39-1

ORGANIC GEOCHEMICAL DATA REPORT

GRI JOB NO. R522

PA-3 Well, Erie County, Pennsylvania

Volume 1 of 2

prepared

by

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ORGANIC GEOCHEMICAL DATA

GRI JOB NO. R522

PA-3 WELL, ERIE CITY, PENNSYLVANIA

PA-3
PRESQUE ISLE,
ERIE COUNTY, PENNSYLVANIA

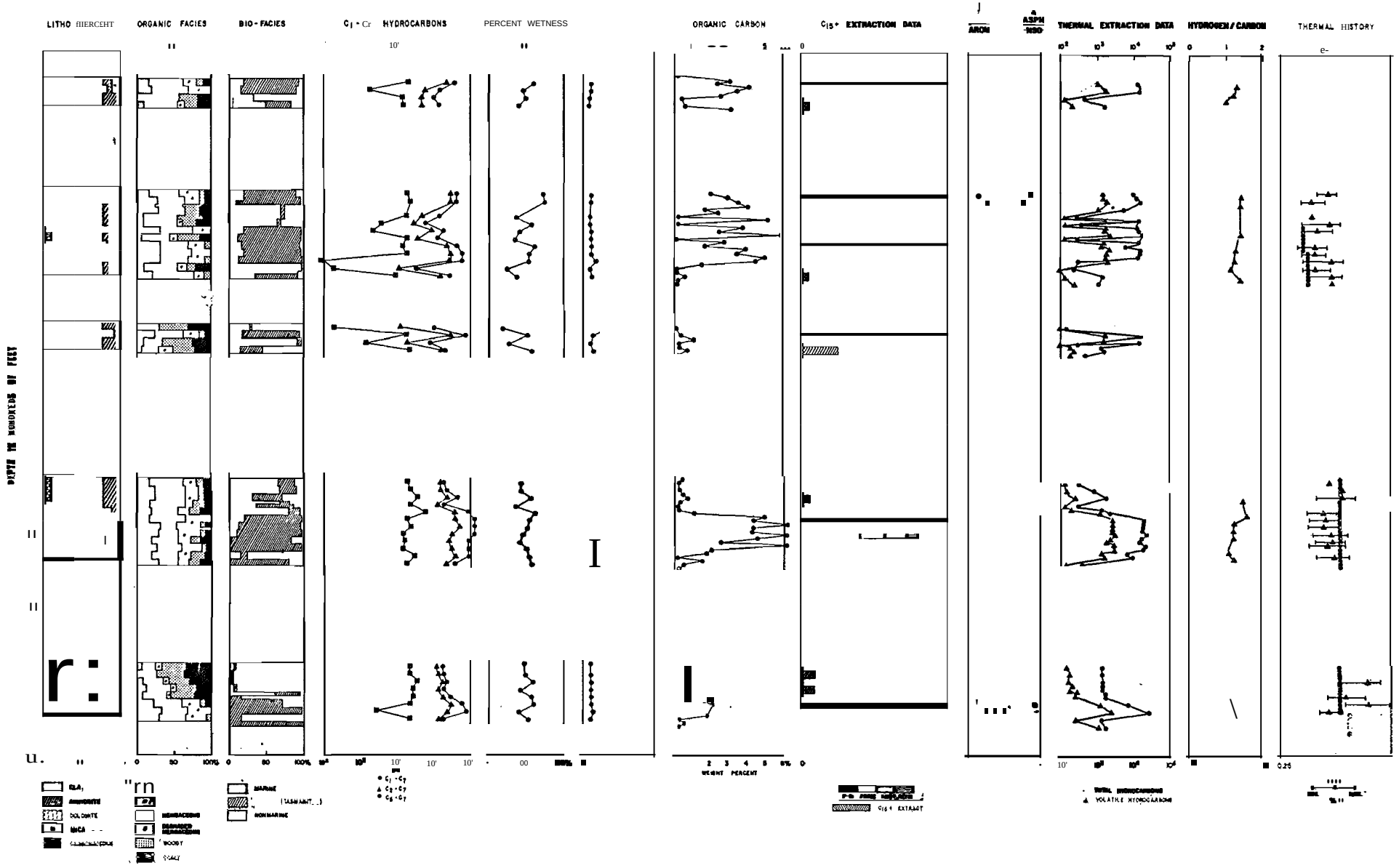

TABLE I

Sample Description

GRI Sample No.	Depth(ft.)	Sample Identification
R522-001	375 (.0-.5)	C/PCO* 1-11
002	375 (.5-1.5)	C/PCO* 1-10
003	376 (.5-1.5)	C/PCO* 1-9
004	377 (.5-1.5)	C/PCO* 1-8
005	378 (.5-1.5)	C/PCO* 1-7
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008	381 (.5-1.5)	C/PCO* 1-4
009	382 (.5-1.5)	C/PCO* 1-3
010	383 (.5-1.5)	C/PCO* 1-2
011	384 (.5-1.0)	C/PCO* 1-1
012	385 (.00-.31)	C/CCO*
013	386 (.73-.76)	D/CCO
014	387 (.55-.82)	ctcco B
015	390 (.18-.22)	D/CCO**
016	394 (.70-.74)	D/CCO
017	397 (.22-.48)	cicco B
018	398 (.70-.73)	D/CCO
019	401 (.33-.72)	C/CCO*
020	403 (.17-.22)	D/CCO**
021	407 (.32-.57)	cicco B
022	407 (.80-.84)	D/CCO
023	411 (.15-.23)	D/CCO
024	415 (.28-.32)	D/CCO**
025	417 (.21-.49)	cicco B
026	419 (.45-.48)	D/CCO
027	420 (.19-.54)	C/CCO*
028	423 (.58-.63)	D/CCO
029	541 (.72-.75)	D/CCO
030	542 (.40-.65)	cicco B
031	545 (.20-.52)	C/CCO*
032	546 (.50-.55)	D/CCO**
R522-033	550 (.23-.28)	D/CCO

C	Canned sample
D	Bagged, dry sample
PCO	Pressure Core
CCO	Conventional core (B=Battelle sample)
CT	Cuttings
*	Sample for methane desorption
**	Presently being analyzed for TOC at Mound

Sample Description

GRI Sample No.	Depth(ft.)	Sample Identification
R522-034	552 (.25-.56)	ctcs» B
035	554 (.76-.80)	D/CCO
036	558 (.47-.50)	D/CCO**
037	562 (.60-.80)	D/CCO**
038	565 (.66-.70)	D/CeO
039	567 (.24-.62)	cIcco
040	570 (.76--.82)	D/CCO**
041	572 (.52-.73)	c/eeo B
042	574 (.64-.69)	D/CCO
043	579 (.10-.15)	D/CCO
044	580 (.82-.87)	D/eeO**
045	582 (.33-.63)	ct a» B
046	584 (.77-.82)	D/CeO
047	588 (.54-.57)	D/CeO
048	592 (.32-.63)	ctcco B
049	592 (.63-.66)	D/CeO**
050	596 (.55-.60)	D/CeO
051	600 (.19-.23)	n/cco
052	601 (.18-.67)	c/eeo*
053	602 (.40-.73)	ctcco B
054	604 (.88-.92)	D/eCO**
055	608 (.32-.39)	D/CeO
056	611 (.46-.50)	D/eeO
057	612 (.42-.73)	cisx» B
058	613 (.20-.62)	c/eeo*
059	615 (.39-.44)	D/eCO**
060	620 (.23-.28)	D/eeO
061	621 (.90-.93)	n/eeo**
062	622 (.41-.71)	c/ceo B
063	625 (.36-.42)	»tsx»
064	627 (.31-.73)	c/ceo*
065	629 (.51-.57)	n/eeo
R522-066	633 (.29-.56)	cicco B

C	Canned sample
D	Bagged, dry sample
peo	Pressure Core
ceo	Conventional core (B=Battelle sample)
CT	Cuttings
*	Sample for methane desorption
**	Presently being analyzed for Toe at Mound

Sample Description

GRI Sample No.	Depth(ft.)	Sample Identification
R522-067	633 (.56-.61)	D/cco**
068	637 (.30-.34)	D/cco
069	641 (.19-.27)	n/cco
070	642 (.58-.85)	cicco B
071	645 (.35-.40)	D/cco**
072	648 (.77-.86)	D/cco
073	652 (.38-.69)	cicco B
074	653 (.13-.19)	Dlcco
075	655 (.49-.92)	c/cco*
076	656 (.82-.91)	D/cco**
077	660 (.21-.26)	D/cco
078	720 (.32-.40)	n/cco
079	722 (.10-.39)	cicco B
080	724 (.52-.55)	D/cco**
081	728 (.50-.55)	D/cco
082	732 (.30-.57)	cicco B
083	732 (.57-.63)	D/cco
084	734 (.20-.58)	ctcco«
085	736 (.32-.38)	D/cco**
086	740 (.48-.52)	n/cco
087	742 (.28-.52)	cicco B
088	744 (.38-.44)	n/cco
089	748 (.56-.60)	D/cco**
090	752 (.40-.59)	ctcco B
091	752 (.59-.65)	D/cco
092	754 (.07-.47)	c/cco*
093	756 (.12-.17)	D/cco
094	760 (.53-.58)	D/cco**
095	930 (.76-.80)	D/cco
096	932 (.43-.70)	cicco B
097	934 (.67-.72)	D/cco**
098	940 (.35-.40)	D/cco
R522-099	941 (.48-.88)	c/cco*

C	Canned sample
D	Bagged, dry sample
PCO	Pressure Core
CCO	Conventional core (B=Battelle sample)
CT	Cuttings
*	Sample for methane desorption
**	Presently being analyzed for TOC at Mound

Sample Description

GRI Sample No.	Depth(ft.)	Sample Identification
R522-100	942 (.52-.82)	cicco B
101	944 (.32-.39)	D/cco
102	948 (.15-.23)	D/cco**
103	952 (.45-.50)	D/cco
104	952 (.50-.79)	ctcco B
105	956 (.47-.53)	D/cco
106	958 (.45-.86)	c/cco*
107	960 (.39-.43)	D/cco**
108	962 (.44-.69)	cicco B
109	964 (.71-.76)	D/CCO
110	968 (.09-.16)	DiceD
111	969 (.58-.63)	n/cco-«
112	970 (.67-.71)	DIceD
113	972 (.29-.60)	e/cco*
114	972 (.60-.83)	cIcco B
115	974 (.32-.45)	D/eeo
116	978 (.58-.64)	D/cco**
117	982 (.11-.42)	ctcco B
118	982 (.42-.48)	D/eeO
119	986 (.18-.25)	D/CCO
120	990 (.14-.19)	D/eeO**
121	992 (.19-.40)	ctcco B
122	994 (.50-.55)	D/CCO
123	997 (.18-.60)	C/CCO*
124	998 (.14-.20)	D/eco
125	1002 (.23-.30)	D/eeo**
126	1002 (.30-.58)	c/ceo B
127	1006 (.37-.43)	D/ceo
128	1009 (.78-.83)	D/cco
129	1012 (.36-.66)	cics» B
130	1012 (.66-.72)	D/cco**
131	1013 (.35-.75)	C/CCO*
R522-132	1015 (.56-.66)	DIceD

C	Canned sample
D	Bagged, dry sample
PCO	Pressure Core
CCO	Conventional core (B=Battelle sample)
CT	Cuttings
*	Sample for methane desorption
**	Presently being analyzed for TOC at Mound

Sample Description

GRI Sample No.	Depth(ft.)	Sample Identification
R522-132A	1016 (.12-.54)	C/CCO*
132B	1016 (.12-.54)	cicco B
133	1019 (.57-.62)	D/CCO
134	1022 (.44-.65)	ctcco B
135	1024 (.09-.15)	D/CCO**
136	1028 (.12-.21)	D/CCO
137	1032 (.20-.47)	cicco B
138	1032 (.47-.56)	D/CCO
139	1036 (.22-.29)	D/CCO**
140	1036 (.47-.90)	C/CCO*
141	1040 (.80-.86)	D/CCO
142	1042 (.28-.58)	cttxc B
143	1044 (.07-.13)	D/CCO
144	1048 (.47-.60)	D/CCO**
145	1177 (.60-.66)	D/CCO**
146	1178 (.31-.62)	ctcco B
147	1180 (.28-.61)	C/CCO*
148	1181 (.15-.22)	D/CCO
149	1185 (.25-.32)	D/CCO
150	1188 (.36-.62)	cicco B
151	1189 (.20-.28)	D/CCO**
152	1193 (.81-.89)	D/CCO
153	1197 (.52-.58)	D/CCO
154	1198 (.29-.71)	cicco B
155	1201 (.14-.22)	D/CCO**
156	1203 (.34-.74)	C/CCO*
157	1205 (.45-.53)	D/CCO
158	1208 (.31-.58)	cicco B
159	1210 (.29-.37)	D/CCO
160	1214 (.65-.72)	D/CCO**
161	1217 (.15-.19)	D/CCO
162	1218 (.49-.77)	ctcco B
R522-163	1220 (.13-.54)	C/CCO*

C	Canned sample
D	Bagged, dry sample
PCO	Pressure Core
CCO	Conventional core (B=Battelle sample)
CT	Cuttings
*	Sample for methane desorption
**	Presently being analyzed for TOC at Mound

Sample Description

GRI Sample No.	Depth(ft.)	Sample Identification
R522-164	1221 (.16-.21)	D/cco
165	1225 (.30-.37)	D/cco**
166	1228 (.61-.87)	cicco B
167	1229 (.28-.35)	n/cco
168	1233 (.66-.72)	n/cco
169	1237 (.55-.61)	n/cco-«
170	1238 (.34-.67)	cicco B
171	1241 (.67-.73)	n/cco
172	1245 (.30-.37)	D/cco
173	1245 (.37-.76)	C/CCO*
174	1246 (.88-.96)	n/cco**
175	1248 (.28-.34)	D/CCO**
176	1248 (.34-.91)	cIcco B
177	1253 (.56-.63)	D/cco
178	1259 (.25-.33)	D/cco
179	1264 (.67-.77)	n/cco-«
R522-180	1272 (.29-.35)	D/cco

C	Canned sample
D	Bagged, dry sample
PCO	Pressure Core
CCO	Conventional core (B=Battelle sample)
CT	Cuttings
*	Sample for methane desorption
**	Presently being analyzed for TOC at Mound

TABLE II

GeoChem Sample Number	Well Interval	Gross Lithological Description	GSA Color Code
R522-001		100% Shale, noncalcareous, slightly anhydritic, tabular, moderately hard, medium gray	N5
-002		100% Shale, noncalcareous, slightly anhydritic, tabular, moderately hard, medium gray	N5
-003		100% Shale, noncalcareous, slightly anhydritic, tabular, moderately hard, medium gray	N5
-004		100% Shale, noncalcareous, slightly anhydritic, tabular, moderately hard, medium gray	N5
-005		100% Shale, noncalcareous, slightly anhydritic,tabular, moderately hard, medium gray	N5
-006		100% Shale, noncalcareous, slightly anhydritic, tabular, moderately hard, medium gray	N5
-007		100% Shale, noncalcareous, slightly anhydritic, tabular, moderately hard, medium gray	NS
-008		100% Shale, noncalcareous, slightly anhydritic, tabular, moderately hard, medium gray	N5
R522-010		100% Shale, noncalcareous, slightly anhydritic, tabular, moderately hard, medium gray	NS

GeoChem Sample Number	Well Interval	Gross Lithological Description	GSA Color Code
R522-009		100% Shale, noncalcareous, anhydritic, tabular, moderately hard, medium dark gray	N4
012		100% Shale, nonca1careous, slightly anhydritic to anhydritic, tabular, moderately hard, medium dark gray	N4
019		100% Shale, noncalcareous, slightly anhydritic, tabular, moderately hard, medium dark gray	N4
027		100% Shale, nonca1careous, slightly anhydritic, tabular, moderately hard, medium gray	N5
031		100% Shale, nonca1careous, anhydritic, moderately hard, tabular,medium dark gray	N4
039		100% Shale, nonca1careous, slightly micromicaceous, very slightly anhydritic, tabular, moderately hard, medium dark gray	N4
052		100% Shale, noncalcareous, slightly anhydritic, tabular, moderately hard, medium light gray	N6
058		100% Shale, noncalcareous, slightly micromicaceous, very slightly anhydritic, tabular, moderately hard, dark brownish gray	5YR3/l
064		100% Shale, noncalcareous, very slightly micromicaceous, tabular, moderately hard, dark brownish gray	5YR3/1
075		100% Shale, noncalcareous, slightly anhydritic, tabular, moderately hard, medium gray	N5
R522-084		100% Shale, noncalcareous, slightly anhydritic, tabular, moderately hard, medium gray	N5

GeoChem Sample Number	Gross Lithological Description	GSA Color Code
R522-013	100% Shale, noncalcareous, anhydritic, tabular, moderately hard, medium gray.	N5
016	100% Shale, noncalcareous, slightly micromicaceous, slightly carbonaceous, tabular, moderately hard, brownish black.	5YR2/1
018	100% Shale, noncalcareous, anhydritic, tabular, moderately hard, medium gray.	N4
022	100% Shale, noncalcareous, slightly anhydritic, very slightly micromicaceous, tabular, moderately hard, medium dark gray.	N4
023	100% Shale, noncalcareous, slightly anhydritic, tabular, moderately hard, olive black.	5Y2/1
026	100% Shale, noncalcareous, anhydritic, tabular, moderately hard, medium gray.	N5
028	100% Shale, nonca1careous, slightly micromacaceous, very slightly anhydritic, very slightly carbonaceous, tabular, moderately hard, brownish black.	5YR2/1
029	100% Shale, noncalcareous, slightly anhydritic, very slightly carbonaceous, Tasmanites visible, tabular, moderately hard, medium gray.	N4
033	100% Shale, nonca1careous, slightly anhydritic, very slightly carbonaceous, Tasmanites visible, tabular, moderately hard, medium gray.	N4
035	100% Shale, noncalcareous, slightly anhydritic, very slightly carbonaceous, Tasmanites visible, tabular, moderately hard, medium gray.	N4
037	100% Shale, noncalcareous, slightly anhydritic, massive, moderately hard, medium gray.	N5
R522-038	100% Shale, noncalcareous, slightly anhydritic, very slightlymicromicaceous, tabular, moderately hard, medium dark gray.	N4

GeoChem Sample Number	Gross Lithological Description	GSA Color Code
R522-014	100% Shale, noncalcareous, slightly anhydritic, slightly micromicaceous, moderately hard, tabular, dark olive gray.	SY3/1
017	100% Shale, noncalcareous, very slightly anhydritic, slightly micromicaceous, few Tasmanites visible, moderately hard, tabular, olive black.	5Y4/1
021	100% Shale, noncalcareous, anhydritic, moderately hard, tabular, medium dark gray.	N4
025	100% Shale, noncalcareous, anhydritic, moderately hard, tabular, medium dark gray to dark gray.	N4 to N3
030	100% Shale, noncalcareous, slightly anhydritic, many Tasmanites visible, moderately hard, tabular, brownish black.	5YR2/1
034	100% Shale, noncalcareous, slightly anhydritic, abundent Tasmanites visible, moderately, hard, tabular, brownish black.	5YR2/1
041	100% Shale, noncalcareous, anhydritic, moderately hard, tabular, medium gray.	N5
045	100% Shale, very slightly calcareous, anhydritic, moderately hard, tabular, medium gray.	N5
048	100% Shale, noncalcareous, slightly anhydritic, abundant Tasmanites visible, moderately hard, tabular, olive black.	5Y2/1
053	100% Shale, slightly calcareous, anhydritic, moderately hard, tabular, medium gray.	N5
057	100% Shale, noncalcareous, slightly anhydritic, very slightly micromicaceous, few Tasmanites visible, moderately hard, tabular, dark brownish gray.	5YR3/1
R522-062	100% Shale, noncalcareous, slightly micromicaceous, very slightly anhydritic, moderately hard, tabular, brownish black.	5YR2/1

GeoChem Sample Number	Gross Lithological Description	GSA Color Code
R521-042	100% Shale, noncalcareous, very slightly anhydritic, very slightly carbonaceous, very slightly micromicaceous, tabular, moderately hard, medium gray.	N4
043	100% Shale, noncalcareous, slightly anhydritic, very slightly micromicaceous, tabular, moderately hard, medium gray.	N4
046	100% Shale, noncalcareous, slightly micromicaceous, tabular, moderately hard, olive black.	5Y2/1
047	100% Shale, noncalcareous, anhydritic, very slightly micromicaceous, tabular, moderately hard, medium dark gray.	N4
050	100% Shale, noncalcareous, slightly micromicaceous, tabular, moderately hard, olive black.	5Y2/1
051	100% Shale, noncalcareous, anhydritic tabular, moderately hard, medium gray.	N5
055	100% Shale, noncalcareous, slightly anhydritic, extreme abundance of visible Tasmanites, tabular, moderately hard, brownish gray.	5YR4/1
056	100% Shale, noncalcareous, slightly anhydritic, tabular, moderately hard, brownish gray.	5YR4/1
060	100% Shale, noncalcareous, slightly micromicaceous, tabular, moderately hard, brownish black.	5YR2/1
063	100% Shale, noncalcareous, slightly micromicaceous, tabular, moderately hard, brownish black.	5YR2/1
065	100% Shale, noncalcareous, slightly micromicaceous, very slightly anhydritic, tabular, moderately hard, medium dark gray.	N4
R521-068	100% Shale, noncalcareous, anhydritic, tabular, moderately hard, medium to medium dark gray.	N5 to N4

GeoChem Sample Number	Gross Lithological Description	GSA Color Code
R522-066	100% Shale, noncalcareous, slightly micro-micaceous, moderately hard, tabular, brownish black.	5YR2/1
070	100% Shale, very slightly calcareous, anhydritic, moderately hard, tabular, medium gray.	N5
073	100% Shale noncalcareous, anhydritic, moderately hard, tabular, medium gray.	N5
079	100% Shale, noncalcareous, anhydritic, moderately hard, tabular, medium dark gray.	N4
082	100% Shale noncalcareous, very slightly anhydritic, moderately hard, tabular, brownish black.	5YR/2/1
087	100% Shale, very slightly calcareous, anhydritic, moderately hard, tabular, medium dark gray.	N4
090	100% Shale, noncalcareous, anhydritic, moderately hard, tabular, medium dark gray.	N4
096	100% Shale, slightly calcareous, anhydritic, moderately hard, tabular, medium dark gray.	N4
100	100% Shale, slightly calcareous, anhydritic, moderately hard, tabular, medium dark gray.	N4
104	100% Shale, slightly calcareous, anhydritic, moderately hard, tabular, medium dark gray.	N4
108	100% Shale, noncalcareous, anhydritic, moderately hard, tabular, medium dark gray.	N4
114	100% Shale, noncalcareous, slightly anhydritic, moderately hard, tabular, medium dark gray.	N4
R522-117	100% Shale, noncalcareous, slightly carbonaceous, moderately hard, tabular, brownish black.	5YR2/1

GeoChem Sample Number	Gross Lithological Description	GSA Color Code
R521-069	100% Shale, noncalcareous, anhydritic, tabular, moderately hard, medium to medium dark gray.	N5 to N4
072	100% Shale, slightly calcareous, anhydritic, tabular, moderately hard, medium gray.	N5
074	100% Shale, noncalcareous, anhydritic, tabular, moderately hard, medium gray.	N5
077	100% Shale, noncalcareous, anhydritic, tabular, moderately hard, medium gray.	N5
078	100% Shale, noncalcareous, anhydritic, tabular, moderately hard, medium gray.	N5
081	100% Shale, noncalcareous, anhydritic, tabular, moderately hard, medium gray.	N5
083	100% Shale, noncalcareous, slightly anhydritic, tabular, moderately hard, brownish black.	5YR2/1
086	100% Shale, very slightly calcareous, anhydritic, tabular, moderately hard, medium gray.	N4
088	100% Shale, very slightly calcareous, anhydritic, tabular, moderately hard, medium gray.	N4
091	100% Shale, noncalcareous, carbonaceous, tabular, moderately hard, brownish black.	5YR2/1
093	100% Shale, slightly calcareous, anhydritic, tabular, moderately hard, medium gray.	N5
095	100% Shale, slightly calcareous, anhydritic, tabular, moderately hard, medium gray.	N5
098	100% Shale, noncalcareous, anhydritic, tabular, moderately hard, medium gray.	N4
R522-101	100% Shale, noncalcareous, anhydritic, tabular, moderately hard, medium gray.	N4

GeoChem Sample Number	Well Interval	Gross Lithological Description	GSA Color Code
R522-092		100% Shale, noncalcareous, slightly micromicaceous, very slightly carbonaceous, tabular, moderately hard, brownish black	5YR2/l
099		100% Shale, slightly calcareous, slightly anhydritic, tabular, moderately hard, medium gray	N5
106		100% Shale, noncalcareous, slightly micromicaceous, tabular, moderately hard, medium dark gray	N4
113		100% Shale, noncalcareous, slightly anhydritic, tabular, moderately hard, medium gray	N5
123		100% Shale, noncalcareous, very slightly anhydritic, tabular, moderately hard, dark brownish gray	5YR3/l
131		100% Shale, noncalcareous, very slightly carbonaceous, tabular, moderately hard, brownish black	5YR2/l
l32A		100% Shale, noncalcareous, very slightly micromicaceous, tabular, moderately hard, dark brownish gray	5YR3/l
140		100% Shale, noncalcareous, slightly anhydritic, tabular, moderately hard, medium gray	
147		100% Shale, slightly calcareous, anhydritic, tabular to massive, moderately hard, medium dark gray	.N4
156		100% Shale, slightly calcareous, slightly anhydritic, tabular, moderately hard, medium gray	N5
163		100% Shale, slightly calcareous, slightly anhydritic, tabular, moderately hard, medium gray	N5
R522-l73		100% Shale, slightly calcareous, anhydritic, fossiliferous, tabular,-·moderately hard, medium dark gray	N4

GeoChem Sample Number	Gross Lithological Description	GSA Color Code
R522-103	100% Shale, noncalcareous, anhydritic, tabular, moderately hard, medium gray.	N4
105	100% Shale, noncalcareous, anhydritic, tabular, moderately hard, medium gray.	N5
109	100% Shale, noncalcareous, anhydritic, tabular, moderately hard, medium gray.	N5
110	100% Shale, noncalcareous, anhydritic, tabular, moderately hard, medium gray.	N5
112	100% Shale, slightly calcareous, anhydritic, tabular, moderately hard, medium gray.	N5
115	100% Shale, noncalcareous, slightly carbonaceous, very slightly micromicaceous, tabular to massive, moderately hard, brownish black.	5YR2/1
118	100% Shale, noncalcareous, slightly carbonaceous, very slightly micromicaceous, tabular to massive, moderately hard, brownish black.	5YR2/1
119	100% Shale, noncalcareous, slightly carbonaceous, very slightly micromicaceous, tabular to massive, moderately hard, brownish black.	5YR2/1
122	100% Shale, noncalcareous, slightly carbonaceous, very slightly micromicaceous, tabular to massive, moderately hard, brownish black.	5YR2/1
124	100% Shale, noncalcareous, slightly carbonaceous, very slightly micromicaceous, tabular to massive, moderately hard, brownish black.	5YR2/1
R522-127	100% Shale, noncalcareous, slightly carbonaceous, very slightly micromicaceous, abundant visible Tasmanites, tabular to massive, moderately hard, brownish black.	5YR2/1

GeoChem Sample Number	Gross Lithological Description	GSA Color Code
R522-121	100% Shale, noncalcareous, slightly carbonaceous, moderately hard, tabular, brownish black.	5YR2/1
126	100% Shale, noncalcareous, slightly carbonaceous, Tasmanites visible, moderately hard, tabular, brownish black.	5YR2/1
129	100% Shale, noncalcareous, slightly anhydritic, very slightly carbonaceous, moderately hard, tabular, dark brownish gray.	5Y3/1
132B	100% Shale, noncalcareous, very slightly anhydritic, very slightly carbonaceous, moderately hard, tabular, brownish black.	5YR2/1
137	100% Shale, noncalcareous, slightly anhydritic, moderately hard, tabular, medium dark gray.	N4
142	100% Micrite, slightly argillaceous, hard, massive, brownish gray.	5YR4/1
146	100% Shale, slightly calcareous, anhydritic, moderately hard, tabular, medium dark gray.	N4
150	100% Shale, very slightly calcareous, anhydritic, moderately hard, tabular, medium dark gray.	N4
154	100% Shale, very slightly calcareous, anhydritic, moderately hard, conchoidal, medium dark gray.	N4
158	100% Shale, very slightly calcareous, anhydritic, moderately hard, conchoidal to tabular, medium dark gray.	N4
162	100% Shale, very slightly calcareous, anhydritic, moderately hard, tabular, medium dark gray.	N4
R522-166	100% Shale, noncalcareous, slightly anhydritic, moderately hard, tabular, medium dark gray.	N4

GeoChem Sample Number	Gross Lithological Description	GSA Color Code
R522-128	100% Shale, noncalcareous, slightly carbonaceous, very slightly micromicaceous, abundant visible Tasmanites, tabular to massive, moderately hard, brownish black.	5YR2/1
132	100% Shale, noncalcareous, slightly carbonaceous, very slightly micromicaceous, abundant visible Tasmanites, tabular to massive, moderately hard, brownish black.	5YR2/1
133	100% Shale, noncalcareous, very slightly micromicaceous, very slightly carbonaceous, tabular, moderately hard, medium gray.	N4
136	100% Shale, noncalcareous, slightly anhydritic, very slightly micromicaceous, tabular, moderately hard, brownish gray.	5YR2/1
138	100% Shale, noncalcareous, slightly anhydritic, very slightly micromicaceous, tabular, moderately hard, brownish gray.	5YR4/1
141	100% Shale, calcareous, slightly anhydritic, tabular, moderately hard, brownish black.	5YR2/1
143	100% Micrite, slightly argillaceous, massive, hard, brownish gray.	5YR4/1
148	100% Shale, calcareous, anhydritic, tabular, moderately hard, medium gray.	N4
149	100% Shale, calcareous, anhydritic, tabular, moderately hard, medium gray.	N4
152	100% Shale, slightly calcareous, anhydritic, tabular, medium hard, medium gray.	N4
153	100% Shale, slightly calcareous, anhydritic, tabular, medium hard, medium gray.	N4
157	100% Shale, slightly calcareous, anhydritic, tabular, medium hard, medium gray.	N4
R522-159	100% Shale, slightly calcareous, anhydritic, tabular, medium hard, medium gray.	N4

GeoChem Sample Number	Gross Lithological Description	GSA Color Code
R522-170	100% Shale, noncalcareous, slightly carbonaceous, moderately hard, tabular, grayish black.	N2
R522-176	100% Biomicrite, slightly argillaceous, very hard, massive, medium gray.	N5

TABLE III

TOTAL ORGANIC CARBON

Sample Number	Total Organic Carbon
R522-001	1.26
-002	.17
-003	.66
-004	.30
-005	*.40/.40*
-006	.21
-007	.22
-008	.24
R522-010	.17

TOTAL ORGANIC CARBON

Sample Number	Total Organic Carbon
R522-009	0.24/0.24
031	2.15
064	3.11
092	6.98
106	3.62
131	5.01
147	0.53
R522-173	2.06

TOTAL ORGANIC CARBON

Sample Number	Total Organic Carbon
R522-012	3.04
019	2.58
027	2.27
039	2.37
052	.31/.30
058	2.36
075	.24
084	.87
099	.42
113	.79
123	3.53
132A	6.56
140	1.71
156	.56
R522-163	.67

TOTAL ORGANIC CARBON

Sample No.	Total Organic Carbon
R522-013	1.41
016	4.00
018	0.40/0.39
022	0.93/0.95
023	1.81
026	0.98
028	3.05
029	1.70
033	2.90
035	3.94
037	1.66
038	2.35
042	4.93/4.98
043	1.39
046	3.65
047	2.73
050	5.78
051	1.18
055	2.69
056	2.43
060	3.82
063	4.83
065	3.18
068	1.46
069	0.25
072	0.14
074	0.18
077	0.13
078	0.38
081	0.38/0.42
083	1.05
086	0.18
088	0.31
091	4.74
093	0.26
095	0.41
098	0.37
101	0.42
103	0.71
105	0.29
109	0.27/0.32
110	0.31
112	0.46
115	4.84
118	4.59
119	6.25
122	4.20
R522-124	4.98

Organic Carbon Content

\GRI Sample Number	Organic Carbon Content (Wt. %)
'R522-014	2.35
017	3.40
021	0.25
025	0.61
030	1.97
034	3.43
041	0.18
045	0.22
048	2.45; 2.39
053	0.12
057	1.64
062	3.18
066	4.38
070	0.09
073	0.56
079	0.12
082	4.98
087	0.26
090	0.68
096	0.19; 0.24
100	0.29
104	0.66
108	0.18
114	1.06*
117	4.26
121	4.24
126	6.09
129	2.50
1328	5.37
137	2.03
142	0.12/.14
146	0.45
150	0.42
154	0.46
158	0.43
162	0.66
166	1.94
170	7.88
R522-176	0.22

* Revised March 14, 1980.

TOTAL ORGANIC CARBON

Sample No.	Total Organic Carbon
R522-127	4.43
128	3.28
132	7.38
133	5.78/5.70
136	1.70
138	1.45
141	2.85
143	0.26
148	0.43
149	0.42
152	0.43
153	0.56
157	0.59
159	0.52
161	0.66/0.66
164	0.86
167	2.44
168	6.34
171	8.66
172	1.65
177	0.48
178	0.18
R522-180	0.07

TABLE IV

Density of Core Sample

GeoChem Sample Number	Density-By Water Displacement
R522-001	2.66
002	2.66
003	2.68
004	2.64
005	2.68
006	2.67
007	2.68
008	2.76
R522-010	2.75

Density of Core Sample

GeoChem Sample Number	Density-By Water Displacement
R522-009	2.,67
013	2.69
016	2.48
018	2.68
022	2.61
023	2.61
026	2.71
028	2.60
029	2.62
031	2.69
033	2.53
035	2.53
037	2.58
038	2.58
042	2.47
043	2.63
046	2.56
047	2.61
050	2.44
051	2.57
055	2.60
056	2.58
060	2.51
063	2.51
064	2.52
065	2.54
068	2.64
069	2.64
072	2.67
074	2.67
077	2.66
078	2.66
081	2.66
083	2.62
086	2.68
088	2.67
091	2.50
092	2.44
093	2.68
095	2.68
R522-098	2.67

GeoChem Sample Number	Density-By Water Displacement
R522-101	2.67
103	2.60
105	2.70
106	2.55
109	2.65
110	2.66
112	2.66
115	2.43
·118	2.47
119	2.42
122	2.45
124	2.42
127	2.47
128	2.48
131	2.40
132	2.34
133	2.52
136	2.56
138	2.57
141	2.51
143	2.68
147	2.66
148	2.63
149	2.65
152	2.63
153	2.62
157	2.64
159	2.62.
161	2.64
.164	2.62
167	2.57
168	2.47
171	2.32
172	2.61
173	2.61
177	2.69
178	2.55
R522-180	2.54

Density of Core Sample

GeoChem Sample Number	Density-By Water Displacement	GeoChem Sample Number	Density-By Water Displacement
R522-0l2	2.61	R522-099	2.65
019	2.53	106	2.55
027	2.70	113	2.59
031	2.69	123	2.42
039	2.54	131	2.40
052	2.64	132a	2.34
058	2.54	140	2.45
064	2.52	147	2.66
075	2.62	156	2.61
084	2.59,	163	2.59
R522-092	2.44	R522-173	2.61

Density of Core Sample

GeoChem Sample Number	Density - By Water Displacement
R522-014	2.60
017	2.53
021	2.81
025	2.65
030	2.61
034	2.57
041	2.69
045	2.70
048	2.60
053	2.56
057	2.65
062	2.55
066	2.54
070	2.71
073	2.78
079	2.67
082	2.49
087	2.67
090	2.66
096	2.69
100	2.69
104	2.66
108	2.69
114	2.66
117	2.48
121	2.48
126	2.42
129	2.56
132B	2.43
137	2.59
142	2.70
146	2.67
150	2.66
154	2.65
158	2.66
162	2.64
166	2.58
170	2.33
R522-176	2.65

TABLE V-A

Pressure/Vacuum in Container

GRI Sample Number	Volume Displacement (cc of water)
R522-014	0
017	
021	
025	
030	0
034	
041	
045	0
048	6
053	0
057	24
062	0
066	0
070	0
073	97
077	0
082	644
087	
090	
096	0
100	94
104	285
108	3
114	218
117	495
121	573
126	432
129	27
132B	
137	135
142	
146	25
150	27
154	135
158	52
162	85
166	126
170	83
R522-176	179

TABLE IV-B

C_{1-C7} HYDROCARBON ANALYSES OF AIR SPACE

GeoChem Sample Number	Hethane C1 PPM	Ethane C2 PPM	Propane C3 PPM	Isobutane iC4 PPM	Butane nC4 PPM	Total C5-C7 PPM	Total C1-C4 PPM	Total C2-C4 PPM	Gas Wetness %	iC4/nC4
R522-014	82,564	16,696	9,017	558	2,863		111,698	29,134	26.1	0.19
017	71,999	19,098	11,809	1,025	3,909		107,840	35,841	33.2	0.26
021	, 28,727	3,924	2,413	257	804		36,125	7,397	20.5	0.32
025	66,736	11,432	7,348	598	2,555		88,669	21,933	24.7	0.23
030	49,977	14,223	8,474	441	2,471		75,585	25,608	33.9	0.18
034	66,753	21,001	12,824	641	3,940		105,159	38,406	36.5	0.16
041	65,135	8,298	4,341		962		78,735	13,599	17.3	
045	21,318	3,348	1,980		741		27,387	6,070	22.2	
048	118,228	27,435	15,391	892	4,397		166,343	48,115	28.9	0.20
053	43,988	5,942	3,146				53,280	9,292	17.4	
057	85,295	16,493	9,387	558	2,972		114,706	29,411	25.6	0.19
062	137,841	24,340	12,313	615	3,256		178,365	40,524	22.7	0.19
066	126,192	23,501	11,228	3,090			164,012	37,821	23.1	
070	37,414.	4,232	2,136				45,146	7,732	17.1	
073	202,056	20,869	9,017	437	1,831		234,212	32,155	13.7	0.24
079	83,744	9,602	4,424	684			98,454	14,710	14.9	
082	367,212	80,646	44,657	2,750	11,189	0	506,454	139,242	27.5	0.25
087	62,543	7,905	3,377				73,824	11,281	15.3	
090	67,352	10,892	6,051	664	1,655	0	86,615	19,263	22.2	0.4
096	123,583	29,638	22,057	1,784	7,027	0	184,089	60,507	32.9	0.25
100	161,754	39,638	30,453	2,357	9,509	0	243,710	81,957	33.6	0.25
104	229,231	57,415	35,367	2,845	10,889	1,133	335,746	106,515	31. 7	0.26
108	128,071	27,689	18,680	1,551	5,852	0	181,845	53,773	29.6	0.27
114	325,659	108,011	80,229	6,663	28,764	5,641	549,326	223,667	40.7	0.23
117	250,685	67,475	41,698	2,625	14,731	2,906	377,213	126,528	33.5	0.18
121	442,047	124,504	81,443	5,395	28,523	5,895	681,912	239,865	35.2	0.19
126	292,218	75,604	41,583	2,216	12,384	0	424,004	131,786	31.1	0.18
129	238,575	50,545	26,394	1,377	8,094	0	324,985	86,411	26.6	0.17
132B	321,842	84,013	48,976	2,227	17,932	0	474,991	153,149	32.2	0.12
137	273,466	65,332	36,227	2,180	11,196	0	388,401	114,935	29.6	0.19
R522-142	21,447	3,240	1,590				262,780	4,831	18.4	

C_{1-C7} HYDROCARBON ANALYSES OF AIR SPACE

GeoChem Sample Number	Hethane C1 PPM	Ethane C2 PPM	Propane C3 PPM	Isobutane iC4 PPM	Butane nC4 PPM	Total C5-C7 PPM	Total Cl-C4 PPM	Total C2-C4 PPM	Gas Wetness %	iC4/nC4
R522-l46	101,316	26,924	10,918	660	2,622	1,086	142,439	41,123	28.9	0.25
150	125,958	33,306	13,798	901	3,458	1,912	177,421	51,463	29.0	0.26
154	131,031	48,885	22,253	1,501	5,745	3,500	209,415	78,384	37.4	0.26
158	141,442	38,500	15,827	969	3,898	2,360	200,636	59,194	29.5	0.25
162	166,812	41,615	15,282	829	3,343	1,985	227,885	61,073	26.8	0.25
166	244,308	63,540	24,811	1,324	6,251	4,133	340,235	95,927	28.2	0.21
170	169,166	37,266	10,569	369	2,348	0	219,718	50,552	23.0	0.16
R522-176	100,963	43,664	31,437	3,322	12,000	10,000	191,386	90,423	47.3	0.28

TABLE'V-C

C1-C7 HYDROCARBON ANALYSES OF CUTTINGS GAS

GeoChem Sample Number	Methane C1 PPM	Ethane C2 PPM	Propane C3 PPM	Isobutane iC4 PPM	Butane nC4 PPM	Total C5-C7 PPM	Total C1-c4 PPM	Total C2-C4 PPM	Gas Wetness %	iC4/nC4
R522-014	116,705	89,188	118,996	12,837	51,692	29,620	389,417	272,712	70.0	0.25
017	;16,042	13,744	16,596	1,555	5,877	2,652	53,814	37,772	70.2	0.26
021	10,215	6,511	13,949	2,436	11,329	17,839	44,441	34,225	77.0	0.22
025	917	2,294	9,090	1,622	8,454	14,613	22,376	21,460	95.9	0.19
030	117,228	136,723	174,099	14,980	60,924	26,036	503,953	386,726	76.7	0.25
034	77,564	124,175	174,867	15,821	69,340	37,702	461,766	384,202	83.2	0.23
041	4,415	3,910	11,330	2,094	9,391	27,008	31,140	26,725	85.8	0.22
045	7,819	6,028	12,840	2,374	10,993	5,581	40,055	32,235	80.5	0.22
048	18,172	14,642	17,387	1,672	6,599	3,464	58,471	40,299	68.9	0.25
053	14,050	4,997	8,711	1,610	7,033	22,294	36,402	22,352	61.4	0.23
057	148,919	97,969	135,569	15,075	62,196	14,578	459,728	310,809	67.6	0.24
062	218,105	134,209	147,780	13,422	52,079	25,427	565,596	347,491	61.4	0.26
066	234,278	142,043	154,572	13,252	45,718		589,863	355,585	60.3	0.29
070	882	821	2,519	394	1,937	308	6,553	5,670	86.5	0.20
073	55,887	37,656	50,628	4,928	19,084	9,965	168,184	112,297	66.8	0.26
079	611	665	2,412	323	1,484	332	5,494	4,883	88.9	0.22
082	26,214	67,905	135,574	16,155	49,742	24,045	295,590	269,376	91.1	0.32
087	711	1,672	5,470	771	3,545	1,697	12,169	11,459	94.2	0.22
090	50,268	35,655	60,460	8,767	30,073	31,508	185,223	134,955	72.9	0.29
096	1,881	1,815	12,220	3,330	14,215	27,697	33,460	31,579	94.4	0.23
100	1,692	2,298	16,667	4,602	20,641	37,205	45,901	44,209	96.3	0.22
104	19,396	40,011	91,630	12,344	52,580	51,129	215,960	196,564	91.0	0.23
108	1,089	1,632	7,048	1,724	7,933	35,090	19,425	18,336	94.4	0.22
114	9,936	43,021	132,419	18,170	78,822	68,834	282,368	272,432	96.5	0.23
117	199,378	169,392	167,699	12,883	47,745	23,168	597,098	397,720	66.6	0.27
121	212,226	158,884	168,640	14,016	54,379	30,629	608,145	395,919	65.,1	0.26
126	300,047	163,692	133,770	9,149	35,220	16,364	641,878	341,831	53.3	0.26
129	316,168	135,021	125,292	9,937	39,931	19,379	626,349	310,181	49.5	0.25
132	128,609	129,888	136,477	10,260	33,177	14,685	438,411	309,802	70.7	0.31
137	157,489	134,007	156,910	14,439	61,974	46,131	524,820	367,331	70.0	0.23
R522-142	197,665	121,769	114,911	9,420	38,713	23,789	482,478	284,813	59.0	0.24

C1-C7 HYDROCARBON ANALYSES OF CUTTINGS GAS

GeoChem Snmp1e Number	Methane C1 PPM	Ethane C2 PPM	Propane C3 PPM	Isobutane iC4 PPM	Butane nC4 PPM	Total C5-C7 PPM	Total CI-C4 PPM	Total C2-C4 PPM	Gas Wetness %	iC4/nC4
R522-146	3,250	5,124	19,298	4,475	17,916	31,218	50,064	46,813	93.5	0.25
150	3,761	14,236	27,138	4,426	17,822	32,364	67,382	63,621	94.4	0.25
154	2,733	13,937	46,290	8,061	32,083	48,548	103,104	100,371	97.3	0.25
158	1,989	3,291	16,003	4,162	16,987	39,726	42,433	40,444	95.3	0.25
162	25,269	54,725	72,979	8,929	35,330	39,628	197,232	171,963	87.2	0.25
166	86,176	137,774	142,069	14,031	50,732	35,622	430,781	344,605	80.0	0.28
170	348,330	180,732	82,456	4,673	14,626	4,671	630,816	282,486	44.8	0.32
R522-176	11,516	5,479	6,816	1,466	6,268	26,873	31,545	20,030	63.5	0.23

TABLE v-n

Cl-C7 HYDROCARBON ANALYSES OF AIR SPACE AND CUTTINGS GAS

GeoChem Sample Number	Hethane C1 PPM	Ethane C2 PPM	Propane C3 PPM	Isobutane iC4 PPM	Butane nC4 PPM	Total C5-C7 PPM	Total C1-C4 PPM	Total C2-C4 PPM	Gas Wetness %	iC4/nC4
R522-014	199,269	105,884	128,013	13,395	54,555	29,620	501,116	301,847	60.2	0.25
017	88,041	32,842	28,405	2,580	9,786	2,652	161,654	73,613	45.5	0.26
021	38,942	10,435	16,362	2,693	12,133	17,839	80,565	41,623	51.7	0.22
025	67,653	13,726	16,438	2,220	11,009	14,613	111,046	43,393	39.1	0.20
030	167,205	150,946	182,573	15,421	63,395	26,036	579,540	412,335	71.1	0.24
034	144,317	145,176	187,691	16,462	73,280	37,702	566,926	422,609	74.5	0.22
041	69,550	12,208	15,671	2,094	10,353	27,008	109,876	40,326	36.7	0.20
045	29,137	9,376	14,820	2,374	11,734	5,581	67,441	38,304	56.8	0.20
048	136,400	42,077	32,778	3,564	10,996	3,464	224,815	88,415	39.3	0.23
053	58,038	10,939	11,857	1,610	7,033	22,294	89,477	31,439	35.1	0.23
057	234,214	114,462	144,956	15,633	65,168	14,578	574,433	340,219	59.2	0.24
062	355,946	158,549	160,093	14,037	55,335	25,427	743,960	388,014	52.2	0.25
066	300,470	165,544	165,800	16,342	45,718	0	753,874	393,404	52.2	0.36
070	38,296	5,053	4,655	394	1,937	308	50,335	12,039	23.9	0.20
073	257,943	58,525	59,645	5,365	20,915	9,965	402,393	144,450	35.9	0.26
079	84,355	10,267	6,836	1,007	1,484	332	103,949	19,594	18.8	0.68
082	393,426	148,551	180,231	18,905	60,931	24,045	802,044	408,618	50.9	0.31
087	63,254	9,577	8,847	771	3,545	1,697	85,994	22,740	26.4	0.22
090	117,620	46,547	66,511	9,431	31,728	31,508	271,837	154,217	56.7	0.30
096	125,464	31,453	34,277	5,114	21,242	27,697	217,550	92,086	42.3	0.24
100	163,446	41,936	47,120	6,959	30,150	37,205	289,611	126,165	43.6	0.23
104	248,627	97,426	126,997	15,189	63,469	52,262	551,708	303,081	54.9	0.24
108	129,160	29,321	25,728	3,275	13,785	35,090	201,269	72,109	35.8	0.24
114	335,595	151,032	212,648	24,833	107,586	74,475	831,694	496,099	59.6	0.23
117	450,063	236,867	209,397	15,508	62,476	26,074	974,311	524,248	53.8	0.25
121	654,273	283,388	250,083	19,411	82,902	36,524	1,290,057	635,784	49.3	0.23
126	592,265	239,296	175,353	11,365	47,604	16,364	1,065,883	473,618	44.4	0.24
129	554,743	185,566	151,686	11,314	48,025	19,379	951,334	396,591	41.7	0.24
132	450,451	213,901	185,453	12,487	51,109	14,685	913,401	462,950	50.7	0.24
137	430,955	199,339	193,137	16,619	73,170	46,131	913,220	482;265	52.8	0.23
R522-142	219,112	125,009	116,501	9,420	38,713	23,789	508,755	289,643	56.9	0.24

