT13B	Stop		58	50	26	58.84056	153	56	7	153.935278	W. DOUGLAS RIVER	34	15	S	28	W	AFOGNAK (D6)	Kk					
93KAT13C	1	TS	58	50	11	58.83639	153	56	1	153.933611	W. DOUGLAS RIVER	34	15	S	28	W	AFOGNAK (D6)	Kk					
93KAT13D	Stop		58	49	56	58.83222	153	55	55	153.931944	W. DOUGLAS RIVER	34	15	S	28	W	AFOGNAK (D6)	Kk					
93KAT13E	1	PALEO.	58	50	17	58.83806	153	56	4	153.934444	W. DOUGLAS RIVER	34	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK			E. Barremian	
93KAT14	Stop		58	53	10	58.88611	153	41	55	153.698611	TWIN GLACIERS	12	15	S	27	W	AFOGNAK (D6)	Jn\Kh	GVK,SK,RT,RK				
93KAT15	Stop		58	55	23	58.92306	154	1	3	154.0175	N KAMISHAK HILLS	31	14	S	28	W	MT. KATMAI (D1)	Jn\Kh\Kk	GVK,SK,RT,RK				
93KAT16	Stop		58	55	9	58.91917	154	1	46	154.029444	N KAMISHAK HILLS	36	14	S	29	W	MT. KATMAI (D1)	Jn\Kh\Kk	GVK,SK,RT,RK				
93KAT17	Stop		58	57	3	58.95083	154	0	30	154.008333	N KAMISHAK HILLS	19	14	S	28	W	MT. KATMAI (D1)	Jn\Kk	GVK,SK,RT,RK				
93KAT18	Stop		59	0	17	59.00472	154	0	18	154.005	N KAMISHAK HILLS	31	13	S	28	W	Iliamna A-3	Jn\Kk	GVK,SK,RT,RK				
93KAT19	Stop		58	33	46	58.56278	153	33	35	153.559722	HERENDEEN ISLAND	3	19	S	28	W	AFOGNAK C-6	Kh					
93KAT1A	1	VITRINITE	58	0	9	58.0025	154	47	8	154.785556	MT. PEDMAR	24	25	S	34	W	MT. KATMAI (A3)	Jn?	GVK		KAT=KATMAI AREA		
93KAT1A	2	P&P/TS	58	0	9	58.0025	154	47	8	154.785556	MT. PEDMAR	24	25	S	34	W	MT. KATMAI (A3)	Jn?	GVK				
93KAT1B	Stop		58	0	4	58.00111	154	47	36	154.793333	MT. PEDMAR	24	25	S	34	W	MT. KATMAI (A3)	Ks?					
93KAT1C	Stop		58	0	8	58.00222	154	46	51	154.780833	MT. PEDMAR	19	25	S	33	W	MT. KATMAI (A3)	Ks?					
93KAT1D	1	VITRINITE	58	0	7	58.00194	154	46	41	154.778056	MT. PEDMAR	19	25	S	33	W	MT. KATMAI (A3)	Kk?	GVK				
93KAT1D	2	P&P/TS	58	0	7	58.00194	154	46	41	154.778056	MT. PEDMAR	19	25	S	33	W	MT. KATMAI (A3)	Kk?	GVK				
93KAT2	Stop		58	3	19	58.05528	154	49	51	154.830833	MT. PEDMAR	34	24	S	34	W	MT. KATMAI (A3)						
93KAT20A	1	P&P, TS	59	3	53	59.06472	153	49	21	153.8225	Kamishak Bay	8	13	S	27	W	Iliamna A-3	JN	GVK, DI, MC				
93KAT21A	1	P&P, TS	59	6	33	59.10917	153	52	38	153.877222	Kamishak Bay	25?	12	S	28	W	Iliamna A-3	JN	GVK, DI, MC		Samples taken at low tide		
93KAT22A	1	P&P, TS	59	6	18	59.105	153	43	48	153.73	Kamishak Bay	26	12	S	27	W	Iliamna A1 & A2	JN	GVK, DC, DI		Samples taken at low tide		
93KAT23	Stop		58	27	28	58.45778	154	0	7	154.001944	Hallo Bay	12	20	S	29	W	MT. KATMAI (B-1)	Jn			Niniagik Island		
93KAT25A	1	FISSION TRACK				0				0													
93KAT26A	1	P&P,TS	59	4	8	59.06889	153	45	15	153.754167	Douglas River Island	10	13	S	27	W	ILIAMNA (A-3)	Jn?	SK				
93KAT3A	1	PALEO.	58	0	46	58.01278	154	44	15	154.7375	MT. PEDMAR	17	25	S	33	W	MT. KATMAI (A3)	Kk				Campanian	

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93KAT3A	2	P&P/TS	58	0	46	58.01278	154	44	15	154.7375	MT. PEDMAR	17	25	S	33	W	MT. KATMAI (A3)	Kk					
93KAT3A	3	VITRINITE	58	0	46	58.01278	154	44	15	154.7375	MT. PEDMAR	17	25	S	33	W	MT. KATMAI (A3)	Kk					
93KAT4A	Stop		58	1	47	58.02972	154	36	54	154.615	CAPE ILKTUGITAK	7	25	S	33	W	MT. KATMAI (A2)	Kk					
93KAT4B	1	VITRINITE	58	1	47	58.02972	154	36	39	154.610833	CAPE ILKTUGITAK	7	25	S	33	W	MT. KATMAI (A2)	Kk	GVK				
93KAT4B	2	P&P/TS	58	1	47	58.02972	154	36	39	154.610833	CAPE ILKTUGITAK	7	25	S	33	W	MT. KATMAI (A2)	Kk	GVK				
93KAT4C	1	P&P/TS	58	1	44	58.02889	154	37	0	154.616667	CAPE ILKTUGITAK	7	25	S	33	W	MT. KATMAI (A2)	Kk	GVK				
93KAT5A	1	PALEO.	58	3	20	58.05556	154	42	41	154.711389	DAKAVAK BAY	32	24	S	33	W	MT. KATMAI (A3)	Kk	SK			Barren	
93KAT6A	Stop		58	0	9	58.0025	154	46	15	154.770833	MT. PEDMAR	17	25	S	33	W	MT. KATMAI (A3)						
93KAT6B	1	P&P/TS	58	0	9	58.0025	154	46	15	154.770833	MT. PEDMAR	17	25	S	33	W	MT. KATMAI (A3)	Kp/Kk?	GVK				
93KAT6C	1	PALEO.	58	0	9	58.0025	154	46	15	154.770833	MT. PEDMAR	17	25	S	33	W	MT. KATMAI (A3)	Kp/Kk?	SK			L. Campanian	
93KAT6C	2	P&P/TS	58	0	9	58.0025	154	46	15	154.770833	MT. PEDMAR	17	25	S	33	W	MT. KATMAI (A3)	Kp/Kk?	GVK				
93KAT6C	3	VIT.	58	0	9	58.0025	154	46	15	154.770833	MT. PEDMAR	17	25	S	33	W	MT. KATMAI (A3)	Kp/Kk?	GVK				
93KAT6C	4	PALEO.	58	0	9	58.0025	154	46	15	154.770833	MT. PEDMAR	17	25	S	33	W	MT. KATMAI (A3)	Kp/Kk?	TV			Sant.-E. Maes.	
93KAT6C	5	P&P/TS	58	0	9	58.0025	154	46	15	154.770833	MT. PEDMAR	17	25	S	33	W	MT. KATMAI (A3)	Kp/Kk?	BM				
93KAT7	Stop		58	1	41	58.02806	154	52	10	154.869444	KATMAI BEACH	9	25	S	34	W	MT. KATMAI (A3)						
93KAT8A	1	P&P/TS	58	33	22	58.55611	154	7	22	154.122778	S. KAGUYAK CRATER	6	19	S	29	W	MT. KATMAI (C1)	Jn	GVK				
93KAT8B	1	P&P/TS	58	33	25	58.55694	154	7	12	154.12	S. KAGUYAK CRATER	6	19	S	29	W	MT. KATMAI (C1)	Jn	GVK				
93KAT8C	1	P&P/TS	58	33	27	58.5575	154	6	56	154.115556	S. KAGUYAK CRATER	5	19	S	29	W	MT. KATMAI (C1)	Jn	GVK				
93KAT8D	1	P&P/TS	58	33	28	58.55778	154	6	47	154.113056	S. KAGUYAK CRATER	5	19	S	29	W	MT. KATMAI (C1)	Jn	GVK				
93KAT8E	1		58	33	27	58.5575	154	6	34	154.109444	S. KAGUYAK CRATER	5	19	S	29	W	MT. KATMAI (C1)	Jn			?		
93KAT8E	2	P&P/TS	58	33	27	58.5575	154	6	34	154.109444	S. KAGUYAK CRATER	5	19	S	29	W	MT. KATMAI (C1)	Jn	GVK				
93KAT8F	Stop		58	33	28	58.55778	154	6	28	154.107778	S. KAGUYAK CRATER	5	19	S	29	W	MT. KATMAI (C1)	Jn					
93KAT8G	1	PALEO	58	33	22	58.55611	154	6	26	154.107222	S. KAGUYAK CRATER	5	19	S	29	W	MT. KATMAI (C1)	Jn	GVK			Jurassic	
93KAT8G	1A	VITRINITE	58	33	22	58.55611	154	6	26	154.107222	S. KAGUYAK CRATER	5	19	S	29	W	MT. KATMAI (C1)	Jn	GVK				
93KAT8H	1	P&P/TS	58	33	21	58.55583	154	5	52	154.097778	S. KAGUYAK CRATER	5	19	S	29	W	MT. KATMAI (C1)	Jn	GVK				
93KAT8I	1	?	58	33	12	58.55333	154	5	39	154.094167	S. KAGUYAK CRATER	5	19	S	29	W	MT. KATMAI (C1)	Jn	GVK				
93KAT8J	1	PALEO	58	33	10	58.55278	154	5	35	154.093056	S. KAGUYAK CRATER	5	19	S	29	W	MT. KATMAI (C1)	Jn	GVK			Jurassic	
93KAT8K	1	PALEO	58	33	7	58.55194	154	5	39	154.094167	S. KAGUYAK CRATER	8	19	S	29	W	MT. KATMAI (C1)	Jn	GVK			Barren	
93KAT9A	Stop		58	49	23	58.82306	154	3	58	154.066111	S. FORK KAMISHAK RIV.	2	16	S	29	W	MT. KATMAI (D1)						
93KAT9B	Stop		58	49	9	58.81917	154	3	22	154.056111	S. FORK KAMISHAK RIV.	2	16	S	29	W	MT. KATMAI (D1)						
93LCP1	1	EXTRACT	59	58	57	59.9825	152	41	51	152.6975	SADDLE MOUNTAIN	27	2	S	20	W	SELDOVIA (D-8)	Ksm	TDV,SK,DD,BM		9' IN SADDLE MT. SEC.		
93LCP1	2	TS NEEDS IMPREG.	59	58	57	59.9825	152	41	51	152.6975	SADDLE MOUNTAIN	27	2	S	20	W	SELDOVIA (D-8)	Ksm	TDV,SK,DD,BM		8' IN SADDLE MT. SEC.		
93LCP1	3	EXTRACT	59	58	57	59.9825	152	41	51	152.6975	SADDLE MOUNTAIN	27	2	S	20	W	SELDOVIA (D-8)	Ksm	TDV,SK,DD,BM		8' IN SADDLE MT. SEC.		
93LCP1	4	EXTRACT	59	58	57	59.9825	152	41	51	152.6975	SADDLE MOUNTAIN	27	2	S	20	W	SELDOVIA (D-8)	Ksm	TDV,SK,DD,BM		8' IN SADDLE MT. SEC.		
93LCP1	5	EXTRACT	59	58	57	59.9825	152	41	51	152.6975	SADDLE MOUNTAIN	27	2	S	20	W	SELDOVIA (D-8)	Ksm	TDV,SK,DD,BM		20' IN SADDLE MT. SEC.		
93LCP1	6	P&P, TS	59	58	57	59.9825	152	41	51	152.6975	SADDLE MOUNTAIN	27	2	S	20	W	SELDOVIA (D-8)	Ksm	TDV,SK,DD,BM		28' IN SADDLE MT. SEC.		
93LCP1	7	P&P, TS	59	58	57	59.9825	152	41	51	152.6975	SADDLE MOUNTAIN	27	2	S	20	W	SELDOVIA (D-8)	Ksm	TDV,SK,DD,BM		45' IN SADDLE MT. SEC.		
93LCP1	8	P&P, TS	59	58	57	59.9825	152	41	51	152.6975	SADDLE MOUNTAIN	27	2	S	20	W	SELDOVIA (D-8)	Ksm	TDV,SK,DD,BM		52' IN SADDLE MT. SEC.		
93LCP1	9	P&P, TS	59	58	57	59.9825	152	41	51	152.6975	SADDLE MOUNTAIN	27	2	S	20	W	SELDOVIA (D-8)	Ksm	TDV,SK,DD,BM		55' IN SADDLE MT. SEC.		
93LCP1	10	P&P, TS	59	58	57	59.9825	152	41	51	152.6975	SADDLE MOUNTAIN	27	2	S	20	W	SELDOVIA (D-8)	Ksm	TDV,SK,DD,BM		67.5' IN SADDLE MT. SEC.		
93LCP2	1	P&P, TS	59	56	37	59.94361	152	49	1	152.816944	SHELTER CREEK	1	3	S	21	W	SELDOVIA (D-8)	Ksm					
93LCP2	2	PALY	59	56	37	59.94361	152	49	1	152.816944	SHELTER CREEK	1	3	S	21	W	SELDOVIA (D-8)	Ksm				Barren	
93LCP3	1	Paleo	60	3	1	60.05028	152	53	52	152.897778	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK			Therm. Alt.	
93LCP3	2	P&P,TS	60	3	1	60.05028	152	53	52	152.897778	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK				
93LCP4	1	TS	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM				
93LCP4	2	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM			Barren	
93LCP4	3	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM			Therm. Alt.	
93LCP4	4	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM			Therm. Alt.	
93LCP4	5	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM			Therm. Alt.	
93LCP4	6	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM			Therm. Alt.	
93LCP4	7	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM			Therm. Alt.	
93LCP4	8	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM			Therm. Alt.	
93LCP4	9	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM			Therm. Alt.	
93LCP4	10	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM			Therm. Alt.	
93LCP4	11	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM			Therm. Alt.	

