

Enclosure 5: Source rock evaluation: Cretaceous outcrops, Point Lay, western North Slope, Alaska, in Sherwood, K.W., and Amoco Oil Co., 1977 geologic field investigations, Point Lay area, North Slope, Alaska

Harwood, R.J., and Amoco Oil Co.

GMC DATA REPORT 445C

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



SOURCE ROCK ANALYSIS

5

04800101

1977 FIELD SPLS

78320ART0008



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SOURCE ROCK EVALUATION
Cretaceous Outcrops, Point Lay, Western North Slope
Alaska

Petroservices Group

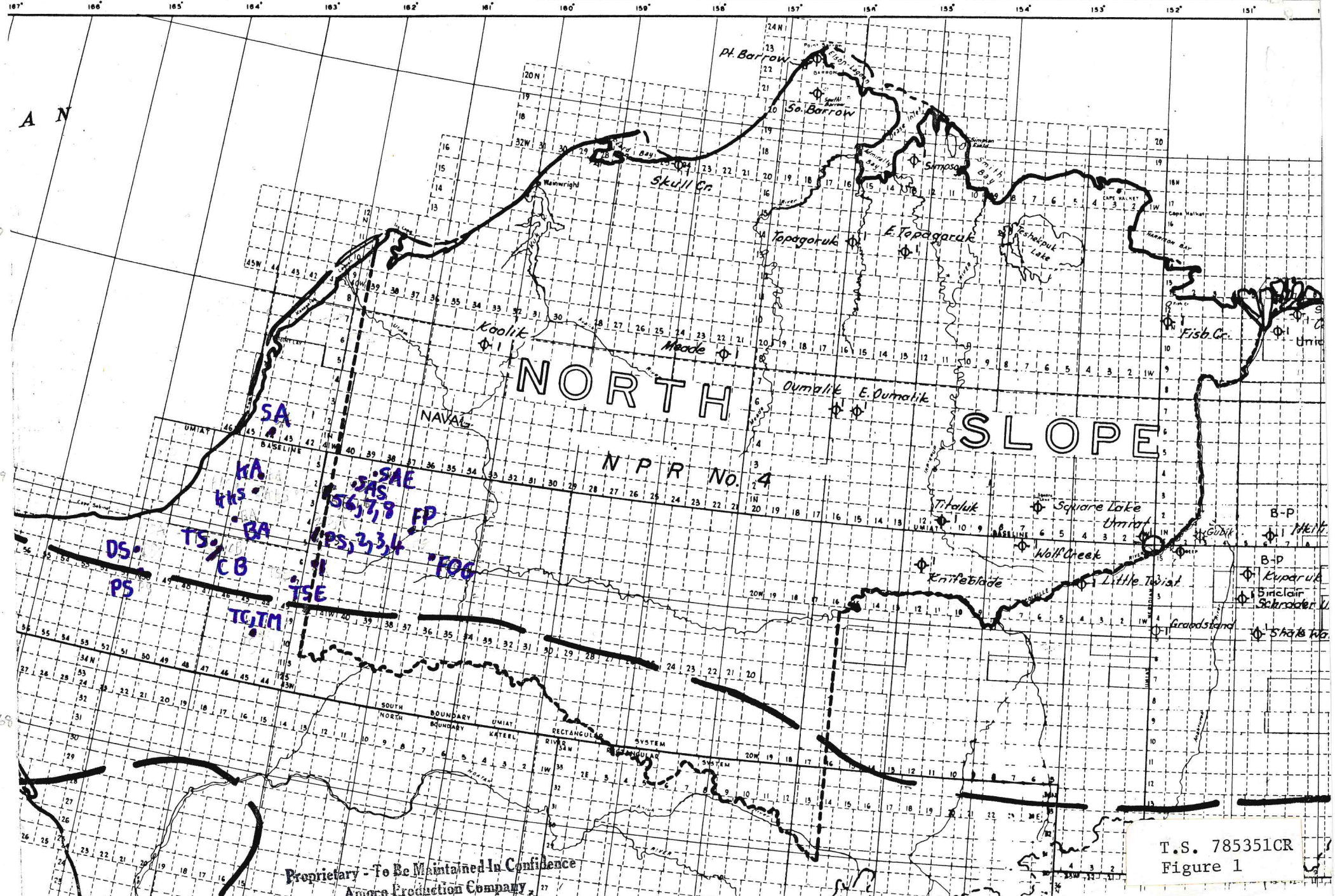
R. J. Harwood

Technical Service 785351CR
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Figure 1

Subject: Cretaceous Outcrops, Point Lay, Western North Slope, Alaska
(Figure 1)

INTRODUCTION

One hundred twenty outcrop samples of lower Cretaceous age from the Fortress Mountain, Kukpowruk, Corwin and Torak formations in the western North Slope were submitted for analysis to determine if the rich oil source beds present in the eastern North Slope extend to the west. A previous technical service (TS 8718) for this area found the Cretaceous beds to primarily be gas sources at early peak-to-peak gas generation. Evidence of migrated oil was reported in two Corwin and one Kukpowruk samples. The samples were screened by total organic carbon and thermal evolution analysis, then a limited number of samples were selected for complete geochemical analysis.

CONCLUSIONS

These samples are mostly fair and good rated gas and condensate sources in early peak gas generation. No evidence of migrated oil is seen in these samples.

DISCUSSION

Petroleum generation capabilities based on organic carbon content by formation for these samples are: Fortress Mountain - 1 nonsource, 1

poor, 4 fair, 1 good, 1 very good; Kukpowruk - 3 poor, 19 fair, 29 good, 9 very good; Corwin - 1 fair, 12 good, 3 very good; Torok - 1 poor, 16 fair, 17 good, 1 very good; 1 unnamed sample - good (Table 1, 2).

The kerogens are interpreted to be gas and condensate generating based on visual evaluation (Tables 1, 3, 4) and low to moderate convertibilities to hydrocarbons as measured by thermal evolution analysis (Table 5). The stage of thermal maturity of the kerogens is broadly classified as early peak gas generation from the vitrinite reflectance and visual scale values, TEA peak temperature for hydrocarbon generation (Tables 1, 3, 4, 5; Figures 2, 3), and maturity of the normal paraffins on the saturate fraction chromatograms (Table 2, Figure 4). Those samples with lower vitrinite reflectance and visual scale values tend to have higher odd to even ratios of normal paraffins in the C_{24-30} range because of greater thermal immaturity than other samples in the suite. Corwin samples tend to be more immature than those from the Torok, Kukpowruk, and Fortress Mountain formations. However, all these samples appear to be within early peak gas generation in spite of some differences in maturity. Elemental analysis carbonizations (Table 3) often indicate higher stages of diagenesis, possibly because of inclusion of reworked kerogen. The stages of thermal maturity interpreted for the previously analyzed samples (TS 8718) in some cases may be too high because of the influence of reworked kerogen on the elemental analysis and visual evaluation.

Bitumen amounts are moderate to small (Table 2) and consistent with gas and condensate generating kerogens at early peak gas generation. Insufficient bitumen is present to interpret the presence of migrated oil in these samples. Infrared spectra for those samples, where sufficient

aromatic fraction is available, are distinctly different than for North Slope oils. This area appears to be prospective mostly for gas and light oil to condensate.

Robert J. Harwood

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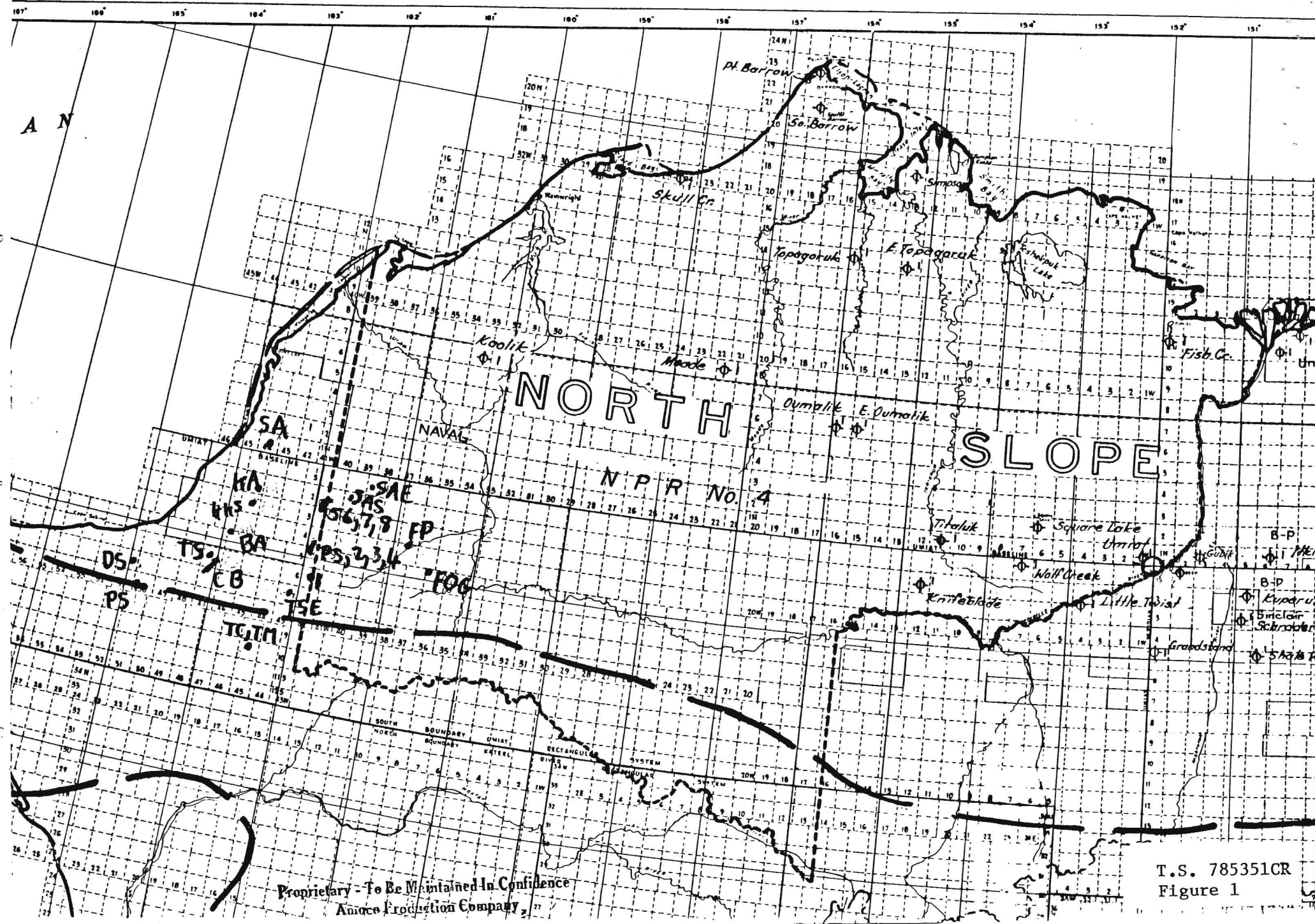
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Table 4

VISUAL AND VITRINITE REFLECTANCE
ANALYSIS OF OUTCROP SAMPLES FROM POINT LAY, ALASKA
T.S. 785351CR

<u>Lab Sample #</u>	<u>Field #</u>	<u>Kerogen Type</u>	<u>Carbonization Scale</u>	<u>Interpreted % R_o</u>
R-1610	TC 13	Mixed	4	0.98
R-1613	TM 4	Structured	5	1.07
R-1616	TM 32	Mixed	5	Barren
R-1619	KKS 18	Structured	5	0.74
R-1621	TS 36	Structured	5	0.88
R-1624	KA 43	Structured	4	0.66
R-1630	KA 57	Structured	4	1.02
R-1636	KA 75	Structured	4	0.84
R-1638	SA 84	Mixed	4	0.75
R-1641	SA 86	Structured	5	0.88
R-1644	SA 93	Structured	4	0.76
R-1648	SA 101	Structured	5	0.78
R-1652	SA 234	Structured	4	0.56
R-1654	SA 237	Structured	4	0.63
R-1656	SA 239	Structured	3-4	0.58
R-1658	TSE 121	Structured	5	1.23
R-1660	TSE 120	Structured	5	1.28
R-1661	TSE 118	Structured	5	1.06
R-1663	TSE 126	Structured	5	0.82
R-1664	FS 129	Structured	5	0.82
R-1666	DS 137	Structured	4	0.78
R-1667	PS 145	Mixed	4	0.49
R-1670	FP 156	Mixed	4	0.84
R-1672	FP 162	Structured	4	0.78
R-1675	FOG 172	Structured	5	1.00
R-1676	SAE 179	Structured	4	0.59
R-1677	SAE 182	Mixed	4	0.82
R-1680	CB 222	Mixed	4	1.11
R-1682	CB 227	Structured	4	1.05
R-1684	CB 229	Structured	4	0.93
R-1686	CB 197	Structured	4	0.77
R-1689	CB 186	Structured	5	0.83
R-1692	CB 216	Mixed	5	0.77
R-1694	CB 218	Structured	5	0.67
R-1696	CB 221	Structured	5	0.75
R-1697	BA 231	Structured	5	0.74
R-1699	BA 233	Structured	4	0.87
R-1701	1 250	Structured	4	0.83
R-1704	1 253	Structured	4	0.56
R-1705	2 261	Structured	4	0.89
R-1708	2 258	Structured	4	0.59
R-1711	2 255	Structured	4	0.54
R-1714	3 263	Mixed	4	0.71
R-1716	3 265	Structured	4	0.74
R-1718	4 267	Structured	4	Barren
R-1721	5 270	Structured	5	0.97
R-1723	6 272	Mixed	5	0.82
R-1727	7 276	Structured	5	0.96
R-1728	8 277	Structured	5	1.02

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Figure 1

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SOURCE ROCK SUMMARY
TABLE 1. a
DATE 10/30/78

SAMPLE NUMBER	FLD NO.	SAMPL TYPE	FORMATION	AGE	LITHOLOGY	DEPTH FEET TOP***BASE	PETROLEUM GENERATION CAPABILITY	KEROGEN TYPE (OIL/GAS)	STAGE OF DIAGENESIS	REMARKS
STATE ALASKA COUNTY DE LONG MTS. WELL LOCATION 17, 18-105-45W										
WELL NAME LEASE TINGMERKPUK CREEK										
R-1610	TC	13	OT	FORTRESS MTN NEO	SH		FAIR	Gas-condensate	Early peak gas	
R-1611	TC	14	OT	FORTRESS MTN NEO	SH		FAIR	"	"	
R-1612	TC	16	OT	FORTRESS MTN NEO	SH		POOR	"	"	
STATE ALASKA COUNTY DE LONG MTS. WELL LOCATION 20, 21, 28-105-45W										
WELL NAME LEASE TINGMERKPUK CREEK										
R-1613	TM	4	OT	TG.SD-FT MTN NEO	SH		GOOD	"	"	
R-1614	TM	10	OT	TG.SD-FT MTN NEO	SH		FAIR	"	"	
R-1615	TM	27	OT	TG.SD-FT MTN NEO	SH		NON SOURCE			
R-1616	TM	32	OT	TG.SD-FT MTN NEO	SH		VERY GOOD	"	"	
R-1617	TM	33	OT	TG.SD-FT MTN NEO	SS		FAIR	"	"	
STATE ALASKA COUNTY POINT LAY WELL LOCATION 14-35-45W										
WELL NAME LEASE KUKPOWRUK SYNCLINE										
R-1618	KKS	19	OT	KUKPOWRUK FM ALB	SH		GOOD	"	"	
R-1619	KKS	18	OT	KUKPOWRUK FM ALB	SH		GOOD	"	"	
R-1620	KKS	21	OT	KUKPOWRUK FM ALB	SS		GOOD	"	"	
STATE ALASKA COUNTY DE LONG MTS. WELL LOCATION 10-65-47W										
WELL NAME LEASE TUPICHAK SYNCLINE										
R-1621	TS	36	OT	KUKPOWRUK FM ALB	SH		VERY GOOD	"	"	
R-1622	TS	39	OT	KUKPOWRUK FM ALB	SH		GOOD	"	"	

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SOURCE ROCK SUMMARY
TABLE 1. b
DATE 10/30/78

SAMPLE NUMBER		SMPL TYPE	FORMATION	AGE	LITHOLOGY	DEPTH FEET		PETROLEUM GENERATION CAPABILITY	KEROGEN TYPE (OIL/GAS)	STAGE OF DIAGENESIS	REMARKS
LAB NO.	FLD NO.					TOP***	BASE				
STATE ALASKA		COUNTY	POINT LAY	WELL LOCATION 23-25-45W							
WELL NAME		LEASE KASEGALUK SYNCLINE									
R-1623	KA	42	OT	KUKPOWRUK	FM	ALB	SH	GOOD	Gas-condensate	Early peak gas	
R-1624	KA	43	OT	KUKPOWRUK	FM	ALB	SH	GOOD	"	"	
R-1625	KA	46	OT	KUKPOWRUK	FM	ALB	SH	FAIR	"	"	
R-1626	KA	48	OT	KUKPOWRUK	FM	ALB	SH	GOOD	"	"	
R-1627	KA	49	OT	KUKPOWRUK	FM	ALB	SH	GOOD	"	"	
R-1628	KA	53	OT	KUKPOWRUK	FM	ALB	SH	VERY GOOD	"	"	
R-1629	KA	54	OT	KUKPOWRUK	FM	ALB	SH	GOOD	"	"	
R-1630	KA	57	OT	KUKPOWRUK	FM	ALB	SH	VERY GOOD	"	"	
R-1631	KA	58	OT	KUKPOWRUK	FM	ALB	SH	VERY GOOD	"	"	
R-1632	KA	60	OT	KUKPOWRUK	FM	ALB	SH	VERY GOOD	"	"	
R-1633	KAA	70	OT	KUKPOWRUK	FM	ALB	SH	GOOD	"	"	
R-1634	KAB	70	OT	KUKPOWRUK	FM	ALB	SH	FAIR	"	"	
R-1635	KA	74	OT	KUKPOWRUK	FM	ALB	SH	FAIR	"	"	
R-1636	KA	75	OT	KUKPOWRUK	FM	ALB	SH	GOOD	"	"	
R-1637	KA	78	OT	KUKPOWRUK	FM	ALB	SH	FAIR	"	"	
STATE ALASKA		COUNTY	POINT LAY	WELL LOCATION 27, 28-1N-44W							
WELL NAME		LEASE SNOWBANK ANTICLINE									
R-1638	SA	84	OT	CORWIN	FM.	ALB	SH	GOOD	"	"	
R-1639	SAA	85	OT	KUKPOWRUK	FM	ALB	SH	VERY GOOD	"	"	

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SOURCE ROCK SUMMARY
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SAMPLE NUMBER	SMPL	FORMATION	AGE	LITHOLOGY	DEPTH FEET	PETROLEUM GENERATION CAPABILITY	KEROGEN TYPE (OIL/GAS)	STAGE OF DIAGENESIS	REMARKS
LAB NO.	FLD NO.	TYPE			TOP***BASE				

STATE ALASKA COUNTY POINT LAY WELL LOCATION 27, 28-1N-44W
LEASE SNOWBANK ANTICLINE

R-1640	SA	85	OT	KUKPOWRUK FM ALB	SH	FAIR	Gas-condensate	Early peak gas	
R-1641	SA	86	OT	KUKPOWRUK FM ALB	SH	GOOD	"	"	
R-1642	SA	88	OT	KUKPOWRUK FM ALB	SH	GOOD	"	"	
R-1643	SA	91	OT	KUKPOWRUK FM ALB	SH	GOOD	"	"	
R-1644	SA	93	OT	KUKPOWRUK FM ALB	SH	GOOD	"	"	
R-1645	SA	95	OT	KUKPOWRUK FM ALB	SH	GOOD	"	"	
R-1646	SA	96	OT	KUKPOWRUK FM ALB	SH	GOOD	"	"	
R-1647	SA	98	OT	KUKPOWRUK FM ALB	SH	GOOD	"	"	
R-1648	SA	101	OT	KUKPOWRUK FM ALB	SH	GOOD	"	"	
R-1649	SA	102	OT	KUKPOWRUK FM ALB	SH	VERY GOOD	"	"	
R-1650	SA	108	OT	KUKPOWRUK FM ALB	SH	FAIR	"	"	
R-1651	SA	109	OT	CORWIN FM.	ALB SH	GOOD	"	"	

STATE ALASKA COUNTY POINT LAY WELL LOCATION 21-1N-44W
LEASE SNOWBANK ANTICLINE

R-1652	SA	234	OT	CORWIN FM.	ALB SH	GOOD	"	"	
R-1653	SA	236	OT	CORWIN FM.	ALB SH	FAIR	"	"	
R-1654	SA	237	OT	CORWIN FM.	ALB SH	GOOD	"	"	
R-1655	SA	238	OT	CORWIN FM.	ALB SH	GOOD	"	"	
R-1656	SA	239	OT	CORWIN FM.	ALB SH	GOOD	"	"	

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DATE 10/30/78

SAMPLE NUMBER	FLD NO.	SAMPL TYPE	FORMATION	AGE	LITHOLOGY	DEPTH FEET TOP***BASE	PETROLEUM GENERATION CAPABILITY	KEROGEN TYPE (OIL/GAS)	STAGE OF DIAGENESIS	REMARKS
STATE ALASKA COUNTY POINT LAY						WELL LOCATION 21-1N-44W				
WELL NAME						LEASE SNOWBANK ANTICLINE				
R-1657	SA	243	UT	CORWIN FM.	ALB	SH	GOOD	Gas-condensate	Early peak gas	
STATE ALASKA COUNTY DE LONG MTS.						WELL LOCATION 1, 14-7S-43W				
WELL NAME						LEASE TUPICHAH SYNCLINE EAST				
R-1658	TSE	121	OT	TOROK FM.	ALB	SH	FAIR	"	"	
R-1659	TSE	123	UT	TOROK FM.	ALB	SH	FAIR	"	"	
R-1660	TSE	120	OT	TOROK FM.	ALB	SH	GOOD	"	"	
R-1661	TSE	118	OT	KUKPOWRUK FM	ALB	SH	GOOD	"	"	
R-1662	TSE	115	OT	KUKPOWRUK FM	ALB	SH	POOR	"	"	
R-1663	TSE	126	OT	KUKPOWRUK FM	ALB	SH	VERY GOOD	"	"	
STATE ALASKA COUNTY UTUKOK RIVER						WELL LOCATION 17-5S-42W				
WELL NAME						LEASE FLINTCHIP SYNCLINE				
R-1664	FS	129	OT	CORWIN FM.	ALB	SH	GOOD	"	"	
R-1665	FS	131	OT	KUKPOWRUK FM	ALB	SH	FAIR	"	"	
STATE ALASKA COUNTY DE LONG MTS.						WELL LOCATION 25-7S-51W				
WELL NAME						LEASE DUGOUT SYNCLINE				
R-1666	DS	137	OT	KUKPOWRUK FM	ALB	SH	FAIR	"	"	
STATE ALASKA COUNTY DE LONG MTS.						WELL LOCATION 20-8S-50W				
WELL NAME						LEASE PITMEGEA SYNCLINE				
R-1667	PS	145	OT	KUKPOWRUK FM	ALB	SH	FAIR	"	"	

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SOURCE ROCK SUMMARY
TABLE 1.e
DATE 10/30/78

SAMPLE NUMBER	SMPL	DEPTH FEET	PETROLEUM	KEROGEN	STAGE					
LAB NO.	FLD NO.	TYPE	FORMATION	AGE	LITHOLOGY	TOP***BASE	GENERATION	TYPE	OF	REMARKS
							CAPABILITY	(OIL/GAS)	DIAGENESIS	
STATE ALASKA		COUNTY UTUKOK RIVER		WELL LOCATION 3, 5-45-37W; 32-35-37W						
WELL NAME				LEASE FOLSOM POINT SYNCLINE						
R-1668	FP	151	OT	KUKPOWRUK FM	ALB	SH	FAIR	Gas-condensate	Early peak gas	
R-1669	FP	154	OT	KUKPOWRUK FM	ALB	SH	FAIR	"	"	
R-1670	FP	156	OT	KUKPOWRUK FM	ALB	SH	GOOD	"	"	
R-1671	FP	159	OT	KUKPOWRUK FM	ALB	SH	POOR	"	"	
R-1672	FP	162	OT	KUKPOWRUK FM	ALB	SH	FAIR	"	"	
R-1673	FP	163	OT	KUKPOWRUK FM	ALB	SH	FAIR	"	"	
R-1674	FP	167	OT	KUKPOWRUK FM	ALB	SH	GOOD	"	"	
STATE ALASKA		COUNTY UTUKOK RIVER		WELL LOCATION 6-55-36W						
WELL NAME				LEASE FOGGY SYNCLINE						
R-1675	FOG	172	OT	TOROK FM.	ALB	SH	GOOD	"	"	
STATE ALASKA		COUNTY UTUKOK RIVER		WELL LOCATION 18-15-39W						
WELL NAME				LEASE SNOWBANK ANTICLINE EAST						
R-1676	SAE	179	OT	CORWIN FM.	ALB	SH	VERY GOOD	"	"	
STATE ALASKA		COUNTY UTUKOK RIVER		WELL LOCATION 5-25-40W						
WELL NAME				LEASE SNOWBANK ANTICLINE SOUTH						
R-1677	SAS	182	OT	CORWIN FM.	ALB	SH	GOOD	"	"	
R-1678	SAS	183	OT	KUKPOWRUK FM	ALB	SH	POOR	"	"	
STATE ALASKA		COUNTY DE LONG MTS.		WELL LOCATION 23-65-47W						
WELL NAME				LEASE COKE BASIN						
R-1679	CB	230	OT	KUKPOWRUK FM	ALB	SH	FAIR	"	"	

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SOURCE ROCK SUMMARY
TABLE I. f.
DATE 10/30/78

SAMPLE NUMBER		SMPL TYPE	FORMATION	AGE	LITHOLOGY	DEPTH FEET TOP***BASE	PETROLEUM GENERATION CAPABILITY	KEROGEN TYPE (OIL/GAS)	STAGE OF DIAGENESIS	REMARKS
LAB NO.	FLD NO.									
STATE ALASKA COUNTY DE LONG MTS.						WELL LOCATION 15, 23-65-47W LEASE COKE BASIN				
R-1680	CB	222	OT	TOROK FM.	ALB SH				FAIR	Gas-condensate Early peak gas
R-1681	CB	226	OT	TOROK FM.	ALB SH				FAIR	" "
R-1682	CB	227	OT	TOROK FM.	ALB SH				FAIR	" "
R-1683	CB	228	OT	TOROK FM.	ALB SH				FAIR	" "
STATE ALASKA COUNTY DE LONG MTS.						WELL LOCATION 23-65-47W LEASE COKE BASIN				
R-1684	CB	229	OT	TOROK FM.	ALB SH				GOOD	" "
STATE ALASKA COUNTY DE LONG MTS.						WELL LOCATION 29-65-47W LEASE COKE BASIN				
R-1685	CB	196	OT	KUKPOWRUK FM	ALB SH				GOOD	" "
R-1686	CB	197	OT	KUKPOWRUK FM	ALB SH				GOOD	" "
R-1687	CB	198	OT	KUKPOWRUK FM	ALB SH				GOOD	" "
R-1688	CB	199	OT	KUKPOWRUK FM	ALB SH				GOOD	" "
STATE ALASKA COUNTY DE LONG MTS.						WELL LOCATION 33-65-47W LEASE COKE BASIN				
R-1689	CB	186	OT	KUKPOWRUK FM	ALB SH				VERY GOOD	" "
R-1690	CB	188	OT	KUKPOWRUK FM	ALB SH				GOOD	" "
STATE ALASKA COUNTY DE LONG MTS.						WELL LOCATION 30-65-47W LEASE COKE BASIN				
R-1691	CB	203	OT	KUKPOWRUK FM	ALB SH				FAIR	" "

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SOURCE ROCK SUMMARY
 TABLE 1. g
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SAMPLE NUMBER	SMPL TYPE	FORMATION	AGE	LITHOLOGY	DEPTH FEET TOP***BASE	PETROLEUM GENERATION CAPABILITY	KEROGEN TYPE (OIL/GAS)	STAGE OF DIAGENESIS	REMARKS
STATE ALASKA COUNTY DE LONG MTS.					WELL LOCATION 7-7S-47W LEASE COKE BASIN				
R-1692	CB 216 OT	CORWIN FM.	ALB	SH		GOOD	Gas-condensate	Early peak gas	
R-1693	CB 217 OT	CORWIN FM.	ALB	SH		GOOD	"	"	
R-1694	CB 218 OT	CORWIN FM.	ALB	SH		VERY GOOD	"	"	
STATE ALASKA COUNTY DE LONG MTS.					WELL LOCATION 12-7S-48W LEASE COKE BASIN				
R-1695	CB 220 OT	CORWIN FM.	ALB	SH		VERY GOOD	"	"	
R-1696	CB 221 OT	CORWIN FM.	ALB	SH		GOOD	"	"	
STATE ALASKA COUNTY POINT LAY					WELL LOCATION 6-5S-46W LEASE GRAB SAMPLE				
R-1697	BA 231 OT	KUKPOWRUK FM	ALB	SH		FAIR	"	"	
R-1698	BA 232 OT	KUKPOWRUK FM	ALB	SH		FAIR	"	"	
R-1699	BA 233 OT	TOROK FM.	ALB	SH		FAIR	"	"	
STATE ALASKA COUNTY MISHĒGUK MĒN.					WELL LOCATION 49-6S-42W LEASE GRAB SAMPLE				
R-1700	1 249 OT	TOROK FM.	ALB	SH		POOR	"	"	
R-1701	1 250 OT	TOROK FM.	ALB	SH		FAIR	"	"	
R-1702	1 251 OT	KUKPOWRUK FM	ALB	SH		FAIR	"	"	
R-1703	1 252 OT	KUKPOWRUK FM	ALB	SH		GOOD	"	"	
R-1704	1 253 OT	TOROK FM.	ALB	SH		GOOD	"	"	

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SOURCE ROCK SUMMARY
 TABLE 1.h
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SAMPLE NUMBER		SMPL TYPE	FORMATION	AGE	LITHOLOGY	DEPTH FEET		PETROLEUM GENERATION CAPABILITY	KEROGEN TYPE (OIL/GAS)	STAGE OF DIAGENESIS	REMARKS
LAB NO.	FLD NO.					TOP***	BASE				
STATE ALASKA		COUNTY	UTUKOK RIVER	WELL LOCATION 6-55-42W							
WELL NAME		LEASE GRAB SAMPLE									
R-1705	2	261	OT TOROK FM.	ALB	SH			FAIR	Gas-condensate	Early peak gas	
R-1706	2	260	OT TOROK FM.	ALB	SH			GOOD	"	"	
R-1707	2	259	OT TOROK FM.	ALB	SH			GOOD	"	"	
R-1708	2	258	OT TOROK FM.	ALB	SH			FAIR	"	"	
R-1709	2	257	OT TOROK FM.	ALB	SH			GOOD	"	"	
R-1710	2	256	OT TOROK FM.	ALB	SH			FAIR	"	"	
R-1711	2	255	OT TOROK FM.	ALB	SH			FAIR	"	"	
R-1712	2	254	OT TOROK FM.	ALB	SH			GOOD	"	"	
STATE ALASKA		COUNTY	UTUKOK RIVER	WELL LOCATION 8-55-42W							
WELL NAME		LEASE GRAB SAMPLE									
R-1713	3	262	OT TOROK FM.	ALB	SH			FAIR	"	"	
R-1714	3	263	OT TOROK FM.	ALB	SH			FAIR	"	"	
R-1715	3	264	OT TOROK FM.	ALB	SH			FAIR	"	"	
R-1716	3	265	OT TOROK FM.	ALB	SH			GOOD	"	"	
R-1717	3	266	OT TOROK FM.	ALB	SH			GOOD	"	"	
STATE ALASKA		COUNTY	UTUKOK RIVER	WELL LOCATION 25-45-42W							
WELL NAME		LEASE GRAB SAMPLE									
R-1718	4	267	OT KUKPOWRUK FM	ALB	SH			GOOD	"	"	
R-1719	4	268	OT KUKPOWRUK FM	ALB	SH			FAIR	"	"	

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DISTRICT WESTERN
78 5351

SOURCE ROCK SUMMARY
TABLE 1.1
DATE 10/30/78

SAMPLE NUMBER		SMPL TYPE	FORMATION	AGE	LITHOLOGY	DEPTH FEET	PETROLEUM GENERATION CAPABILITY	KEROGEN TYPE (OIL/GAS)	STAGE OF DIAGENESIS	REMARKS
LAB NO.	FLD NO.					TOP***BASE				
STATE ALASKA COUNTY UTUKOK RIVER						WELL LOCATION 2-35-42W				
WELL NAME						LEASE GRAB SAMPLE				
R-1720	5	269 OT	TOROK FM.	ALB	SH		GOOD	Gas-condensate	Early peak gas	
R-1721	5	270 OT	TOROK FM.	ALB	SH		GOOD	"	"	
STATE ALASKA COUNTY UTUKOK RIVER						WELL LOCATION 36-25-42W				
WELL NAME						LEASE GRAB SAMPLE				
R-1722	6	271 OT	TOROK FM.	ALB	SH		GOOD	"	"	
R-1723	6	272 OT	TOROK FM.	ALB	SH		GOOD	"	"	
R-1724	6	273 OT	TOROK FM.	ALB	SH		GOOD	"	"	
R-1725	6	274 OT	TOROK FM.	ALB	SH		GOOD	"	"	
STATE ALASKA COUNTY UTUKOK RIVER						WELL LOCATION 29-25-41W				
WELL NAME						LEASE GRAB SAMPLE				
R-1726	7	275 OT	TOROK FM.	ALB	SH		VERY GOOD	"	"	
R-1727	7	276 OT	TOROK FM.	ALB	SH		FAIR	"	"	
STATE ALASKA COUNTY UTUKOK RIVER						WELL LOCATION 29-25-41W				
WELL NAME						LEASE GRAB SAMPLE				
R-1728	8	277 OT	TOROK FM.	ALB	SH		GOOD	"	"	
STATE ALASKA COUNTY						WELL LOCATION Unidentified				
WELL NAME						LEASE				
R-1729	9	26 OT			SH		GOOD	"	"	

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SOURCE ROCK DATA
TABLE 2. a
DATE 10/30/78

SAMPLE NUMBER	DEPTH TOP**HOTUM	FLET	GEOLOGICAL AGE	INSOL RESID%	TOTAL ORG C	WT%	BITUMEN		SAT HC		SAT HC/BITUMEN	BITUMEN/TOTAL ORG C	REMARKS
							BBL/AF	PPM	BBL/AF	PPM			
STATE ALASKA COUNTY DE LONG MTS. WELL LOCATION													
WELL NAME LEASE TINGMERKPUK CREEK													
R-1610			NEO	72	.9	5	267	2	126	.47	.03	-27.7	* 1.08
R-1611			NEO	66	.7								
R-1612			NEO	48	.5								
STATE ALASKA COUNTY DE LONG MTS. WELL LOCATION													
WELL NAME LEASE TINGMERKPUK CREEK													
R-1613			NEO	81	1.1	3	184	1	61	.33	.02		1.13
R-1614			NEO	86	.7								
R-1615			NEO	90	<.1								
R-1616			NEO	86	2.4	27	1507	20	1120	.74	.06	-29.2	* .97
R-1617			NEO	78	.8								
STATE ALASKA COUNTY POINT LAY WELL LOCATION													
WELL NAME LEASE KUKPOWRUK SYNCLINE													
R-1618			ALB	74	1.0								
R-1619			ALB	79	1.5	6	340	2	93	.28	.02	-28.1	* 1.18
R-1620			ALB	86	1.0								
STATE ALASKA COUNTY DE LONG MTS. WELL LOCATION													
WELL NAME LEASE TUPICHAK SYNCLINE													
R-1621			ALB	80	2.3	11	592	4	222	.37	.03	-27.8	* 1.17
R-1622			ALB	82	1.0								

*New type infrared spectra
**Ratio of odd to even normal paraffins in C₂₄₋₃₀ portion of saturate fraction

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DISTRICT WESTERN

SOURCE ROCK DATA
TABLE 2. b
DATE 10/30/78

SAMPLE NUMBER	DEPTH FEET TOP***BOTTOM	GEOLOGICAL AGE	INSOL RLSID%	TOTAL ORG C WT%	BITUMEN		SAT HC		SAT HC/BITUMEN		REMARKS
					BBL/AF	PPM	BBL/AF	PPM	TL	ORG C	
STATE ALASKA COUNTY POINT LAY		WELL LOCATION		BBL/AF = (PPM X .0180)		Saturate & C ₁₃ %		Infrared		Saturate CPI	
WELL NAME		LEASE		KASEGALUK SYNCLINE							
R-1623	ALB 66	1.1									
R-1624	ALB 75	1.3		6	357	2	112	.31	.03	-28.5	1.17
R-1625	ALB 78	.9									
R-1626	ALB 76	1.4									
R-1627	ALB 82	1.3									
R-1628	ALB 86	4.9		13	703	3	185	.26	.01	-28.5	* 1.10
R-1629	ALB 78	1.1									
R-1630	ALB 86	1.5		21	1167	9	475	.41	.08	-28.7	* 1.15
R-1631	ALB 80	1.7									
R-1632	ALB 84	1.5									
R-1633	ALB 78	1.2									
R-1634	ALB 78	.9									
R-1635	ALB 64	.7									
R-1636	ALB 81	1.4		9	513	3	157	.31	.04	-28.2	* 1.21
R-1637	ALB 50	.7									
STATE ALASKA COUNTY POINT LAY		WELL LOCATION		BBL/AF = (PPM X .0180)		Saturate & C ₁₃ %		Infrared		Saturate CPI	
WELL NAME		LEASE		SNOWBANK ANTICLINE							
R-1638	ALB 90	1.1		5	304	1	61	.20	.03		1.26
R-1639	ALB 96	1.6									

*New type infrared spectra

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SOURCE ROCK DATA
TABLE 2-c
DATE 10/30/78

SAMPLE NUMBER	DEPTH FEET TOP***BOTTOM	GEOLOGICAL AGE	INSOLUBLE RESIDUE %	TOTAL ORGANIC C. WT%	BITUMEN		SAT HC		SAT HC/BITUMEN		BITUMEN/TOTAL ORGANIC C		REMARKS
					BBL/AF	PPM	BBL/AF	PPM	BBL/AF	PPM	BBL/AF	PPM	
WELL LOCATION SNOWBANK ANTICLINE													
R-1640		ALB	82	.9									
R-1641		ALB	86	1.0	6	314	1	65	.21	.03			1.30
R-1642		ALB	82	1.2									
R-1643		ALB	76	1.3									
R-1644		ALB	88	1.3	5	297	2	90	.31	.02	-28.4	*	1.28
R-1645		ALB	92	1.3									
R-1646		ALB	82	1.2									
R-1647		ALB	88	1.0									
R-1648		ALB	88	1.1	3	155	1	62	.40	.01			1.27
R-1649		ALB	88	1.7									
R-1650		ALB	70	.9									
R-1651		ALB	90	1.0									
WELL LOCATION SNOWBANK ANTICLINE													
R-1652		ALB	76	1.0	4	247	1	55	.23	.02			1.30
R-1653		ALB	78	.9									
R-1654		ALB	85	1.3	4	198	2	83	.42	.02	-28.9		1.46
R-1655		ALB	78	1.0									1.55
R-1656		ALB	90	1.4	6	311	1	63	.20	.02			

*New type infrared spectrum

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SOURCE ROCK DATA
TABLE 2. d
DATE 10/30/78

SAMPLE NUMBER	DEPTH FEET TOP**BOTTOM	GEOL. AGE	INSOL RESID%	TOTAL ORG C WT%	BITUMEN BBL/AF	PPM	SAT HC BBL/AF	PPM	SAT HC/ BITUMEN	BITUMEN/ TL ORG C	REMARKS
STATE ALASKA COUNTY POINT LAY WELL LOCATION BBL/AF (PPM X .0180) Saturate											
WELL NAME LEASE SNOWBANK ANTICLINE Saturate δC13% Infrared CPI											
R-1657		ALB 84	1.1								
STATE ALASKA COUNTY DE LONG MTS. WELL LOCATION											
WELL NAME LEASE TUPICHAK SYNCLINE EAST											
R-1658		ALB 71	.7	2	108	1	68	.64	.02		1.09
R-1659		ALB 68	.8								
R-1660		ALB 85	1.3	6	344	2	88	.26	.03	-27.3	1.10
R-1661		ALB 72	1.1	4	205	1	55	.27	.02	*	1.21
R-1662		ALB 66	.5								
R-1663		ALB 75	2.0	9	480	2	123	.26	.02	-28.5	1.20
STATE ALASKA COUNTY UTUKOK RIVER WELL LOCATION											
WELL NAME LEASE FLINTCHIP SYNCLINE											
R-1664		ALB 84	1.3	5	251	1	49	.20	.02		
R-1665		ALB 72	.8								
STATE ALASKA COUNTY DE LONG MTS. WELL LOCATION											
WELL NAME LEASE DUGOUT SYNCLINE											
R-1666		ALB 83	.9	5	272	<1	23	.09	.03		
STATE ALASKA COUNTY DE LONG MTS. WELL LOCATION											
WELL NAME LEASE PITMEGEA SYNCLINE											
R-1667		ALB 89	.8	4	194	<1	25	.13	.02		

*New type infrared spectra

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SOURCE ROCK DATA
TABLE 2.e
DATE 10/30/78

SAMPLE NUMBER	DEPTH FEET TOP***BOTTOM	GEOLOGICAL AGE	INSOL RESID% RESID	TOTAL ORG C WT%	BITUMEN		SAT HC		SAT HC/ BITUMEN	BITUMEN/ TL ORG C	REMARKS	Saturate CPI	
					BBL/AF	PPM	BBL/AF	PPM					
STATE ALASKA COUNTY UTUKOK RIVER WELL LOCATION												BBL/AF (PPM X .0180)	Saturate
WELL NAME LEASE FOLSOM POINT SYNCLINE												Saturate δC ¹³ %	Infrared
R-1668		ALB	78	.9									
R-1669		ALB	72	.6									
R-1670		ALB	85	1.0	8	427	3	158	.37	.04	-27.9	* 1.22	
R-1671		ALB	66	.6									
R-1672		ALB	72	.7	4	212	1	67	.32	.03		1.14	
R-1673		ALB	82	.9									
R-1674		ALB	86	1.1									
STATE ALASKA COUNTY UTUKOK RIVER WELL LOCATION													
WELL NAME LEASE FOGGY SYNCLINE													
R-1675		ALB	81	1.1	5	250	1	77	.31	.02		1.11	
STATE ALASKA COUNTY UTUKOK RIVER WELL LOCATION													
WELL NAME LEASE SNOWBANK ANTICLINE EAST													
R-1676		ALB	90	5.0	7	379	2	100	.27	.01	-28.0	* 1.40	
STATE ALASKA COUNTY UTUKOK RIVER WELL LOCATION													
WELL NAME LEASE SNOWBANK ANTICLINE SOUTH													
R-1677		ALB	89	1.3	4	198	1	46	.24	.02			
R-1678		ALB	82	.5									
STATE ALASKA COUNTY DE LONG MTS. WELL LOCATION													
WELL NAME LEASE COKE BASIN													
R-1679		ALB	70	.8									
R-1680		ALB	70	.8	5	278	2	87	.31	.04	-28.0	* 1.10	

*New type infrared spectra

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R E S E A R C H C E N T E R

OFFICE DENVER DISTRICT WESTERN
TECHNICAL SERVICE NUMBER 785351

SOURCE ROCK DATA
TABLE 2. f
DATE 10/30/78

SAMPLE NUMBER	DEPTH FEET TOP***BOTTOM	GEOL. AGE	INSOL RESID%	TOTAL ORG C WT%	BITUMEN		SAT. HC		SAT. HC/BITUMEN/		REMARKS	
					BBL/AF	PPM	BBL/AF	PPM	BITUMEN	TL ORG C		
STATE ALASKA COUNTY DE LONG MTS. WELL NAME		WELL LOCATION LEASE COKE BASIN		BBL/AF = (PPM X .0180) Saturate GPI								
R-1681		ALB	72	.6								
R-1682		ALB	68	.6	2	95	1	45	.48	.02		
R-1683		ALB	76	.9								
STATE ALASKA COUNTY DE LONG MTS. WELL NAME		WELL LOCATION LEASE COKE BASIN										
R-1684		ALB	78	1.0	2	137	1	79	.58	.01		
STATE ALASKA COUNTY DE LONG MTS. WELL NAME		WELL LOCATION LEASE COKE BASIN										
R-1685		ALB	66	1.1								
R-1686		ALB	83	1.2	2	102	1	36	.36	.01		
R-1687		ALB	86	1.4								
R-1688		ALB	86	1.3								
STATE ALASKA COUNTY DE LONG MTS. WELL NAME		WELL LOCATION LEASE COKE BASIN										
R-1689		ALB	84	1.6	9	477	2	89	.19	.03	1.10	
R-1690		ALB	80	1.1								
STATE ALASKA COUNTY DE LONG MTS. WELL NAME		WELL LOCATION LEASE COKE BASIN										
R-1691		ALB	72	.8								

A M O C O P R O D U C T I O N C O M P A N Y
R E S E A R C H C E N T E R

OFFICE DENVER DISTRICT WESTERN
TECHNICAL SERVICE NUMBER 78 5351

SOURCE ROCK DATA
TABLE 2. g
DATE 10/30/78

SAMPLE NUMBER	DEPTH FEET TOP**BOTTOM	GEOLOGICAL AGE	INSOLUBLE RESIDUE %	TOTAL ORGANIC C %	BITUMEN		SAT HC		SAT HC / BITUMEN		REMARKS
					BBL/AF	PPM	BBL/AF	PPM	TL	ORG C	
STATE ALASKA COUNTY DE LONG MTS. WELL LOCATION											
WELL NAME LEASE COKE BASIN											
R-1692		ALB	85	1.1	5	268	1	79	.29	.03	BBL/AF = (PPM X .0180) Saturate CPI 1.09
R-1693		ALB	60	1.1							
R-1694		ALB	80	2.2	13	729	2	109	.15	.03	1.08
STATE ALASKA COUNTY DE LONG MTS. WELL LOCATION											
WELL NAME LEASE COKE BASIN											
R-1695		ALB	88	5.3							
R-1696		ALB	86	1.3	5	265	1	70	.27	.02	1.11
STATE ALASKA COUNTY POINT LAY WELL LOCATION											
WELL NAME LEASE GRAB SAMPLE											
R-1697		ALB	84	.9	2	125	1	45	.36	.01	1.24
R-1698		ALB	94	.9							
R-1699		ALB	88	.8	2	114	1	38	.34	.01	
STATE ALASKA COUNTY MISHEGUK MTN. WELL LOCATION											
WELL NAME LEASE GRAB SAMPLE											
R-1700		ALB	44	.5							
R-1701		ALB	69	.8	3	181	1	55	.31	.02	1.15
R-1702		ALB	74	.7							
R-1703		ALB	76	1.1							
R-1704		ALB	88	1.2	6	354	1	79	.22	.03	1.25

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SOURCE ROCK DATA
TABLE 2. h
DATE 10/30/78

SAMPLE NUMBER	DEPTH FEET TOP***BOTTOM	GEOLOGICAL AGE	INSOLUBLE RESIDUE %	TOTAL ORGANIC CARBON WT%	BITUMEN		SATURATED HYDROCARBON		SATURATED HYDROCARBON / BITUMEN	BITUMEN / TOTAL ORGANIC CARBON	REMARKS
					BBL/AF	PPM	BBL/AF	PPM			
STATE ALASKA COUNTY UTUKOK RIVER WELL LOCATION											
WELL NAME LEASE GRAB SAMPLE											
R-1705		ALB	69	.8	5	300	2	84	.28	.04	1.26
R-1706		ALB	76	1.0							
R-1707		ALB	74	1.0							
R-1708		ALB	70	.8	4	230	1	77	.34	.03	1.34
R-1709		ALB	80	1.0							
R-1710		ALB	72	.9							
R-1711		ALB	70	.8	3	151	1	55	.36	.02	1.37
R-1712		ALB	84	1.3							
STATE ALASKA COUNTY UTUKOK RIVER WELL LOCATION											
WELL NAME LEASE GRAB SAMPLE											
R-1713		ALB	64	.9							
R-1714		ALB	74	.9	3	176	1	64	.36	.02	1.19
R-1715		ALB	78	.9							
R-1716		ALB	80	1.0	6	329	1	81	.25	.03	1.17
R-1717		ALB	86	1.3							
STATE ALASKA COUNTY UTUKOK RIVER WELL LOCATION											
WELL NAME LEASE GRAB SAMPLE											
R-1718		ALB	79	1.0	6	353	2	98	.28	.03	1.14
R-1719		ALB	78	.9							

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SOURCE ROCK DATA
TABLE 2.1
DATE 10/30/78

SAMPLE NUMBER	DEPTH FEET		GEOLOGICAL AGE	INSOLUBLE RESIDUE %	TOTAL ORGANIC C %	BITUMEN		SAT HC		SAT HC / BITUMEN	BITUMEN / TL ORG C	REMARKS
	TOP	BOTTOM				BBL / AF	PPM	BBL / AF	PPM			
STATE ALASKA COUNTY UTUKOK RIVER WELL LOCATION												
WELL NAME LEASE GRAB SAMPLE												
R-1720			ALB	92	1.2							BBL / AF = (PPM X .0180) Saturate CPI
R-1721			ALB	83	1.1	2	136	1	37	.28	.01	
STATE ALASKA COUNTY UTUKOK RIVER WELL LOCATION												
WELL NAME LEASE GRAB SAMPLE												
R-1722			ALB	84	1.1							
R-1723			ALB	83	1.1	5	300	2	84	.28	.03	1.14
R-1724			ALB	84	1.1							
R-1725			ALB	88	1.2							
STATE ALASKA COUNTY UTUKOK RIVER WELL LOCATION												
WELL NAME LEASE GRAB SAMPLE												
R-1726			ALB	92	1.6							
R-1727			ALB	89	.9	3	181	1	61	.34	.02	1.14
STATE ALASKA COUNTY UTUKOK RIVER WELL LOCATION												
WELL NAME LEASE GRAB SAMPLE												
R-1728			ALB	88	1.1	4	204	1	72	.36	.02	1.15
STATE ALASKA COUNTY UTUKOK RIVER WELL LOCATION												
WELL NAME LEASE GRAB SAMPLE												
R-1729				82	1.0							

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KEROGEN DATA
TABLE 3. a
DATE 10/30/78.