Cl-C7 HYDROCARBON ANALYSES OF AIR SPACE AND CUTTINGS GAS

GeoChem Sample Number	Methane Cl PPM	Ethane C2 PPM	Propane C3 PPM	Isobutane iC4 PPM	Butane nC4 PPM	Total C5-C7 PPM	Total C1-C4 PPM	Total C2-C4 PPM	Gas Wetness %-	iC4/nC4
R522-146	104,566	32,048	30,216	5,135	20,538	32,304	192,503	87,937	45.7	0.25
150	129,719	47,542	40,936	5,327	21,280	34,276	244,804	115,085	47.0	0.25
154	133,764	62,822	68,543	9,562	37,828	52,048	312,519	178,755	57.2	0.25
158	143,431	41,791	31,830	5,131	20,885	42,086	243,068	99,637	41.0	0.25
162	192,081	96,340	88,261	9,758	38,678	41,613	425,118	233,037	54.8	0.25
166	330,484	201,314	166,880	15,355	56,983	39,755	771,016	440,532	57.1	0.27
170	517,496	217,998	93,025	5,042	16,974	4,671	850,535	333,039	39.2	0.30
R522-176	112,479	49,143	38,253	4,788	18,268	36,873	222,931	110,452	49.5	0.26

TABLE VI-A

SUMMARY OF VISUAL KEROGEN ASSESSMENT

GeoChem Sample Number	Depth	Visual Kerogen Organic Matter Type	Alteration Rank (TAl)	Numerical Alteration Rank
R522-001	375.5'	H;Am;W-C	1+ to 2-	1.50
-002	376.5'	H-W;C;-	1+ to 2-	. 1.50
-003	377.5 '	H;W-C;Am	1+ to 2-	1.50
-004	378.5'	H;W;Am-C.	1+ to 2-	1.50
-005	379.5 '	H;W;Am-C	1+ to 2-	1.50
-006	380.5 '	H;W-C;-	1+ to 2-	1.50
-007	381.5 '	H;W;C	1+ to 2-	1.50
-008	382.5'	H;W;Am-C	1+ to 2-	1.60
R522-010	384.5'	H;W; C(Am)	1+ to 2-	1.60

TABLE VI-B

VISUAL KEROGEN ASSESSMENT WORKSHEET

R522

TYPE OF ORGANIC MATTER: RECOGNIZABLE ALGAE; AMORPHOUS - SAPROPEL; HUMIC AMORPHOUS; SPORES - POLLEN; DEGRADED HERBACEOUS DEBRIS; CUTICLE - MEMBRANOUS DEBRIS; WOODY - STRUCTURED DEBRIS; COALY - INERTINITE DEBRIS; PYROBITUMEN; FORAMINIFERAL LININGS

COLOR OF ORGANIC MATTER: GREENISH LIGHT YELLOW; YELLOW; YELLOW ORANGE; ORANGE BROWN; LIGHT BROWN; BROWN; DARK BROWN; BLACK

STATE OF ORGANIC MATTER: PARTICLE SIZE: FINELY DISSEMINATED; FINE; MEDIUM; COARSE. PRESERVATION: EXCELLENT; GOOD; FAIR; POOR

MATURATION INDEX: UNALTERED; SLIGHTLY ALTERED; MODERATELY ALTERED; STRONGLY ALTERED; SEVERELY ALTERED; METAMORPHOSED

DEPOSITIONAL ENVIRONMENT: OFFSHORE MARINE; NEARSHORE MARINE; RESTRICTED NEARSHORE - MARSH; LACUSTRINE; CONTINENTAL

GEOCHEM No.	DEPTH	REMARKS	SUMMARY ORGANIC MATTER TYPE
R522-001	375.5		
-002	376.5		
-003	377.5		
-004	378.5		
-005	379.5		
-006	380.5		
-007	381.5		
-008	382.5		
R522-010	384.5		

TABLE

FA - 3 WELL

VISUAL KEROGEN ASSESSMENT WORKSHEET

R522

TYPE OF ORGANIC MATTER | COLOR OF ORGANIC MATTER | STATE OF ORGANIC MATTER | MATURATION INDEX | DEPOSITIONAL ENVIRONMENT

RECOGNIZABLE ALGAE
AMORPHOUS - SAPROPEL
RELIC AMORPHOUS
SPORES - POLLEN
DEGRADED
CUTICLE - HERBACEOUS
WOODY - MEMBRANOUS DEBRIS
COALY - STRUCTURED DEBRIS
PYROBITUMEN - INERTINITE DEBRIS
NONRECOGNIZABLE DEBRIS
GREENISH LIGHT YELLOW
YELLOW
YELLOW ORANGE
ORANGE BROWN
LIGHT BROWN
BROWN
DARK BROWN
BLACK
PARTICLE SIZE
FINELY DISSEMINATED
FINE
MEDIUM
COARSE
PRESERVATION
EXCELLENT
GOOD
FAIR
POOR
UNALTERED
SLIGHTLY ALTERED
MODERATELY ALTERED
STRONGLY ALTERED
SEVERELY ALTERED
METAMORPHOSED
OFFSHORE MARINE
NEARSHORE MARINE
RESTRICTED NEARSHORE - MARSH
LACUSTRINE
CONTINENTAL

SUMMARY ORGANIC MATTER TYPE

GEOCHEM No.	DEPTH	REMARKS
R522-012	385'	1.8
019	401	1.8
027	420	1.8
039	567	1.8
052	601	1.8
058	613	1.8
075	655	1.9
08"	734	1.9
099	941	2.0
113	972	2.0
123	997	2.1
132A	1016	2.1
140	1036	2.1
156	1203	2.1
, 163	Inn	2.1

PA-3

TABLE
VISUAL KEROGEN ASSESSMENT WORKSHEET

R522

Column groups: TYPE OF ORGANIC MATTER (Recognizable algae; Amorphous - sapropel; Relic amorphous; Spores - pollen; Degraded herbaceous; Cuticle - membranous debris; Woody - structured debris; Coaly - inertinite debris; Pyrobitumen; Nonrecognizable debris) | COLOR OF ORGANIC MATTER (Greenish light yellow; Yellow; Yellow orange; Orange; Orange brown; Light brown; Brown; Dark brown; Black) | STATE OF ORGANIC MATTER (Particle size: Finely disseminated, Fine, Medium, Coarse; Preservation: Excellent, Good, Fair, Poor) | MATURATION INDEX (Unaltered; Slightly altered; Moderately altered; Strongly altered; Severely altered; Metamorphosed; 1, 1+, 2-, 2, 2+, 3-, 3, 3+, 4-, 4, 5) | DEPOSITIONAL ENVIRONMENT (Offshore marine; Nearshore marine; Restricted nearshore - marsh; Lacustrine; Continental) | REMARKS | SUMMARY ORGANIC MATTER TYPE

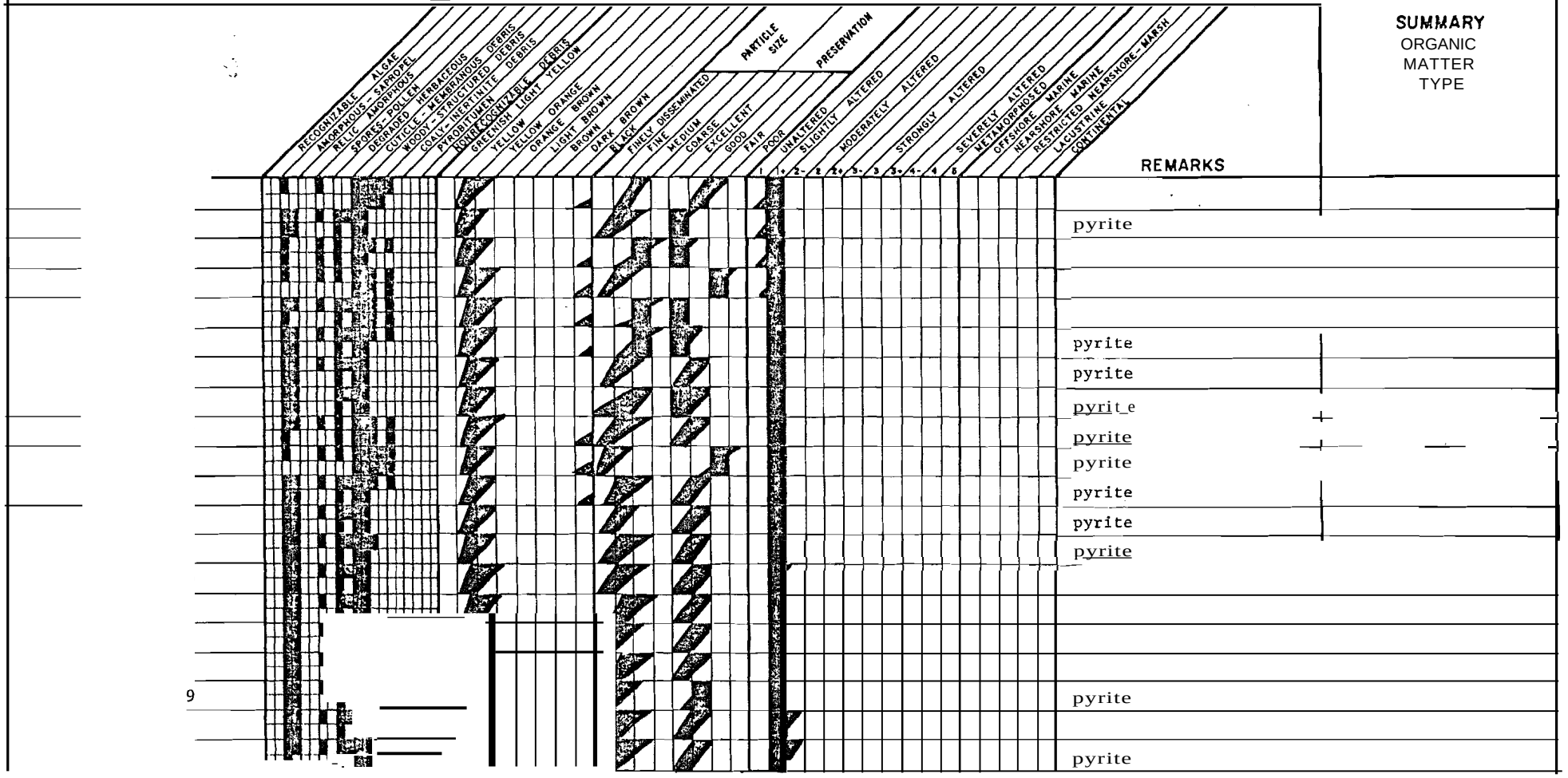
GEOCHEM No.	DEPTH	REMARKS	SUMMARY ORGANIC MATTER TYPE
R522-009	383		
013	386	pyrite	
OJ l,	387	pyrite	
016	394		
017	397	pyrite	
018	398		
021	406	pyrite	
022	407		
023	411		
025	417		
026	419		
028	423		
029	541		
030	542	pyrite	
031	545	pyrite	
033	550	pyrite	
034	552		
035	554	pyrite	
037	562		
R522-038	565	pyrite	

TABLE

VISUAL KEROGEN ASSESSMENT WORKSHEET

R522

1 TYPE OF ORGANIC MATTER | COLOR OF ORGANIC MATTER | STATE OF ORGANIC MATTER | MATURATION INDEX | DEPOSITIONAL ENVIRONMENT



TABLE

VISUAL KEROGEN ASSESSMENT WORKSHEET

R522

GEOCHEM No.	DEPTH	TYPE OF ORGANIC MATTER: RECOGNIZABLE ALGAE	AMORPHOUS - SAPROPEL	RELIC AMORPHOUS	SPORES - POLLEN	DEGRADED HERBACEOUS	CUTICLE - HERBACEOUS DEBRIS	WOODY - STRUCTURED DEBRIS	COALY - INERTINITE DEBRIS	PYROBITUMEN	NONRECOGNIZABLE DEBRIS	COLOR OF ORGANIC MATTER: GREENISH LIGHT YELLOW	YELLOW	YELLOW ORANGE	ORANGE	LIGHT BROWN	BROWN	DARK BROWN	BLACK	STATE OF ORGANIC MATTER: PARTICLE SIZE: FINELY DISSEMINATED	FINE	MEDIUM	COARSE	PRESERVATION: EXCELLENT	GOOD	FAIR	POOR	UNALTERED	SLIGHTLY ALTERED	MODERATELY ALTERED	STRONGLY ALTERED	SEVERELY ALTERED	MATURATION INDEX: 1	1+	2-	2	2+	3-	3	3+	4-	4	5	DEPOSITIONAL ENVIRONMENT: METAMORPHOSED	OFFSHORE MARINE	NEARSHORE MARINE	RESTRICTED NEARSHORE-MARSH	LACUSTRINE	CONTINENTAL	REMARKS	SUMMARY ORGANIC MATTER TYPE
R522-069	641																																																			
070	642																																																			
072	648																																																			
073	652																																																	pyrite		
074	653																																																			
077	660																																																			
078	720																																																			
079	722																																																		Reworked material?	
081	728																																																	2 populations; pyrite		
082	731																																																			
083	732																																																			
086	740																																																			
087	748																																																			
088	744																																																	pyrite		
090	751																																																	pyrite		
091	752																																																			
092	754																																																			
093	756																																																			
095	930																																																			
R522-096	932																																																	pyrite		

TABLE
VISUAL KEROGEN ASSESSMENT WORKSHEET

R522

GEOCHEM No.	DEPTH	TYPE OF ORGANIC MATTER	COLOR OF ORGANIC MATTER	STATE OF ORGANIC MATTER	MATURATION INDEX	DEPOSITIONAL ENVIRONMENT	REMARKS	SUMMARY ORGANIC MATTER TYPE
R522-098	940						pyrite	
100	942						pyrite	
101	944							
103	952						pyrite	
104	952							
105	956						pyrite	
106	958						pyrite	
108	962							
109	964							
110	968						pyrite	
112	970						pyrite	
114	972						pyrite	
115	974							
117	982						pyrite	
118	982							
119	986							
121	992							
122	994							
124	998							
R522-126	1002						pyrite	

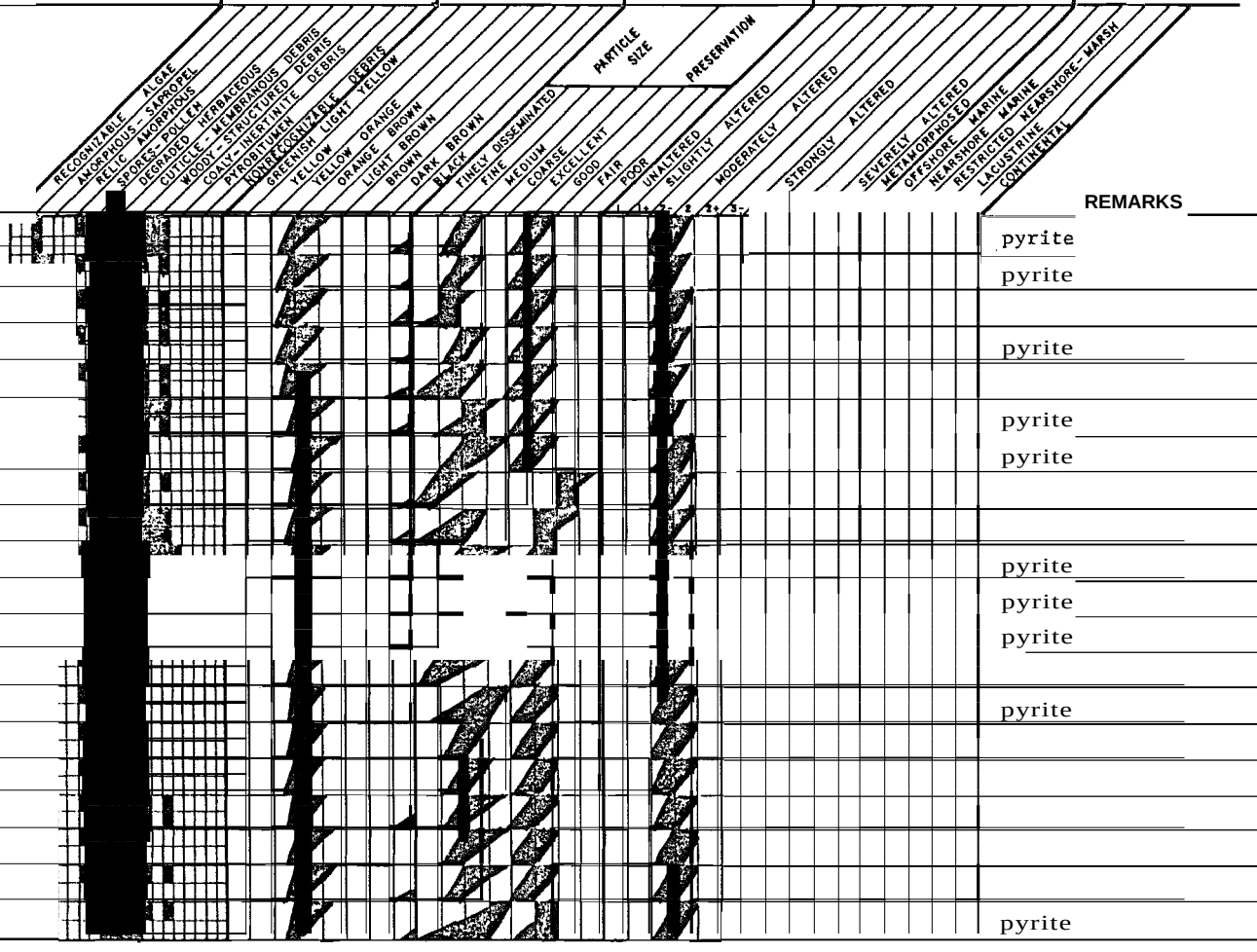


TABLE
VISUAL KEROGEN ASSESSMENT WORKSHEET

R522

GEOCHEM No.	DEPTH	TYPE OF ORGANIC MATTER	COLOR OF ORGANIC MATTER	STATE OF ORGANIC MATTER	MATURATION INDEX	DEPOSITIONAL ENVIRONMENT	REMARKS	SUMMARY ORGANIC MATTER TYPE
R522-127	1006							
128	1009							
129	1012							
131	1013						pyrite	
132	1015						pyrite	
132B	1016						pyrite	
133	1019							
136	1028							
137	1032						pyrite	
138	1032							
141	1040							
142	1042							
143	1044							
146	1178							
147	1180							
148	1181						pyrite	
149	1185							
150	1188							
152	1193							
R522-153	1197						pyrite	

Columns: RECOGNIZABLE ALGAE; AMORPHOUS - SAPROPEL; RELIC AMORPHOUS; SPORES-POLLEN; DEGRADED HERBACEOUS; CUTICLE - MEMBRANOUS DEBRIS; WOODY - STRUCTURED DEBRIS; COALY - INERTINITE DEBRIS; PYROBITUMEN; NONRECOGNIZABLE DEBRIS; GREENISH LIGHT YELLOW; YELLOW ORANGE; ORANGE BROWN; LIGHT BROWN; BROWN; DARK BROWN; BLACK; FINELY DISSEMINATED; FINE; MEDIUM; COARSE; EXCELLENT; GOOD; FAIR; POOR; UNALTERED; SLIGHTLY ALTERED; MODERATELY ALTERED; STRONGLY ALTERED; SEVERELY ALTERED; METAMORPHOSED; OFFSHORE MARINE; NEARSHORE MARINE; RESTRICTED MARINE; LACUSTRINE; NEARSHORE-MARSH; CONTINENTAL

PARTICLE SIZE; PRESERVATION

TABLE

VISUAL KEROGEN ASSESSMENT WORKSHEET

R522

TYPE OF ORGANIC MATTER | COLOR OF ORGANIC MATTER | STATE OF ORGANIC MATTER | MATURATION INDEX | DEPOSITIONAL ENVIRONMENT

SUMMARY ORGANIC MATTER TYPE

RECOGNIZABLE ALGAE, AMORPHOUS-SAPROPEL, RELIC AMORPHOUS, POR-POLLEN, DEGRADED HERBACEOUS, CUTICLE-MEMBRANOUS, WOODY-STRUCTURED DEBRIS, COALY-INERTINITE DEBRIS, PYROBITUMEN, GREENISH YELLOW, LIGHT YELLOW, YELLOW, ORANGE, LIGHT BROWN, BROWN, DARK BROWN, BLACK, FINELY DISSEMINATED, FINE, MEDIUM, COARSE, EXCELLENT, GOOD, FAIR, POOR, UNALTERED, SLIGHTLY ALTERED, MODERATELY ALTERED, STRONGLY ALTERED, SEVERELY ALTERED, METAMORPHOSED, OFFSHORE, NEARSHORE, RESTRICTED, LACUSTRINE, TURBIDITE

GEOCHEM No.	DEPTH	REMARKS
R522-154	1198	
157	1205	
158	1208	
159	1210	
161	1217	
162	1218	
164	1221	
166	1228	
167	1229	pyrite
168	1233	
170	1238	
171	1241	
172	1245	
173	1245	
176	1248	
177	1253	pyrite
178	1259	pyrite
R522-180	1272	vlom

TABLE VII

VITRINITE REFLECTANCE SUMMARY

GEOCHEM SAMPLE NUMBER	DEPTH (fttt)	TYPE OF SAMPLE	POPULATION	NUMBER OF READINGS	MINIMUM REFLECTANCE (% Ro)	MAXIMUM REFLECTANCE (% Ro)	MEAN REFLECTANCE (% Ro)	STD. DEV. (% Ro)	REMARKS
R522-001	375.5	CORE	(1)*	15	0.34	0.51	0.42	0.049	
			(2)	29	0.55	0.73	0.64	0.051	
			(3)	16	0.77	1. 13	0.90	0.102	
R522-002	376.5	CORE	(1)*	11	0.36	0.55	0.45	0.063	
			(2)	16	0.60	1.06	0.86	0.144	
			(3)	6	1.21	1. 73	1.45	0.213	
R522-003	377.5	CORE	(1)*	19	0.35	0.52	0.44	0.060	
			(2)	20	0.56	0.78	0.68	0.070	
			(3)	21	0.87	1.48	1.11	0.176	
R522-004	378.5	CORE	(1)*	34	0.33	0.56	0.46	0.055	
			(2)	14	0.60	0.89	0.75	0.111	
			(3)	12	0.99	2.05	1.35	0.337	
R522-005	379.5	CORE	(1)*	21	0.35	0.53	0.44	0.056	
			(2)	24	0.57	0.84	0.69	0.087	
			(3)	15	0.96	1.89	1.36	0.328	
R522-006	380.5	CORE	(1)*	13	0.32	0.51	0.43	0.067	
			(2)	10	0.58	0.88	0.74	0.111	
			(3)	16	1.01	1.86	1.44	0.300	
R522-007	381.5	CORE	(1)*	11	0.34	0.52	0.43	0.053	
			(2)	15	0.62	0.95	0.76	0.101	
			(3)	34	0.95	2.54	1.56	0.359	
R522-008	382.5	CORE	(1)*	18	0.42	0.56	0.49	0.046	
			(2)	26	0.59	1.09	0.85	0.176	
			(3)	16	1.16	2.24	1.51	0.336	

* Indigenous population

TABLE VII

VITRINITE REFLECTANCE SUMMARY

GEOCHEM SAMPLE NUMBER	DEPTH (flit)	TYPE OF SAMPLE	POPULATION	NUMBER OF READINGS	MINIMUM REFLECTANCE (% Ro)	MAXIMUM REFLECTANCE (% Ro)	MEAN REFLECTANCE (% Ro)	STD. DEV. (% Ro)	REMARKS
R522-010	384.5	CORE	(1) *	28	0.36	0.57	0.49	0.063	
			(2)	17	0.60	0.87	0.68	0.075	
			(3)	15	1.01	1.75	1.34	0.222	

* Indigenous population

VITRINITE REFLECTANCE SUMMARY

GEOCHEM SAMPLE NUMBER	DEPTH (feet)	TYPE OF SAMPLE	POPULATION	NUMBER OF READINGS	MINIMUM REFLECTANCE (% Ro)	MAXIMUM REFLETANCE (% Ro)	MEAN REFLETANCE (% Ro)	STD. DEV. (% Ro)	REMARKS
R522-048	592.63	CORE	(1) *	15	0.34	0.48	0.40	0.047	
			(2)	23	0.51	0.65	0.56	0.042	
			(3)	22	0.68	1.43	0.84	0.211	
R522-053	602.73	CORE	(1)	3	0.54	0.69	0.60	0.078	NO INDIGENOUS
			(2)	7	0.97	1.19	1.07	0.072	VITRINITE
			(3)	18	1.31	2.14	1.55	0.221	
R522-057	612.73	CORE	(1) *	12	0.32	0.45	0.38	0.034	
			(2)	22	0.46	0.63	0.55	0.046	
			(3)	26	0.66	1.46	0.87	0.241	
R522-062	622.71	CORE	(1) *	19	0.34	0.44	0.38	0.028	
			(2)	24	0.47	0.70	0.58	0.077	
			(3)	17	0.74	1.83	1.01	0.329	
R522-066	633.56	CORE	(1) *	42	0.35	0.55	0.46	0.050	
			(2)	12	0.57	0.67	0.63	0.031	
			(3)	6	0.72	'1.52	1.02	0.288	
R522!-070	642.85	CORE	(1) *	13	0.34	0.46	0.39	0.038	
			(2)	11	0.53	0.76	0.67	0.070	
			(3)	23	0.85	1.97	1.34	0.314	
R522-073	652.69	CORE	(1) *	16	0.36	0.53	0.46	0.057	
			(2)	14	0.56	0.76	0.67	0.058	
			(3)	30	0.81	2.25	1.13	0.364	
R522-79	722.39	CORE	(1)	2	0.58	0.67	0.63		NO INDIGENOUS
			(2)	37	1.04	1.48	1.29	0.120	VITRINITE
			(3)	21	1.49	2.16	1.72	0.189	

* Indigenous population

VITRrNITE' REFLECTANCE SUMMARY

GEOCHEM SAMPLE NUMBER	DEPTH (feet)	TYPE OF SAMPLE	POPULATION	NUMBER OF READINGS	MINIMUM REFLECTANCE (% Ro)	MAXIMUM REFLETANCE (% Ro)	MEAN REFLETANCE (% Ro)	STD. DEV. (% Ro)	REMARKS
R522-082	732.57	CORE	(1) *	17	0.36	0.51	0.46	0.049	
			(2) *	28	0.55	0.81	0.65	0.072	
			(3)	15	0.94	1.72	1.26	0.311	
R522-087	742.52	CORE	(1) *	1	0.38	0.38	0.38		
			(2)	26	0.79	1.34	1.16	0.145	
			(3)	33	1.38	2.20	1.72	0.211	
R522-090	752.60	CORE	(1) *	4	0.36	0.45	0.41	0.047	
			(2)	14	0.52	0.77	0.63	0.091	
			(3)	10	0.81	1.11	0.95	0.098	
			(4)	32	1.19	2.20	1.63	0.245	
R522-096	932.70	CORE	(1) *	1	0.45	0.45	0.45		
			(2)	1	1.06	1.06	1.06		
			(3)	3	1.39	1.62	1.48	0.121	
			(4)	3	1.88	2.07	1.97	0.095	
R522-100	942.82	CORE	(1) *	1	0.53	0.53	0.53		
			(2)	9	0.69	0.87	0.77	0.062	
			(3)	25	0.91	2.29	1.59	0.367	
R522-104	952.79	CORE	(1) *	11	0.40	0.59	0.52	0.070	
			(2)	26	0.63	0.81	0.73	0.056	
			(3)	23	0.84	1.99	1.23	0.379	
R522-108	962.69	CORE	(1)	2	0.59	0.61	0.60		NO INDIGENOUS VITRINITE
			(2)	1	0.80	0.80	0.80		
			(3)	12	0.98	1.60	1.31	0.204	
			(4)	6	1.87	2.14	2.02	0.111	

* Indigenous population

VITRINITE REFLECTANCE SUMMARY

GEOCHEM SAMPLE NUMBER	DEPTH (feet)	TYPE OF SAMPLE	POPULATION	NUMBER OF READINGS	MINIMUM REFLECTANCE (% Ro)	MAXIMUM REFLETANCE (% Ro)	MEAN REFLETANCE (% Ro)	STD. DEV. (% Ro)	REMARKS
R522-114	972.83	CORE	(1)*	8	0.36	0.50	0.43	0.044	
			(2)	28	0.54	0.80	0.68	0.081	
			(3)	13	0.85	1.75	1.24	0.310	
R522-117	982.42	CORE	(1)*	12	0.38	0.51	0.44	0.042	
			(2)	12	0.57	0.68	0.62	0.037	
			(3)	11	0.68	0.92	0.83	0.067	
			(4)	2	1.33	1.57	1.45		
R522-121	992.40	CORE	0)*	15	0.37	0.51	0.43	0.049	
			(2)	19	0.53	0.60	0.57	0.018	
			(3)	13	0.63	0.84	0.70	0.061	
			(4)	13	0.96	1.67	1.21	0.190	
R522-126	1002.58	CORE	(1)*	27	0.39	0.55	0.46	0.055	
			(2)	13	0.58	0.77	0.66	0.055	
			(3)	11	0.84	1.36	1.04	0.173	
R522-129	1012.66	CORE	(1)*	4	0.40	0.53	0.48	0.064	
			(2)	6	0.60	0.94	0.75	0.128	
			(3)	5	1.21	2.02	1.61	0.380	
R522-132B	1016.54	CORE	(1)*	29	0.37	0.53	0.44	0.047	
			(2)	10	0.55	0.60	0.58	0.016	
			(3)	19	0.61	1.22	0.82	0.199	
			(4)	2	1.75	2.23	1.99		
R522-137	1032.47	CORE	(1)*	8	0.40	0.56	0.49	0.052	
			(2)	32	0.60	0.94	0.77	0.105	
			(3)	14	1.02	1.32	1.17	0.106	
			(4)	6	1.48	2.13	1.73	0.255	

* Indigenous population

VITRINITE REFLECTANCE SUMMARY

GEOCHEM SAMPLE NUMBER	DEPTH (feet)	TYPE OF SAMPLE	POPULATION	NUMBER OF READINGS	MINIMUM REFLECTANCE (% Ro)	MAXIMUM REFLETANCE (% Ro)	MEAN REFLETANCE (% Ro)	STD. DEV. (% Ro)	REMARKS
R522-142	1042.58	CORE	NO VITRINITE						
R522-146	1178.62	CORE	(1)	2	0.66	0.72	0.69		NO INDIGENOUS
			(2)	6	0.89	1.25	1.06	0.130	VITRINITE
			(3)	19	1.29	1.71	1.56	0.124	
			(4)	33	1.84	2.29	2.05	0.155	
R522-150	1188.62	CORE	(1)	3	0.63	0.67	0.65	0.021	NO INDIGENOUS
			(2)	2	0.89	0.94	0.92		VITRINITE
			(3)	10	1.13	1.39	1.28	0.090	
			(4)	31	1.46	1.89	1.68	0.128	
			(5)	14	1.98	2.30	2.12	0.111	
R522-154	1198.71	CORE	(1) *	7	0.52	0.69	0.63	0.059	
			(2)	13	0.73	1.14	0.92	0.141	
			(3)	9	1.22	1.48	1.34	0.090	
			(4)	15	1.56	1.78	1.63	0.063	
			(5)	16	1.88	2.31	2.02	0.134	
R522-158	1208.58	CORE	(1)	4	0.64	0.73	0.68	0.047	NO INDGENOUS
			(2)	6	0.82	1.23	1.02	0.157	VITRINITE
			(3)	15	1.33	1.59	1.46	0.088	
			(4)	35	1.65	2.32	1.98	0.199	
R522-162	1218.77	CORE	(1)*	6	0.45	0.62	0.55	0.059	
			(2)	8	0.66	0.80	0.73	0.053	
			(3)	9	0.90	1.13	1.03	0.072	
			(4)	34	1.22	2.05	1.67	0.263	
			(5)	3	2.24	2.32	2.27	0.042	

* Indigenous population

VITRINITE REFLECTANCE SUMMARY

GEOCHEM SAMPLE NUMBER	DEPTH (feet)	TYPE • OF SAMPLE	POPULATION	NUMBER OF -READINGS	MINIMUM REFLECTANCE (% Ro)	MAXIMUM REFLETANCE (% Ro)	MEAN REFLETANCE (% Ro)	STD. DEV. (% Ro)	REMARKS
R522-166	1228.87	CORE	(1) *	18	0.56	0.73	0.64	0.057	
			(2)	28	0.90	1.60	1.26	0.193	
			(3)	14	1.73	2.26	1.95	0.185	
R522-170	1238.67	CORE	(1) *	7	0.42	0.53	0.46	0.046	
			(2)	9	0.60	0.73	0.66	0.038	
			(3)	18	0.77	1.00	0.87	0.072	
			(4)	3	1.51	1.98	1.68	0.263	
R522-176	1248.91	CORE	(1)	1	0.89	0.89	0.89		NO INDIGENOUS
			(2)	4	1.54	1.88	1.65	0.160	VITRINITE

* Indigenous population

VITRINITE REFLECTANCE SUMMARY

GEOCHEM SAMPLE NUMBER	OEPTH (het)	TYPE OF SAMPLE	POPULATION	NUMBER OF READINGS	MINIMUM REFLECTANCE (% Ro)	MAXIMUM REFLECTANCE (% Ro)	MEAN REFLECTANCE (% Ro)	STD. OEV. (% Ro)	REMARKS
R522-009	383	CORE	(1)	3	0.40	0.48	0.45	0.044	
			(2)	20	0.54	0.72	0.62	0.045	
			(3)	14	0.80	1.15	0.95	0.105	
			(4)	23	1.21	7.88	2.06	1.319	
R522-031	545	CORE	(1)	4	0.31	0.41	0.37	0.045	
			(2)	20	0.45	0.80	0.64	0.101	
			(3)	7	1.06	1.68	1.36	0.249	
			(4)	2	2.19	2.31	2.25		
R522-064	627	CORE	(1)	29	0.30	0.43	0.38	0.038	
			(2)	28	0.47	0.86	0.65	0.107	
			(3)	3	1.31	1.85	1.62	0.280	
R522-092	754	CORE	(1)	28	0.30	0.43	0.37	0.043	
			(2)	31	0.45	0.90	0.62	0.120	
			(3)	1	1.92	1.92	1.92		
R522-106	958	CORE	(1)	13	0.34	0.55'	0.47	0.063	
			(2)	41	0.59	0.90	0.73	0.083	
			(3)	6	1.08	1.55	1.31	0.174	
R522-131	1013	CORE	(1)	30	0.40	0.57	0.50	0.055	
			(2)	17	0.59	0.73	0.64	0.045	
			(3)	13	0.80	1.73	1.05	0.311	
R522-147	1180	CORE	(1)	2	0.46	0.51	0.49		
			(2)	6	1.09	1.47	1.27	0.124	
			(3)	20	1.55	2.41	1.91	0.266	
R521-173	1245	CORE	(1)	5	0.46	0.62	0.56	0.061	
			(2)	9	0.68	0.87	0.76	0.067	
			(3)	2	1.45	1.63	1.54		

VITRINITE REFLECTANCE SUMMARY

GEOCHEM SAMPLE NUMBER	DEPTH (flit)	TYPE OF SAMPLE	POPULATION	NUMBER OF READINGS	MINIMUM REFLECTANCE (% Ro)	MAXIMUM REFLECTANCE (% Ro)	MEAN REFLECTANCE (% Ro)	STD. DEV. (% Ro)	REMARKS
R522-012	385.31	CORE	(I) *	25	0.42	0.57	0.50	0.053	
			(2)	25	0.59	0.73	0.65	0.041	
			(3)	10	0.76	1.02	0.83	0.090	
R522-019	401.72	CORE	(1) *	20	0.38	0.50	0.44	0.040	
			(2)	30	0.52	0.71	0.62	0.058	
			(3)	10	0.75	1.28	0.96	0.172	
R522-027	420.72	CORE	(I) *	13	0.39	0.51	0.44	0.032	
			(2)	35	0.54	0.74	0.64	0.056	
			(3)	12	0.78	1.54	1.00	0.259	
R522-039	567.62	CORE	(1) *	16	0.39	0.55	0.48	0.052	
			(2)	14	0.57	0.65	0.61	0.025	
			(3)	30	0.67	1.74	0.83	0.218	
R522-052	601.67	CORE	(1)	2	0.58	0.59	0.59		NO INDIGENOUS
			(2)	18	0.72	1.49	1.13	0.235	VITRHIITE
R522-058	613.62	CORE	(I) *	18	0.40	0.57	0.49	0.056	
			(2)	34	0.60	0.81	0.68	0.058	
			(3)	8	0.98	1.69	1.25	0.244	
R522-075	655.92	CORE	(1) *	2	0.44	0.60	0.52		
			(2)	22	0.73	1.01	0.85	0.083	
			(3)	6	1.30	1.78	1.48	0.170	
R522-084	734.58	CORE	(1) *	8	0.44	0.59	0.52	0.061	
			(2)	22	0.65	0.82	0.74	0.048	
			(3)	30	0.89	2.08	1.24	0.275	

* Indigenous Population

VITRINITE REFLECTANCE SUMMARY

GEOCHEM SAMPLE NUMBER	DEPTH (het>	TYPE OF SAMPLE	POPULATION	NUMBER OF READINGS	MINIMUM REFLECTANCE (% Ro)	MAXIMUM REFLECTANCE (% Ro)	MEAN REFLECTANCE (% Ro)	STD. DEV. (% Ro)	REMARKS
R522-099	941.88	CORE	(1) *	5	0.45	0.57	0.50	0.043	
			(2)	25	0.64	0.92	0.80	0.078	
			(3)	6	0.98	1.14	1.06	0.060	
			(4)	6	1.32	1.61	1.45	0.113	
R522-113	972.60	CORE	(1) *	12	0.45	0.57	0.51	0.043	
			(2)	32	0.60	0.91	0.74	0.081	
			(3)	16	0.96	1.85	1.29	0.245	
R522-123	997.60	CORE	(1) *	21	0.45	0.62	0.54	0.046	
			(2)	26	0.65	0.91	0.76	0.079	
			(3)	13	1.05	1.33	1.18	0.091	
R522-132A	1016.54	CORE	(1) *	16	0.sa	0.60	0.52	0.049	
			(2)	16	0.64	0.99	0.78	0.117	
			(3)	15	1.18	1.72	1.40	0.192	
R522-140	1036.90	CORE	(1) *	19	0.48	0.68	0.59	0.055	
			(2)	20	0.72	1.05	0.83	0.094	
			(3)	21	1.14	1.79	1.41	0.194	
R522-156	1203.74	CORE	(1) *	9	0.47	0.61	0.55	0.044	
			(2)	13	0.64	1.00	0.80	0.119	
			(3)	38	1.11	2.32	1.67	0.361	
R522-163	1220.54	CORE	(1)*	3	0.44	0.67	0.52	0.133	
			(2)	11	1.21	2.04	1.58	0.280	

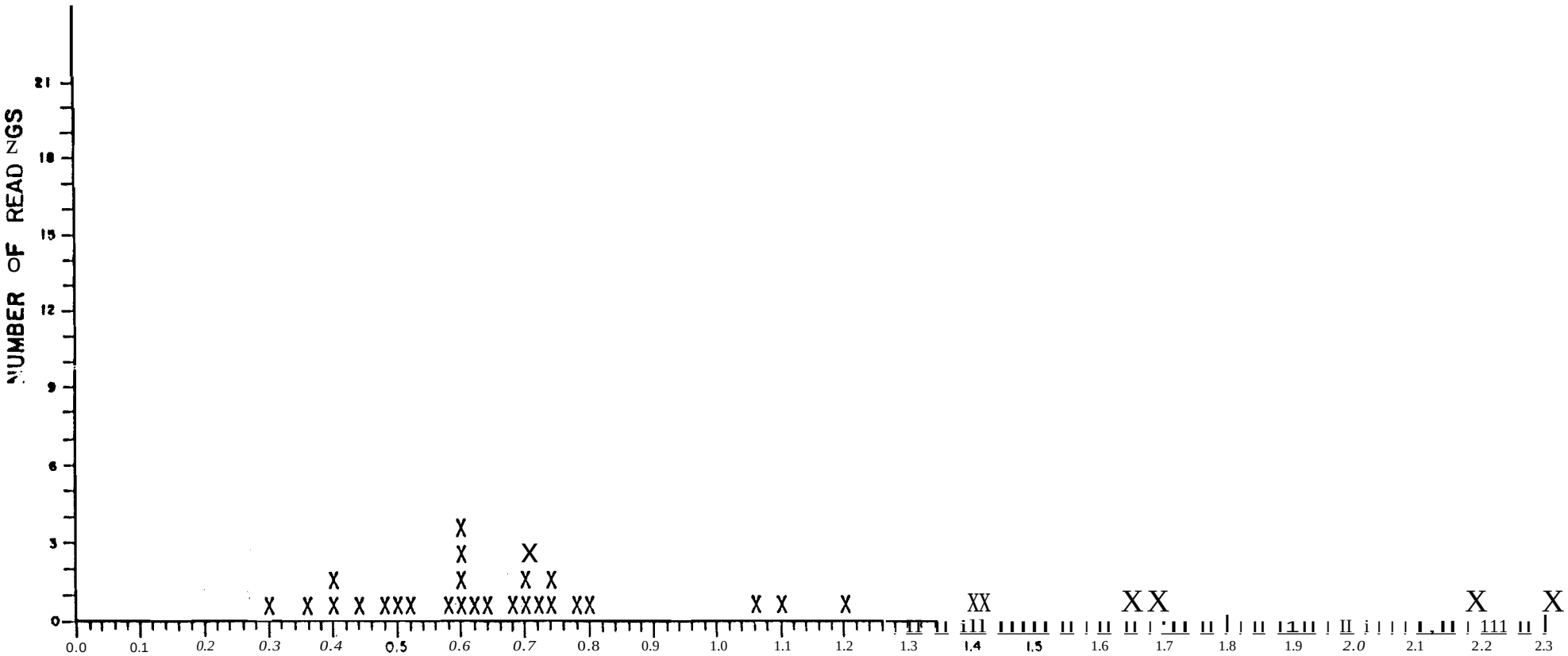
* Indigenous Population

GEOCHEM NO. R522-031 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 545

CLIENT'S NAME MONSANTO WELL NAME PI\-3

(NO. OF READINGS = 33) 0.31 0.36 0.40 0.41 0.45 0.48 0.50 0.53 0.58 0.60 0.60 0.60 0.61 0.63 0.65 0.68 0.70 0.70 0.71 0.73 0.74 0.74 0.79 0.80 1.06 1.10 1.21 1.41 1.42 1.65 1.68 2.19 2.31

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)	4	0.31	0.41	0.37	0.045	
(2)	20	0.45	0.80	0.64	0.101	
(3)	7	1.06	1.68	1.36	0.249	
(4)	2	2.19	2.31	2.25		



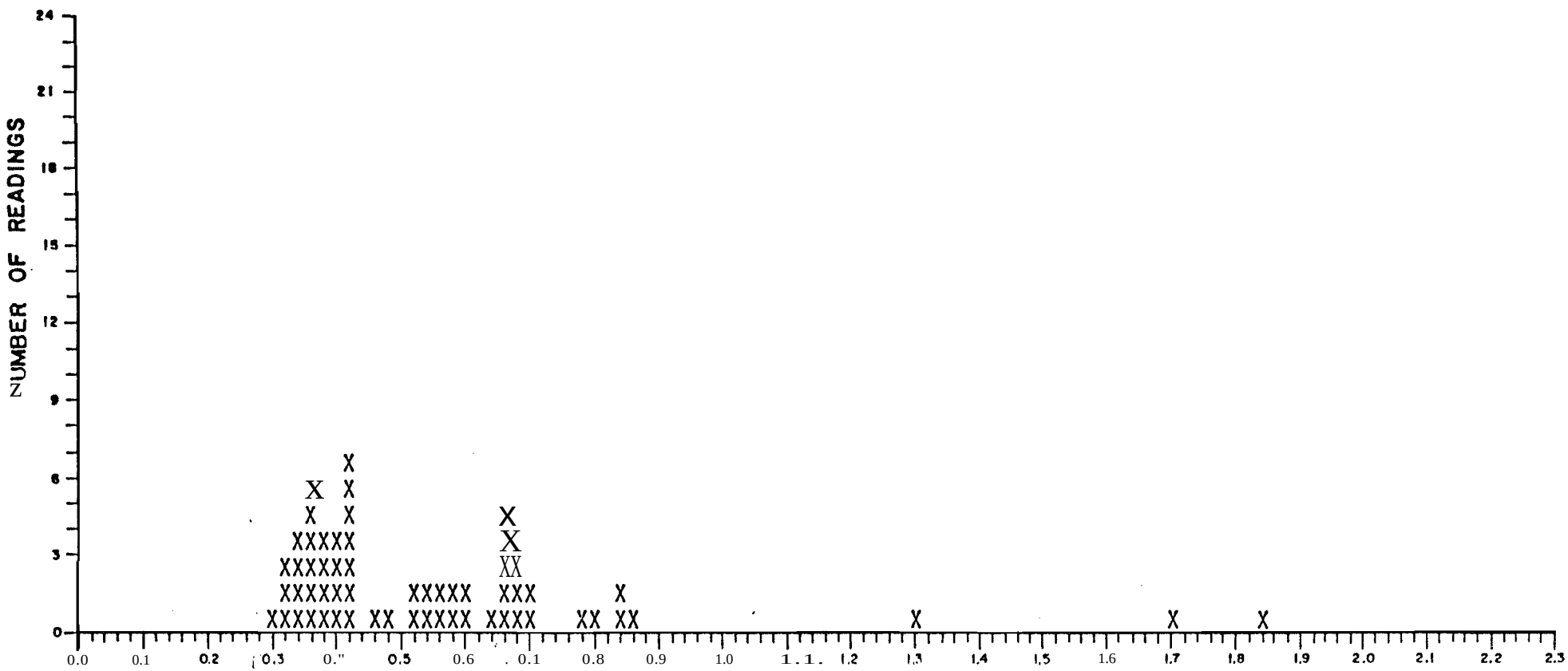
VITRINITE. REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-064 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 627

CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS =60) 0.30 0.32 0.32 0.33 0.34 0.34 0.34 0.35 0.36 0.36 0.36 0.36 0.37 0.37
0.38 0.38 0.39 0.39 0.40 0.40 0.40 0.41 0.42 0.42 0.42 0.43 0.43 0.43 0.43 0.47 0.49 0.53
0.53 0.54 0.55 0.56 0.57 0.58 0.59 0.60 0.61 0.64 0.6G 0.66 0.66 0.67 0.67 0.G8 0.68 0.69
0.70 0.71 0.78 0.81 0.84 0.85 0.86 1.31 1.71 1.85

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)	29	0.30	0.43	0.38	0.038	
(2)	28	0.47	0.86	0.65	0.107	
(3)	3	1.31	1.85	1.62	0.280	