93 LCI-paly sample

93LCP4	12	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM			Therm. Alt.	
93LCP4	13	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM			Therm. Alt.	
93LCP4	14	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM			Therm. Alt.	
93LCP4	15	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM			Therm. Alt.	
93LCP4	16	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM			Therm. Alt.	
93LCP5	1	MAG	60	14	40	60.24444	152	51	4	152.851111	Magnetic Island	24	2	N	21	W	KENAI (A-8)		SK				

Stop #	Spl#	Purpose	Deg.	Min.	Sec.	Latitude	Deg.	Min.	Sec.	Longitude	Geographic Area	Scn	Twp	N-S	Rng	E-W	Quad.	Fm.	Coll. By		Description & Comments
		All paleo,paly, etc. will be processed for paly and forams																			
93KAT100	Stop		58	44	2	58.73389	153	57	48	153.963333	S. FORK KAMISHAK RIV.	6	17	S	28	W	AFOGNAK (C6)				
93KAT101A	Stop		58	51	55	58.86528	154	3	27	154.0575	KAMISHAK MTN.	23	15	S	29	W	MT. KATMAI (D1)	Khl,Kk			MEASURED SECTION (Kh/Kk)
93KAT101B	1	PALEO	58	52	0	58.86667	154	3	31	154.058611	KAMISHAK MTN.	23	15	S	29	W	MT. KATMAI (D1)	Khl,Kk	TV,BM,GH		
93KAT101B	2	P&P/TS	58	52	0	58.86667	154	3	31	154.058611	KAMISHAK MTN.	23	15	S	29	W	MT. KATMAI (D1)	Khl,Kk	TV,BM,GH		
93KAT101B	3	PALEO	58	52	0	58.86667	154	3	31	154.058611	KAMISHAK MTN.	23	15	S	29	W	MT. KATMAI (D1)	Khl,Kk	TV,BM,GH		
93KAT101C	2	PALEO	58	52	3	58.8675	154	3	36	154.06	KAMISHAK MTN.	23	15	S	29	W	MT. KATMAI (D1)	Khl,Kk	TV,BM,GH		
93KAT101D	1	P&P/TS	58	52	7	58.86861	154	3	39	154.060833	KAMISHAK MTN.	23	15	S	29	W	MT. KATMAI (D1)	Khl,Kk	TV,BM,GH		
93KAT102	Stop		58	54	56	58.91556	153	36	31	153.608611	SPOTTED GLACIER	34	14	S	26	W	AFOGNAK (D5)	Kk			DOUGLAS RIVER MEASURED SECTION
93KAT102A	1	P&P/TS	58	54	56	58.91556	153	36	31	153.608611	SPOTTED GLACIER	34	14	S	26	W	AFOGNAK (D5)	Kk	TV,BM,GH		DOUGLAS RIVER MEASURED SECTION
93KAT102A	2	PALEO.	58	54	56	58.91556	153	36	31	153.608611	SPOTTED GLACIER	34	14	S	26	W	AFOGNAK (D5)	Kk	TV,BM,GH		DOUGLAS RIVER MEASURED SECTION
93KAT102B	Stop		58	54	56	58.91556	153	36	31	153.608611	SPOTTED GLACIER	34	14	S	26	W	AFOGNAK (D5)	Kk			DOUGLAS RIVER MEASURED SECTION
93KAT102C	1	PALEO.	58	54	48	58.91333	153	36	28	153.607778	SPOTTED GLACIER	3	15	S	26	W	AFOGNAK (D5)	Kk	TV,BM,GH		DOUGLAS RIVER MEASURED SECTION
93KAT102C	2	TS	58	54	48	58.91333	153	36	28	153.607778	SPOTTED GLACIER	3	15	S	26	W	AFOGNAK (D5)	Kk	TV,BM,GH		DOUGLAS RIVER MEASURED SECTION
93KAT102D	1	PALEO.	58	54	42	58.91167	153	36	27	153.6075	SPOTTED GLACIER	3	15	S	26	W	AFOGNAK (D5)	Kk	TV,BM,GH		DOUGLAS RIVER MEASURED SECTION
93KAT103A	1	P&P/TS	58	53	8	58.88556	153	41	42	153.695	TWIN GLACIER	12	15	S	27	W	AFOGNAK (D6)	Jn, Khl	TV,BM,GH		TWIN GLACIERS MEASURED SECTION
93KAT103A	2	P&P/TS	58	53	8	58.88556	153	41	42	153.695	TWIN GLACIER	12	15	S	27	W	AFOGNAK (D6)	Jn, Khl	TV,BM,GH		TWIN GLACIERS MEASURED SECTION
93KAT103B	1	PALEO.	58	53	8	58.88556	153	41	42	153.695	TWIN GLACIER	12	15	S	27	W	AFOGNAK (D6)	Jn, Khl	TV,BM,GH		TWIN GLACIERS MEASURED SECTION
93KAT103C	STOP		58	53	6	58.885	153	41	40	153.694444	TWIN GLACIER	12	15	S	27	W	AFOGNAK (D6)	Jn, Khl	TV,BM,GH		TWIN GLACIERS MEASURED SECTION
93KAT103D	1	PALEO.	58	53	5	58.88472	153	41	38	153.693889	TWIN GLACIER	12	15	S	27	W	AFOGNAK (D6)	Jn, Khl	TV,BM,GH		TWIN GLACIERS MEASURED SECTION
93KAT103E	1	P&P/TS	58	53	3	58.88417	153	41	30	153.691667	TWIN GLACIER	18	15	S	26	W	AFOGNAK (D6)	Jn, Khl	TV,BM,GH		TWIN GLACIERS MEASURED SECTION
93KAT103E	2	PALEO.	58	53	3	58.88417	153	41	30	153.691667	TWIN GLACIER	18	15	S	26	W	AFOGNAK (D6)	Jn, Khl	TV,BM,GH		TWIN GLACIERS MEASURED SECTION
93KAT103E	3	PALEO.	58	53	3	58.88417	153	41	30	153.691667	TWIN GLACIER	18	15	S	26	W	AFOGNAK (D6)	Jn, Khl	TV,BM,GH		TWIN GLACIERS MEASURED SECTION
93KAT104A	1	Paleo	58	24	11	58.40306	154	15	40	154.261111	Hallo Glacier	32	20	S	30	W	Mt. Katmai B-1	Kk	Tdv, JVF, BM		HALLO GLACIER MEASURED SECTION
93KAT104B	1	Paleo	58	23	56	58.39889	154	16	8	154.268889	Hallo Glacier	32	20	S	30	W	Mt. Katmai B-1	Kk	Tdv, JVF, BM		HALLO GLACIER MEASURED SECTION
93KAT104B	2	Paleo	58	23	56	58.39889	154	16	8	154.268889	Hallo Glacier	32	20	S	30	W	Mt. Katmai B-1	Kk	Tdv, JVF, BM		HALLO GLACIER MEASURED SECTION
93KAT104C	1	P&P, TS	58	23	6	58.385	154	16	19	154.271944	Hallo Glacier	1	21	S	31	W	Mt. Katmai B-1	Kk	TDV,BM		HALLO GLACIER MEASURED SECTION
93KAT104C	2	Paleo	58	23	6	58.385	154	16	19	154.271944	Hallo Glacier	1	21	S	31	W	Mt. Katmai B-1	Kk	TDV,BM		HALLO GLACIER MEASURED SECTION
93KAT104C	3	Paleo	58	23	6	58.385	154	16	19	154.271944	Hallo Glacier	1	21	S	31	W	Mt. Katmai B-1	Kk	TDV,BM		HALLO GLACIER MEASURED SECTION
93KAT105	Stop		58	0	9	58.0025	154	47	8	154.785556	MT. PEDMAR	24	25	S	34	W	MT. KATMAI (A3)	Kp,Kk			Remeas. of section #14 from 1991
																					fld prog. see stop 93KAT1&6
																					for sample locations.
93KAT106A	1	P&P, TS	59	4	28	59.07444	153	44	51	153.7475	Douglas River Island	2	13	S	27	W	ILIAMNA (A-1&2)	Ks	TDV,BM		DOUGLAS RIVER ISLAND SECTION
93KAT106A	2	P&P, TS	59	4	25	59.07361	153	44	42	153.745	Douglas River Island	2	13	S	27	W	ILIAMNA (A-1&2)	Ks	TDV,BM		DOUGLAS RIVER ISLAND SECTION
93KAT106A	3	Fission Track	59	4	25	59.07361	153	44	42	153.745	Douglas River Island	2	13	S	27	W	ILIAMNA (A-3)	Ks	TDV,BM		DOUGLAS RIVER ISLAND SECTION
93KAT106B	1	P&P,TS	59	4	34	59.07611	153	45	39	153.760833	Douglas River Island	3	13	S	27	W	ILIAMNA (A-1&2)	Jn	TDV,BM		DOUGLAS RIVER ISLAND SECTION
93KAT106B	2	PALEO	59	4	34	59.07611	153	45	39	153.760833	Douglas River Island	3	13	S	27	W	ILIAMNA (A-1&2)	Jn	TDV,BM		DOUGLAS RIVER ISLAND SECTION
93KAT106B	3	FISSION TRACK	59	4	34	59.07611	153	45	39	153.760833	Douglas River Island	3	13	S	27	W	ILIAMNA (A-1&2)	Jn	TDV,BM		57' IN SECTION
93KAT106B	4	P&P,TS	59	4	34	59.07611	153	45	39	153.760833	Douglas River Island	3	13	S	27	W	ILIAMNA (A-1&2)	Jn	TDV,BM		DOUGLAS RIVER ISLAND SECTION
93KAT106B	5	VIT	59	4	34	59.07611	153	45	39	153.760833	Douglas River Island	3	13	S	27	W	ILIAMNA (A-1&2)	Jn	TDV,BM		DOUGLAS RIVER ISLAND SECTION
93KAT106B	6	P&P,TS	59	4	34	59.07611	153	45	39	153.760833	Douglas River Island	3	13	S	27	W	ILIAMNA (A-1&2)	Jn	TDV,BM		DOUGLAS RIVER ISLAND SECTION
93KAT106C	1	P&P,TS	59	4	28	59.07444	153	44	51	153.7475	Douglas River Island	2	13	S	27	W	ILIAMNA (A-1&2)	Ks	DD,SK		DOUGLAS RIVER ISLAND SECTION
93KAT106C	2	MACRO	59	4	28	59.07444	153	44	51	153.7475	Douglas River Island	2	13	S	27	W	ILIAMNA (A-1&2)	Ks	DD,SK		DOUGLAS RIVER ISLAND SECTION
93KAT106C	3	MACRO	59	4	28	59.07444	153	44	51	153.7475	Douglas River Island	2	13	S	27	W	ILIAMNA (A-1&2)	Ks	DD,SK		DOUGLAS RIVER ISLAND SECTION
93KAT106C	4	VIT	59	4	28	59.07444	153	44	51	153.7475	Douglas River Island	2	13	S	27	W	ILIAMNA (A-1&2)	Ks	DD,SK		DOUGLAS RIVER ISLAND SECTION
93KAT107A	1	PALEO FRM CLAST	59	3	46	59.06278	153	45	48	153.763333	Douglas River Island	10	13	S	27	W	ILIAMNA (A-3)	Ks	TDV,BM		Douglas River Ks Channel Complex