LAB SAMPLE NUMBER	DEPTH FEET TOP***BOTTOM	GEOL. AGE	NORM. ELEMENTAL ANALYSIS, WT. %				ATOMIC RATIO O/C	ATOMIC RATIO H/C	KEROGEN TYPE	CARBNZ. SCALE	VIT REFLECT %RO
			CARBON	HYDROGEN	OXYGEN	NITROGEN					
STATE ALASKA COUNTY DE LONG MTS. WELL NAME			WELL LOCATION LEASE TINGMERKPUK CREEK								
R-1610		NEO	86	3.4	9	1.5	.07	.48	Mixed	4	.98
R-1611		NEO									
R-1612		NEO									
STATE ALASKA COUNTY DE LONG MTS. WELL NAME			WELL LOCATION LEASE TINGMERKPUK CREEK								
R-1613		NEO	86	3.5	9	1.3	.07	.48	Structured	5	1.07
R-1614		NEO									
R-1615		NEO									
R-1616		NEO	86	5.3	7	1.7	.06	.74	Mixed	5	Barren
R-1617		NEO									
STATE ALASKA COUNTY POINT LAY WELL NAME			WELL LOCATION LEASE KUKPOWRUK SYNCLINE								
R-1618		ALB									
R-1619		ALB	87	4.1	7	2.4	.05	.58	Structured	5	.74
R-1620		ALB									
STATE ALASKA COUNTY DE LONG MTS. WELL NAME			WELL LOCATION LEASE TUPICHAK SYNCLINE								
R-1621		ALB	87	4.9	7	1.3	.05	.67	Structured	5	.88
R-1622		ALB									

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KEROGEN DATA
TABLE 3. b
DATE 10/30/78

LAB SAMPLE NUMBER	DEPTH FEET TOP***BOTTOM	GEOLOGICAL AGE	NORM. ELEMENTAL ANALYSIS, WT. %				ATOMIC RATIO O/C	ATOMIC RATIO H/C	KEROGEN TYPE	CARBON SCALE	VIT REFLECT %RO
			CARBON	HYDROGEN	OXYGEN	NITROGEN					
STATE ALASKA COUNTY POINT LAY		WELL LOCATION									
WELL NAME		LEASE KASEGALUK SYNCLINE									
R-1623		ALB									
R-1624		ALB	90	4.4	4	1.9	.03	.58	Structured	4 .66	
R-1625		ALB									
R-1626		ALB									
R-1627		ALB									
R-1628		ALB									
R-1629		ALB									
R-1630		ALB	88	4.2	6	1.4	.05	.58	Structured	4 1.02	
R-1631		ALB									
R-1632		ALB									
R-1633		ALB									
R-1634		ALB									
R-1635		ALB									
R-1636		ALB	83	3.7	12	1.3	.10	.53	Structured	4 .84	
R-1637		ALB									
STATE ALASKA COUNTY POINT LAY		WELL LOCATION									
WELL NAME		LEASE SNOWBANK ANTICLINE									
R-1638		ALB	86	4.1	8	1.5	.06	.57	Mixed	4 .75	
R-1639		ALB									
R-1640		ALB									

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KEROGEN DATA
TABLE 3. C
DATE 10/30/78

LAB SAMPLE NUMBER	DEPTH FEET TOP***BOTTOM	GEOL. AGE	NORM. ELEMENTAL ANALYSIS, WT. %				ATOMIC RATIO O/C	ATOMIC RATIO H/C	KEROGEN TYPE	CARBON SCALE	VIT REFLECT %RO	
			CARBON	HYDROGEN	OXYGEN	NITROGEN						
STATE	ALASKA	COUNTY	POINT LAY	WELL LOCATION								
WELL NAME				LEASE	SNOWBANK	ANTICLINE						
R-1641		ALB		86	3.4	8	2.4	.06	.47	Structured	5	.88
R-1642		ALB										
R-1643		ALB										
R-1644		ALB		87	3.8	8	1.3	.06	.52	Structured	4	.76
R-1645		ALB										
R-1646		ALB										
R-1647		ALB										
R-1648		ALB		84	4.2	11	1.2	.09	.60	Structured	5	.78
R-1649		ALB										
R-1650		ALB										
R-1651		ALB										
STATE	ALASKA	COUNTY	POINT LAY	WELL LOCATION								
WELL NAME				LEASE	SNOWBANK	ANTICLINE						
R-1652		ALB		85	4.0	9	2.6	.07	.56	Structured	4	.56
R-1653		ALB										
R-1654		ALB		87	4.0	8	1.3	.06	.55	Structured	4	.63
R-1655		ALB										
R-1656		ALB		85	4.1	8	2.3	.07	.58	Structured	3-4	.58
R-1657		ALB										

AMOCO PRODUCTION COMPANY
RESEARCH CENTER

OFFICE DENVER DISTRICT WESTERN
TECHNICAL SERVICE NUMBER 78 5351

KEROGEN DATA
TABLE 3. d
DATE 10/30/78

LAB SAMPLE NUMBER	DEPTH FEET TOP***BOTTOM	GEOL. AGE	NORM. ELEMENTAL ANALYSIS, WT. %				ATOMIC RATIO O/C	ATOMIC RATIO H/C	KEROGEN TYPE	CARBENZ. SCALE	VIT REFLECT XRO
			CARBON	HYDROGEN	OXYGEN	NITROGEN					
STATE ALASKA COUNTY DE LONG MTS.			WELL LOCATION								
WELL NAME			LEASE TUPICHAK SYNCLINE EAST								
R-1658		ALB	87	3.9	7	2.9	.05	.55	Structured	5	1.23
R-1659		ALB									
R-1660		ALB	87	4.0	8	1.2	.06	.55	Structured	5	1.28
R-1661		ALB	86	3.6	7	2.6	.06	.50	Structured	5	1.06
R-1662		ALB									
R-1663		ALB	86	4.4	7	2.2	.06	.62	Structured	5	.82
STATE ALASKA COUNTY UTUKOK RIVER			WELL LOCATION								
WELL NAME			LEASE FLINTCHIP SYNCLINE								
R-1664		ALB	85	3.8	9	2.0	.07	.53	Structured	5	.82
R-1665		ALB									
STATE ALASKA COUNTY DE LONG MTS.			WELL LOCATION								
WELL NAME			LEASE DUGOUT SYNCLINE								
R-1666		ALB	86	4.0	8	1.6	.06	.55	Structured	4	.78
STATE ALASKA COUNTY DE LONG MTS.			WELL LOCATION								
WELL NAME			LEASE PITMEGEA SYNCLINE								
R-1667		ALB	87	3.6	8	1.1	.07	.50	Mixed	4	.49
STATE ALASKA COUNTY UTUKOK RIVER			WELL LOCATION								
WELL NAME			LEASE FOLSOM POINT SYNCLINE								
R-1668		ALB									
R-1669		ALB									
R-1670		ALB	85	3.7	8	2.4	.07	.52	Mixed	4	.84

AMOCO PRODUCTION COMPANY
RESEARCH CENTER

OFFICE DENVER DISTRICT WESTERN
TECHNICAL SERVICE NUMBER 78 5351

KEROGEN DATA
TABLE 3.e
DATE 10/30/78

LAB SAMPLE NUMBER	DEPTH FEET TOP***BOTTOM	GEOLOGICAL AGE	NORM. ELEMENTAL ANALYSIS, WT. %				ATOMIC RATIO O/C	ATOMIC RATIO H/C	KEROGEN TYPE	CARBENZ. SCALE	V.I.T REFLECT %RO
			CARBON	HYDROGEN	OXYGEN	NITROGEN					
STATE ALASKA COUNTY UTUKOK RIVER			WELL LOCATION								
WELL NAME			LEASE FOLSOM POINT SYNCLINE								
R-1671		ALB									
R-1672		ALB	88	4.7	6	2.0	.04	.64	Structured	4 .78	
R-1673		ALB									
R-1674		ALB									
STATE ALASKA COUNTY UTUKOK RIVER			WELL LOCATION								
WELL NAME			LEASE FOGGY SYNCLINE								
R-1675		ALB	84	4.4	10	2.0	.08	.63	Structured	5 1.00	
STATE ALASKA COUNTY UTUKOK RIVER			WELL LOCATION								
WELL NAME			LEASE SNOWBANK ANTICLINE EAST								
R-1676		ALB	82	4.3	11	2.8	.10	.64	Structured	4 .59	
STATE ALASKA COUNTY UTUKOK RIVER			WELL LOCATION								
WELL NAME			LEASE SNOWBANK ANTICLINE SOUTH								
R-1677		ALB	84	3.8	9	2.4	.08	.54	Mixed	4 .82	
R-1678		ALB									
STATE ALASKA COUNTY DE LONG MTS.			WELL LOCATION								
WELL NAME			LEASE COKE BASIN								
R-1679		ALB									
R-1680		ALB	87	4.1	7	2.3	.06	.57	Mixed	4 1.11	
R-1681		ALB									
R-1682		ALB	86	3.9	8	1.7	.07	.54	Structured	4 1.05	
R-1683		ALB									

AMOCO PRODUCTION COMPANY
RESEARCH CENTER

OFFICE DENVER DISTRICT WESTERN
TECHNICAL SERVICE NUMBER 785351

KEROGEN DATA
TABLE 3. f
DATE 10/30/78

LAB SAMPLE NUMBER	DEPTH FEET TOP***BOTTOM	GEOL. AGE	NORM. ELEMENTAL ANALYSIS, WT. %				ATOMIC RATIO O/C	ATOMIC RATIO H/C	KEROGEN TYPE	CARBNZ. SCALE	VIT REFLECT XRO
			CARBON	HYDROGEN	OXYGEN	NITROGEN					
STATE ALASKA COUNTY DE LONG MTS. WELL NAME			WELL LOCATION LEASE COKE BASIN								
R-1684		ALB	85	3.2	10	1.5	.08	.45	Structured	4	.93
STATE ALASKA COUNTY DE LONG MTS. WELL NAME			WELL LOCATION LEASE COKE BASIN								
R-1685		ALB									
R-1686		ALB	87	2.6	9	1.1	.07	.36	Structured	4	.77
R-1687		ALB									
R-1688		ALB									
STATE ALASKA COUNTY DE LONG MTS. WELL NAME			WELL LOCATION LEASE COKE BASIN								
R-1689		ALB	87	3.4	9	1.0	.07	.47	Structured	5	.83
R-1690		ALB									
STATE ALASKA COUNTY DE LONG MTS. WELL NAME			WELL LOCATION LEASE COKE BASIN								
R-1691		ALB									
STATE ALASKA COUNTY DE LONG MTS. WELL NAME			WELL LOCATION LEASE COKE BASIN								
R-1692		ALB	83	5.0	11	1.5	.09	.72	Mixed	5	.77
R-1693		ALB									
R-1694		ALB	85	2.4	11	1.4	.09	.34	Structured	5	.67
STATE ALASKA COUNTY DE LONG MTS. WELL NAME			WELL LOCATION LEASE COKE BASIN								
R-1695		ALB									

AMOCO PRODUCTION COMPANY
RESEARCH CENTER

OFFICE DENVER DISTRICT WESTERN
TECHNICAL SERVICE NUMBER 78 5351

KEROGEN DATA
TABLE 3. g
DATE 10/30/78

LAB SAMPLE NUMBER	DEPTH FEET TOP***BOTTOM	GEOLOGICAL AGE	NORM. ELEMENTAL ANALYSIS, WT. %				ATOMIC RATIO O/C	ATOMIC RATIO H/C	KEROGEN TYPE	CARBONIZ. SCALE	VIT. REFLECT %RO
			CARBON	HYDROGEN	OXYGEN	NITROGEN					
STATE ALASKA COUNTY DE LONG MTS.			WELL LOCATION								
WELL NAME			LEASE COKE BASIN								
R-1696		ALB	77	1.8	18	3.0	.17	.28	Structured	5	.75
STATE ALASKA COUNTY POINT LAY			WELL LOCATION								
WELL NAME			LEASE GRAB SAMPLE								
R-1697		ALB	87	4.4	7	1.4	.06	.60	Structured	5	.74
R-1698		ALB									
R-1699		ALB	83	3.5	11	2.1	.10	.50	Structured	4	.87
STATE ALASKA COUNTY MISHEGUK MTN.			WELL LOCATION								
WELL NAME			LEASE GRAB SAMPLE								
R-1700		ALB									
R-1701		ALB	84	3.8	10	2.1	.08	.55	Structured	4	.83
R-1702		ALB									
R-1703		ALB									
R-1704		ALB	81	4.2	12	2.6	.10	.62	Structured	4	.56
STATE ALASKA COUNTY UTUKOK RIVER			WELL LOCATION								
WELL NAME			LEASE GRAB SAMPLE								
R-1705		ALB	75	4.1	17	4.0	.16	.67	Structured	4	.89
R-1706		ALB									
R-1707		ALB									
R-1708		ALB	86	2.8	9	2.4	.07	.39	Structured	4	.59
R-1709		ALB									
R-1710		ALB									

Proprietary - To Be Maintained In Confidence
Amoco Production Company

A M O C O P R O D U C T I O N C O M P A N Y
R E S E A R C H C E N T E R

OFFICE DENVER DISTRICT WESTERN
TECHNICAL SERVICE NUMBER 78 5351

KEROGEN DATA
TABLE 3. h
DATE 10/30/78

LAB SAMPLE NUMBER	DEPTH FEET TOP***BOTTOM	GEOL. AGE	NORM. ELEMENTAL ANALYSIS, WT. %				ATOMIC RATIO O/C	ATOMIC RATIO H/C	KEROGEN TYPE	CARBNZ. SCALE	VIT REFLECT %R0
			CARBON	HYDROGEN	OXYGEN	NITROGEN					
STATE ALASKA COUNTY UTUKOK RIVER		WELL LOCATION									
WELL NAME		LEASE	GRAB SAMPLE								
R-1711		ALB	86	4.6	7	1.9	.06	.63	Structured	4	.54
R-1712		ALB									
STATE ALASKA COUNTY UTUKOK RIVER		WELL LOCATION									
WELL NAME		LEASE	GRAB SAMPLE								
R-1713		ALB									
R-1714		ALB	84	4.8	10	1.2	.08	.69	Mixed	4	.71
R-1715		ALB									
R-1716		ALB	87	3.5	7	2.2	.06	.49	Structured	4	.74
R-1717		ALB									
STATE ALASKA COUNTY UTUKOK RIVER		WELL LOCATION									
WELL NAME		LEASE	GRAB SAMPLE								
R-1718		ALB	86	3.5	8	2.7	.07	.49	Structured	4	Barren
R-1719		ALB									
STATE ALASKA COUNTY UTUKOK RIVER		WELL LOCATION									
WELL NAME		LEASE	GRAB SAMPLE								
R-1720		ALB									
R-1721		ALB	86	3.2	9	2.1	.07	.44	Structured	5	.97
STATE ALASKA COUNTY UTUKOK RIVER		WELL LOCATION									
WELL NAME		LEASE	GRAB SAMPLE								
R-1722		ALB									
R-1723		ALB	87	3.4	7	2.3	.06	.48	Mixed	5	.82

A M O C O P R O D U C T I O N C O M P A N Y
R E S E A R C H C E N T E R

OFFICE DENVER DISTRICT WESTERN
TECHNICAL SERVICE NUMBER 78 5351

KEROGEN DATA
TABLE 3.1
DATE 10/30/78

LAB SAMPLE NUMBER	DEPTH FEET TOP***BOTTOM	GEOL. AGE	NORM. ELEMENTAL ANALYSIS, WT. %				ATOMIC RATIO O/C	ATOMIC RATIO H/C	KEROGEN TYPE	CARBNZ. SCALE	VIT REFLECT %RO
			CARBON	HYDROGEN	OXYGEN	NITROGEN					
STATE ALASKA COUNTY UTUKOK RIVER			WELL LOCATION								
WELL NAME			LEASE	GRAB SAMPLE							
R-1724		ALB									
R-1725		ALB									
STATE ALASKA COUNTY UTUKOK RIVER			WELL LOCATION								
WELL NAME			LEASE	GRAB SAMPLE							
R-1726		ALB									
R-1727		ALB	85	3.7	9	2.7	.07	.52	Structured	5	.96
STATE ALASKA COUNTY UTUKOK RIVER			WELL LOCATION								
WELL NAME			LEASE	GRAB SAMPLE							
R-1728		ALB	87	3.5	7	2.4	.06	.49	Structured	5	1.02
STATE ALASKA COUNTY			WELL LOCATION								
WELL NAME			LEASE								
R-1729											

Table 5

THERMAL EVOLUTION ANALYSES

Tech. Ser. No. 785351CR

Sample Number	Field Prefix	Total Org. Carbon %	Volatile Hydrocarbon ppm	Volatile/Total Org. Carbon %	Generated Hydrocarbon ppm	Generated/Total Org. Carbon %	Temp. °C Generated Peak
R1610	Kfm TC Kfm	.9	114	.01	918	.10	505
11	Kfm TC	.7	66	.01	606	.09	499
12	Kfm TC	.5	198	.04	768	.17	495
13	Kfm TM	1.1	54	<.01	756	.07	514
14	Kfm TM	.7	42	.01	444	.06	505
15	Kfm TM	<.1	6	.02	42	.14	510
16	Kfm TM	2.3	606	.03	4776	.20	499
17	Kfm TM	.8	66	.01	798	.10	500
18	Knt KKS	1.0	90	.01	858	.08	508
19	Knt KKS	1.5	126	.01	1194	.08	510
20	Knt KKS	1.0	18	<.01	348	.03	530
21	Knt TS	2.3	222	.01	2172	.09	510
22	Knt TS	1.0	108	.01	798	.08	515
23	= KA	1.1	72	.01	1038	.09	501
24	S KA	1.3	168	.01	1512	.12	500
25	S KA	.9	150	.02	966	.11	498
26	S KA	1.4	126	.01	1122	.08	498
27	S KA	1.3	78	.01	990	.08	500
28	S KA	4.3	210	<.01	5898	.14	497
29	S KA	1.1	144	.01	1074	.10	503
30	S KA	1.5	138	.01	1434	.10	510
31	S KA	1.7	150	.01	1464	.09	507
32	S KA	1.5	126	.01	1656	.11	508
33	S KA	1.2	108	.01	1056	.09	510
34	S KA	.9	114	.01	996	.11	512
35	S KA	.7	126	.02	744	.11	512

Table 5 (continued)

Sample Number	Field Prefix	Total Org. Carbon %	Volatile Hydrocarbon ppm	Volatile/Total Org. Carbon %	Generated Hydrocarbon ppm	Generated/Total Org. Carbon %	Temp. °C Generated Peak	
R1636	Knk	KA	1.3	144	.01	1206	.09	508
37	Knk	KA	.7	150	.02	1476	.21	500
38	Knc	SA	1.1	48	<.01	1614	.14	496
39	Knk	SA	1.6	120	.01	1278	.08	500
40	Knk	SA	.9	72	.01	912	.10	498
41	"	SA	1.0	72	.01	810	.08	505
42	"	SA	1.2	96	.01	1254	.11	498
43	"	SA	1.3	108	.01	1104	.08	498
44	"	SA	1.2	114	.01	1530	.12	497
45	"	SA	1.3	102	.01	1146	.09	497
46	"	SA	1.7	90	.01	1158	.10	496
47	"	SA	1.0	66	.01	1068	.11	494
48	"	SA	1.7	60	.01	1080	.10	493
49	"	SA	1.7	84	<.01	1890	.11	495
50	"	SA	.9	78	.01	1002	.11	495
51	Knc	SA	1.0	54	.01	1056	.10	493
52	Knc	SA	1.0	66	.01	1134	.11	490
53	Knc	SA	.9	42	<.01	894	.10	487
54	Knc	SA	1.3	66	.01	1452	.11	485
55	Knc	SA	1.0	60	.01	912	.09	489
56	Knc	SA	1.6	48	<.01	1758	.13	488
57	Knc	SA	1.1	36	<.01	1404	.13	488
58	Knt	TSE	.6	120	.02	510	.08	520
59	Knt	TSE	.8	120	.02	780	.10	510
60	Knt	TSE	1.2	138	.01	804	.06	520
61	Knk	TSE	1.1	96	.01	744	.07	517

Table 5 (continued)

Sample Number	Field Prefix	Total Org. Carbon %	Volatile Hydrocarbon ppm	Volatile/Total Org. Carbon %	Generated Hydrocarbon ppm	Generated/Total Org. Carbon %	Temp. °C Generated Peak	
R1662	Knk	TSE	.5	54	.01	618	.12	505
63	Knk	TSE	2.0	264	.01	3204	.16	499
64	Knc	FS	1.4	96	.01	840	.06	503
65	Knk	FS	.8	54	.01	708	.09	498
66	Knk	DS	.9	48	.01	702	.08	505
67	Knk	PS	.8	42	.01	.008	.12	490
68	"	FP	.9	48	.01	606	.07	512
69	"	FP	.6	78	.01	624	.10	511
70	"	FP	1.0	120	.01	900	.09	511
71	"	FP	.5	72	.01	1104	.20	507
72	"	FP	.7	78	.01	702	.10	499
73	"	FP	.9	78	.01	732	.08	500
74	Knk	FP	1.1	114	.01	1038	.09	500
75	Knt	FOG	1.1	144	.01	1104	.10	512
76	Knc	SAE	5.0	228	<.01	10326	.20	481
77	Knc	SAE	1.3	78	.01	972	.08	498
78	Knk	SAE	.5	48	.01	672	.13	498
79	Knk	CB	.8	78	.01	834	.11	506
80	Knt	CB	.8	132	.02	774	.10	517
81	Knt	CB	.6	90	.01	606	.10	515
82	Knt	CB	.6	96	.02	546	.09	517
83	Knt	CB	.9	96	.01	702	.07	515
84	Knt	CB	1.0	102	.01	846	.09	517
85	Knk	CB	1.1	96	.01	726	.07	515
86	Knk	CB	1.2	66	.01	588	.05	511
87	Knk	CB	1.4	72	.01	594	.04	513

Table 5 (continued)

Sample Number	Field Prefix	Total Org. Carbon %	Volatile Hydrocarbon ppm	Volatile/Total Org. Carbon %	Generated Hydrocarbon ppm	Generated/Total Org. Carbon %	Temp. °C Generated Peak	
R1688	Kuk	CB	1.3	84	.01	696	.05	510
89	Kuk	CB	1.6	132	.01	1062	.06	509
90	Kuk	CB	1.1	102	.01	882	.08	512
91	Kuk	CB	.8	84	.01	834	.10	507
92	Kuc	CB	1.1	138	.01	1116	.10	502
93	Kuc	CB	1.1	150	.01	1620	.14	499
94	Kuc	CB	2.2	114	.01	3540	.16	496
95	Kuc	CB	5.3	324	.01	10542	.20	497
96	Kuc	CB	1.3	258	.02	1572	.12	498
97	Kuk	BA	.9	42	<.01	774	.08	494
98	Kuk	BA	.9	48	.01	684	.08	504
99	Kut	BA	.8	48	.01	708	.09	504
R1700	Kut	1	.4	90	.02	804	.18	499
01	Kut	1	.8	66	.01	810	.11	499
02	Kuk	1	.7	66	.01	690	.09	498
03	Kuk	1	1.1	36	<.01	792	.07	493
04	Kut	1	1.2	72	.01	1596	.14	490
05	Kut	2	.8	66	.01	942	.11	488
06	Kut	2	1.0	84	.01	1014	.10	489
07	Kut	2	1.0	102	.01	840	.09	488
08	Kut	2	.8	90	.01	954	.11	489
09	Kut	2	1.0	66	.01	990	.10	490
10	Kut	2	.9	54	.01	1398	.15	489
11	Kut	2	.8	66	.01	966	.12	489
12	Kut	2	1.2	60	<.01	942	.08	490
13	Kut	3	.9	84	.01	1122	.12	497

Table 5 (continued)

Sample Number	Field Prefix	Total Org. Carbon %	Volatile Hydrocarbon ppm	Volatile/Total Org. Carbon %	Generated Hydrocarbon ppm	Generated/Total Org. Carbon %	Temp. °C Generated Peak	
R1714	Knt	3	.9	60	.01	900	.10	497
15	Knt	3	.9	54	.01	744	.08	498
16	Knt	3	1.0	54	.01	870	.08	501
17	Knt	3	1.2	60	<.01	1038	.08	500
18	Knk	4	1.0	78	.01	870	.08	505
19	Knk	4	.8	84	.01	666	.08	502
20	Knt	5	1.2	54	<.01	732	.06	522
21	Knt	5	1.1	54	<.01	786	.07	517
22	Knt	6	1.1	42	<.01	840	.08	515
23	Knt	6	1.1	66	.01	924	.08	516
24	Knt	6	1.1	72	.01	804	.07	512
25	Knt	6	1.2	78	.01	828	.07	514
26	Knt	7	1.5	108	.01	1146	.07	520
27	Knt	7	.9	42	<.01	642	.07	517
28	Knt	8	1.1	108	.01	828	.08	520
29	Knt	9	1.0	138	.01	630	.06	520

RJH:slr
141636

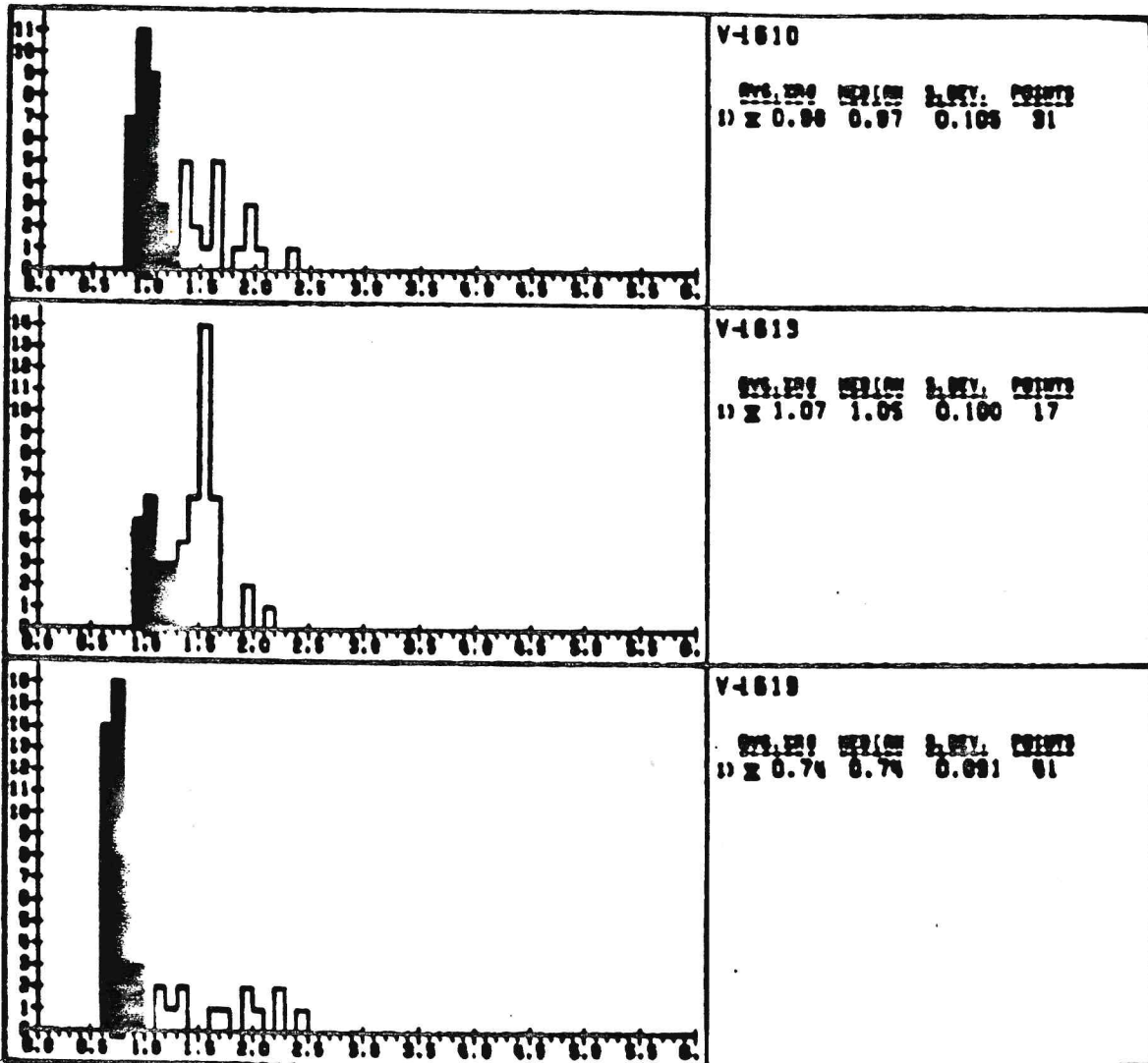
120

VITRINITE REFLECTANCE ANALYSIS

POINT LAY OUTCROP SAMPLES

LOCALITY 1095

TECH SVC NO. 5428CJ



X-AXIS = PERCENT REFLECTANCE OF VITRINITE COLOR

Y-AXIS = FREQUENCY

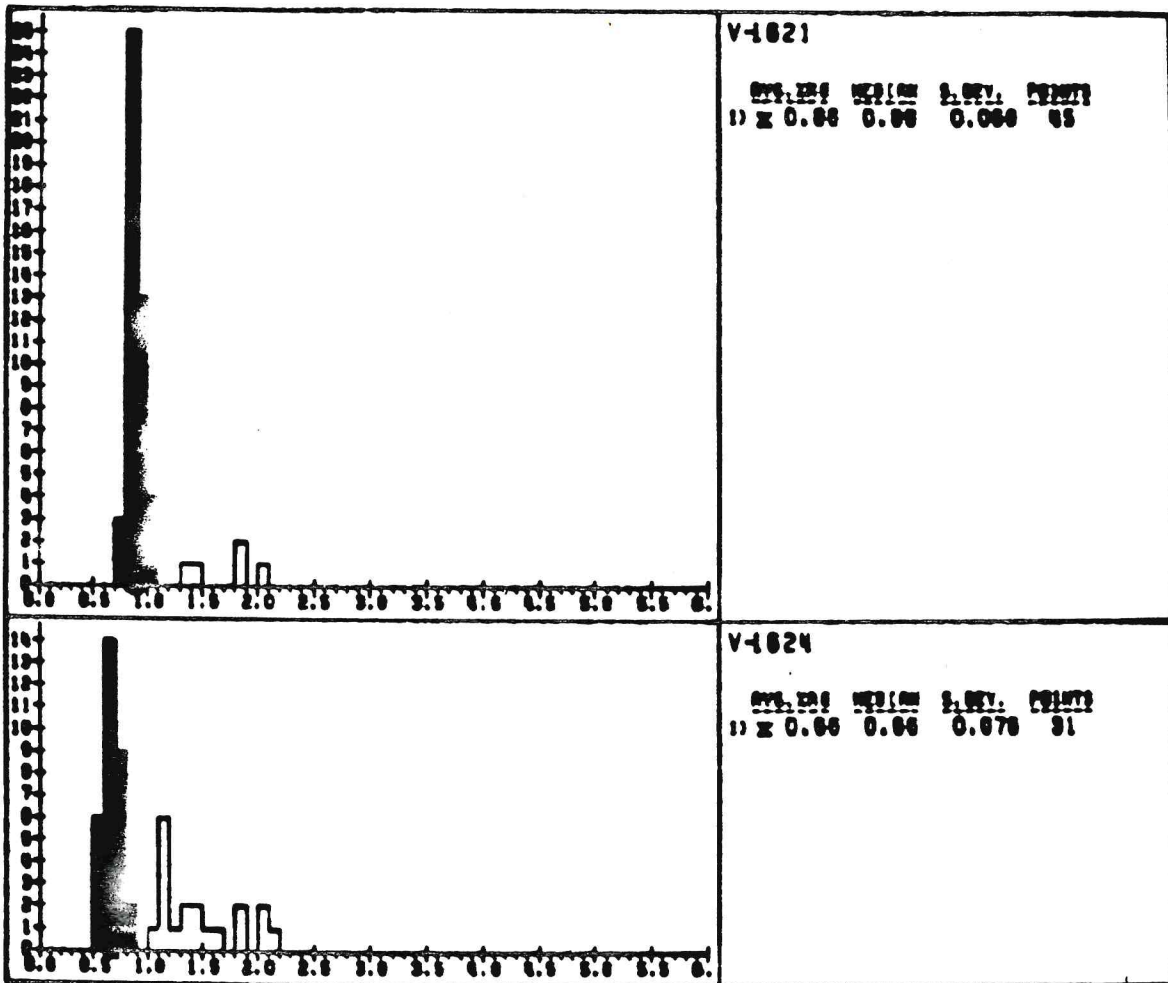
AVERAGE RSD FOR POP.1 = 0.83

VITRINITE REFLECTANCE ANALYSIS

POINT LAY OUTCROP SAMPLES

LOCALITY 1095

TECH SVC NO. 5428CJ



X-AXIS = PERCENT REFLECTANCE OF VITRINITE (%R)