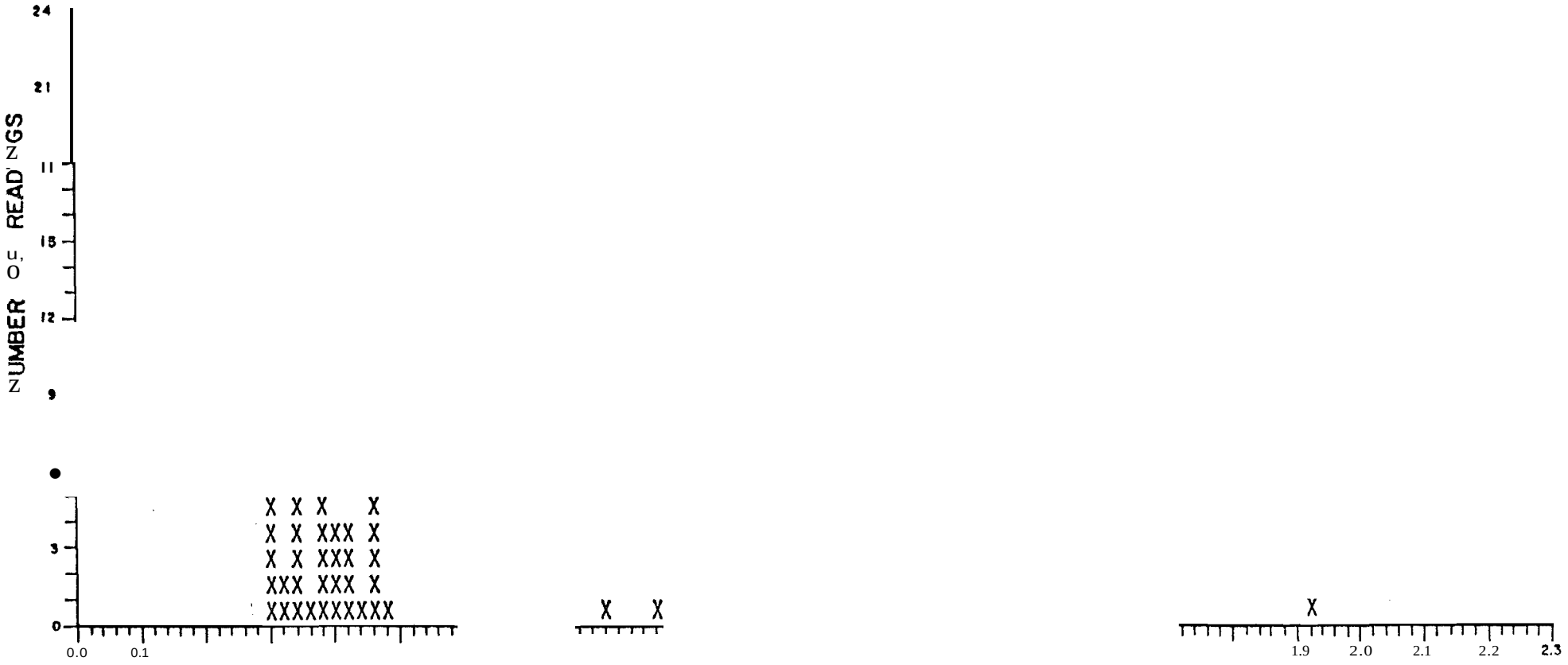
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-092 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 754

CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS =60) 0.30 0.30 0.30 0.31 0.31 0.31 0.33 0.33 0.34 0.34 0.34 0.35 0.35 0.37
0.38 0.38 0.39 0.39 0.39 0.39 0.40 0.41 0.41 0.41 0.42 0.42 0.42 0.43 0.45 0.46 0.46 0.46
0.46 0.46 0.46 0.47 0.49 0.57 0.57 0.60 0.60 0.60 0.63 0.65 0.65 0.65 0.65 0.65 0.66 0.67
0.68 0.69 0.70 0.71 0.74 0.74 0.76 0.83 0.90 1.92

POPVLATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)	28	0.30	0.43	0.37	0.043	
(2)	31	0.45	0.90	0.62	0.120	
(3)	1	1.92	1.92	1.92		



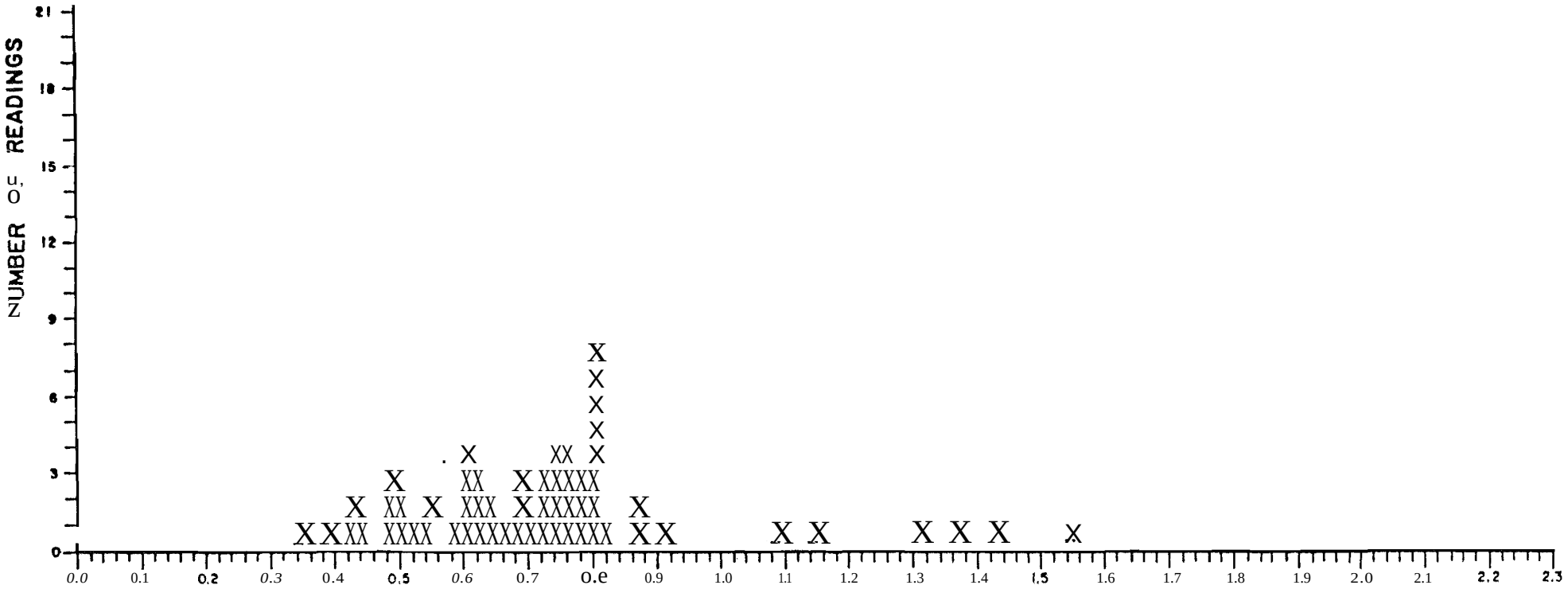
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-106 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 958

CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS = 60) 0.34 0.38 0.42 0.43 0.45 0.48 0.49 0.49 0.50 0.51 0.53 0.54 0.55 0.59
0.60 0.60 0.61 0.61 0.63 0.63 0.63 0.64 0.64 0.66 0.68 0.68 0.69 0.71 0.72 0.73 0.73 0.74
0.75 0.75 ('.75 0.76 0.76 0.77 0.77 0.78 0.79 0.79 0.80 0.80 0.80 0.80 0.81 0.81 0.81 0.81
0.83 0.86 0.87 0.90 1.08 1.15 1.30 1.37 1.42 1.55

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEY. (%)	REMARKS
(1)	13	0.34	0.55	0.47	0.063	
(2)	41	0.59	0.90	0.73	0.083	
(3)	6	1.08	1.55	1.31	0.174	

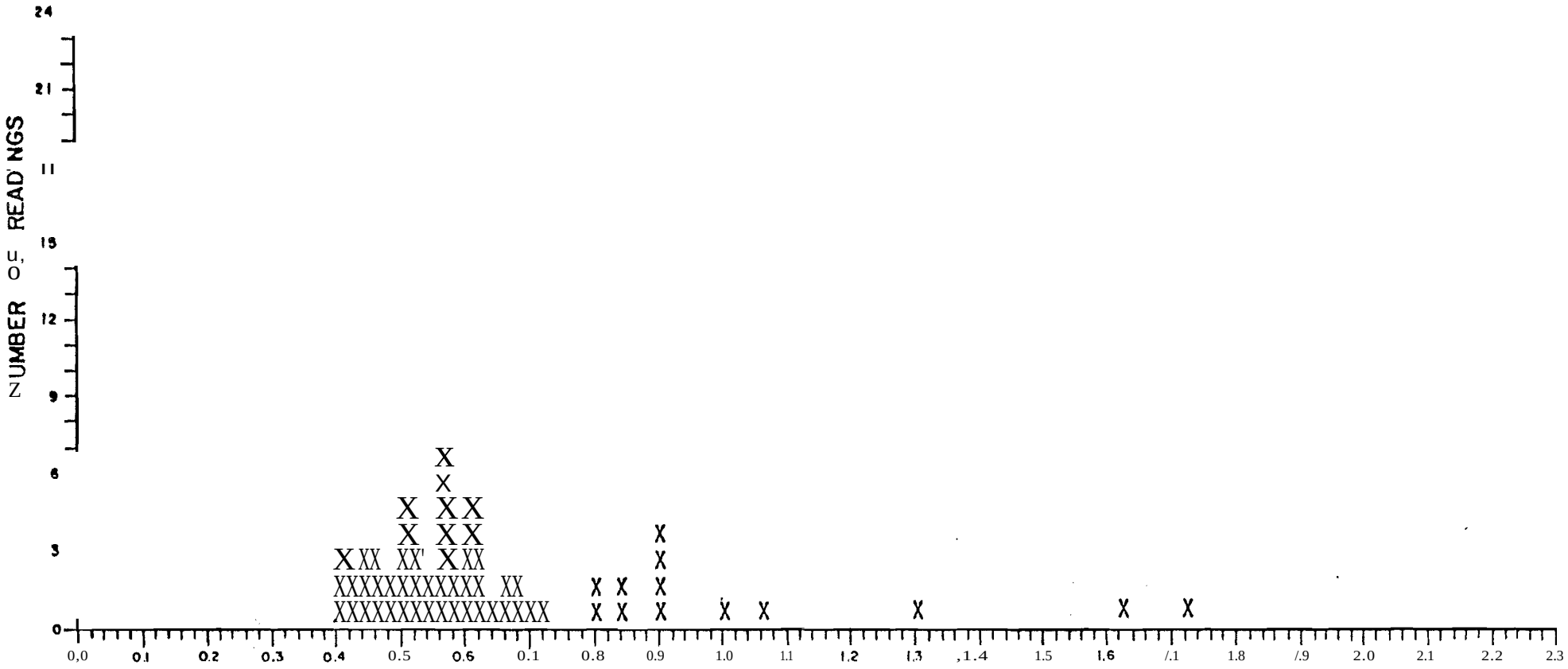


VITRINITE REFLECTANCE HISTOGRAM

CLIENT'S NAME MONSANTO WELL NAME

(NO. OF READINGS =60) 0.40 0.40 0.41 0.42 0.43 0.44 0.45 0.45 0.46
0.50 0.51 0.51 0.51 0.52 0.53 0.53 0.54 0.55 0.56 0.56 0.56 0.57
0.60 0.60 0.60 0.61 0.61 0.62 0.62 0.62 0.64 0.66 0.67 0.69 0.69
0.84 0.90 0.90 0.90 0.91 1.01 1.06 1.30 1.63 1.73

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro(%)	STD. DEV. (%)	REMARKS
(1)	30	0.40	0.57	0.50	0.055	
(2)	17	0.59	0.73	0.64	0.045	
(3)	13	0.80	1.73	1.05	0.311	



VITRINITE REFLECTANCE HISTOGRAM

TABLE VII-A

R522-001

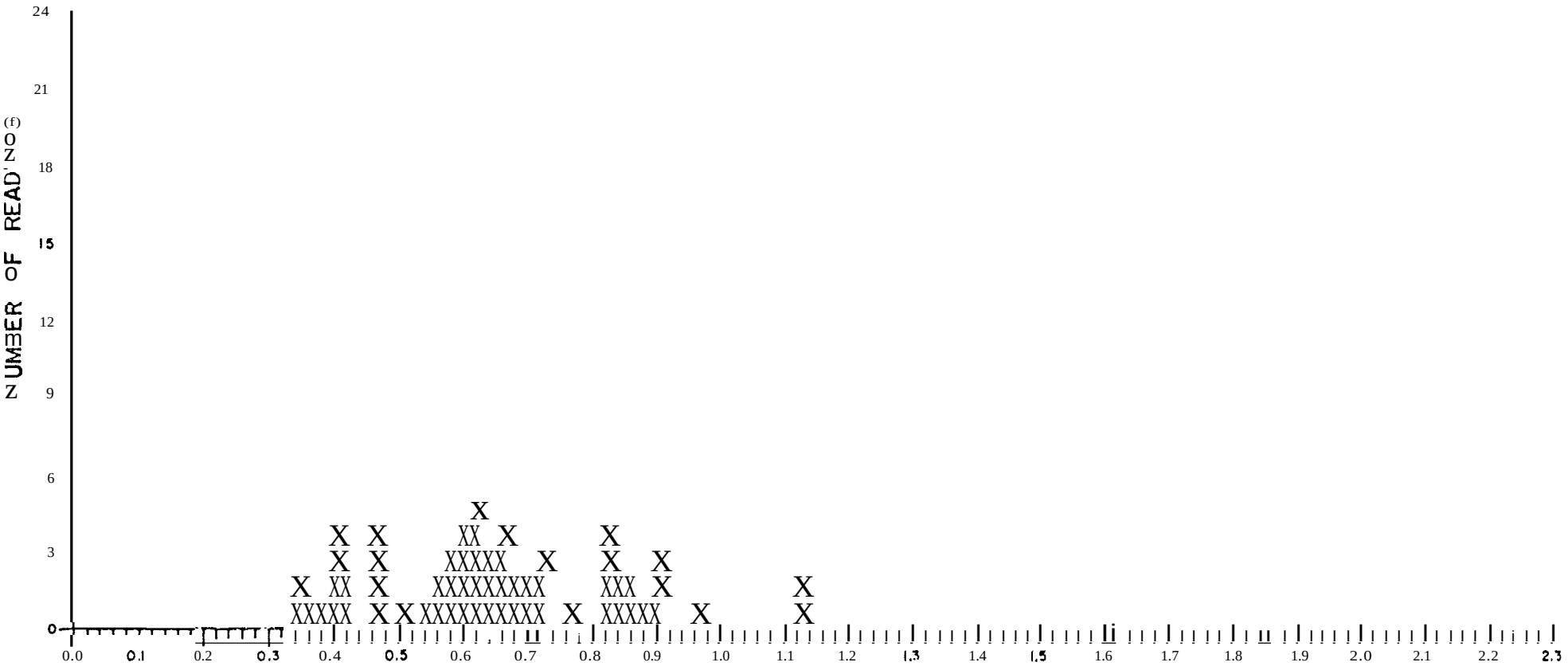
DEPTH / SAMPLE NO. 375.5

CLIENT'S NAME MONSANTO

WELL NAME PA-3

(NO. OF READINGS = 60) 0.34 0.35 0.37 0.38 0.40 0.40 0.41 0.41 0.42 0.42 0.46 0.47 0.47 0.47
0.51 0.55 0.56 0.57 0.58 0.58 0.58 0.60 0.60 0.61 0.61 0.62 0.62 0.62 0.62 0.63 0.64 0.64
0.64 0.66 0.66 0.66 0.66 0.68 0.68 0.70 0.70 0.73 0.73 0.73 0.77 0.82 0.83 0•83 0.83 0.85
0.85 0.86 0.87 0.88 0.90 0.91 0.91 0.97 1.13 1.13

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	15	0.34	0.51	0.42	0.049	
(2)	29	0.55	0.73	0.64	0.051	
(3)	16	0.77	1.13	0.90	0.102	



VITRINITE REFLECTANCE HISTOGRAM

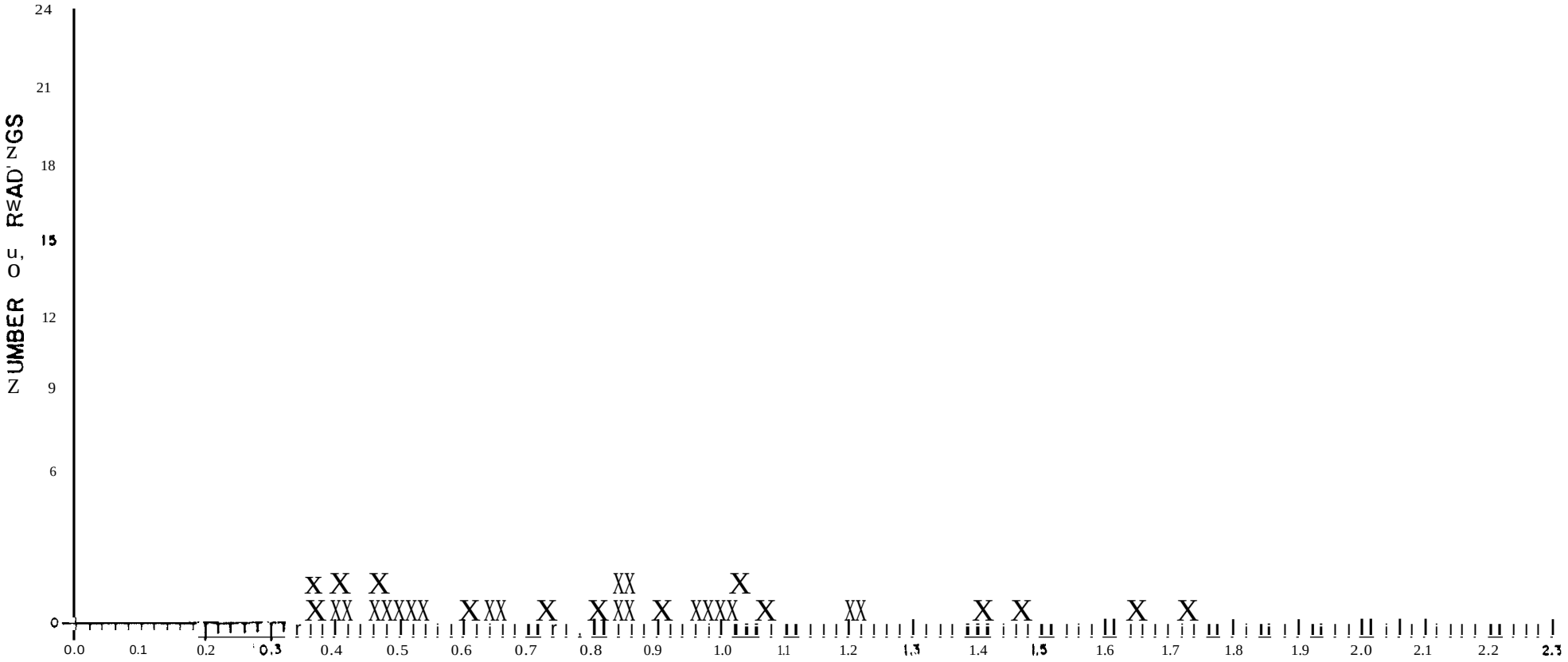
. TABLE VII-A

R522-002

CLIENT'S NAME MONSANTO WELL NAME

(NO. OF READINGS = 33) 0.36 0.37 0.40 0.41 0.42 0.46 0.47 0.49 0.51 0.52 0.55 0.60 0.65 0.66 0.73 0.81 0.84 0.84 0.86 0.87 0.90 0.97 0.98 1.00 1.02 1.02 1.06 1.21 1.22 1.41 1.47 1.64 1. 73

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro(%)	STD. DEV. (%)	REMARKS
(1) *	11	0.36	0.55	0.45	0.063	
(2)	16	0.60	1.06	0.86	0.144	
(3)	6	1.21	1. 73	1.45	0.213	



VITRINITE REFLECTANCE HISTOGRAM

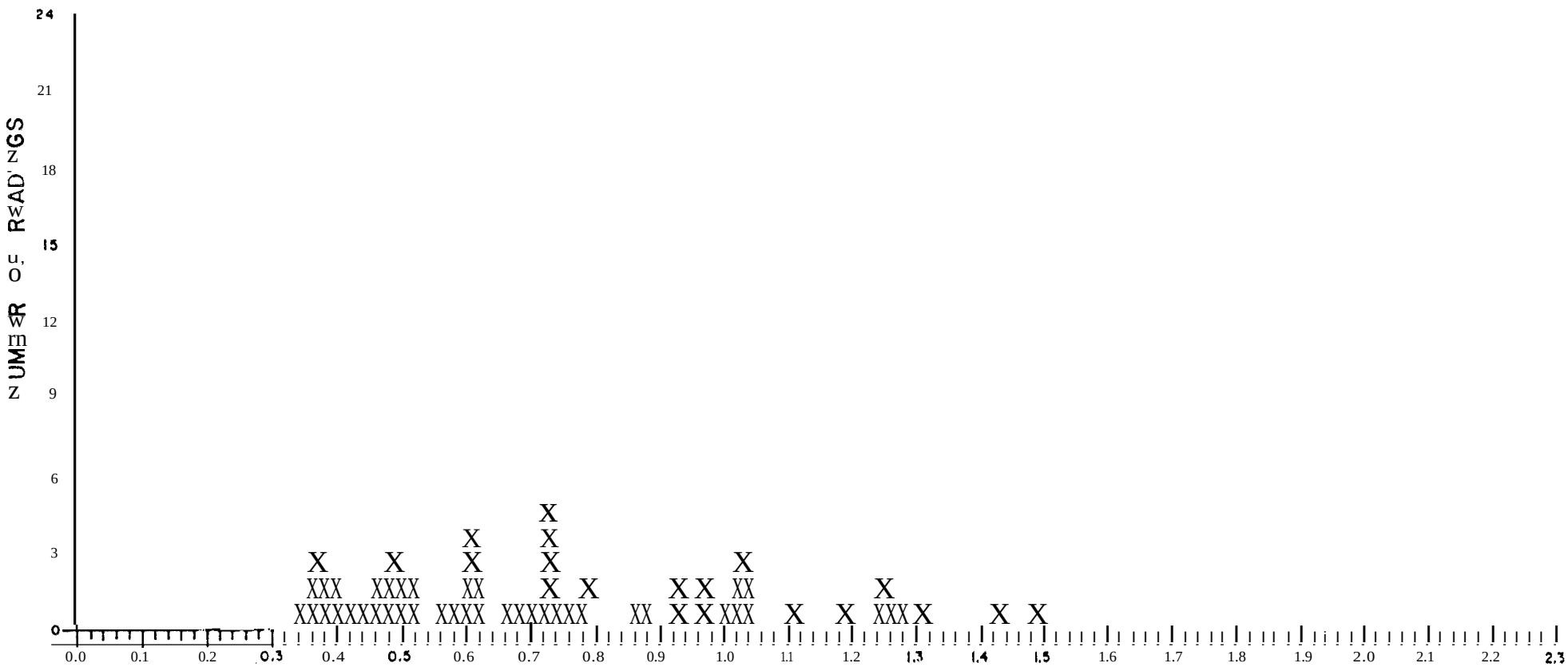
TABLE VII-A

GEOCHEM NO. R522-003 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 377.5

CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS = 60) 0.35 0.36 0.36 0.37 0.39 0.39 0.40 0.41 0.43 0.45 0.47 0.47 0.49 0.49
0.49 0.50 0.51 0.52 0.52 0.56 0.58 0.60 0.60 0.61 0.61 0.62 0.63 0.66 0.68 0.70 0.72 0.72
0.73 0.73 0.73 0.74 0.76 0.78 0.78 0.87 0.89 0.92 0.93 0.96 0.97 1.01 1.02 1.03 1.03 1.04
1.04 1.10 1.18 1.24 1.25 1.26 1.28 1.31 1.42 1.48

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	19	0.35	0.52	0.44	0.060	
(2)	20	0.56	0.78	0.68	0.070	
(3)	21	0.87	1.48	loll	0.176	



VITRINITE REFLECTANCE HISTOGRAM

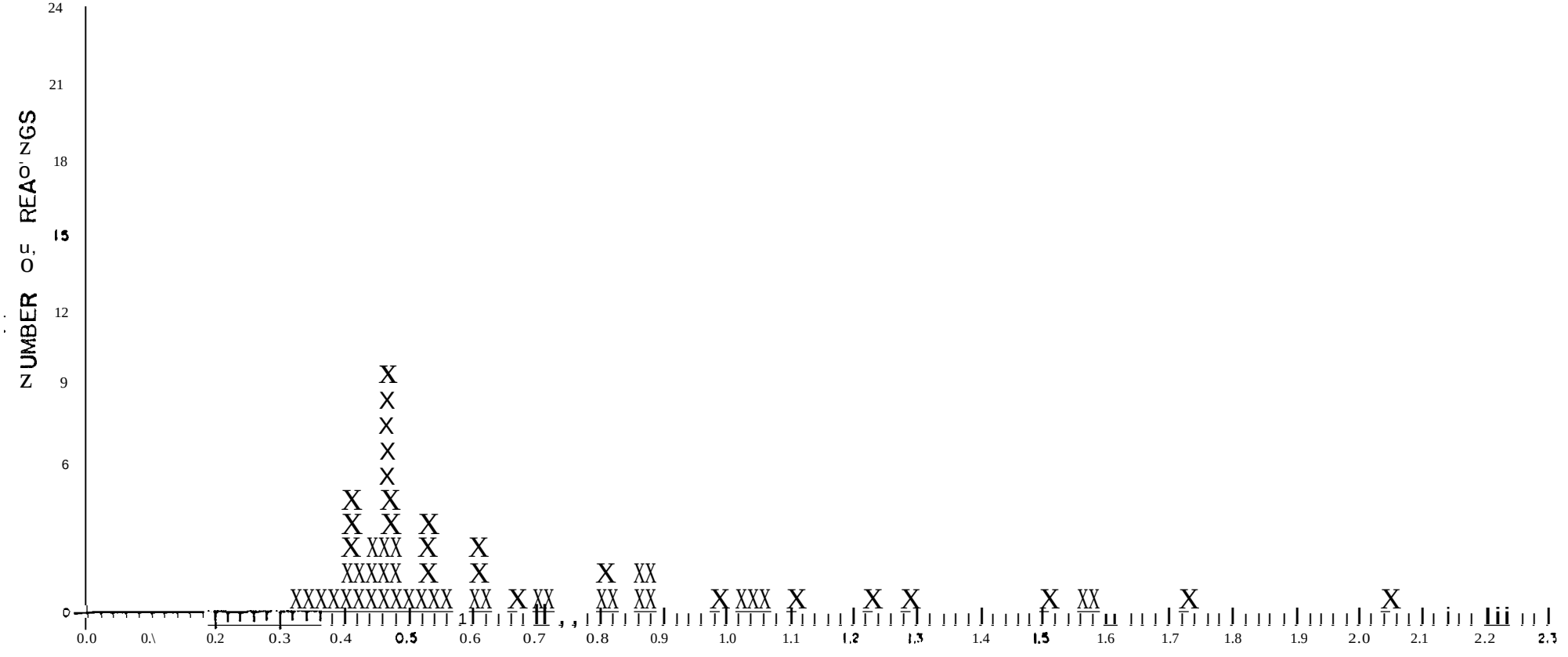
TABLE VII-A

GEOCHEM NO. R522-004 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 378.5

CIIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS = 60) 0.33 0.35 0.36 0.38 0.40 0.41 0.41 0.41 0.41 0.42 0.43 0.44 0.44 0.44
0.47 0.47 0.47 0.47 0.47 0.47 0.47 0.47 0.47 0.47 0.48 0.48 0.48 0.50 0.52 0.52 0.53 0.53
0.54 0.56 0.60 0.60 0.61 0.63 0.67 0.71 0.72 0.80 0.80 0.82 0.86 0.87 0.88 0.89 0.99 1.02
1.04 1.07 loll 1.22 1.28 1.50 1.57 1.59 1.72 2.05

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	34	0.33	0.56	0.46	0.055	
(2)	14	0.60	0.89	0.75	0.111	
(3)	12	0.99	2.05	1.35	0.337	



VITRINITE REFLECTANCE HISTOGRAM

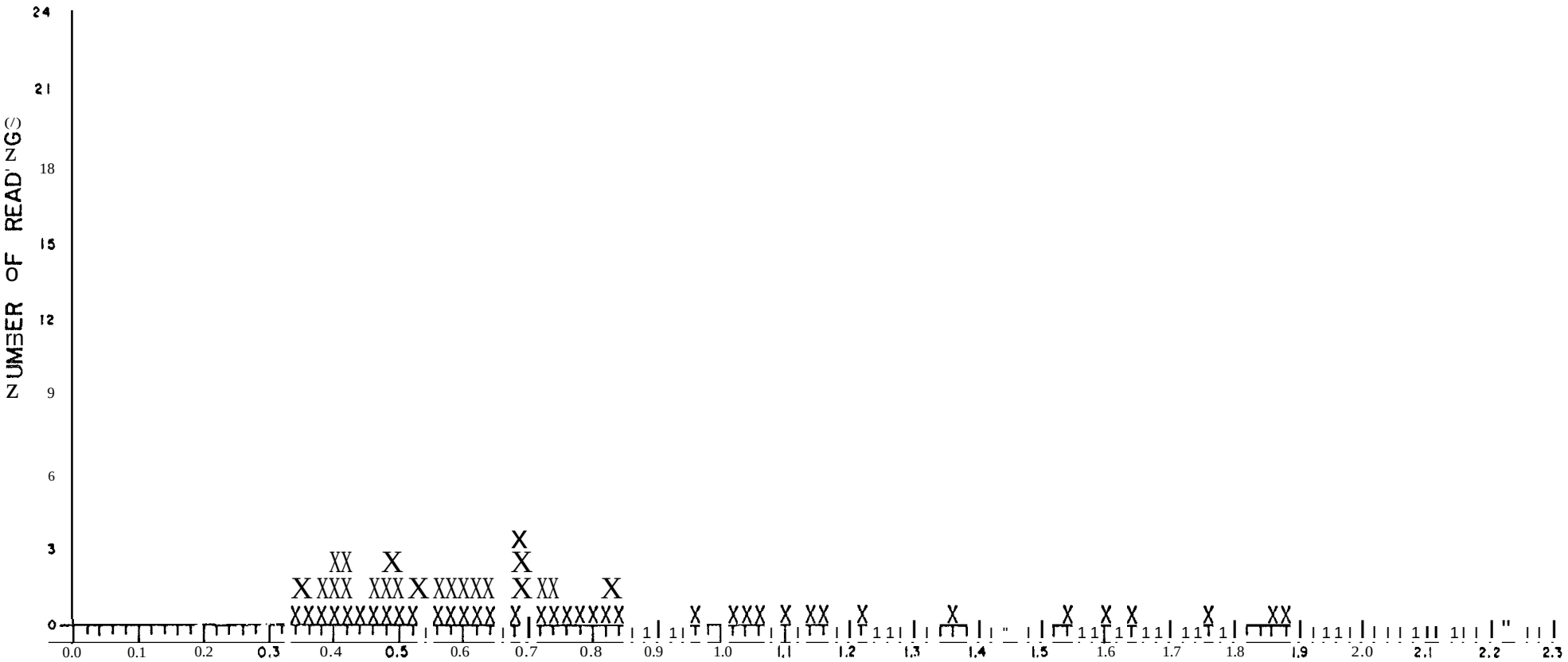
TABLE VII-A

R522-005

CLIENT'S NAME MONSANTO WELL NAME

(NO. OF READINGS = 60) 0.35 0.35 0.37 0.38 0.38 0.40 0.40 0.40 0.42 0.42 0.43 0.45 0.46 0.46
0.48 0.48 0.49 0.50 0.50 0.52 0.53 0.57 0.57 0.58 0.58 0.61 0.61 0.62 0.63 0.65 0.65 0.68
0.68 0.69 0.69 0.72 0.73 0.74 0.75 0.76 0.79 0.80 0.82 0.83 0.84 0.96 1.03 1.05 1.07 1.11
1.14 1.16 1.22 1.37 1.55 1.61 1.65 1.76 1.87 1.89

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)*	21	0.35	0.53	0.44	0.056	
(2)	24	0.57	0.84	0.69	0.087	
(3)	15	0.96	1.89	1.36	0.328	

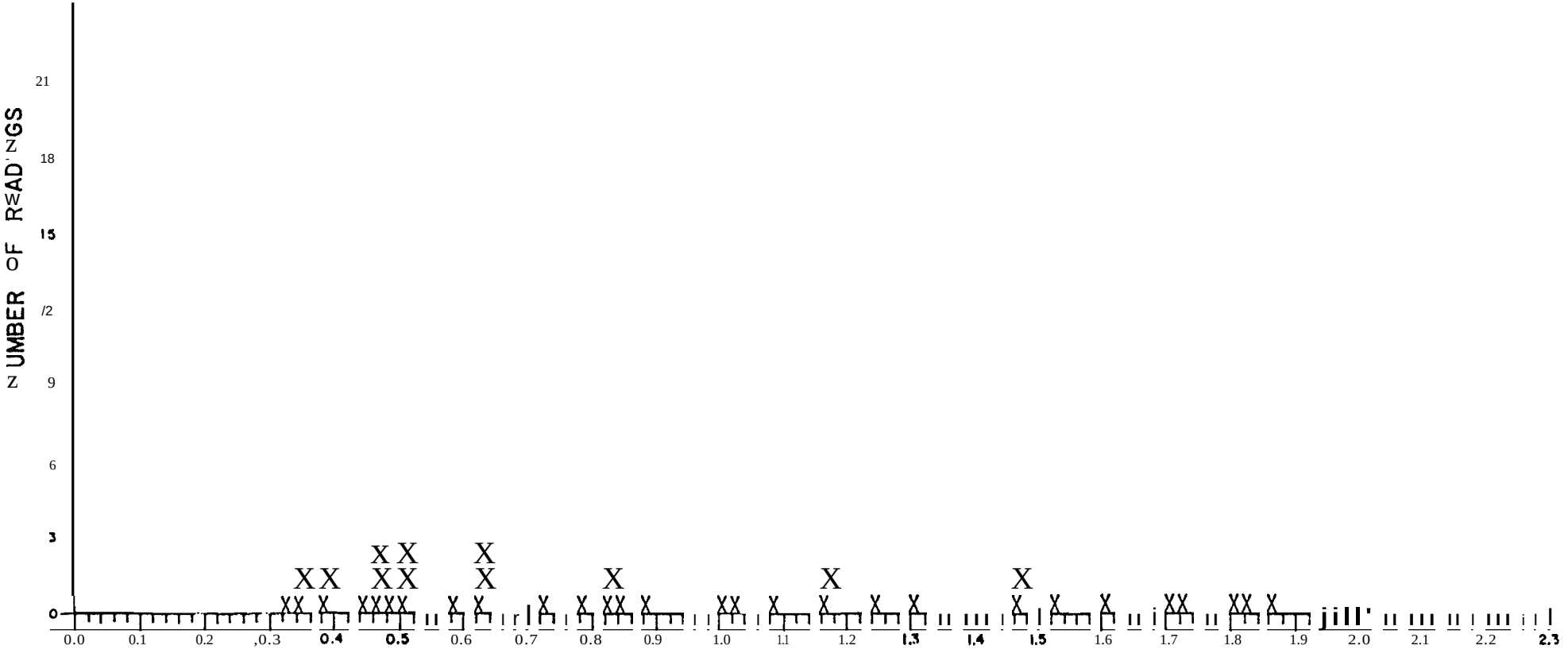


VITRINITE REFLECTANCE HISTOGRAM

TABLE VII-A

R522-006

CLIENT'S NAME MONSANTO WELL NAME



VITRINITE REFLECTANCE HISTOGRAM

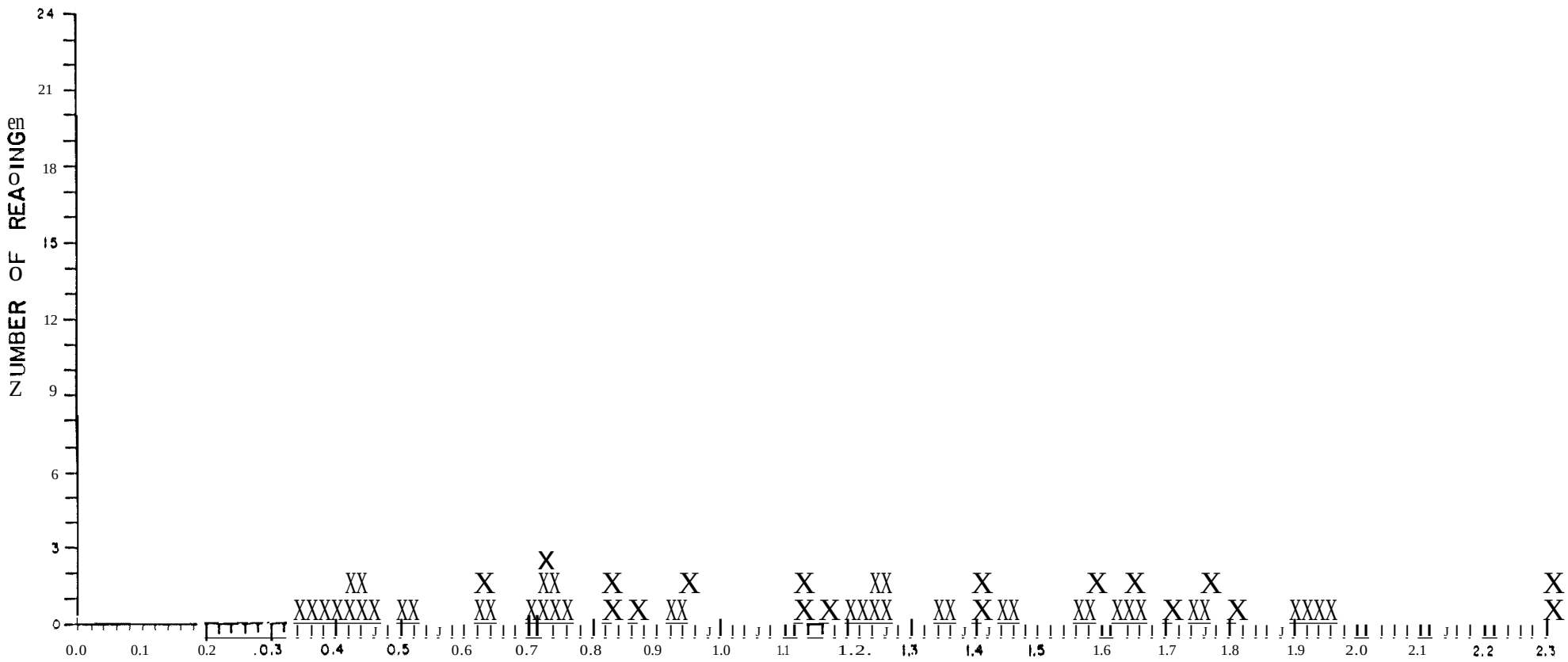
TABLE VII-A

GEOCHEM NO. R522-007 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 381.5

CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS = 60) 0.34 0.37 0.39 0.41 0.42 0.43 0.44 0.44 0.47 0.50 0.52 0.62 0.62 0.64
0.70 0.73 0.73 0.73 0.74 0.74 0.77 0.83 0.83 0.86 0.92 0.95 0.95 1.13 1.13 1.16 1.21 1.22
1.24 1.25 1.26 1.26 1.35 1.36 1.41 1.41 1.45 1.46 1.57 1.58 1.59 1.62 1.64 1.65 1.66 . 1.71
1.74 1.76 1.76 1.81 1.90 1.92 1.95 1.96 2.47 2.54

POPULATION	NO. OF READINGS	MIN. Ro (%).	MAX. Ro (%)	MEAN Ro(%)	STD. DEV. (%)	REMARKS
(1) *	11	0.34	0.52	0.43	0.053	
(2)	15	0.62	0.95	0.76	0.101	
(3)	34	0.95	2.54	1.56	0.359	



VITRINITE REFLECTANCE HISTOGRAM

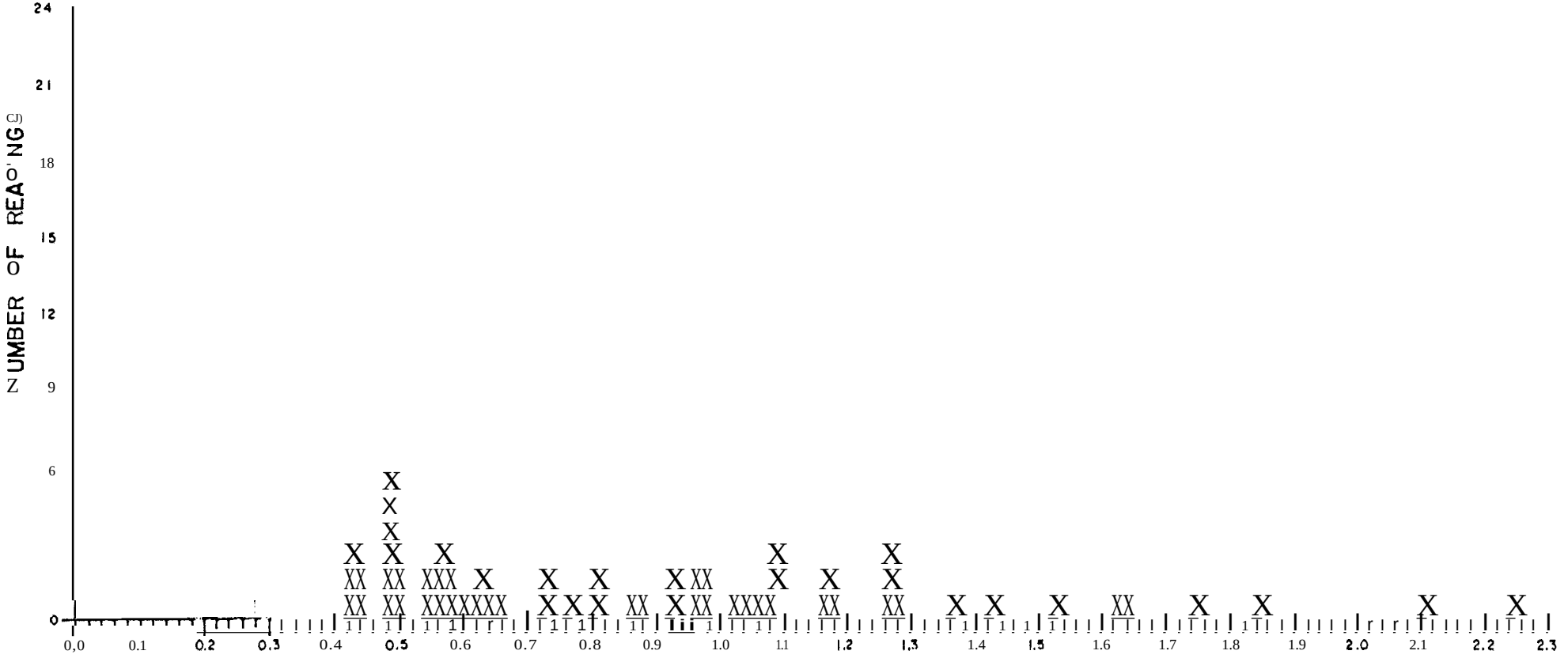
TABLE VII-A

R522-008 382.5

MONSANTO WELL NAME

(NO. OF READINGS = 60) 0.42 0.43 0.43 0.45 0.45 0.48 0.48 0.48 0.48 0.49 0.49 0.50 0.51 0.54
0.54 0.56 0.56 0.56 0.59 0.59 0.60 0.62 0.63 0.65 0.66 0.72 0.72 0.76 0.81 0.81 0.86 0.88
0.93 0.93 0.96 0.96 0.98 0.98 1.03 1.05 1.07 1.08 1.08 1.09 1.16 1.16 1.18 1.27 1.27 1.27
1.29 1.37 1.43 1.52 1.63 1.65 1.75 1.85 2.10 2.24

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	18	0.42	0.56	0.49	0.046	
(2)	26	0.59	1.09	0.85	0.176	
(3)	16	1.16	2.24	1.51	0.336	



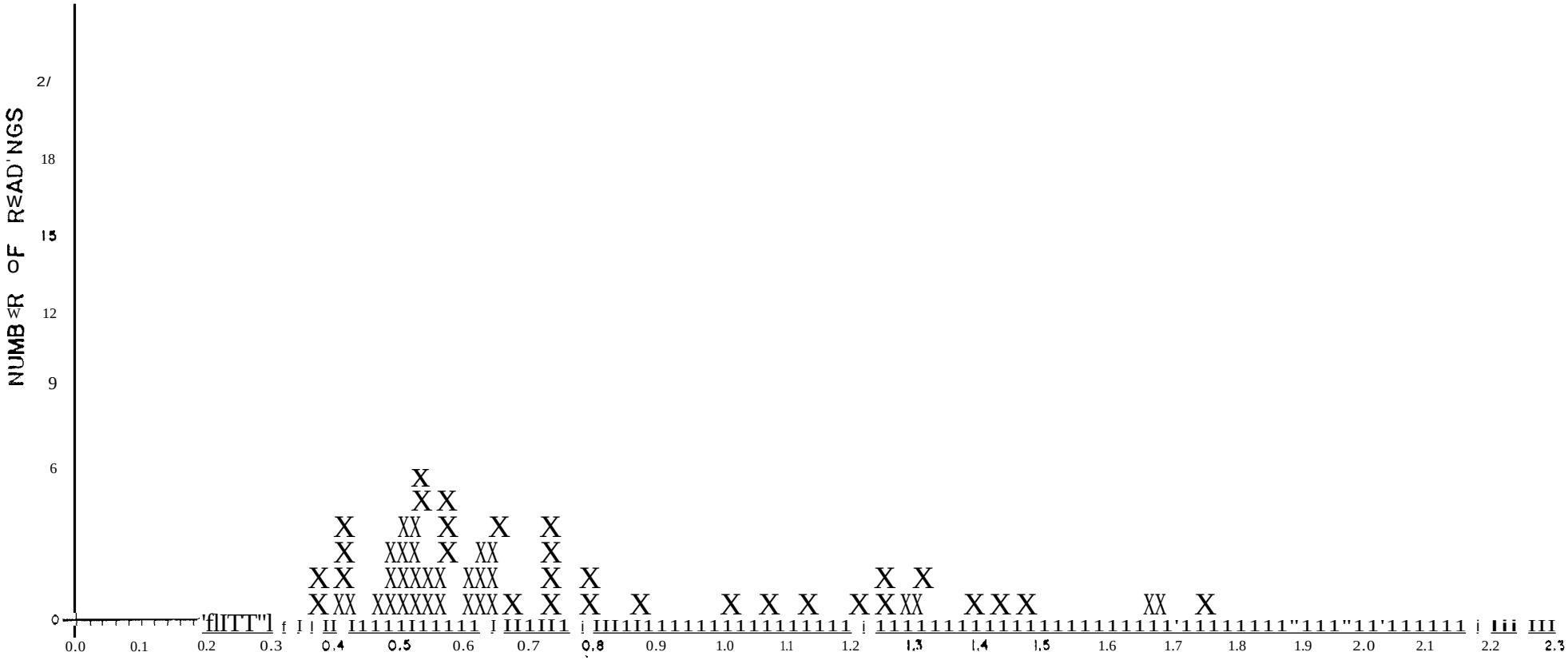
VITRINITE REFLECTANCE HISTOGRAM

TABLE VII-A

R522-010 CORE 384.5

MONSANTO

WELL NAME



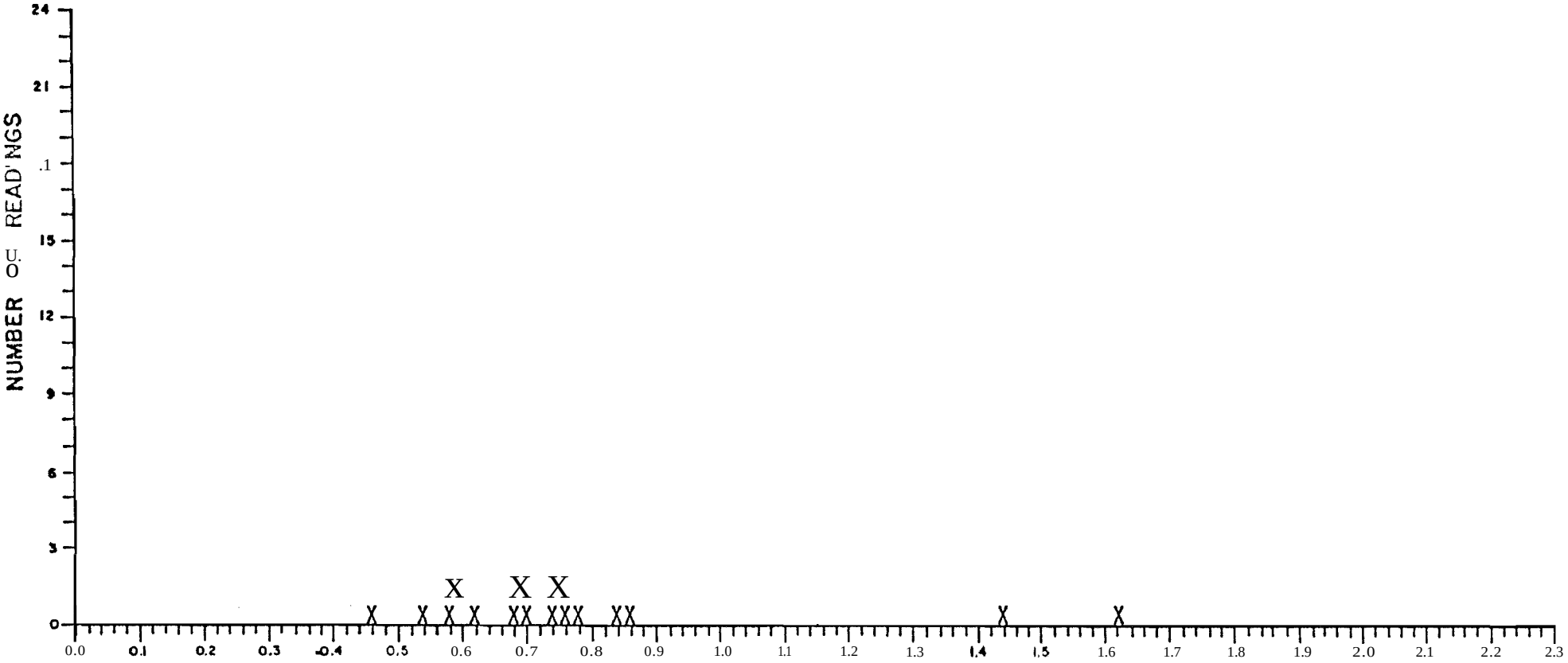
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO.: R521-173 TYPE OF SAMPLE: CORE DEPTH/SAMPLE NO. 1245

CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS =16) 0.46 0.55 0.58 0.59 0.62 0.68 0.69 0.71 0.74 0.75 0.76 0.79 0.85 0.87 1.45 1.63

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro(%)	STD. DEY. (%)	REMARKS
(1)	5	0.46	0.62	0.56	0.061	
(2)	9	0.68	0.87	0.76	0.067	
(3)	2	1.45	1.63	1.54	-	



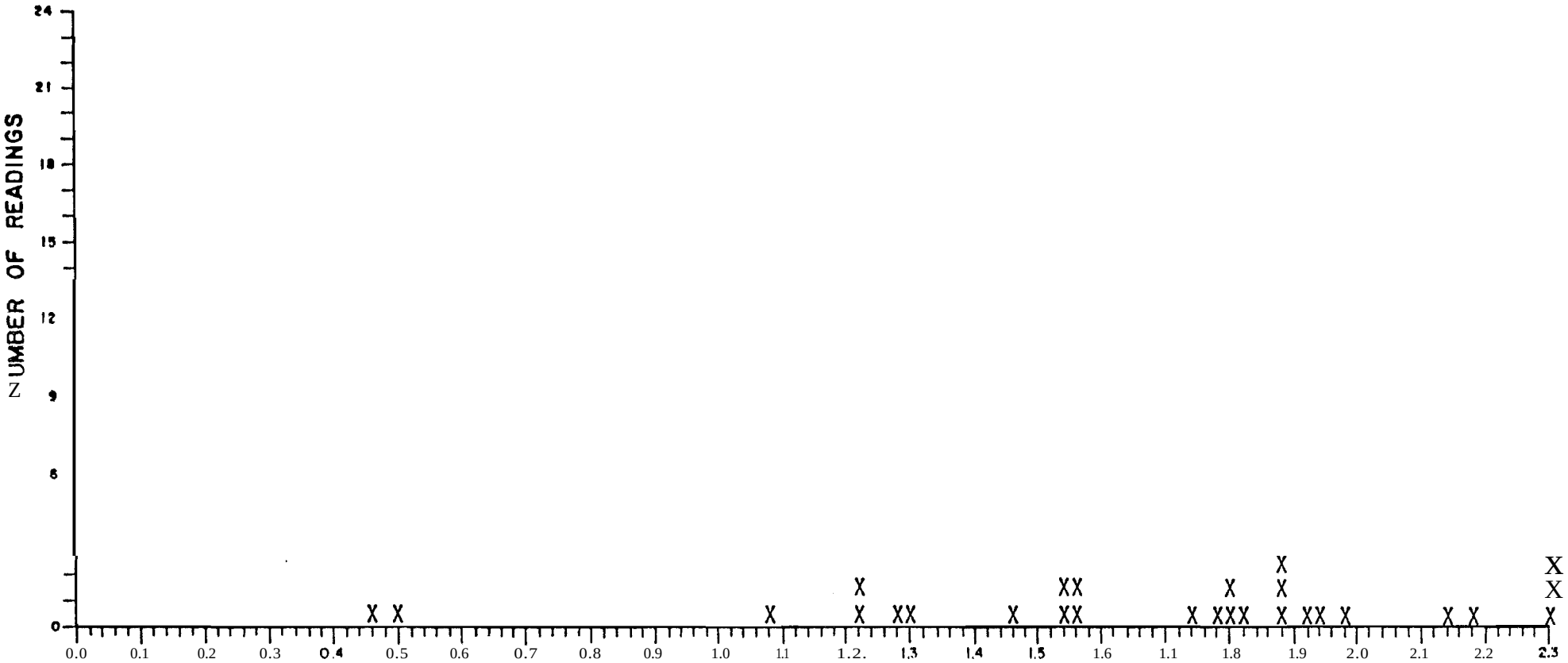
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-147 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 1180

CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS = 28) 0.46 0.51 1.09 1.23 1.23 1.29 1.30 1.47 1.55 1.55 1.56 1.56 1.74 1.78 1.80 1.81 1.82 1.88 1.89 1.89 1.93 1.95 1.98 2.14 2.19 2.33 2.36 2.41

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)	2	0.46	0.51	0.49		
(2)	6	1.09	1.47	1.27	0.124	
(3)	20	1.55	2.41	1.91	0.266	



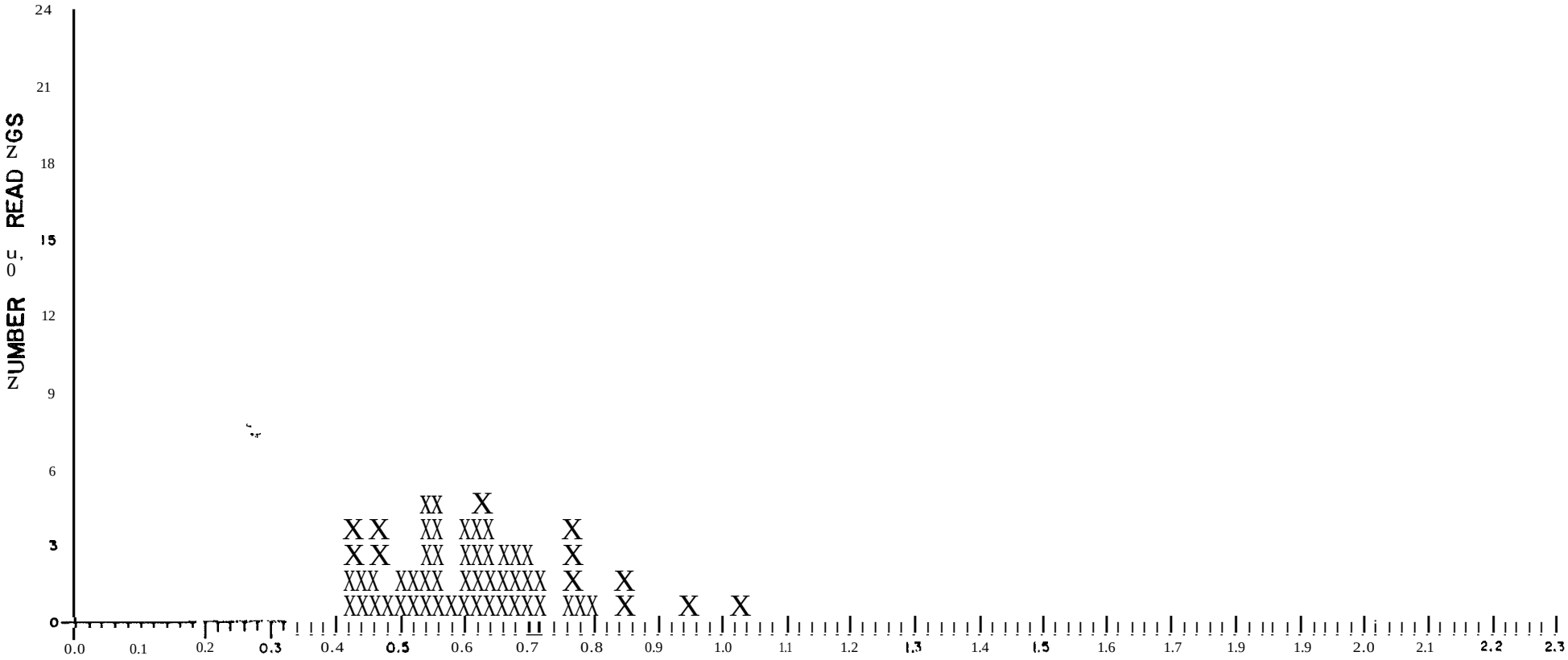
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-012 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 385.31

CLIENT'S NAME MONSANTO WELL NAME PI\-3

(no. OF READINGS = 60) 0.42 0.42 0.43 0.43 0.45 0.45 0.46 0.46 0.46 0.47 0.48 0.50 0.51 0.53
0.53 0.54 0.54 0.55 0.55 0.55 0.56 0.56 0.56 0.57 0.57 0.59 0.60 O.GO 0.60 0.61 0.62 0.62
0.62 0.63 0.63 0.64 0.64 0.64 0.65 0.66 0.67 0.67 0.68 0.68 0.68 0.70 0.71 0.71 0.72 0.73
0.76 0.76 0.76 0.77 0.78 0.81 0.85 0.85 0.95 1.02

POPULATION	NO. OF READINGS.	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	25	0.42	0.57	0.50	0.053	
(2)	25	0.59	0.73	0.65	0.041	
(3)	10	0.76	1.02	0.83	0.090	



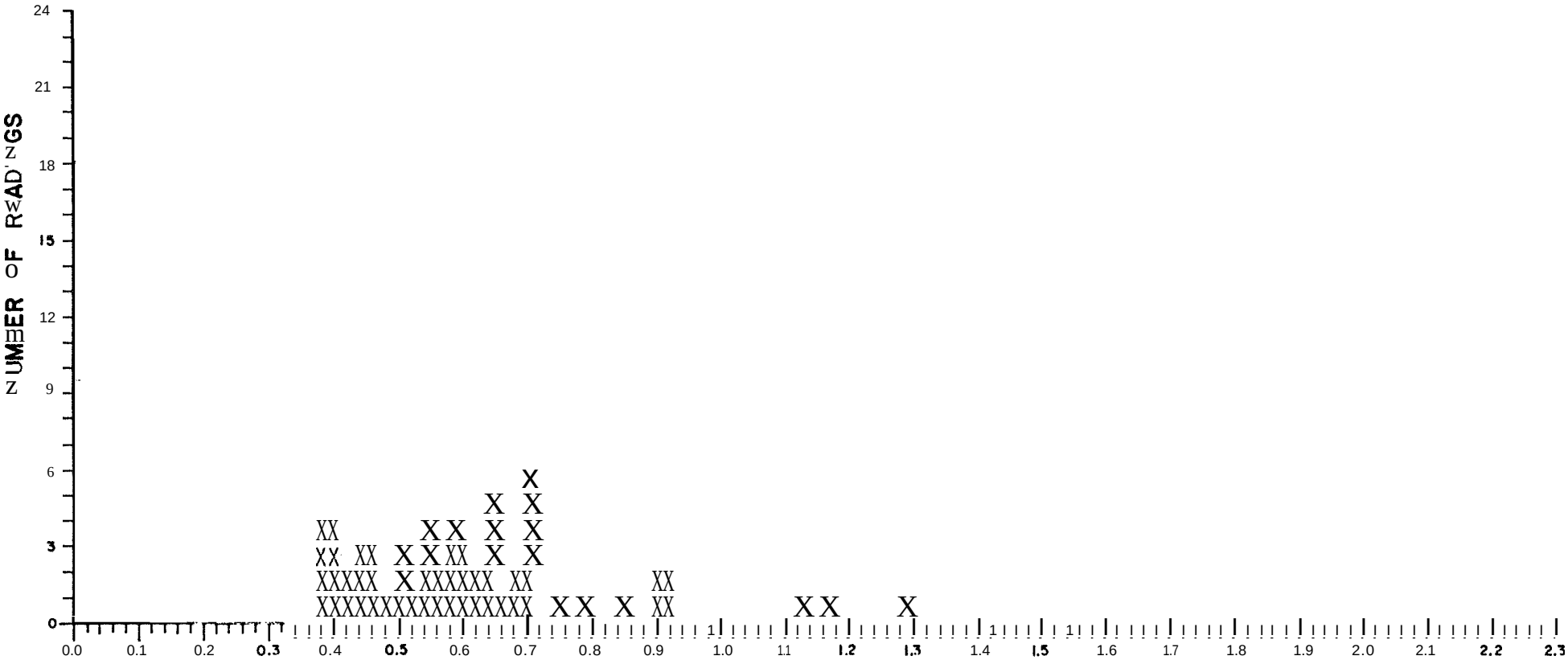
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-019 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 401.72

CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS = 60) 0.38 0.39 0.39 0.39 0.40 0.40 0.41 0.41 0.42 0.43 0.44 0.44 0.45 0.46
0.46 0.46 0.48 0.50 0.50 0.50 0.52 0.54 0.54 0.55 0.55 0.57 0.57 0.58 0.58 0.58 0.59 0.60
0.61 0.61 0.62 0.63 0.64 0.64 0.64 0.65 0.65 0.66 0.68 0.68 0.70 0.70 0.70 0.70 0.71 0.71
0.75 0.78 0.85 0.90 0.90 0.93 0.93 1.12 1.16 1.28

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	20	0.38	0.50	0.44	0.040	
(2)	30	0.52	0.71	0.62	0.058	
(3)	10	0.75	1.28	0.96	0.172	



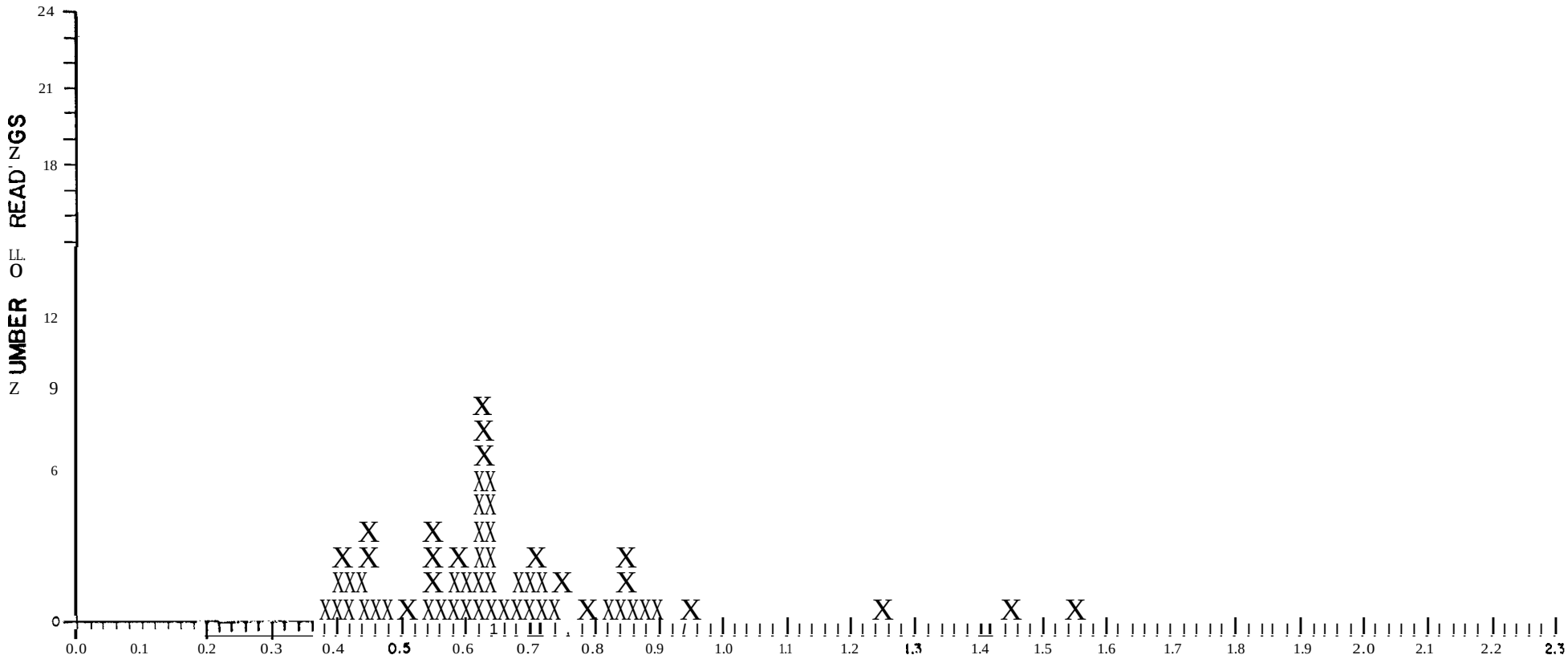
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-027 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 420.72

CLIENT'S NAME MONSANTO WELL NAME PI\-3

(NO. OF READINGS = 60) 0.39 0.41 0.41 0.41 0.43 0.43 0.44 0.44 0.45 0.45 0.46 0.48 0.51 0.54
0.55 0.55 0.55 0.57 0.58 0.59 0.59 0.60 0.61 0.62 0.62 0.62 0.62 0.62 0.62 0.63 0.63 0.63
0.64 0.64 0.64 0.64 0.64 0.65 0.67 0.69 0.69 0.70 0.71 0.71 0.73 0.73 0.74 0.74 0.78 0.82
0.85 0.85 0.85 0.86 0.89 0.90 0.95 1.24 1.44 1.54

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	13	0.39	0.51	0.44	0.032	
(2)	35	0.54	0.74	0.64	0.056	
(3)	12	0.78	1.54	1.00	0.259	



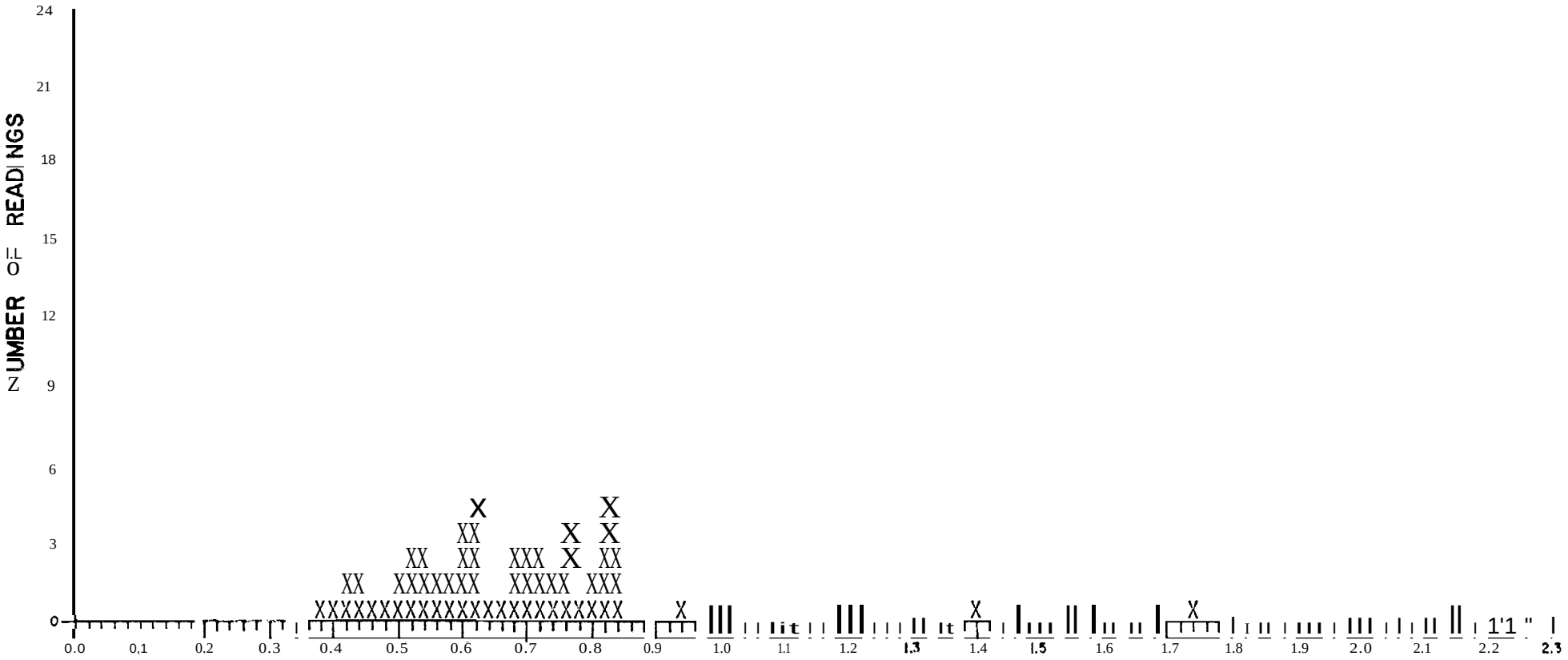
VITRINITE REFLECTANCE HISTOGRAM

R522-039

CLIENT'S NAME f10NSANTO WELL NAME

(NO. OF READINGS = GO) 0.39 0.41 0.43 0.43 0.45 0.45 0.46 0.48 0.51 0.51 0.52 0.52 0.53 0.54
0.55 0.55 0.57 0.57 0.58 0.58 0.60 0.60 0.61 0.61 0.62 0.63 0.63 0.63 0.63 0.G5 0.67 0.68
0.68 0.69 0.70 0.71 0.71 0.73 0.73 0.73 0.74 0.75 0.76 0.77 0.77 0.77 0.79 0.81 0.81 0.82
0.82 0.82 0.83 0.83 0.84 0.85 0.85 0.94 1.41 1.74

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	16	0.39	0.55	*0.118*	0.052	
(2)	14	0.57	0.65	0.61	0.025	
(3)	30	0.67	1.74	0.83	0.218	



VITRINITE REFLECTANCE HISTOGRAM

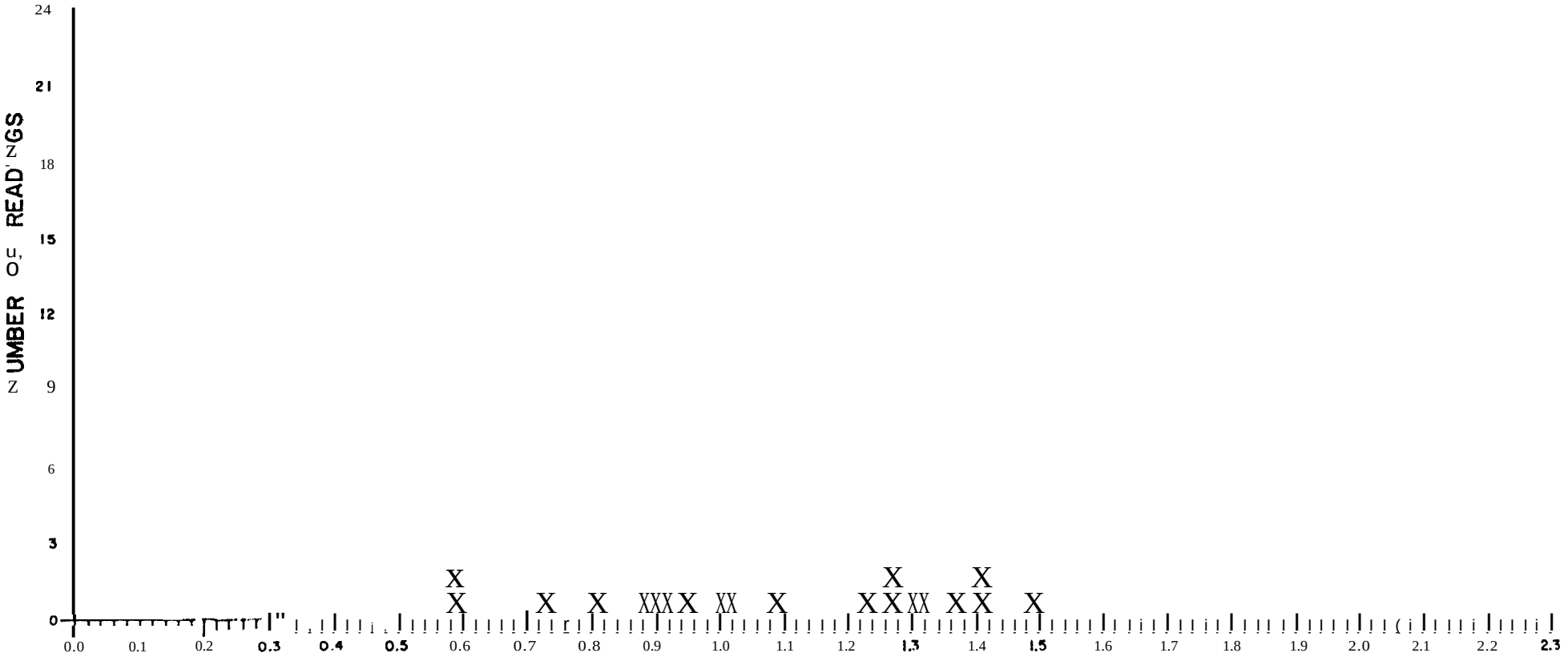
R522-052 CORE 601.67

MONSANTO

WELL NAME

(NO. OF READINGS = 20) 0.58 0.59 0.72 0.81 0.83 0.90 0.93 0.94 1.01 1.02 1.09 1.22 1.26 1.27 1.31 1.32 1.36 1.41 1.41 1.49

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	2	0.58	0.59	0.59		
(2)	18	0.72	1.49	1.13	0.235	



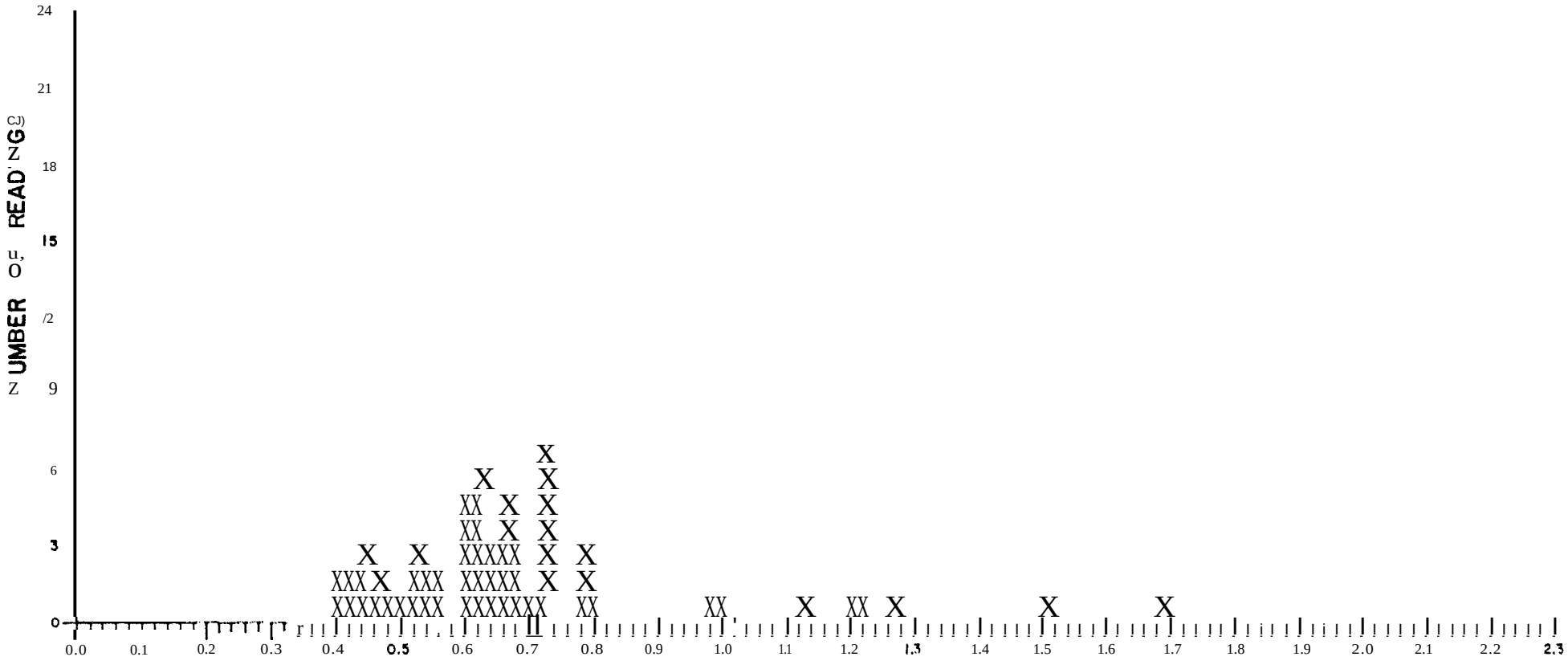
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-0513 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 613.62

CLIENT'S NAME MONSANTO WELL NAME PI\-3

(uo, OF READINGS = 60) 0.40 0.41 0.42 0.43 0.45 0.45 0.45 0.46 0.47 0.48 0.50 0.53 0.53 0.53
0.55 0.55 0.57 0.57 0.60 0.60 0.61 0.61 0.61 0.62 0.62 0.62 0.63 0.63 0.63 0.64 0.64 0.64
0.66 0.66 0.67 0.67 0.67 0.613 0.69 0.69 0.70 0.72 0.72 0.72 0.72 0.72 0.73 0.73 0.78 0.78
0.78 0.81 0.98 1.00 1.12 1.21 1.22 1.27 1.51 1.69

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEY. (%)	REMARKS
(1) *	18	0.40	0.57	0.49	0.056	
(2)	34	0.60	0.81	0.68	0.058	
(3)	8	0.98	1.69	1.25	0.244	



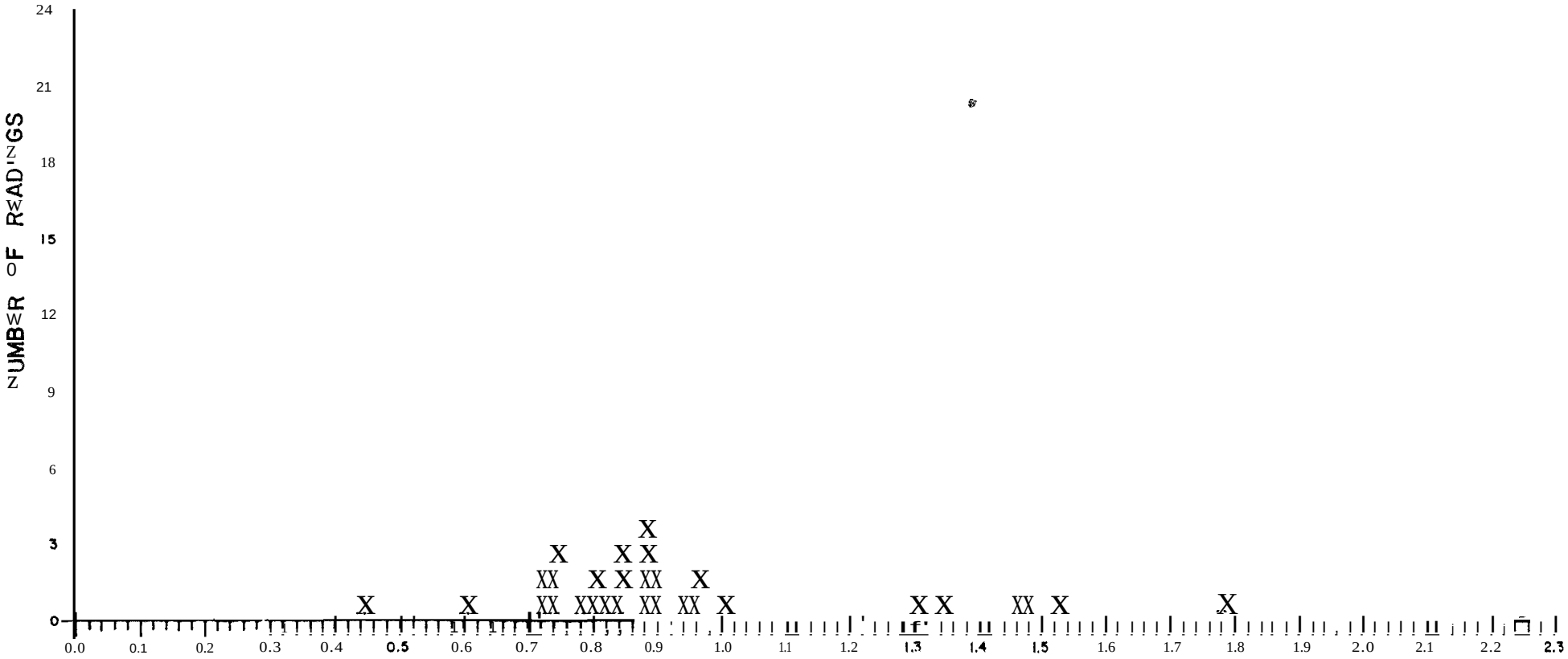
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-075 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 655.92

CLIENT'S NAME flIONSANTO WELL NAME PI\-3

(NO. OF READINGS = 30) 0.44 0.60 0.73 0.73 0.74 0.74 0.75 0.78 0.80 0.81 0.82 0.84 0.85 0.85
0.88 0.88 0.88 0.89 0.90 0.90 0.95 0.96 0.97 1.01 1.30 1.34 1.46 1.48 1.53 1.78

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	2	0.44	0.60	0.52		
(2)	22	0.73	1.01	0.85	0.083	
(3)	6	1.30	1.78	1.48	0.170	



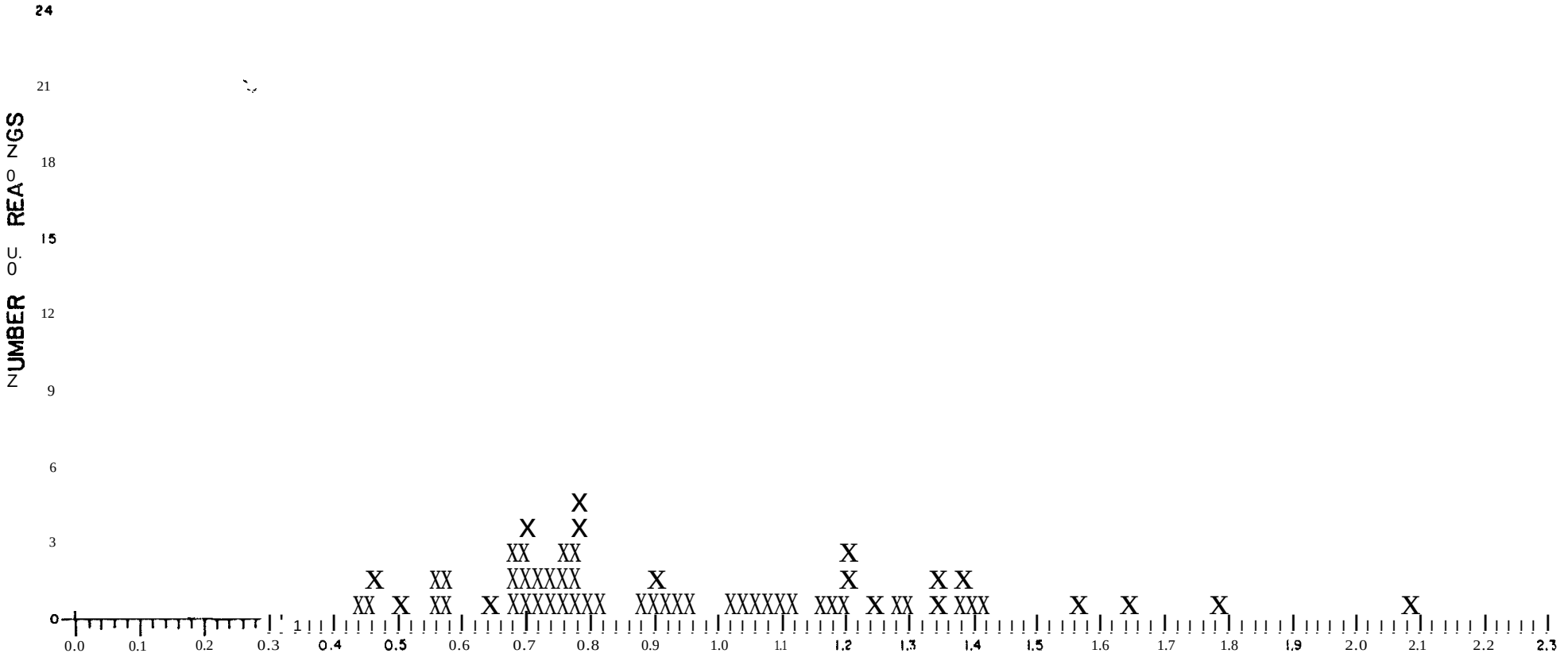
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-084 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 734.58

CLIENT'S NAME MONSANTO WELL NAME PA-3

(110. OF READINGS = 60) 0.44 0.46 0.47 0.51 0.56 0.57 0.59 0.59 0.65 0.68 0.68 0.68 0.70 0.70
0.70 0.71 0.72 0.73 0.74 0.74 0.76 0.76 0.77 0.78 0.78 0.79 0.79 0.79 0.81 0.82 0.89 0.90
0.91 0.93 0.95 0.96 1.02 1.05 1.06 1.08 1.10 1.13 1.17 1.18 1.20 1.20 1.21 1.24 1.28 1.31
1.34 1.35 1.38 1.39 1.41 1.42 1.56 1.64 1.79 2.08

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	8	0.44	0.59	0.52	0.061	
(2)	22	0.65	0.82	0.74	0.048	
(3)	30	0.89	2.08	1.24	0.275	



VITRINITE REFLECTANCE HISTOGRAM

R522-099

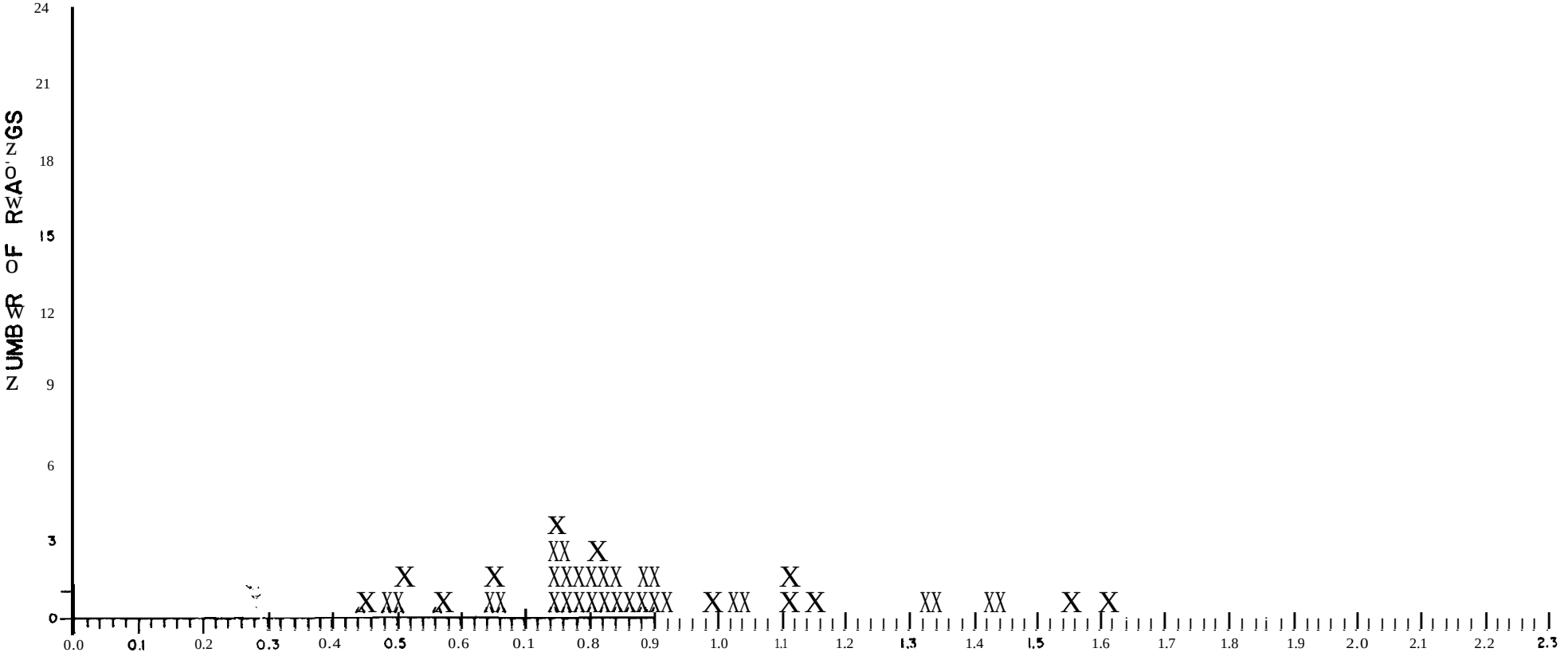
941.88

t:IONSANTO

WELL NAME

(rIO. OF READHIGS = 42) 0.45 0.49 0.50 0.50 0.57 0.64 0.65 0.67 0.74 0.74 0.74 0.74 0.76 0.77
0.77 0.79 0.79 0.80 0.80 0.81 0.82 0.83 0.84 0.85 0.87 0.89 0.89 0.90 0.91 0.92 0.98 1.02
1.04 1.10 1.10 1.14 1.32 1.34 1.42 1.44 1.54 1.61

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	5	0.45	0.57	0.50	0.043	
(2)	25	0.64	0.92	0.80	0.078	
(3)	6	0.98	1.14	1.06	0.060	
(4)	6	1.32	1.61	1.45	0.113	



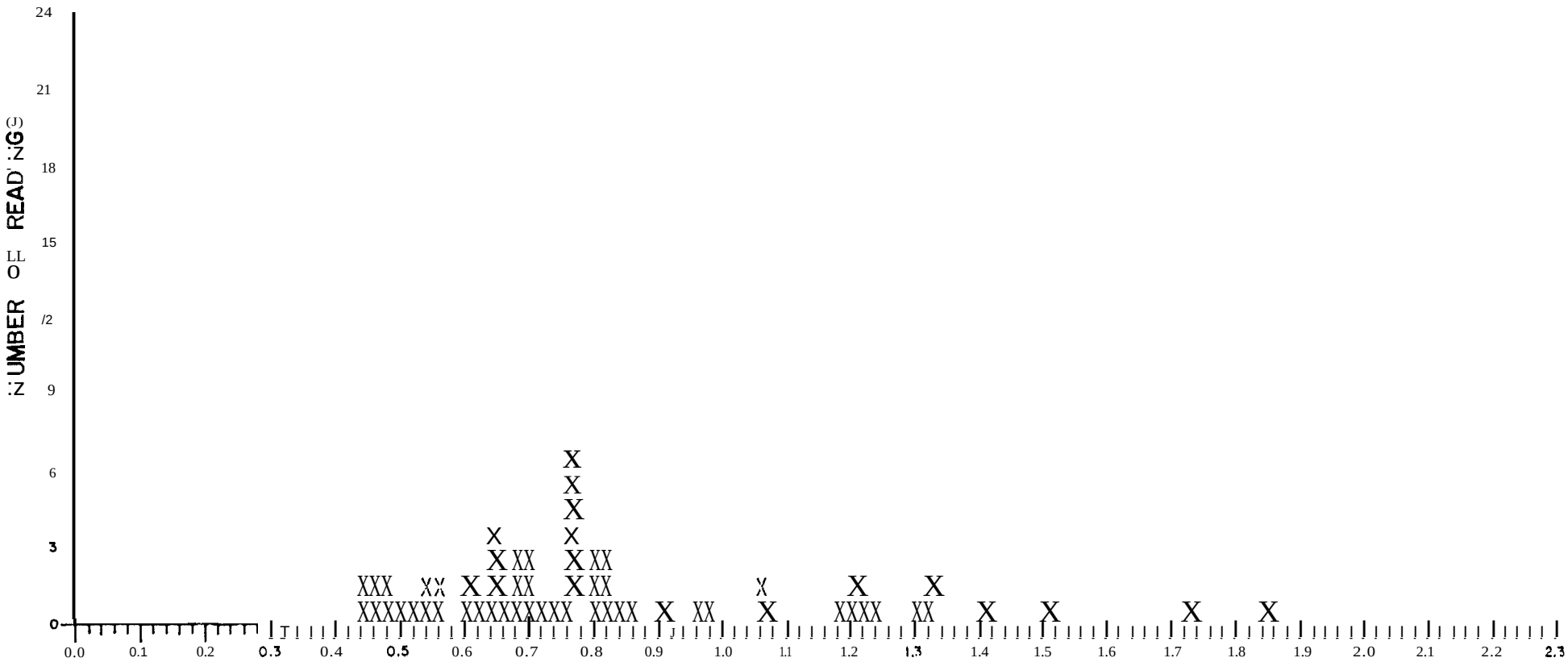
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-113 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 972.60

CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS = 60) 0.45 0.45 0.47 0.47 0.48 0.49 0.51 0.53 0.54 0.55 0.56 0.57 0.60 0.60
0.63 0.64 0.64 0.64 0.65 0.66 0.63 0.69 0.69 0.70 0.70 0.70 0.72 0.74 0.76 0.76 0.76 0.76
0.76 0.76 0.77 0.80 0.80 0.80 0.82 0.33 0.83 0.85 0.87 0.91 0.96 0.99 1.06 1.07 1.19 1.20
1.21 1.22 1.25 1.31 1.32 1.32 1.40 1.51 1.73 1.85

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	12	0.45	0.57	0.51	0.043	
(2)	32	0.60	0.91	0.74	0.081	
(3)	16	0.96	1.35	1.29	0.245	



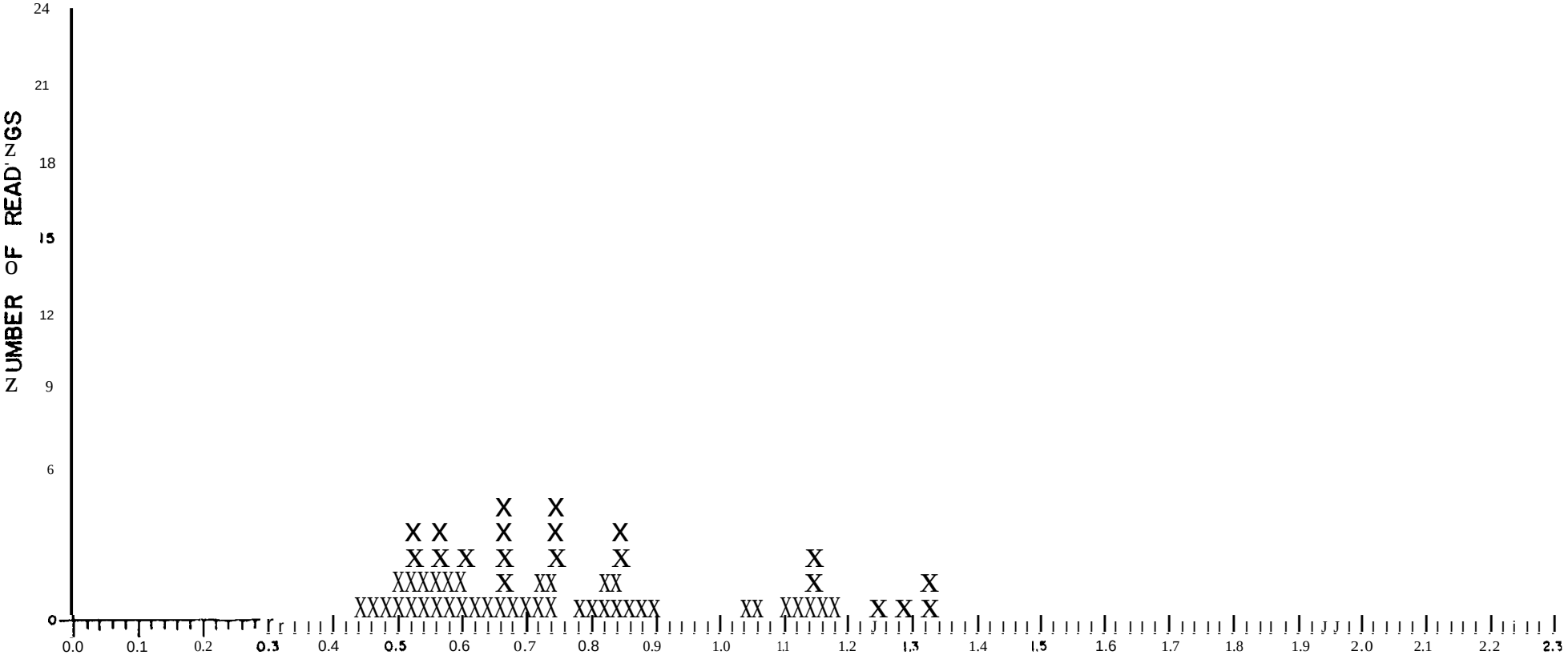
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-123 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 997.60