93KAT107A	2	PALEO	59	3	46	59.06278	153	45	48	153.763333	Douglas River Island	10	13	S	27	W	ILIAMNA (A-3)	Ks	TDV,BM		Douglas River Ks Channel Complex
93KAT107A	3	TS	59	3	46	59.06278	153	45	48	153.763333	Douglas River Island	10	13	S	27	W	ILIAMNA (A-3)	Ks	TDV,BM		Douglas River Ks Channel Complex
93KAT107A	4	P&P,TS	59	3	46	59.06278	153	45	48	153.763333	Douglas River Island	10	13	S	27	W	ILIAMNA (A-3)	Ks	TDV,BM		Douglas River Ks Channel Complex
93KAT107A	5	P&P,TS	59	3	46	59.06278	153	45	48	153.763333	Douglas River Island	10	13	S	27	W	ILIAMNA (A-3)	Ks	TDV,BM		Douglas River Ks Channel Complex
93KAT108	Stop		58	44	56	58.74889	154	5	52	154.097778	N. KAGUYAK CRATER	5	17	S	29	W	MT. KATMAI (C-1)	Khl			Visual insepction from helicopter
93KAT109A	1	P&P,TS	58	41	51	58.6975	154	0	39	154.010833	N. KAGUYAK CRATER	23	17	S	29	W	MT. KATMAI (C-1)	Khl	TDV, BM		Recon measured section of Herendeen
93KAT109A	2	PALY	58	41	51	58.6975	154	0	39	154.010833	N. KAGUYAK CRATER		17	S	29	W	MT. KATMAI (C-1)	Khl	TDV, BM		
93KAT10A	Stop	P&P,TS	58	51	2	58.85056	153	57	39	153.960833	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk			
93KAT10B	1	P&P,TS	58	50	30	58.84167	153	56	10	153.936111	W. DOUGLAS RIVER	27	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK		
93KAT10C	1	P&P/TS	58	50	36	58.84333	153	56	16	153.937778	W. DOUGLAS RIVER	27	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK		
93KAT10D	1	P&P,TS	58	50	37	58.84361	153	56	20	153.938889	W. DOUGLAS RIVER	27	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK		
93KAT10E	1	P&P,TS	58	50	38	58.84389	153	56	24	153.94	W. DOUGLAS RIVER	27	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK		
93KAT10F	1	P&P/TS	58	50	42	58.845	153	56	30	153.941667	W. DOUGLAS RIVER	27	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK		
93KAT10G	1	P&P/TS	58	50	45	58.84583	153	56	36	153.943333	W. DOUGLAS RIVER	27	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK		
93KAT10H	1	Paleo	58	50	47	58.84639	153	56	40	153.944444	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK		
93KAT10H	2	VITRINITE	58	50	47	58.84639	153	56	40	153.944444	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK		
93KAT10I	1	P&P,TS	58	50	56	58.84889	153	57	6	153.951667	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK		
93KAT10J	1	P&P,TS	58	50	59	58.84972	153	57	12	153.953333	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK		
93KAT10K	1	PALEO.	58	51	1	58.85028	153	57	18	153.955	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK		
93KAT10K	2	VITRINITE	58	51	1	58.85028	153	57	18	153.955	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK		
93KAT10L	1	P&P,TS	58	51	1	58.85028	153	57	25	153.956944	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK		
93KAT10M	1	P&P,TS	58	51	1	58.85028	153	57	25	153.956944	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK		
93KAT10N	1	P&P,TS	58	51	1	58.85028	153	57	34	153.959444	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK		
93KAT110A	1	P&P,TS	59	0	47	59.01306	154	1	23	154.023056	N. Kamishak Hills	31	13	S	28	W	ILIAMNA (A-3)	K	TDV,BM,JVF,DC		RECON SECTION
93KAT110A	2	TS	59	0	47	59.01306	154	1	23	154.023056	N. Kamishak Hills	31	13	S	28	W	ILIAMNA (A-3)	K	TDV,BM,JVF,DC		RECON SECTION
93KAT110A	3	PALEO	59	0	47	59.01306	154	1	23	154.023056	N. Kamishak Hills	31	13	S	28	W	ILIAMNA (A-3)	K	TDV,BM,JVF,DC		RECON SECTION
93KAT111A	1	TS	58	53	41	58.89472	153	37	12	153.62	SPOTTED GLACIER	9	15	S	26	W	AFOGNAK (D5)		TDV,BM		Cont. of section from 93KAT102
93KAT112A	1	P&P/TS	58	58	1	58.96694	153	59	39	153.994167	Kamishak Hills	17	14	S	28	W	AFOGNAK (D6)	Kst ?	TDV, BM,DD		Cret. Channels in Naknek.
93KAT112A	2	MACRO	58	58	1	58.96694	153	59	39	153.994167	Kamishak Hills	17	14	S	28	W	AFOGNAK (D6)	Kst ?	TDV, BM,DD		Cret. Channels in Naknek.
93KAT112A	3	PALEO	58	58	1	58.96694	153	59	39	153.994167	Kamishak Hills	17	14	S	28	W	AFOGNAK (D6)	Kst ?	TDV, BM,DD		Cret. Channels in Naknek.
93KAT112A	4	TS	58	58	1	58.96694	153	59	39	153.994167	Kamishak Hills	17	14	S	28	W	AFOGNAK (D6)	Kst ?	TDV, BM,DD		Cret. Channels in Naknek.
93KAT11A	1	P&P/TS	58	51	7	58.85194	153	57	51	153.964167	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk			
93KAT11A	2	P&P/TS	58	51	7	58.85194	153	57	51	153.964167	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk			
93KAT11A	3	VITRINITE	58	51	7	58.85194	153	57	51	153.964167	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk			
93KAT11A	4		58	51	7	58.85194	153	57	51	153.964167	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk			
93KAT11A	5		58	51	7	58.85194	153	57	51	153.964167	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk			
93KAT11B	1	P&P/TS	58	51	13	58.85361	153	57	59	153.966389	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk			
93KAT11C	1	PALEO	58	51	18	58.855	153	58	8	153.968889	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk			
93KAT12A	Stop		58	50	38	58.84389	153	57	20	153.955556	W. DOUGLAS RIVER	28	15	S	28	W	AFOGNAK (D6)	Kk			
93KAT13A	Stop		58	50	30	58.84167	153	56	10	153.936111	W. DOUGLAS RIVER	27	15	S	28	W	AFOGNAK (D6)	Kk			
93KAT13B	Stop		58	50	26	58.84056	153	56	7	153.935278	W. DOUGLAS RIVER	34	15	S	28	W	AFOGNAK (D6)	Kk			
93KAT13C	1	TS	58	50	11	58.83639	153	56	1	153.933611	W. DOUGLAS RIVER	34	15	S	28	W	AFOGNAK (D6)	Kk			
93KAT13D	Stop		58	49	56	58.83222	153	55	55	153.931944	W. DOUGLAS RIVER	34	15	S	28	W	AFOGNAK (D6)	Kk			
93KAT13E	1	PALEO.	58	50	17	58.83806	153	56	4	153.934444	W. DOUGLAS RIVER	34	15	S	28	W	AFOGNAK (D6)	Kk	GVK,SK,RT,RK		
93KAT14	Stop		58	53	10	58.88611	153	41	55	153.698611	TWIN GLACIERS	12	15	S	27	W	AFOGNAK (D6)	Jn\Kh	GVK,SK,RT,RK		
93KAT15	Stop		58	55	23	58.92306	154	1	3	154.0175	N KAMISHAK HILLS	31	14	S	28	W	MT. KATMAI (D1)	Jn\Kh\Kk	GVK,SK,RT,RK		
93KAT16	Stop		58	55	9	58.91917	154	1	46	154.029444	N KAMISHAK HILLS	36	14	S	29	W	MT. KATMAI (D1)	Jn\Kh\Kk	GVK,SK,RT,RK		