Y-AXIS = FREQUENCY

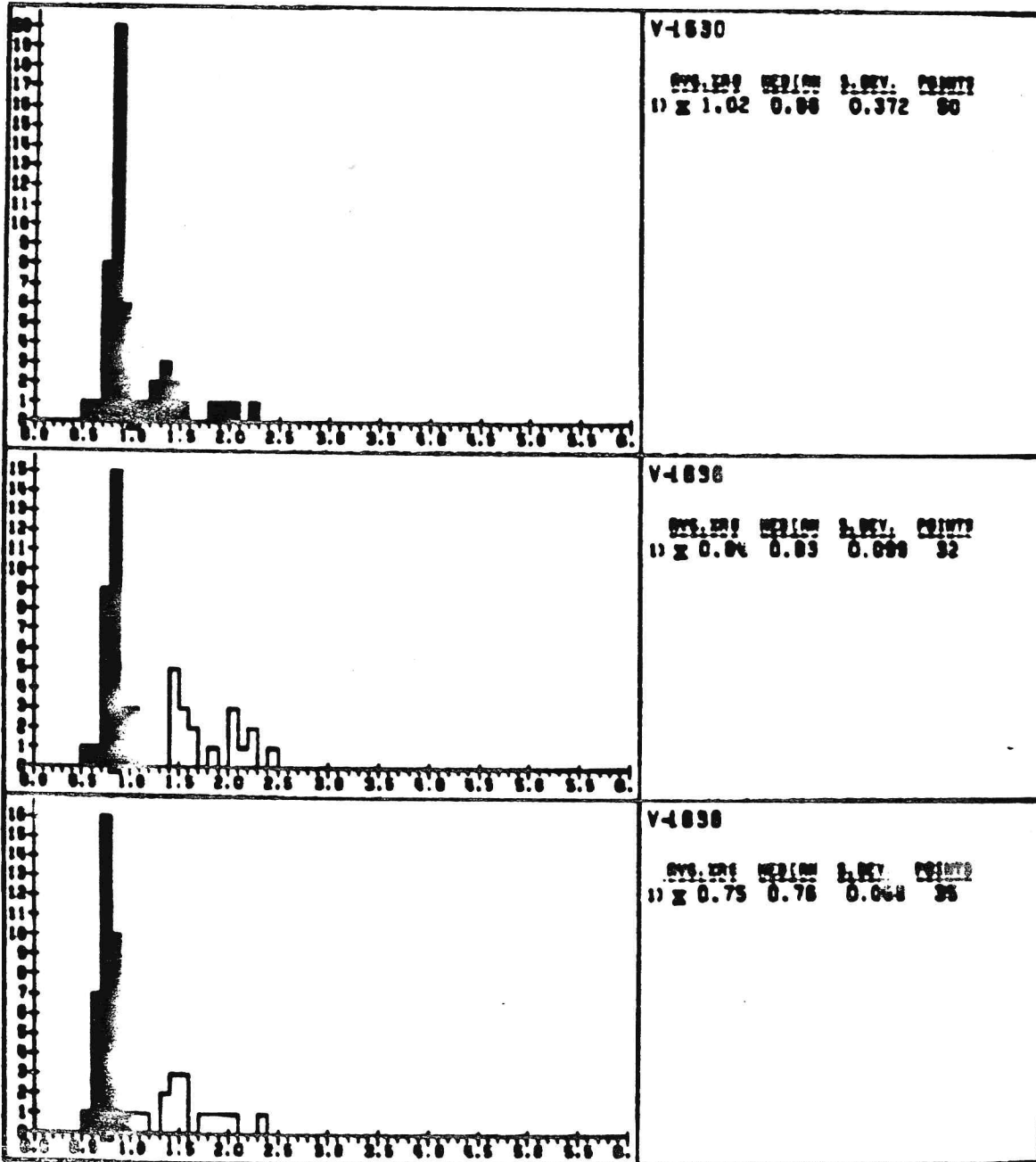
AVERAGE %R FOR POP. 1 = 0.77

VITRINITE REFLECTANCE ANALYSIS

POINT LAY OUTCROP SAMPLES

LOCALITY 1095

TECH SVC NO. 5429CJ



X-AXIS = PERCENT REFLECTANCE OF VITRINITE GRAN

Y-AXIS = FREQUENCY

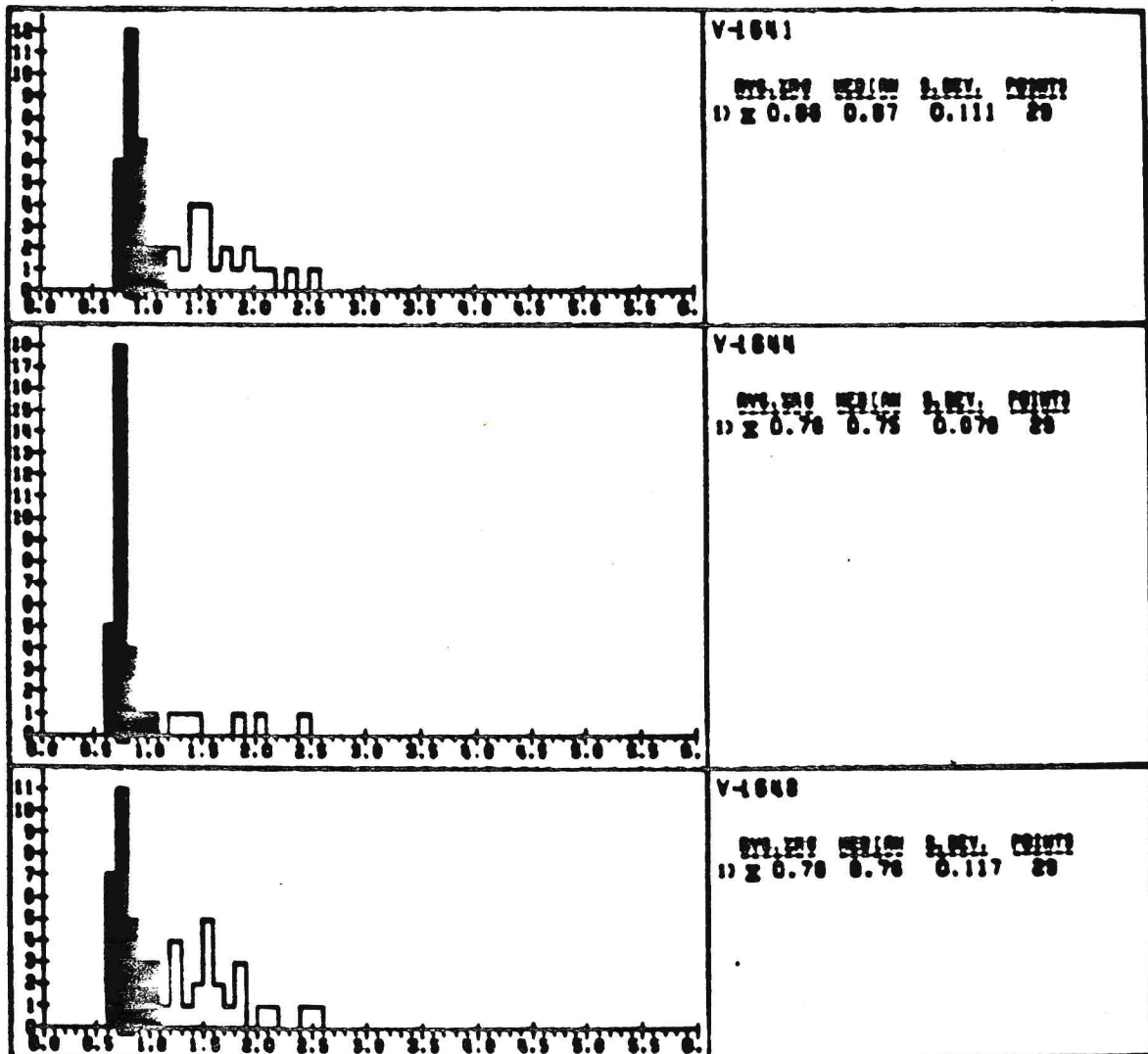
AVERAGE REF FOR POP. 1 = 0.87

VITRINITE REFLECTANCE ANALYSIS

POINT LAY OUTCROP SAMPLES

LOCALITY 1085

TECH SVC NO. 5420CJ



X-AXIS = PERCENT REFLECTANCE OF VITRINITE GRAP

Y-AXIS = FREQUENCY

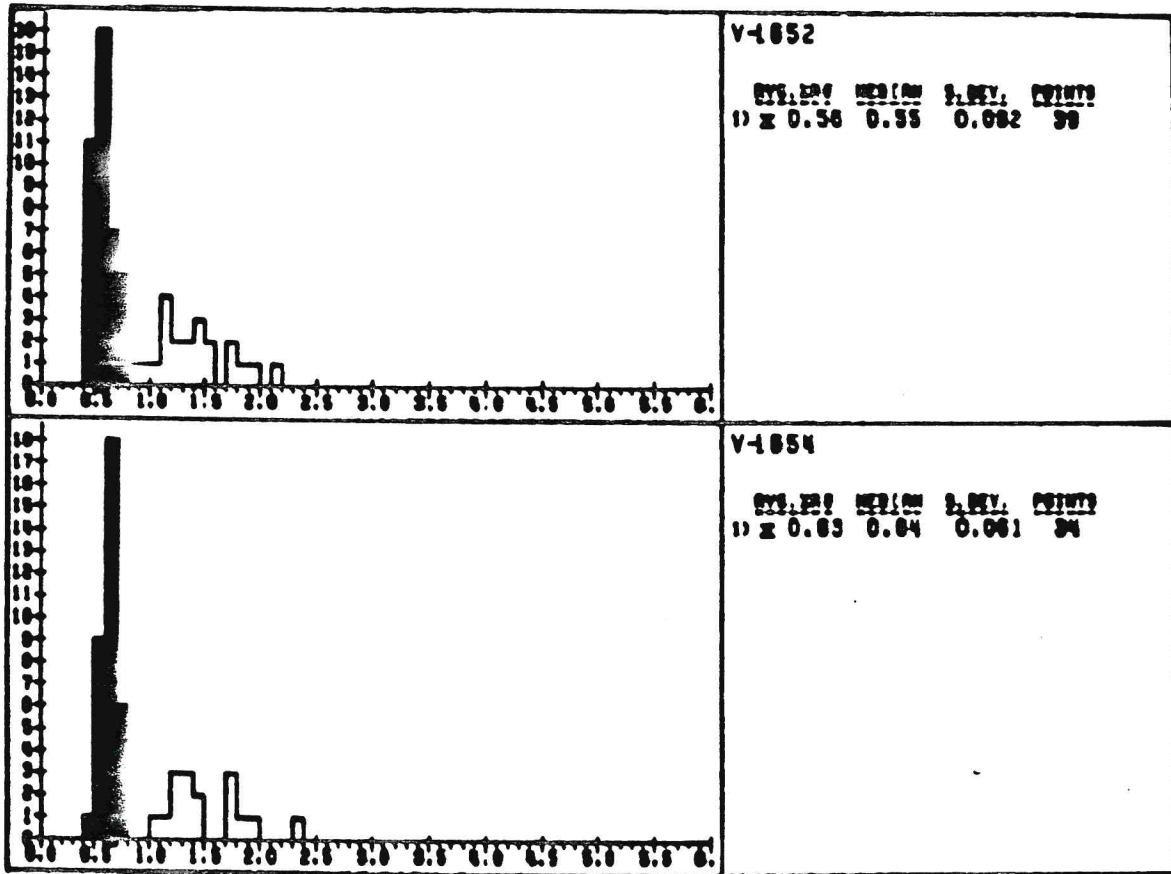
AVERAGE SIZE FOR POP. 1 = 0.01

VITRINITE REFLECTANCE ANALYSIS

POINT LAY OUTCROP SAMPLES

LOCALITY 1095

TECH SVC NO. 5429CJ



X-AXIS = PERCENT REFLECTANCE OF VITRINITE GRAB

Y-AXIS = FREQUENCY

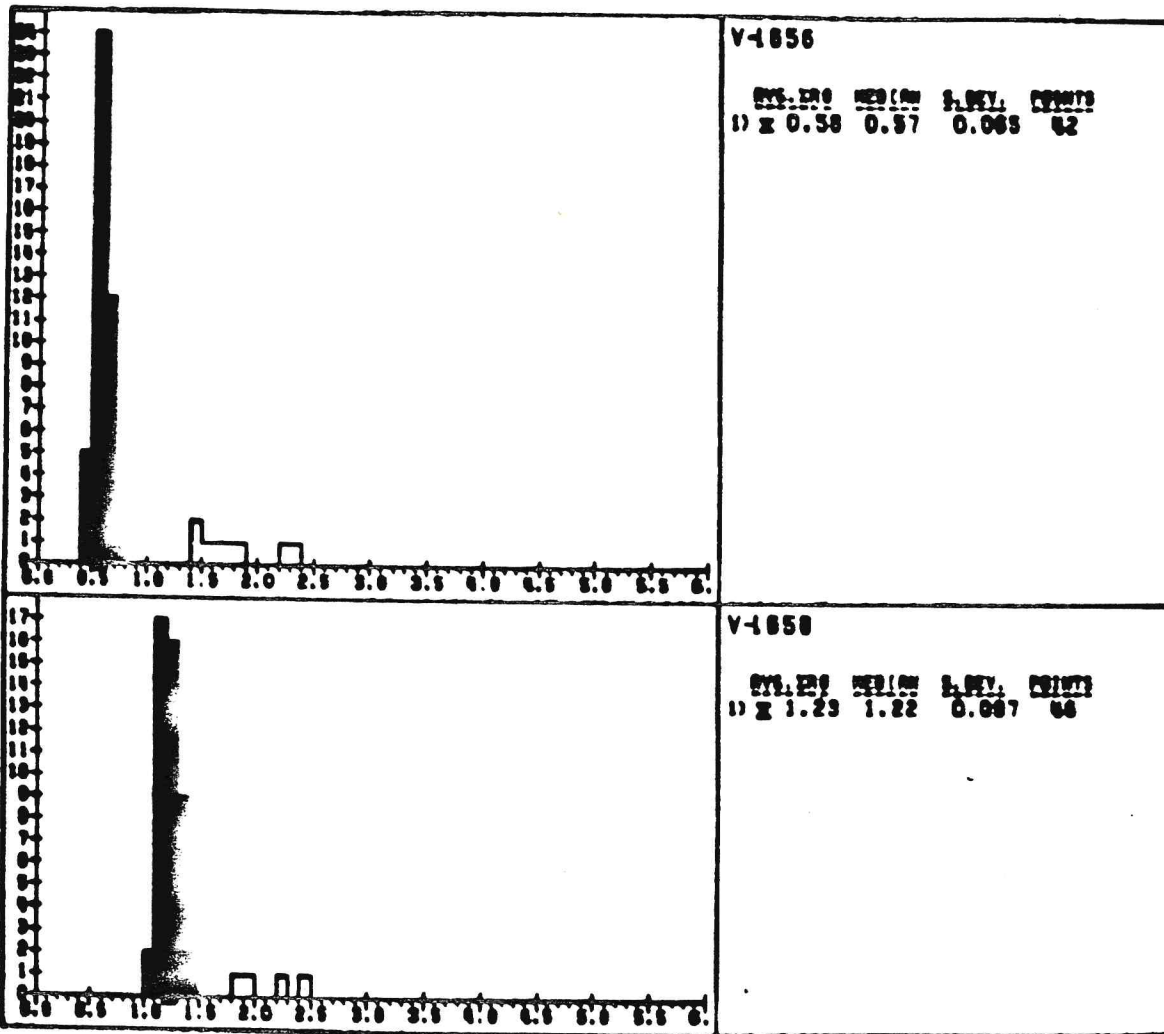
AVERAGE SIZE FOR POP. 1 = 0.60

VITRINITE REFLECTANCE ANALYSIS

POINT LAY OUTCROP SAMPLES

LOCALITY 1095

TECH SVC NO. 5428CJ



X-AXIS - PERCENT REFLECTANCE OF VITRINITE GRAD

Y-AXIS - FREQUENCY

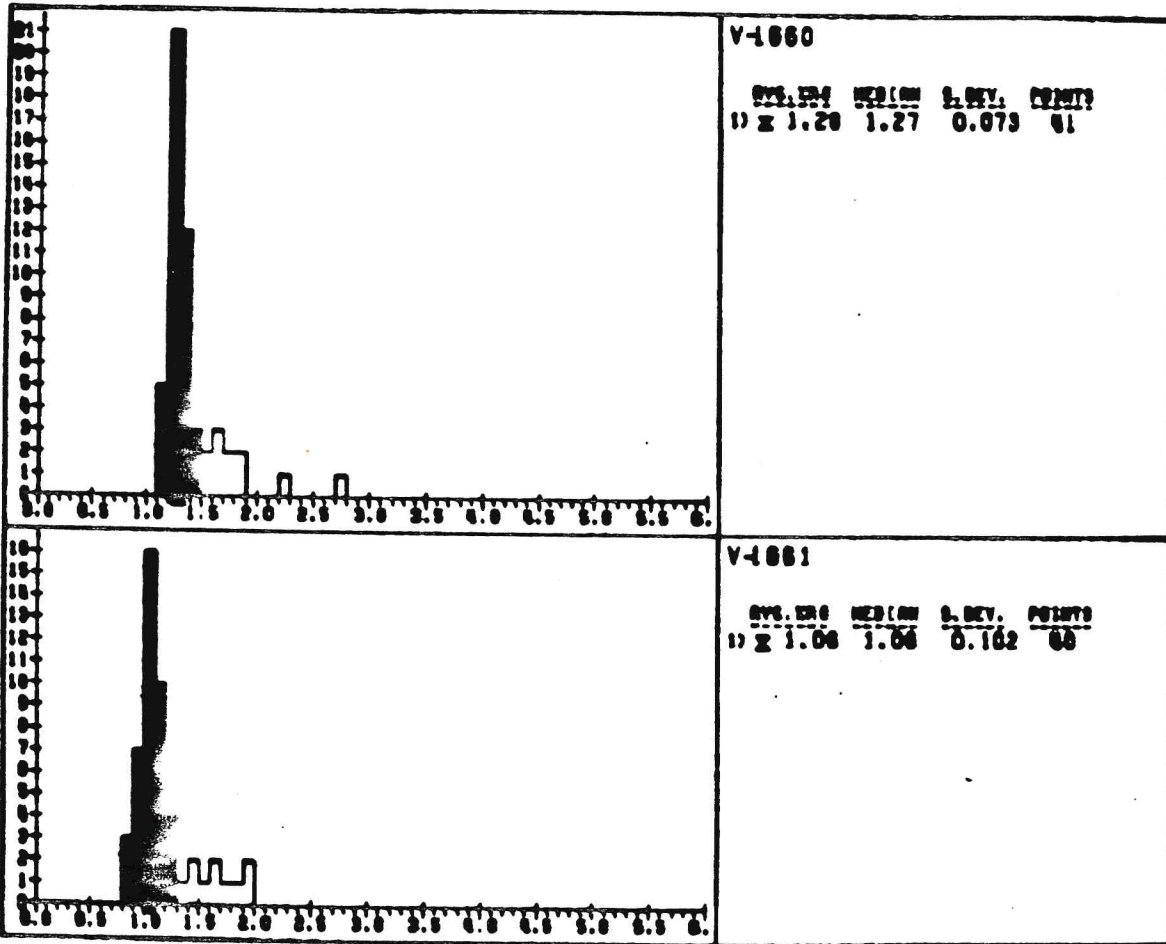
AVERAGE LOG PER POP. 1 = 0.90

VITRINITE REFLECTANCE ANALYSIS

POINT LAY OUTCROP SAMPLES

LOCALITY 1095

TECH SVC NO. 5429CJ



X-AXIS - PERCENT REFLECTANCE OF VITRINITE CORN

Y-AXIS - FREQUENCY

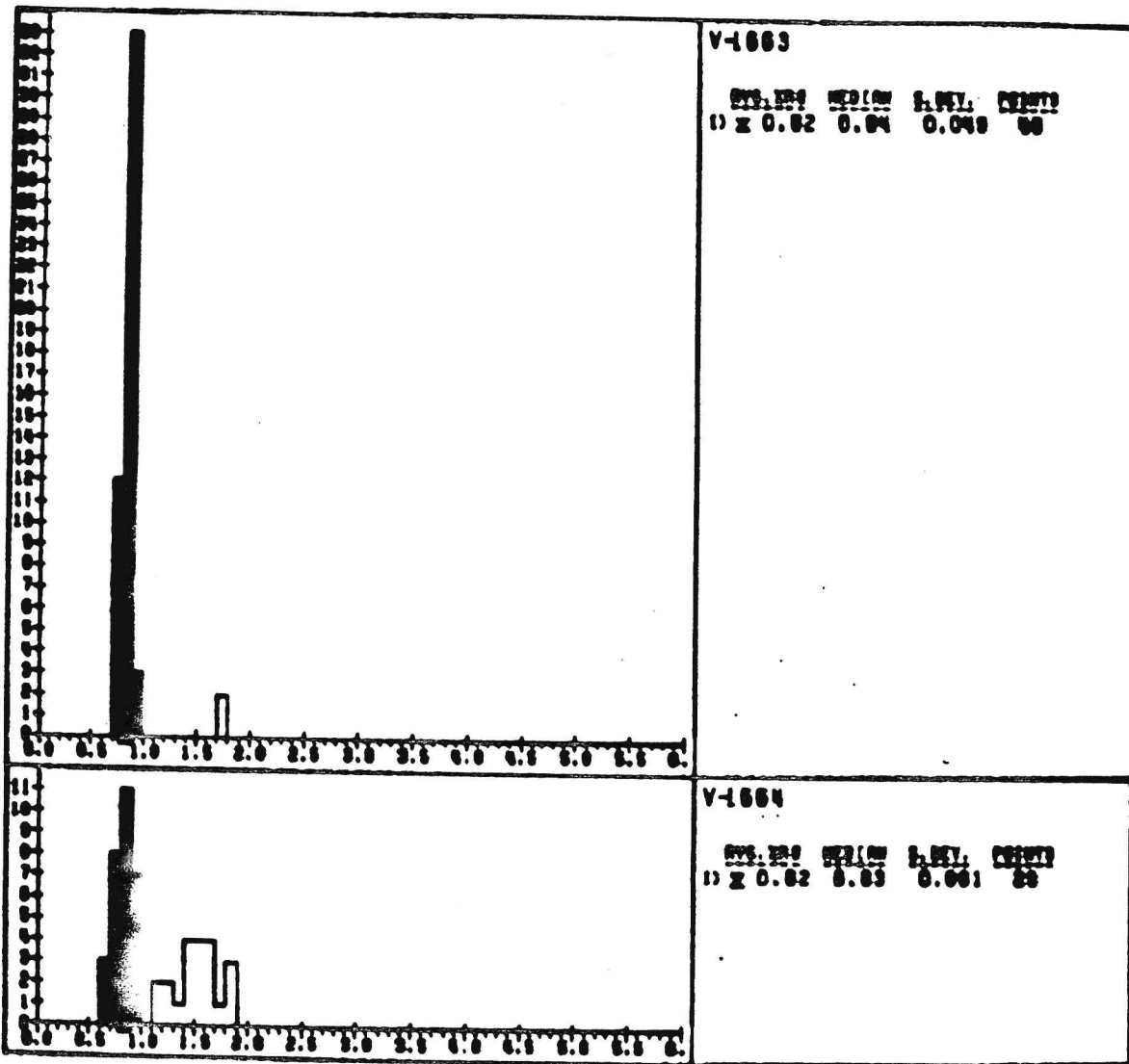
AVERAGE SIZE PER POP. 1 = 1.17

VITRINITE REFLECTANCE ANALYSIS

POINT LAY OUTCROP SAMPLES

LOCALITY 1095

TECH SVC NO. 5429CJ



X-AXIS = PERCENT REFLECTANCE OF VITRINITE GRAB

Y-AXIS = FREQUENCY

AVERAGE XSD FOR POP. 1 = 0.82

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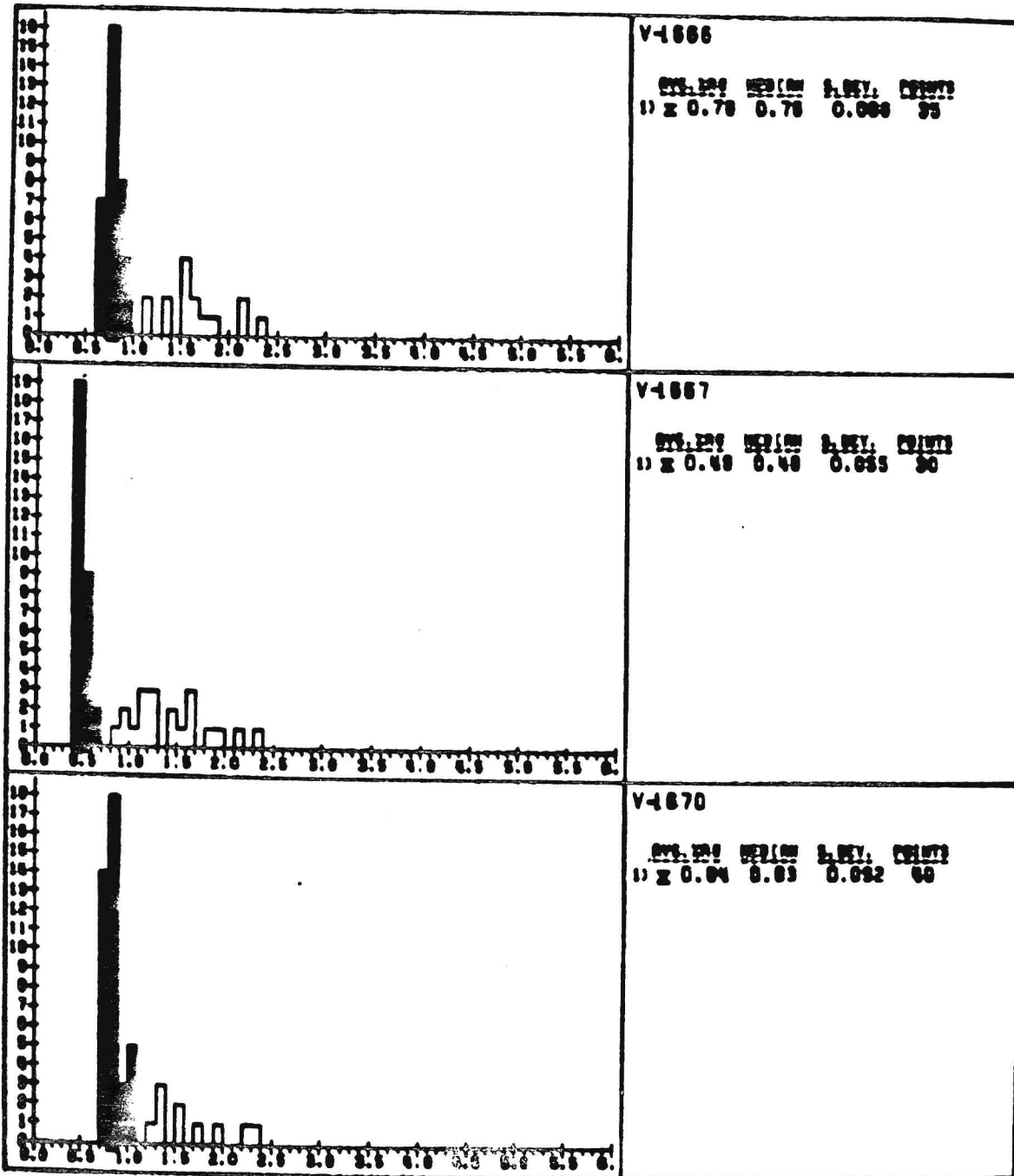
Proprietary - To Be Maintained In Confidence Figure 2h

VITRINITE REFLECTANCE ANALYSIS

POINT LAY OUTCROP SAMPLES

LOCALITY 1095

TECH SVC NO. 5428CJ



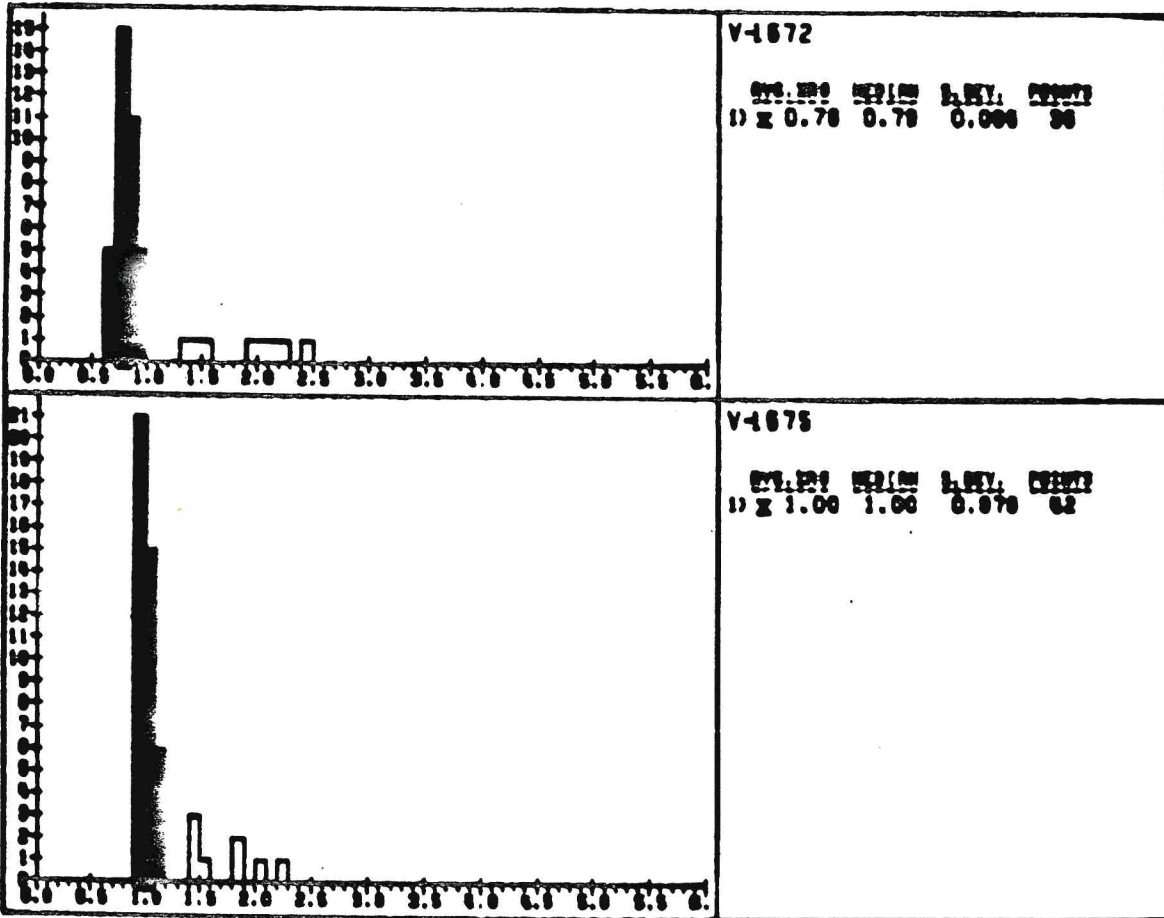
R_v-axis = PERCENT REFLECTANCE OF VITRINITE (R_v)
 Y-axis = FREQUENCY

VITRINITE REFLECTANCE ANALYSIS

POINT LAT OUTCROP SAMPLES

LOCALITY 1095

TECH SVC NO. 5429CJ



X-AXIS = PERCENT REFLECTANCE OF VITRINITE (R_v)

Y-AXIS = FREQUENCY

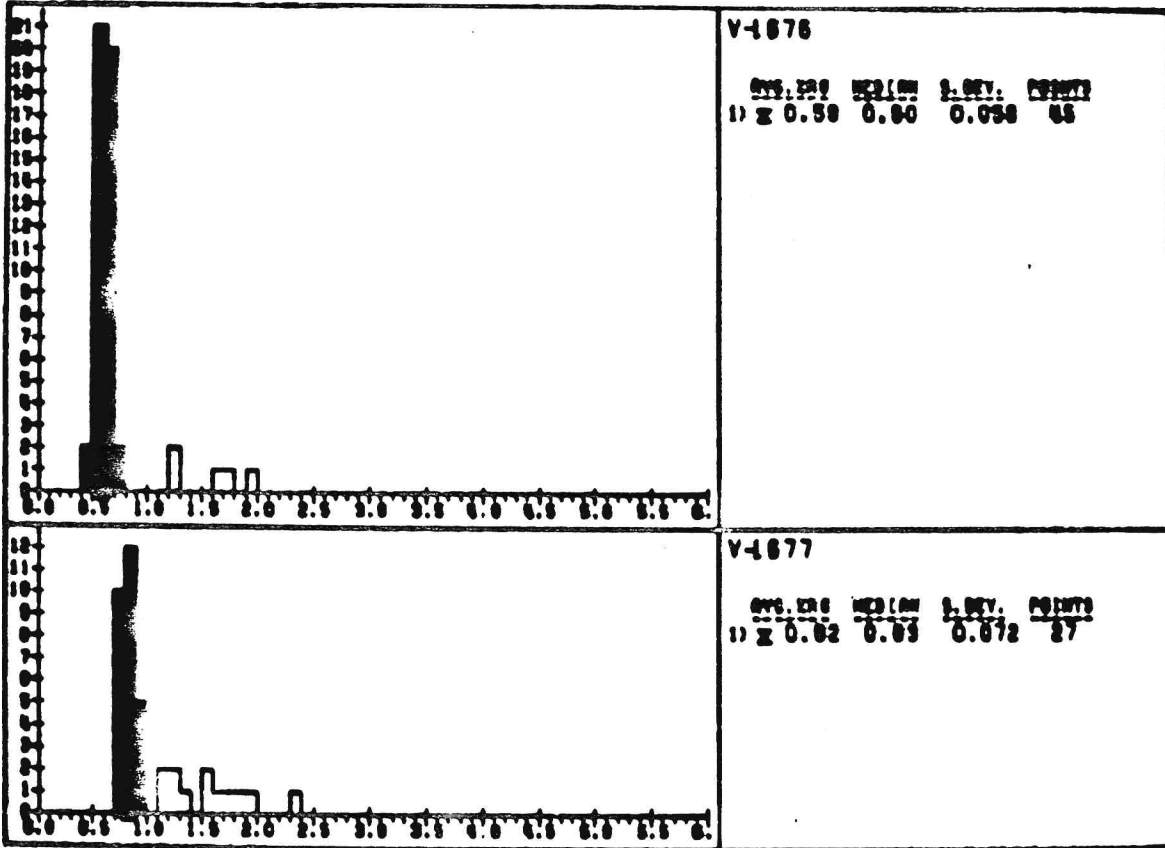
AVERAGE R_v FOR POP. 1 = 0.89

VITRINITE REFLECTANCE ANALYSIS

POINT LAY OUTCROP SAMPLES

LOCALITY 1006

TECH SVC NO. 5429CJ



X-AXIS = PERCENT REFLECTANCE OF VITRINITE (R_m)

Y-AXIS = FREQUENCY

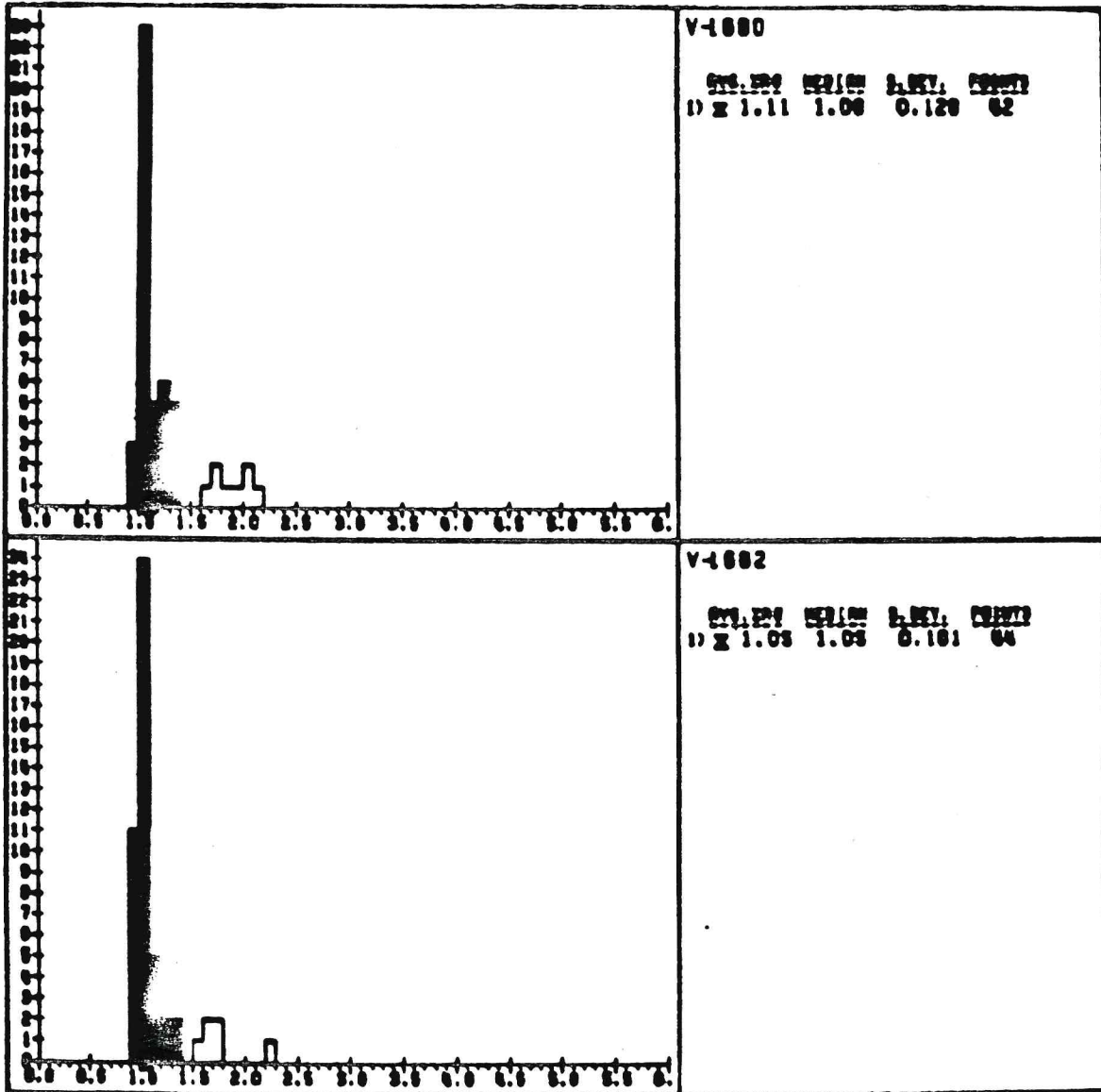
AVERAGE R_m FOR POP. 1 = 0.70

VITRINITE REFLECTANCE ANALYSIS

POINT LAY OUTCROP SAMPLES

LOCALITY 1095

TECH SVC NO. 5429CJ



X-AXIS - PERCENT REFLECTANCE OF VITRINITE GRAB

Y-AXIS - FREQUENCY

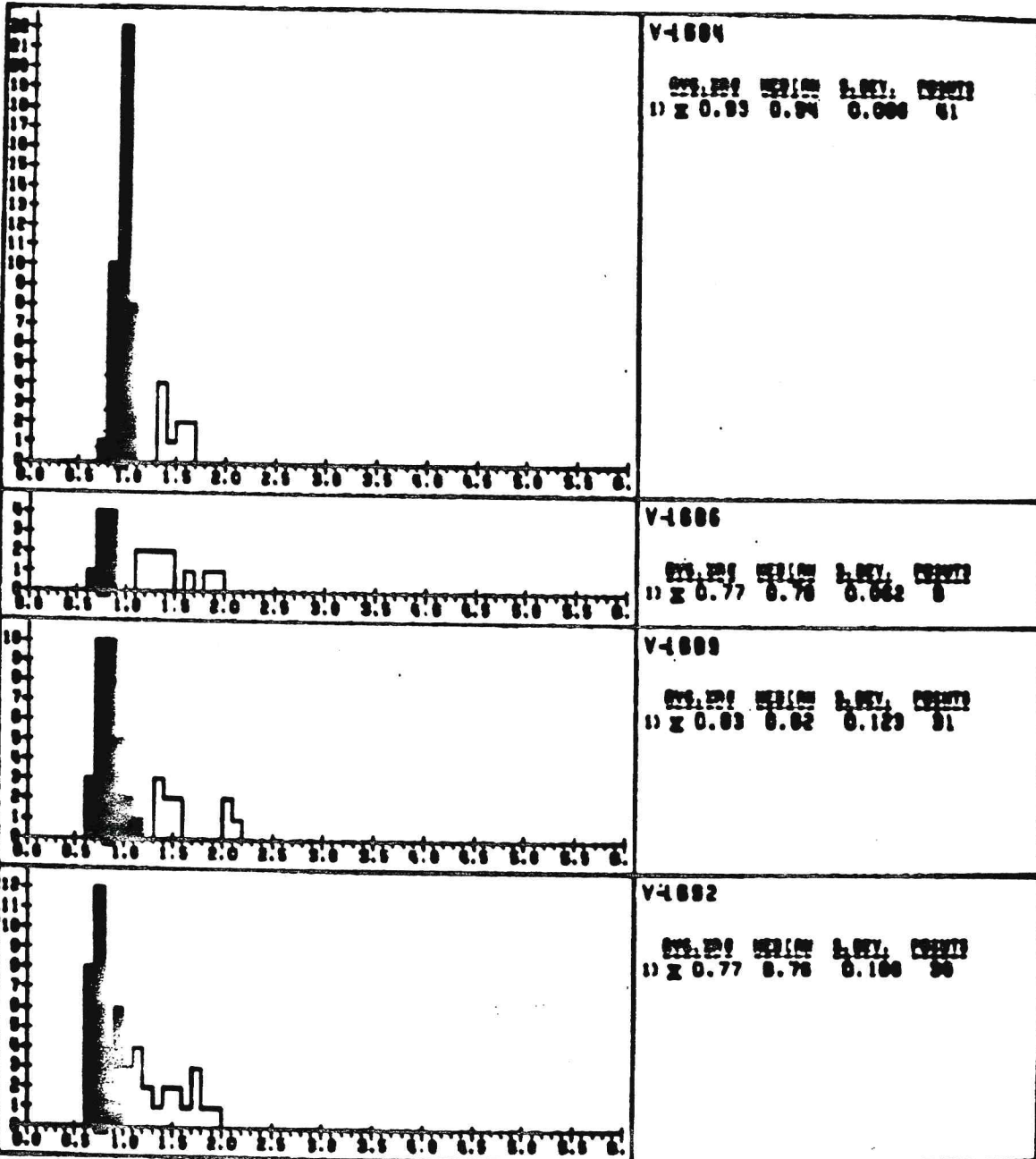
AVERAGE SIZE PER POP. 1 = 1.00

VITRINITE REFLECTANCE ANALYSIS

POINT LAY OUTCROP SAMPLES

LOCALITY 1095

TECH SVC NO. 5420CJ



X-AXIS = PERCENT REFLECTANCE OF VITRINITE COLOR

Y-AXIS = FREQUENCY

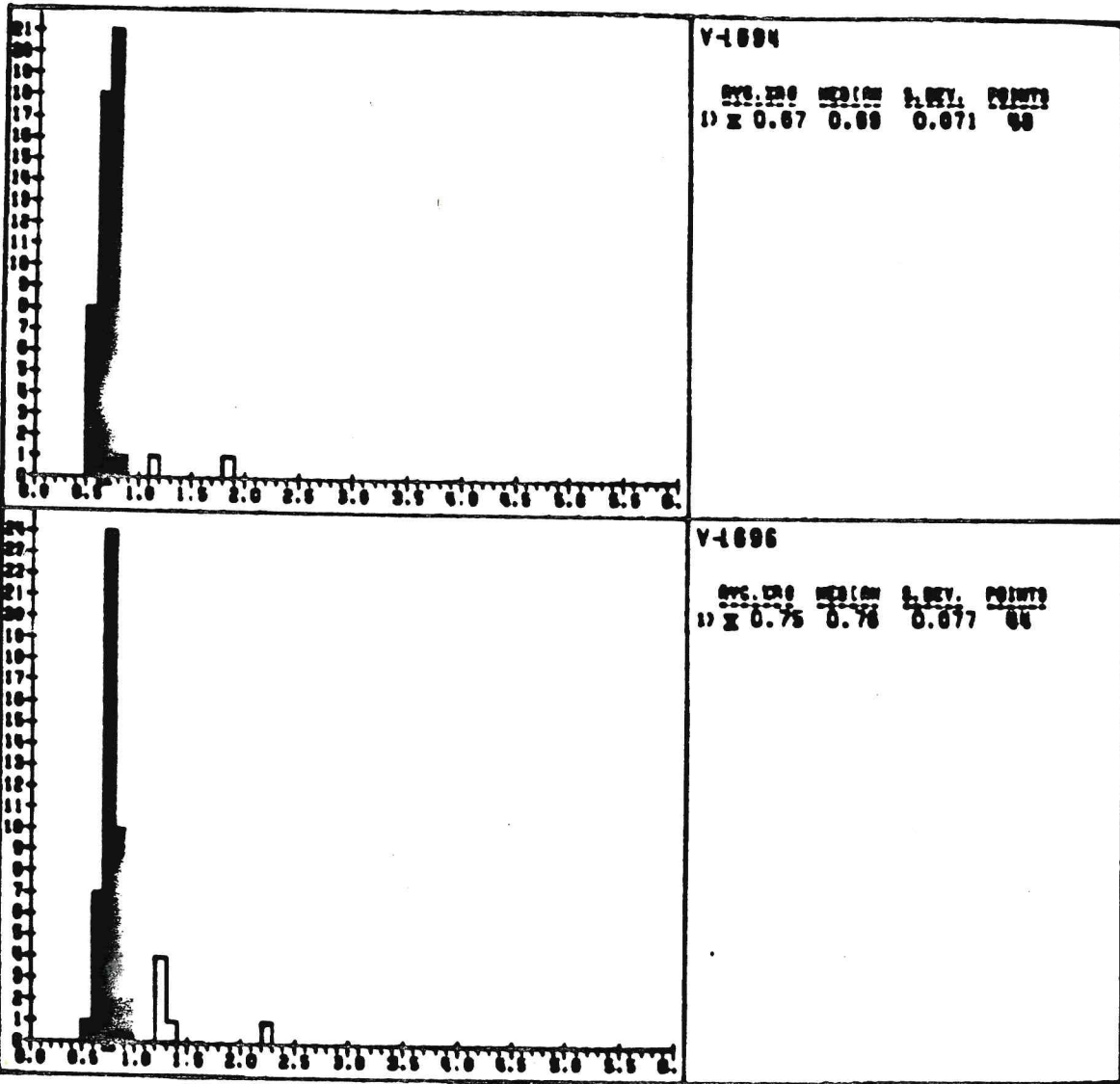
AVERAGE SIZE FOR POP. 1 = 0.83

VITRINITE REFLECTANCE ANALYSIS

POINT LAY OUTCROP SAMPLES

LOCALITY 1085

TECH SVC NO. 5420CJ



X-AXIS - PERCENT REFLECTANCE OF VITRINITE (R_{max})

Y-AXIS - FREQUENCY

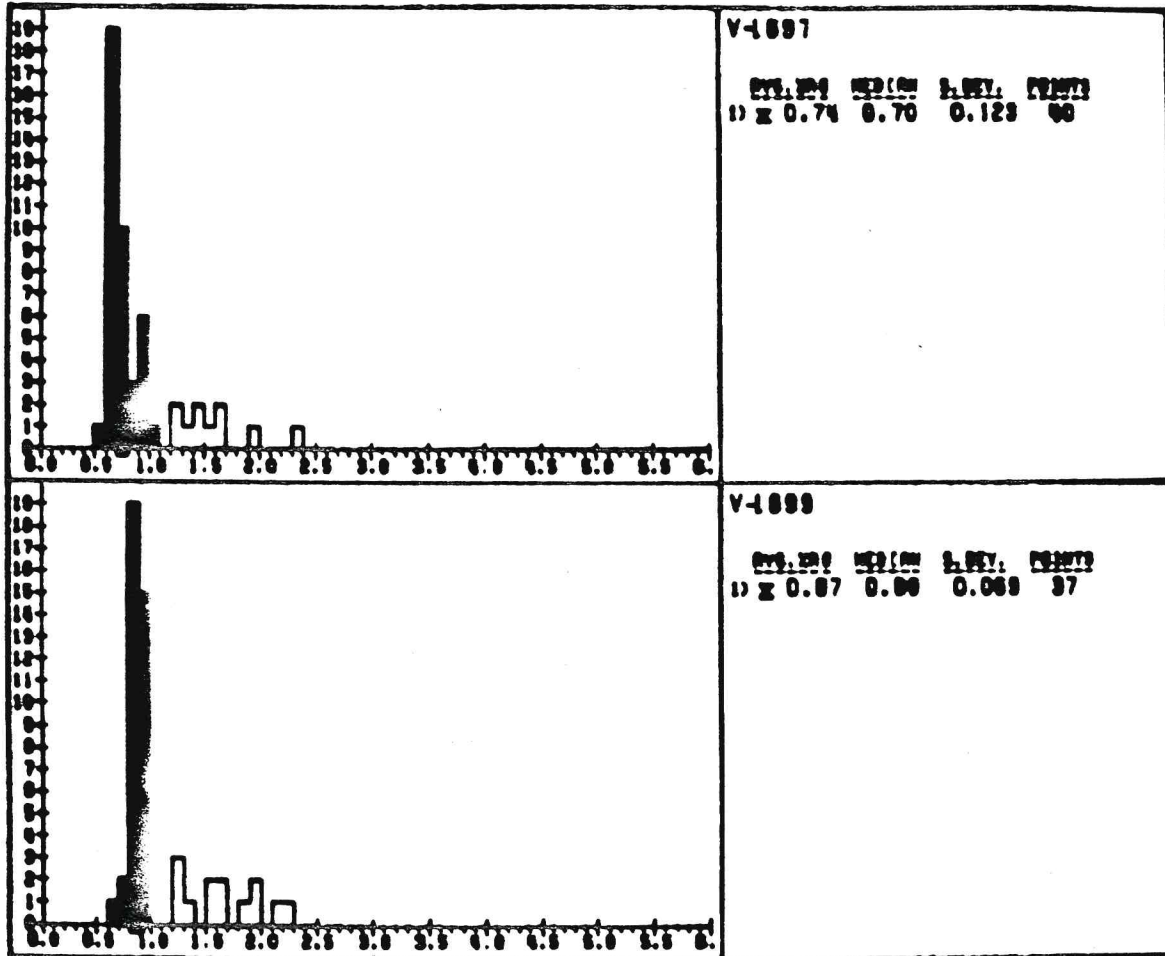
AVERAGE R_{max} FOR POP. 1 = 0.71

VITRINITE REFLECTANCE ANALYSIS

POINT LAY OUTCROP SAMPLES

LOCALITY 1085

TECH SVC NO. 5428CJ



X-AXIS = PERCENT REFLECTANCE OF VITRINITE CORN

Y-AXIS = FREQUENCY

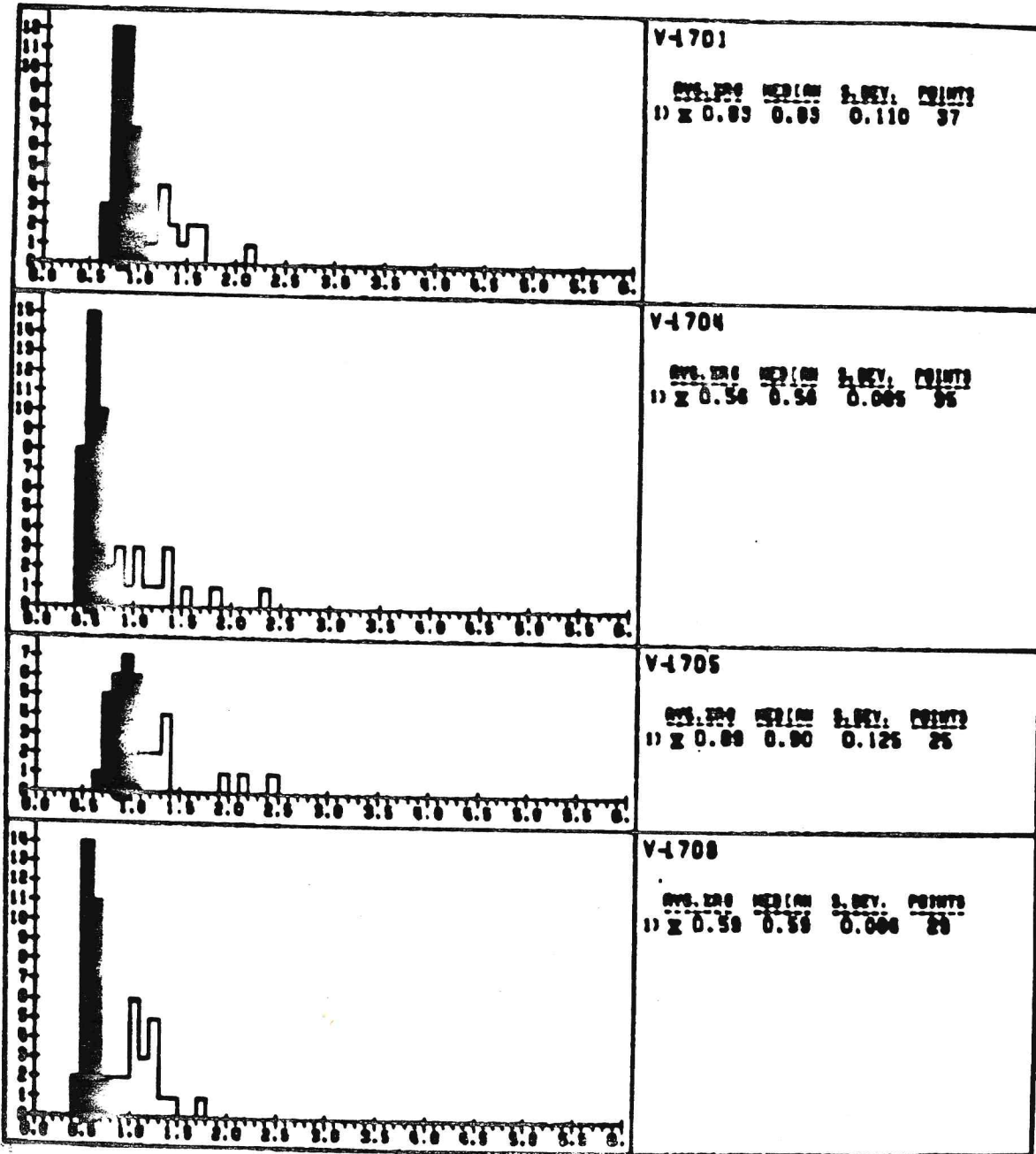
AVERAGE SIZE PER POP. 1 = 0.01

VITRINITE REFLECTANCE ANALYSIS

POINT LAY OUTCROP SAMPLES

LOCALITY 1085

TECH SVC NO. 5428CJ



X-AXIS - PERCENT REFLECTANCE OF VITRINITE (R₀)