CLIENT'S NAME MONSANTO WELL NAME PA-3

(no. OF READIlIGS = 60) 0.45 0.47 0.48 0.50 0.51 0.52 0.52 0.53 0.53 0.54 0.55 0.56 0.56 0.56
0.56 0.58 0.58 0.60 0.60 0.60 0.62 0.65 0.66 0.66 0.66 0.67 0.67 0.69 0.71 0.72 0.73 0.74
0.74 0.75 0.75 0.75 0.78 0.81 0.82 0.83 0.84 0.84 0.84 0.84 0.86 0.89 0.91 1.05 1.07 1.11
1.12 1.14 1.14 1.15 1.17 1.19 1.25 1.28 1.32 1.33

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	21	0.45	0.62	0.54	0.046	
(2)	26	0.65	0.91	0.76	0.079	
(3)	13	1.05	1.33	1.18	0.091	



VITRINITE REFLECTANCE HISTOGRAM

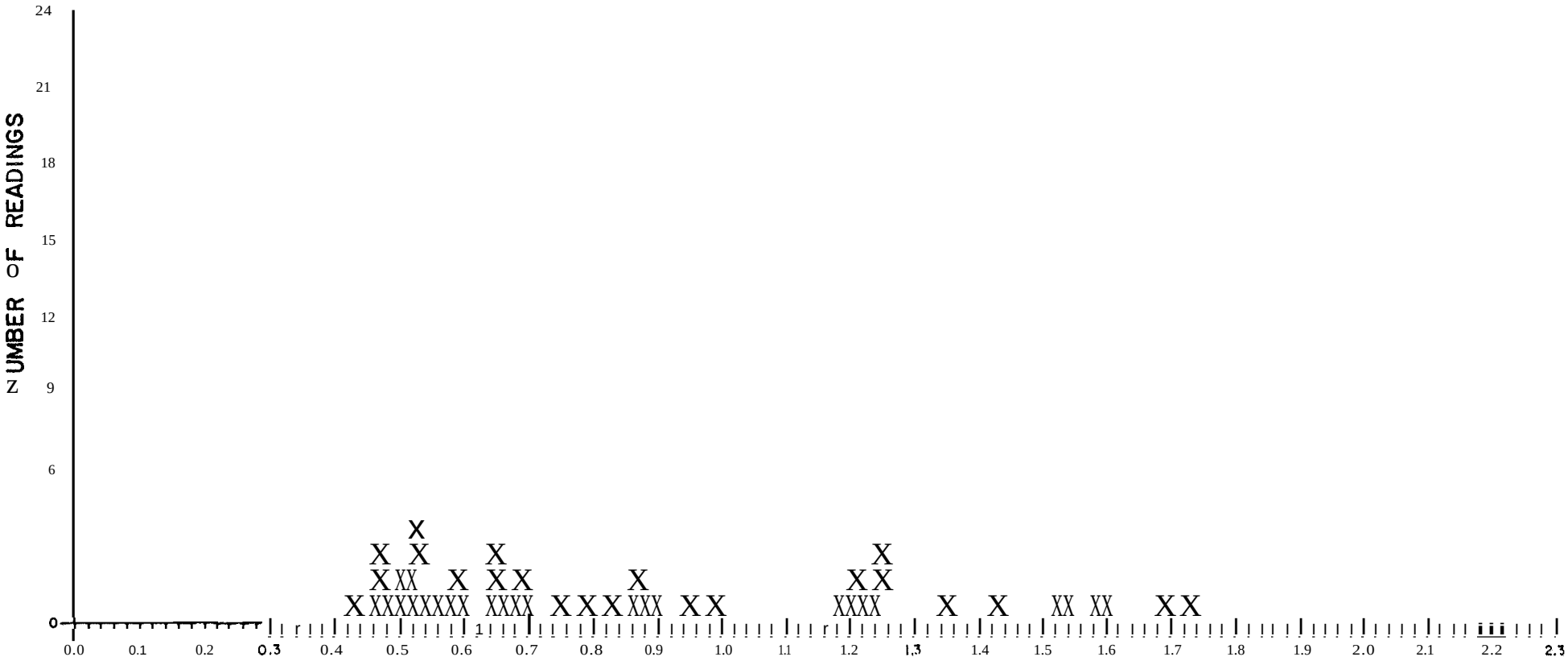
R522-132A CORE 101G.54

f10NSANTO

WELL NAME

(no, OF READINGS = III) 0.43 0.46 0.46 0.47 0.48 0.51 0.51 0.52 0.52 0.52 0.53 0.54 0.57 0.58
0.58 0.60 0.64 0.65 0.65 0.67 0.68 0.69 0.71 0.75 0.79 0.83 0.86 0.87 0.89 0.91 0.94 0.99
1.18 1.20 1.21 1.23 1.24 1.25 1.25 1.34 1.43 1.52 1.55 1.58 1.60 1.68 1.72

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	16	0.43	0.60	0.52	0.049	
(2)	16	0.64	0.99	0.78	0.117	
(3)	15	1.18	1.72	1.40	0.192	



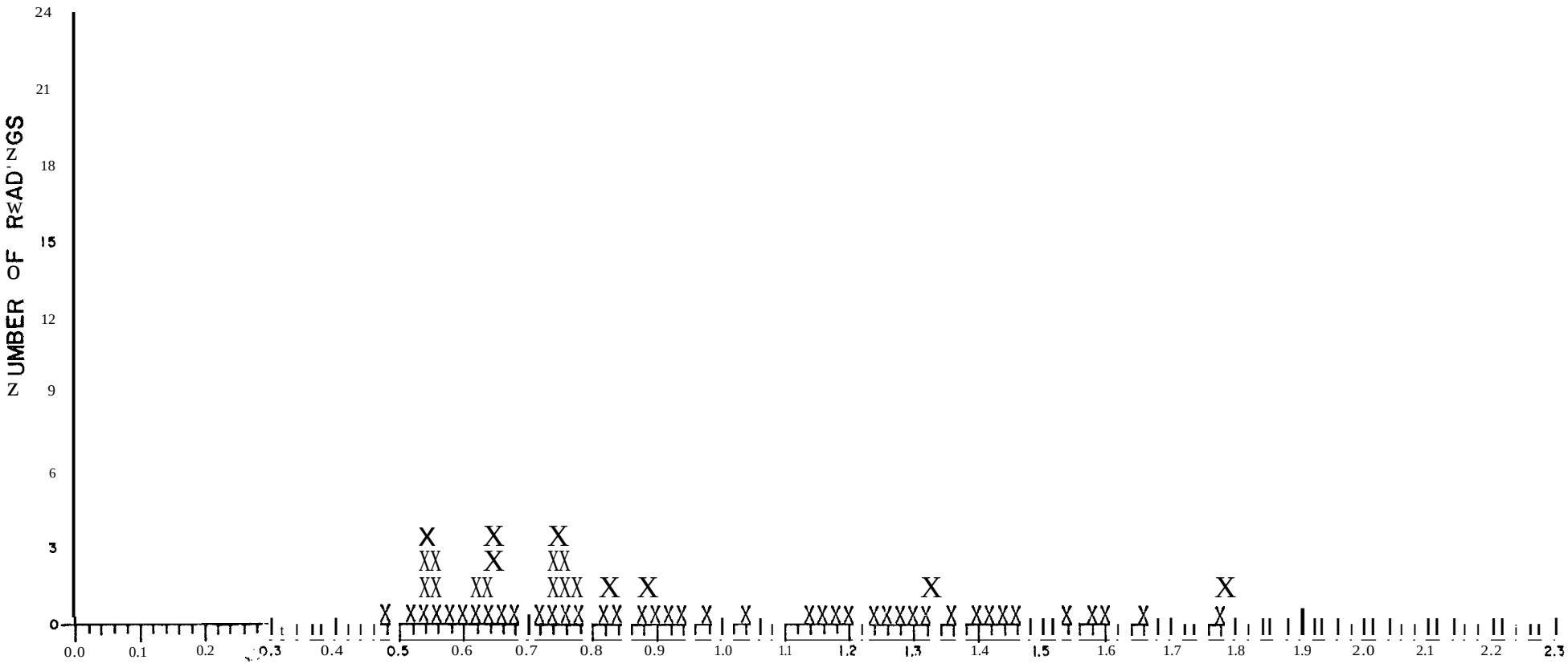
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-140 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 1036.90

CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS = 60) 0.48 0.52 0.54 0.54 0.54 0.55 0.56 0.56 0.57 0.59 0.61 0.62 0.63 0.64
0.64 0.64 0.65 0.66 0.68 0.72 0.74 0.74 0.74 0.75 0.76 0.76 0.77 0.78 0.78 0.83 0.83 0.85
0.89 0.39 0.91 0.92 0.94 0.98 1.05 1.14 1.17 1.18 1.21 1.24 1.27 1.29 1.31 1.32 1.33 1.36
1.41 1.43 1.44 1.46 1.54 1.59 1.60 1.66 1.79 1.79

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro(%)	STD. DEV. (%)	REMARKS
(1) *	19	0.48	0.68	0.59	0.055	
(2)	20	0.72	1.05	0.83	0.094	
(3)	21	1.14	1.79	1.41	0.194	



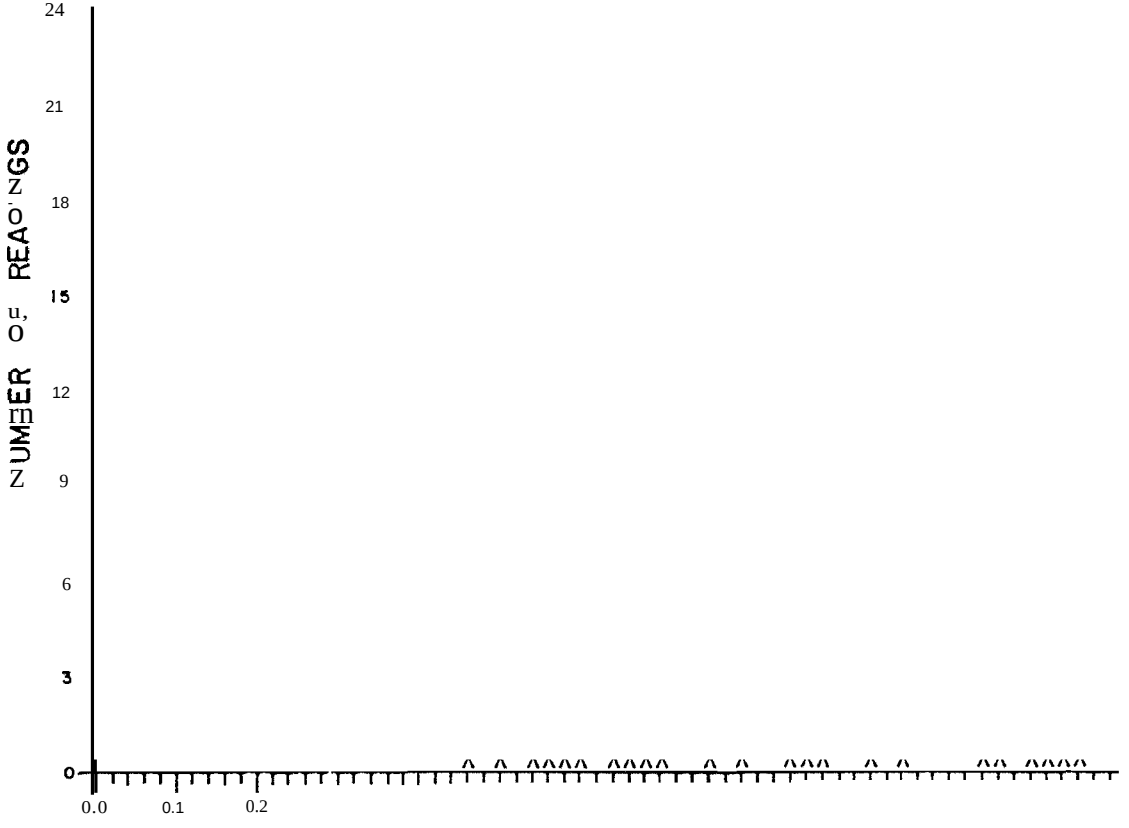
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-156 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 1203.74

CLIENT'S NAME r·10NSANTO WELL NAME PA-3

(NO. OF READIilGS = 60) 0.47 0.50 0.54 0.54 0.56 0.56 0.58 0.59 0.61 0.64 0.67 0.68 0.69 0.70
0.77 0.77 0.81 0.86 0.89 0.90 0.97 1.00 loll 1.12 1.16 1.18 1.19 1.20 1.22 1.29 1.40 1.41
1.46 1.47 1.48 1.49 1.52 1.53 1.53 1.55 1.60 1.67 1.70 1.76 1.78 1.82 1.82 1.85 1.87 1.91
1.95 1.98 2.03 2.04 2.09 2.20 2.22 2.25 2.28 2.32

POPl1LATJON	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	9	0.47	0.61	0.55	0.044	
(2)	13	0.64	1.00	0.80	0.119	
(3)	38	1.11	2.32	1.67	0.361	



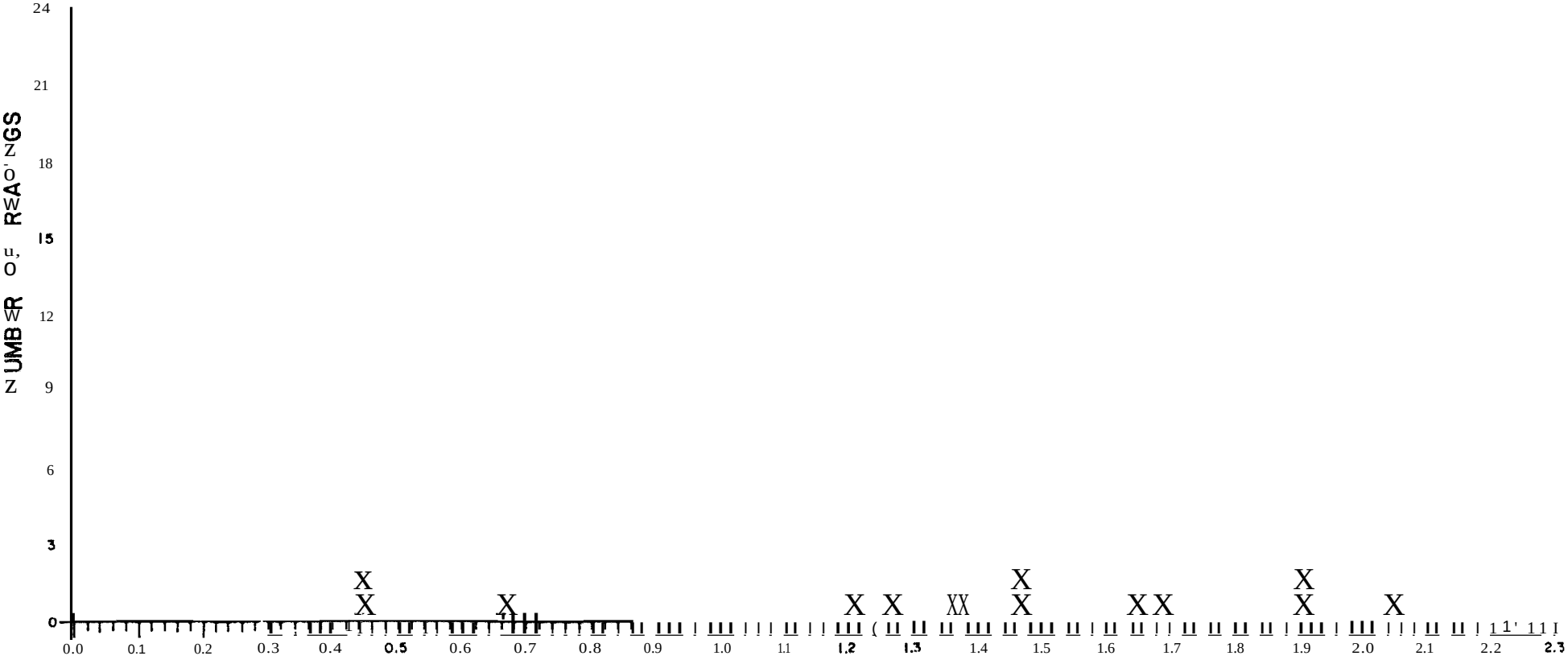
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-163 TYPE OF SAMPLE: CORE DEPTH/SAMPLE NO. 1220.54

CLIENT1S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS = 14) 0.44 0.44 0.67 1.21 1.27 1.36 1.39 1.46 1.46 1.65 1.69 1.90 1.91 2.04

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	3	0.44	0.67	0.52	0.133	
(2)	11	1.21	2.04	1.58	0.280	



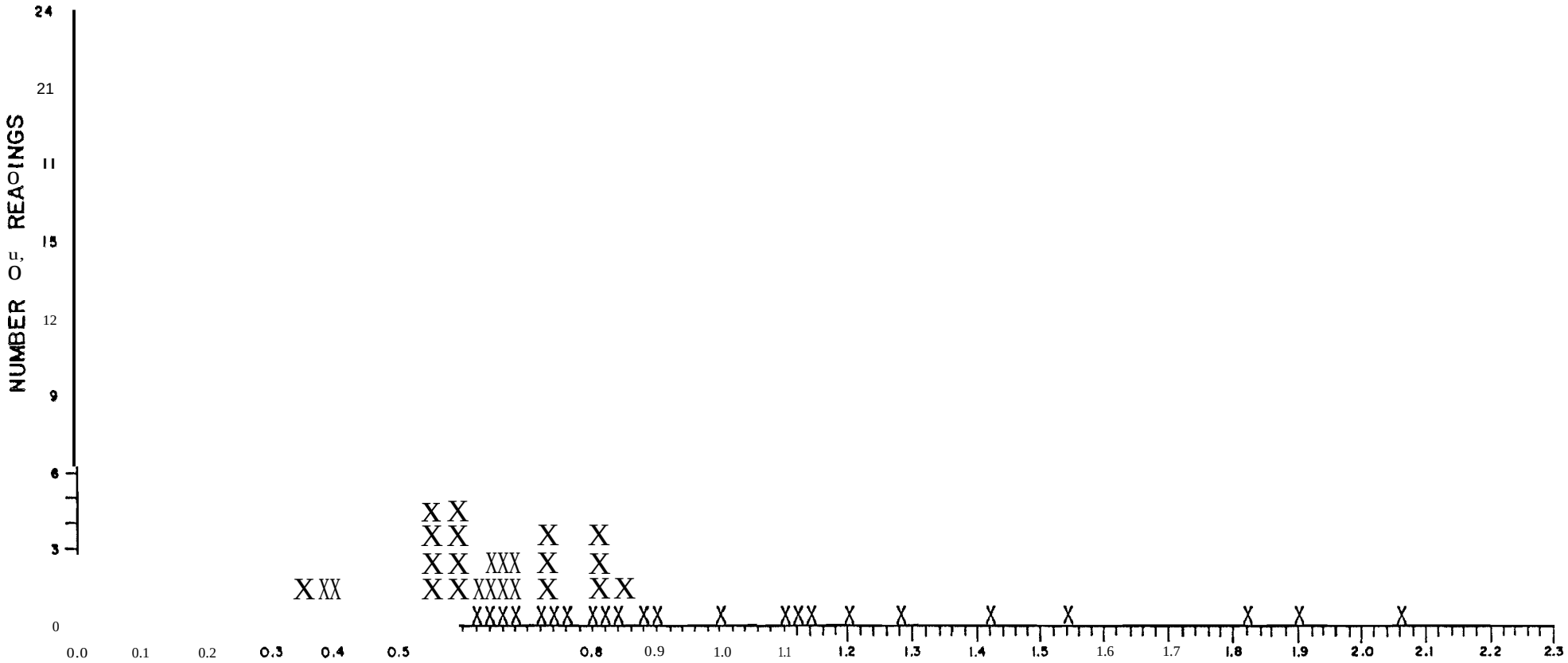
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-014 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 387.82

CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS =60) 0.32 0.34 0.35 0.38 0.39 0.40 0.41 0.42 0.44 0.47 0.51 0.53 0.54 0.54'
0.54 0.55 0.55 0.57 0.58 0.58 0.58 0.59 0.59 0.63 0.63 0.64 0.64 0.64 0.66 0.67 0.67 0.68
0.68 0.69 0.72 0.72 0.73 0.73 0.75 0.77 0.80 0.80 0.81 0.81 0.83 0.84 0.85 0.88 0.91 1.00
1.10 1.13 1.14 1.21 1.28 1.42 1.55 1.83 1.90 2.07

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) «	10	0.32	0.47	0.39	0.046	
(2)	37	0.51	0.85	0.67	0.101	
(3)	13	0.88	2.07	1.34	0.389	



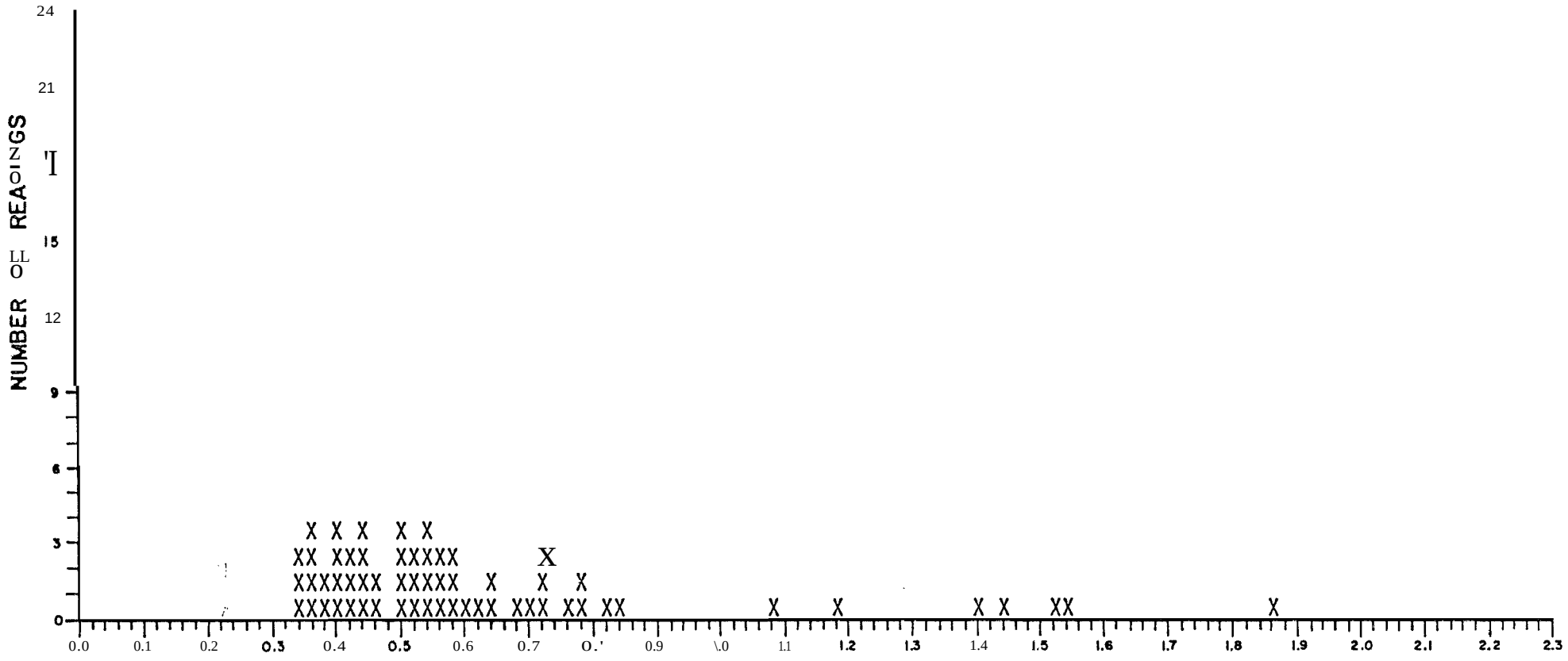
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522..017 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 397.48

CLIENT'S NAME t·1ONSANTO WELL NAME PA-3

(NO. OF READINGS = 60) 0.34 0.35 0.35 0.36 0.36 0.36 0.37 0.38 0.39 0.40 0.40 0.40 0.41 0.42'
0.42 0.43 0.44 0.44 0.45 0.45 0.46 0.46 0.51 0.51 0.51 0.51 0.52 0.52 0.52 0.55 0'.55 0.55
0.55 0.56 0.56 0.57 0.58 0.58 0.59-0.61 0.63 0.64 0.64 0.69 0.71 0.72 0.72 0.73 0.77 0.78
0.79 0.83 0.85 1.09 1.19 1.40 1.44 1.53 1.54 1.87

POPULATION	NO. OF READINGS	MIN. Ro' %)	MAX. Ro (%)	MEAN Ro' %)	STD. DEV. (%)	REMARKS
(1) *	22	0.34	0.46	0.40	0.039	
(2)	21	0.51	0.64	. 0.56	0.043	
(3)	17	0.69	1.87	1.04	0.380	



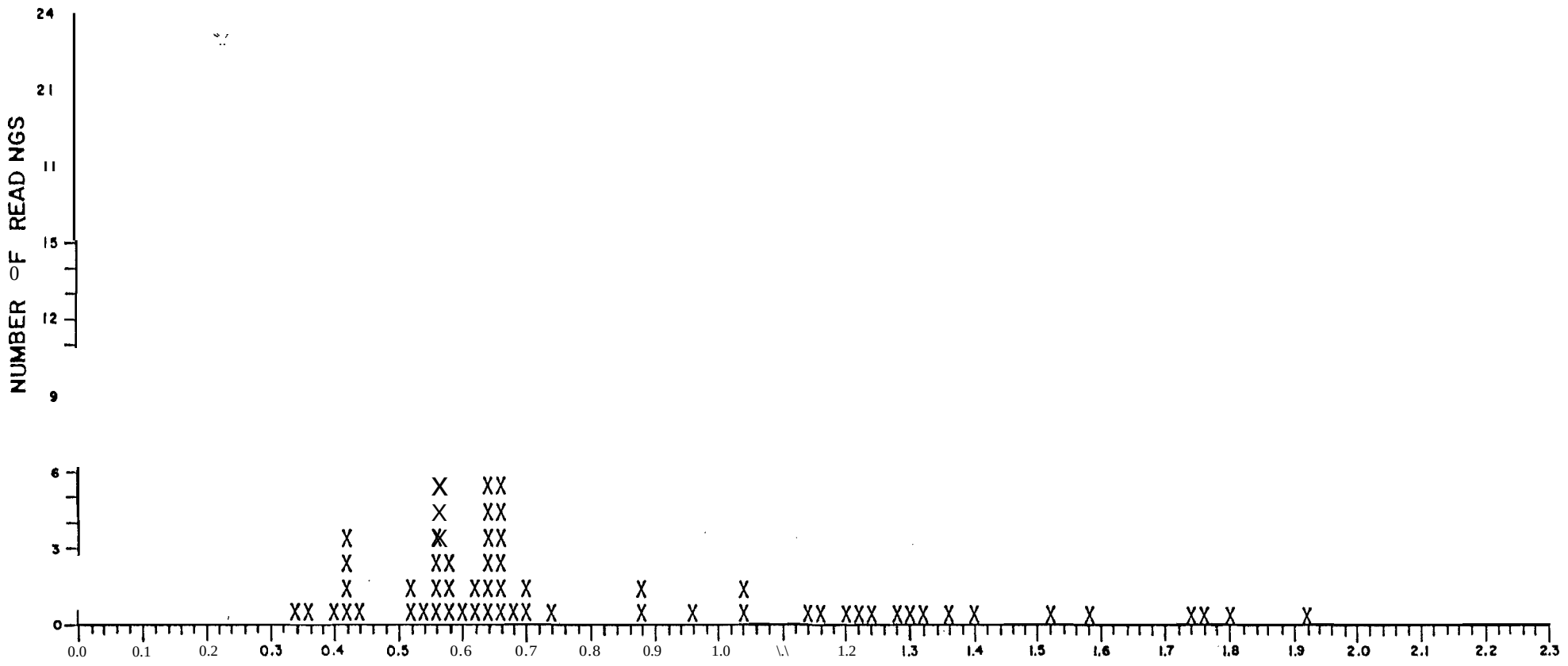
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-021 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 407.57

CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS =60) 0.35 0.36 0.40 0.42 0.43 0.43 0.43 0.45 0.52 0.53 0.55 0.56 0.56 0.56
0.57 0.57 0.57 0.58 0.58 0.58 0.60 0.62 0.63 0.64 0.64 0.65 0.65 0.65 0.65 0.66 0.67 0.67
0.67 0.67 0.67 0.68 0.70 0.71 0.74 0.88 0.89 0.96 1.04 1.05 1.15 1.17 1.21 1.23 1.25 1.28
1.30 1.32 1.37 1.41 1.52 1.58 1.75 1.77 1.81 1.92

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	8	0.35	0.45	0.41	0.036	
(2)	31	0.52	0.74	0.62	0.057	
(3)	21	0.88	1.92	1.33	0.304	



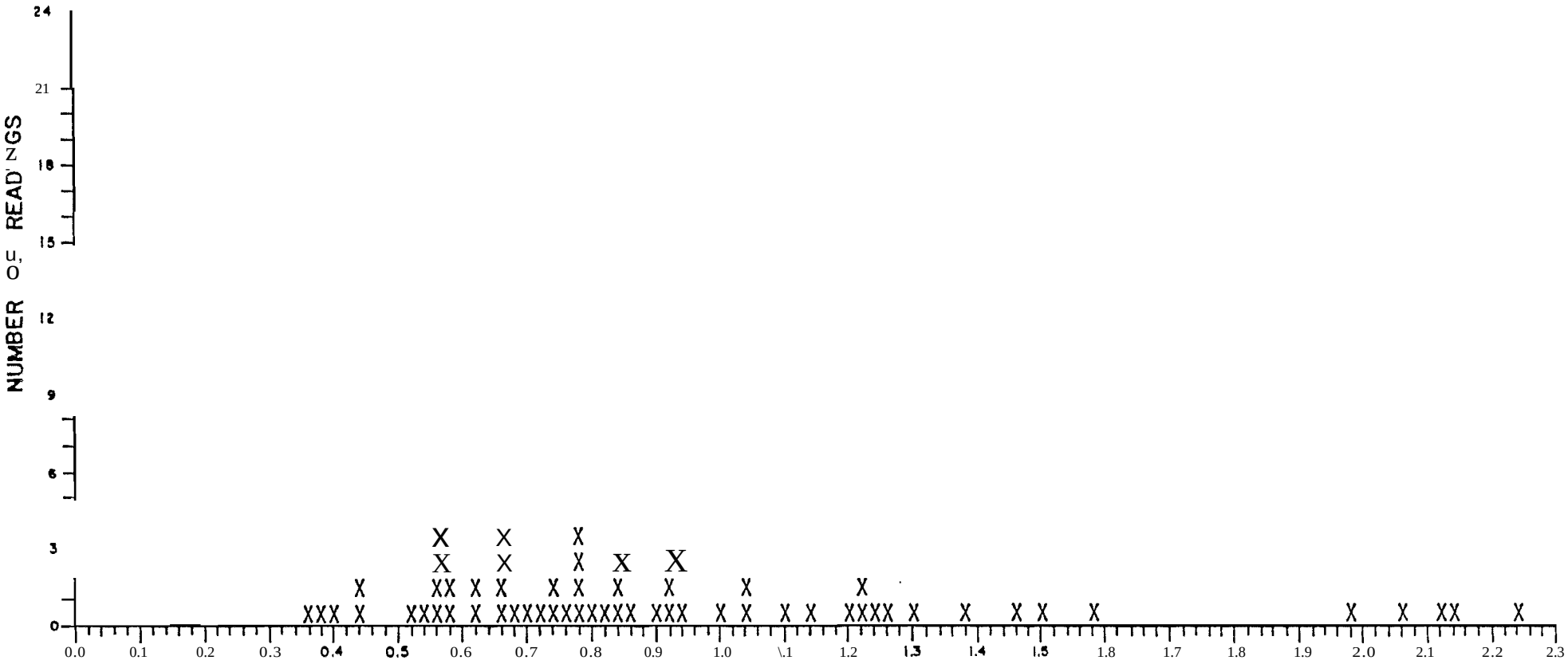
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-025 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 417.49

CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS = GO) 0.37 0.39 0.41 0.44 0.45 0.53 0.54 0.56 0.56 0.56 0.57 0.58 0.59 0.62
0.62 0.66 0.67 0.67 '0.67 0.68 0.70 0.72 0.74 0.74 0.77 0.78 0.78 0.78 0.79 0.80 0.82 0.84
0.85 0.85 0.87 0.90 0.92 0.92 0.93 0.94 1.00 1.04 1.05 1.11 1.15 1.20 1.22 1.23 1.24 1.26
1.31 1.39 1.46 1.50 1.58 1.99 2.07 2.12 2.14 2.25

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro(%)	STD. DEV. (%)	REMARKS
(1)	5	0.37	0.45	0.41	0.033	
(2)	15	0.53	0.68	0.61	0.053	
(3)	40	0.70	2.25	1.14	0.439	



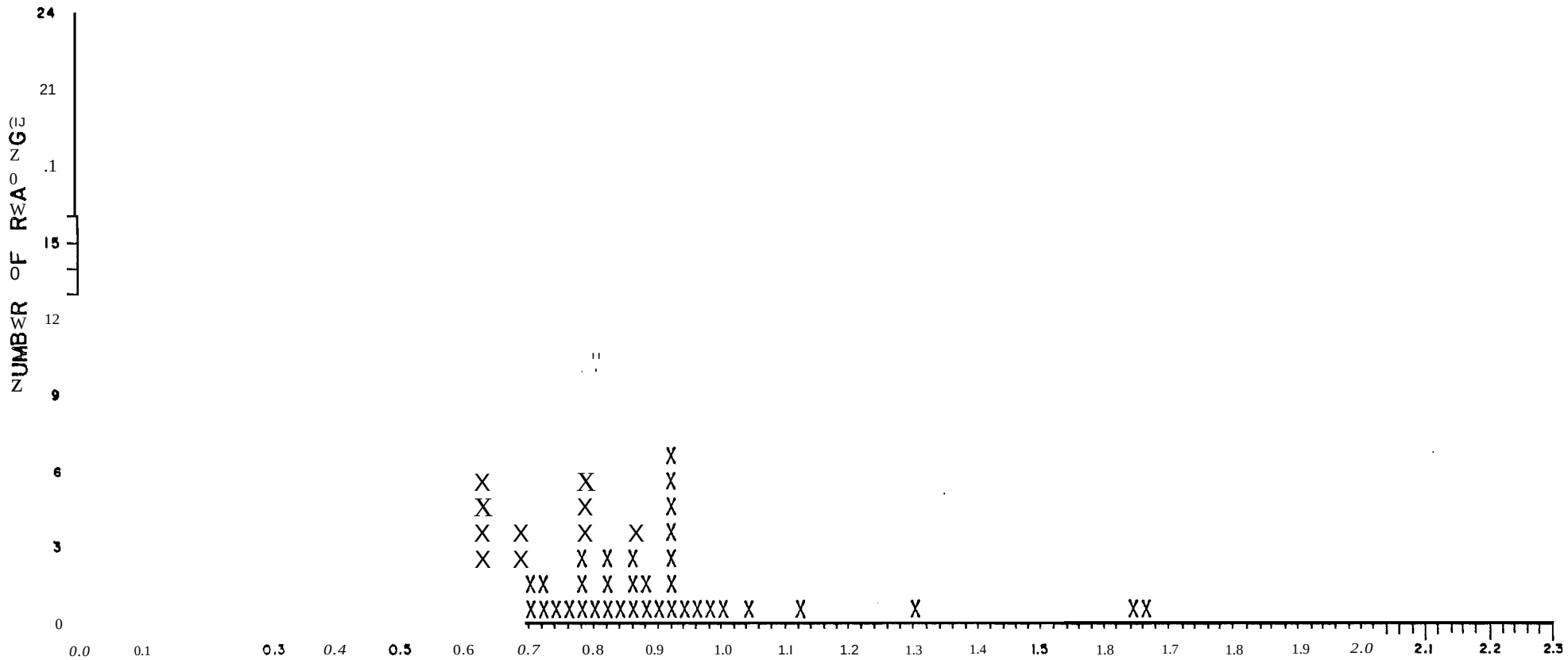
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-030 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 542.65

CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS = 60) 0.40 0.46 0.49 0.50 0.57 0.57 0.60 0.62 0.62 0.62 0.62 0.62 0.63 0.65
0.66 0.67 0.68 0.68 '0.69 0.69 0.70 0.70 0.72 0.72 0.74 0.77 0.78 0.78 0.78 0.79 0.79 0.79
0.80 0.83 0.83 0.83 0.84 0.86 0.87 0.87 0.87 0.88 0.88 0.91 0.92 0.92 0.92 0.92 0.92 0.93
0.93 0.95 0.97 0.99 1.01 1.04 1.13 1.31 1.65 1.67

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEY. (%)	REMARKS
(1) *	4	0.40	0.50	0.46	0.045	
(2)	21	0.57	0.74	0.66	0.049	
(3)	35	0.77	1.67	0.94	0.210	



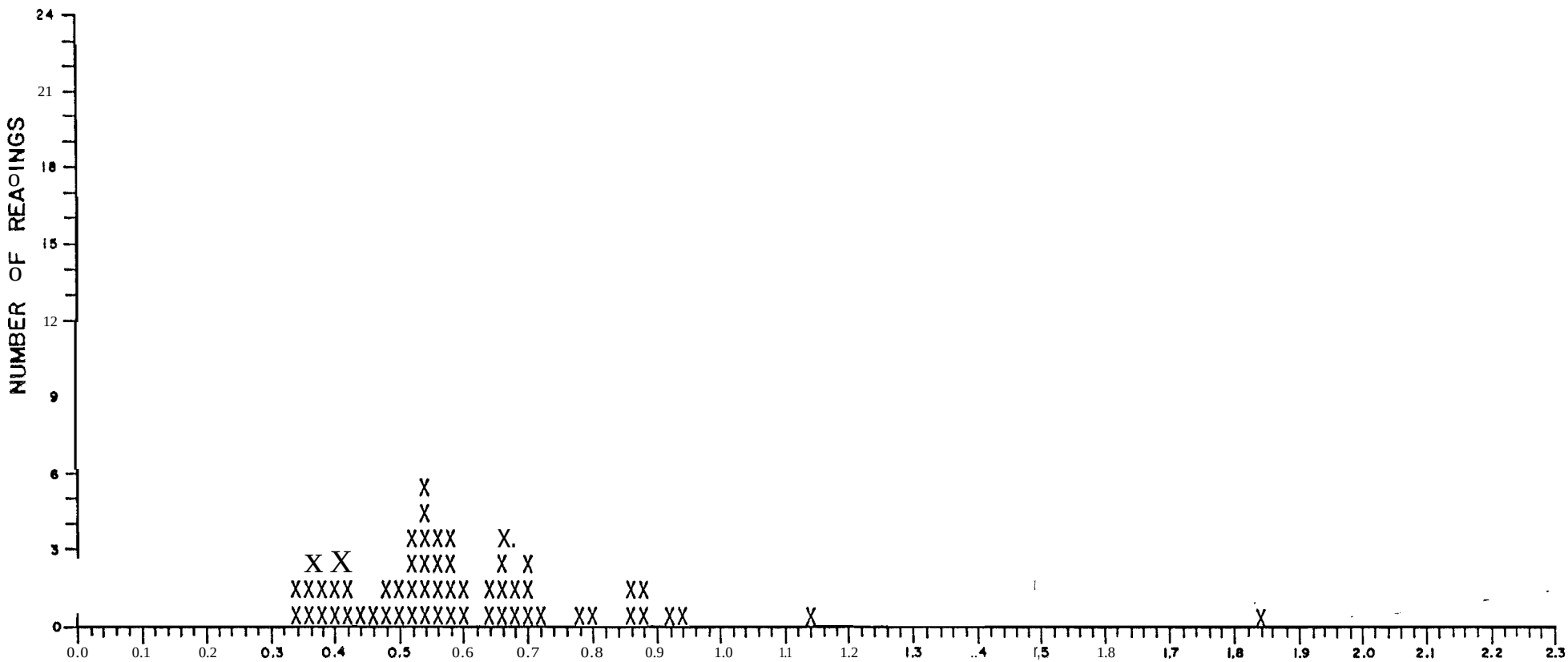
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-034 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 552.56

CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS = 60) 0.34 0.34 0.36 0.36 0.36 0.38 0.38 0.40 0.40 0.41 0.43 0.43 0.44 0.47
0.49 0.49 0.50 0.50 0.52 0.52 0.53 0.53 0.54 0.54 0.54 0.54 0.55 0.55 0.56 0.56 0.57 0.57
0.58 0.59 0.59 0.59 0.60 0.61 0.64 0.64 0.66 0.66 0.67 0.67 0.68 0.69 0.70 0.70 0.71 0.72
0.79 0.80 0.87 0.87 0.88 0.89 0.92 0.95 1.14 1.84

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	13	0.34	0.44	0.39	0.034	
(2)	25	0.47	0.61	0.55	0.038	
(3)	22	0.64	1.84	0.82	0.261	



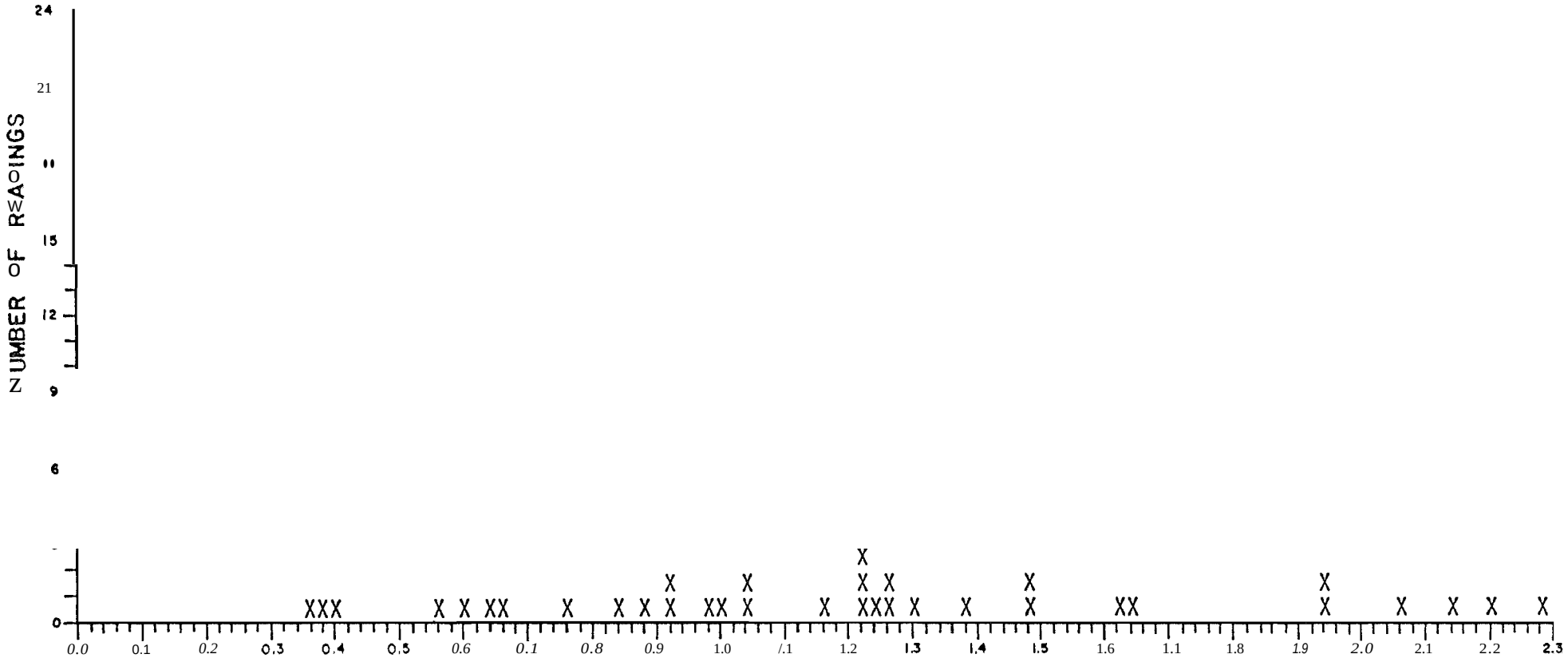
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-041 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 572.73

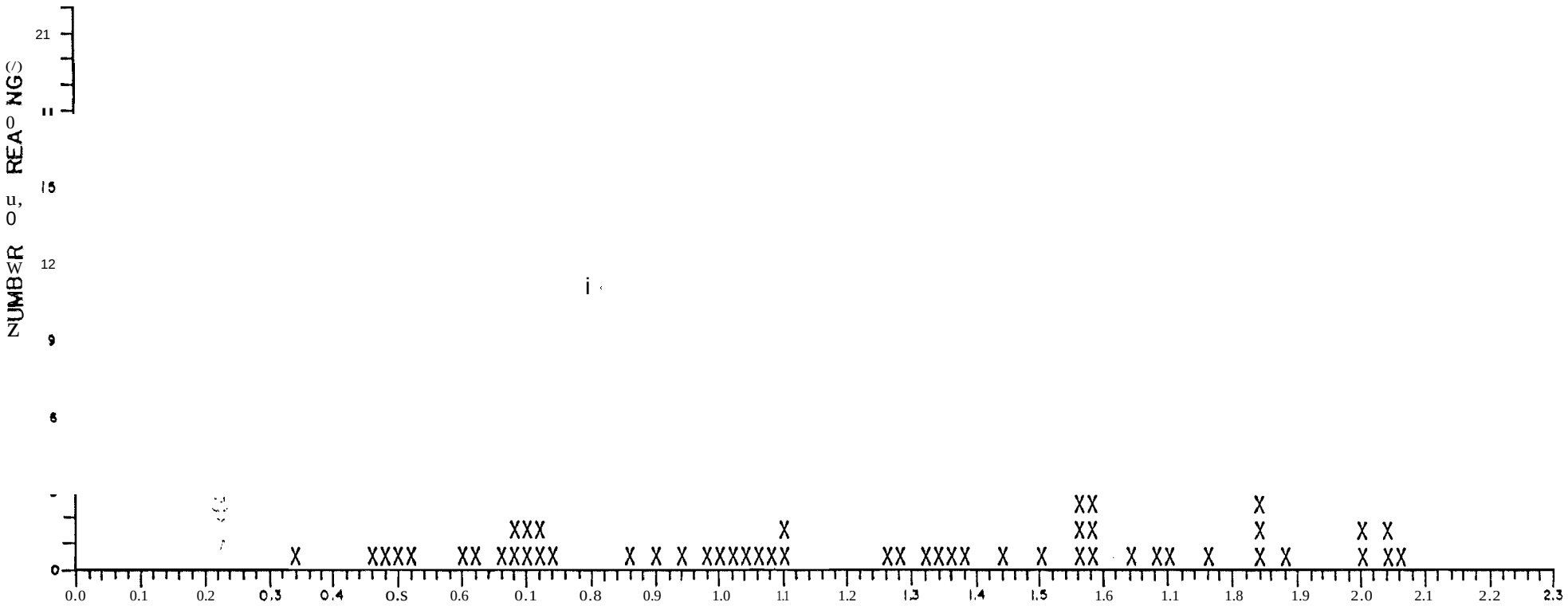
CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS = 35) 0.37 0.39 0.40 0.56 0.60 0.64 0.66 0.77 0.84 0.88 0.92 0.93 0.98 1.00 1.04 1.05 1.16 1.22 1.23 1.23 1.25 1.27 1.27 1.30 1.39 1.48 1.49 1.63 1.65 1.94 1.95 2.07 2.15 2.21 2.28