93KAT17	Stop		58	57	3	58.95083	154	0	30	154.008333	N KAMISHAK HILLS	19	14	S	28	W	MT. KATMAI (D1)	Jn\Kk	GVK,SK,RT,RK		
93KAT18	Stop		59	0	17	59.00472	154	0	18	154.005	N KAMISHAK HILLS	31	13	S	28	W	Iliamna A-3	Jn\Kk	GVK,SK,RT,RK		
93KAT19	Stop		58	33	46	58.56278	153	33	35	153.559722	HERENDEEN ISLAND	3	19	S	28	W	AFOGNAK C-6	Kh			
93KAT1A	1	VITRINITE	58	0	9	58.0025	154	47	8	154.785556	MT. PEDMAR	24	25	S	34	W	MT. KATMAI (A3)	Jn?	GVK		KAT=KATMAI AREA
93KAT1A	2	P&P/TS	58	0	9	58.0025	154	47	8	154.785556	MT. PEDMAR	24	25	S	34	W	MT. KATMAI (A3)	Jn?	GVK		
93KAT1B	Stop		58	0	4	58.00111	154	47	36	154.793333	MT. PEDMAR	24	25	S	34	W	MT. KATMAI (A3)	Ks?			
93KAT1C	Stop		58	0	8	58.00222	154	46	51	154.780833	MT. PEDMAR	19	25	S	33	W	MT. KATMAI (A3)	Ks?			
93KAT1D	1	VITRINITE	58	0	7	58.00194	154	46	41	154.778056	MT. PEDMAR	19	25	S	33	W	MT. KATMAI (A3)	Kk?	GVK		
93KAT1D	2	P&P/TS	58	0	7	58.00194	154	46	41	154.778056	MT. PEDMAR	19	25	S	33	W	MT. KATMAI (A3)	Kk?	GVK		
93KAT2	Stop		58	3	19	58.05528	154	49	51	154.830833	MT. PEDMAR	34	24	S	34	W	MT. KATMAI (A3)				
93KAT20A	1	P&P, TS	59	3	53	59.06472	153	49	21	153.8225	Kamishak Bay	8	13	S	27	W	Iliamna A-3	JN	GVK, DI, MC		
93KAT21A	1	P&P, TS	59	6	33	59.10917	153	52	38	153.877222	Kamishak Bay	25?	12	S	28	W	Iliamna A-3	JN	GVK, DI, MC		Samples taken at low tide
93KAT22A	1	P&P, TS	59	6	18	59.105	153	43	48	153.73	Kamishak Bay	26	12	S	27	W	Iliamna A1 & A2	JN	GVK, DC, DI		Samples taken at low tide
93KAT23	Stop		58	27	28	58.45778	154	0	7	154.001944	Hallo Bay	12	20	S	29	W	MT. KATMAI (B-1)	Jn			Niniagik Island
93KAT25A	1	FISSION TRACK				0				0											
93KAT26A	1	P&P,TS	59	4	8	59.06889	153	45	15	153.754167	Douglas River Island	10	13	S	27	W	ILIAMNA (A-3)	Jn?	SK		
93KAT3A	1	PALEO.	58	0	46	58.01278	154	44	15	154.7375	MT. PEDMAR	17	25	S	33	W	MT. KATMAI (A3)	Kk			
93KAT3A	2	P&P/TS	58	0	46	58.01278	154	44	15	154.7375	MT. PEDMAR	17	25	S	33	W	MT. KATMAI (A3)	Kk			
93KAT3A	3	VITRINITE	58	0	46	58.01278	154	44	15	154.7375	MT. PEDMAR	17	25	S	33	W	MT. KATMAI (A3)	Kk			
93KAT4A	Stop		58	1	47	58.02972	154	36	54	154.615	CAPE ILKTUGITAK	7	25	S	33	W	MT. KATMAI (A2)	Kk			
93KAT4B	1	VITRINITE	58	1	47	58.02972	154	36	39	154.610833	CAPE ILKTUGITAK	7	25	S	33	W	MT. KATMAI (A2)	Kk	GVK		
93KAT4B	2	P&P/TS	58	1	47	58.02972	154	36	39	154.610833	CAPE ILKTUGITAK	7	25	S	33	W	MT. KATMAI (A2)	Kk	GVK		
93KAT4C	1	P&P/TS	58	1	44	58.02889	154	37	0	154.616667	CAPE ILKTUGITAK	7	25	S	33	W	MT. KATMAI (A2)	Kk	GVK		
93KAT5A	1	PALEO.	58	3	20	58.05556	154	42	41	154.711389	DAKAVAK BAY	32	24	S	33	W	MT. KATMAI (A3)	Kk	SK		
93KAT6A	Stop		58	0	9	58.0025	154	46	15	154.770833	MT. PEDMAR	17	25	S	33	W	MT. KATMAI (A3)				
93KAT6B	1	P&P/TS	58	0	9	58.0025	154	46	15	154.770833	MT. PEDMAR	17	25	S	33	W	MT. KATMAI (A3)	Kp/Kk?	GVK		
93KAT6C	1	PALEO.	58	0	9	58.0025	154	46	15	154.770833	MT. PEDMAR	17	25	S	33	W	MT. KATMAI (A3)	Kp/Kk?	SK		
93KAT6C	2	P&P/TS	58	0	9	58.0025	154	46	15	154.770833	MT. PEDMAR	17	25	S	33	W	MT. KATMAI (A3)	Kp/Kk?	GVK		
93KAT6C	3	VIT.	58	0	9	58.0025	154	46	15	154.770833	MT. PEDMAR	17	25	S	33	W	MT. KATMAI (A3)	Kp/Kk?	GVK		
93KAT6C	4	PALEO.	58	0	9	58.0025	154	46	15	154.770833	MT. PEDMAR	17	25	S	33	W	MT. KATMAI (A3)	Kp/Kk?	TV		
93KAT6C	5	P&P/TS	58	0	9	58.0025	154	46	15	154.770833	MT. PEDMAR	17	25	S	33	W	MT. KATMAI (A3)	Kp/Kk?	BM		
93KAT7	Stop		58	1	41	58.02806	154	52	10	154.869444	KATMAI BEACH	9	25	S	34	W	MT. KATMAI (A3)				
93KAT8A	1	P&P/TS	58	33	22	58.55611	154	7	22	154.122778	S. KAGUYAK CRATER	6	19	S	29	W	MT. KATMAI (C1)	Jn	GVK		
93KAT8B	1	P&P/TS	58	33	25	58.55694	154	7	12	154.12	S. KAGUYAK CRATER	6	19	S	29	W	MT. KATMAI (C1)	Jn	GVK		
93KAT8C	1	P&P/TS	58	33	27	58.5575	154	6	56	154.115556	S. KAGUYAK CRATER	5	19	S	29	W	MT. KATMAI (C1)	Jn	GVK		
93KAT8D	1	P&P/TS	58	33	28	58.55778	154	6	47	154.113056	S. KAGUYAK CRATER	5	19	S	29	W	MT. KATMAI (C1)	Jn	GVK		
93KAT8E	1		58	33	27	58.5575	154	6	34	154.109444	S. KAGUYAK CRATER	5	19	S	29	W	MT. KATMAI (C1)	Jn			?
93KAT8E	2	P&P/TS	58	33	27	58.5575	154	6	34	154.109444	S. KAGUYAK CRATER	5	19	S	29	W	MT. KATMAI (C1)	Jn	GVK		
93KAT8F	Stop		58	33	28	58.55778	154	6	28	154.107778	S. KAGUYAK CRATER	5	19	S	29	W	MT. KATMAI (C1)	Jn			
93KAT8G	1	PALEO	58	33	22	58.55611	154	6	26	154.107222	S. KAGUYAK CRATER	5	19	S	29	W	MT. KATMAI (C1)	Jn	GVK		
93KAT8G	1A	VITRINITE	58	33	22	58.55611	154	6	26	154.107222	S. KAGUYAK CRATER	5	19	S	29	W	MT. KATMAI (C1)	Jn	GVK		
93KAT8H	1	P&P/TS	58	33	21	58.55583	154	5	52	154.097778	S. KAGUYAK CRATER	5	19	S	29	W	MT. KATMAI (C1)	Jn	GVK		
93KAT8I	1	?	58	33	12	58.55333	154	5	39	154.094167	S. KAGUYAK CRATER	5	19	S	29	W	MT. KATMAI (C1)	Jn	GVK		
93KAT8J	1	PALEO	58	33	10	58.55278	154	5	35	154.093056	S. KAGUYAK CRATER	5	19	S	29	W	MT. KATMAI (C1)	Jn	GVK		
93KAT8K	1	PALEO	58	33	7	58.55194	154	5	39	154.094167	S. KAGUYAK CRATER	8	19	S	29	W	MT. KATMAI (C1)	Jn	GVK		
93KAT9A	Stop		58	49	23	58.82306	154	3	58	154.066111	S. FORK KAMISHAK RIV.	2	16	S	29	W	MT. KATMAI (D1)				
93KAT9B	Stop		58	49	9	58.81917	154	3	22	154.056111	S. FORK KAMISHAK RIV.	2	16	S	29	W	MT. KATMAI (D1)				

93 LCI- Stop & Sample

93LCP1	1	EXTRACT	59	58	57	59.9825	152	41	51	152.6975	SADDLE MOUNTAIN	27	2	S	20	W	SELDOVIA (D-8)	Ksm	TDV,SK,DD,BM		9' IN SADDLE MT. SEC.
93LCP1	2	TS NEEDS IMPREG.	59	58	57	59.9825	152	41	51	152.6975	SADDLE MOUNTAIN	27	2	S	20	W	SELDOVIA (D-8)	Ksm	TDV,SK,DD,BM		8' IN SADDLE MT. SEC.
93LCP1	3	EXTRACT	59	58	57	59.9825	152	41	51	152.6975	SADDLE MOUNTAIN	27	2	S	20	W	SELDOVIA (D-8)	Ksm	TDV,SK,DD,BM		8' IN SADDLE MT. SEC.
93LCP1	4	EXTRACT	59	58	57	59.9825	152	41	51	152.6975	SADDLE MOUNTAIN	27	2	S	20	W	SELDOVIA (D-8)	Ksm	TDV,SK,DD,BM		8' IN SADDLE MT. SEC.
93LCP1	5	EXTRACT	59	58	57	59.9825	152	41	51	152.6975	SADDLE MOUNTAIN	27	2	S	20	W	SELDOVIA (D-8)	Ksm	TDV,SK,DD,BM		20' IN SADDLE MT. SEC.
93LCP1	6	P&P, TS	59	58	57	59.9825	152	41	51	152.6975	SADDLE MOUNTAIN	27	2	S	20	W	SELDOVIA (D-8)	Ksm	TDV,SK,DD,BM		28' IN SADDLE MT. SEC.
93LCP1	7	P&P, TS	59	58	57	59.9825	152	41	51	152.6975	SADDLE MOUNTAIN	27	2	S	20	W	SELDOVIA (D-8)	Ksm	TDV,SK,DD,BM		45' IN SADDLE MT. SEC.
93LCP1	8	P&P, TS	59	58	57	59.9825	152	41	51	152.6975	SADDLE MOUNTAIN	27	2	S	20	W	SELDOVIA (D-8)	Ksm	TDV,SK,DD,BM		52' IN SADDLE MT. SEC.
93LCP1	9	P&P, TS	59	58	57	59.9825	152	41	51	152.6975	SADDLE MOUNTAIN	27	2	S	20	W	SELDOVIA (D-8)	Ksm	TDV,SK,DD,BM		55' IN SADDLE MT. SEC.
93LCP1	10	P&P, TS	59	58	57	59.9825	152	41	51	152.6975	SADDLE MOUNTAIN	27	2	S	20	W	SELDOVIA (D-8)	Ksm	TDV,SK,DD,BM		67.5' IN SADDLE MT. SEC.
93LCP2	1	P&P, TS	59	56	37	59.94361	152	49	1	152.816944	SHELTER CREEK	1	3	S	21	W	SELDOVIA (D-8)	Ksm			
93LCP2	2	PALY	59	56	37	59.94361	152	49	1	152.816944	SHELTER CREEK	1	3	S	21	W	SELDOVIA (D-8)	Ksm			
93LCP3	1	Paleo	60	3	1	60.05028	152	53	52	152.897778	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK		
93LCP3	2	P&P,TS	60	3	1	60.05028	152	53	52	152.897778	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK		
93LCP4	1	TS	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM		
93LCP4	2	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM		
93LCP4	3	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM		
93LCP4	4	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM		
93LCP4	5	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM		
93LCP4	6	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM		
93LCP4	7	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM		
93LCP4	8	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM		
93LCP4	9	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM		
93LCP4	10	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM		
93LCP4	11	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM		
93LCP4	12	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM		
93LCP4	13	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM		
93LCP4	14	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM		
93LCP4	15	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM		
93LCP4	16	PALEO,GEOCHEM	60	2	45	60.04583	152	53	55	152.898611	RED GLACIER	33	1	S	21	W	KENAI (A-8)	Jrg	DD,SK,TDV,BM		
93LCP5	1	MAG	60	14	40	60.24444	152	51	4	152.851111	Magnetic Island	24	2	N	21	W	KENAI (A-8)		SK		

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711 CONCORD AVENUE ✦ CAMBRIDGE, MASSACHUSETTS 02138 ✦ U.S.A
TELEPHONE: (617) 876-3691 TELEFAX: (617) 661-0148

POTASSIUM-ARGON AGE DETERMINATION — REPORT OF ANALYTICAL WORK

Our Sample No. B-10447 — Date Received: 9/22/93

Your Reference: Phonecall of 12/3/93 — Date Reported: 1/6/94

Submitted By: Steven C. Bergman
ARCO Exploration and Production Technology
2300 West Plano Parkway
Plano, TX 75075

Sample Description & Locality: Sample # 93KAT 25A-1, volcanic sandstone

Material Analyzed: Biotite concentrate, -80/+200 mesh.