Y-AXIS - FREQUENCY

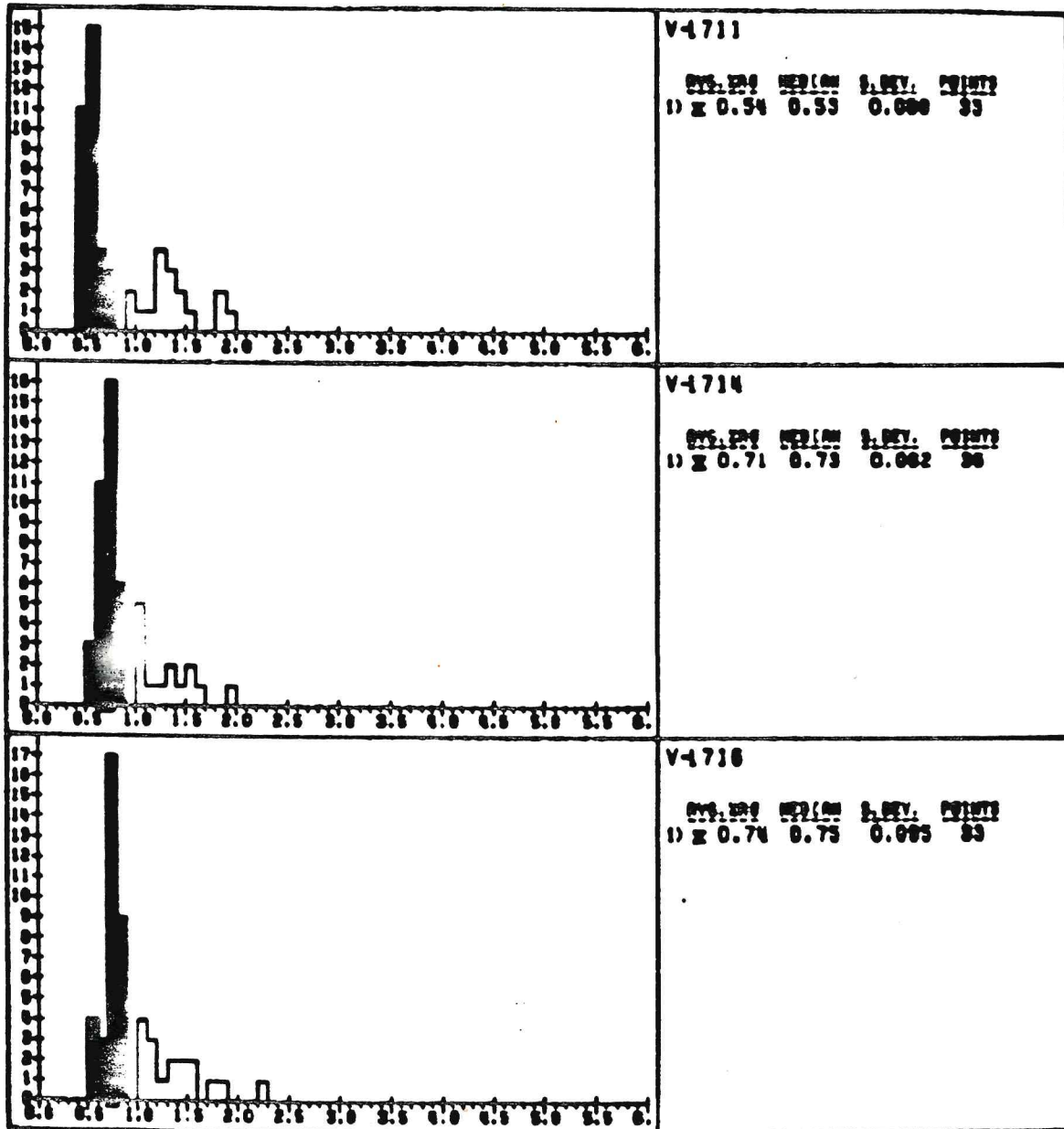
AVERAGE %R FOR POP. 1 = 0.72

VITRINITE REFLECTANCE ANALYSIS

POINT LAY OUTCROP SAMPLES

LOCALITY 1095

TECH SVC NO. 5429CJ



X-AXIS - PERCENT REFLECTANCE OF VITRINITE (R_v)

Y-AXIS - FREQUENCY

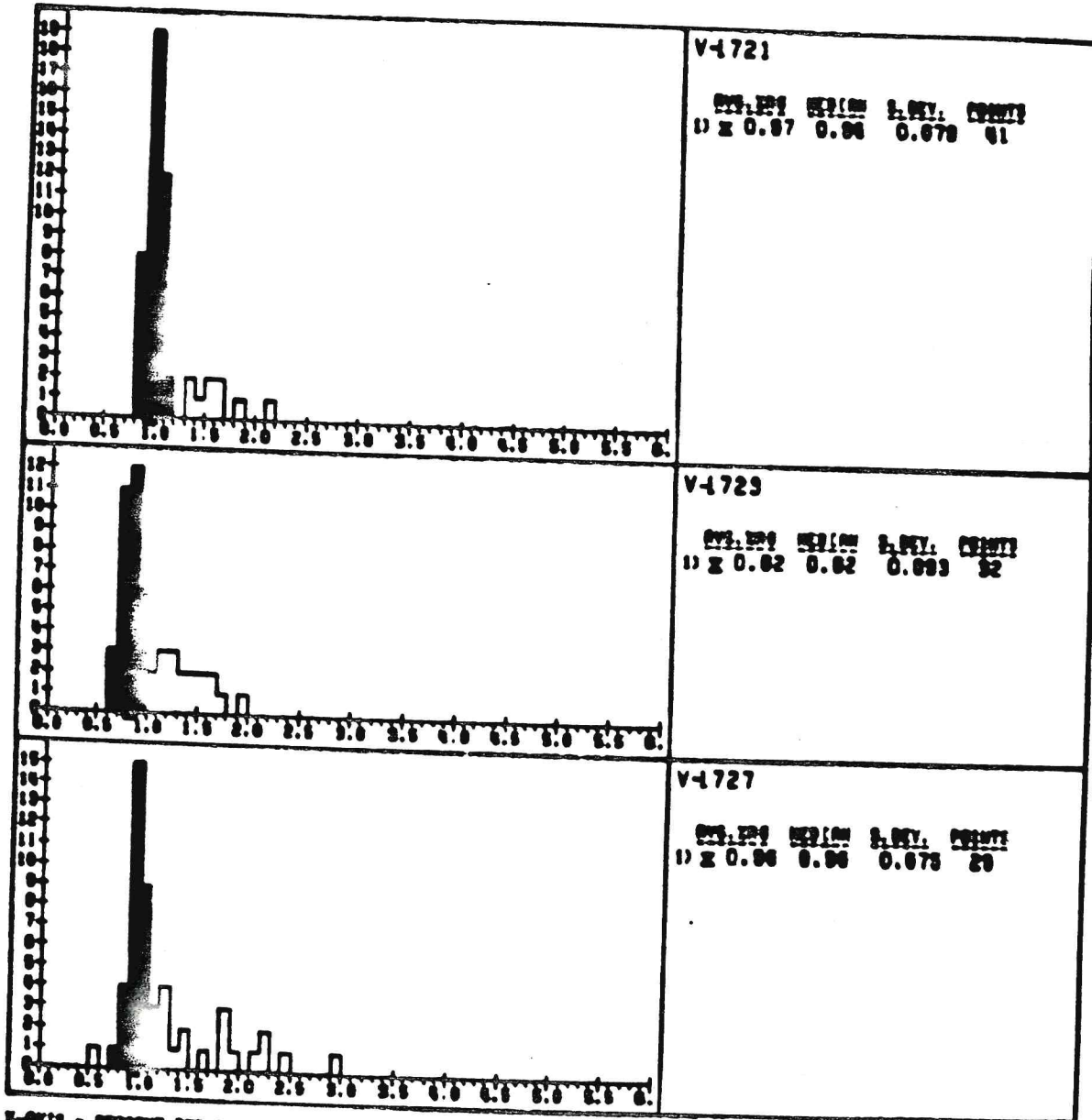
AVERAGE R_v PER SAMPLE = 0.66

VITRINITE REFLECTANCE ANALYSIS

POINT LAY OUTCROP SAMPLES

LOCALITY 1095

TECH SVC NO. 5428CJ



X-AXIS = PERCENT REFLECTANCE OF VITRINITE (R_o)

Y-AXIS = FREQUENCY

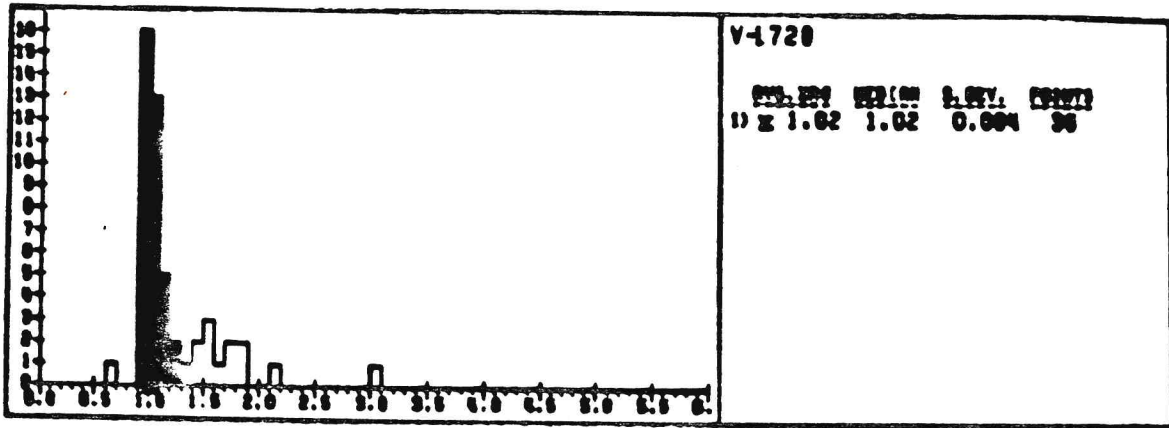
AVERAGE R_o FOR POP. 1 = 0.81

VITRINITE REFLECTANCE ANALYSIS

POINT LAY OUTCROP SAMPLES

LOCALITY 1095

TECH SVC NO. 5428CJ



X-AXIS = PERCENT REFLECTANCE OF VITRINITE (R_{max})

Y-AXIS = FREQUENCY

AVERAGE R_{max} FOR POP. 1 = 1.02

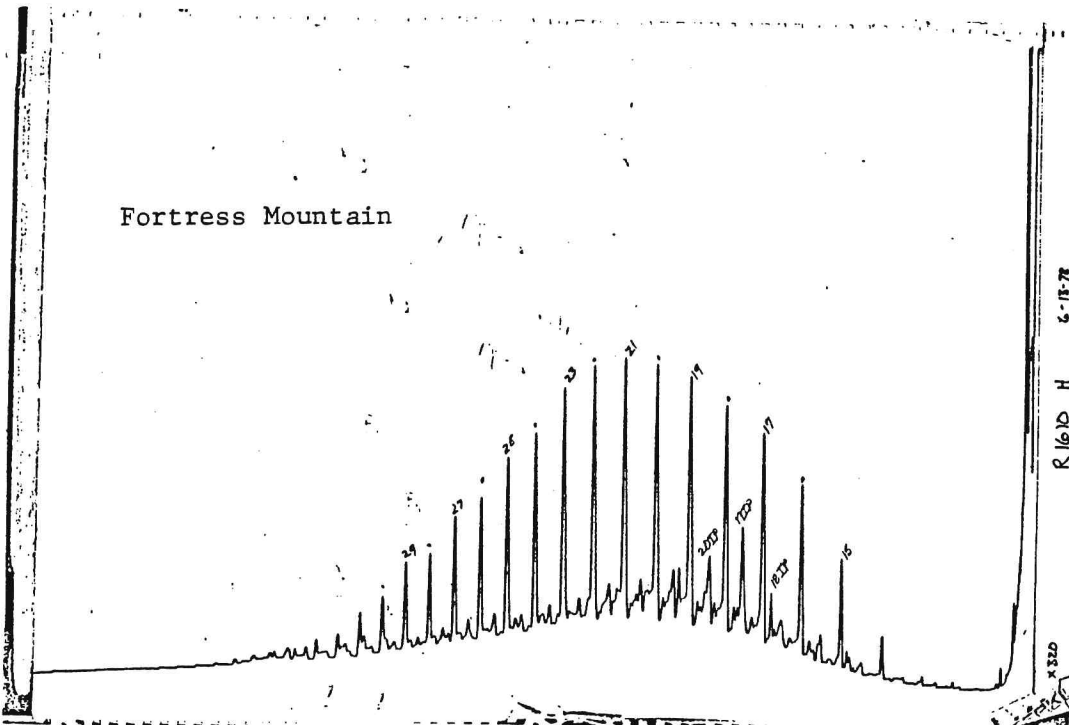
VITRINITE REFLECTANCE ANALYSIS
OUTCROP SAMPLES FROM POINT LAY ALASKA

FORMATION	POINT LAY				DE LONG MTS.					UTUKOK RIVER						MISHEGUK MTN.
	KASEGAUK	KUKPOWRUK	SNOWBANK	GRAB SAMPLES	DUGOUT	COKE	TUPICHAK	PTIMEGEA	TINGMERKPUK CREEK	FINCHIP	FOLSOM	FOGGY	EAST SNOWBANK	SOUTH SNOWBANK	GRAB SAMPLES	
	% R _o	% R _o	% R _o	% R _o	% R _o	% R _o	% R _o	% R _o	% R _o	% R _o	% R _o	% R _o	% R _o	% R _o	% R _o	% R _o
CORWIN			*R-1638 .8 R-1652 .6 R-1654 .6 R-1656 .6	R-1697 .7 R-1699 .9		*R-1692 .8 R-1694 .7 R-1696 .8				R-1664 .8			R-1676 .6	R-1677 .8		
KUKPOWRUK	R-1624 .7 R-1630 1.0 R-1636 .8	R-1619 .7	R-1641 .9 R-1644 .8 R-1648 .8 R-1699 .9		R-1666 .8	R-1686 .8 R-1689 .8	R-1621 .9 R-1661 1.1 R-1663 .8	*R-1667 .5			*R-1670 .8 R-1672 .8				R-1718 Barren	
TOROK						*R-1680 1.1 R-1682 1.1 R-1684 .9	R-1658 1.2 R-1660 1.3					R-1675 1.0			R-1699 .9 R-1705 .9 R-1708 .6 R-1711 .5 *R-1714 .7 R-1716 .7 R-1721 1.0 *R-1723 .8 R-1727 1.0 R-1728 1.0	R-1701 .8 R-1704 .6
FORTRESS MTN.									*R-1610 1.0 R-1613 1.1 R-1616 Barren							

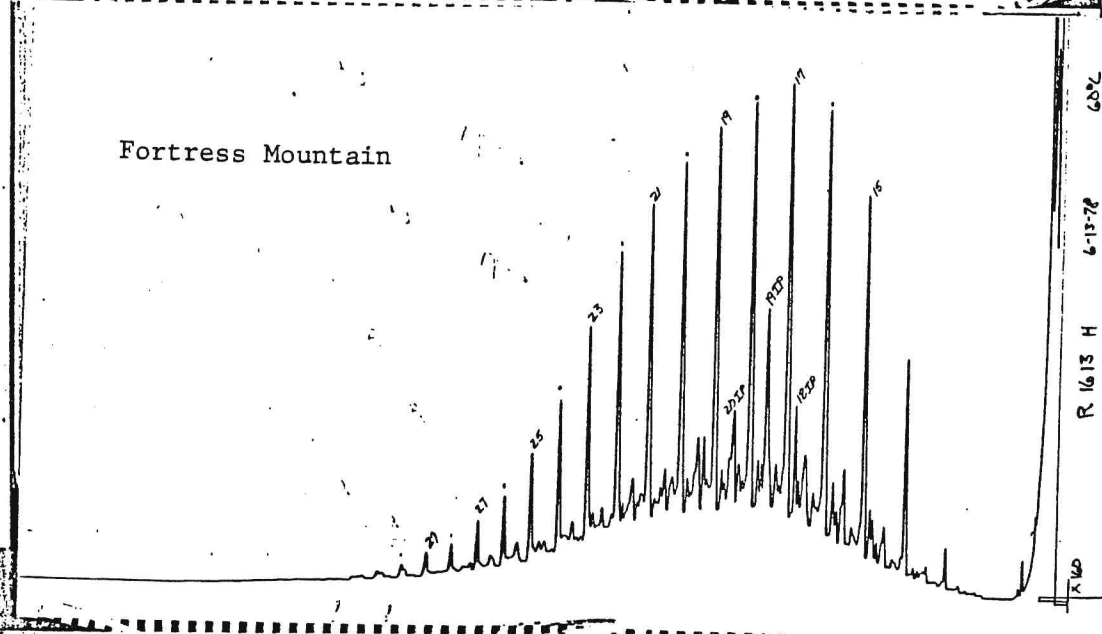
* MIXED KEROGEN

T.S. 785351 CR
FIGURE 3

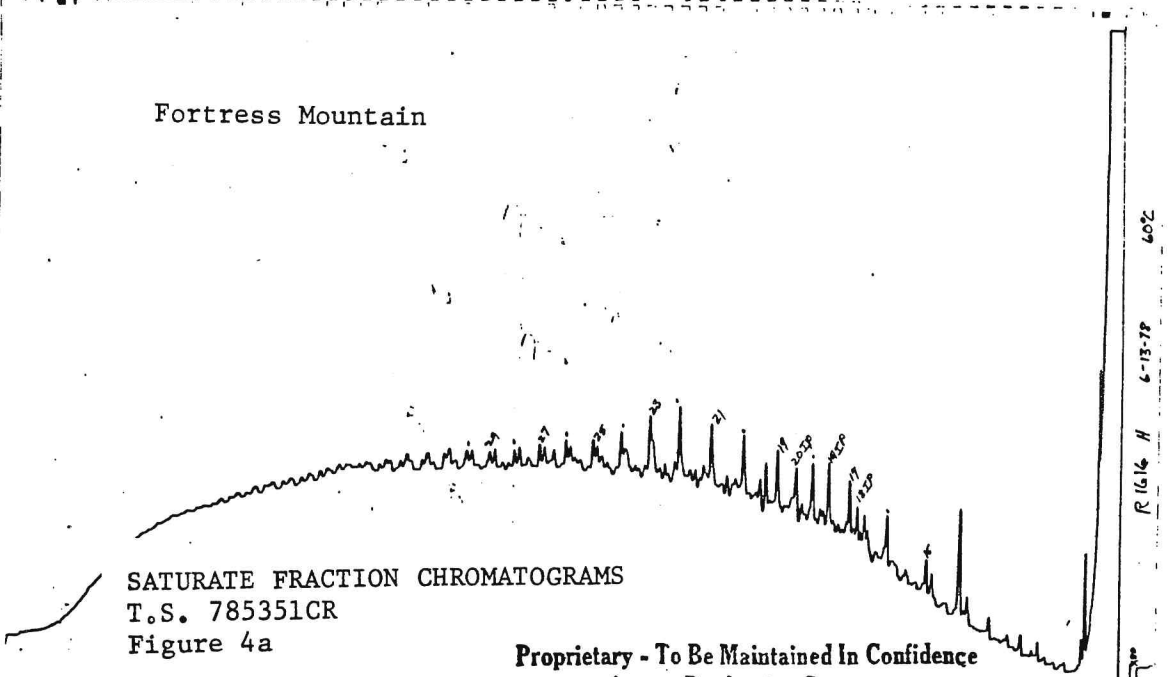
Fortress Mountain



Fortress Mountain

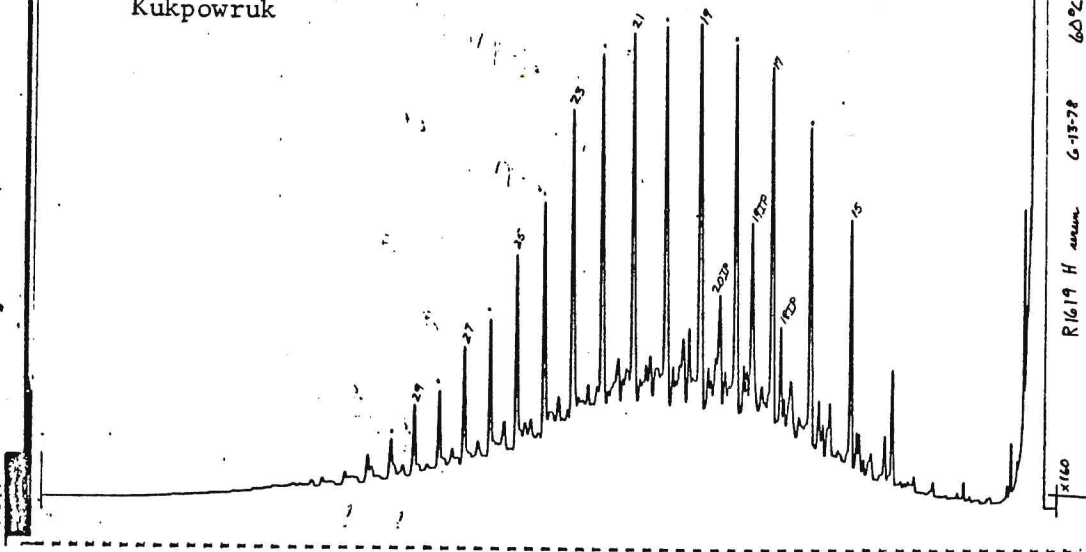


Fortress Mountain



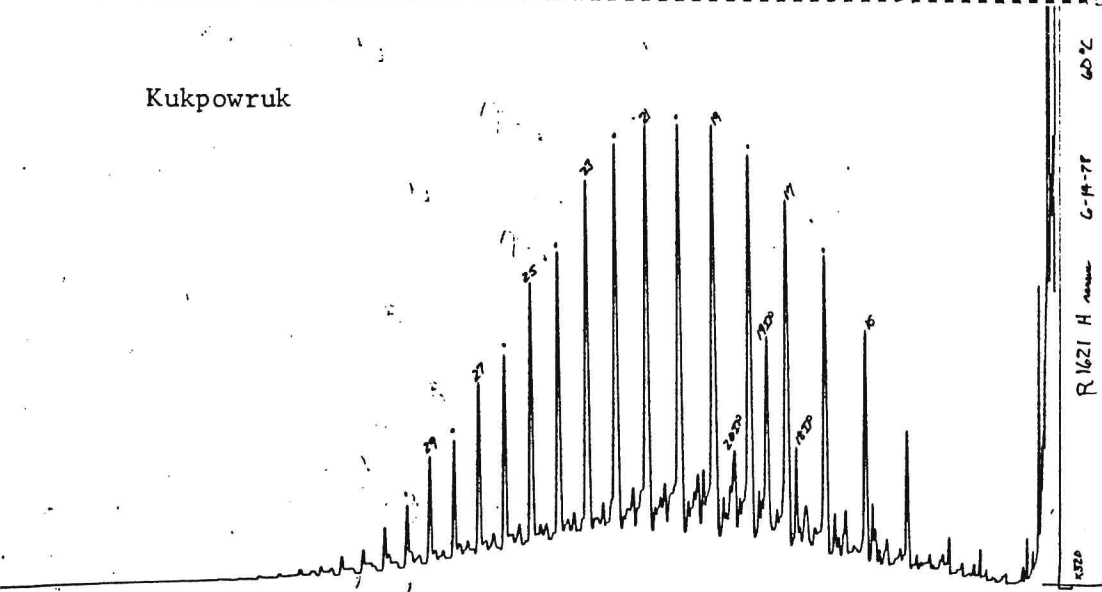
SATURATE FRACTION CHROMATOGRAMS
T.S. 785351CR
Figure 4a

Kukpowruk



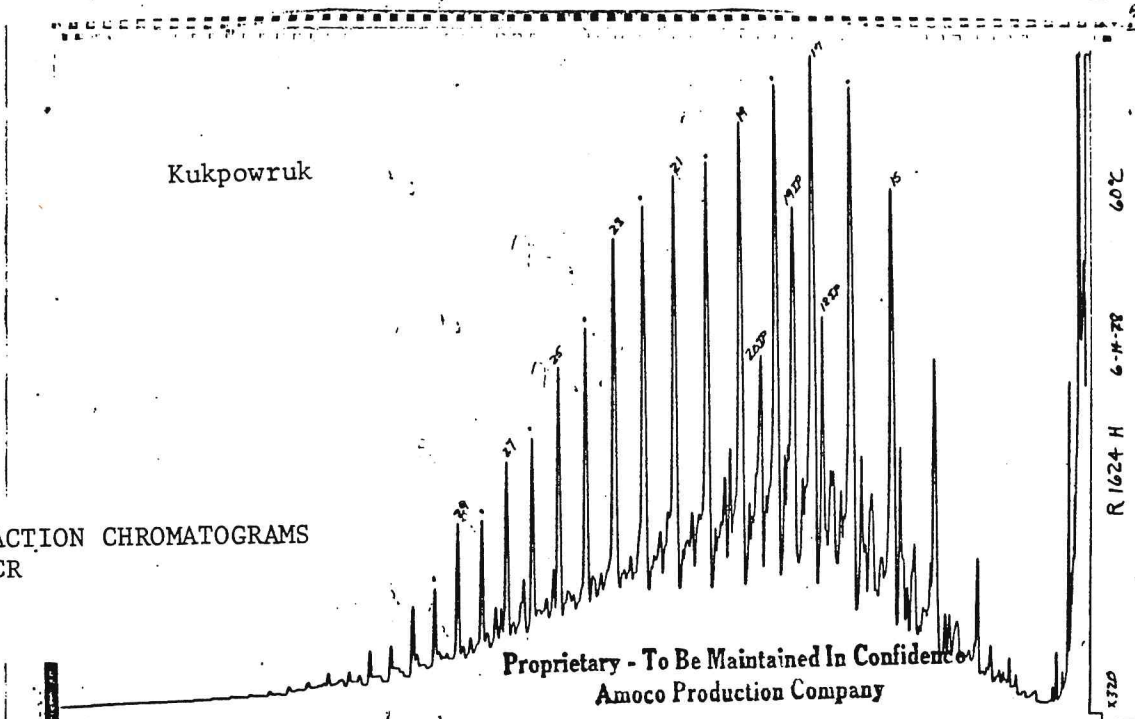
R1619 H
6-13-78
60%

Kukpowruk



R1621 H
6-14-78
60%

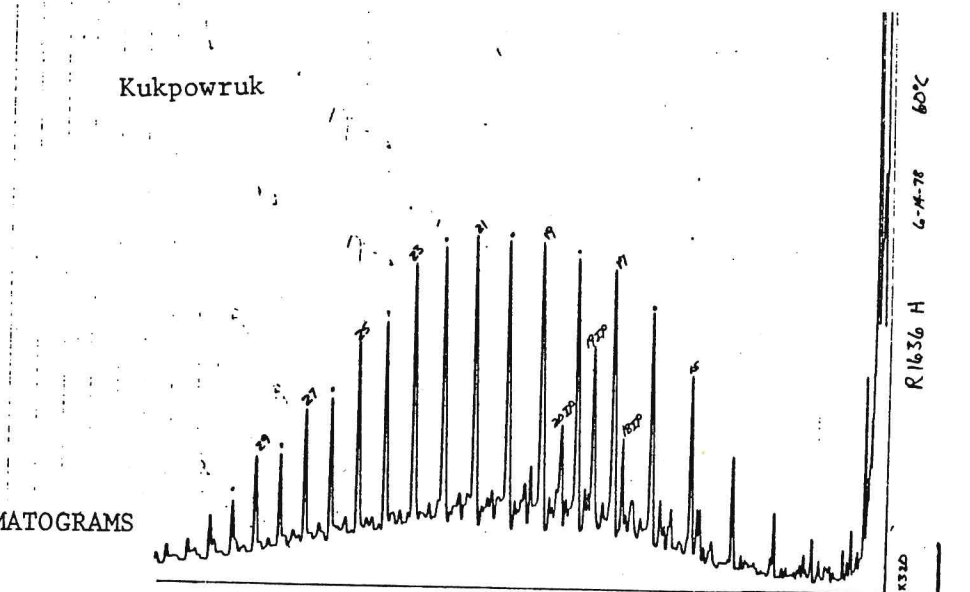
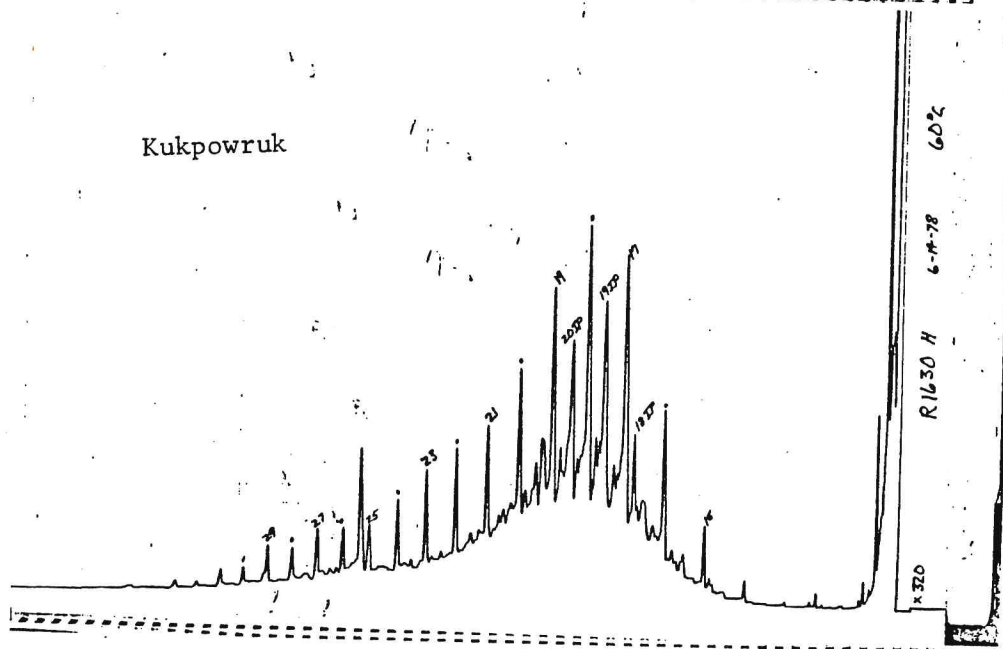
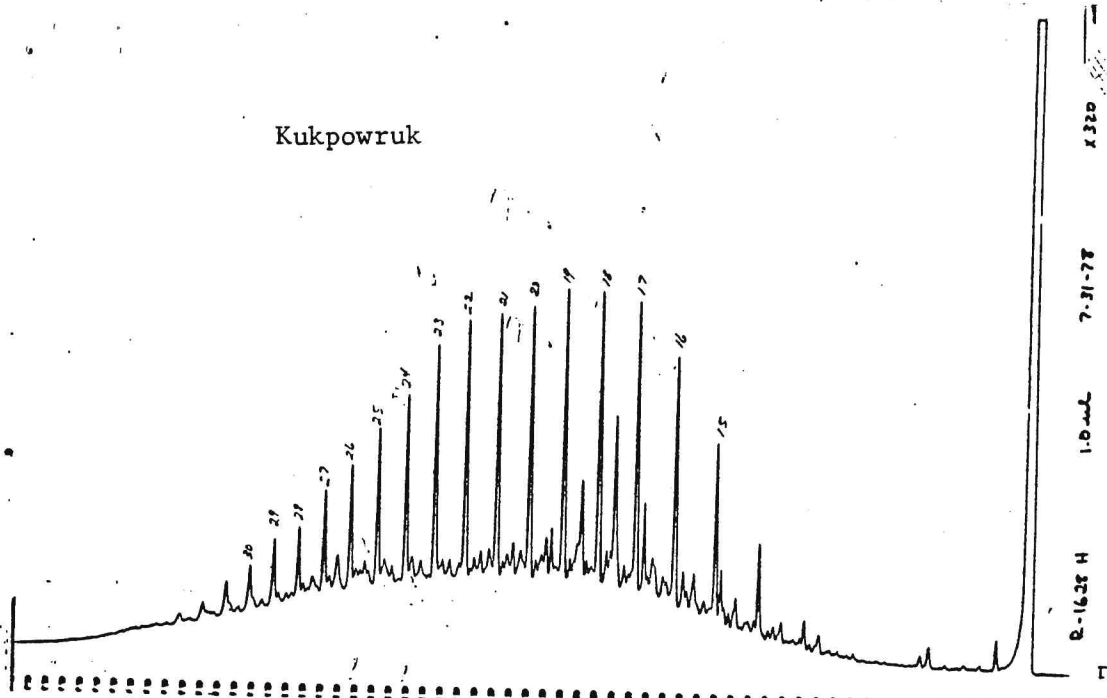
Kukpowruk



R1624 H
6-14-78
60%

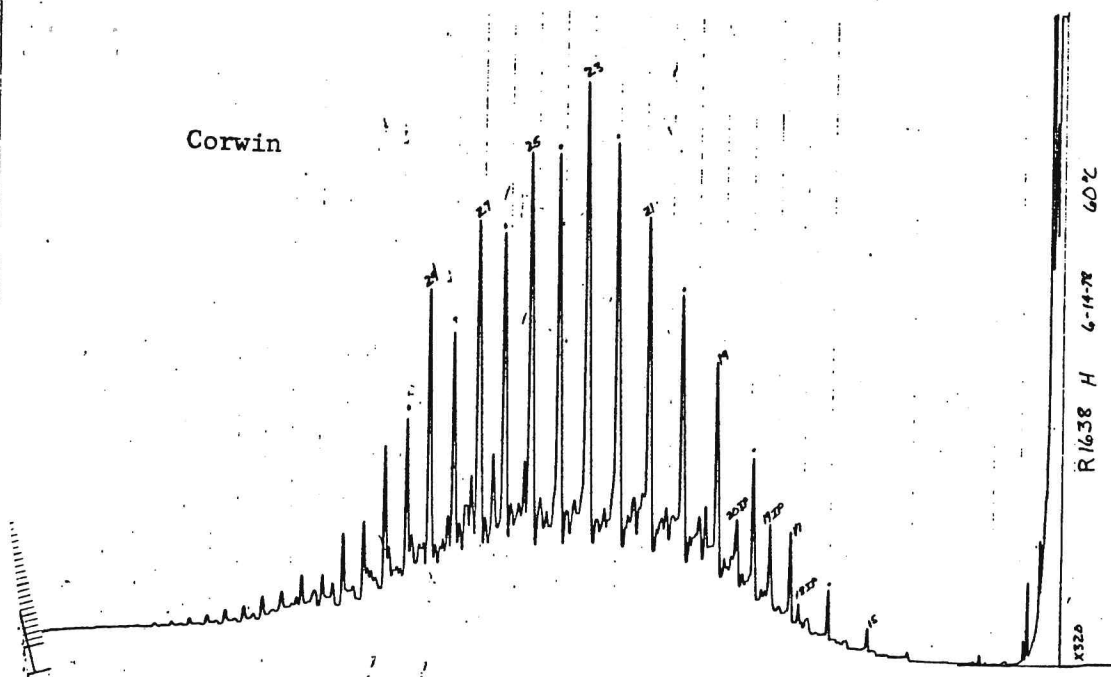
SATURATE FRACTION CHROMATOGRAMS
T.S. 785351CR
Figure 4b

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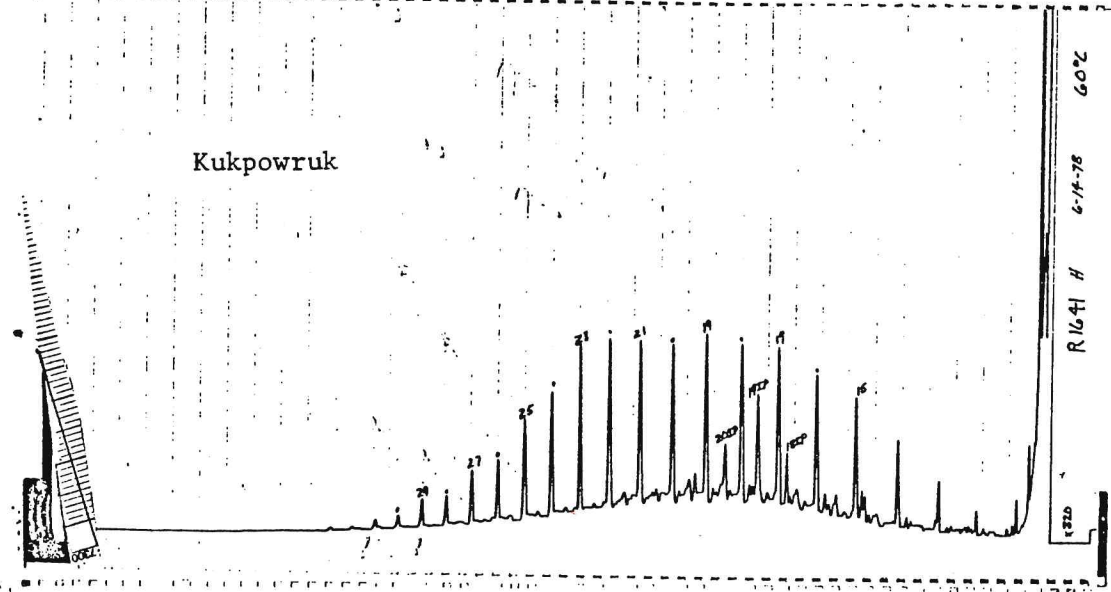