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)*	3	0.37	0.40	0.39	0.015	
(2)	4	0.56	0.66	0.62	0.044	
(3)	28	0.77	2.28	1.38	0.447	



VITRINITE REFLECTANCE HISTOGRAM



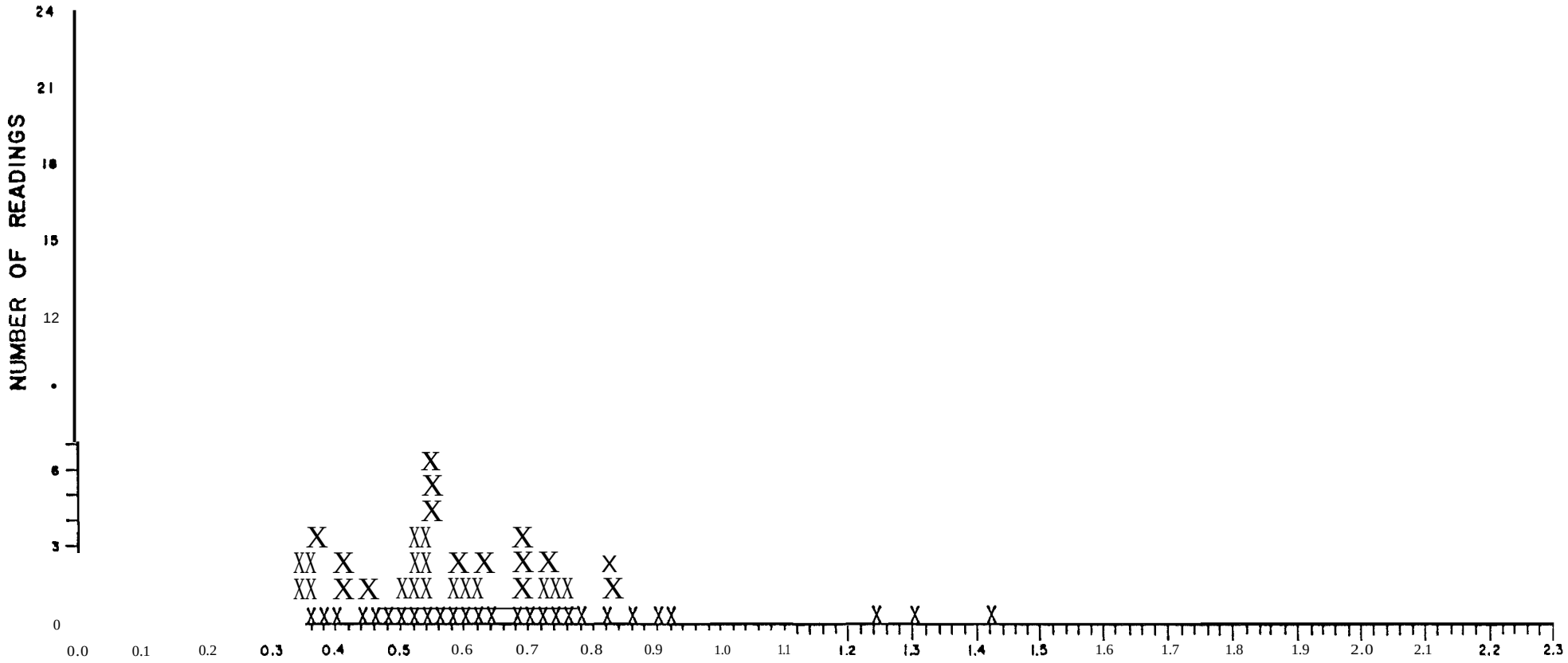
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-048 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 592.63

CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS =60) 0.34 0.34 0.35 0.36 0.36 0.37 0.37 0.39 0.40 0.40 0.41 0.45 0.45 0.47
0.48 0.51 0.51 0.52 0.53 0.53 0.53 0.54 0.54 0.54 0.54 0.55 0.55 0.55 0.56 0.58 0.58 0.59
0.60 0.61 0.62 0.63 0.63 0.65 0.68 0.68 0.69 0.69 0.71 0.72 0.72 0.73 0.74 0.74 0.76 0.77
0.78 0.82 0.82 0.82 0.87 0.91 0.92 1.25 1.31 1.43

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)	15	0.34	0.48	0.40	0.047	
(2)	23	0.51	0.65	0.56	0.042	
(3)	22	0.68	1.43	0.84	0.211	



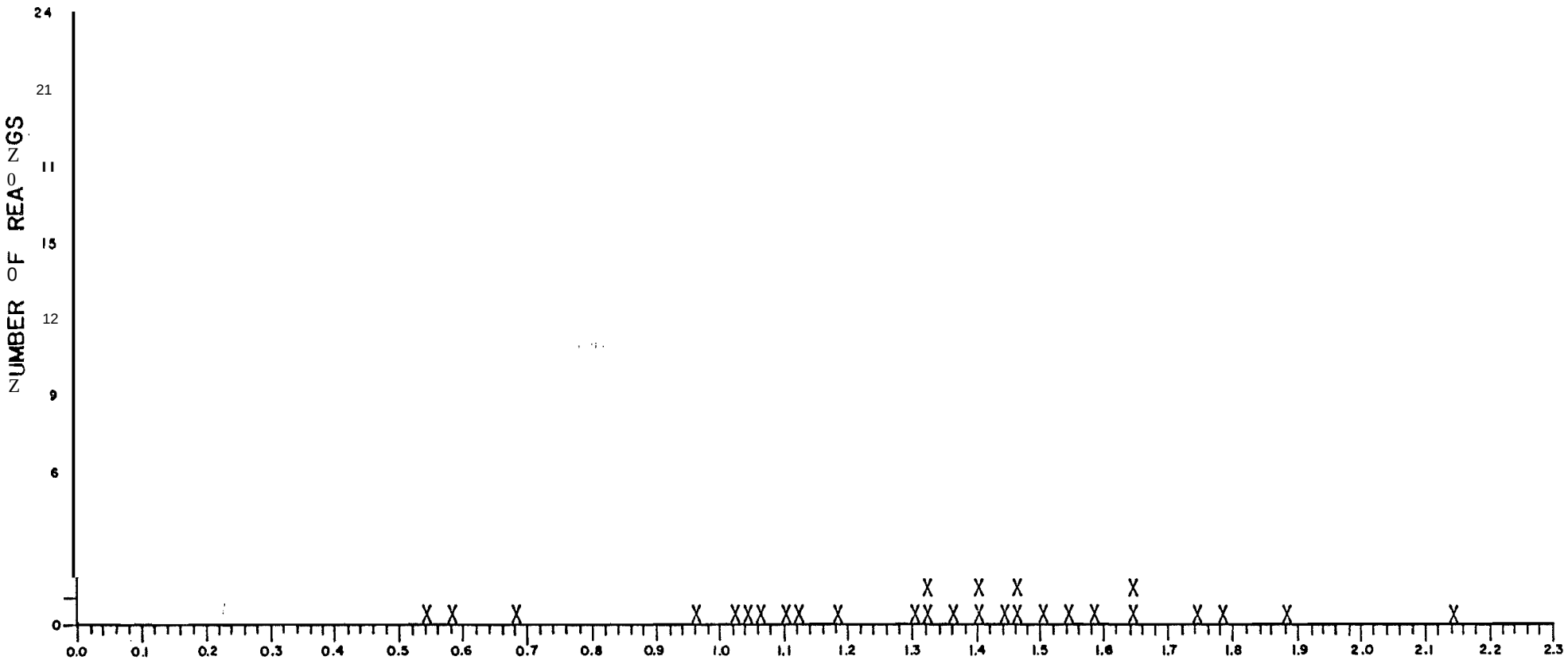
VITRINITE REFLECTANCE HISTOGRAM

R522-053

CLIENT'S NAME MONSANTO WELL NAME

(NO. OF READINGS = 28) 0.54 0.58 0.69 0.97 1.03 1.04 1.06 1.10 1.13 1.19 1.31 1.33 1.33 1.37 1.40 1.41 1.44 1.46 1.46 1.50 1.55 1.58 1.64 1.64 1.74 1.78 1.89 2.14

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)	3	0.54	0.69	0.60	0.078	NO INDIGENOUS
(2)	7	0.97--	1.19	1.07	0.072	VITRINITE
(3)	18	1.31	2.14	1.55	0.221	



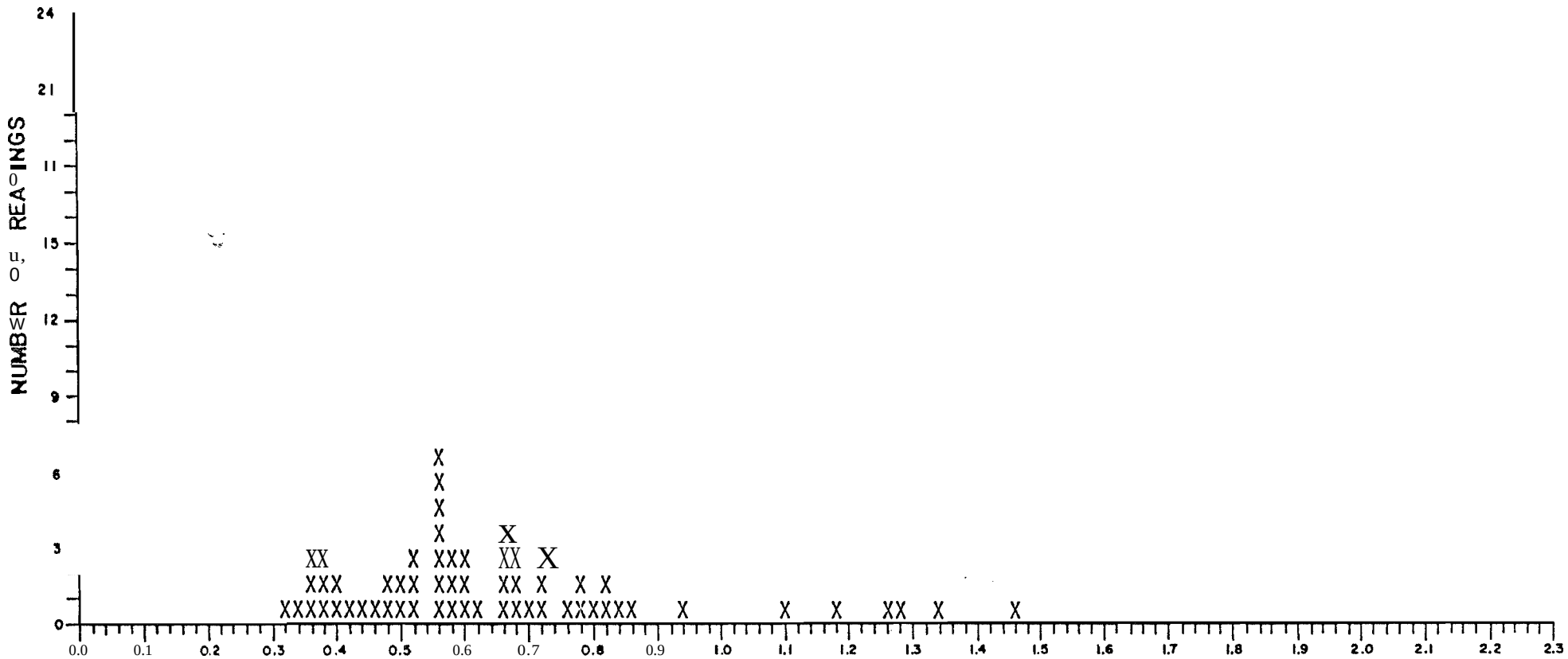
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-057 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 612.73

CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS = 60) 0.32 0.34 0.37 0.37 0.37 0.39 0.39 0.39 0.40 0.40 0.42 0.45 0.46 0.48
0.49 0.51 0.51 0.52 '0.52 0.52 0.56 0.56 0.56 0.57 0.57 0.57 0.57 0.58 0.58 0.59 0.61 0.61
0.61 0.63 0.66 0.66 0.67 0.67 0.68 0.69 0.69 0.70 0.72 0.72 0.72 0.76 0.78 0.79 0.80 0.83
0.83 0.84 0.86 0.94 1.10 1.19 1.26 1.28 1.34 1.46

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro(%)	STD. DEV. (%)	REMARKS
(1) *	12	0.32	0.45	0.38	0.034	
(2)	22	0.46	0.63	0.55	0.046	
(3)	26	0.66	1.46	0.87	0.241	



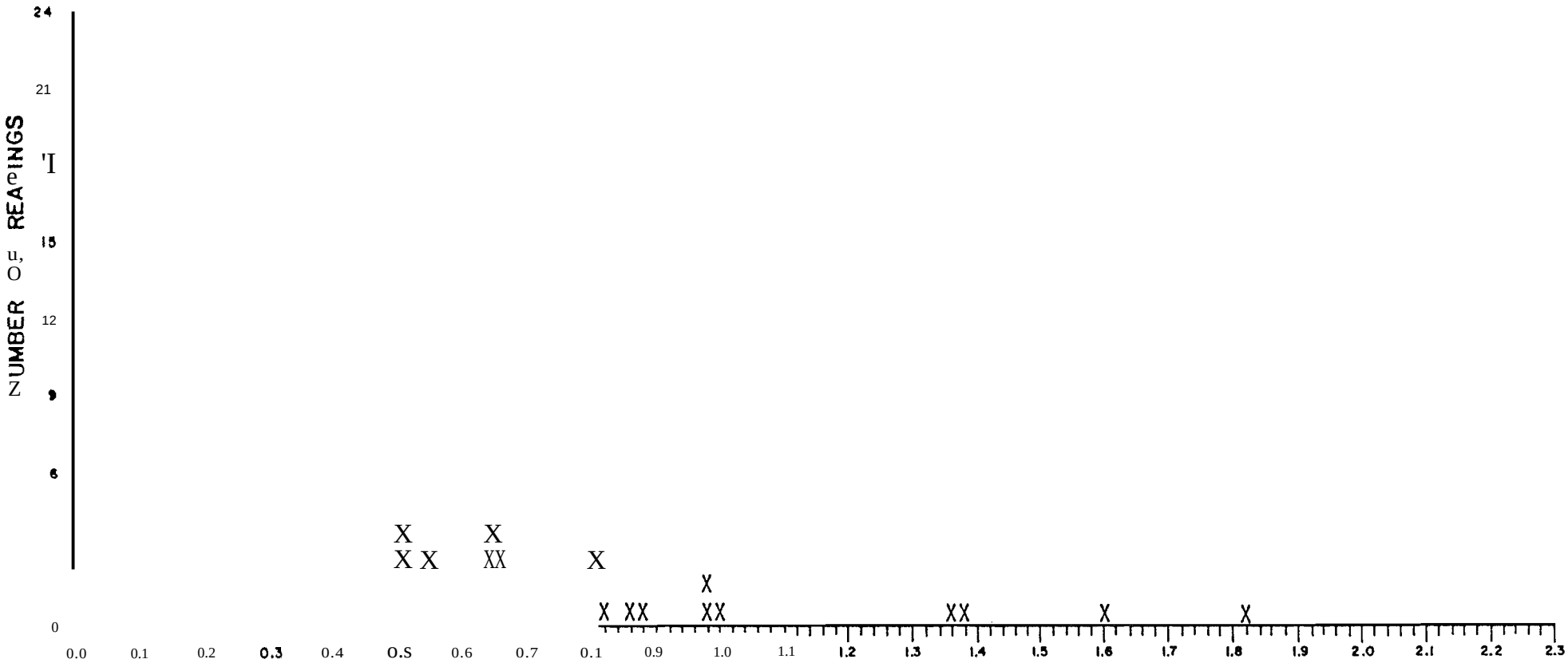
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-062 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 622.71

CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS =60) 0.34 0.34 0.35 0.35 0.36 0.37 0.37 0.37 0.37 0.38 0.39 0.39 0.39 0.40
0.40 0.41 0.41 0.42 0.44 0.47 0.47 0.48 0.50 0.50 0.50 0.51 0.52 0.54 0.55 0.55 0.56 0.56
0.58 0.60 0.64 0.65 0.65 0.65 0.66 0.67 0.67 0.70 0.70 0.74 0.76 0.77 0.78 0.80 0.81 0.81
0.82 0.87 0.89 0.98 0.99 1.00 1.36 1.39 1.60 1.83

POPULATION	NO. OF READINGS,	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	19	0.34	0.44	0.38	0.028	
(2)	24	0.47	0.70	0.58	0.077	
(3)	17	0.74	1.83	1.01	0.329	



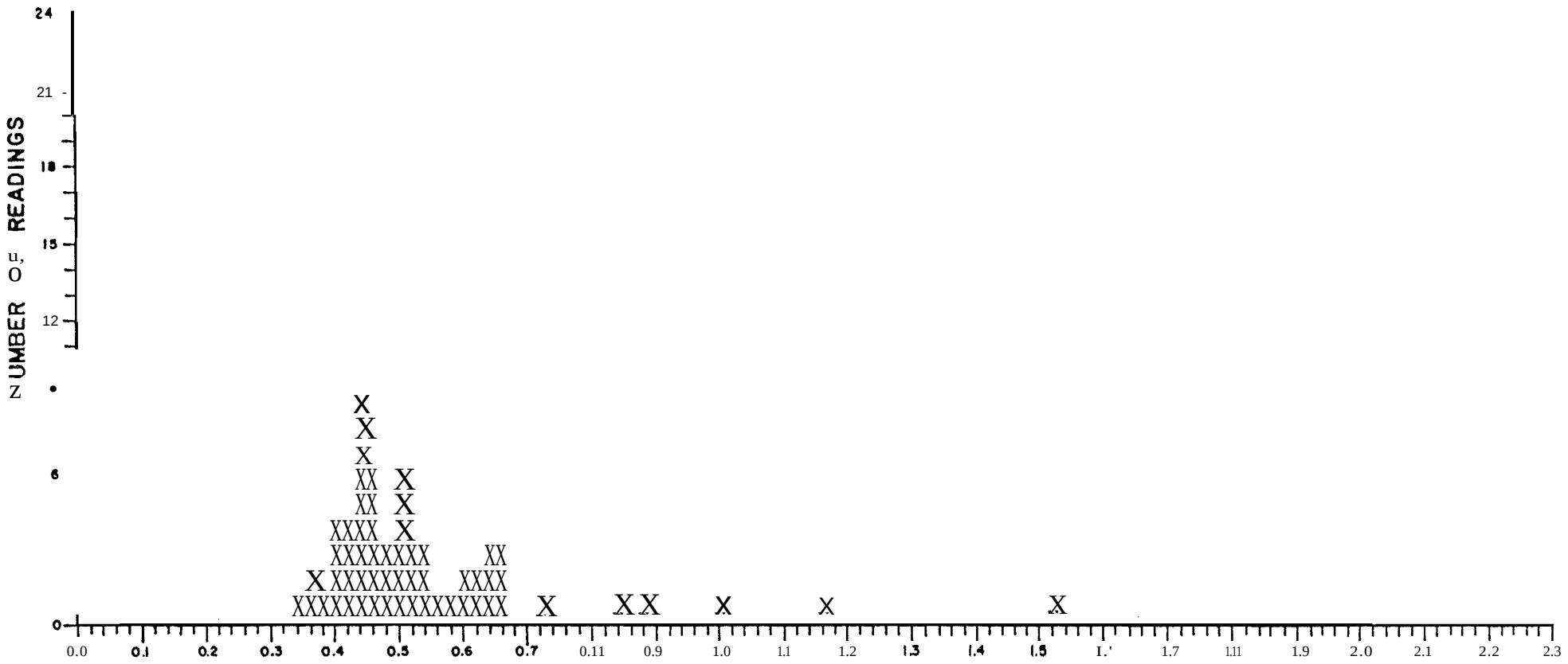
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-066 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 633.56

CLIENT1S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS = 60) 0.35 0.37 0.37 0.39 0.40 0.40 0.41 0.41 0.42 0.42 0.43 0.43 0.44 0.44
0.44 0.45 0.45 0.45 0.45 0.45 0.45 0.46 0.47 0.47 0.47 0.47 0.47 0.48 0.49 0.49 0.50 0.50
0.50 0.51 0.51 0.51 0.52 0.53 0.53 0.54 0.54 0.55 0.57 0.59 0.61 0.61 0.62 0.63 0.64 0.64
0.64 0.66 0.67 0.67 0.72 0.84 0.88 1.01 1.17 1.52

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	42	0.35	0.55	0.46	0.050	
(2)	12	0.57	0.67	0.63	0.031	
(3)	6	0.72	1.52	1.02	0.288	



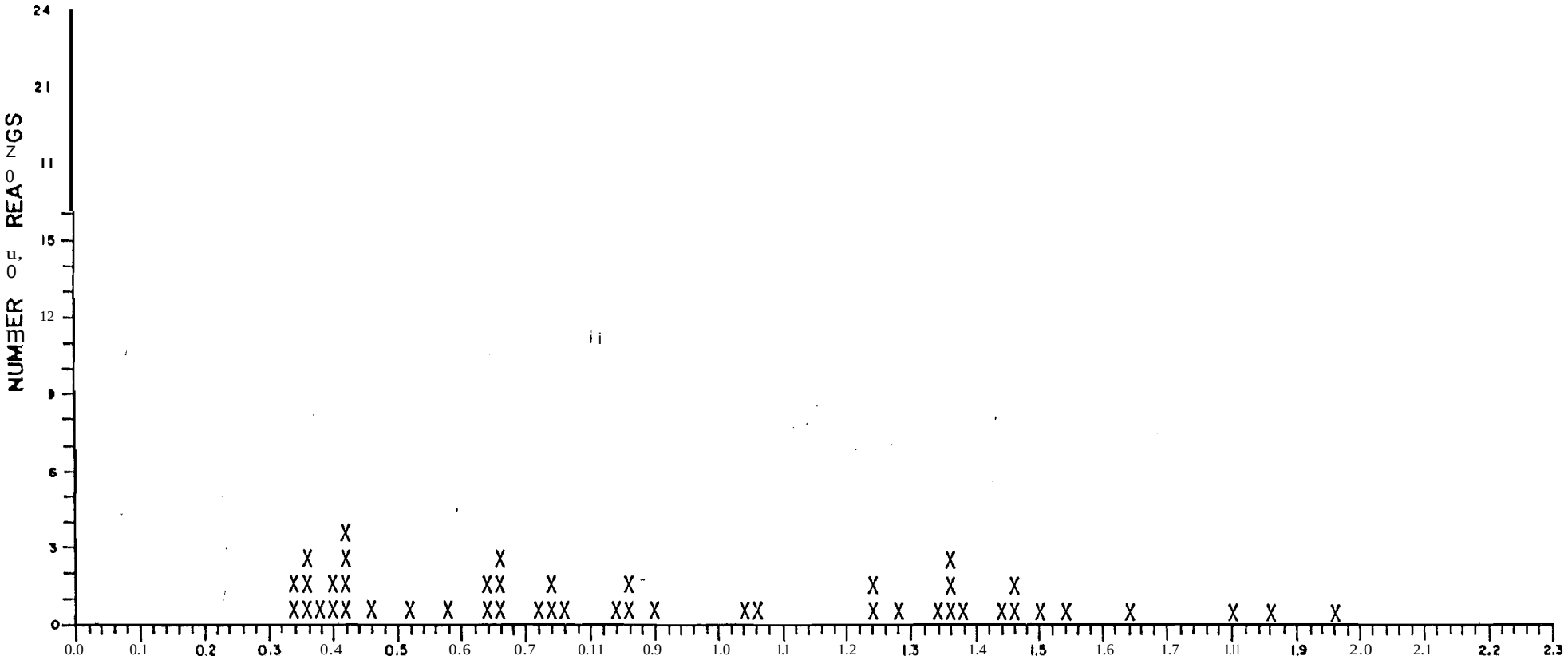
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-070 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 642.85

CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS = 47) 0.34 0.34 0.36 0.36 0.37 0.39 0.41 0.41 0.42 0.42 0.42 0.43 0.46 0.53
0.58 0.64 0.65 0.66 0.67 0.67 0.72 0.74 0.74 0.76 0.85 0.86 0.86 0.91 1.05 1.07 1.24 1.25
1.28 1.35 1.36 1.36 1.37 1.38 1.45 1.46 1.47 1.50 1.54 1.64 1.81 1.87 1.97

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	13	0.34	0.46	0.39	0.033	
(2)	11	0.53	0.76	0.67	0.070	
(3)	23	0.85	1.97	1.34	0.314	



VITRINITE REFLECTANCE HISTOGRAM

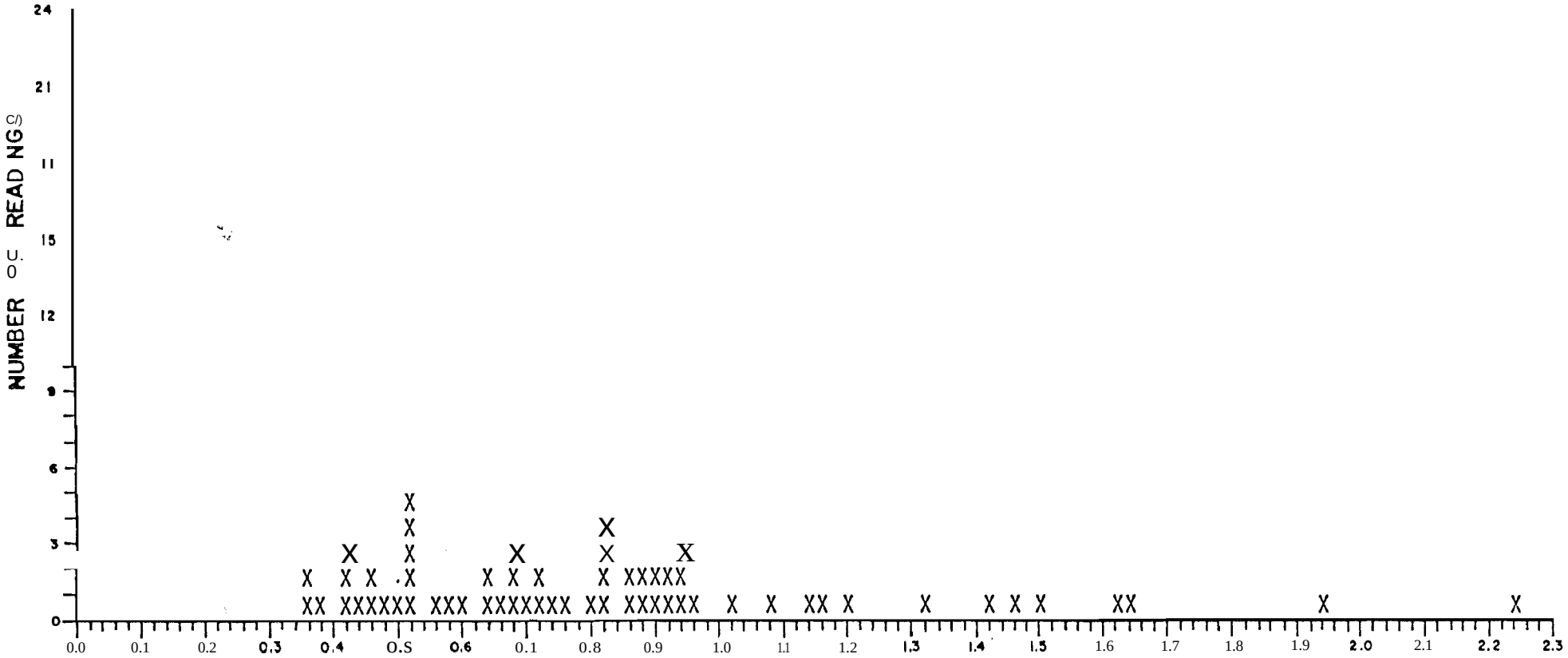
R522-073 CORE 652.69

MONSANTO

WELL NAME

(NO. OF READINGS = 60) 0.36 0.37 0.38 0.43 0.43 0.43 0.45 0.46 0.47 0.49 0.50 0.52 0.52 0.52
0.52 0.53 0.56 0.59 0.60 0.64 0.65 0.67 0.68 0.69 0.69 0.70 0.72 0.72 0.74 0.76 0.81 0.82
0.83 0.83 0.83 0.86 0.87 0.89 0.89 0.91 0.91 0.92 0.93 0.94 0.95 0.95 0.96 1.02 1.09 1.15
1.16 1.21 1.32 1.42 1.46 1.51 1.62 1.64 1.94 2.25

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	16	0.36	0.53	0.46	0.057	
(2)	14	0.56	0.76	0.67	0.058	
(3)	30	0.81	2.25	1.13	0.364	



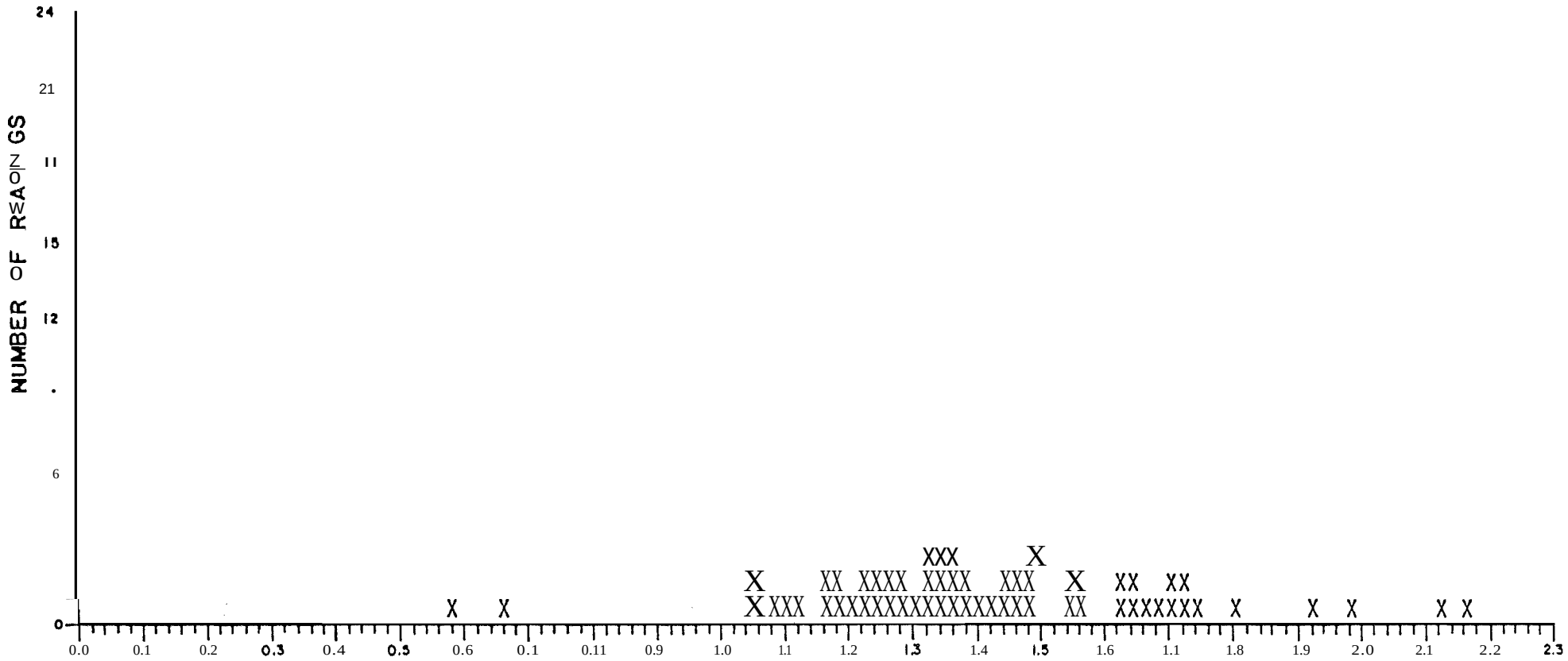
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-79 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 722.39

CLIENT'S 'NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS = 60) 0.58 0.67 1.04 1.04 1.09 1.11 1.13 1.16 1.17 1.19 1.19 1.20 1.23 1.23
1.25 1.25 1.26 1.27 1.28 1.28 1.31 1.32 1.33 1.33 1.34 1.34 1.35 1.36 1.36 1.37 1.38 1.39
1.40 1.42 1.44 1.44 1.47 1.47 1.48 1.49 1.49 1.54 1.54 1.57 1.62 1.62 1.64 1.64 1.66 1.69
1.70 1.71 1.73 1.73 1.74 1.80 1.93 1.98 2.13 2.16

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)	2	0.58	0.67	0.63		NO INDIGENOUS
(2)	37	1.04	1.48	1.29	0.120	VITRINITE
(3)	21	1.49	2.16	1.72	0.189	



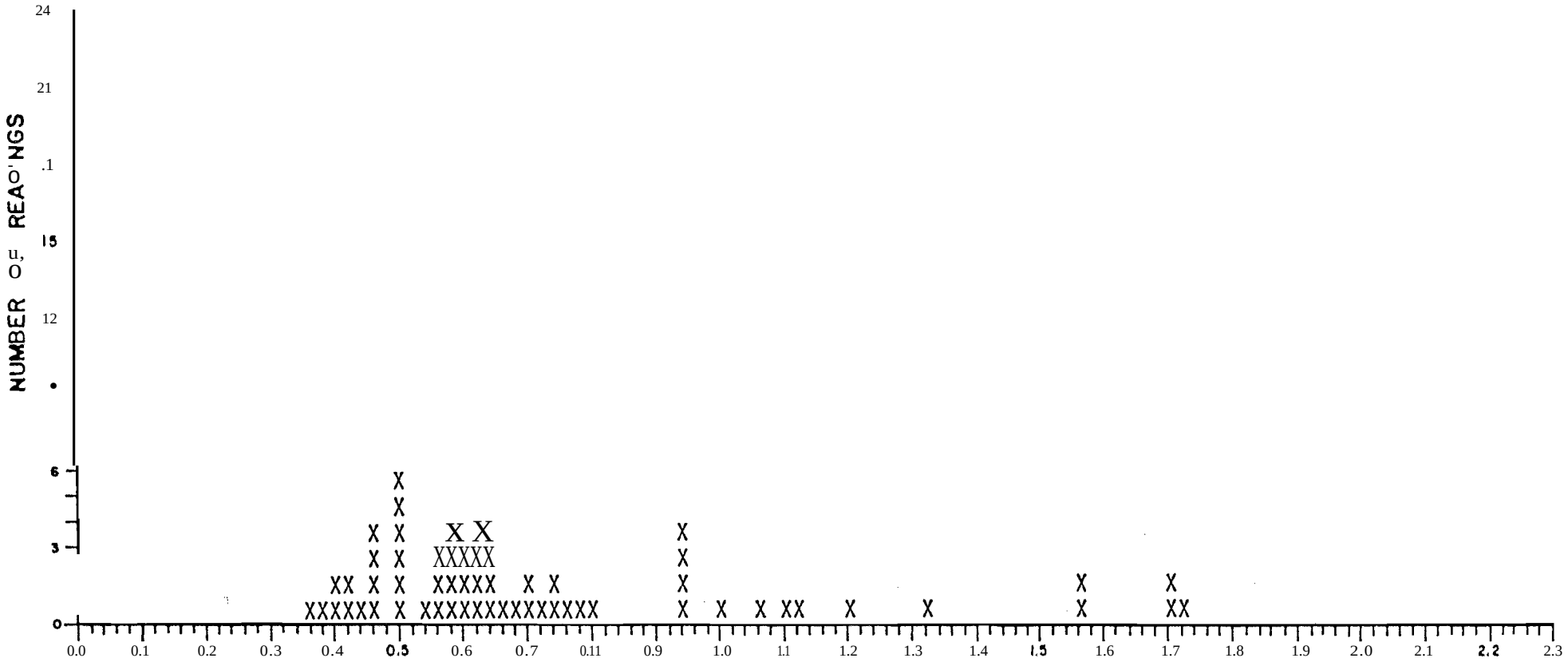
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-082 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 732.57

CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS = 60) 0.36 0.39 0.40 0.41 0.42 0.42 0.45 0.46 0.46 0.47 0.47 0.50 0.51 0.51
0.51 0.51 0.51 0.55 0.57 0.57 0.57 0.50 0.59 0.59 0.59 0.60 0.61 0.61 0.62 0.62 0.62 0.62
0.65 0.65 0.65 0.66 0.68 0.70 0.71 0.72 0.74 0.75 0.77 0.78 0.81 0.94 0.94 0.95 0.95 1.01
1.06 1.10 1.12 1.20 1.33 1.56 1.57 1.71 1.71 1.72

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)	17	0.36	0.51	0.46	0.049	
(2)	28	0.55	0.81	0.65	0.072	
(3)	15	0.94	1.72	1.26	0.311	



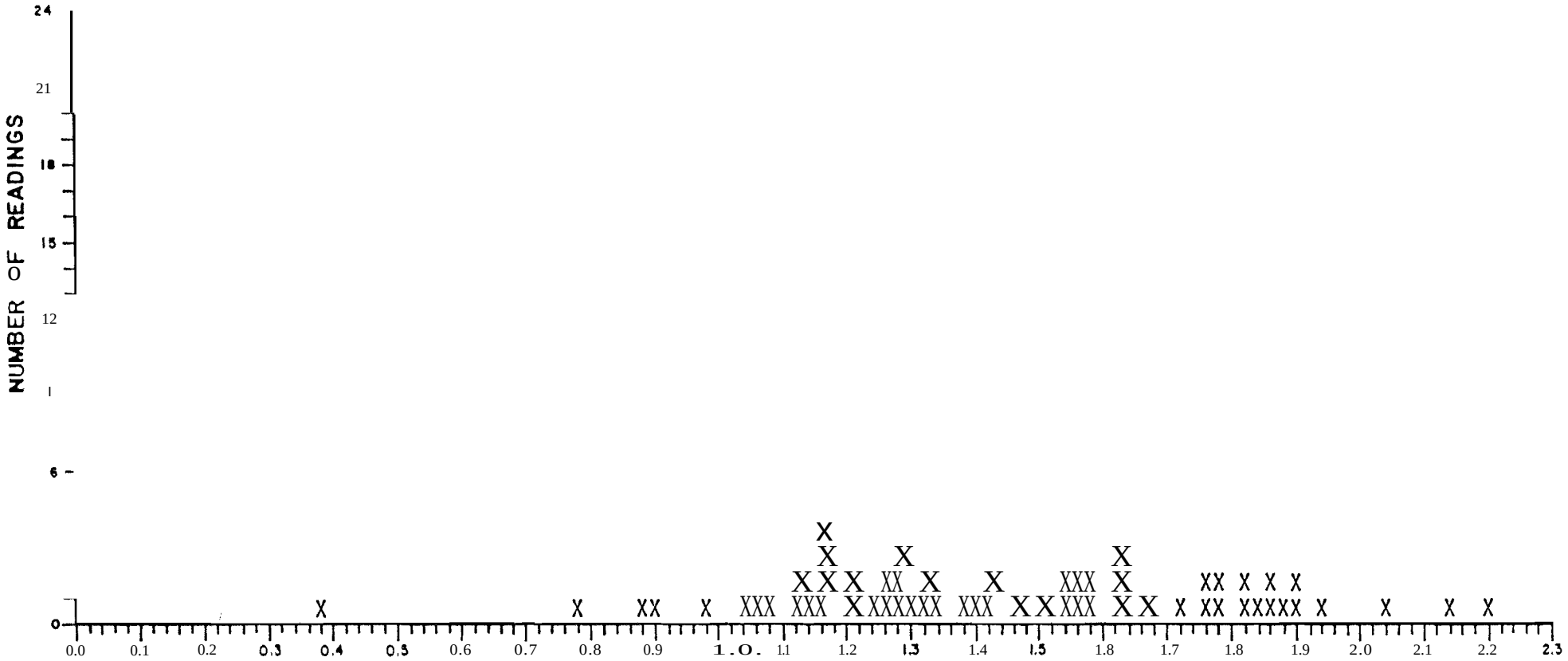
VITRINITE REFLECTANCE HISTOGRAM

R522-087 CORE 742.52

MONSANTO WELL NAME

(NO. OF READINGS =60) a.38 0.79 0.89 0.91 0.98 1.04 1.07 1.08 1.12 1.13 1.14 1.16 1.16 1.16
1.16 1.21 1.21 1.24 1.26 1.27 1.28 1.28 1.29 1.31 1.32 1.33 1.34 1.38 1.41 1.42 1.43 1.46
1.51 1.55' 1.55 1.56 1.57 1.58 1.58 1.62 1.62 1.63 1.67 1.72 1.76 1.77 1.78 1.79 1.83 1.83
1.85 1.87 1.87 1.88 1.90 1.91 1.94 2.05 2.14 2.20

PQPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)	1	0.38	0.38	0.38		
(2)	26	0.79-	1.34	1.16	0.145	
(3)	33	1.38	2.20	1.72	0.211	

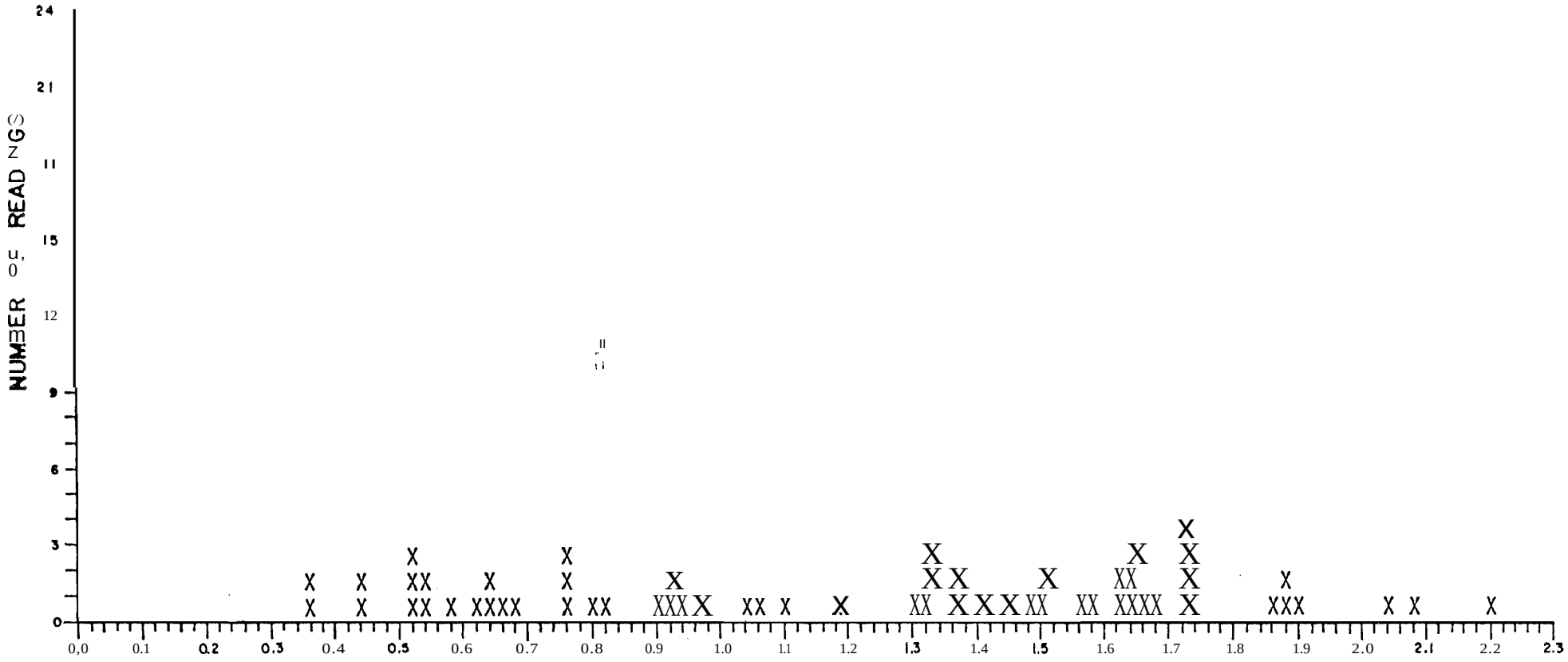


VITRIN1TE REFLECTANCE HISTOGRAM

R522-090 CORE 752.60

0.52	0.52	0.59	0.63	0.64	0.64	0.66
0.92	0.95	1.11	1.19	1.31	1.32	1.32
1.57	1.59	1.65	1.65	1.67	1.69	1.72
2.08	2.20					

MAX. Ro (%)	MEAN Ro(%)	STD. DEV. (%)	REMARKS
0.45	0.41	0.047	
0.77	0.63	0.091	
1.11	0.95	0.098	
2.20	1.63	0.245	

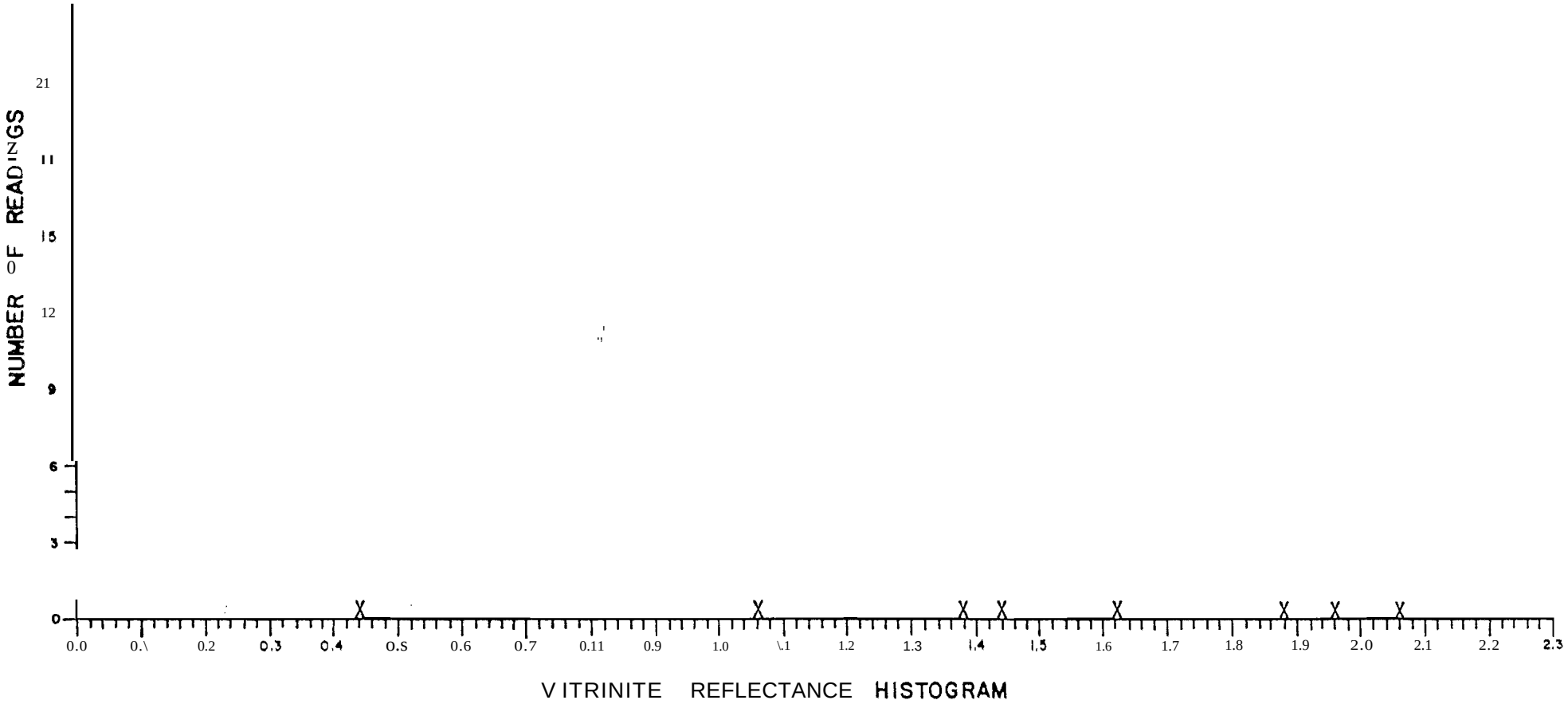


VITRINITE REFLECTANCE HISTOGRAM

R522-096

CLIENT'S NAME MONSANTO WELL NAME

(NO. OF READINGS = 8) 0.45 1.06 1.39 1.44 1.62 1.88 1.97 2.07

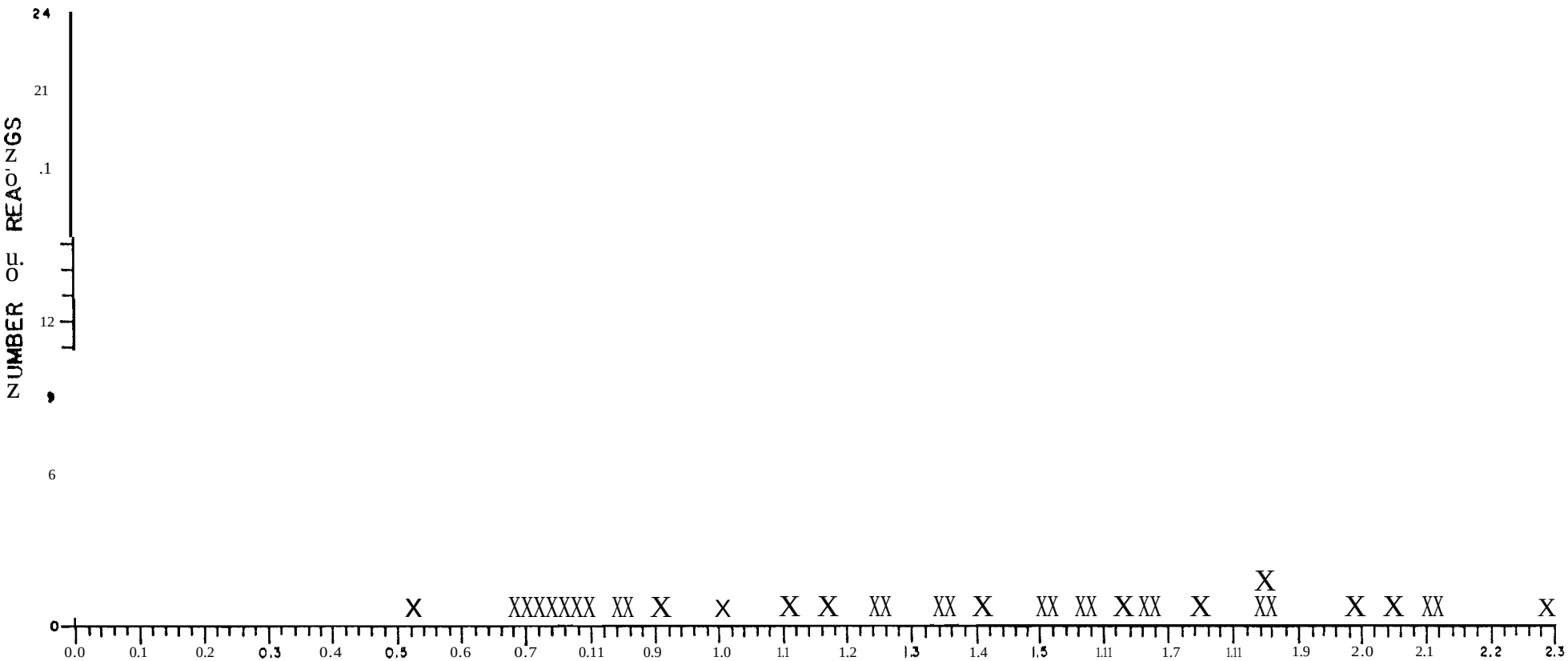


GEOCHEM NO. R522-100 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 942.82