$^{40*}Ar/^{40}K$ = .008984 — AGE = 148 +/- 4 M.Y.

Argon Analyses:

$^{40*}Ar$, ppm	$^{40*}Ar$/Total ^{40}Ar	Ave. $^{40*}Ar$, ppm
.01899	.358	.01890
.01880	.576	

Potassium Analyses:

% K	Ave. % K	^{40}K, ppm
1.788	1.763	2.103
1.738		

Constants Used:

$\lambda_p = 4.962 \times 10^{-10}$/year
$(\lambda_e + \lambda'_e) = 0.581 \times 10^{-10}$/year
$^{40}K/K = 1.193 \times 10^{-4}$ g/g

$$AGE = \frac{1}{\lambda_p + (\lambda_e + \lambda'_e)} \ln \left[\frac{\lambda_p + (\lambda_e + \lambda'_e)}{(\lambda_e + \lambda'_e)} \times \frac{^{40*}Ar}{^{40}K} + 1 \right]$$

Note: $^{40*}Ar$ refers to radiogenic ^{40}Ar.
M.Y. refers to millions of years.

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POTASSIUM-ARGON AGE DETERMINATION — REPORT OF ANALYTICAL WORK

Our Sample No. A-10447 — Date Received: 9/22/93

Your Reference: Phonecall of 11/18/93 — Date Reported: 1/6/94

Submitted By: Steven C. Bergman
ARCO Exploration and Production Technology
2300 West Plano Parkway
Plano, TX 75075

Sample Description & Locality: Sample # 93KAT 25A-1 volcanic sandstone

Material Analyzed: Amphibole concentrate, -80/+200 mesh.

$^{40*}Ar/^{40}K$ = .01041 — AGE = 171 +/- 6 M.Y.

Argon Analyses:

$^{40*}Ar$, ppm	$^{40*}Ar$/Total ^{40}Ar	Ave. $^{40*}Ar$, ppm
.004635	.556	.004588
.004541	.525	

Potassium Analyses:

% K	Ave. % K	^{40}K, ppm
0.369	0.370	0.441
0.370		

Constants Used:

$\lambda_\beta = 4.962 \times 10^{-10}$/year
$(\lambda_e + \lambda'_e) = 0.581 \times 10^{-10}$/year
$^{40}K/K = 1.193 \times 10^{-4}$ g/g

$$AGE = \frac{1}{\lambda_\beta + (\lambda_e + \lambda'_e)} \ln \left[\frac{\lambda_\beta + (\lambda_e + \lambda'_e)}{(\lambda_e + \lambda'_e)} \times \frac{^{40*}Ar}{^{40}K} + 1 \right]$$

Note: $^{40*}Ar$ refers to radiogenic ^{40}Ar.
M.Y. refers to millions of years.

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POTASSIUM-ARGON AGE DETERMINATION — REPORT OF ANALYTICAL WORK

Our Sample No. A-10492 — Date Received: 9/22/93

Your Reference: Phonecall of 12/3/93 — Date Reported: 1/20/94

Submitted By: Steven C. Bergman
ARCO Exploration and Production Technology
2300 West Plano Parkway
Plano, TX 75075

Sample Description & Locality: Sample # 93KAT 106A-3, volcanic sandstone

Material Analyzed: Amphibole concentrate, -80/+200 mesh.

$^{40*}Ar/^{40}K$ = .01038 — AGE = 170 +/- 6 M.Y.

Argon Analyses:

$^{40*}Ar$, ppm	$^{40*}Ar$/Total ^{40}Ar	Ave. $^{40*}Ar$, ppm
.005081	.536	.005095
.005109	.506	

Potassium Analyses:

% K	Ave. % K	^{40}K, ppm
0.408	0.412	0.491
0.415		

Constants Used:

$\lambda_\beta = 4.962 \times 10^{-10}$/year
$(\lambda_e + \lambda'_e) = 0.581 \times 10^{-10}$/year
$^{40}K/K = 1.193 \times 10^{-4}$ g/g

$$AGE = \frac{1}{\lambda_\beta + (\lambda_e + \lambda'_e)} \ln\left[\frac{\lambda_\beta + (\lambda_e + \lambda'_e)}{(\lambda_e + \lambda'_e)} \times \frac{^{40*}Ar}{^{40}K} + 1\right]$$

Note: $^{40*}Ar$ refers to radiogenic ^{40}Ar.
M.Y. refers to millions of years.

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POTASSIUM-ARGON AGE DETERMINATION — REPORT OF ANALYTICAL WORK

Our Sample No. B-10448 — Date Received: 9/22/93

Your Reference: Phonecall of 12/3/93 — Date Reported: 1/6/94

Submitted By: Steven C. Bergman
ARCO Exploration and Production Technology
2300 West Plano Parkway
Plano, TX 75075

Sample Description & Locality: Sample # 93KAT 106B-3, volcanic sandstone

Material Analyzed: Biotite concentrate, -80/+200 mesh.

$^{40*}Ar/^{40}K$ = .01013 — AGE = 166 +/- 4 M.Y.

Argon Analyses:

$^{40*}Ar$, ppm	$^{40*}Ar$/Total ^{40}Ar	Ave. $^{40*}Ar$, ppm
.02599	.647	.02683
.02773	.628	
.02677	.567	

Potassium Analyses:

% K	Ave. % K	^{40}K, ppm
2.172	2.221	2.649
2.269		

Constants Used:

$\lambda_\beta = 4.962 \times 10^{-10}$/year
$(\lambda_e + \lambda'_e) = 0.581 \times 10^{-10}$/year
$^{40}K/K = 1.193 \times 10^{-4}$ g/g

$$AGE = \frac{1}{\lambda_\beta + (\lambda_e + \lambda'_e)} \ln \left[\frac{\lambda_\beta + (\lambda_e + \lambda'_e)}{(\lambda_e + \lambda'_e)} \times \frac{^{40*}Ar}{^{40}K} + 1 \right]$$

Note: $^{40*}Ar$ refers to radiogenic ^{40}Ar.
M.Y. refers to millions of years.

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POTASSIUM-ARGON AGE DETERMINATION — REPORT OF ANALYTICAL WORK

Our Sample No. A-10448 — Date Received: 9/22/93

Your Reference: Phonecall of 11/18/93 — Date Reported: 1/6/94

Submitted By: Steven C. Bergman
ARCO Exploration and Production Technology
2300 West Plano Parkway
Plano, TX 75075

Sample Description & Locality: Sample # 93KAT 106B-3 volcanic sandstone

Material Analyzed: Amphibole concentrate, -80/+200 mesh.

$^{40*}Ar/^{40}K$ = .01062 — AGE = 174 +/- 6 M.Y.

Argon Analyses:

$^{40*}Ar$, ppm	$^{40*}Ar/Total\ ^{40}Ar$	Ave. $^{40*}Ar$, ppm
.004892	.422	.005015
.005138	.406	

Potassium Analyses:

% K	Ave. % K	^{40}K, ppm
0.394	0.396	0.472
0.398		

Constants Used:

$\lambda_\beta = 4.962 \times 10^{-10}$/year
$(\lambda_e + \lambda'_e) = 0.581 \times 10^{-10}$/year
$^{40}K/K = 1.193 \times 10^{-4}$ g/g

$$AGE = \frac{1}{\lambda_\beta + (\lambda_e + \lambda'_e)} \ln\left[\frac{\lambda_\beta + (\lambda_e + \lambda'_e)}{(\lambda_e + \lambda'_e)} \times \frac{^{40*}Ar}{^{40}K} + 1\right]$$

Note: $^{40*}Ar$ refers to radiogenic ^{40}Ar.
M.Y. refers to millions of years.

To: Steve Bergman
From: Shari Kelley
Date: 3/21/94
Subject: Procedures used for 1993 South Alaska FT samples.

Three apatite and five zircon splits from South Alaska were received on 11/1/93.

None of the zircon fractions were treated with aqua regia to remove pyrite.

The following zircon split was not dated due to insufficient zircon:
93MAT4/9

The zircons were mounted in Teflon, polished, and etched in NaOH/KOH at 230°C for the times (in hours) shown in the table below. Two of the samples contained zircon populations that had similar etching characteristics, so only one mount was made for these samples. Two samples, 93KAT106A and 92MAT4/87, contained zircon populations that had varying etching characteristics. These mounts were cut in half and each half was etched for a different amount of time in an attempt to attain optimum etch conditions for each population. The numbers of the grains dated in each mount (keyed to the attached data sheets) for samples with two grain mounts are shown in parentheses.

Sample	Mount 1	Mount 2
93KAT25A	8	
93KAT106A	5	8
	(1-4)	(5-20)
93KAT106B	7	
93MAT4/87	7	8
	(7-11)	(1-6)

The zircons were placed in a reactor package with Fish Canyon zircon age standards and Corning (CN-5) fission-track glass standards. The neutron flux for the reactor run was determined from glass standards and the accepted ages of the zircon standards.

The color and general morphology of the dated zircon and apatite is noted next to the grain number on the attached data sheets. The color is listed first and the shape is listed second. The following code is used:

YB = yellow-brown	E = euhedral
Y = yellow	SH = subhedral
RED = red	SR = subround
B = brown	R = round
RB = red-brown	
O = orange	

Apatite grains were mounted in epoxy on a 1 cm^2 glass slide, polished to expose the grains, and etched for 25 seconds in a 5 M solution of nitric acid to reveal the fission tracks. The apatite samples were placed in a reactor package with Durango apatite (Baron collection) age standards and Corning (CN-6) fission-track glass standards.

Confined track lengths were measured both in the age mounts and in separate grains mounts that had been irradiated for 72 hrs at a distance of 7 cm from a Cf^{252} source. The Cf^{252} track density was on the order of 7.5 to 8.7 x 10^5 tracks/cm^2.