SATURATE FRACTION CHROMATOGRAMS
I.S. 785351CR
Figure 4c

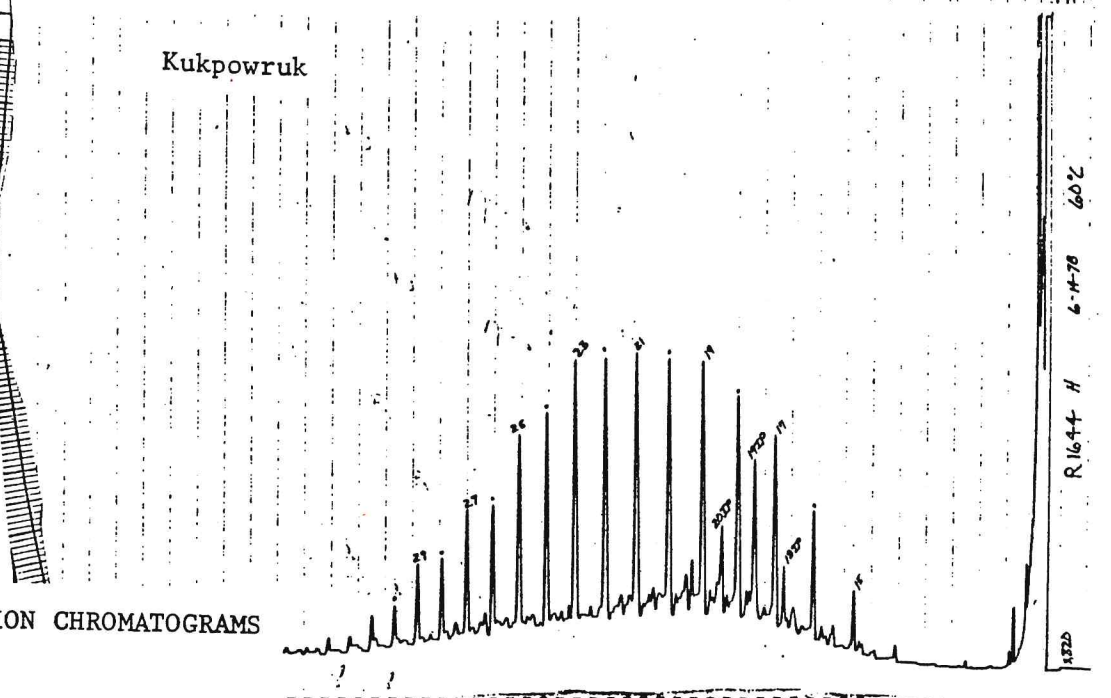
Corwin



Kukpowruk

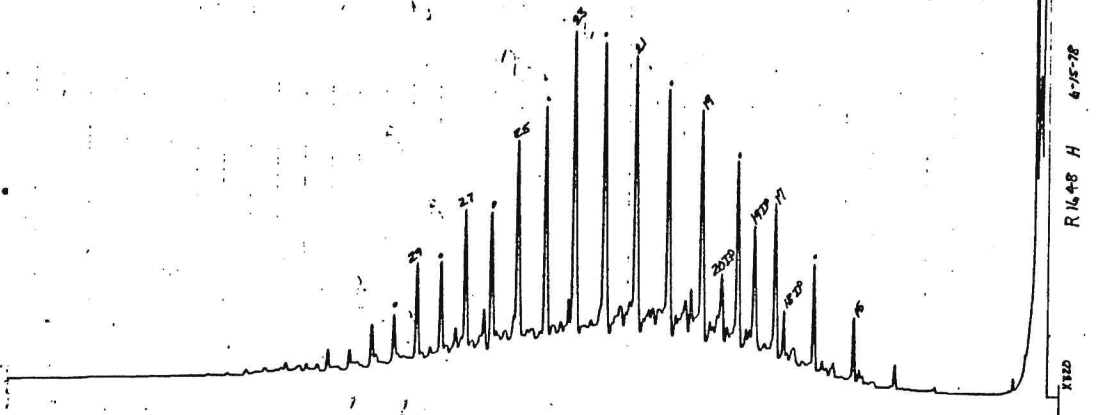


Kukpowruk

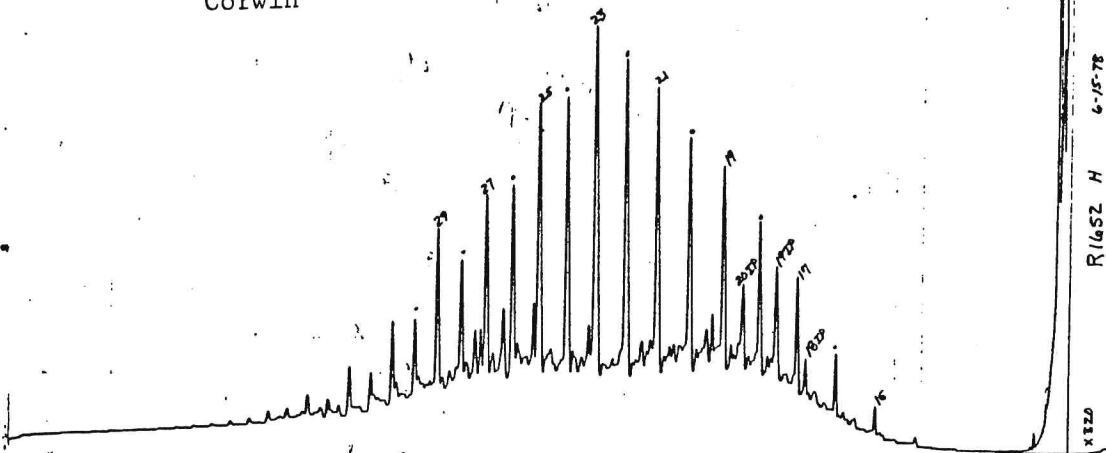


SATURATE FRACTION CHROMATOGRAMS
T.S. 785351CR
Figure 4d

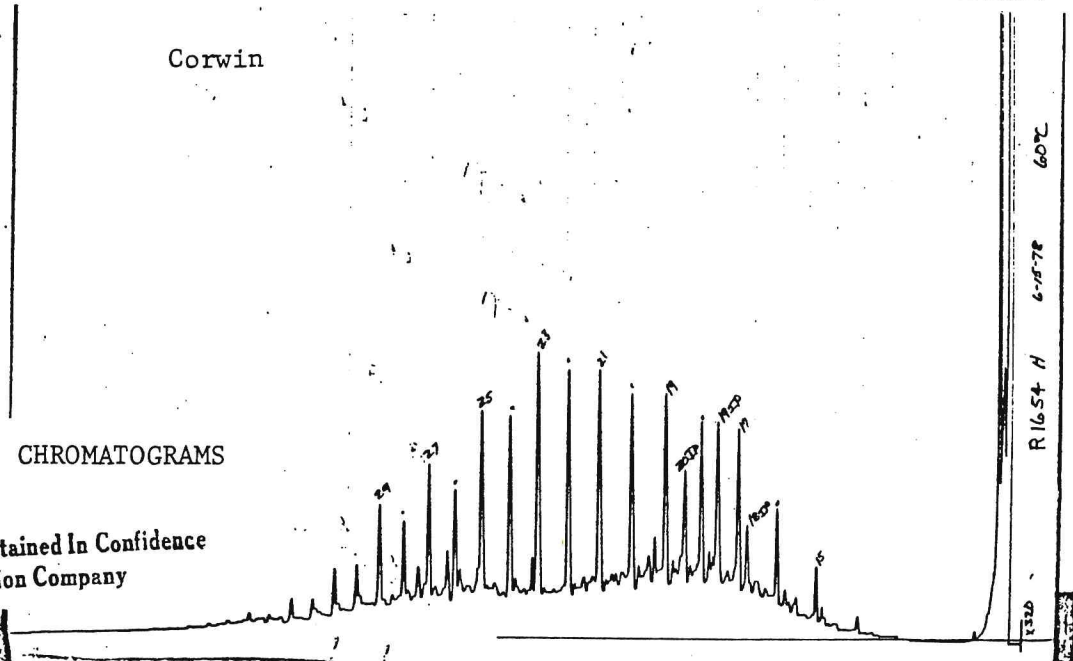
Kukpowruk



Corwin

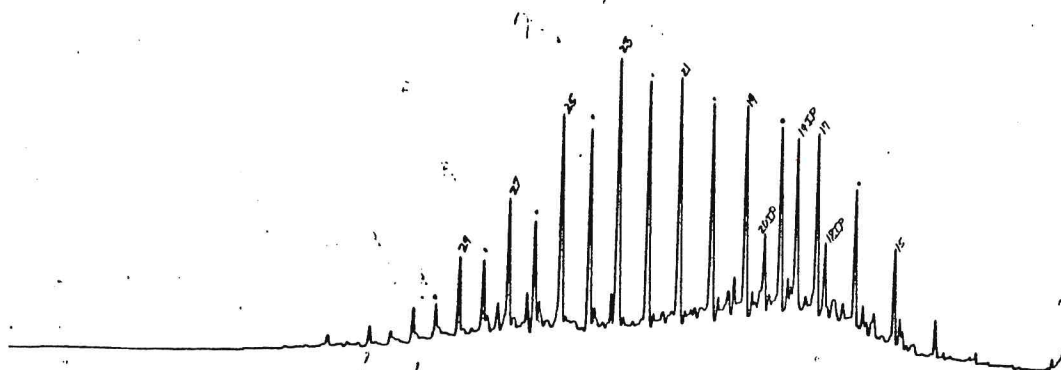


Corwin



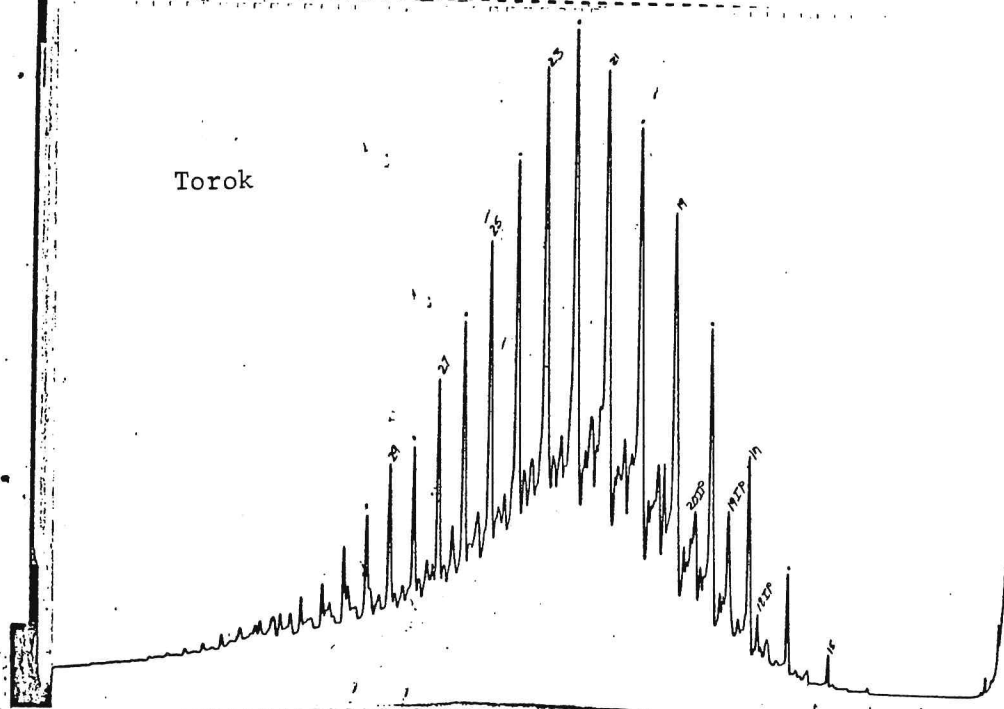
SATURATE FRACTION CHROMATOGRAMS
T.S. 785351CR
Figure 4e
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Amoco Production Company

Corwin



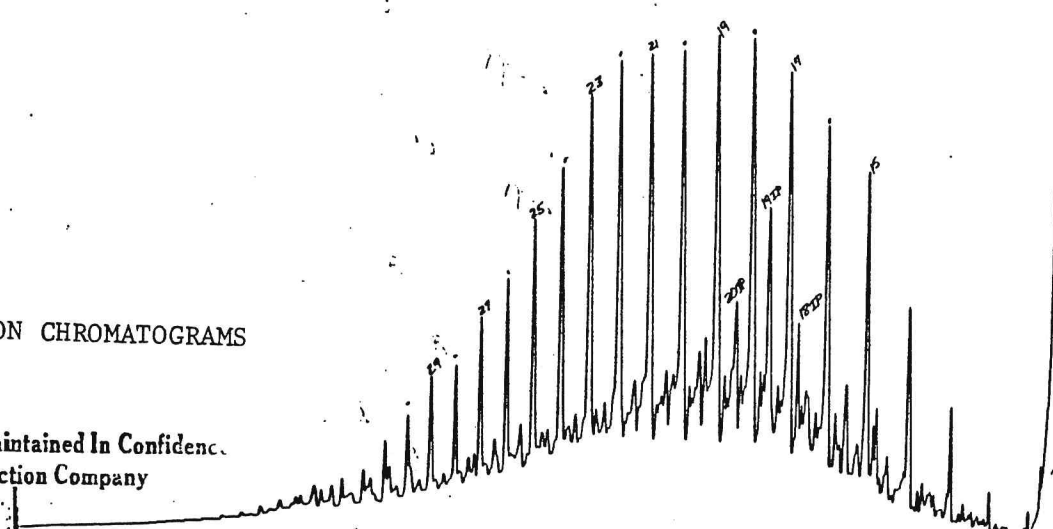
60°C
6-16-78
R 1656 H
x 320

Torok



60°C
6-16-78
R 1658 H
x 320

Torok

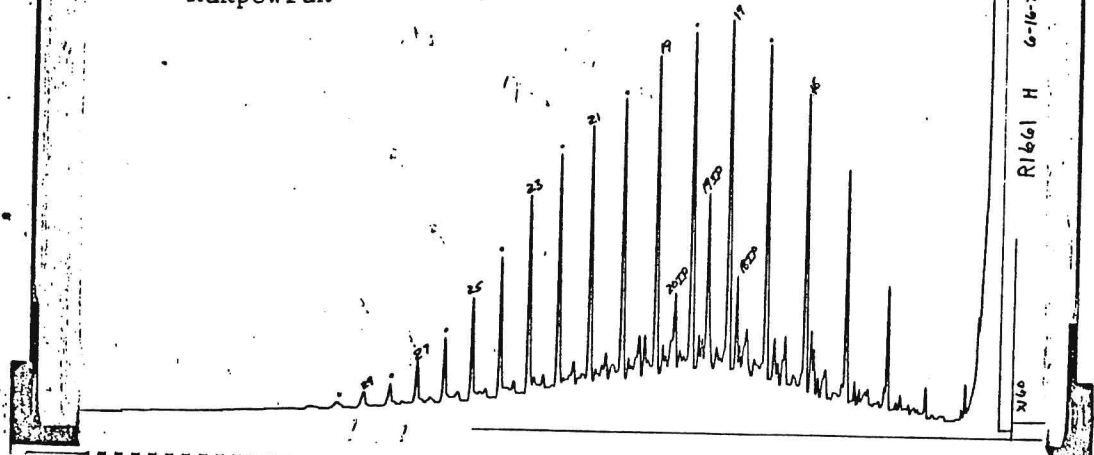


60°C
6-16-78
R 1660 H
x 320

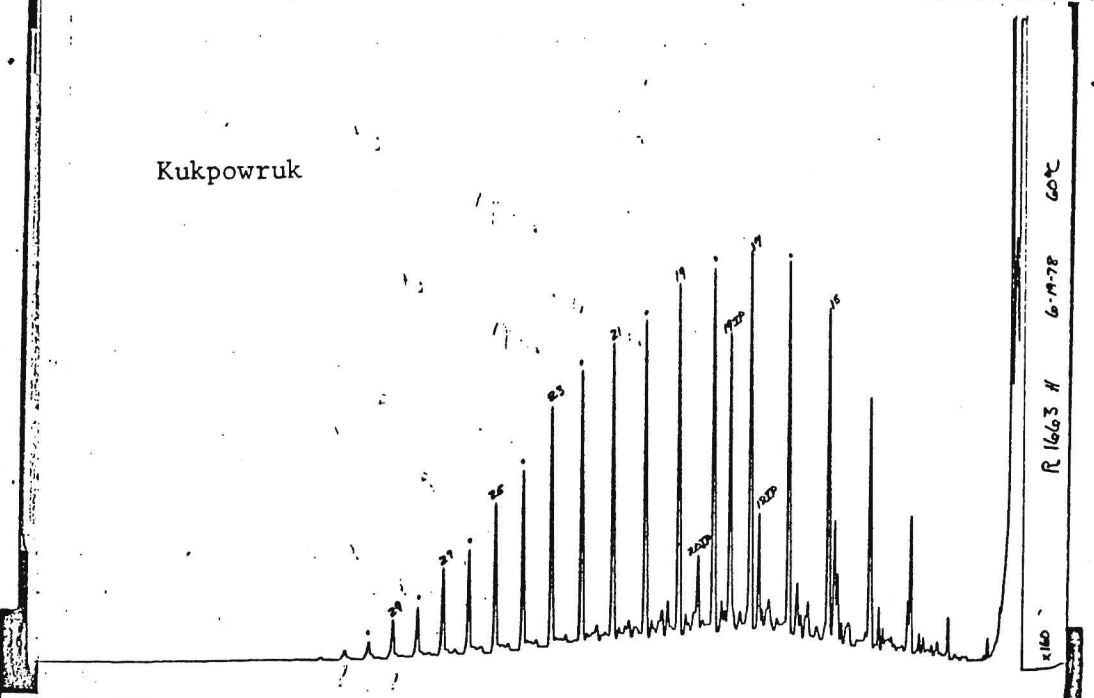
SATURATE FRACTION CHROMATOGRAMS
T.S. 785351CR
Figure 4f

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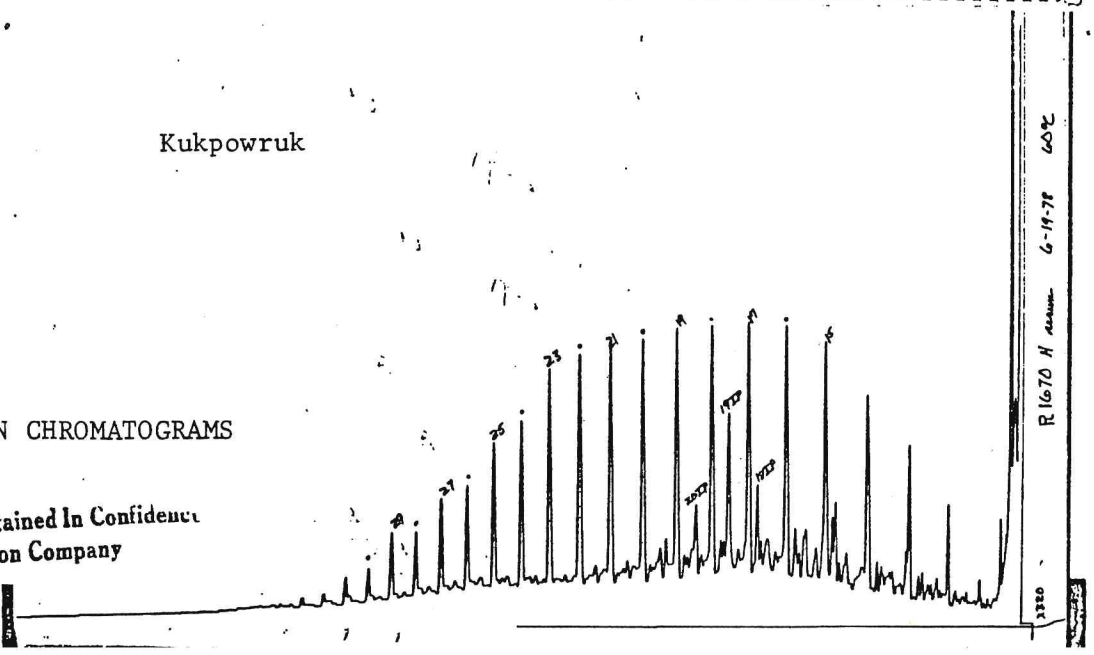
Kukpowruk



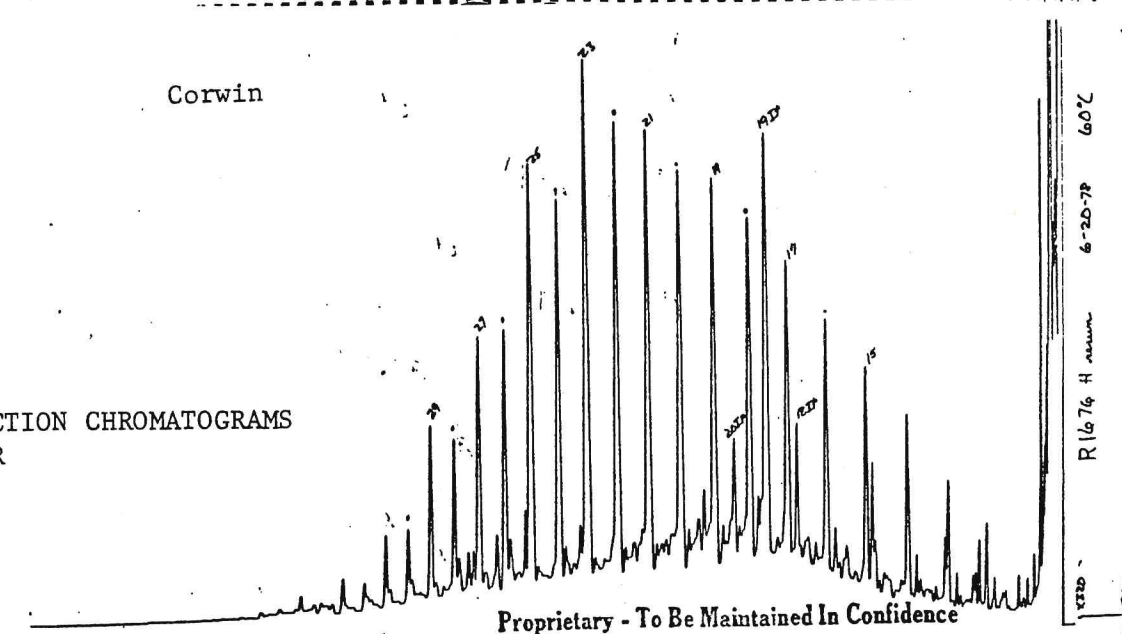
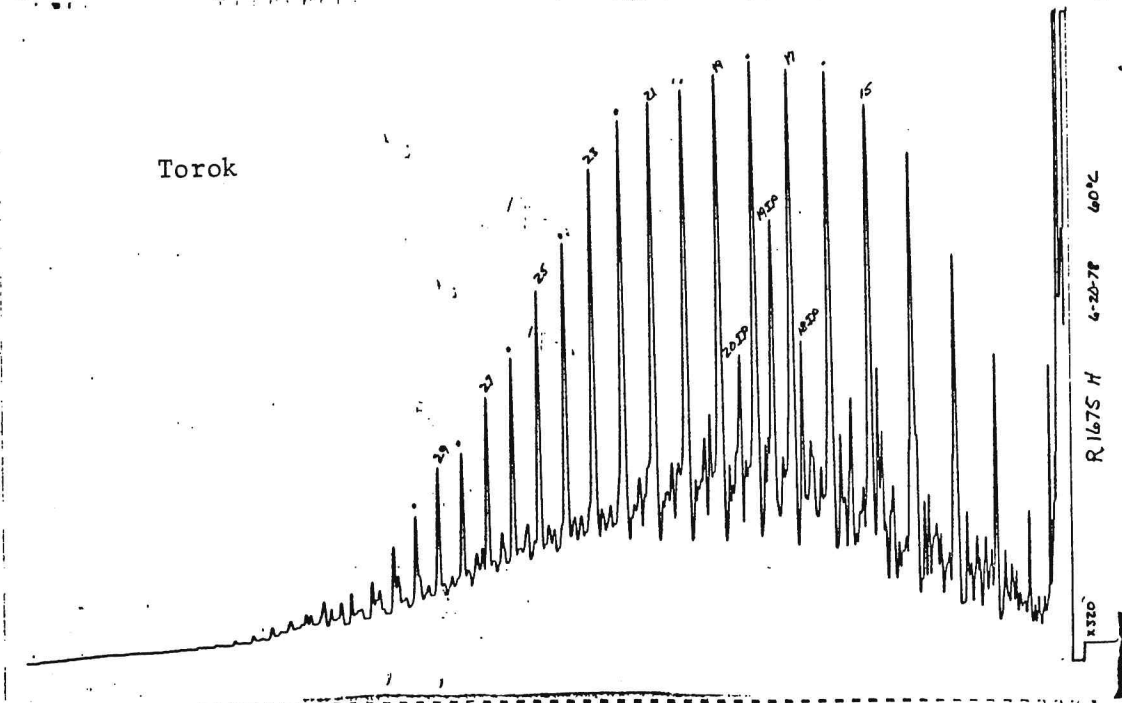
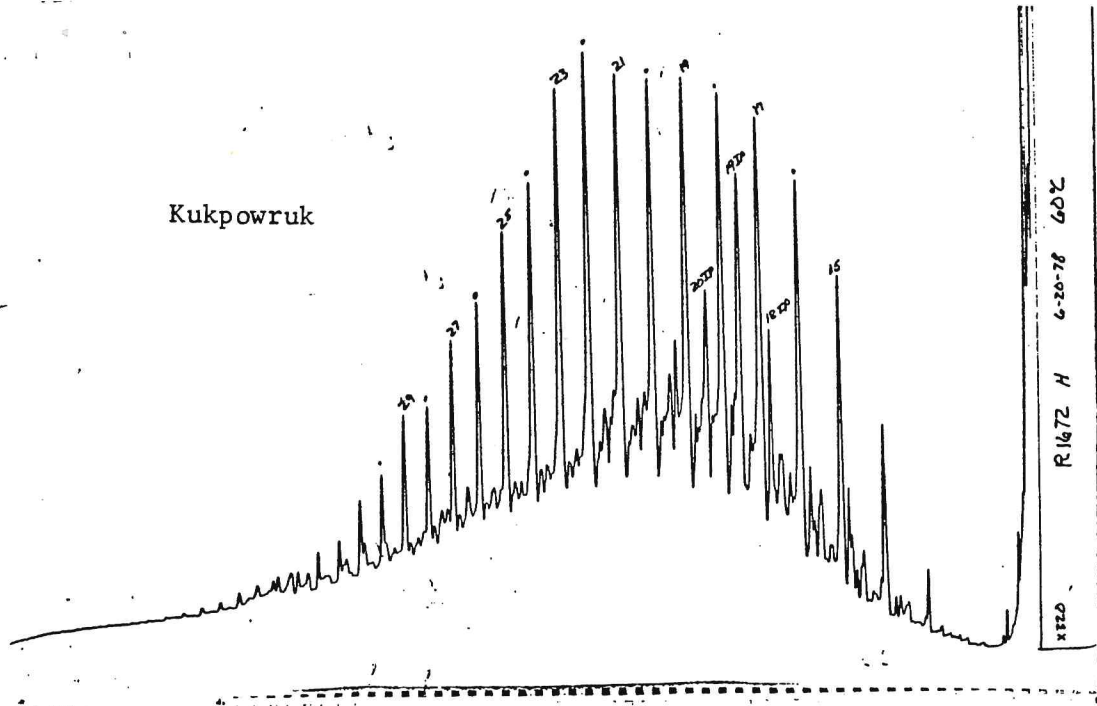
Kukpowruk



Kukpowruk

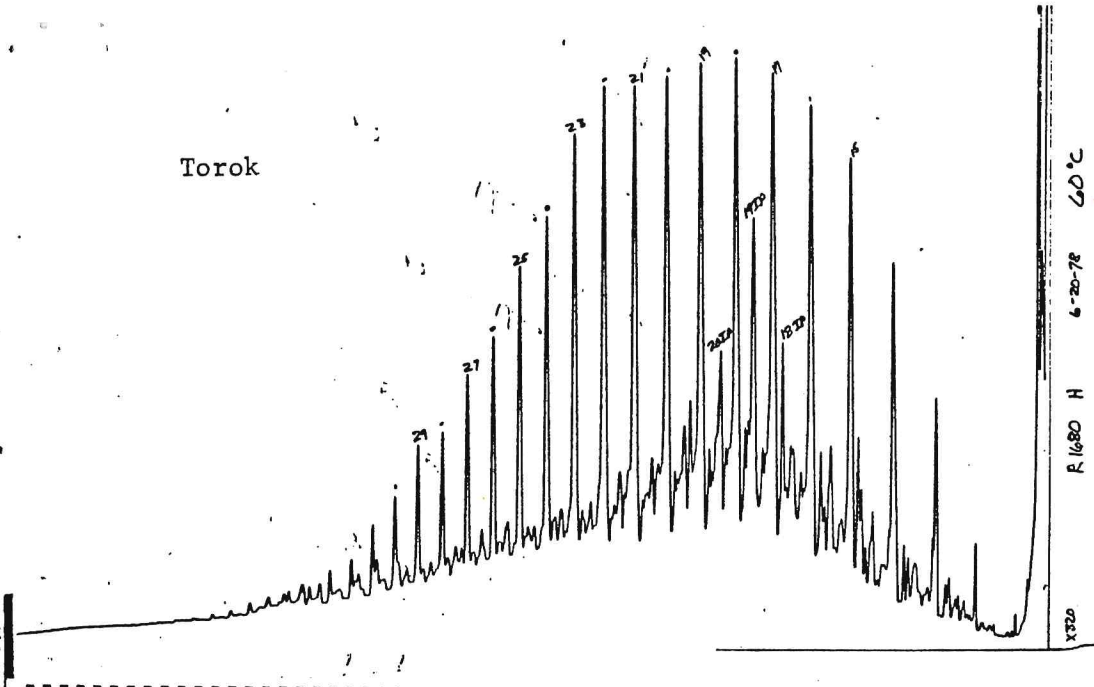


SATURATE FRACTION CHROMATOGRAMS
T.S. 785351CR
Figure 4g
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Amoco Production Company

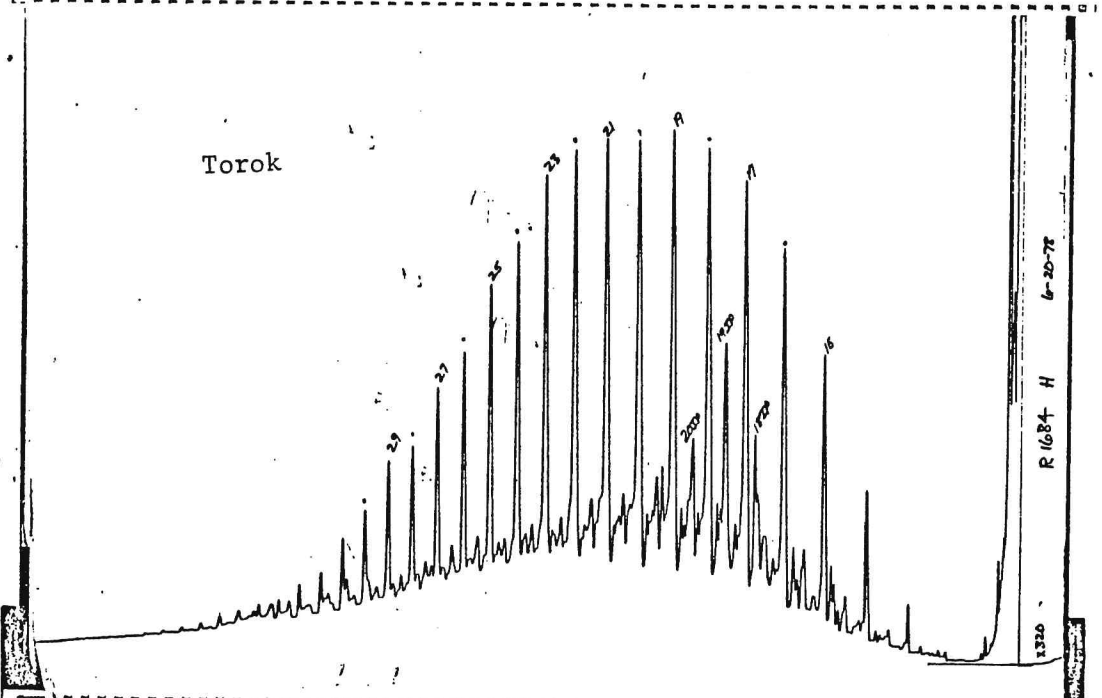


SATURATE FRACTION CHROMATOGRAMS
 T.S. 785351CR
 Figure 4h

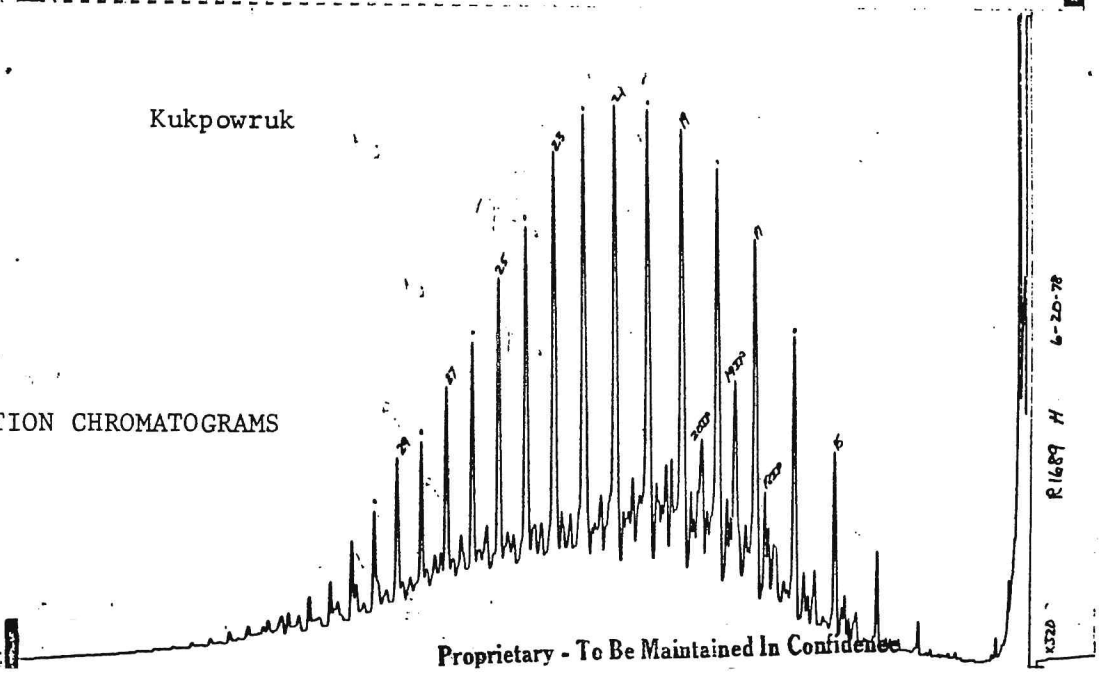
Torok



Torok

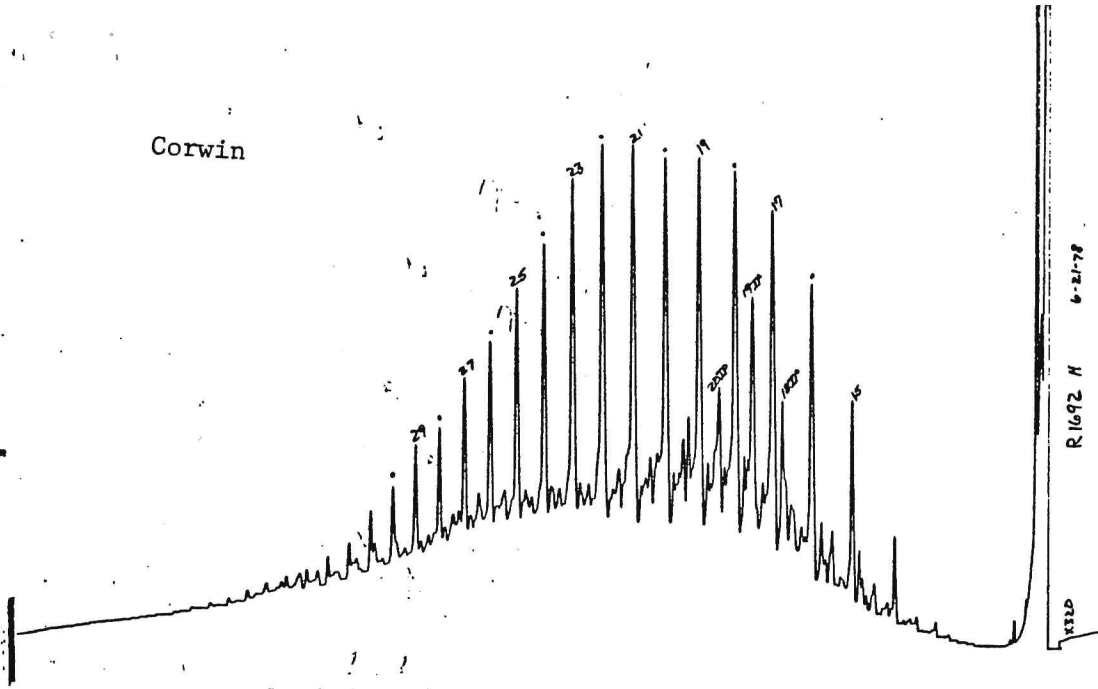


Kukpowruk

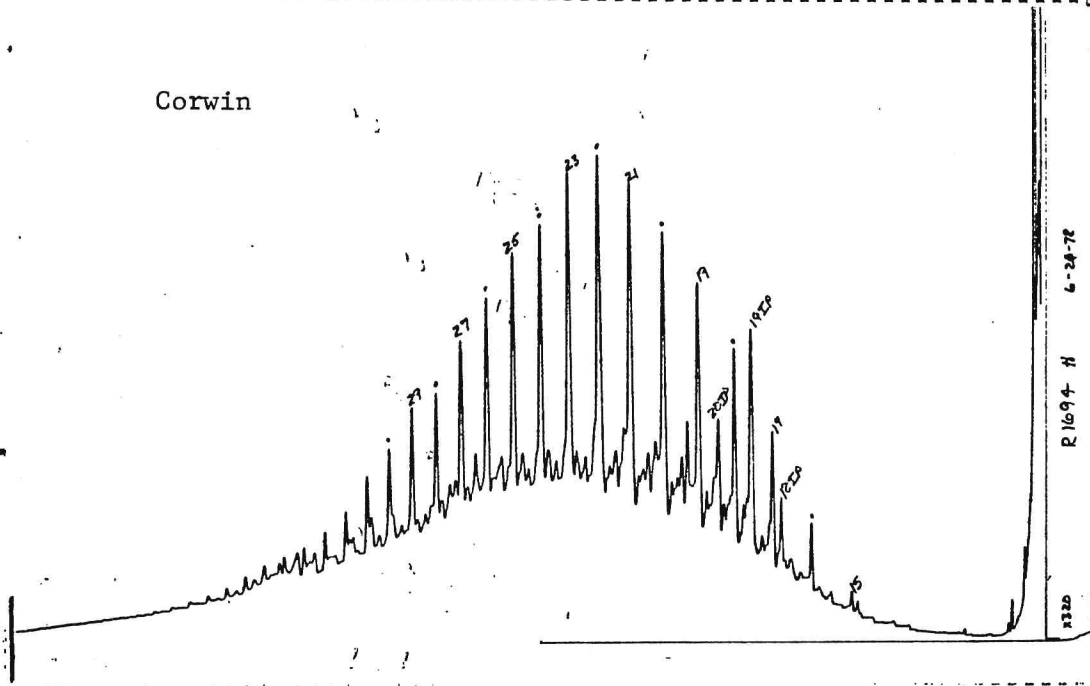


SATURATE FRACTION CHROMATOGRAMS
T.S. 785351CR
Figure 41

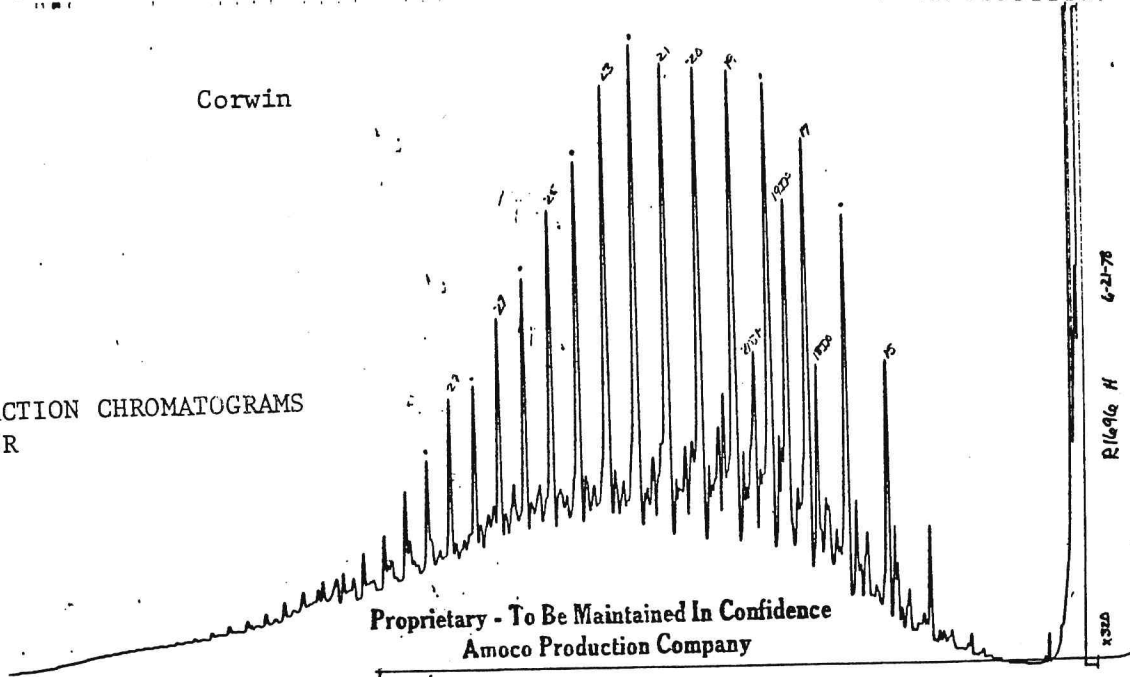
Corwin



Corwin



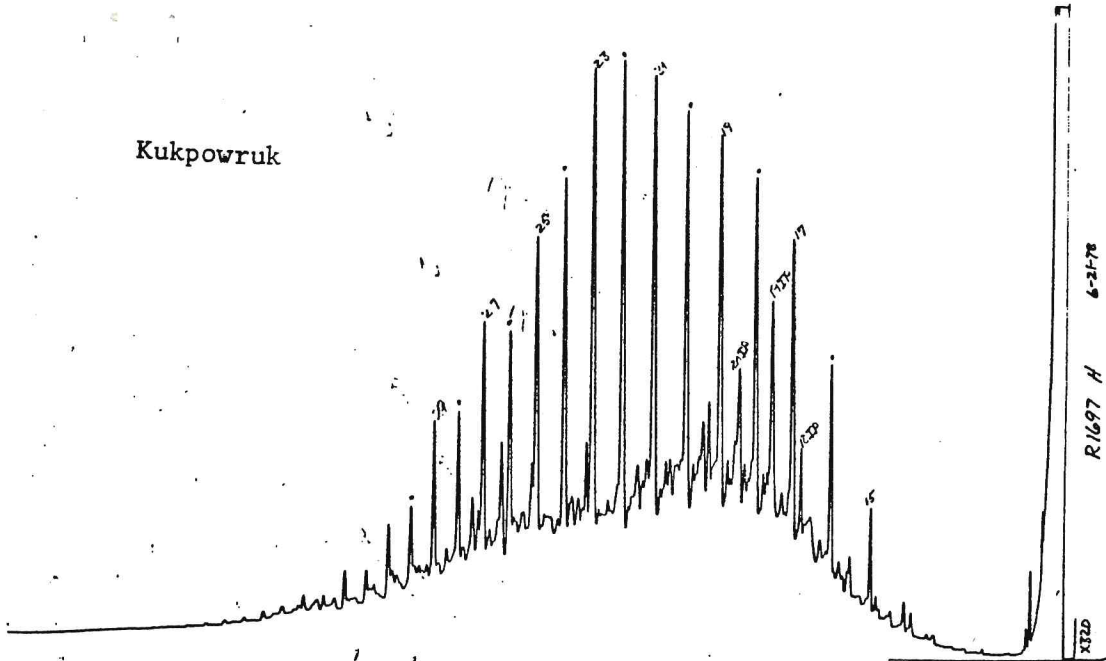
Corwin



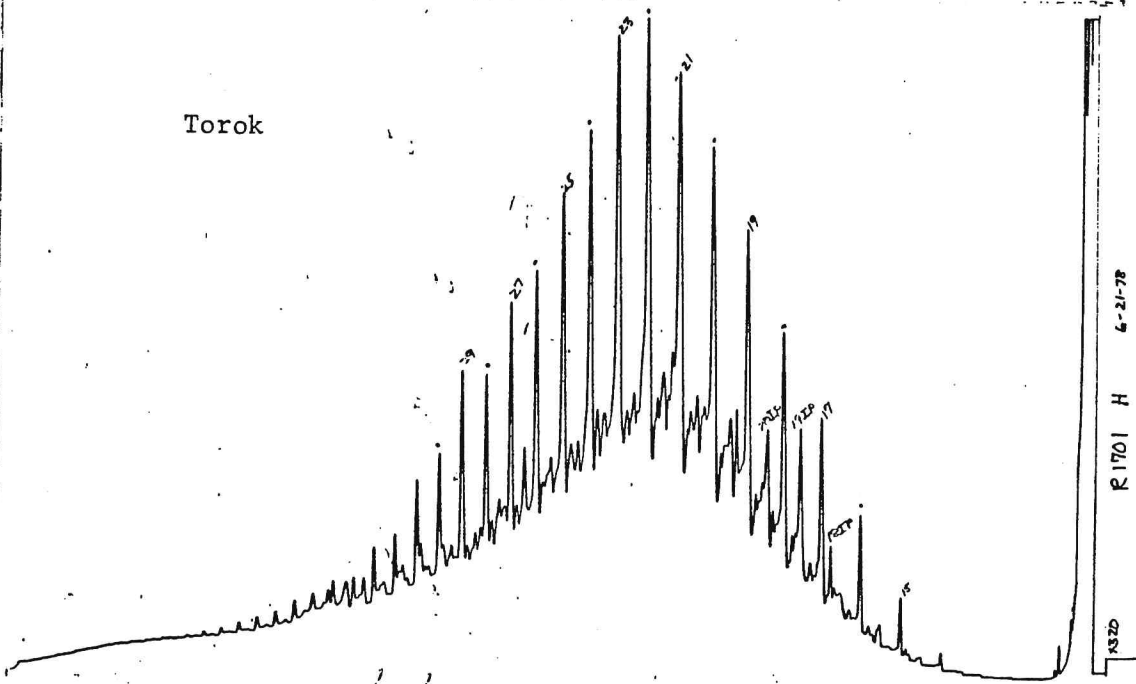
SATURATE FRACTION CHROMATOGRAMS
T.S. 785351CR
Figure 4j

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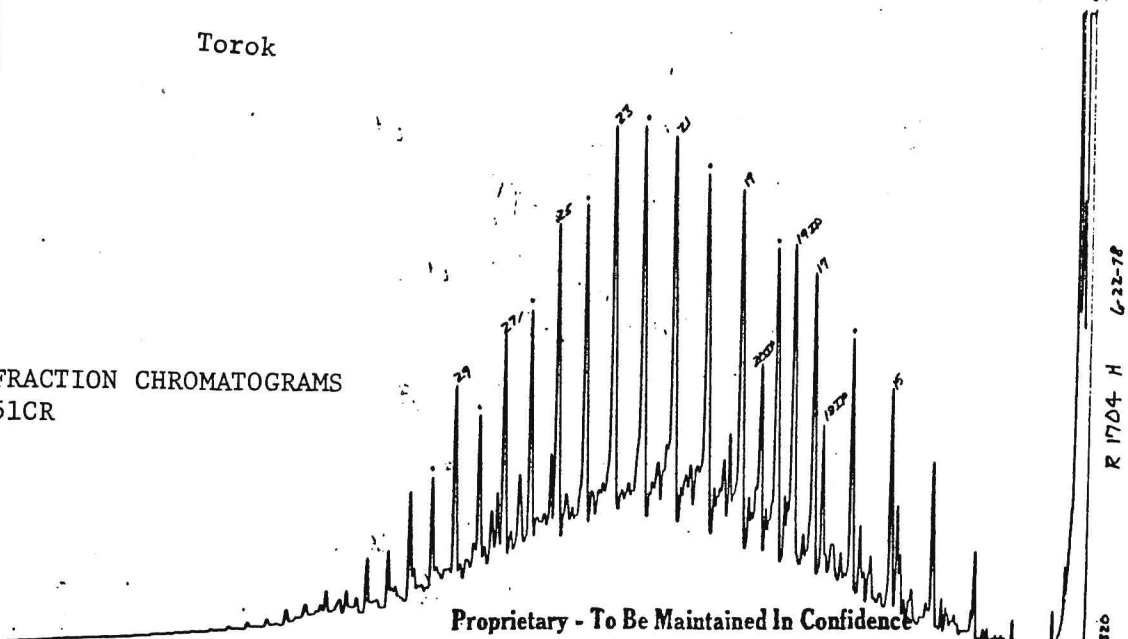
Kukpowruk