CLIENT1S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS =35) 0.53 0.69 0.70 0.72 0.74 0.77 0.79 0.80 0.84 0.87 0.91 1.01 1.10 1.17
1.24 1.27 1.35 1.37 1.41 1.50 1.53 1.57 1.59 1.62 1.67 1.69 1.75 1.84 1.84 1.86 1.98 2.04
2.11 2.13 2.29

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)*	1	0.53	0.53	0.53		
(2)	9	0.69	0.87	0.77	0.062	
(3)	25	0.91	2.29	1.59	0.367	



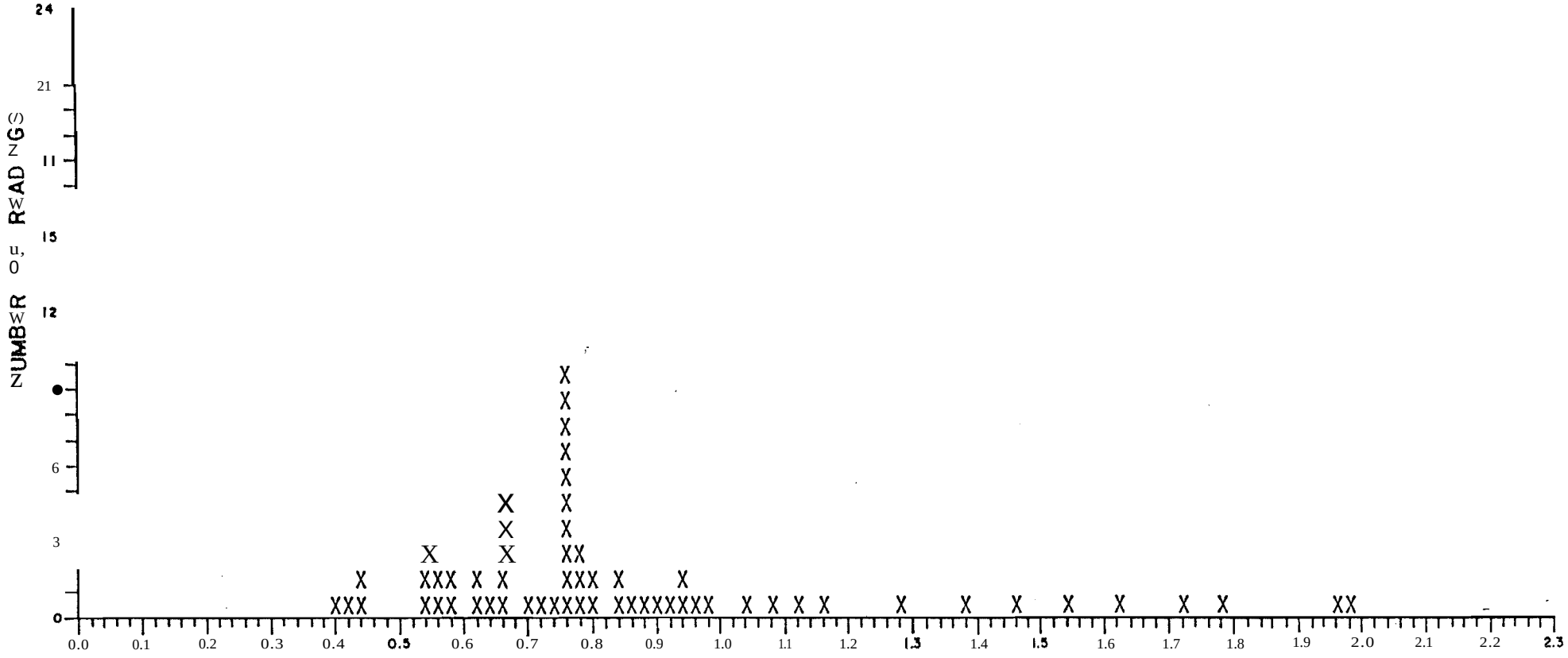
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-104 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 952.79

CLIENT1S NAME MONSANTO WELL NAME PI\-3

(NO. OF READINGS =60) 0.40 0.43 0.44 0.45 0.55 0.55 0.55 0.56 0.57 0.58 0.59 0.63 0.63 0.65
0.66 0.67 0.67 0.67 0.67 0.70 0.73 0.74 0.76 0.76 0.76 0.76 0.76 0.77 0.77 0.77 0.77 0.77
0.78 0.78 0.79 0.80 0.81 0.84 0.84 0.86 0.89 0.90 0.92 0.94 0.94 0.97 0.98 1.05 1.08 1.12
1.16 1.29 1.39 1.47 1.55 1.63 1.73 1.78 1.97 1.99

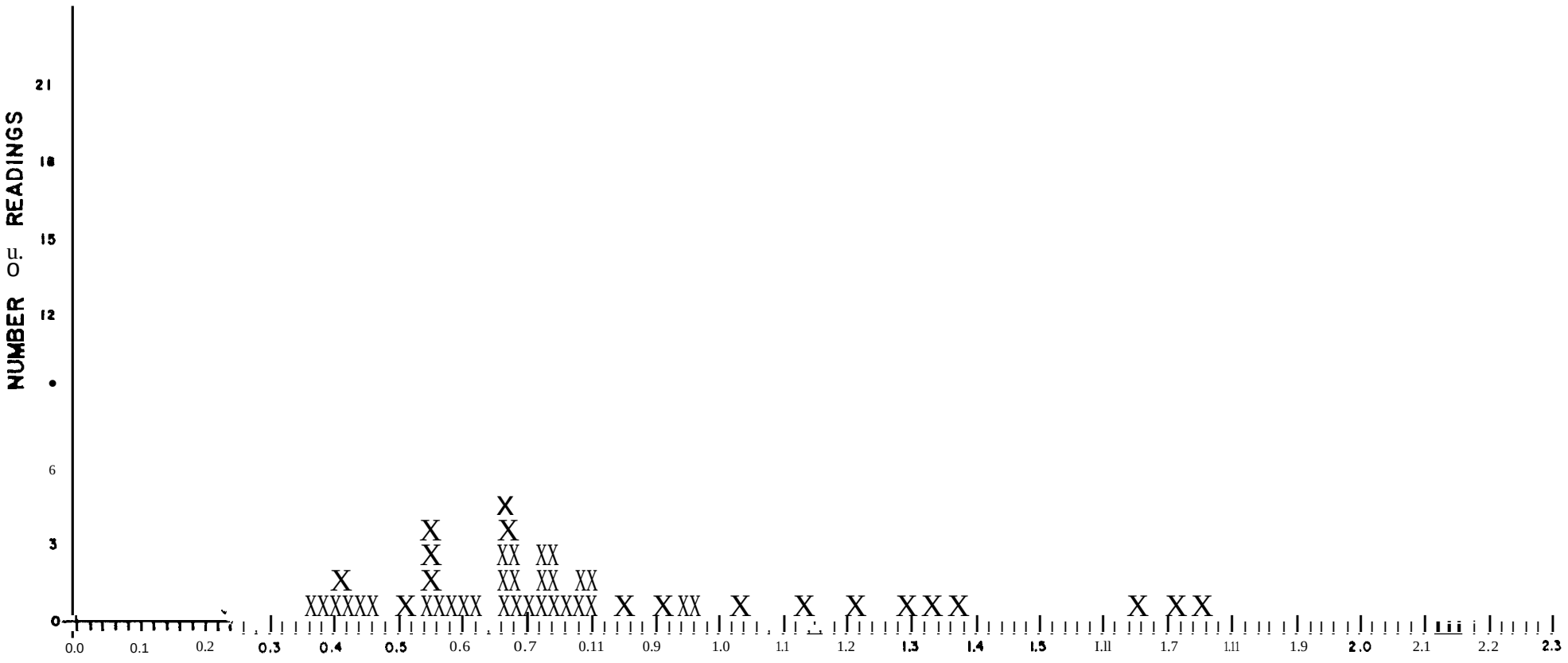
POPULATION	NO. OF READINGS	MIN.- Ro(%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)*	11	0.40	0.59	0.52	0.070	
(2)	26	0.63	0.81	0.73	0.056	
(3)	23	0.84	1.99	1.23	0.379	



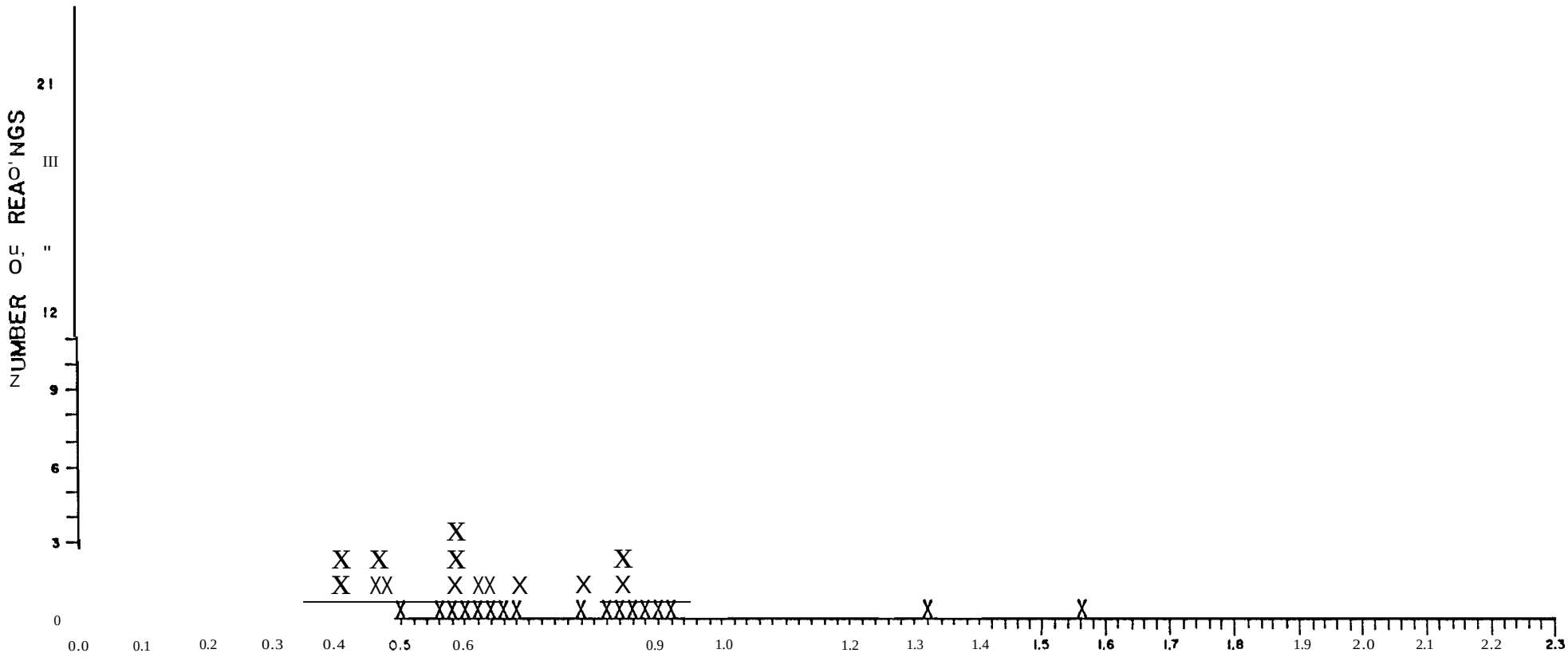
VITRINITE REFLECTANCE HISTOGRAM

R522-1l4 CORE 972.83

MONSANTO WELL NAME



VITRINITE REFLECTANCE HISTOGRAM



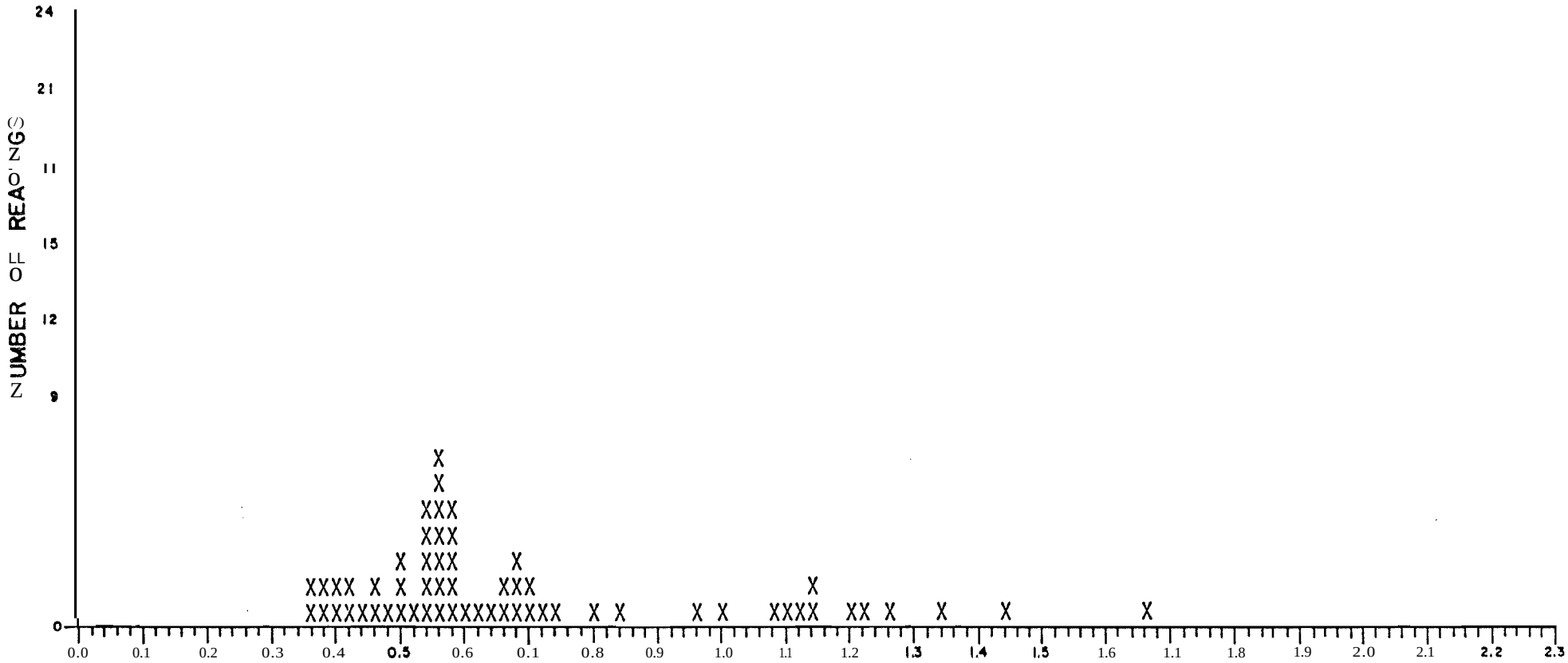
VITRINITE REFLECTANCE HISTOGRAM

t·10NSANTO

WELL NAME

(NO. OF READINGS = 60) 0.37 0.37 0.39 0.39 0.40 0.40 0.42 0.42 0.44 0.46 0.47 0.48 0.50 0.50
0.51 0.53 0.54 0.55 0.55 0.55 0.55 0.56 0.56 0.56 0.56 0.57 0.57 0.57 0.58 0.58 0.58 0.59
0.59 0.60 0.63 0.64 0.66 0.66 0.68 0.68 0.68 0.71 0.71 0.73 0.74 0.80 0.84 0.96 1.01 1.09
1.10 1.12 1.15 1.15 1.20 1.23 1.26 1.35 1.44 1.67

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)	15	0.37	0.51	0.43	0.049	
(2)	19	0.53	0.60	0.57	0.018	
(3)	13	0.63	0.84	0.70	0.061	
(4)	13	0.96	1.67	1.21	0.190	



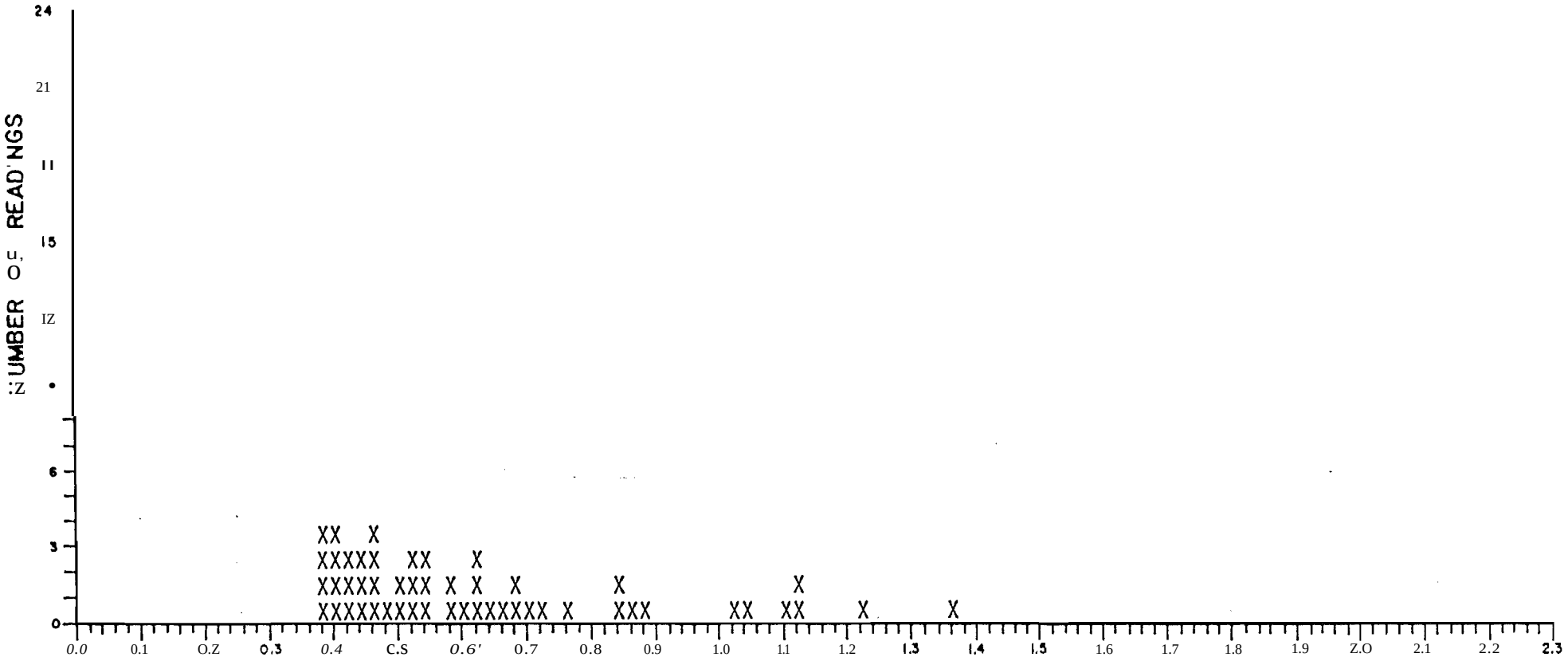
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-126 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 1002.58

CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS = 51) 0.39 0.39 0.39 0.39 0.40 0.40 0.41 0.41 0.42 0.42 0.42 0.44 0.44 0.45
0.46 0.46 0.46 0.46 0.49 0.50 0.51 0.53 0.53 0.53 0.54 0.54 0.55 0.58 0.59 0.61 0.63 0.63
0.63 0.64 0.67 0.68 0.69 0.70 0.73 0.77 0.84 0.84 0.86 0.88 1.02 1.04 1.11 1.13 1.13 1.23
1.36

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	27	0.39	0.55	0.46	0.055	
(2)	13	0.58	0.77	0.66	0.055	
(3)	11	0.84	1.36	1.04	0.173	



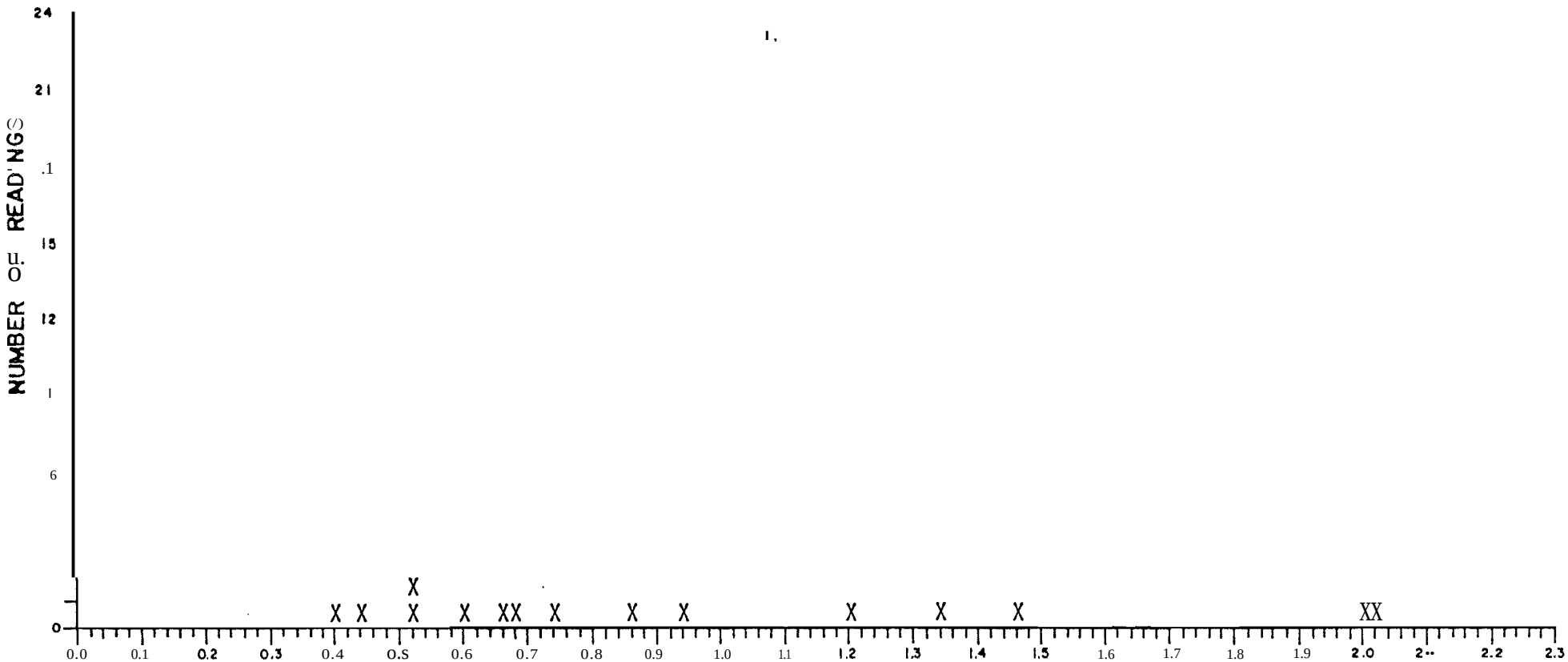
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-129 TYPE OF SAMPLE: CORE DEPTH/SAMPLE NO. 1012.66

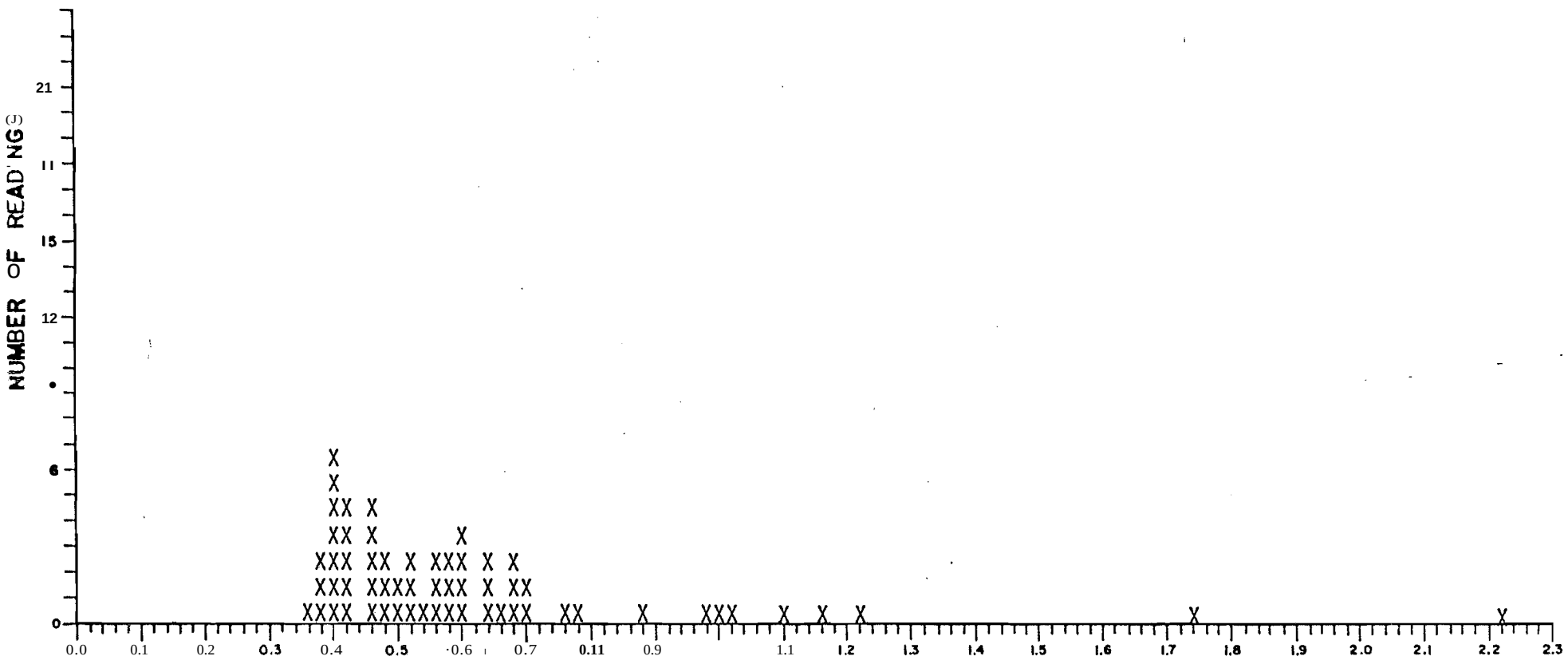
CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READIflGS = 15) 0.40 0.45 0.53 0.53' 0.60 0.67 0.68 0.75 0.86 0.94 1.21 1.35 1.46 2.01 2.02

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro(%)	STD. DEV. (%)	REMARKS
(1) *	4	0.40	0.53	0.48	0.064	
(2)	6	0.60	0.94	0.75	0.128	
(3)	5	1.21	2.02	1.61	0.380	



VITRINITE REFLECTANCE HISTOGRAM



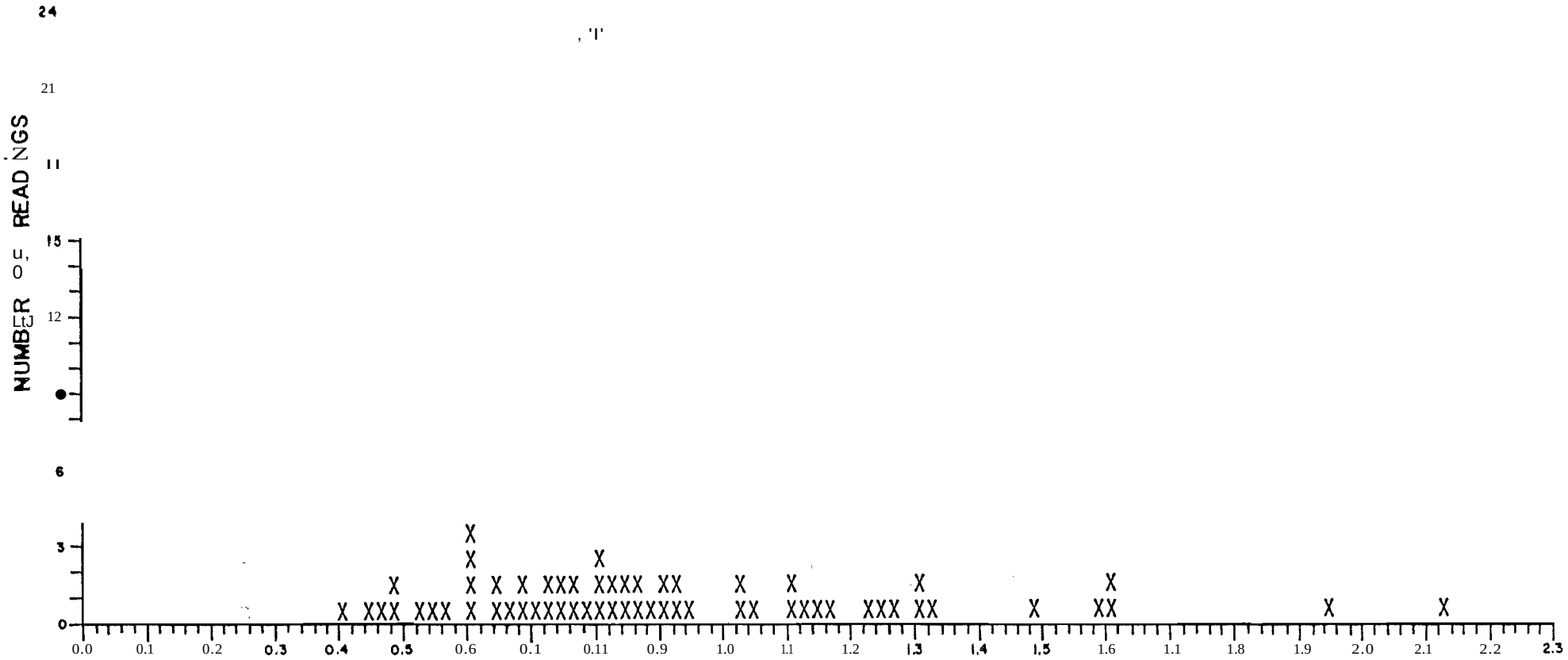
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-137 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 1032.47

CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS = 60) 0:40 0.44 0.47 0.49' 0.49 0.52 0.54 0.56 0.60 0.60 0.61 0.61 0.64 0.64
0.66 0.68 0.69 0.70 0.73 0.73 0.74 0.74 0.76 0.77 0.79 0.81 0.81 0.81 0.82 0.83 0.84 0.84
0.86 0.87 0.89 0.90 0.91 0.92 0.92 0.94 1.02 1.03 1.04 1.10 1.11 1.12 1.15 1.17 1.23 1.25
1.27 1.30 1.30 1.32 1.48 1.58 1.60 1.61 1.95 2.13

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)	8	0.40	0.56	0.49	0.052	
(2)	32	0.60	0.94	0.77	0.105	
(3)	14	1.02.	1.32	1.17	0.106	
(4)	6	1.48'	2.13	1. 73	0.255	



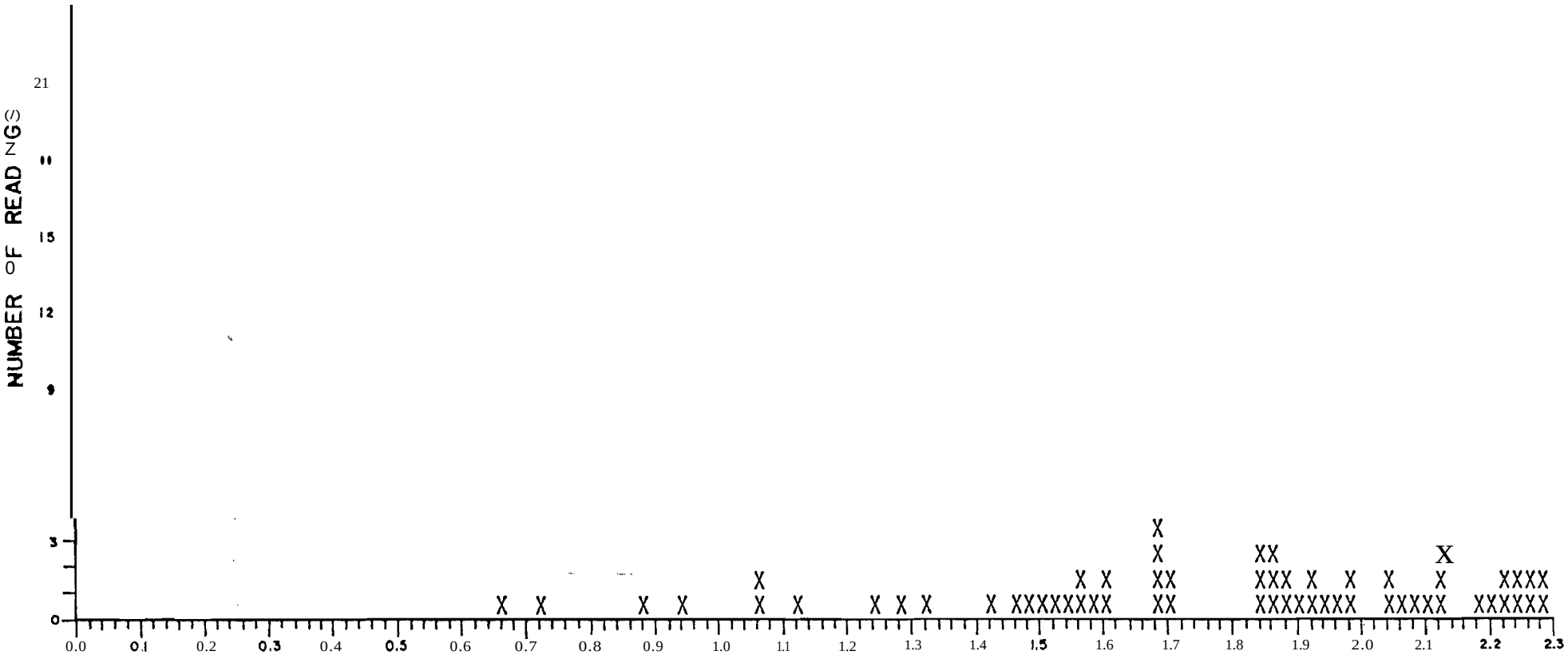
VITRINITE REFLECTANCE HISTOGRAM

R522-146

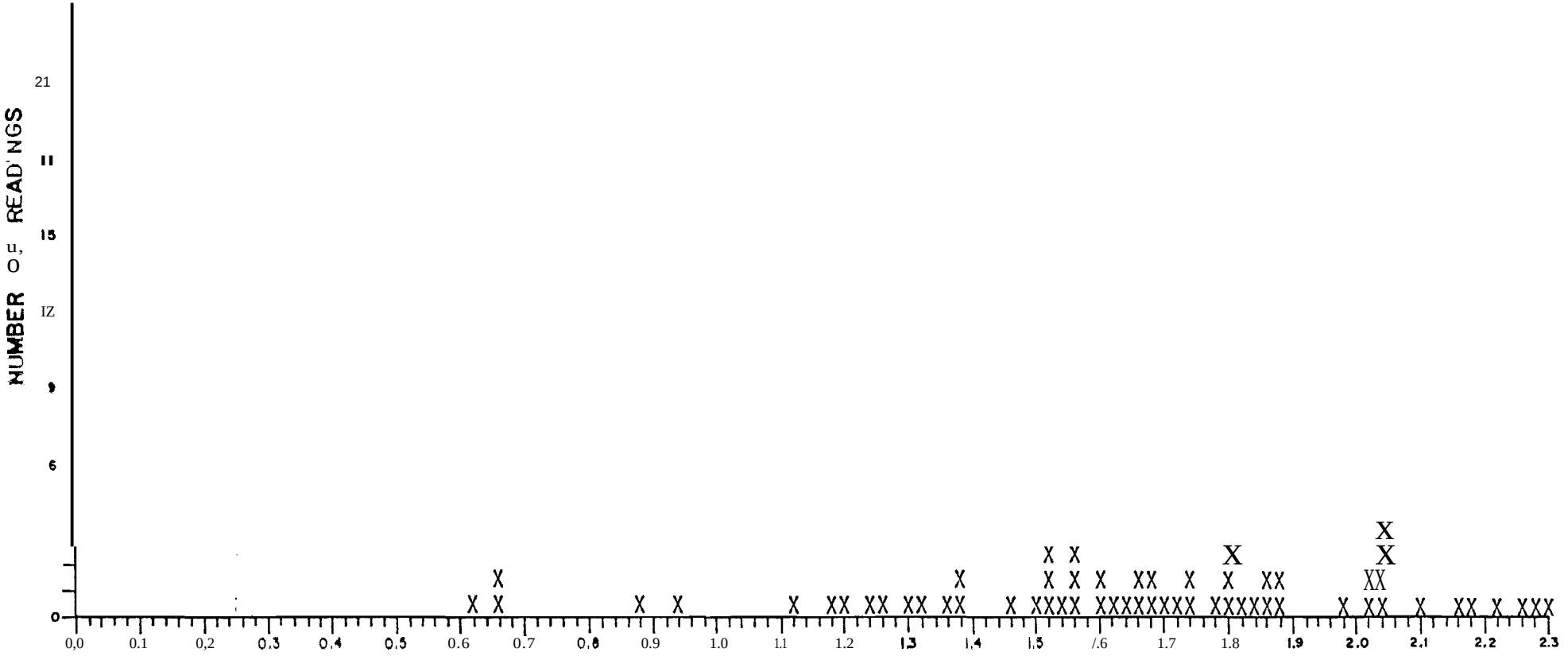
CLIENT1S NAME MONSANTO WELL NAME

1.13	1.25	1.29	1.33	1.42;	1.46	1.48	1.51
1.69	1.70	1.71	1.84'	1.85	1.85	1.86	1.86
2.04	2.04	2.07	2.09	2.11	2.12	2.12	2.13

MEAN Ro (%)	STD. DEV. (%)	REMARKS
0.69		NO INDIGENOUS
1.06	0.130	VITRINITE
1.56	0.124	
2.05	0.155	



VITRINITE REFLECTANCE HISTOGRAM



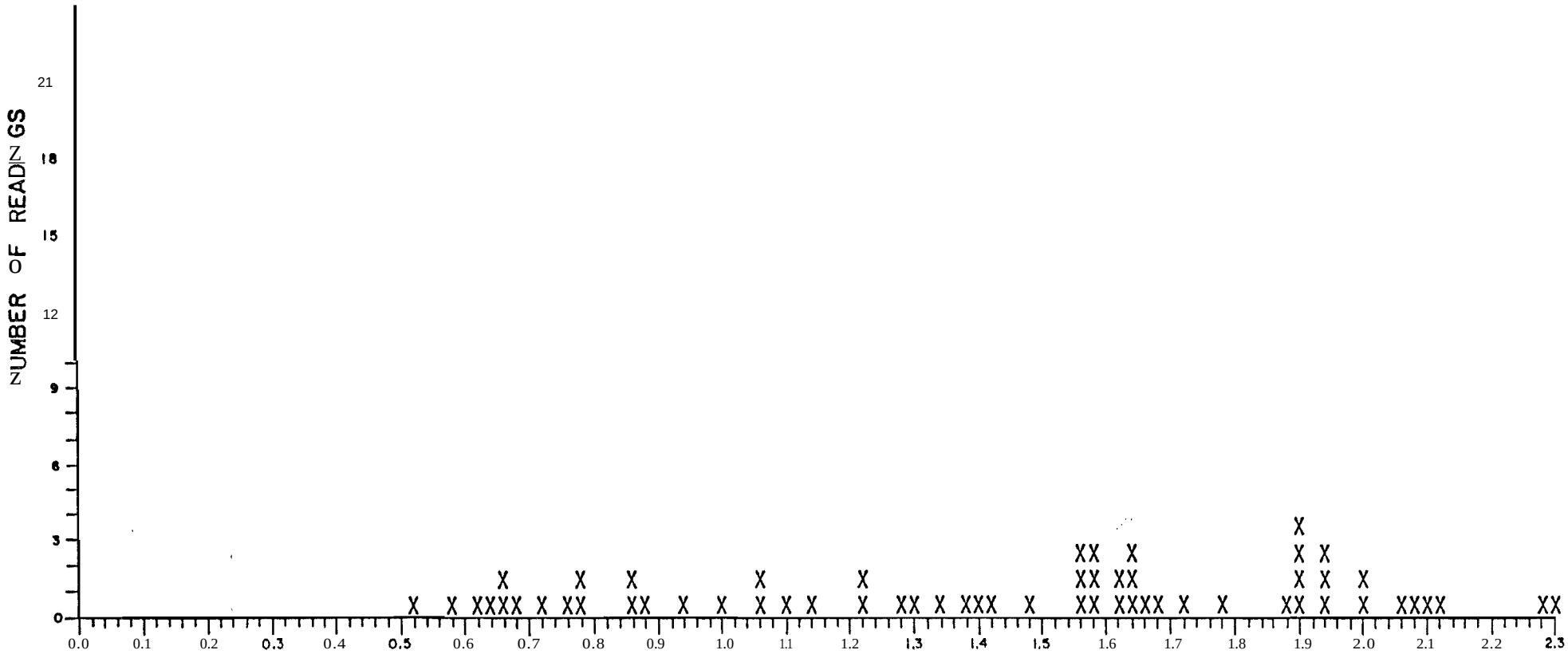
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-154 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 1198.71

CLIENT'S NAME MONSANTO WELL NAME PA-3

0.69	0.73	0.77	0.78	0.79	0.86	0.86	0.88
1.35	1.38	1.40	1.43	1.48	1.56	1.56	1.56
1.72	1.78'	1.88	1.90	1.90	1.91	1.91	1.94

MEAN Ro (%)	STD. DEV. (%)	REMARKS
0.63	0.059	
0.92	0.141	
1.34	0.090	
1.63	0.063 :	
2.02	0.134	



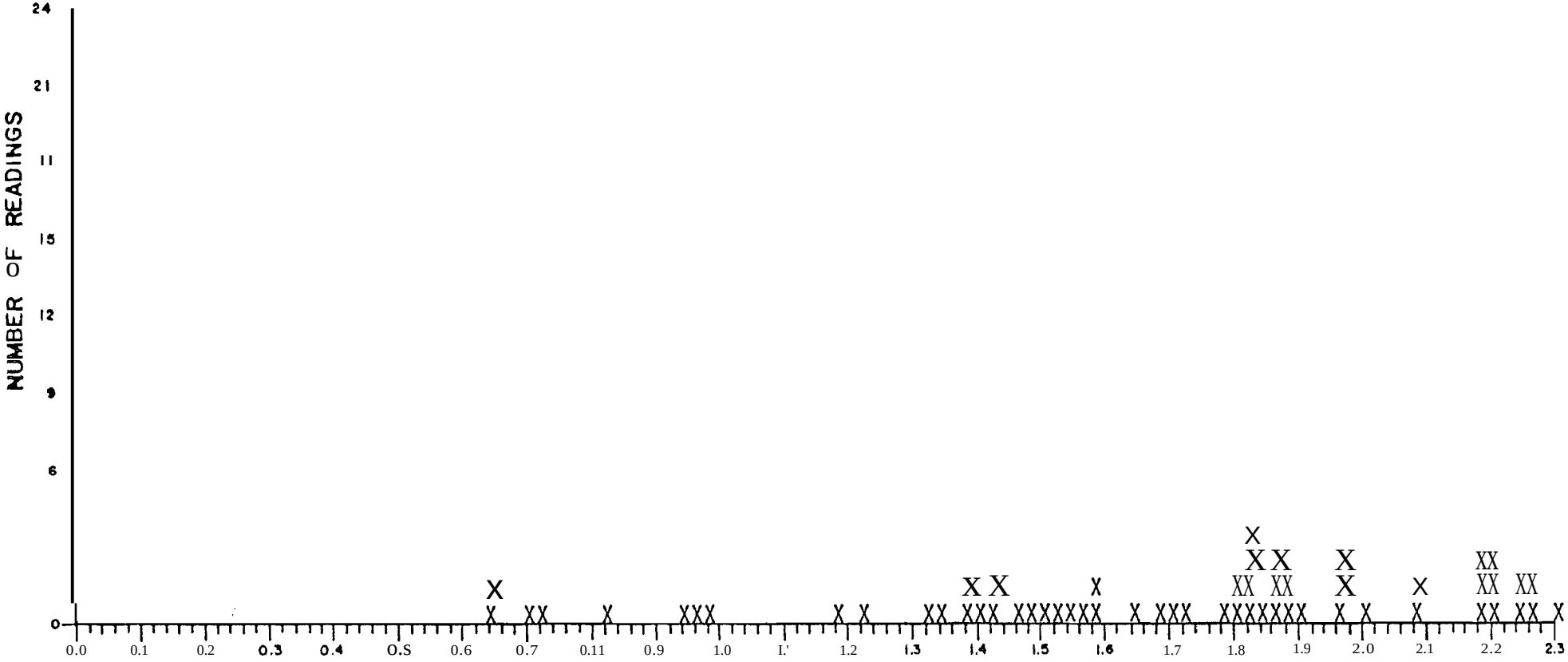
VITRINITE REFLECTANCE. HISTOGRAM

R522-15B

CLIENT'S NAME MONSANTO WELL NAME

(NO. OF READINGS = 60) 0.64 0.64 0.71 0.73 0.82 0.94 0.97 0.99 1.19 1.23 1.33 1.34 1.38 1.38
1.41 1.42 1.42 1.46 1.48 1.51 1.52 1.55 1.56 1.59 1.59 1.65 1.68 1.71 1.73 1.78 1.80 1.80
1.82 1.82 1.82 1.83 1.85 1.86 1.86 1.87 1.88 1.89 1.91 1.97 1.97 1.97 2.01 2.08 2.09 2.19
2.19 2.19 2.20 2.20 2.21 2.24 2.25 2.27 2.27 2.32