TABLE 1. – APATITE AND ZIRCON FISSION–TRACK AGES FOR 1993 SOUTH ALASKA

SAMPLE NUMBER	GRAINS COUNTED	FOSSIL TRACKS/CM² (X 10^6) [# TRACKS]	INDUCED TRACKS/CM² (X 10^6) [# TRACKS]	NEUTRON FLUX (X 10^{16} NEUTRONS/CM²)	POOLED AGE (STANDARD ERROR) (MA)	CENTRAL AGE (STANDARD ERROR) (MA)	SPECTRAL PEAK AGE (MA)	URANIUM CONTENT (PPM)	CHI SQUARED PROB. (%)	MEAN LENGTH (S.E.)(μm) [N]
93KAT106A	20	0.64	3.01	1.1	139.2	139.2	135	26	85	13.4 (0.2)
APATITE		399	933		10	10.3				95
93KAT106A	20	7.34	5.59	0.2	158.3	148.6	110	268	<1	
ZIRCON		2563	975		12.7	13.1				
93KAT106B	20	0.45	2.08	1.1	139.9	139.9	130	18	96	13.2 (0.2)
APATITE		518	1205		9.3	9.6				100
93KAT106B	20	8.61	7.07	0.2	150.8*	140.6	120	339	<1	
ZIRCON		3174	1304		11.8	11.5				
93KAT25A	20	0.45	1.86	1.1	146.0*	156.0	90	16	<1	13.3 (0.3)
APATITE		381	782		13.9	16.4				100
93KAT25A	20	7.19	6.25	0.2	142.2*	135.1	130	300	<1	
ZIRCON		2157	937		9.2	10.8				

* – MEAN AGE

TABLE 2 - UNCORRECTED FISSION-TRACK LENGTH MEASUREMENTS FOR 1993 SOUTH ALASKA

	TRACK LENGTH (MICRONS)																		
SAMPLE NAME	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5	16.5	17.5	18.5	19.5	TOTAL # OF TRACKS MEASURED
93KAT25	0	0	0	0	0	0	0	2	2	7	30	29	16	10	4	0	0	0	100
93KAT106A	0	0	0	0	0	0	0	1	0	9	23	29	28	4	1	0	0	0	95
93KAT106B	0	0	0	0	0	0	0	0	1	9	38	25	21	5	1	0	0	0	100

FISSION TRACK AGE DATA

PROJECT NAME:	SOUTH ALASKA	DATE:	2/20/94	FT AGE:	139.2 Ma
SAMPLE NUMBER:	93KAT106A	LATITUDE:	°' N	UPPER CI:	161.2 Ma
LAB NUMBER:	SMU	LONGITUDE:	°'W	LOWER CI:	120.2 Ma
REACTOR RUN NUMBER:	RR-12-17-93Z	ELEVATION (M):		STD ERR:	10.00 Ma
NEUTRON FLUX:	1.100E+16	MICROSCOPE:	OLYMPUS	C. COEFF:	0.953
# SPON TRACKS (FLUX)	600	MAGNIFICATION:	1250 X	CHI²:	13.868 19
# IND. TRACKS (FLUX)	4000	ROCK TYPE:	Jn	AVG. AGE:	135.4 Ma
NUMBER OF GRAINS:	20	MINERAL:	APATITE	STD. ERR:	7.7

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1. SH	2.0E-05	18	9.000E+05	31	3.100E+06	0.58	27.1	188.3	56.4
2. SR	2.0E-05	30	1.500E+06	93	9.300E+06	0.32	81.2	105.3	22.6
3. SR	4.0E-05	17	4.250E+05	34	1.700E+06	0.50	14.8	162.5	48.8
4. R	2.0E-05	18	9.000E+05	42	4.200E+06	0.43	36.7	139.5	39.8
5. SR	2.0E-05	10	5.000E+05	18	1.800E+06	0.56	15.7	180.3	71.5
6. R	4.0E-05	47	1.175E+06	81	4.050E+06	0.58	35.3	188.2	35.5
7. SH	2.0E-05	1	5.000E+04	4	4.000E+05	0.25	3.5	81.7	91.5
8. SR	2.0E-05	28	1.400E+06	76	7.600E+06	0.37	66.3	120.1	27.1
9. SH	2.0E-05	7	3.500E+05	16	1.600E+06	0.44	14.0	142.4	64.8
10. SR	2.0E-05	13	6.500E+05	56	5.600E+06	0.23	48.9	75.9	23.6
11. SR	4.0E-05	5	1.250E+05	17	8.500E+05	0.29	7.4	96.1	49.1
12. SH	4.0E-05	5	1.250E+05	11	5.500E+05	0.45	4.8	147.9	80.0
13. SH	4.0E-05	6	1.500E+05	23	1.150E+06	0.26	10.0	85.3	39.3
14. SR	4.0E-05	36	9.000E+05	81	4.050E+06	0.44	35.3	144.6	29.7
15. SR	2.0E-05	19	9.500E+05	42	4.200E+06	0.45	36.7	147.2	41.2
16. SR	2.0E-05	3	1.500E+05	8	8.000E+05	0.38	7.0	122.2	82.9
17. SR	2.0E-05	19	9.500E+05	44	4.400E+06	0.43	38.4	140.6	39.1
18. SR	4.0E-05	40	1.000E+06	79	3.950E+06	0.51	34.5	164.5	32.7
19. SH	4.0E-05	12	3.000E+05	30	1.500E+06	0.40	13.1	130.3	44.9
20. SH	8.0E-05	65	8.125E+05	147	3.675E+06	0.44	32.1	143.9	22.3
	6.2E-04	399	6.435E+05	933	3.010E+06	0.43	26.3		

FISSION TRACK AGE DATA

PROJECT NAME: SOUTH ALASKA
DATE: 2/20/94
FT AGE: 155.4 Ma

SAMPLE NUMBER: 93KAT106A
LATITUDE: °' N
UPPER CI: 174.2 Ma

LAB NUMBER: SMU
LONGITUDE: °'W
LOWER CI: 138.6 Ma

REACTOR RUN NUMBER: RR-12-17-93Z
ELEVATION (M):
STD ERR: 8.66 Ma

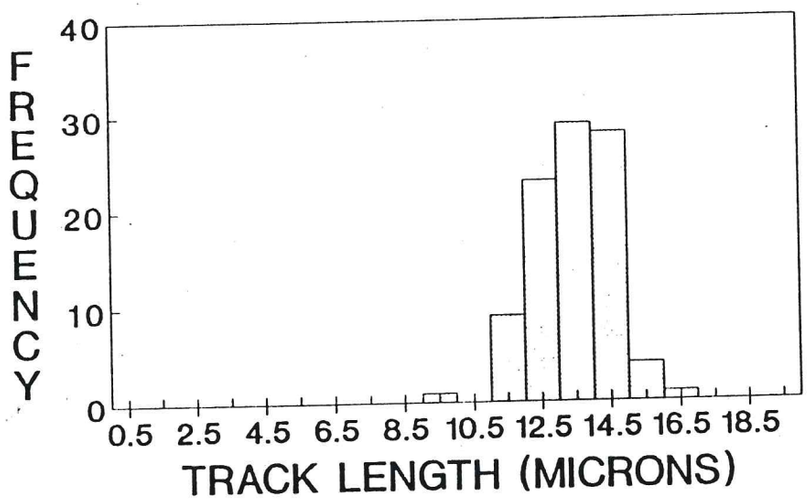
NEUTRON FLUX: 2.000E+15
MICROSCOPE: OLYMPUS
C. COEFF: 0.810

SPON TRACKS (FLUX) 600
MAGNIFICATION: 1250 X
CHI²: 77.918 19

IND. TRACKS (FLUX) 4000
ROCK TYPE: Ks
AVG. AGE: 158.3 Ma

NUMBER OF GRAINS: 20
MINERAL: ZIRCON
STD. ERR: 12.7

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1. YB,SH	2.0E-05	216	1.080E+07	84	8.400E+06	2.57	403.2	152.0	20.7
2. YB,SH	1.6E-05	106	6.625E+06	72	9.000E+06	1.47	432.0	87.5	13.9
3. B,SH	8.0E-06	72	9.000E+06	37	9.250E+06	1.95	444.0	115.4	23.9
4. YB,E	2.0E-05	212	1.060E+07	70	7.000E+06	3.03	336.0	178.7	25.8
5. YB,SR	2.0E-05	184	9.200E+06	59	5.900E+06	3.12	283.2	183.9	28.7
6. YB,E	1.3E-05	160	1.231E+07	40	6.154E+06	4.00	295.4	235.0	42.8
7. B,SH	2.0E-05	172	8.600E+06	83	8.300E+06	2.07	398.4	122.8	17.3
8. YB,E	4.0E-05	208	5.200E+06	50	2.500E+06	4.16	120.0	244.2	39.9
9. YB,SH	1.2E-05	65	5.417E+06	33	5.500E+06	1.97	264.0	116.8	25.5
10. Y,SH	8.0E-06	31	3.875E+06	15	3.750E+06	2.07	180.0	122.5	38.9
11. B,SH	2.0E-05	131	6.550E+06	32	3.200E+06	4.09	153.6	240.4	48.6
12. Y,SH	2.0E-05	65	3.250E+06	30	3.000E+06	2.17	144.0	128.3	28.9
13. YB,E	8.0E-06	47	5.875E+06	12	3.000E+06	3.92	144.0	230.2	75.1
14. YB,SH	1.2E-05	107	8.917E+06	28	4.667E+06	3.82	224.0	224.7	48.7
15. YB,SH	4.0E-05	100	2.500E+06	37	1.850E+06	2.70	88.8	159.7	31.5
16. Y,SH	8.0E-06	32	4.000E+06	22	5.500E+06	1.45	264.0	86.4	24.2
17. Y,SH	1.2E-05	48	4.000E+06	29	4.833E+06	1.66	232.0	98.3	23.5
18. B,SH	2.0E-05	190	9.500E+06	107	1.070E+07	1.78	513.6	105.4	13.5
19. B,SH	1.2E-05	83	6.917E+06	41	6.833E+06	2.02	328.0	120.0	23.5
20. B,SH	2.0E-05	334	1.670E+07	94	9.400E+06	3.55	451.2	209.2	26.1
	3.5E-04	2563	7.344E+06	975	5.587E+06	2.63	268.2		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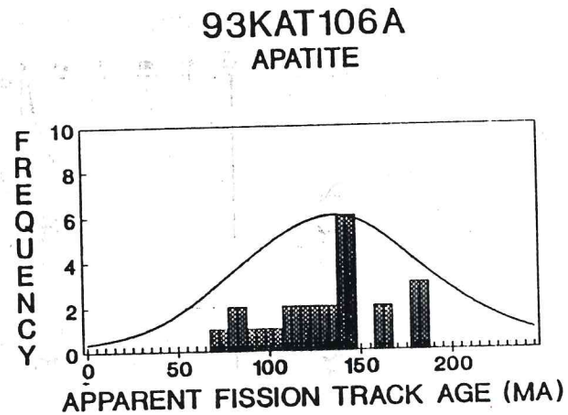
TRACK LENGTH (MICRONS)


93KAT106A
APATITE
FREQUENCY
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6
4
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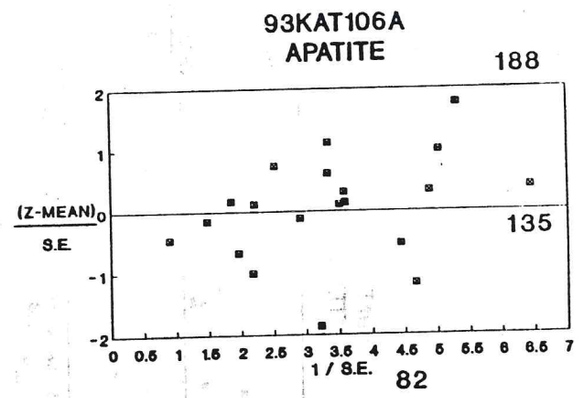
APPARENT FISSION TRACK AGE (MA)


93KAT106A
APATITE
188
(Z-MEAN)o
S.E.
135
2
1
0
-1
-2
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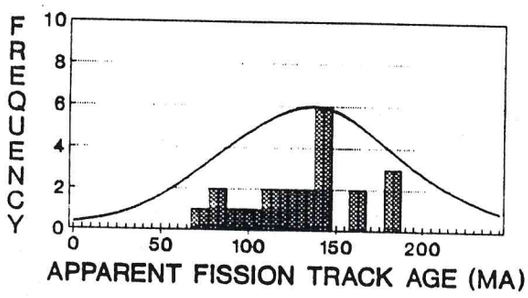
1 / S.E.
82