Torok

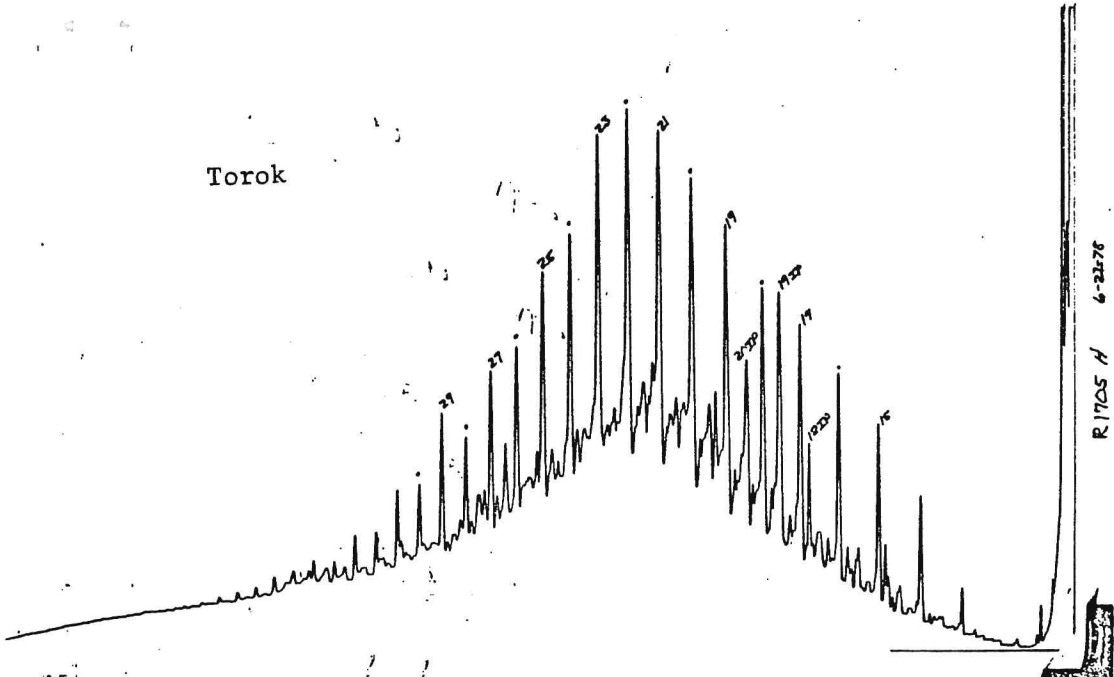


Torok

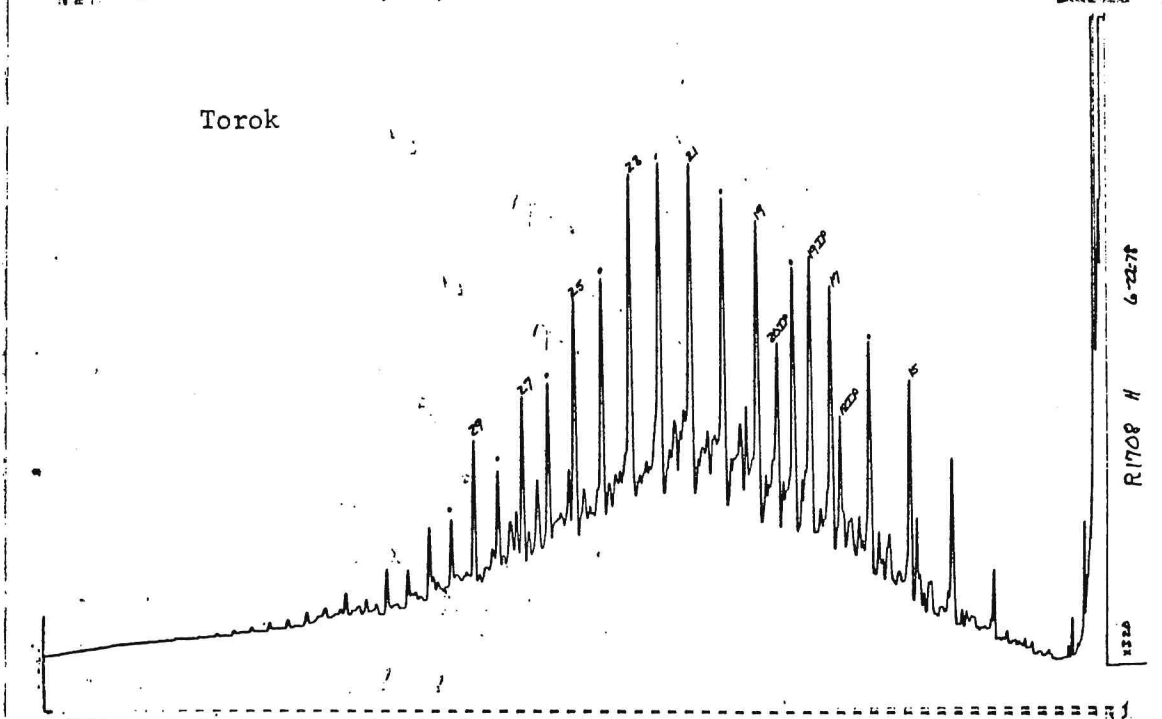


SATURATE FRACTION CHROMATOGRAMS
T.S. 785351CR
Figure 4k

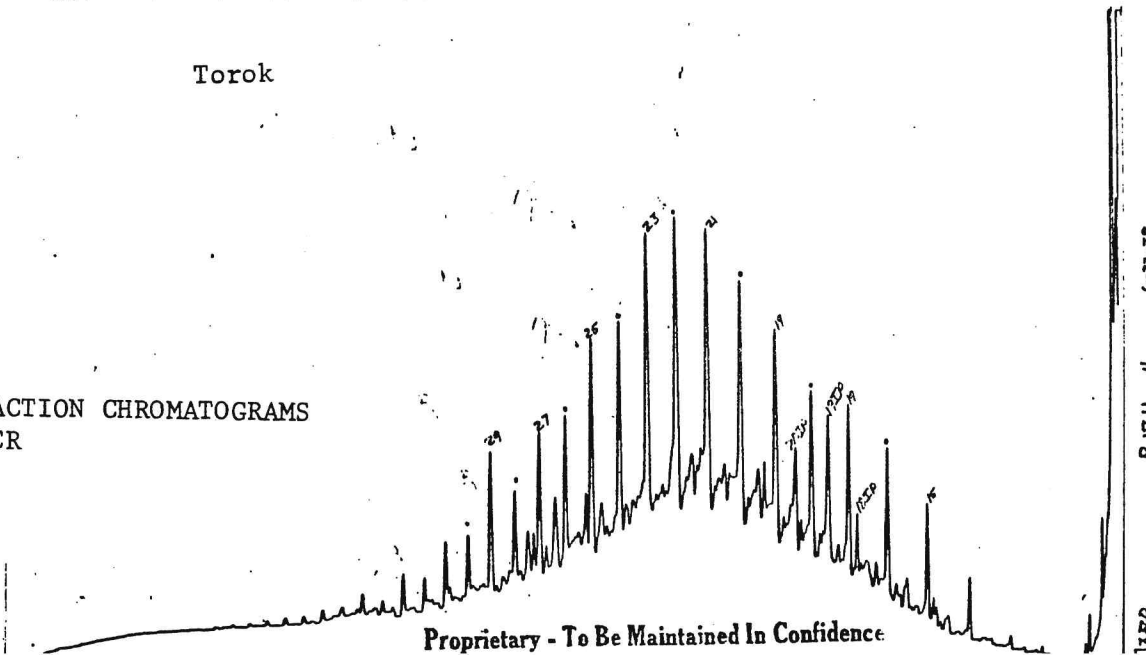
Torok



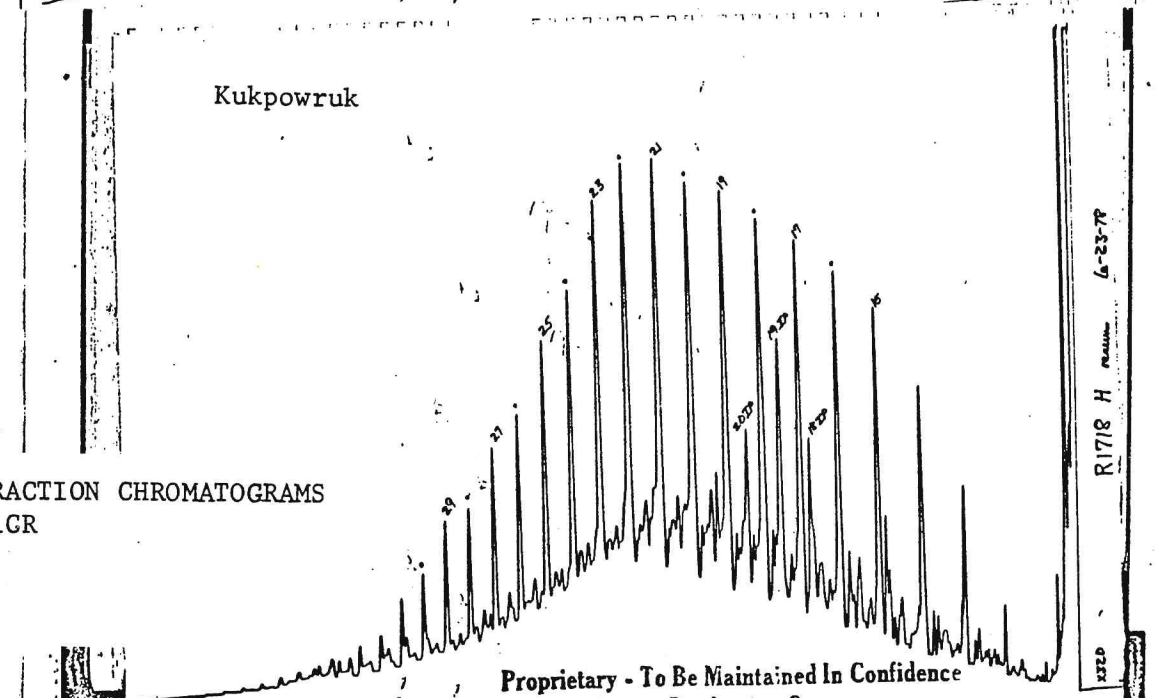
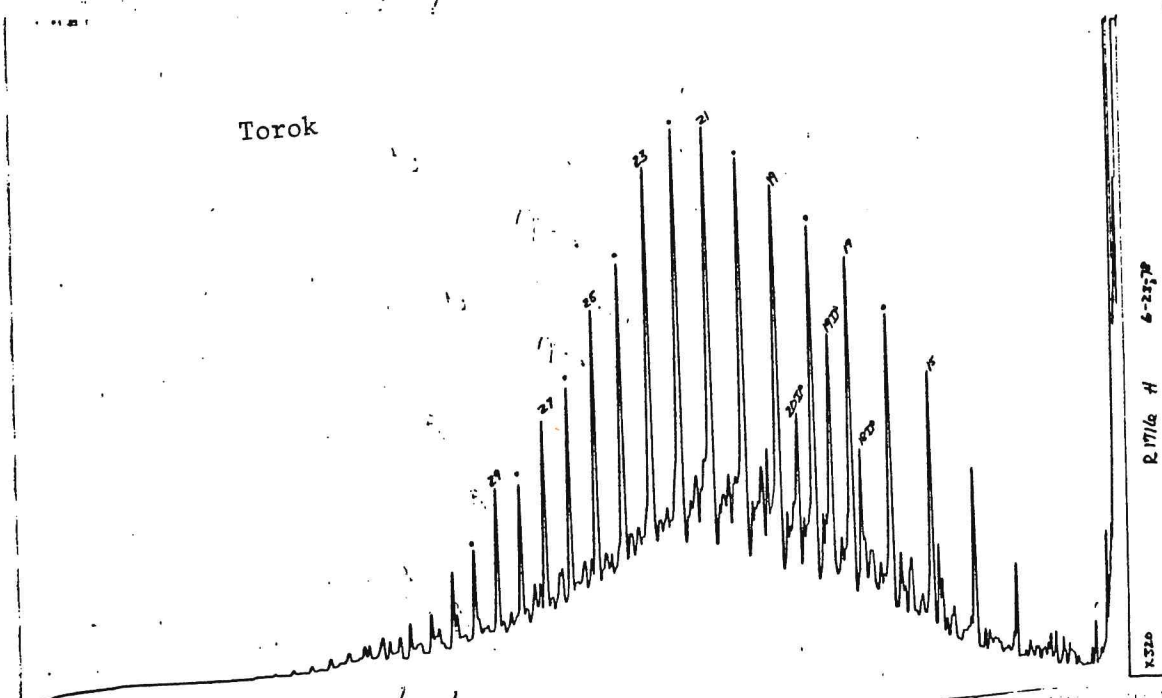
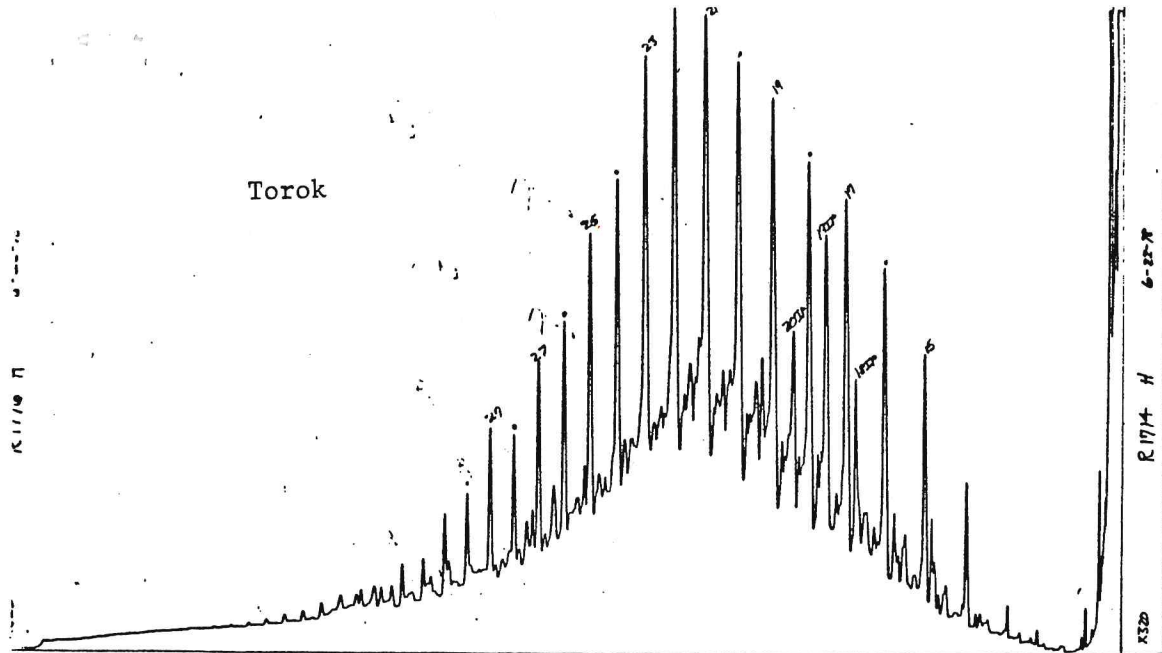
Torok



Torok

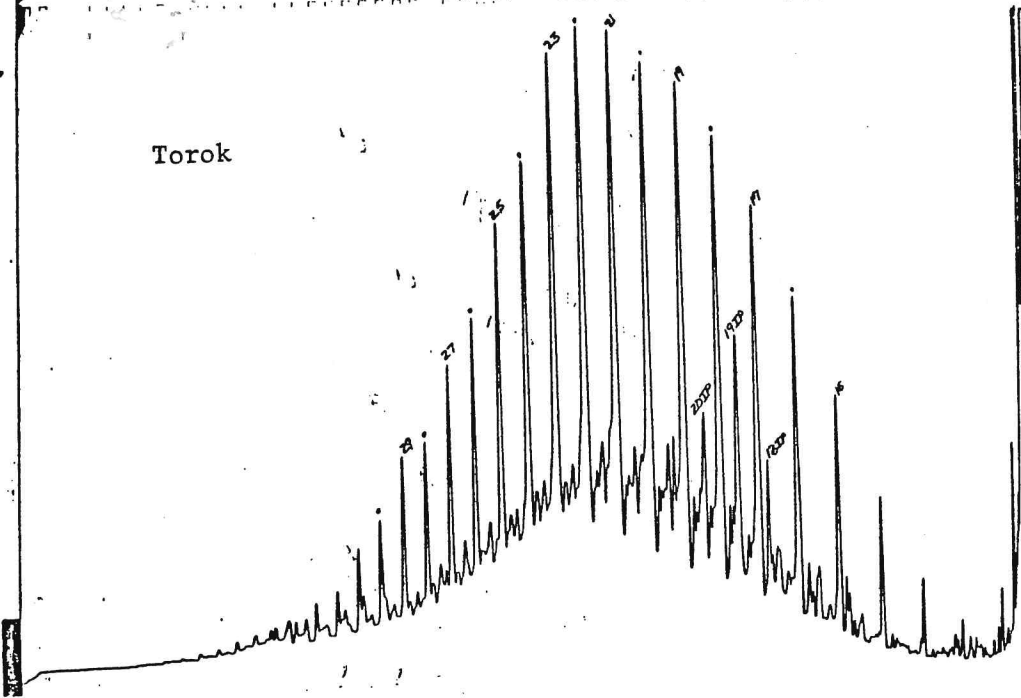


SATURATE FRACTION CHROMATOGRAMS
 T.S. 785351CR
 Figure 41



SATURATE FRACTION CHROMATOGRAMS
 T.S. 785351CR
 Figure 4m

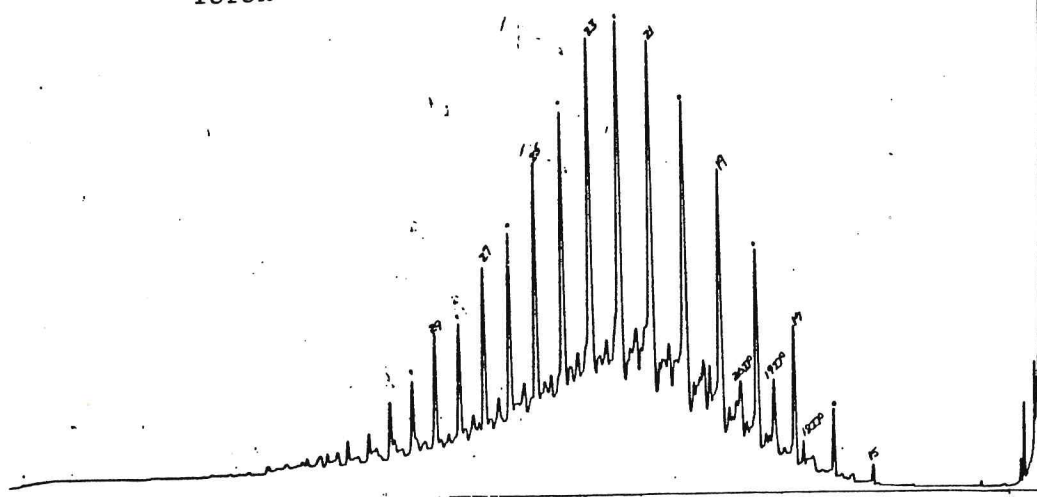
Torok



R 1723 H 6-23-78

X320

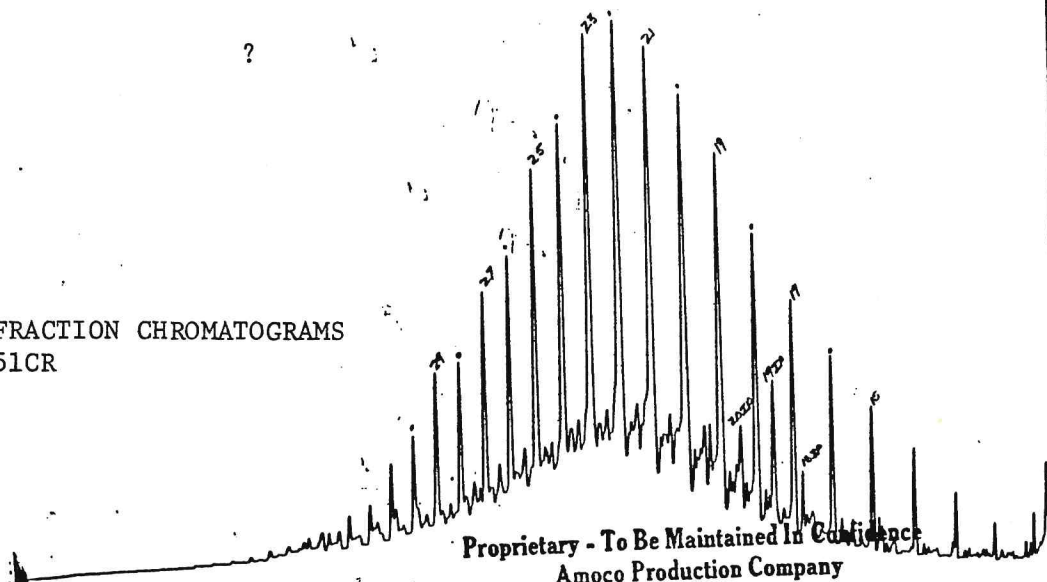
Torok



R 1727 H 6-23-78

X320

?



R 1728 H 6-23-78

X320

SATURATE FRACTION CHROMATOGRAMS
T.S. 785351CR
Figure 4n

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h
CF 800101

Amoco Production Company

Tulsa, Oklahoma
February 12, 1974

File: Technical Service No. 6336SR
Job No. 5819

Mr. P. H. Garrison
Denver Division

Attention P. L. Ferguson

Dear Sir:

Subject: Petrology of Lower Cretaceous Surface Samples from the
Corwin, Kukpauruk, and Fortress Mountain Formations in the
Point Lay Area, North Slope, Alaska

Attached is a memorandum by J. T. Robison on the petrology of samples
from the subject area. The purpose of this technical service was to
provide information on the provenance and reservoir potential for
these Cretaceous formations.

Based on previous examination of the Saddlerochit sands (Triassic),
Nerukpuk Itkilliyariak sands (^{Devonian?} Mississippian), and igneous rocks (Technical Service
No. 6150SR), the chert-rich Saddlerochit sand and the feldspar-quartz-
rich igneous rocks appear to be possible sources for the Lower Cretaceous
Corwin, Kukpauruk, and Fortress Mountain sandstones. The Itkilliyariak (*Nerukpuk*)
sand is mineralogically mature and does not appear to be a source of
the Lower Cretaceous sandstones.

These sandstones are characterized by poor to good porosity of inter-
granular and dissolution origin. Many of the sandstones are quite
tight. The better porosity is adequate for a reservoir.

Very truly yours,

JAMES A. MOMPER

By Edward D. Pittman
Edward D. Pittman

EDP:sd 16.17
Attachment

cc: E. E. Lafaye
E. R. Michaelis

*In eastern Brooks range
not present in Western
Brooks Range, this not
relevant in Pt. Lay!*
LF



Amoco Production Company

Tulsa, Oklahoma

February 11, 1974

File: TS 6336SR, Job 5819

MEMORANDUM

Subject: Petrology of Lower Cretaceous Surface Samples from the Corwin, Kukpauruk, and Fortress Mountain Formations in the Point Lay Area, North Slope, Alaska

We have completed analysis of 63 billets of Lower Cretaceous surface samples in the Point Lay Area, North Slope Alaska, as requested by P. H. Garrison/J. A. Momper.

Scanning electron micrographs (Figures 1 - 8) of selected samples, that illustrate the texture and pore size-shape are attached. Mineralogy was determined by x-ray diffraction for all samples and is reported in Table I. A brief description of thin sections of rocks impregnated with blue epoxy is reported in Table II.

The samples were submitted to help determine the potential of these sands as reservoirs and their provenance.

Results

Scanning electron micrographs (Figures 1 - 8) of selected outcrop samples illustrate the macroporosity ranges from sparse to good. Mineralogy, as determined by x-ray diffraction, is reported in Table I. Quartz is the dominant mineral, but feldspars are ubiquitous, ranging from 2 - 10%. Authigenic clays are present (3 - 14%) in all 63 samples. Kaolinite, chlorite, and illite are the most abundant. Mixed layer chlorite/montmorillonite (not recognized under SEM) is present in only two samples 869L and 870L.

Thin sections (Table II) show the sandstones range from very fine to coarse grained with varying amounts of carbonates and clays as cements. Chert is commonly present, ranging from minor to abundant. Intergranular and solution porosity ranges from sparse to good with varying amounts of clays, carbonates, secondary quartz, and pressure solution responsible for loss of porosity and permeability.

Summary

The surface samples are very fine to coarse grained quartzose sandstones containing chert and feldspar. Clay, calcite, dolomite, and quartz overgrowths are cementing agents. Poor to good porosity of intergranular and solution origin occur in many of the sandstones, but other sandstones are tight. The better porosity is adequate for a reservoir.

Based on previous examination of the Saddlerochit Sands (Triassic), ~~Neapuk~~ Itkillyariak Sands (Mississippian), and Igneous Rocks (TS 6150SR, 9-4-73), the chert-rich Saddlerochit Sand and the feldspar-quartz-rich igneous rocks appear to be possible sources for the Lower Cretaceous Corwin, Kukpauruk, and Fortress Mountain Sandstones. The Itkillyariak Sand is mineralogically mature and does not appear to be a source of the Lower Cretaceous Sandstones.


J. T. Robison

JTR:el
388 244

Attachments

LOCALITY POINT LAY AREA, NORTH SLOPE ALASKA

FORMATION CORWIN, KUKPOWRUK, AND FORTRESS MTN. AGE L. CRETACEOUS

T. S. NO. 6336 SR

SAMPLE IDENTIFICATION NUMBER	QUARTZ	FELDSPAR	CALCITE	DOLOMITE	SIDERITE	ANHYDRITE	GYPSUM	PYRITE	BARITE	KAOLINITE	ILLITE	CHLORITE	MONTMORILLONITE	MIXED LAYER ILLITE/MONT.	MIXED LAYER CHLORITE/MONT.	TOTAL
RRR 869 L	69	5	12									10			4	
" 870 L	61	5	30									2			2	
" 905 L	93	2								4	1	TR.				
" 927 L	87	5	1	1							3	3				
" 956 L	39	8	40								3	10				
" 966 L	82	4	1	3	2					6	2	TR.				
" 970 L	82	4		4						8	2	TR.				
" 972 L	78	4		4	2					10	2	TR.				
" 974 L	78	4		4	2					10	2	TR.				
" 977 L	80	3	2	6						4	2	3				
" 978 L	74	3	4	15						2	1	1				
" 981 L	89	3	3	2							1	2				
" 982 L	86	3	5	2				TR.		TR.	1	3				
" 983 L	89	2	2	2							2	3				
" 984 L	90	2	4	1							1	2				

14

4

3

TABLE II
 BRIEF THIN SECTION DESCRIPTIONS
 CRETACEOUS SANDSTONES, POINT LAY AREA
 NORTH SLOPE, ALASKA

RRR-869 Coarse-grained limy sandstone, subrounded, poorly sorted, abundant chert, feldspars, no intergranular porosity, loss of porosity due to abundant calcite cement.

RRR-870 Same as above.

Corwin

RRR-905 Coarse-grained salt and pepper sandstone, moderately sorted, subrounded, abundant chert, good intergranular porosity.

observed on surface

RRR-927 Medium-grained sandstone, moderately sorted, subangular, chert, no intergranular porosity, loss of porosity due to secondary quartz, pressure solution, and argillaceous material.

RRR-956 Sandy limestone, fine to coarse sand grains, rock fragments, no visible porosity.

Corwin

RRR-966 Fine to medium-grained argillaceous sandstone, moderately sorted, subangular, chert, carbonate grains, some solution and intergranular porosity.

observed on surface

Corwin

RRR-970 Medium-grained argillaceous sandstone, moderately sorted, subangular, abundant chert, dolomite rhombs, good intergranular porosity. *11.3% Enlows*

not recorded as observed porosity.

RRR-972 Fine-grained argillaceous sandstone, moderately sorted, subangular, abundant chert, carbonate rhombs, no visible porosity, loss of porosity primarily due to argillaceous material.

RRR-974 Same as above.

RRR-977 Fine-grained argillaceous sandstone, moderately sorted, subangular, with abundant carbonate grains and chert, mica, poor intergranular porosity, due primarily to argillaceous material. *3.8% Enlows.*

observed on surf.

*Corwin
Kahporuk?*

RRR-978 Fine-grained dolomitic sandstone, moderately sorted, angular, chert, mica, no intergranular porosity, some fracture porosity, loss of porosity due to carbonate cement. *4.5% Enlows.*

non-porous on surface

- RRR-981 Medium-grained sandstone, moderately sorted, subangular, abundant salt and pepper sands, chert, no visible porosity, loss of porosity due to pressure solution, secondary quartz, and carbonate cement.
- RRR-982 Medium-grained sandstone, moderately sorted, subangular, abundant salt and pepper sands, chert, mica, poor intergranular porosity and solution porosity, loss of porosity due to pressure solution, secondary quartz, and carbonate cement. 0% Enlows.
- RRR-983 Coarse-grained sandstone, moderately sorted, subangular, abundant salt and pepper sands, chert, mica, no visible porosity, loss of porosity due to pressure solution, secondary quartz, and carbonate cement.
- RRR-984 Same as above.
- RRR-991 Medium-grained sandstone, moderately sorted subangular, abundant salt and pepper sands, chert, fair intergranular and solution porosity, some loss of porosity due to pressure solution and secondary quartz. 3.4% Enlows.
- RRR-992 Fine-grained argillaceous sandstone, moderately sorted, subangular, abundant carbonate cement, chert, mica, sparse intergranular porosity, loss of porosity due to argillaceous material and carbonate cement.
- RRR-993 Fine-grained dolomitic sandstone, moderately sorted, subangular, no visible porosity, loss of porosity due to carbonate cement.
- RRR-995 Fine-grained argillaceous sandstone, moderately sorted, subangular, abundant carbonate cement, chert, mica, fracture porosity lined with organic material, loss of porosity due to carbonate cement and argillaceous material.
- RRR-999 Medium-grained sandstone, moderately sorted, subangular abundant salt and pepper sands, chert, mica, poor intergranular porosity due to carbonate cement and argillaceous material. 3.3% Enlows.
- RRR-1000 Medium-grained dolomitic sandstone, moderately sorted, subangular, chert, mica, no visible porosity due to dolomite cement.
- RRR-1002 Same as above.
- RRR-1018 Same as above.
- RRR-1022 Medium-grained argillaceous sandstone, moderately sorted, subangular, abundant salt and pepper sands, chert, fair intergranular porosity. 2.9% Enlows.

Corwin

observed on surface

observed on surf.

Corwin

observed on surface

Hubbards

Poor porosity on surface

- RRR-1023 Same as above.
- RRR-1033 Medium-grained argillaceous sandstone, moderately sorted, subangular, abundant salt and pepper sands, chert, loss of porosity due to argillaceous material and dolomite cement.
- RRR-1038 Fine-grained argillaceous sandstone, moderately sorted, subangular, abundant chert and salt and pepper sands, loss of porosity due to argillaceous material.
- RRR-1040 Same as above.
- RRR-1045 Same as above.
- RRR-1049 Medium-grained argillaceous sandstone, moderately sorted, subangular, abundant chert, poor intergranular porosity, loss of porosity due to argillaceous material and calcite cement. *2.5% Enlow's.* *not observed on surface*
- RRR-1054 Medium-grained sandstone, moderately sorted, subangular, abundant chert, organic material filling fracture, good intergranular porosity. *8.1% Enlow's.* *Poor - few per observed on surf.*
- RRR-1055 Medium-grained sandstone, moderately sorted, subangular, abundant chert, good intergranular porosity. "
- RR-1056 Medium-grained limy sandstone, moderately sorted, subangular, chert, no intergranular porosity, loss of porosity due to calcite cement.
- RR-1059 Medium-grained argillaceous sandstone, moderately sorted, angular, abundant chert, mica, low porosity due to argillaceous material and carbonate cement.
- RRR-1062 Fine-grained argillaceous sandstone, moderately sorted, subangular, abundant chert, low porosity due to argillaceous material, carbonate cement.
- RRR-1066 Same as above.
- RRR-1070 Medium-grained sandstone, moderately sorted, subangular, abundant chert, mica, plagioclase feldspars, low porosity due to argillaceous material and carbonate cement.
- RRR-1073 Fine-grained sandstone, moderately sorted, subangular, chert, low porosity due to abundant carbonate cement.
- RRR-1076 Medium-grained calcites and dolomitic sandstone, moderately sorted subangular, chert, mica, low porosity due to abundant carbonate cement.

*Kupferwurz
Carbon?*

*Kupferwurz
Carbon?*

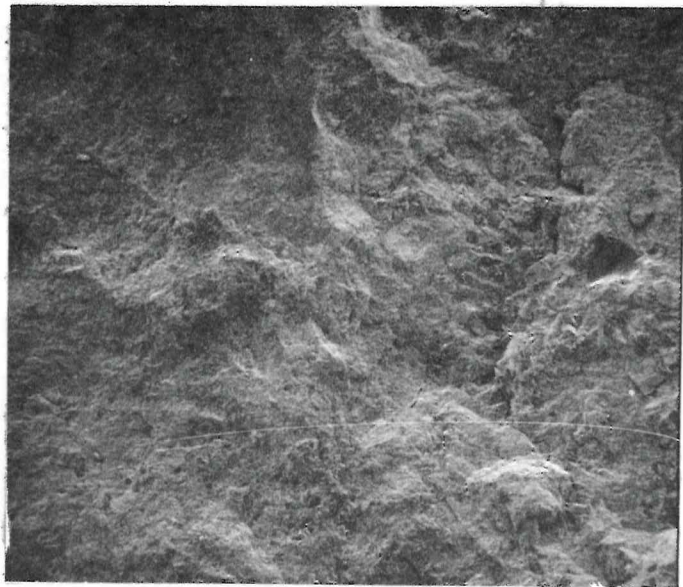
*Kupferwurz
Carbon?*

- ✓
- RRR-1077 Coarse-grained sandstone, moderately sorted, subangular, abundant salt and pepper sands, chert, mica, low porosity due to pressure solution, secondary quartz, and to a lesser extent carbonate cement.
- RRR-1095 Fine-grained dolomitic and calcitic sandstone, subangular, moderately sorted, chert, mica, fractures filled with black organic material, low intergranular porosity due to carbonate cement.
- RRR-1096 Very fine to fine-grained dolomitic sandstone, moderately sorted subangular, chert, mica, low porosity due to carbonate cement.
- RRR-1101 Fine-grained calcitic and dolomitic sandstone, moderately sorted, subangular, chert, mica, low porosity due to carbonate cement.
- RRR-1104 Fine-grained sandstone, moderately sorted, subangular, chert, mica, low porosity due to argillaceous material and carbonate cement.
- RRR-1111 Fine to coarse-grained argillaceous and dolomitic sandstone, moderately sorted, subangular, abundant chert, mica, low porosity due to argillaceous material and carbonate cement.
- RRR-1112 Medium-grained sandstone, moderately sorted, subangular, abundant chert, mica, low porosity due to carbonate cement.
- RRR-1115 Medium-grained calcitic and dolomitic sandstone, moderately sorted, subangular, abundant chert, mica, low porosity due to carbonate cement.
- ✓ RRR-1116 Same as above.
- ✓ RRR-1117 Medium-grained calcitic sandstone, moderately sorted, subangular, chert, mica, low porosity due to abundant carbonate cement.
- ✓ RRR-1132 Medium-grained dolomitic sandstone, moderately sorted, subangular, abundant chert, low porosity due to abundant dolomite cement.
- ✓ RRR-1135 Fine-grained argillaceous and dolomitic sandstone, moderately sorted subangular, abundant chert, mica, low porosity due to argillaceous material and carbonate cement.
- ✓ RRR-1140 Same as above.
- RRR-1144 Medium-grained argillaceous sandstone, moderately sorted, subangular, abundant chert, mica, low porosity due to argillaceous material, pressure solution, and secondary quartz.

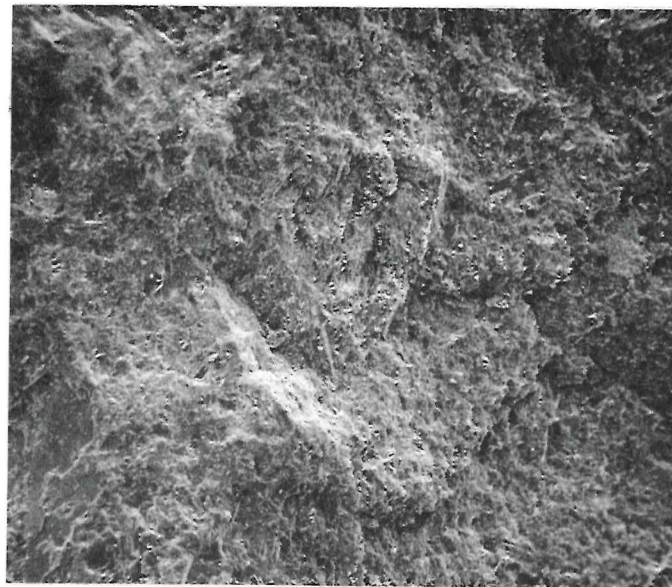
- RRR-1145 Medium-grained argillaceous sandstone, moderately sorted subangular, abundant chert, low porosity due to argillaceous material, carbonate cement, and pressure solution.
- RRR-1146 Same as above.
- RRR-1158 Fine-grained calcitic and dolomitic sandstone, moderately sorted, subangular, chert, mica, loss of porosity due to carbonate cement, and to a lesser extent argillaceous material.
- RRR-1159 Same as above.
- RRR-1161 Medium-grained dolomitic sandstone, moderately sorted, subangular, chert, mica, low porosity due to abundant carbonate cement and to a lesser extent argillaceous material.
- RRR-1164 Medium-grained calcitic sandstone, moderately sorted, subangular, abundant chert, low porosity due to carbonate cement.
- RRR-1167 Same as above.
- Uppermost* RRR-1168 Coarse-grained argillaceous sandstone, moderately sorted, subangular, abundant salt and pepper sands, rock fragments, fair intergranular porosity. 4.8% Enlows. *Observed on surface*
- Common* RRR-1171 Medium-grained dolomitic sandstone, moderately sorted, subangular, chert, loss of porosity due to dolomite cement and to a lesser extent argillaceous material.
- Common* RR-1173 Medium-grained sandstone, moderately sorted, subangular, abundant chert, good intergranular porosity. 8.2% Enlows. *Open fair por. observed on hwy.*

POINT LAY AREA, NORTH SLOPE, ALASKA

RRR 869
Fortress Mtn
T105-R3W



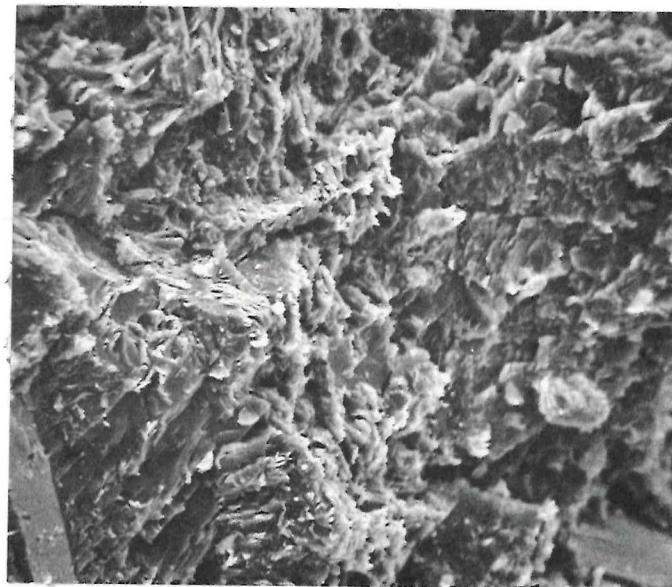
A. 50X
TEXTURE AND PORE SIZE 200μ



B. 200X
SPARSE MACROPOROSITY 50μ



C. 1000X
DETRITAL CLAYS FILLING PORE SPACE 10μ



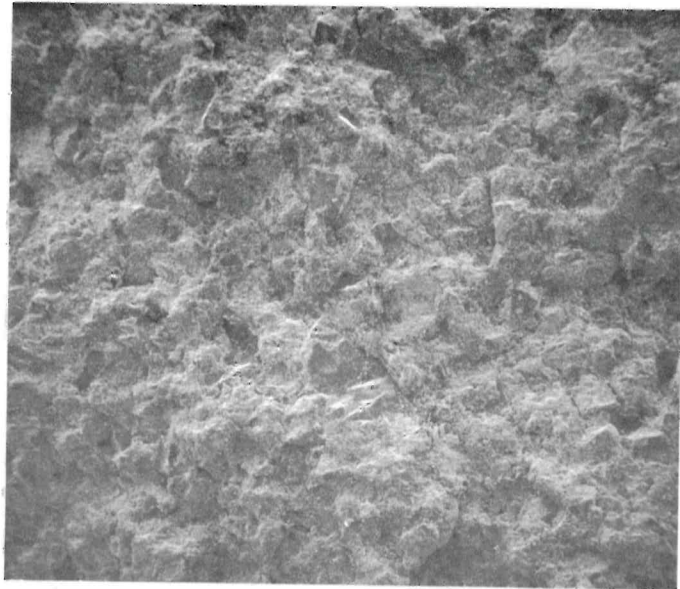
D. 2000X
DETRITAL CLAYS ENCLOSING MICROPOROSITY 5μ

POINT LAY AREA, NORTH SLOPE, ALASKA

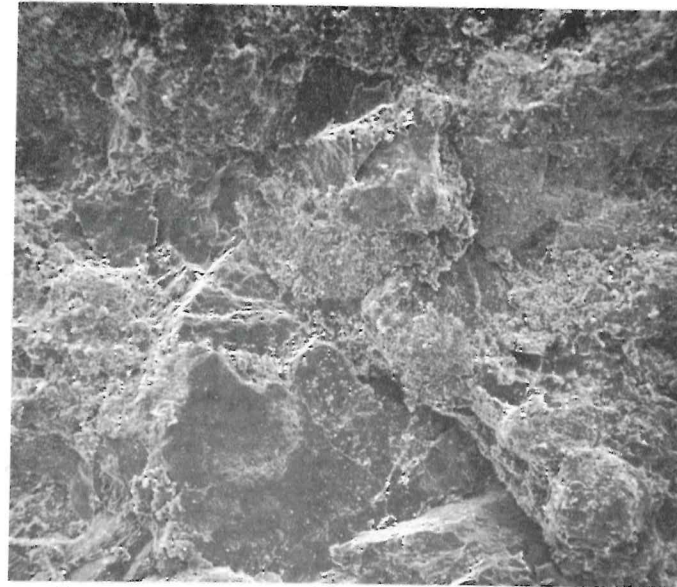
RRR 972

Corwin

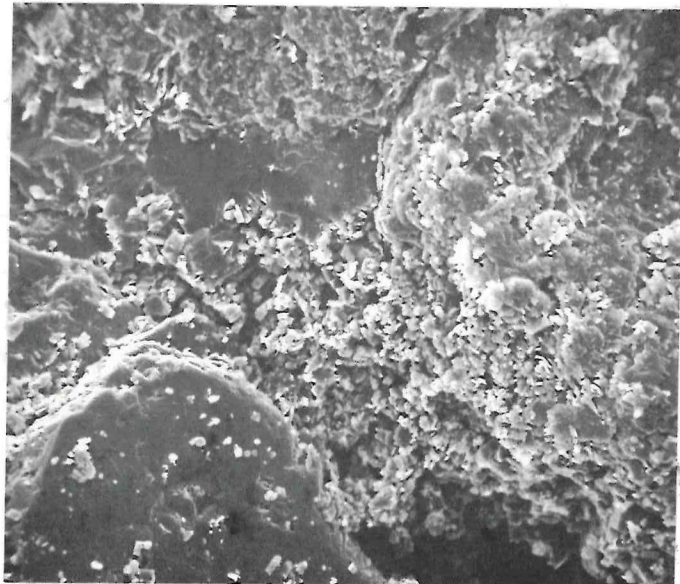
T65-R 56W



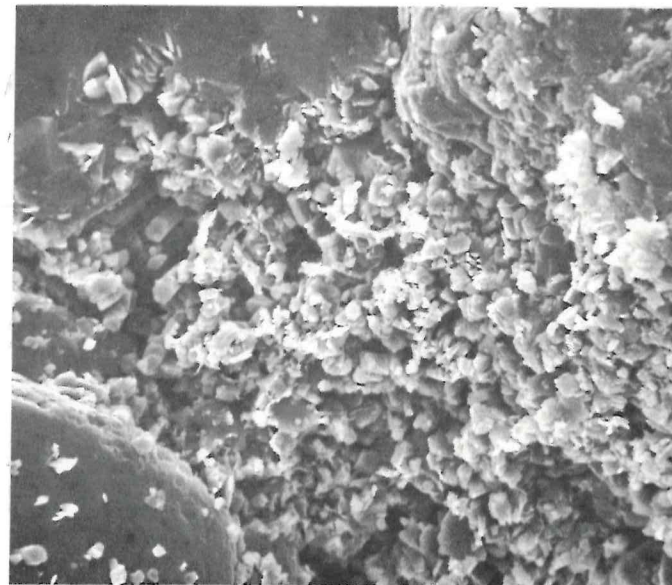
A. 50X
TEXTURE AND PORE SIZE 200μ



B. 200X
POOR MACROPOROSITY 50μ



C. 1000X
CLAYS FILLING PORE SPACE 10μ



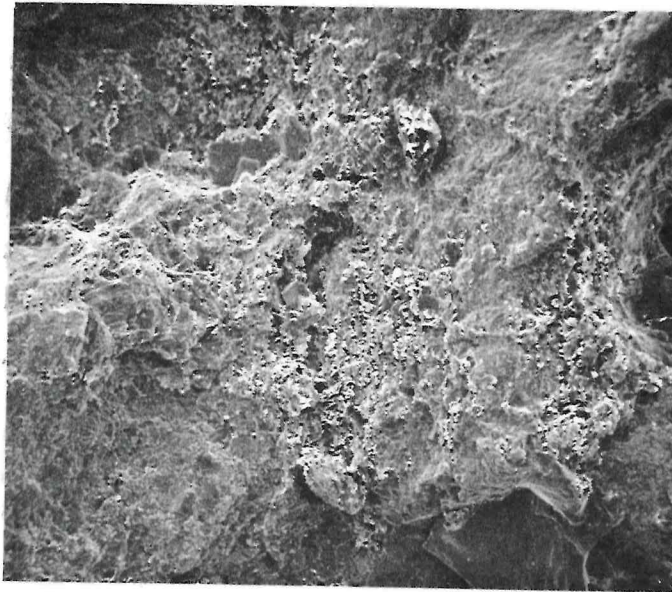
D. 2000X
CLAYS ENCLOSING MICROPOROSITY 5μ