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	4	0.64	0.73	0.68	0.047	NO INDIGENOUS VITRINITE
(2)	6	0.82	1.23	1.02	0.157	
(3)	15	1.33	1.59	1.46	0.088	
(4)	35	1.65	2.32	1.98	0.199	



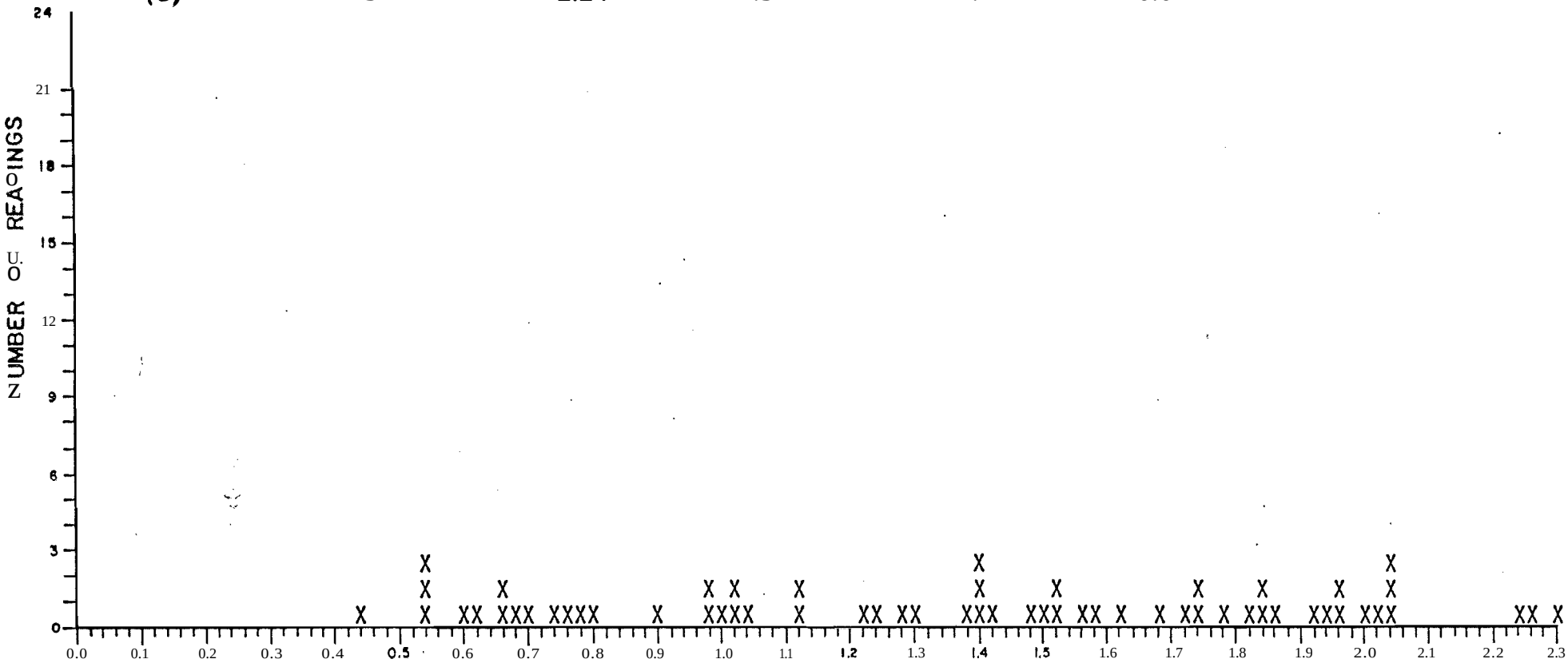
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-162 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 1218.77

CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS = 60) 0.45 0.54 0.54 0.55 0.60 0.62 0.66 0.67 0.69 0.70 0.75 0.76 0.78 0.80
0.90 0.99 0.99 1.00 1.02 1.03 1.04 1.13 1.13 1.22 1.24 1.28 1.30 1.39 1.40 1.40 1.41 1.42
1.48 1.51 1.52 1.52 1.57 1.58 1.62 1.69 1.72 1.75 1.75 1.78 1.83 1.84 1.85 1.87 1.92 1.94
1.97 1.97 2.01 2.03 2.04 2.04 2.05 2.24 2.26 2.32

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)*	6	0.45	0.62	0.55	0.059	
(2)	8	0.66	0.80	0.73	0.053	
(3)	9	0.90	1.13	1.03	0.072	
(4)	34	1.22	2.05	1.67	0.263	
(5)	3	2.24	2.32	2.27	0.042	



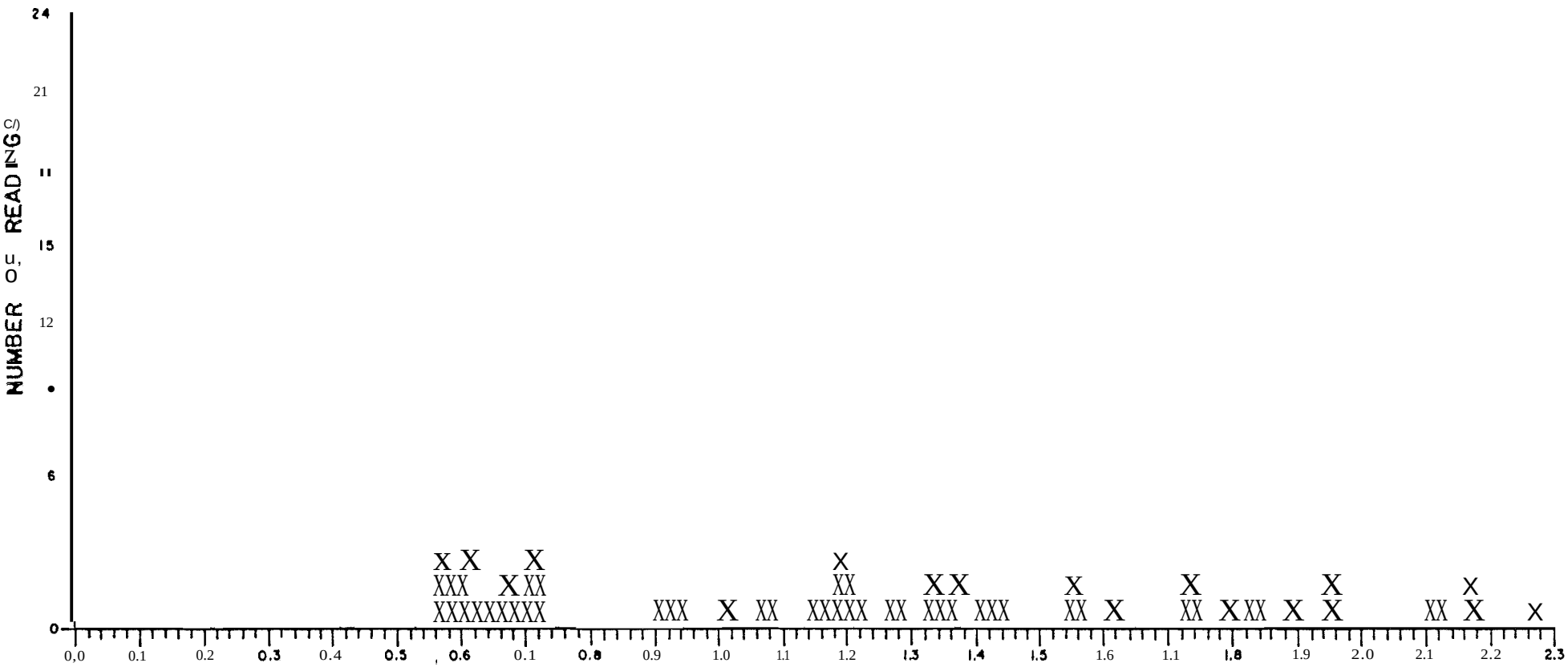
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-166 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 1228.87

CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS = 60) 0.56 0.56 0.57 0.58 0.59 0.60 0.61 0.61 0.62 0.64 0.66 0.67 0.68 0.70
0.70 0.70 0.72 0.73 0.90 0.93 0.94 1.01 1.07 1.09 1.14 1.16 1.18 1.19 1.19 1.20 1.20 1.23
1.27 1.29 1.32 1.32 1.34 1.36 1.37 1.40 1.42 1.45 1.54 1.55 1.57 1.60 1.73 1.73 1.75 1.79
1.82 1.84 1.89 1.94 1.94 2.10 2.13 2.17 2.17 2.26

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	18	0.56	0.73	0.64	0.057	
(2)	28	0.90	1.60	1.26	0.193	
(3)	14	1.73	2.26	1.95	0.185	



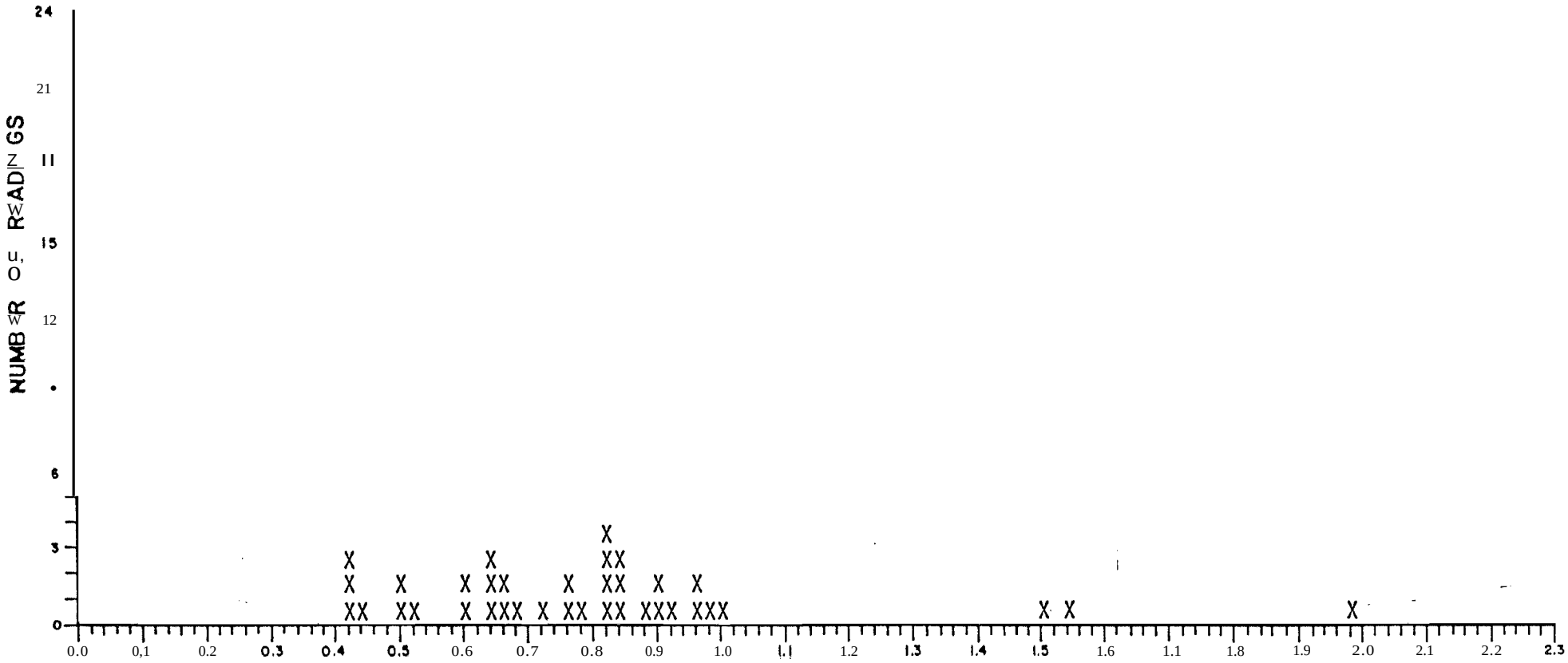
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-170 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 1238.67

CLIENT'S NAME r·1ONSANTO WELL NAME PA-3

(NO. OF READINGS = 37) 0:42 0.42 0.43 0.44 0.50 0.50 0.53 0.60 0.61 0.65 0.65 0.65 0.66 0.67
0.68 0.73 0.77 0.77 0.79 0.82 0.83 0.83 0.83 0.85 0.85 0.85 0.89 0.90 0.91 0.92 0.96 0.96
0.99 1.00 1.51 1.54 1.98

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEY. (%)	REMARKS
(1) *	7	0.42	0.53	0.46	0.046	
(2)	9	0.60	0.73	0.66	0.038	
(3)	18	0.77	1.00	0.87	0.072	
(4)	3	1.51	1.98	1.68	0.263	



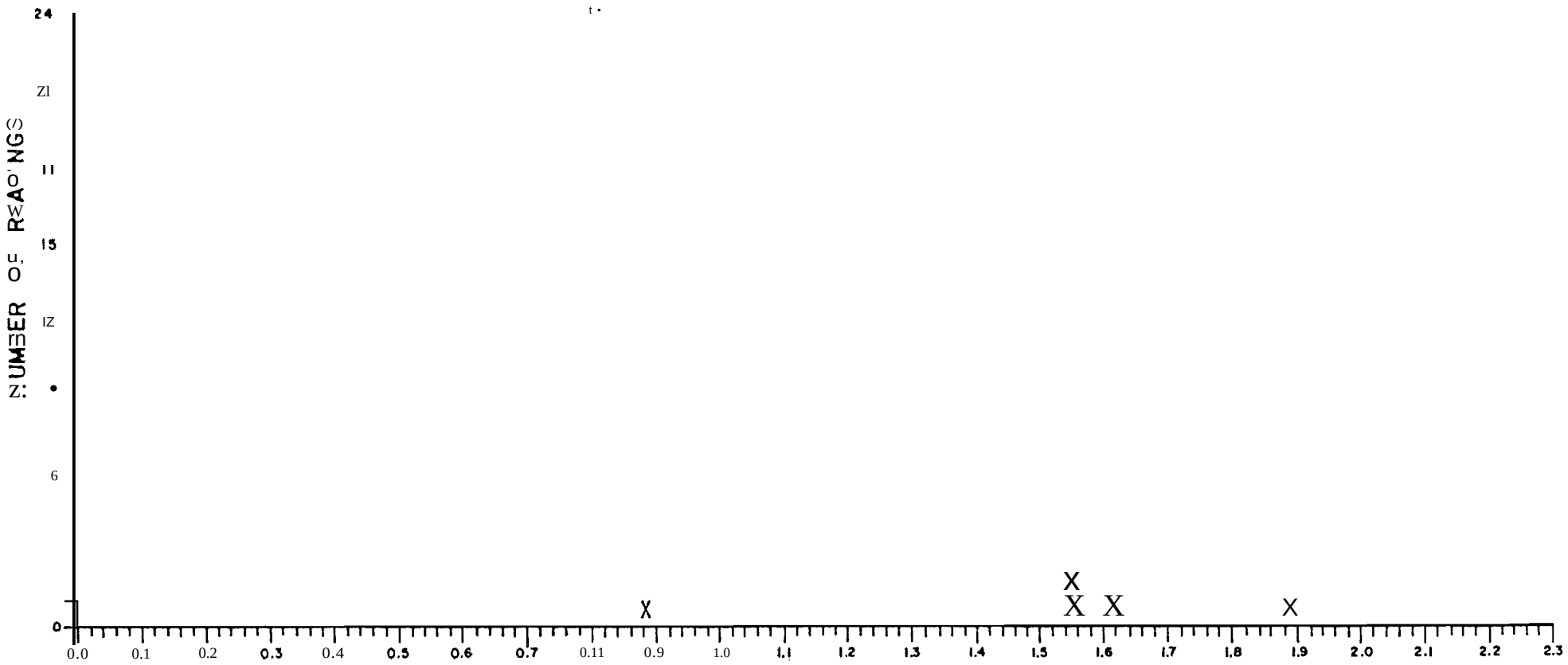
VITRINITE REFLECTANCE HISTOGRAM

R522-176 CORE 1248.91

MONSANTO WELL NAME

(NO. OF READINGS = 5) 0.89 1.54 1.55 1.61 1.88

POPVLATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1)	1	0.89	0.89	0.89		NO INDIGENOUS
(2)	4	1.54	1.88	1.65	0.160	VITRINITE



VITRINITE REFLECTANCE HISTOGRAM

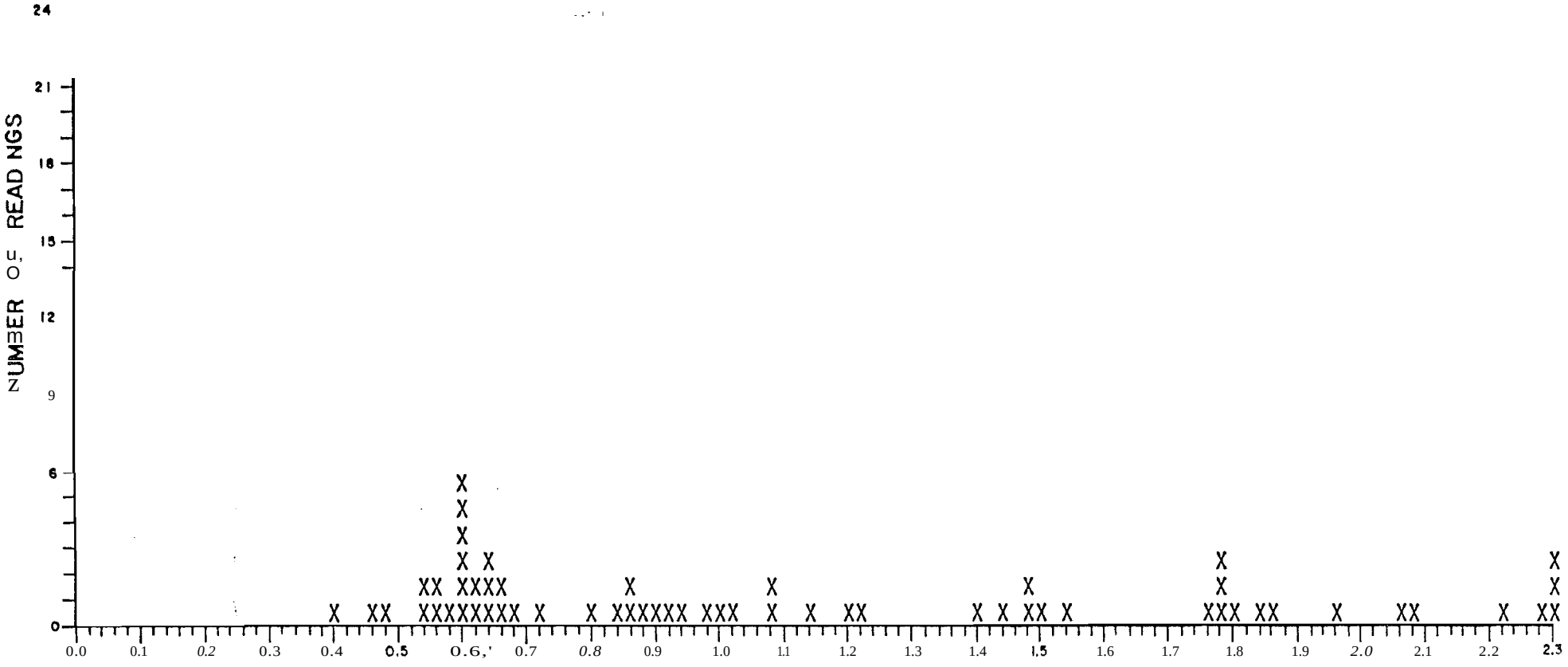
VITRiNITE REFLECTANCE SUMMARY

GEOCHEM NO. R522-009 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 383

CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS = 60) 0.40 0.47 0.48 0.54 0.55 0.57 0.57 0.59 0.60 0.61 0.61 0.61 0.61 0.61
0.63 0.63 0.64 0.64 0.65 0.66 0.66 0.69 0.72 0.80 0.84 0.86 0.87 0.88 0.90 0.92 0.95 0.99
1.00 1.02 1.08 1.09 1.15 1.21 1.22 1.40 1.44 1.48 1.49 1.51 1.55 1.76 1.78 1.78 1.79 1.81
1.85 1.86 1.96 2.07 2.08 2.22 2.29 2.45 2.56 7.88

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	3	0.40	0.48	0.45	0.044	
(2)	20	0.54	0.72	0.62	0.045	
(3)	14	0.80	1.15	0.95	0.105	
(4)	23	1.21	7.88	2.06	1.319	



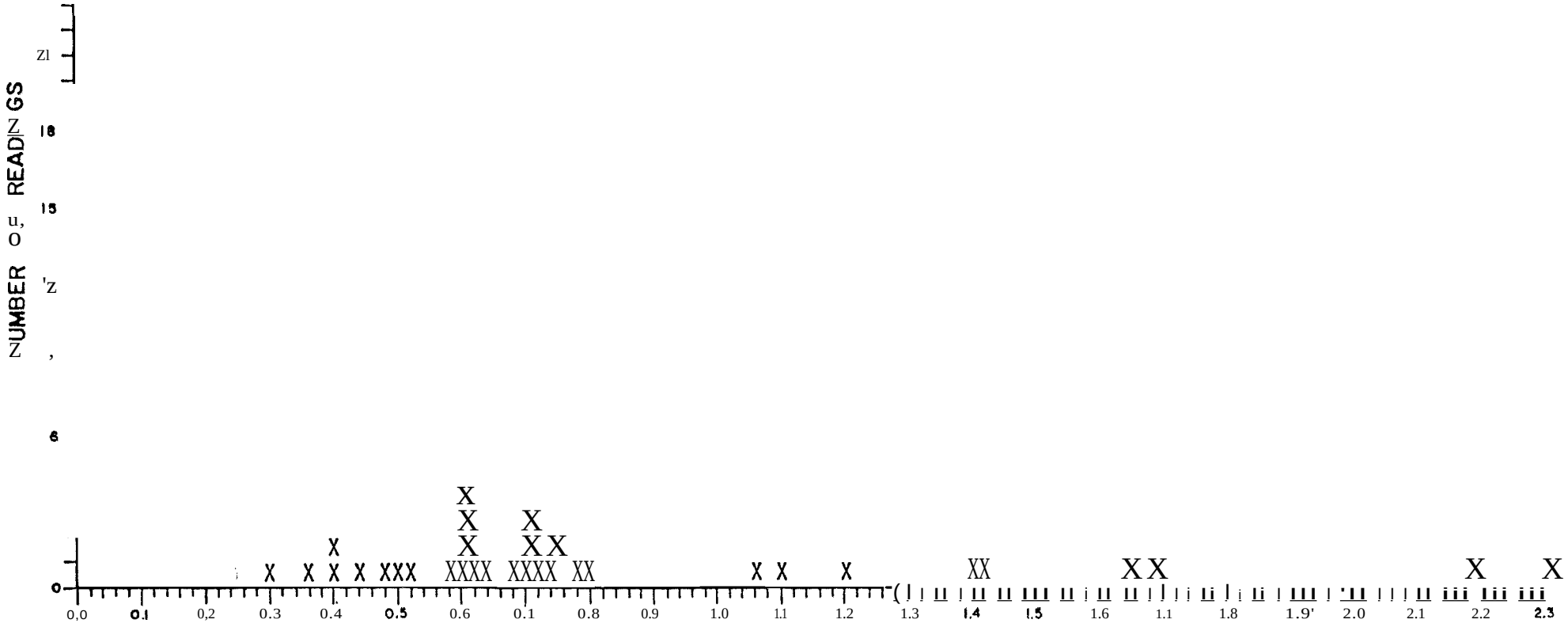
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-031 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 545

CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS = 33) 0.31 0.36 0.40 0.41 0.45 0.48 0.50 0.53 0.58 0.60 0.60 0.60 0.61 0.63 0.65 0.68 0.70 0.70 0.71 0.73 0.74 0.74 0.79 0.80 1.06 1.10 1.21 1.41 1.42 1.65 1.68 2.19 2.31

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	4	0.31	0.41	0.37	0.045	
(2)	20	0.45	0.80	0.64	0.101	
(3)	7	1.06	1.68	1.36	0.249	
(4)	2	2.19	2.31	2.25		



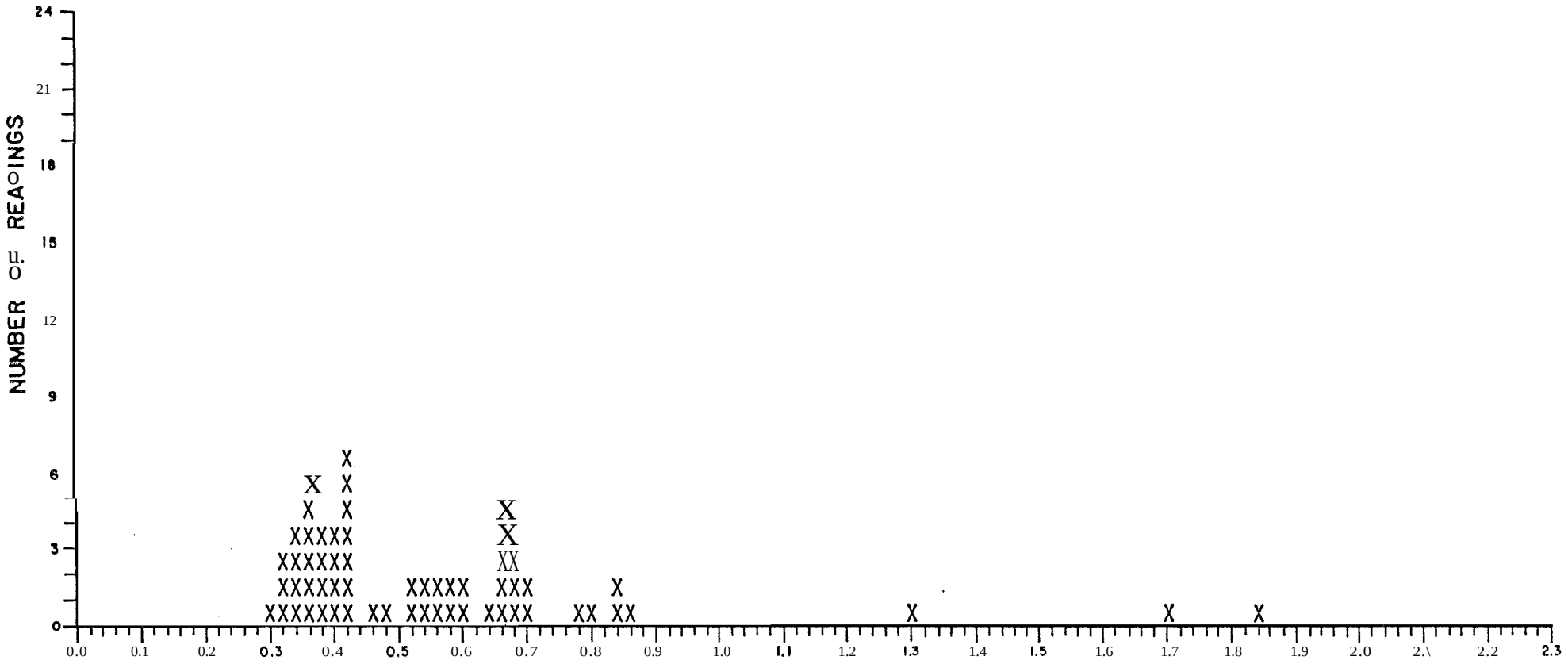
VITRINITE REFLECTANCE HISTOGRAM

R522-064

CLIENT'S NAME MONSANTO WELL NAME

(NO. OF READINGS = 60) 0.30 0.32 0.32 0.33 0.34 0.34 0.34 0.35 0.36 0.36 0.36 0.36 0.37 0.37
0.38 0.38 0.39 0.39,0.40 0.40 0.40 0.41 0.42 0.42 0.42 0.430.43' 0.43 0.43 0.47 0.49 0.53
0.53 0.54 0.55 0.56' 0.57 0.58 0.59 0.60 0.61 0.64 0.660.66 0.66 0.67 0.67 0.68 0.68 0.69
0.700.710.78 0.81 0.84 0.85 0.86 1.311.711.85

POPULATION	NO. OF READINGS	MIN. Ro (%),	MAX. Ro (%)	, MEAN Ro (%)	STD. DEY. (%)	REMARKS
(1) *	29	0.30	0.43	0.38	0.038	
(2)	28	0.47	0.86	0.65	0.107	
(3)	3'	1•31	1•85	,1.62	0.280	



, VITRINITE REFLECTANCE HISTOGRAM

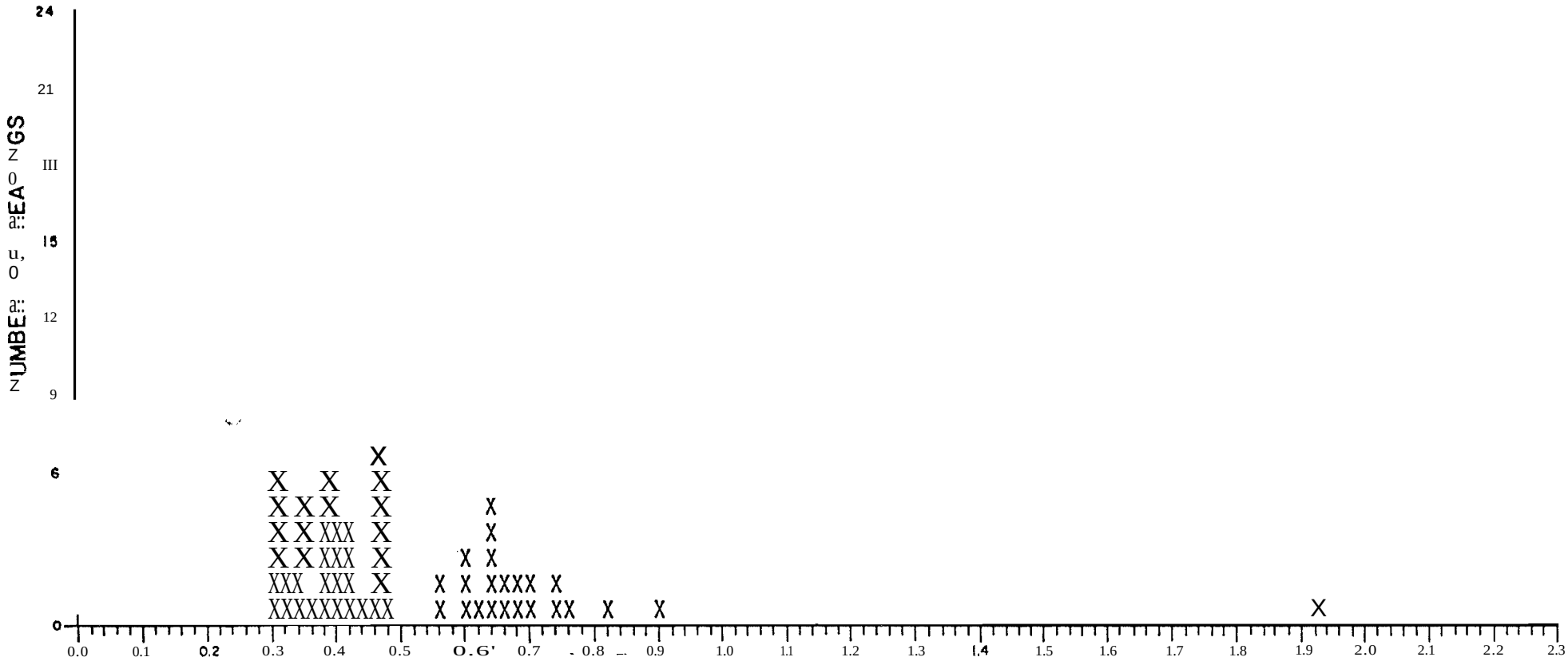
R522-092 CORE

DEPTH / SAMPLE NO. 754

CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS =60) 0.30 0.30 0.30 0.31 0.31 0.31 0.33 0.33 0.34 0.34 0.34 0.35 0.35 0.37
0.38 0.38 0.39 0.39 0.39 0.39 0.40 0.41 0.41 0.41 0.42 0.42 0.42 0.43 0.45 0.46 0.46 0.46
0.46 0.46 0.46 0.47 0.49 0.57 0.57 0.60 0.60 0.60 0.63 0.65 0.65 0.65 0.65 0.65 0.66 0.67
0.68 0.69 0.70 0.71 0.74 0.74 0.76 0.83 0.90 1.92

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN RoC %)	STD. DEV. (%)	REMARKS
(1) *	28	0.30	0.43	0.37	0.043	
(2)	31	0.45	0.90	0.62	0.120	
(3)	1,	1.92	11.92	1.92,		



VITRINITE REFLECTANCE HISTOGRAM

R522-106 CORE

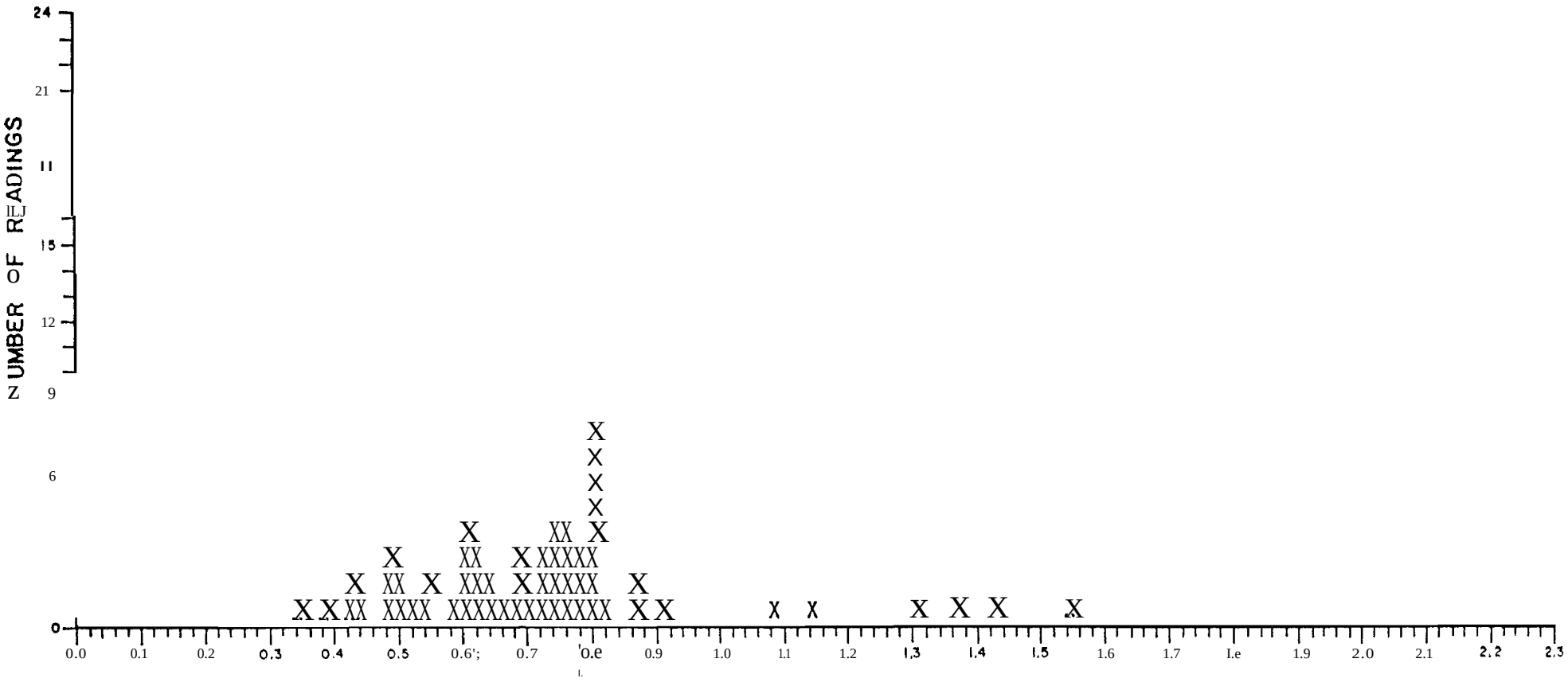
MONSANTO

DEPTH / SAMPLE NO. 958

PA-3

0.51	0.53	0.54	0.55	0.59
0.71	0.72	0.73	0.73	0.74'
0.80	0.81	0.81	0.81	0.81

MEAN Ro (%)	STD. DEV. (%)	REMARKS
0.47	0.063	
0.73	0.083	
1.31	0.174	



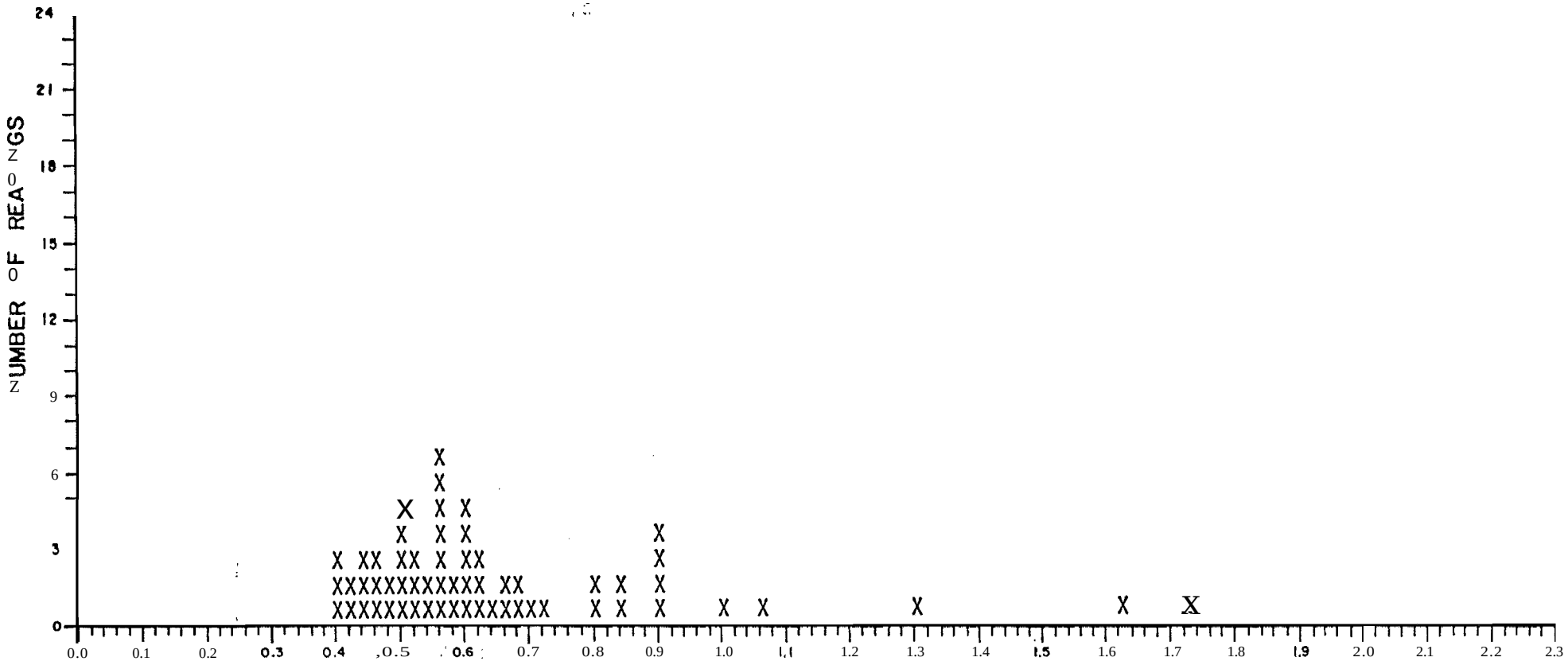
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-131 CORE 1013

CLIENT'S NAME MONSANTO

(NO. OF READINGS = 60) 0.40 0.40 0.41 0.42 0.43 0.44
0.50 0.51 0.51 0.51 0.52 0.53 0.53 0.54 0.55 0.56
0.60 0.60 0.60 0.61 0.61 0.62 0.62 0.62 0.64 0.66
0.84 0.90 0.90 0.90 0.91 1.01 1.06 1.30 1.63 1.73

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	30	0.40	0.57	0.50	0.055	
(2)	17	0.59	0.73	0.64	0.045	
(3)	13	0.80	1.73	1.05	0.311	



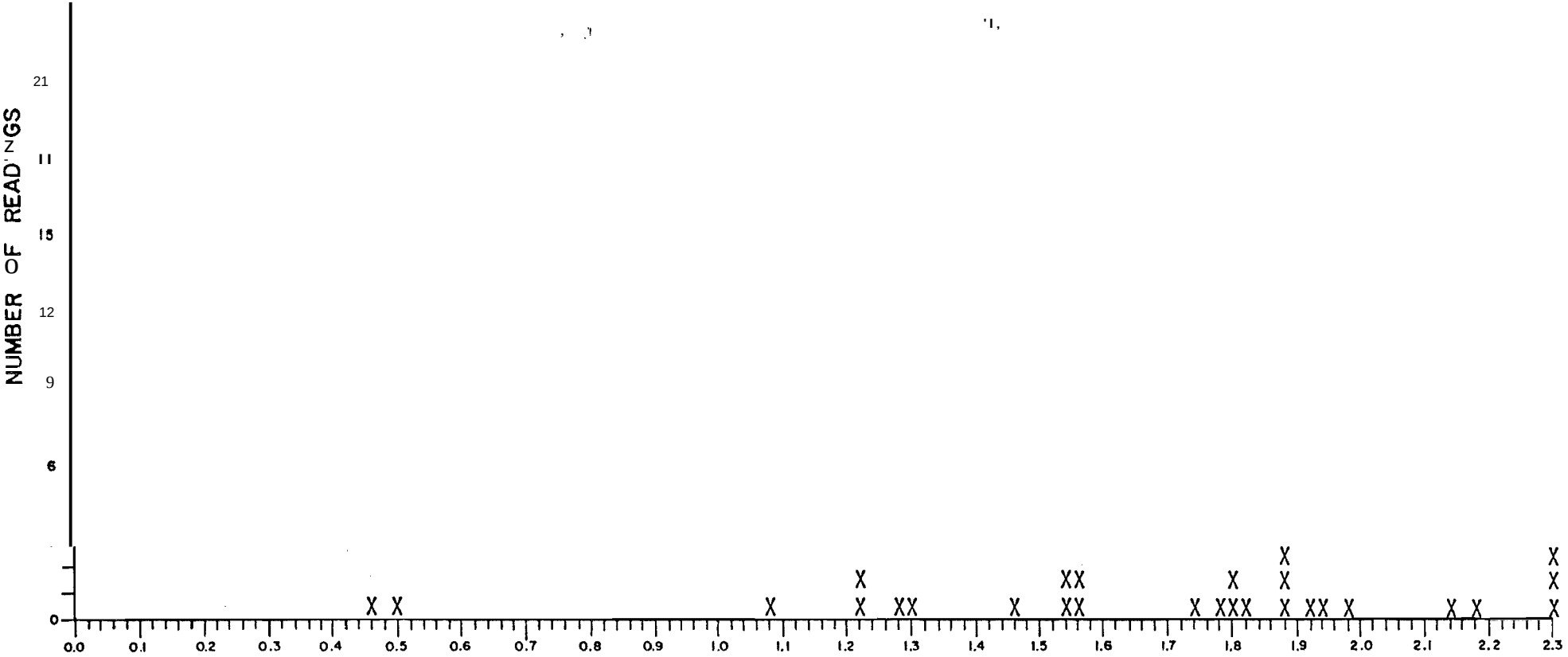
VITRINITE REFLECTANCE HISTOGRAM

R522-147

CLIENT'S NAME MONSANTO WELL NAME

(NO. OF READINGS = 28) 0.46 0.51 1.09 1.23 11.23 1.29 1.30 1.47 1.55 1.55 1.56 1.56 1.74 1.78
1.80 1.81 1.82 1.88, 1.89 1.89 1.93 1.95 1.98 2.14 2.19 2.33 2.36 2.41

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro(%)	STD. DEV. (%)	REMARKS
(1) *	2	0.46	0.51	0.49		
(2)	6	1.09	1.47	1.27	0.124	
(3)	20	1.55	2.41	1.91	0.266	



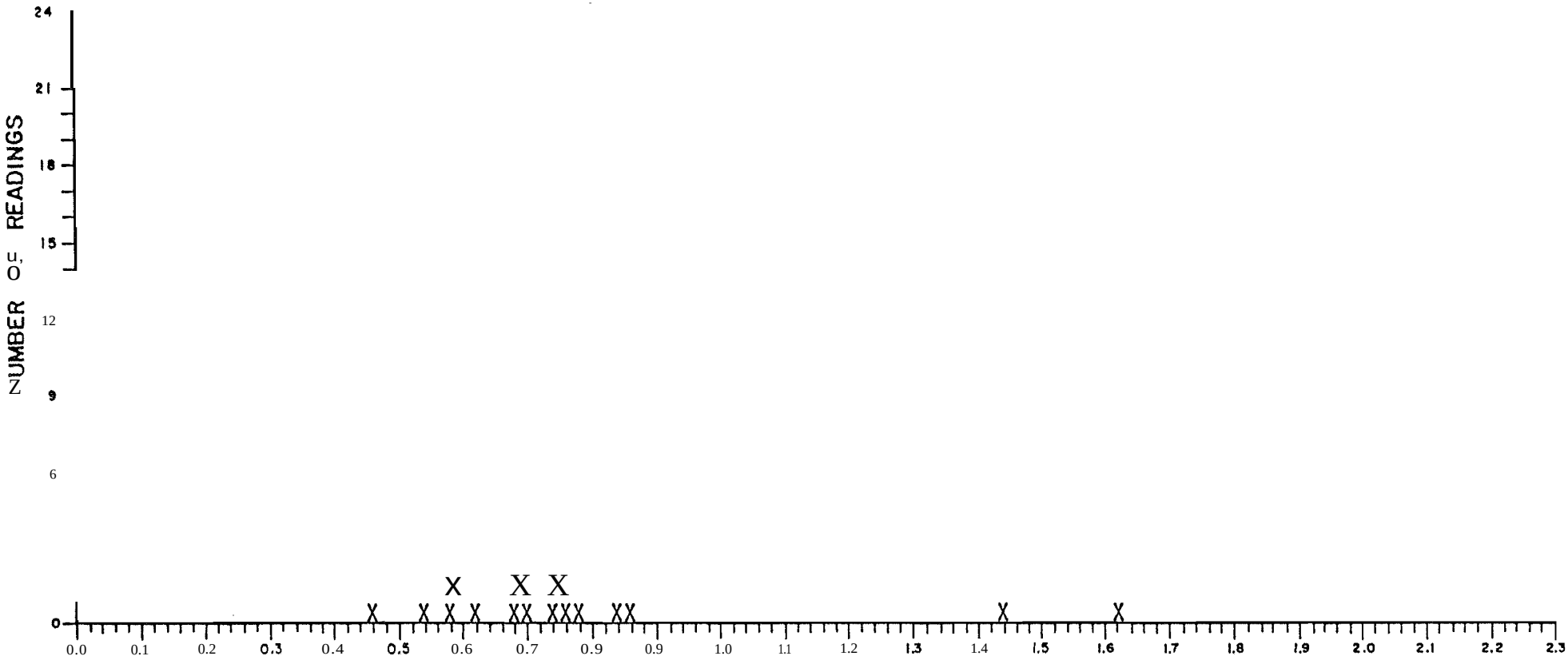
VITRINITE REFLECTANCE HISTOGRAM

GEOCHEM NO. R522-173 TYPE OF SAMPLE: CORE DEPTH / SAMPLE NO. 1245

CLIENT'S NAME MONSANTO WELL NAME PA-3

(NO. OF READINGS = 16) 0.46 0.55 0.58 0.59 0.62 0.68 0.69 0.71 0.74 0.75 0.76 0.79 0.85 0.87. 1.45 1.63

POPULATION	NO. OF READINGS	MIN. Ro (%)	MAX. Ro (%)	MEAN Ro (%)	STD. DEV. (%)	REMARKS
(1) *	5	0.46	0.62	0.56	0.061	
(2)	9	0.68	0.87	0.76	0.067	
(3)	2	1.45	1.63	1.54		



VITRINITE REFLECTANCE HISTOGRAM