93KAT106A
APATITE



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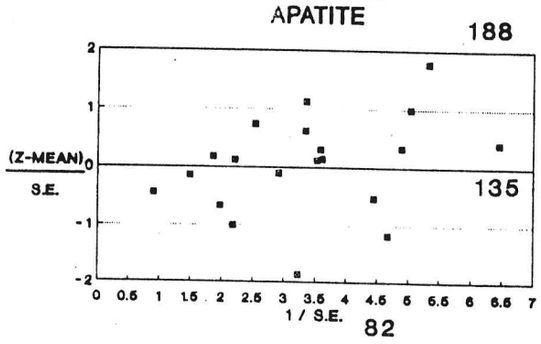
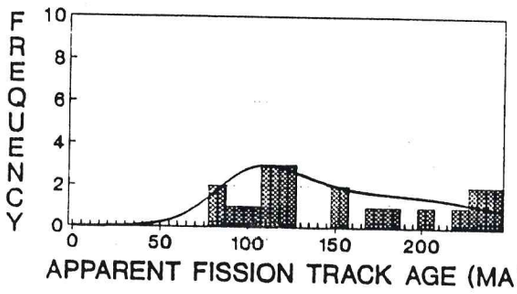
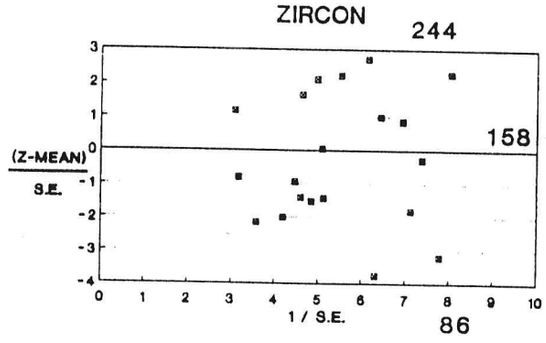
APATITE



93KAT106A
ZIRCON



KAT106A
ZIRCON



FISSION TRACK AGE DATA

PROJECT NAME: SOUTH ALASKA
DATE: 2/20/94
FT AGE: 139.9 Ma

SAMPLE NUMBER: 93KAT106B
LATITUDE: °' N
UPPER CI: 160.2 Ma

LAB NUMBER: SMU
LONGITUDE: °'W
LOWER CI: 122.2 Ma

REACTOR RUN NUMBER: RR-12-17-93Z
ELEVATION (M):
STD ERR: 9.27 Ma

NEUTRON FLUX: 1.100E+16
MICROSCOPE: OLYMPUS
C. COEFF: 0.980

SPON TRACKS (FLUX): 600
MAGNIFICATION: 1250 X
CHI²: 10.522 19

IND. TRACKS (FLUX): 4000
ROCK TYPE: Jn
AVG. AGE: 141.2 Ma

NUMBER OF GRAINS: 20
MINERAL: APATITE
STD. ERR: 7.3

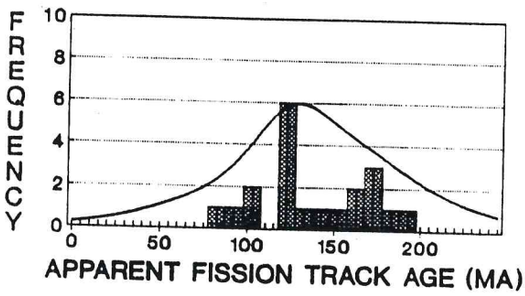
GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1. R	8.0E-05	37	4.625E+05	66	1.650E+06	0.56	14.4	181.9	38.2
2. SH	4.0E-05	50	1.250E+06	125	6.250E+06	0.40	54.5	130.3	22.5
3. SR	4.0E-05	20	5.000E+05	38	1.900E+06	0.53	16.6	170.9	47.8
4. R	8.0E-05	71	8.875E+05	190	4.750E+06	0.37	41.5	121.8	17.8
5. SR	4.0E-05	5	1.250E+05	13	6.500E+05	0.38	5.7	125.3	66.2
6. SH	4.0E-05	23	5.750E+05	60	3.000E+06	0.38	26.2	124.9	31.1
7. SR	4.0E-05	6	1.500E+05	18	9.000E+05	0.33	7.9	108.8	51.5
8. SR	4.0E-05	11	2.750E+05	24	1.200E+06	0.46	10.5	149.1	54.7
9. SR	4.0E-05	17	4.250E+05	31	1.550E+06	0.55	13.5	178.0	54.3
10. SR	8.0E-05	6	7.500E+04	22	5.500E+05	0.27	4.8	89.1	41.2
11. SR	8.0E-05	28	3.500E+05	72	1.800E+06	0.39	15.7	126.7	28.8
12. SH	8.0E-05	7	8.750E+04	19	4.750E+05	0.37	4.1	120.1	53.4
13. SR	4.0E-05	4	1.000E+05	12	6.000E+05	0.33	5.2	108.8	63.0
14. SR	8.0E-05	5	6.250E+04	17	4.250E+05	0.29	3.7	96.1	49.1
15. SR	8.0E-05	19	2.375E+05	39	9.750E+05	0.49	8.5	158.4	44.8
16. SH	4.0E-05	7	1.750E+05	13	6.500E+05	0.54	5.7	174.8	82.3
17. R	8.0E-05	9	1.125E+05	14	3.500E+05	0.64	3.1	208.2	89.4
18. SR	4.0E-05	39	9.750E+05	79	3.950E+06	0.49	34.5	160.4	32.2
19. R	8.0E-05	77	9.625E+05	153	3.825E+06	0.50	33.4	163.5	23.9
20. R	4.0E-05	77	1.925E+06	200	1.000E+07	0.39	87.3	125.5	17.7
	1.2E-03	518	4.466E+05	1205	2.078E+06	0.43	18.1		

FISSION TRACK AGE DATA

PROJECT NAME:	SOUTH ALASKA	DATE:	2/20/94	FT AGE:	158.4 Ma
SAMPLE NUMBER:	93KAT25A	LATITUDE:	°' N	UPPER CI:	184.1 Ma
LAB NUMBER:	SMU	LONGITUDE:	°'W	LOWER CI:	136.2 Ma
REACTOR RUN NUMBER:	RR-12-17-93Z	ELEVATION (M):		STD ERR:	11.65 Ma
NEUTRON FLUX:	1.100E+16	MICROSCOPE:	OLYMPUS	C. COEFF:	0.863
# SPON TRACKS (FLUX)	600	MAGNIFICATION:	1250 X	CHI²:	37.430 19
# IND. TRACKS (FLUX)	4000	ROCK TYPE:	Jn	AVG. AGE:	146.0 Ma
NUMBER OF GRAINS:	20	MINERAL:	APATITE	STD. ERR:	13.9

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1. SH	8.0E-05	48	6.000E+05	178	4.450E+06	0.27	38.8	88.1	14.8
2. SH	4.0E-05	19	4.750E+05	45	2.250E+06	0.42	19.6	137.5	38.1
3. R	2.0E-05	1	5.000E+04	8	8.000E+05	0.13	7.0	41.0	43.5
4. SR	2.0E-05	2	1.000E+05	10	1.000E+06	0.20	8.7	65.5	50.8
5. SH	2.0E-05	7	3.500E+05	18	1.800E+06	0.39	15.7	126.7	56.7
6. SH	4.0E-05	4	1.000E+05	12	6.000E+05	0.33	5.2	108.8	63.0
7. SR	8.0E-05	10	1.250E+05	29	7.250E+05	0.34	6.3	112.5	41.5
8. SH	4.0E-05	11	2.750E+05	32	1.600E+06	0.34	14.0	112.1	39.5
9. SR	2.0E-05	26	1.300E+06	37	3.700E+06	0.70	32.3	227.2	59.0
10. SH	4.0E-05	6	1.500E+05	16	8.000E+05	0.38	7.0	122.2	58.8
11. SR	8.0E-05	45	5.625E+05	64	1.600E+06	0.70	14.0	227.3	45.3
12. SR	4.0E-05	16	4.000E+05	24	1.200E+06	0.67	10.5	215.7	70.3
13. SH	4.0E-05	16	4.000E+05	26	1.300E+06	0.62	11.3	199.4	64.0
14. SH	4.0E-05	25	6.250E+05	40	2.000E+06	0.63	17.5	202.5	52.4
15. SH	4.0E-05	4	1.000E+05	16	8.000E+05	0.25	7.0	81.7	45.8
16. SR	4.0E-05	80	2.000E+06	134	6.700E+06	0.60	58.5	193.5	28.6
17. SH	8.0E-05	5	6.250E+04	8	2.000E+05	0.63	1.7	202.5	115.8
18. SH	2.0E-05	2	1.000E+05	7	7.000E+05	0.29	6.1	93.3	75.0
19. SH	4.0E-05	3	7.500E+04	8	4.000E+05	0.38	3.5	122.2	82.9
20. SH	2.0E-05	51	2.550E+06	70	7.000E+06	0.73	61.1	235.4	44.5
	8.4E-04	381	4.536E+05	782	1.862E+06	0.49	16.2		

93KAT106B
APATITE



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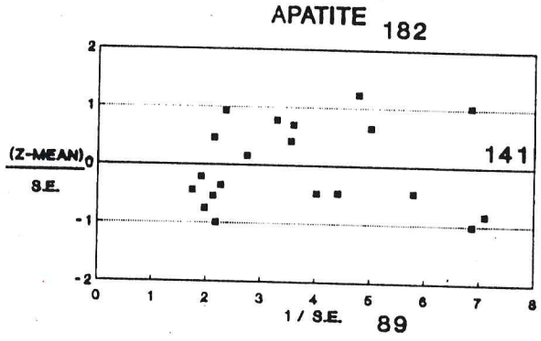
APATITE



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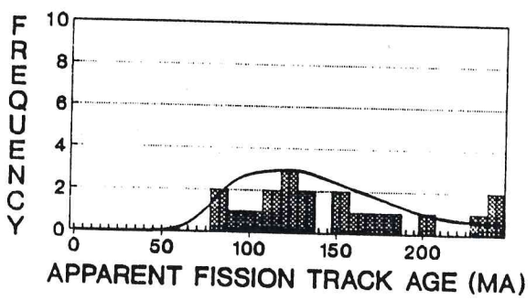
ZIRCON



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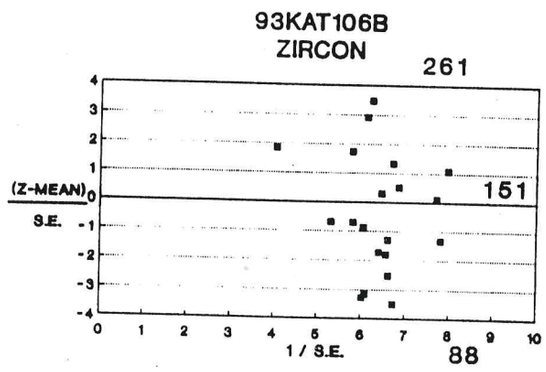