POINT LAY AREA, NORTH SLOPE, ALASKA
RRR 992

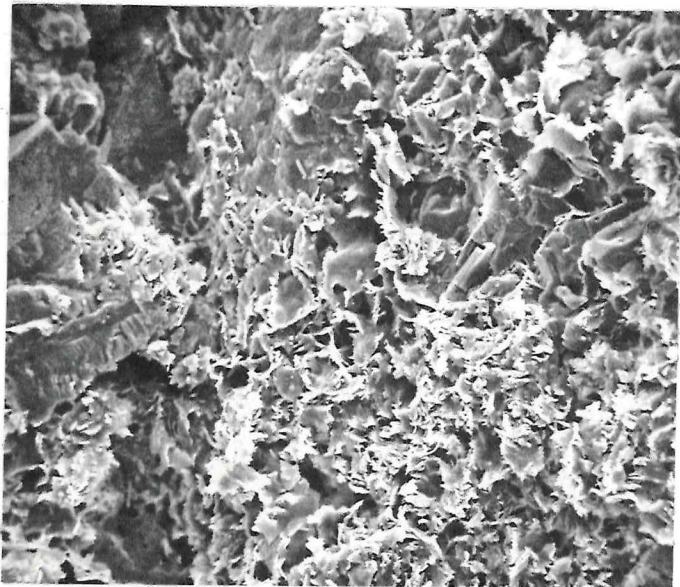
Corwin
T7S-R47W



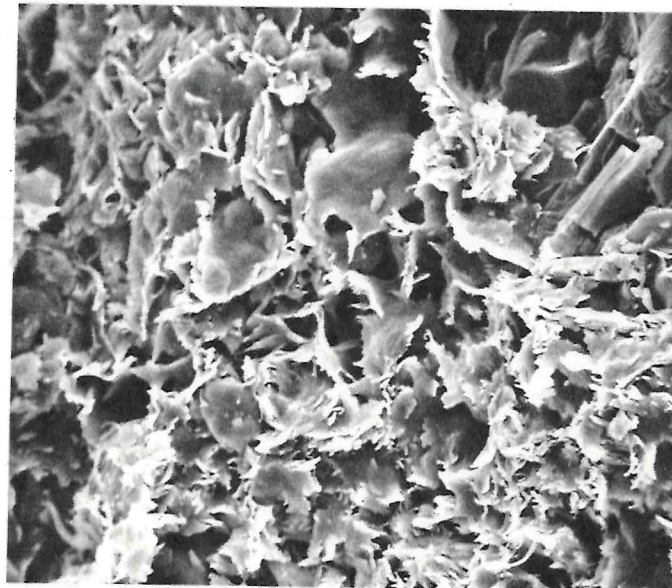
A. 50X
TEXTURE AND PORE SIZE 200μ



B. 200X
POOR MACROPOROSITY 50μ



C. 1000X
AUTHIGENIC ILLITE PLATELETS
FILLING PORE SPACE
TS NO. 6336 SR



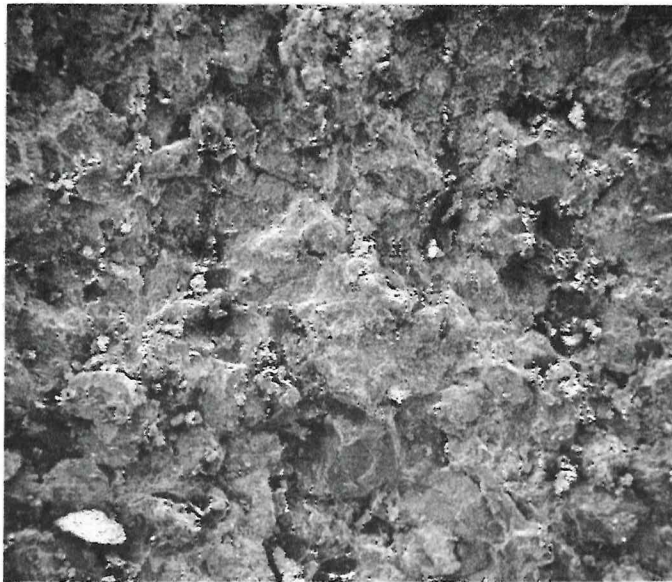
D. 2000X
AUTHIGENIC ILLITE PLATELETS
ENCLOSING MICROPOROSITY 5μ

DATE 1-17-74

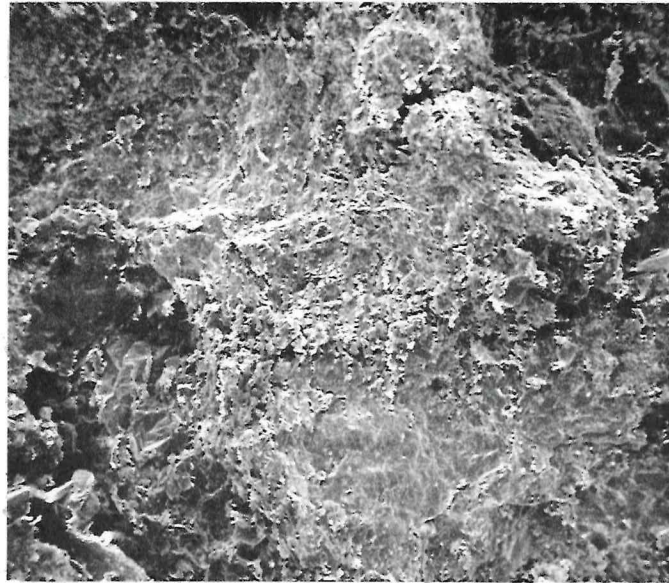
FIGURE 3

POINT LAY AREA, NORTH SLOPE, ALASKA
RRR 1023

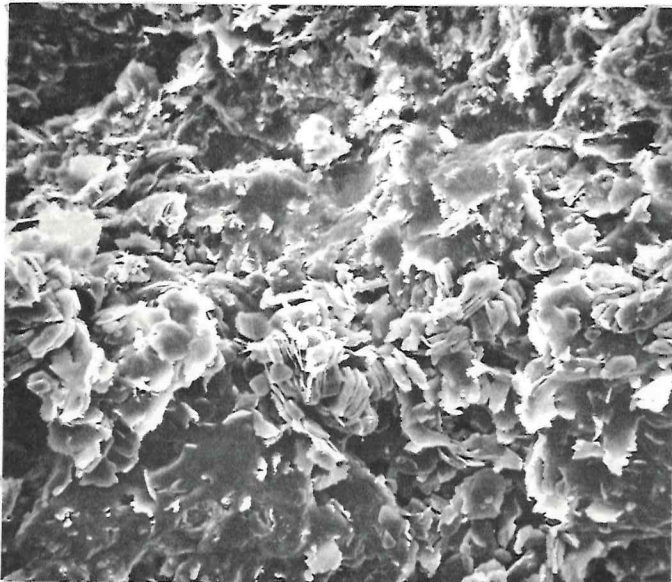
*Kukpowruk
T2S-R45W*



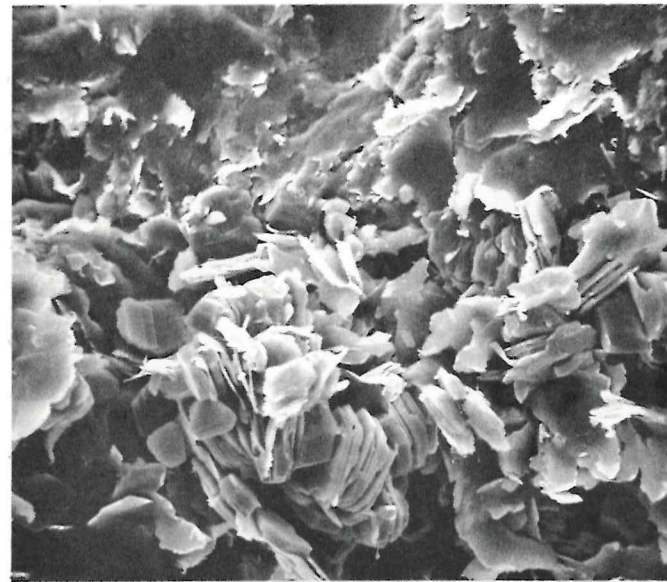
A. 50X
TEXTURE AND PORE SIZE 200μ



B. 200X
POOR MACROPOROSITY 50μ



C. 1000X
AUTHIGENIC CLAYS FILLING PORE
SPACE 10μ
TS NO. 6336 SR



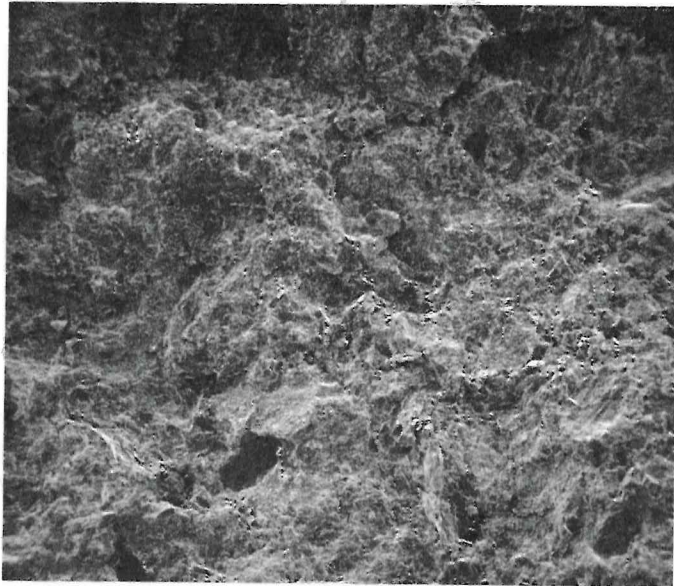
D. 2000X
KAOLINITE AND ILLITE PLATELETS
ENCLOSING MICROPOROSITY 5μ

DATE 1-17-74

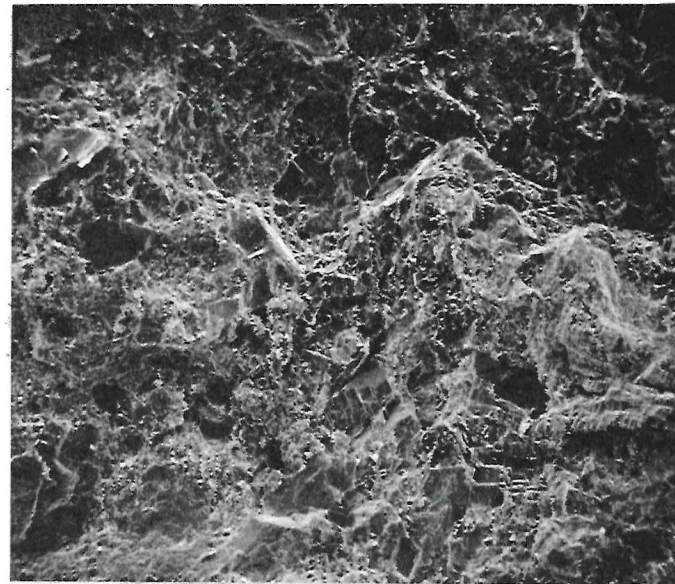
FIGURE 4

POINT LAY AREA, NORTH SLOPE, ALASKA
RRR 1132

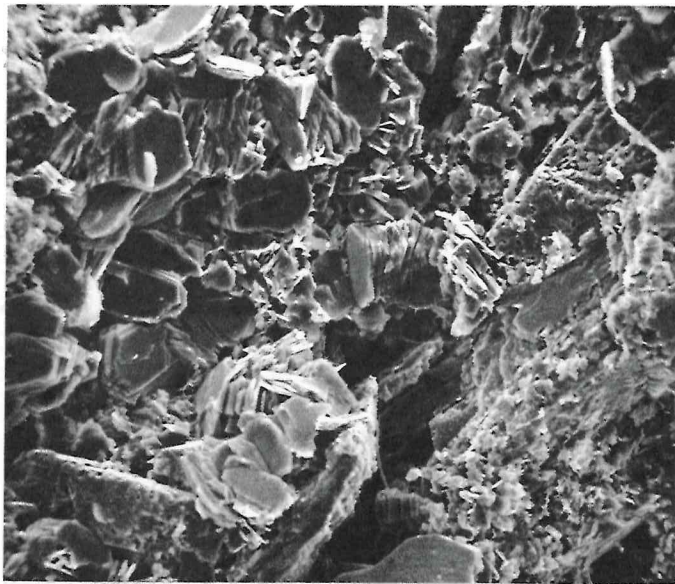
Corwin
T45-R36W



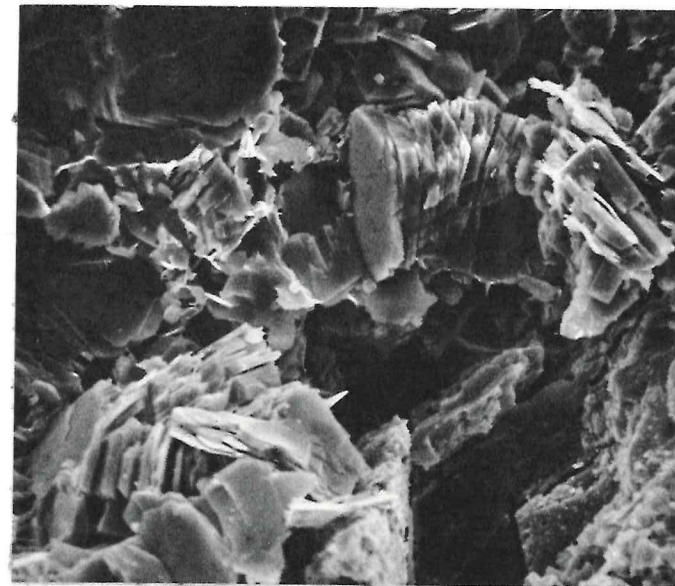
A. 50X
TEXTURE AND PORE SIZE 200 μ



B. 200X
POOR MACROPOROSITY 50 μ



C. 1000X
AUTHIGENIC KAOLINITE PLATELETS
FILLING PORE SPACE 10 μ
TS NO. 6336 SR



D. 2000X
AUTHIGENIC KAOLINITE PLATELETS
ENCLOSING MICROPOROSITY 5 μ

DATE 1-17-74

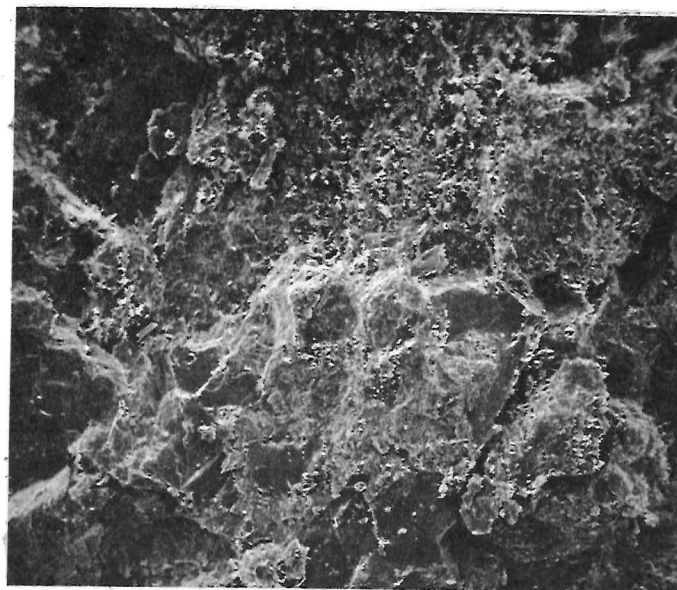
FIGURE 6

POINT LAY AREA, NORTH SLOPE, ALASKA
RRR 1146

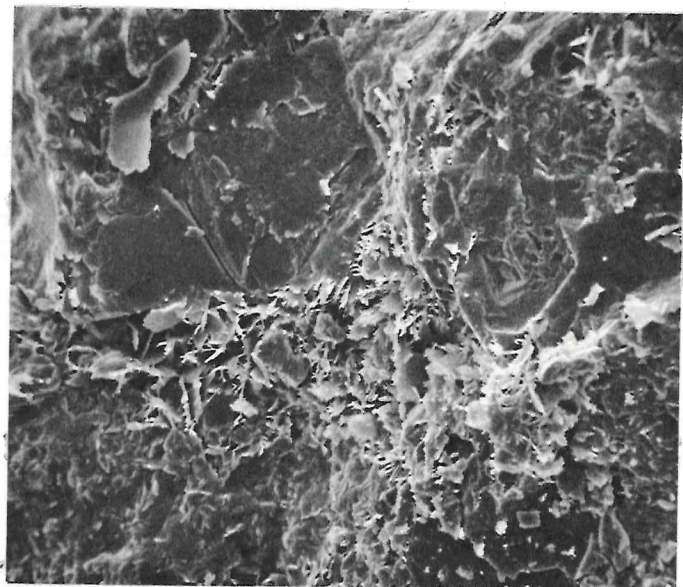
*Kukpowruk
T45-R37W*



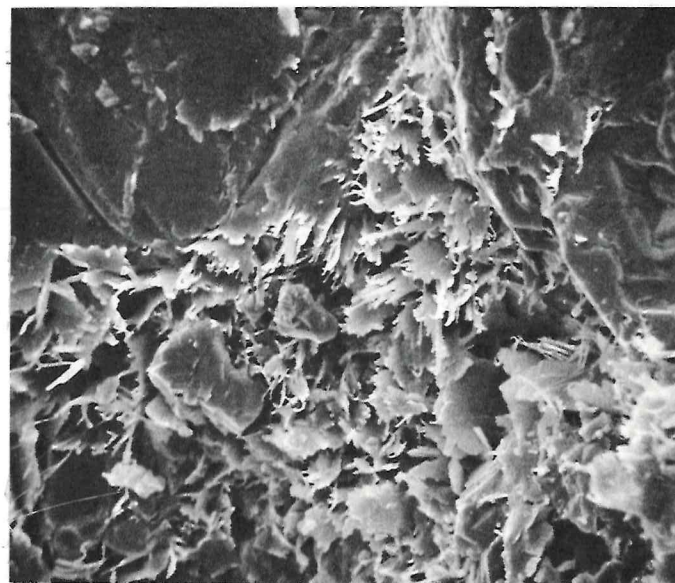
A. 50X
TEXTURE AND PORE SIZE 200μ



B. 200X
POOR MACROPOROSITY 50μ



C. 1000X
AUTHIGENIC ILLITE FILLING
PORE SPACE 10μ
TS NO. 6336 SR



D. 2000X
AUTHIGENIC ILLITE ENCLOSING
MICROPOROSITY 5μ

DATE 1-17-74

FIGURE 7

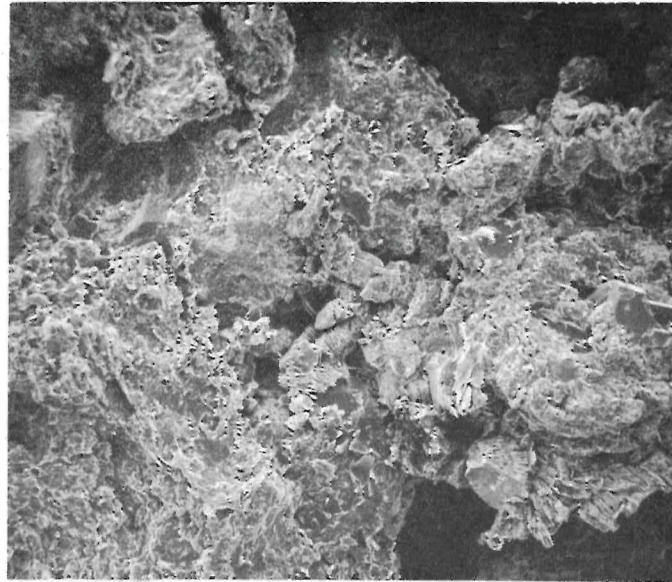
POINT LAY AREA, NORTH SLOPE, ALASKA
RRR 1173



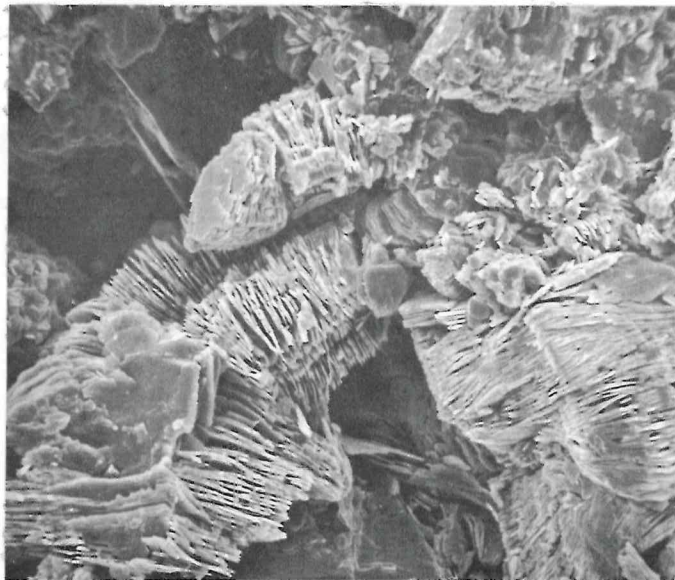
A. 50X 200μ
TEXTURE AND PORE SIZE

Corwin
T2V-R44W
89% Quartz
3% Feldspar
1% Dolomite
4% Kaolinite
2% Illite
1% Chlorite

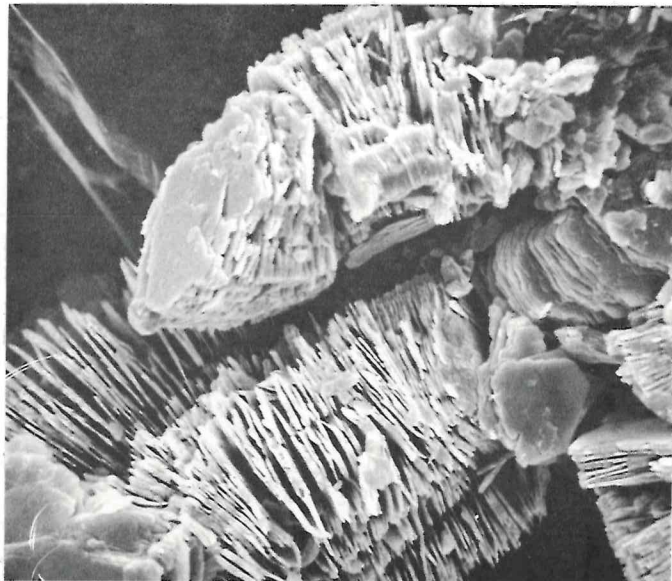
100%



B. 200X 50μ
GOOD MACROPOROSITY.



C. 1000X 10μ
KAOLINITE BOOKLETS FILLING
PORE SPACE
TS NO. 6336 SR



D. 2000X 5μ
KAOLINITE BOOKLETS ENCLOSING
MICROPOROSITY

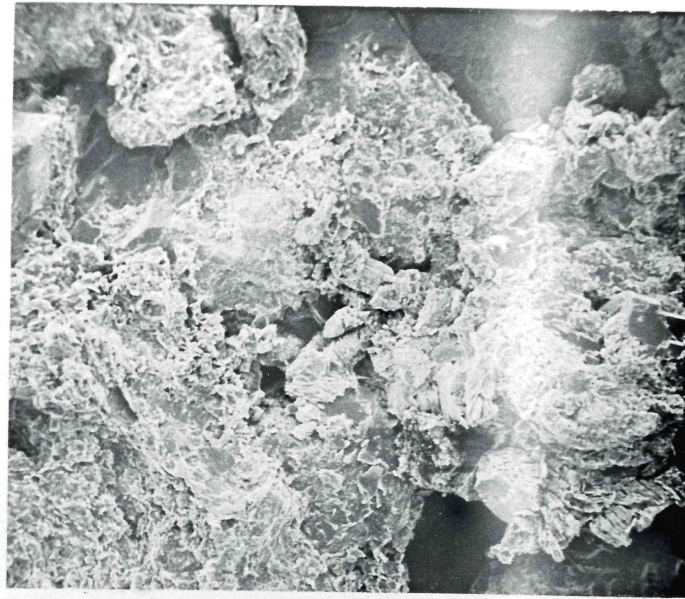
DATE 1-17-74

FIGURE 8

POINT LAY AREA, NORTH SLOPE, ALASKA
RRR 1173

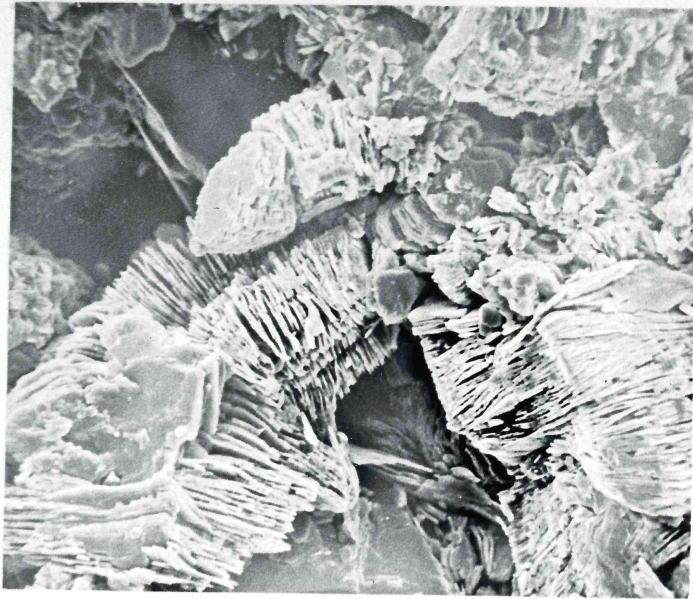


A. 50X
TEXTURE AND PORE SIZE 200µ

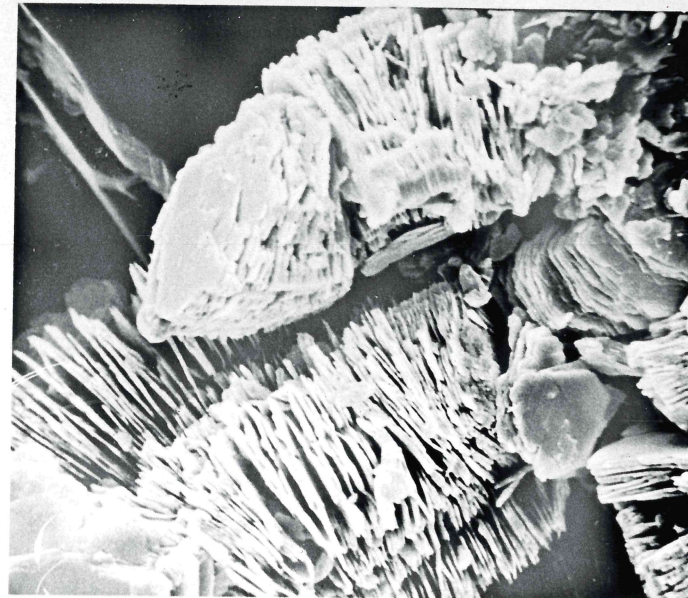


B. 200X
GOOD MACROPOROSITY 50µ

W. K. ...
...
...
...
...
...



C. 1000X
KAOLINITE BOOKLETS FILLING
PORE SPACE 10µ
TS NO. 6.336 SR

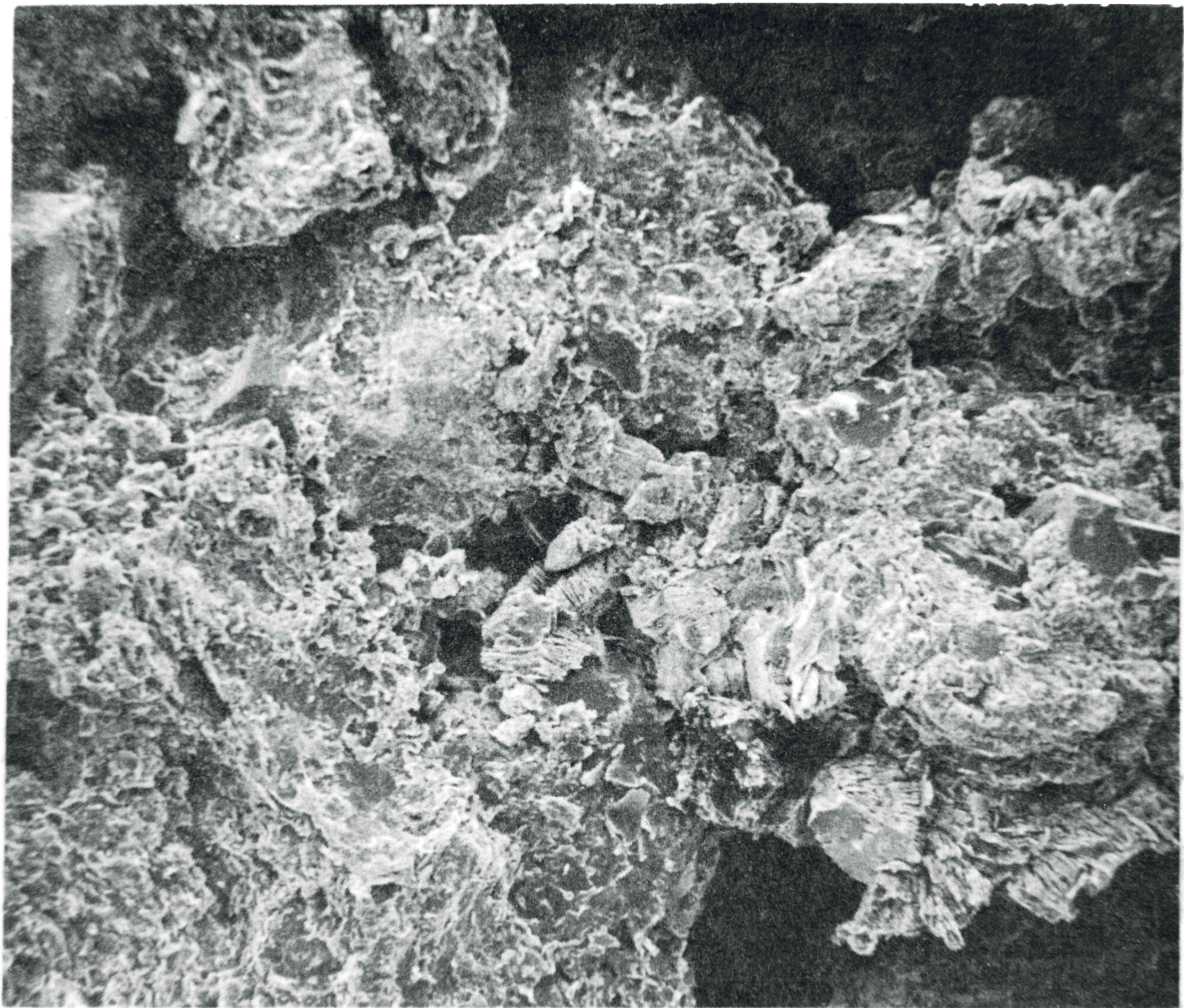


D. 2000X
KAOLINITE BOOKLETS ENCLOSING
MICROPOROSITY 5µ

DATE 1-17-74

FIGURE 8

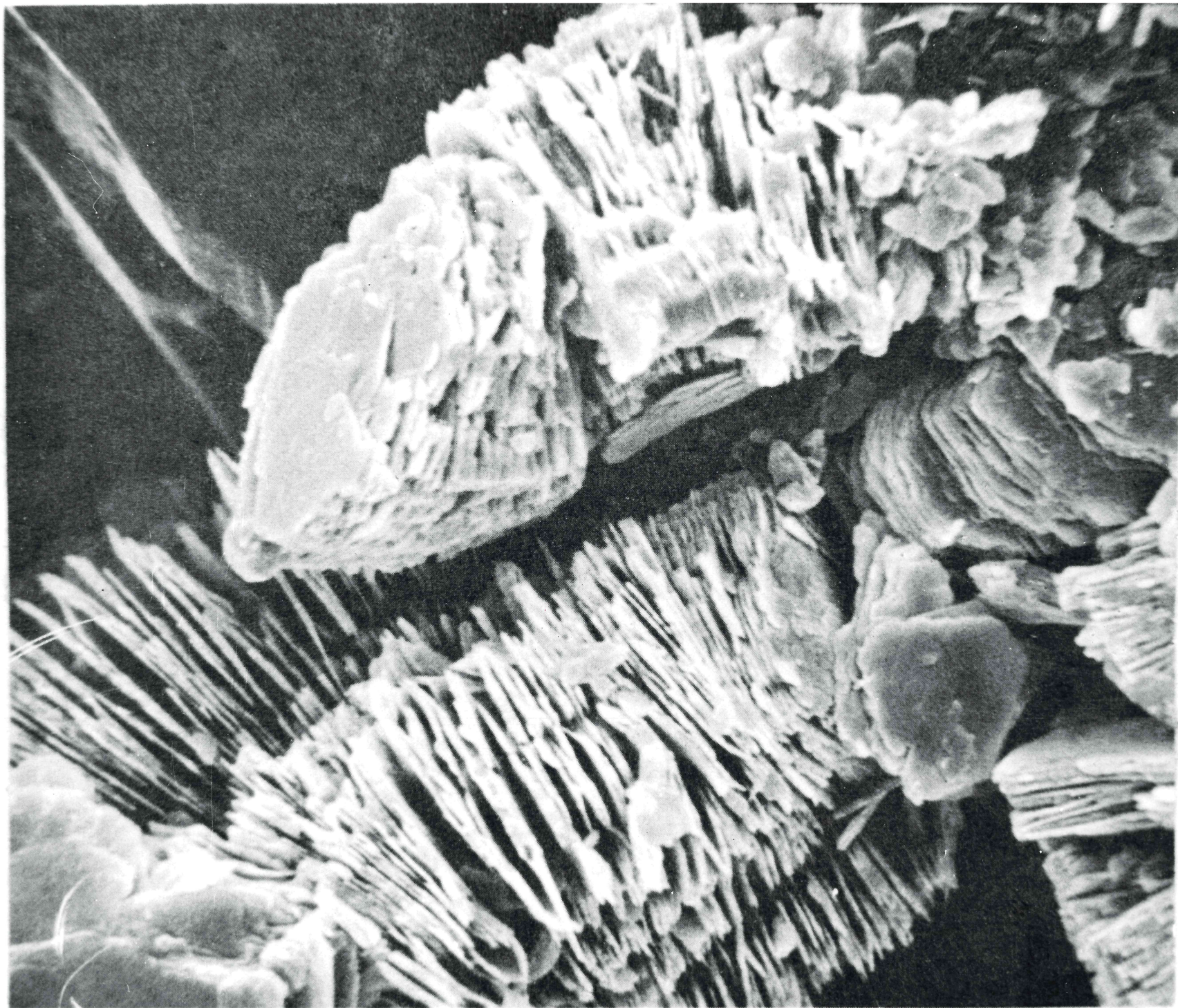
2
or
te
te
te



B.

200X

50μ



D.

2000X

.5 μ .

POINT LAY AREA, NORTH SLOPE, ALASKA

RRR 1056

Corwin

T25-R45W

73% Quartz

4% Feldspar

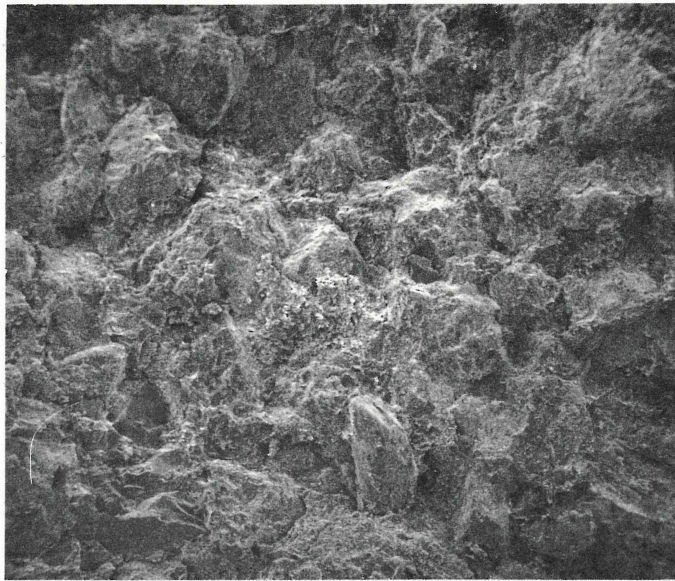
15% Calcite

1% Dolomite

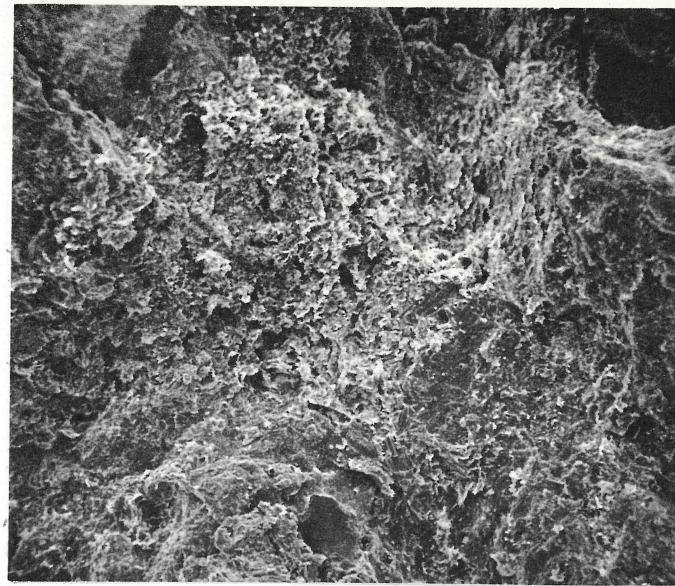
3% Illite

4% Chlorite

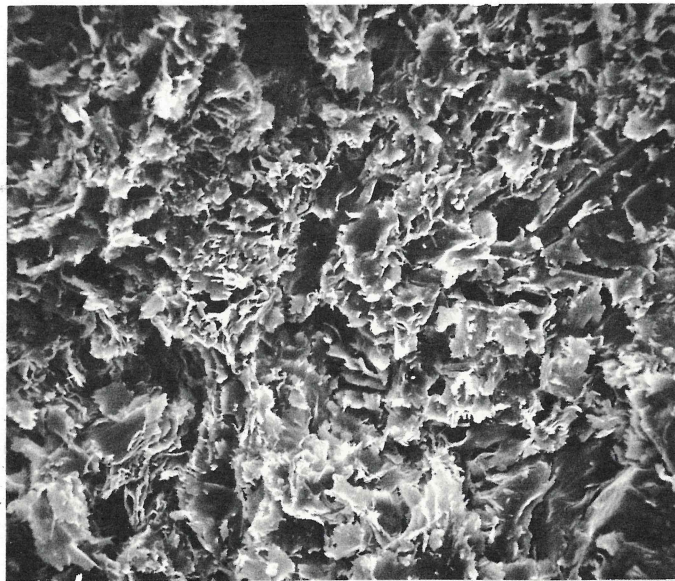
100%



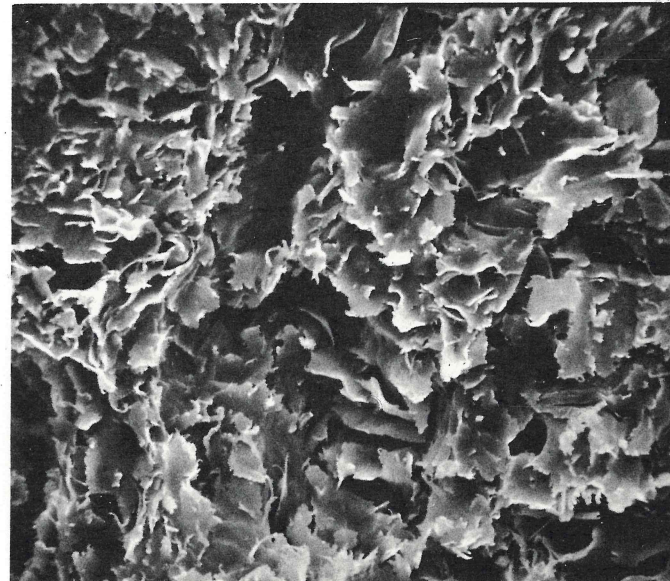
A. 50X
TEXTURE AND PORE SIZE 200μ



B. 200X
POOR MACROPOROSITY 50μ



C. 1000X
AUTHIGENIC ILLITE PLATELETS
FILLING PORE SPACE 10μ
TS NO. 6336 SR

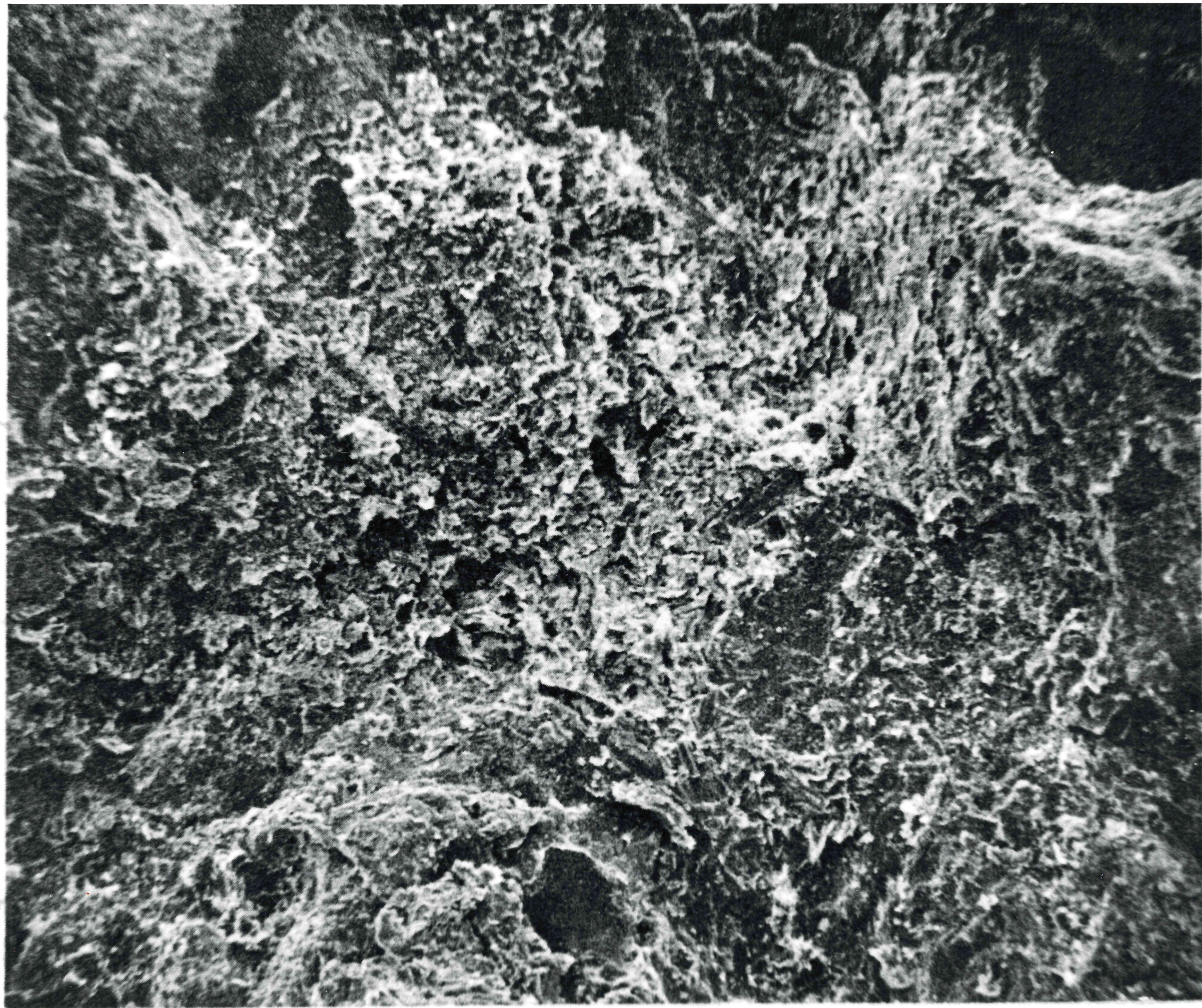


D. 2000X
AUTHIGENIC ILLITE PLATELETS
ENCLOSING MICROPOROSITY 5μ

DATE 1-17-74

FIGURE 5

te
e

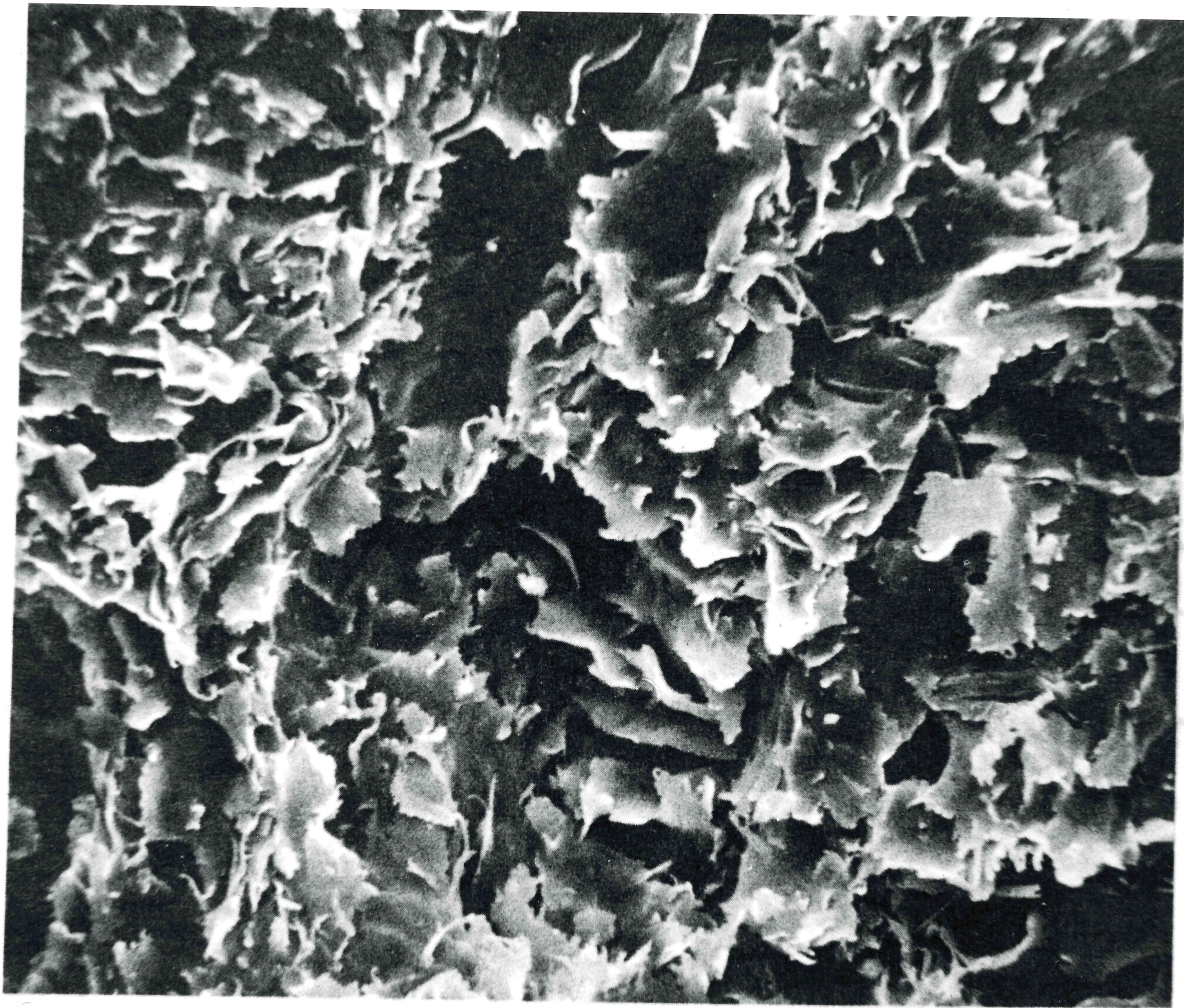


B.