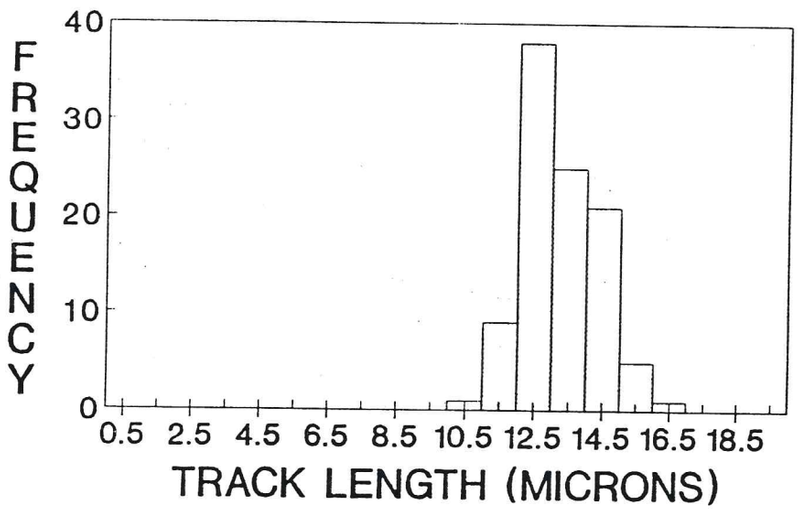
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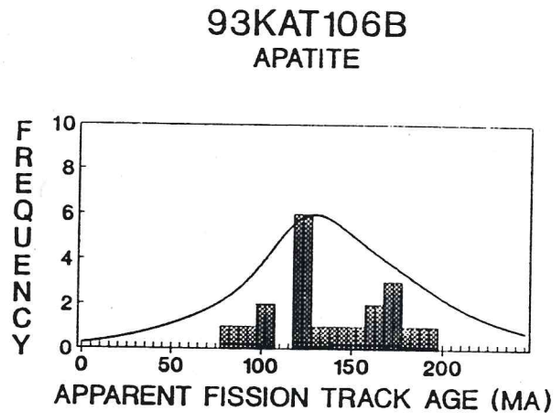
TRACK LENGTH (MICRONS)


93KAT106B
APATITE
FREQUENCY
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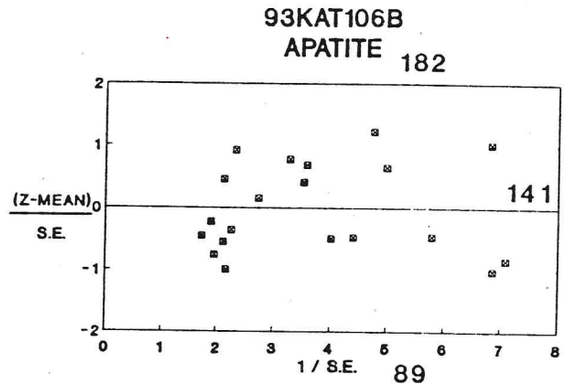
APPARENT FISSION TRACK AGE (MA)


93KAT106B
APATITE
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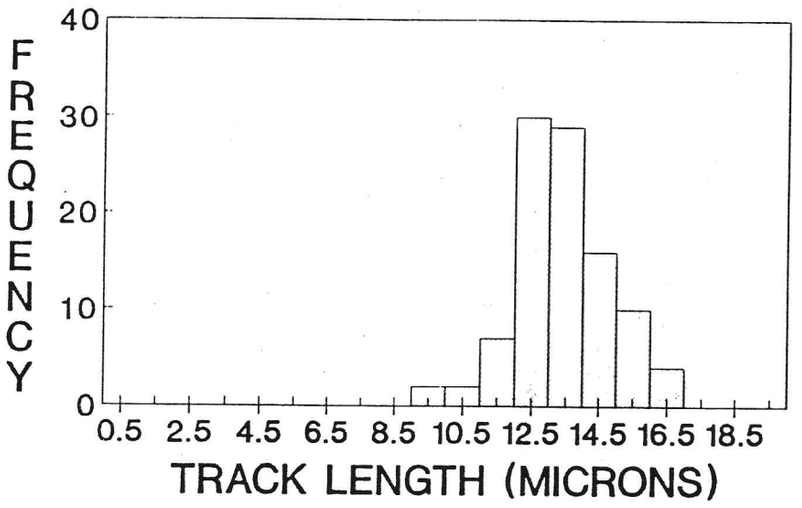
141
89
(Z-MEAN)0
S.E.
2
1
-1
-2
0 1 2 3 4 5 6 7 8
1 / S.E.

FISSION TRACK AGE DATA

PROJECT NAME:	SOUTH ALASKA	DATE:	2/20/94	FT AGE:	136.3 Ma
SAMPLE NUMBER:	93KAT25A	LATITUDE:	°' N	UPPER CI:	153.1 Ma
LAB NUMBER:	SMU	LONGITUDE:	°'W	LOWER CI:	121.3 Ma
REACTOR RUN NUMBER:	RR-12-17-93Z	ELEVATION (M):		STD ERR:	7.76 Ma
NEUTRON FLUX:	2.000E+15	MICROSCOPE:	OLYMPUS	C. COEFF:	0.453
# SPON TRACKS (FLUX)	600	MAGNIFICATION:	1250 X	CHI²:	58.780 19
# IND. TRACKS (FLUX)	4000	ROCK TYPE:	Jn	AVG. AGE:	142.2 Ma
NUMBER OF GRAINS:	20	MINERAL:	ZIRCON	STD. ERR:	9.2

GRAIN #	AREA USED (SQ. CM)	Ns	RHO(S) (/CM²)	Ni	RHO(I) (/CM²)	RATIO (Ns/Ni)	URANIUM (PPM)	AGE (MA)	STD.DEV. (MA)
1. YB,SR	2.4E-05	100	4.167E+06	62	5.167E+06	1.61	248.0	95.8	16.0
2. YB,SH	1.2E-05	119	9.917E+06	35	5.833E+06	3.40	280.0	200.3	39.5
3. B,SH	2.0E-05	130	6.500E+06	42	4.200E+06	3.10	201.6	182.6	33.4
4. Y,E	2.0E-05	122	6.100E+06	66	6.600E+06	1.85	316.8	109.7	17.4
5. Y,SH	1.2E-05	92	7.667E+06	35	5.833E+06	2.63	280.0	155.4	31.6
6. Y,SH	1.2E-05	56	4.667E+06	28	4.667E+06	2.00	224.0	118.6	27.9
7. B,SR	1.2E-05	107	8.917E+06	50	8.333E+06	2.14	400.0	126.8	22.4
8. B,SR	1.6E-05	87	5.438E+06	35	4.375E+06	2.49	210.0	147.0	30.1
9. Y,SH	9.6E-06	57	5.938E+06	36	7.500E+06	1.58	360.0	94.0	20.4
10. Y,SH	1.6E-05	165	1.031E+07	53	6.625E+06	3.11	318.0	183.6	30.1
11. Y,E	2.0E-05	160	8.000E+06	43	4.300E+06	3.72	206.4	218.9	38.8
12. Y,SH	1.6E-05	94	5.875E+06	76	9.500E+06	1.24	456.0	73.6	11.8
13. Y,SH	1.3E-05	108	8.438E+06	44	6.875E+06	2.45	330.0	145.2	26.7
14. Y,E	2.0E-05	175	8.750E+06	75	7.500E+06	2.33	360.0	138.1	20.0
15. B,SH	2.0E-05	121	6.050E+06	58	5.800E+06	2.09	278.4	123.6	20.5
16. B,SH	9.6E-06	95	9.896E+06	33	6.875E+06	2.88	330.0	170.0	35.1
17. YB,SH	1.2E-05	97	8.083E+06	30	5.000E+06	3.23	240.0	190.6	40.7
18. Y,SH	1.2E-05	87	7.250E+06	37	6.167E+06	2.35	296.0	139.2	28.0
19. Y,SH	1.2E-05	80	6.667E+06	56	9.333E+06	1.43	448.0	84.9	15.3
20. YB,SR	1.2E-05	105	8.750E+06	43	7.167E+06	2.44	344.0	144.5	26.9
	3.0E-04	2157	7.190E+06	937	6.247E+06	2.30	299.8		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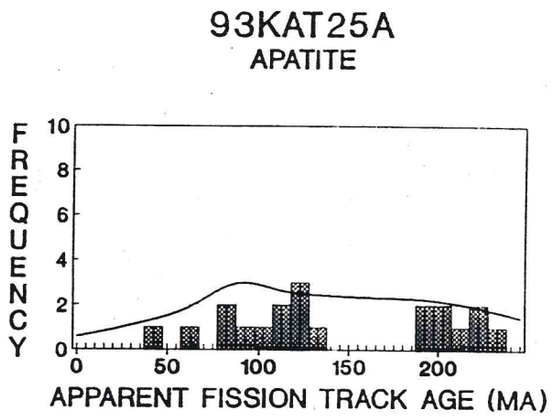
TRACK LENGTH (MICRONS)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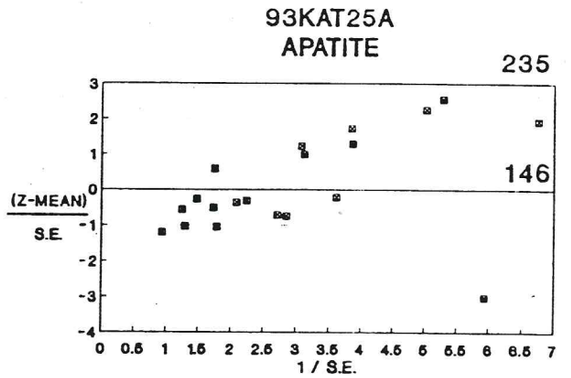
APPARENT FISSION TRACK AGE (MA)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235
146
(Z-MEAN)
S.E.
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2
1
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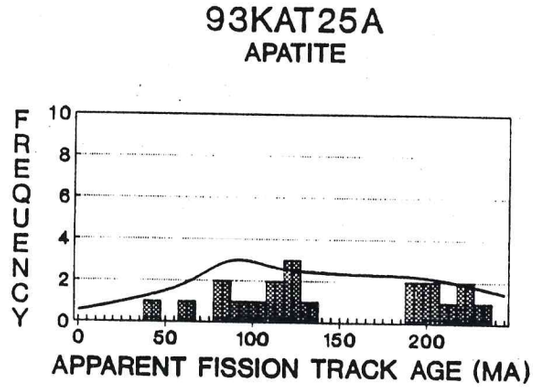
-4
0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5 6 6.5 7
1 / S.E.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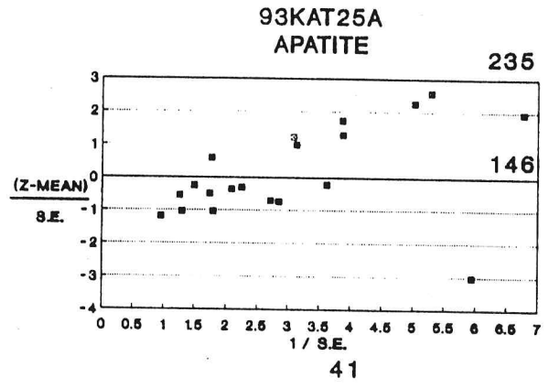
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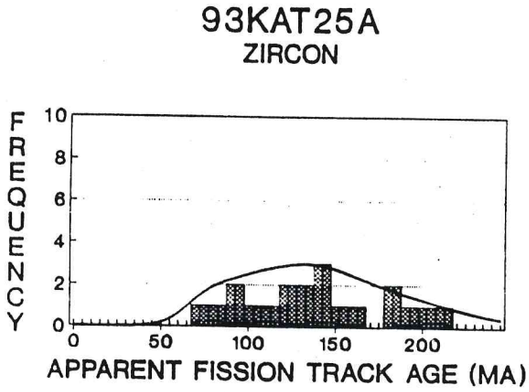
(Z-MEAN)
S.E.
1 / S.E.
41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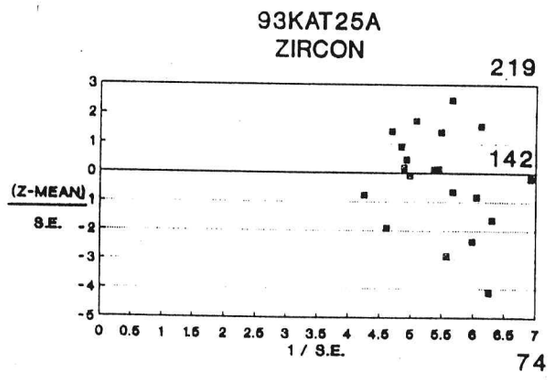
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219
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S.E.
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74