200X

50μ

5005 MICROSCOPY



D.

2000X

5 μ m

SHALES (SOURCE ROCK STUDIES) POINT LAY, ALASKA

CF 800101

Sample Number	Strat. Section Name	Location	Quadrangle	Formation - Age
1. PL77 TC 13	Tingmerkpuk Creek (W-12)	68°34'30"N.; 162°31'00"W.	Tingmerkpuk Mtn.	Fortress Mtn. Fm. - Neocomian ?
2. PL77 TC 14	Tingmerkpuk Creek (W-12)	68°34'30"N.; 162°31'00"W.	Tingmerkpuk Mtn.	Fortress Mtn. Fm. - Neocomian ?
3. PL77 TC 16	Tingmerkpuk Creek (W-12)	68°34'30"N.; 162°31'00"W.	Tingmerkpuk Mtn.	Fortress Mtn. Fm. - Neocomian ?
4. PL77 TM 4	Tingmerkpuk Mtn. (W-11)	68°34'00"N.; 162°28'00"W.	Tingmerkpuk Mtn.	Ting. Sand - Fort Mtn. - Neocomian ?
5. PL77 TM 10	Tingmerkpuk Mtn. (W-11)	68°34'00"N.; 162°28'00"W.	Tingmerkpuk Mtn.	Ting. Sand - Fort Mtn. - Neocomian ?
6. PL77 TM 27	Tingmerkpuk Mtn. (W-11)	68°34'00"N.; 162°28'00"W.	Tingmerkpuk Mtn.	Ting. Sand - Fort Mtn. - Neocomian ?
7. PL77 TM 32	Tingmerkpuk Mtn. (W-11)	68°34'00"N.; 162°28'00"W.	Tingmerkpuk Mtn.	Ting. Sand - Fort Mtn. - Neocomian ?
8. PL77 TM 33	Tingmerkpuk Mtn. (W-11)	68°34'00"N.; 162°28'00"W.	Tingmerkpuk Mtn.	Ting. Sand - Fort Mtn. - Neocomian ?
9. PL77 KKS 19	Kukpowruk Syncline (W-13)	69°11'06"N.; 162°42'35"W.	Point Lay A-2	Kukpowruk Fm. - Albian
10. PL77 KKS 18	Kukpowruk Syncline (W-13)	69°11'06"N.; 162°42'35"W.	Point Lay A-2	Kukpowruk Fm. - Albian
11. PL77 KKS 21	Kukpowruk Syncline (W-13)	69°11'06"N.; 162°42'35"W.	Point Lay A-2	Kukpowruk Fm. - Albian
12. PL77 TS 36	Tupichak Syncline (W-14)	69°55'42"N.; 163°03'00"W.	DeLong Mts.	Kukpowruk Fm. - Albian
13. PL77 TS 39	Tupichak Syncline (W-14)	69°55'42"N.; 163°03'00"W.	DeLong Mts.	Kukpowruk Fm. - Albian
14. PL77 KA 42	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm. - Albian
15. PL77 KA 43	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm. - Albian
16. PL77 KA 46	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm. - Albian
17. PL77 KA 48	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm. - Albian
18. PL77 KA 49	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm. - Albian
19. PL77 KA 53	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm. - Albian
20. PL77 KA 54	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm. - Albian
21. PL77 KA 57	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm. - Albian
22. PL77 KA 58	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm. - Albian
23. PL77 KA 60	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm. - Albian
24. PL77 KA 70A	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm. - Albian
25. PL77 KA 70B	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm. - Albian
26. PL77 KA 74	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm. - Albian
27. PL77 KA 75	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm. - Albian
28. PL77 KA 78	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm. - Albian
29. PL77 KA 83	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Corwin Fm. - Albian
30. PL77 SA 84	Snowbank Anticline (W-16)	69°25'00"N.; 162°41'30"W.	Point Lay B-2	Kukpowruk Fm. - Albian
31. PL77 SA 85A	Snowbank Anticline (W-16)	69°25'00"N.; 162°41'30"W.	Point Lay B-2	Kukpowruk Fm. - Albian
32. PL77 SA 85B	Snowbank Anticline (W-16)	69°25'00"N.; 162°41'30"W.	Point Lay B-2	Kukpowruk Fm. - Albian
33. PL77 SA 86	Snowbank Anticline (W-16)	69°25'00"N.; 162°41'30"W.	Point Lay B-2	Kukpowruk Fm. - Albian
34. PL77 SA 88	Snowbank Anticline (W-16)	69°25'00"N.; 162°41'30"W.	Point Lay B-2	Kukpowruk Fm. - Albian

SHALES (SOURCE ROCK STUDIES) POINT LAY, ALASKA

Sample Number	Strat. Section Name	Location	Quadrangle	Formation - Age
35. PL77 SA 91	Snowbank Anticline (W-16)	69°25'00"N.; 162°41'30"W.	Point Lay B-2	Kukpowruk Fm. - Albian
36. PL77 SA 93	Snowbank Anticline (W-16)	69°25'00"N.; 162°41'30"W.	Point Lay B-2	Kukpowruk Fm. - Albian
37. PL77 SA 95	Snowbank Anticline (W-16)	69°25'00"N.; 162°41'30"W.	Point Lay B-2	Kukpowruk Fm. - Albian
38. PL77 SA 96	Snowbank Anticline (W-16)	69°25'00"N.; 162°41'30"W.	Point Lay B-2	Kukpowruk Fm. - Albian
39. PL77 SA 98	Snowbank Anticline (W-16)	69°25'00"N.; 162°41'30"W.	Point Lay B-2	Kukpowruk Fm. - Albian
40. PL77 SA 101	Snowbank Anticline (W-16)	69°25'00"N.; 162°41'30"W.	Point Lay B-2	Kukpowruk Fm. - Albian
41. PL77 SA 102	Snowbank Anticline (W-16)	69°25'00"N.; 162°41'30"W.	Point Lay B-2	Kukpowruk Fm. - Albian
42. PL77 SA 108	Snowbank Anticline (W-16)	69°25'00"N.; 162°41'30"W.	Point Lay B-2	Kukpowruk Fm. - Albian
43. PL77 SA 109	Snowbank Anticline (W-16)	69°25'00"N.; 162°41'30"W.	Point Lay B-2	Corwin Fm. - Albian
44. PL77 SA 234	Snowbank Anticline (W-16)	69°25'42"N.; 162°41'42"W.	Point Lay B-2	Corwin Fm. - Albian
45. PL77 SA 236	Snowbank Anticline (W-16)	69°25'42"N.; 162°41'42"W.	Point Lay B-2	Corwin Fm. - Albian
46. PL77 SA 237	Snowbank Anticline (W-16)	69°25'42"N.; 162°41'42"W.	Point Lay B-2	Corwin Fm. - Albian
47. PL77 SA 238	Snowbank Anticline (W-16)	69°25'42"N.; 162°41'42"W.	Point Lay B-2	Corwin Fm. - Albian
48. PL77 SA 239	Snowbank Anticline (W-16)	69°25'42"N.; 162°41'42"W.	Point Lay B-2	Corwin Fm. - Albian
49. PL77 SA 243	Snowbank Anticline (W-16)	69°25'42"N.; 162°41'42"W.	Point Lay B-2	Corwin Fm. - Albian
50. PL77 TSE121	Tupichak Syncline East (W-17)	69°52'12"N.; 162°00'30"W.	DeLong Mts.	Torok Fm. - Albian
51. PL77 TSE119	Tupichak Syncline East (W-17)	69°52'12"N.; 162°00'30"W.	DeLong Mts.	Torok Fm. - Albian
52. PL77 TSE120	Tupichak Syncline East (W-17)	69°52'12"N.; 162°00'30"W.	DeLong Mts.	Torok Fm. - Albian
53. PL77 TSE118	Tupichak Syncline East (W-17)	69°52'12"N.; 162°00'30"W.	DeLong Mts.	Kukpowruk Fm. - Albian
54. PL77 TSE115	Tupichak Syncline East (W-17)	69°52'12"N.; 162°00'30"W.	DeLong Mts.	Kukpowruk Fm. - Albian
55. PL77 TSE126	Tupichak Syncline East (W-17)	69°52'12"N.; 162°00'30"W.	DeLong Mts.	Kukpowruk Fm. - Albian
56. PL77 TSE126	Tupichak Syncline East (W-17)	69°52'12"N.; 162°00'30"W.	DeLong Mts.	Corwin Fm. - Albian
57. PL77 FS 129	Flintchip Syncline (W-18)	69°00'50"N.; 161°55'30"W.	Utukok River A-5	Kukpowruk Fm. - Albian
58. PL77 FS 131	Flintchip Syncline (W-18)	69°00'50"N.; 161°55'30"W.	Utukok River A-5	Kukpowruk Fm. - Albian
59. PL77 DS 137	Dugout Syncline (W-19)	68°48'40"N.; 163°55'45"W.	DeLong Mts.	Kukpowruk Fm. - Albian
60. PL77 PS 145	Pitmegea Syncline (W-20)	68°44'35"N.; 163°56'25"W.	DeLong Mts.	Kukpowruk Fm. - Albian
61. PL77 FP 151	Folsom Point Syncline (W-22)	69°07'30"N.; 160°50'00"W.	Utukok River A-3, A-4	Kukpowruk Fm. - Albian
62. PL77 FP 154	Folsom Point Syncline (W-22)	69°07'30"N.; 160°50'00"W.	Utukok River A-3, A-4	Kukpowruk Fm. - Albian
63. PL77 FP 155	Folsom Point Syncline (W-22)	69°07'30"N.; 160°50'00"W.	Utukok River A-3, A-4	Kukpowruk Fm. - Albian
64. PL77 FP 156	Folsom Point Syncline (W-22)	69°07'30"N.; 160°50'00"W.	Utukok River A-3, A-4	Kukpowruk Fm. - Albian
65. PL77 FP 159	Folsom Point Syncline (W-22)	69°07'30"N.; 160°50'00"W.	Utukok River A-3, A-4	Kukpowruk Fm. - Albian
66. PL77 FP 162	Folsom Point Syncline (W-22)	69°07'30"N.; 160°50'00"W.	Utukok River A-3, A-4	Kukpowruk Fm. - Albian
67. PL77 FP 163	Folsom Point Syncline (W-22)	69°07'30"N.; 160°50'00"W.	Utukok River A-3, A-4	Kukpowruk Fm. - Albian
68. PL77 FP 167	Folsom Point Syncline (W-22)	69°07'30"N.; 160°50'00"W.	Utukok River A-3, A-4	Kukpowruk Fm. - Albian

SHALES (SOURCE ROCK STUDIES) POINT LAY, ALASKA

Sample Number	Strat. Section Name	Location	Quadrangle	Formation - Age
69. PL77 FOG172	Foggy Syncline (W-23)	69°02'47"N.; 160°55'36"W.	Utukok River A-3	Torok Fm. - Albian
70. PL77 SAE178	Snowbank Anticline East (W-24)	69°20'58"N.; 161°26'33"W.	Utukok River B-5	Corwin Fm. - Albian
71. PL77 SAE179	Snowbank Anticline East (W-24)	69°20'58"N.; 161°26'33"W.	Utukok River B-5	Corwin Fm. - Albian
72. PL77 SAS182	Snowbank Anticline South (W-25)	69°17'51"N.; 161°35'48"W.	Utukok River B-5	Kukpowruk Fm. - Albian
73. PL77 SAS183	Snowbank Anticline South (W-25)	69°17'51"N.; 161°35'48"W.	Utukok River B-5	Kukpowruk Fm. - Albian
74. PL77 CB 230	Coke Basin (W-26)	68°54'20"N.; 163°01'50"W.	DeLong Mts. D-2	Torok Fm. - Albian
75. PL77 CB 222	Coke Basin (W-26)	68°54'20"N.; 163°01'50"W.	DeLong Mts. D-2	Torok Fm. - Albian
76. PL77 CB 226	Coke Basin (W-26)	68°54'20"N.; 163°01'50"W.	DeLong Mts. D-2	Torok Fm. - Albian
77. PL77 CB 227	Coke Basin (W-26)	68°54'20"N.; 163°01'50"W.	DeLong Mts. D-2	Torok Fm. - Albian
78. PL77 CB 228	Coke Basin (W-26)	68°54'20"N.; 163°01'50"W.	DeLong Mts. D-2	Torok Fm. - Albian
79. PL77 CB 229	Coke Basin (W-26)	68°54'20"N.; 163°01'24"W.	DeLong Mts. D-2	Torok Fm. - Albian
80. PL77 CB 196	Coke Basin (W-26)	68°53'54"N.; 163°07'24"W.	DeLong Mts. D-2	Kukpowruk Fm. - Albian
81. PL77 CB 197	Coke Basin (W-26)	68°53'54"N.; 163°07'24"W.	DeLong Mts. D-2	Kukpowruk Fm. - Albian
82. PL77 CB 198	Coke Basin (W-26)	68°53'54"N.; 163°07'24"W.	DeLong Mts. D-2	Kukpowruk Fm. - Albian
83. PL77 CB 199	Coke Basin (W-26)	68°53'54"N.; 163°07'24"W.	DeLong Mts. D-2	Kukpowruk Fm. - Albian
84. PL77 CB 186	Coke Basin (W-26)	68°52'25"N.; 163°05'30"W.	DeLong Mts. D-2	Kukpowruk Fm. - Albian
85. PL77 CB 188	Coke Basin (W-26)	68°52'25"N.; 163°05'30"W.	DeLong Mts. D-2	Kukpowruk Fm. - Albian
86. PL77 CB 203	Coke Basin (W-26)	68°53'14"N.; 163°09'12"W.	DeLong Mts. D-2	Kukpowruk Fm. - Albian
87. PL77 CB 216	Coke Basin (W-26)	68°51'04"N.; 163°10'20"W.	DeLong Mts. D-2	Corwin Fm. - Albian
88. PL77 CB 217	Coke Basin (W-26)	68°51'04"N.; 163°10'20"W.	DeLong Mts. D-2	Corwin Fm. - Albian
89. PL77 CB 218	Coke Basin (W-26)	68°51'04"N.; 163°10'20"W.	DeLong Mts. D-2	Corwin Fm. - Albian
90. PL77 CB 220	Coke Basin (W-26)	68°51'20"N.; 163°12'00"W.	DeLong Mts. D-2	Corwin Fm. - Albian
91. PL77 CB 221	Coke Basin (W-26)	68°51'20"N.; 163°12'00"W.	DeLong Mts. D-2	Corwin Fm. - Albian
92. PL77 BA 231	Grab Sample	69°02'30"N.; 162°56'00"W.	Point Lay A-2	Torok Fm. - Albian
93. PL77 BA 232	Grab Sample	69°02'30"N.; 162°56'00"W.	Point Lay A-2	Kukpowruk Fm. - Albian
94. PL77 BA 233	Grab Sample	69°02'30"N.; 162°56'00"W.	Point Lay A-2	Kukpowruk Fm. - Albian
95. PL77 249	Grab Sample	68°57'00"N.; 161°54'54"W.	Misheguk Mtn.	Torok Fm. - Albian
96. PL77 250	Grab Sample	68°57'00"N.; 161°54'54"W.	Misheguk Mtn.	Torok Fm. - Albian
97. PL77 251	Grab Sample	68°57'00"N.; 161°54'54"W.	Misheguk Mtn.	Torok Fm. - Albian
98. PL77 252	Grab Sample	68°57'00"N.; 161°54'54"W.	Misheguk Mtn.	Kukpowruk Fm. - Albian
99. PL77 253	Grab Sample	68°57'00"N.; 161°54'54"W.	Misheguk Mtn.	Kukpowruk Fm. - Albian

SHALES (SOURCE ROCK STUDIES) POINT LAY, ALASKA

Sample Number			Strat. Section Name	Location	Quadrangle	Formation - Age
100.	PL77	261	Grab Sample	69°02'15"N.; 161°57'48"W.	Utukok River A-5	Torok Fm. - Albian
101.	PL77	260	Grab Sample	69°02'15"N.; 161°57'48"W.	Utukok River A-5	Torok Fm. - Albian
102.	PL77	259	Grab Sample	69°02'15"N.; 161°57'48"W.	Utukok River A-5	Torok Fm. - Albian
103.	PL77	258	Grab Sample	69°02'15"N.; 161°57'48"W.	Utukok River A-5	Torok Fm. - Albian
104.	PL77	257	Grab Sample	69°02'15"N.; 161°57'48"W.	Utukok River A-5	Torok Fm. - Albian
105.	PL77	256	Grab Sample	69°02'15"N.; 161°57'48"W.	Utukok River A-5	Torok Fm. - Albian
106.	PL77	255	Grab Sample	69°02'15"N.; 161°57'48"W.	Utukok River A-5	Torok Fm. - Albian
107.	PL77	254	Grab Sample	69°02'15"N.; 161°57'48"W.	Utukok River A-5	Torok Fm. - Albian
108.	PL77	262	Grab Sample	69°01'32"N.; 161°57'27"W.	Utukok River A-5	Torok Fm. - Albian
109.	PL77	263	Grab Sample	69°01'32"N.; 161°57'27"W.	Utukok River A-5	Torok Fm. - Albian
110.	PL77	264	Grab Sample	69°01'32"N.; 161°57'27"W.	Utukok River A-5	Torok Fm. - Albian
111.	PL77	265	Grab Sample	69°01'32"N.; 161°57'27"W.	Utukok River A-5	Torok Fm. - Albian
112.	PL77	266	Grab Sample	69°01'32"N.; 161°57'27"W.	Utukok River A-5	Torok Fm. - Albian
113.	PL77	267	Grab Sample	69°03'43"N.; 161°57'00"W.	Utukok River A-5	Kukpowruk Fm. - Albian
114.	PL77	268	Grab Sample	69°03'43"N.; 161°57'00"W.	Utukok River A-5	Kukpowruk Fm. - Albian
115.	PL77	269	Grab Sample	69°12'35"N.; 161°57'37"W.	Utukok River A-5	Torok Fm. - Albian
116.	PL77	270	Grab Sample	69°12'35"N.; 161°57'37"W.	Utukok River A-5	Torok Fm. - Albian
117.	PL77	271	Grab Sample	69°13'10"N.; 161°55'20"W.	Utukok River A-5	Torok Fm. - Albian
118.	PL77	272	Grab Sample	69°13'10"N.; 161°55'20"W.	Utukok River A-5	Torok Fm. - Albian
119.	PL77	273	Grab Sample	69°13'10"N.; 161°55'20"W.	Utukok River A-5	Torok Fm. - Albian
120.	PL77	274	Grab Sample	69°13'10"N.; 161°55'20"W.	Utukok River A-5	Torok Fm. - Albian
121.	PL77	275	Grab Sample	69°14'13"N.; 161°51'45"W.	Utukok River A-5	Torok Fm. - Albian
122.	PL77	276	Grab Sample	69°14'13"N.; 161°51'45"W.	Utukok River A-5	Torok Fm. - Albian
123.	PL77	277	Grab Sample	69°14'20"N.; 161°50'22"W.	Utukok River A-5	Torok Fm. - Albian

SANDSTONES (POROSITY AND PERMEABILITY STUDIES), POINT LAY, ALASKA

Sample Number				Strat. Section Name	Location	Quadrangle	Formation - Age
1.	PL77	TC	12	Tingmerkpuk Creek (W-12)	68°34'30"N.; 162°31'00"W.	Tingmerkpuk Mtn.	Fortress Mtn. Fm. - Neocomian ?
2.	PL77	TC	15	Tingmerkpuk Creek (W-12)	68°34'30"N.; 162°31'00"W.	Tingmerkpuk Mtn.	Fortress Mtn. Fm. - Neocomian ?
3.	PL77	TM	2	Tingmerkpuk Mountain (W-11)	68°34'00"N.; 162°28'00"W.	Tingmerkpuk Mtn.	Ting.Sand - Fort. Mtn. - Neocomian ?
4.	PL77	TM	3	Tingmerkpuk Mountain (W-11)	68°34'00"N.; 162°28'00"W.	Tingmerkpuk Mtn.	Ting.Sand - Fort. Mtn. - Neocomian ?
5.	PL77	TM	5	Tingmerkpuk Mountain (W-11)	68°34'00"N.; 162°28'00"W.	Tingmerkpuk Mtn.	Ting.Sand - Fort. Mtn. - Neocomian ?
6.	PL77	TM	6	Tingmerkpuk Mountain (W-11)	68°34'00"N.; 162°28'00"W.	Tingmerkpuk Mtn.	Ting.Sand - Fort. Mtn. - Neocomian ?
7.	PL77	TM	7	Tingmerkpuk Mountain (W-11)	68°34'00"N.; 162°28'00"W.	Tingmerkpuk Mtn.	Ting.Sand - Fort. Mtn. - Neocomian ?
8.	PL77	TM	8	Tingmerkpuk Mountain (W-11)	68°34'00"N.; 162°28'00"W.	Tingmerkpuk Mtn.	Ting.Sand - Fort. Mtn. - Neocomian ?
9.	PL77	TM	9	Tingmerkpuk Mountain (W-11)	68°34'00"N.; 162°28'00"W.	Tingmerkpuk Mtn.	Ting.Sand - Fort. Mtn. - Neocomian ?
10.	PL77	TM	11	Tingmerkpuk Mountain (W-11)	68°34'00"N.; 162°28'00"W.	Tingmerkpuk Mtn.	Ting.Sand - Fort. Mtn. - Neocomian ?
11.	PL77	TM	28	Tingmerkpuk Mountain (W-11)	68°34'00"N.; 162°28'00"W.	Tingmerkpuk Mtn.	Ting.Sand - Fort. Mtn. - Neocomian ?
12.	PL77	TM	1	Tingmerkpuk Mountain (W-11)	68°34'00"N.; 162°28'00"W.	Tingmerkpuk Mtn.	Ting.Sand - Fort. Mtn. - Neocomian ?
13.	PL77	KKS	20	Kukpowruk Syncline (W-13)	69°11'06"N.; 162°42'35"W.	Point Lay A-2	Kukpowruk Fm. - Albian
14.	PL77	KKS	17	Kukpowruk Syncline (W-13)	69°11'06"N.; 162°42'35"W.	Point Lay A-2	Kukpowruk Fm. - Albian
15.	PL77	KKS	22	Kukpowruk Syncline (W-13)	69°11'06"N.; 162°42'35"W.	Point Lay A-2	Kukpowruk Fm. - Albian
16.	PL77	KKS	23	Kukpowruk Syncline (W-13)	69°11'06"N.; 162°42'35"W.	Point Lay A-2	Kukpowruk Fm. - Albian
17.	PL77	KKS	24	Kukpowruk Syncline (W-13)	69°11'06"N.; 162°42'35"W.	Point Lay A-2	Kukpowruk Fm. - Albian
18.	PL77	KKS	25	Kukpowruk Syncline (W-13)	69°11'06"N.; 162°42'35"W.	Point Lay A-2	Kukpowruk Fm. - Albian
19.	PL77	TS	34	Tupichak Syncline (W-14)	69°55'42"N.; 163°03'00"W.	DeLong Mts.	Kukpowruk Fm. - Albian
20.	PL77	TS	35	Tupichak Syncline (W-14)	69°55'42"N.; 163°03'00"W.	DeLong Mts.	Kukpowruk Fm. - Albian
21.	PL77	TS	37	Tupichak Syncline (W-14)	69°55'42"N.; 163°03'00"W.	DeLong Mts.	Kukpowruk Fm. - Albian
22.	PL77	TS	38	Tupichak Syncline (W-14)	69°55'42"N.; 163°03'00"W.	DeLong Mts.	Kukpowruk Fm. - Albian
23.	PL77	TS	40	Tupichak Syncline (W-14)	69°55'42"N.; 163°03'00"W.	DeLong Mts.	Kukpowruk Fm. - Albian
24.	PL77	KA	41	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm. - Albian
25.	PL77	KA	44	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm. - Albian
26.	PL77	KA	45	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm. - Albian
27.	PL77	KA	47	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm. - Albian
28.	PL77	KA	50	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm. - Albian
29.	PL77	KA	51	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm. - Albian
30.	PL77	KA	52	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm. - Albian
31.	PL77	KA	55	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm. - Albian
32.	PL77	KA	56	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm. - Albian
33.	PL77	KA	59	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm. - Albian
34.	PL77	KA	61	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm. - Albian
35.	PL77	KA	62	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm. - Albian
36.	PL77	KA	63	Kasegaluk Syncline (W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm. - Albian

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Sample Number				Strat. Section Name		Location	Quadrangle	Formation - Age	
37.	PL77	KA	64	Kasegaluk Syncline	(W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm.	- Albian
38.	PL77	KA	65	Kasegaluk Syncline	(W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm.	- Albian
39.	PL77	KA	66	Kasegaluk Syncline	(W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm.	- Albian
40.	PL77	KA	69	Kasegaluk Syncline	(W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm.	- Albian
41.	PL77	KA	71	Kasegaluk Syncline	(W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm.	- Albian
42.	PL77	KA	72	Kasegaluk Syncline	(W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm.	- Albian
43.	PL77	KA	73	Kasegaluk Syncline	(W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm.	- Albian
44.	PL77	KA	76	Kasegaluk Syncline	(W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm.	- Albian
45.	PL77	KA	77	Kasegaluk Syncline	(W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Kukpowruk Fm.	- Albian
46.	PL77	KA	79	Kasegaluk Syncline	(W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Corwin Fm.	- Albian
47.	PL77	KA	80	Kasegaluk Syncline	(W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Corwin Fm.	- Albian
48.	PL77	KA	81	Kasegaluk Syncline	(W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Corwin Fm.	- Albian
49.	PL77	KA	82	Kasegaluk Syncline	(W-15)	69°15'08"N.; 162°42'42"W.	Point Lay A-2, B-2	Corwin Fm.	- Albian
50.	PL77	SA	87	Snowbank Anticline	(W-16)	69°25'00"N.; 162°41'30"W.	Point Lay B-2	Kukpowruk Fm.	- Albian
51.	PL77	SA	89	Snowbank Anticline	(W-16)	69°25'00"N.; 162°41'30"W.	Point Lay B-2	Kukpowruk Fm.	- Albian
52.	PL77	SA	90	Snowbank Anticline	(W-16)	69°25'00"N.; 162°41'30"W.	Point Lay B-2	Kukpowruk Fm.	- Albian
53.	PL77	SA	92	Snowbank Anticline	(W-16)	69°25'00"N.; 162°41'30"W.	Point Lay B-2	Kukpowruk Fm.	- Albian
54.	PL77	SA	94	Snowbank Anticline	(W-16)	69°25'00"N.; 162°41'30"W.	Point Lay B-2	Kukpowruk Fm.	- Albian
55.	PL77	SA	97	Snowbank Anticline	(W-16)	69°25'00"N.; 162°41'30"W.	Point Lay B-2	Kukpowruk Fm.	- Albian
56.	PL77	SA	99	Snowbank Anticline	(W-16)	69°25'00"N.; 162°41'30"W.	Point Lay B-2	Kukpowruk Fm.	- Albian
57.	PL77	SA	100	Snowbank Anticline	(W-16)	69°25'00"N.; 162°41'30"W.	Point Lay B-2	Kukpowruk Fm.	- Albian
58.	PL77	SA	103	Snowbank Anticline	(W-16)	69°25'00"N.; 162°41'30"W.	Point Lay B-2	Kukpowruk Fm.	- Albian
59.	PL77	SA	104	Snowbank Anticline	(W-16)	69°25'00"N.; 162°41'30"W.	Point Lay B-2	Kukpowruk Fm.	- Albian
60.	PL77	SA	105	Snowbank Anticline	(W-16)	69°25'00"N.; 162°41'30"W.	Point Lay B-2	Kukpowruk Fm.	- Albian
61.	PL77	SA	106	Snowbank Anticline	(W-16)	69°25'00"N.; 162°41'30"W.	Point Lay B-2	Kukpowruk Fm.	- Albian
62.	PL77	SA	113	Snowbank Anticline	(W-16)	69°25'00"N.; 162°41'30"W.	Point Lay B-2	Kukpowruk Fm.	- Albian
63.	PL77	SA	235	Snowbank Anticline	(W-16)	69°25'42"N.; 162°41'42"W.	Point Lay B-2	Corwin Fm.	- Albian
64.	PL77	SA	240	Snowbank Anticline	(W-16)	69°25'42"N.; 162°41'42"W.	Point Lay B-2	Corwin Fm.	- Albian
65.	PL77	SA	241	Snowbank Anticline	(W-16)	69°25'42"N.; 162°41'42"W.	Point Lay B-2	Corwin Fm.	- Albian
66.	PL77	SA	242	Snowbank Anticline	(W-16)	69°25'42"N.; 162°41'42"W.	Point Lay B-2	Corwin Fm.	- Albian
67.	PL77	SA	244	Snowbank Anticline	(W-16)	69°25'42"N.; 162°41'42"W.	Point Lay B-2	Corwin Fm.	- Albian
68.	PL77	SA	245	Snowbank Anticline	(W-16)	69°25'42"N.; 162°41'42"W.	Point Lay B-2	Corwin Fm.	- Albian

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Sample Number	Strat. Section Name	Location	Quadrangle	Formation - Age
69.	PL77 TSE 114	Tupichak Syncline East (W-17)	69°52'12"N.; 162°00'30"W.	DeLong Mts. Kukpowruk Fm. - Albian
70.	PL77 TSE 116	Tupichak Syncline East (W-17)	69°52'12"N.; 162°00'30"W.	DeLong Mts. Kukpowruk Fm. - Albian
71.	PL77 TSE 117	Tupichak Syncline East (W-17)	69°52'12"N.; 162°00'30"W.	DeLong Mts. Kukpowruk Fm. - Albian
72.	PL77 TSE 119	Tupichak Syncline East (W-17)	69°52'12"N.; 162°00'30"W.	DeLong Mts. Kukpowruk Fm. - Albian
73.	PL77 TSE 122	Tupichak Syncline East (W-17)	69°52'12"N.; 162°00'30"W.	DeLong Mts. Kukpowruk Fm. - Albian
74.	PL77 TSE 124	Tupichak Syncline East (W-17)	69°52'12"N.; 162°00'30"W.	DeLong Mts. Kukpowruk Fm. - Albian
75.	PL77 TSE 125	Tupichak Syncline East (W-17)	69°52'12"N.; 162°00'30"W.	DeLong Mts. Kukpowruk Fm. - Albian
76.	PL77 TSE 127	Tupichak Syncline East (W-17)	69°52'12"N.; 162°00'30"W.	DeLong Mts. Corwin Fm. - Albian
77.	PL77 TSE 128	Tupichak Syncline East (W-17)	69°52'12"N.; 162°00'30"W.	DeLong Mts. Corwin Fm. - Albian
78.	PL77 TSE 247	Tupichak Syncline East (W-17)	69°52'12"N.; 162°00'30"W.	DeLong Mts. Corwin Fm. - Albian
79.	PL77 TSE 248	Tupichak Syncline East (W-17)	69°52'12"N.; 162°00'30"W.	DeLong Mts. Corwin Fm. - Albian
80.	PL77 FS 130	Flintchip Syncline (W-18)	69°00'50"N.; 161°55'30"W.	Utukok River A-5 Kukpowruk Fm. - Albian
81.	PL77 FS 132	Flintchip Syncline (W-18)	69°00'50"N.; 161°55'30"W.	Utukok River A-5 Kukpowruk Fm. - Albian
82.	PL77 FS 133	Flintchip Syncline (W-18)	69°00'50"N.; 161°55'30"W.	Utukok River A-5 Kukpowruk Fm. - Albian
83.	PL77 FS 134	Flintchip Syncline (W-18)	69°00'50"N.; 161°55'30"W.	Utukok River A-5 Kukpowruk Fm. - Albian
84.	PL77 FS 135	Flintchip Syncline (W-18)	69°00'50"N.; 161°55'30"W.	Utukok River A-5 Kukpowruk Fm. - Albian
85.	PL77 FS 136	Flintchip Syncline (W-18)	69°00'50"N.; 161°55'30"W.	Utukok River A-5 Kukpowruk Fm. - Albian
86.	PL77 DS 138	Dugout Syncline (W-19)	68°48'40"N.; 163°55'45"W.	DeLong Mts. Kukpowruk Fm. - Albian
87.	PL77 DS 139	Dugout Syncline (W-19)	68°48'30"N.; 163°45'30"W.	DeLong Mts. Kukpowruk Fm. - Albian
88.	PL77 DS 140	Dugout Syncline (W-19)	68°48'30"N.; 163°45'30"W.	DeLong Mts. Kukpowruk Fm. - Albian
89.	PL77 PS 141	Pitmegea Syncline (W-20)	68°44'35"N.; 163°56'25"W.	DeLong Mts. Kukpowruk Fm. - Albian
90.	PL77 PS 142	Pitmegea Syncline (W-20)	68°44'35"N.; 163°56'25"W.	DeLong Mts. Kukpowruk Fm. - Albian
91.	PL77 PS 143	Pitmegea Syncline (W-20)	68°44'35"N.; 163°56'25"W.	DeLong Mts. Kukpowruk Fm. - Albian
92.	PL77 PS 144	Pitmegea Syncline (W-20)	68°44'35"N.; 163°56'25"W.	DeLong Mts. Corwin Fm. - Albian
93.	PL77 MM 146	Meat Mountain Syncline (W-21)	68°55'00"N.; 160°44'30"W.	Misheguk Mt. Kukpowruk Fm. - Albian
94.	PL77 MM 147	Meat Mountain Syncline (W-21)	68°55'00"N.; 160°44'30"W.	Misheguk Mt. Kukpowruk Fm. - Albian
95.	PL77 MM 148	Meat Mountain Syncline (W-21)	68°55'00"N.; 160°44'30"W.	Misheguk Mt. Kukpowruk Fm. - Albian
96.	PL77 MM 149	Meat Mountain Syncline (W-21)	68°55'00"N.; 160°44'30"W.	Misheguk Mt. Kukpowruk Fm. - Albian
97.	PL77 MM 150	Meat Mountain Syncline (W-21)	68°55'00"N.; 160°44'30"W.	Misheguk Mt. Kukpowruk Fm. - Albian
98.	PL77 FP 152	Folsom Point Syncline (W-22)	69°07'30"N.; 160°50'00"W.	Utukok River A-3, A-4 Kukpowruk Fm. - Albian
99.	PL77 FP 153	Folsom Point Syncline (W-22)	69°07'30"N.; 160°50'00"W.	Utukok River A-3, A-4 Kukpowruk Fm. - Albian
100.	PL77 FP 157	Folsom Point Syncline (W-22)	69°07'30"N.; 160°50'00"W.	Utukok River A-3, A-4 Kukpowruk Fm. - Albian
101.	PL77 FP 158	Folsom Point Syncline (W-22)	69°07'30"N.; 160°50'00"W.	Utukok River A-3, A-4 Kukpowruk Fm. - Albian
102.	PL77 FP 160	Folsom Point Syncline (W-22)	69°07'30"N.; 160°50'00"W.	Utukok River A-3, A-4 Kukpowruk Fm. - Albian
103.	PL77 FP 161	Folsom Point Syncline (W-22)	69°07'30"N.; 160°50'00"W.	Utukok River A-3, A-4 Kukpowruk Fm. - Albian
104.	PL77 FP 164	Folsom Point Syncline (W-22)	69°07'30"N.; 160°50'00"W.	Utukok River A-3, A-4 Kukpowruk Fm. - Albian

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Sample Number	Strat. Section Name	Location	Quadrangle	Formation - Age
105. PL77 FP 165	Folsom Point Syncline (W-22)	69°07'30"N.; 160°50'00"W.	Utukok River A-3, A-4	Kukpowruk Fm. - Albian
106. PL77 FP 166	Folsom Point Syncline (W-22)	69°07'30"N.; 160°50'00"W.	Utukok River A-3, A-4	Kukpowruk Fm. - Albian
107. PL77 FOG 168	Foggy Syncline (W-23)	69°02'18"N.; 160°34'18"W.	Utukok River A-3	Kukpowruk Fm. - Albian
108. PL77 FOG 169	Foggy Syncline (W-23)	69°02'18"N.; 160°34'18"W.	Utukok River A-3	Kukpowruk Fm. - Albian
109. PL77 FOG 170	Foggy Syncline (W-23)	69°02'18"N.; 160°34'18"W.	Utukok River A-3	Kukpowruk Fm. - Albian
110. PL77 FOG 171	Foggy Syncline (W-23)	69°02'18"N.; 160°34'18"W.	Utukok River A-3	Kukpowruk Fm. - Albian
111. PL77 SAE 173	Snowbank Anticline East (W-24)	69°20'58"N.; 161°26'33"W.	Utukok River B-5	Kukpowruk Fm. - Albian
112. PL77 SAE 174	Snowbank Anticline East (W-24)	69°20'58"N.; 161°26'33"W.	Utukok River B-5	Kukpowruk Fm. - Albian
113. PL77 SAE 175	Snowbank Anticline East (W-24)	69°20'58"N.; 161°26'33"W.	Utukok River B-5	Kukpowruk Fm. - Albian
114. PL77 SAE 176	Snowbank Anticline East (W-24)	69°20'58"N.; 161°26'33"W.	Utukok River B-5	Kukpowruk Fm. - Albian
115. PL77 SAE 177	Snowbank Anticline East (W-24)	69°20'58"N.; 161°26'33"W.	Utukok River B-5	Corwin Fm. - Albian
116. PL77 SAE 180	Snowbank Anticline East (W-24)	69°20'58"N.; 161°26'33"W.	Utukok River B-5	Corwin Fm. - Albian
117. PF77 SAE 181	Snowbank Anticline East (W-24)	69°20'58"N.; 161°26'33"W.	Utukok River B-5	Corwin Fm. - Albian
118. PL77 SAS 184	Snowbank Anticline South (W-25)	69°17'51"N.; 161°35'48"W.	Utukok River B-5	Kukpowruk Fm. - Albian
119. PL77 CB 223	Coke Basin (W-26)	68°54'29"N.; 163°05'00"W.	DeLong Mts. D-2	Kukpowruk Fm. - Albian
120. PL77 CB 224	Coke Basin (W-26)	68°54'22"N.; 163°05'45"W.	DeLong Mts. D-2	Kukpowruk Fm. - Albian
121. PL77 CB 225	Coke Basin (W-26)	68°54'13"N.; 163°06'12"W.	DeLong Mts. D-2	Kukpowruk Fm. - Albian
122. PL77 CB 194	Coke Basin (W-26)	68°53'54"N.; 163°07'24"W.	DeLong Mts. D-2	Kukpowruk Fm. - Albian
123. PL77 CB 195	Coke Basin (W-26)	68°53'54"N.; 163°07'24"W.	DeLong Mts. D-2	Kukpowruk Fm. - Albian
124. PL77 CB 200	Coke Basin (W-26)	68°53'54"N.; 163°07'24"W.	DeLong Mts. D-2	Kukpowruk Fm. - Albian
125. PL77 CB 201	Coke Basin (W-26)	68°53'54"N.; 163°07'24"W.	DeLong Mts. D-2	Kukpowruk Fm. - Albian
126. PL77 CB 187	Coke Basin (W-26)	68°53'54"N.; 163°07'24"W.	DeLong Mts. D-2	Kukpowruk Fm. - Albian
127. PL77 CB 189	Coke Basin (W-26)	68°53'54"N.; 163°07'24"W.	DeLong Mts. D-2	Kukpowruk Fm. - Albian
128. PL77 CB 190	Coke Basin (W-26)	68°53'54"N.; 163°07'24"W.	DeLong Mts. D-2	Kukpowruk Fm. - Albian
129. PL77 CB 191	Coke Basin (W-26)	68°53'54"N.; 163°07'24"W.	DeLong Mts. D-2	Kukpowruk Fm. - Albian
130. PL77 CB 202	Coke Basin (W-26)	68°53'13"N.; 163°07'30"W.	DeLong Mts. D-2	Kukpowruk Fm. - Albian
131. PL77 CB 192	Coke Basin (W-26)	68°52'25"N.; 163°05'30"W.	DeLong Mts. D-2	Kukpowruk Fm. - Albian
132. PL77 CB 193	Coke Basin (W-26)	68°52'25"N.; 163°05'30"W.	DeLong Mts. D-2	Kukpowruk Fm. - Albian

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<u>Sample Number</u>	<u>Strat. Section Name</u>	<u>Location</u>	<u>Quadrangle</u>	<u>Formation - Age</u>
133. PL77 CB 204	Coke Basin (W-26)	68°52'29"N.; 163°09'00"W.	DeLong Mts. D-2	Corwin Fm. - Albian
134. PL77 CB 205	Coke Basin (W-26)	68°52'29"N.; 163°09'00"W.	DeLong Mts. D-2	Corwin Fm. - Albian
135. PL77 CB 206	Coke Basin (W-26)	68°52'29"N.; 163°09'00"W.	DeLong Mts. D-2	Corwin Fm. - Albian
136. PL77 CB 207	Coke Basin (W-26)	68°52'15"N.; 163°10'00"W.	DeLong Mts. D-2	Corwin Fm. - Albian
137. PL77 CB 208	Coke Basin (W-26)	68°52'15"N.; 163°10'00"W.	DeLong Mts. D-2	Corwin Fm. - Albian
138. PL77 CB 209	Coke Basin (W-26)	68°52'15"N.; 163°10'00"W.	DeLong Mts. D-2	Corwin Fm. - Albian
139. PL77 CB 210	Coke Basin (W-26)	68°52'15"N.; 163°10'00"W.	DeLong Mts. D-2	Corwin Fm. - Albian
140. PL77 CB 211	Coke Basin (W-26)	68°52'15"N.; 163°10'00"W.	DeLong Mts. D-2	Corwin Fm. - Albian
141. PL77 CB 212	Coke Basin (W-26)	68°52'15"N.; 163°10'00"W.	DeLong Mts. D-2	Corwin Fm. - Albian
142. PL77 CB 213	Coke Basin (W-26)	68°52'15"N.; 163°10'00"W.	DeLong Mts. D-2	Corwin Fm. - Albian
143. PL77 CB 214	Coke Basin (W-26)	68°52'15"N.; 163°10'00"W.	DeLong Mts. D-2	Corwin Fm. - Albian
144. PL77 CB 215	Coke Basin (W-26)	68°51'46"N.; 163°10'15"W.	DeLong Mts. D-2	Corwin Fm. - Albian