5 (percent) Lithologic sequence No. (ir		Reaction to dil. HCI			eU V <sub>2</sub> O per- (per- cent) cent		P <sub>2</sub> O <sub>5</sub> (percent) 30 20 10		Lithologic sequence	No. Thick	Description	action to dil. HC1	Sample No.	P <sub>2</sub> O <sub>5</sub> e (per- (p	e U per- cent)	
1 10 1 67							+ +					IIC1				
101 67	Limestone, siliceous, grayish-black; weathers to light-gray tinkly plates; massive ledge- maker. Thin lenses of black chert	Strong	None											:		
	index. Tim to des of order crist.															
66	2.0 Chert, calcareous, black; weathers grayish black. Bed is lenticular	- do -	-do -													
64	5.5 Mudstone, calcareous, grayish-black; weathers medium gray  5.5 Chert, black; weathers grayish black	- do - Not tested	- do -												E	XPLANAT
63 2	0.0 Limestone, argillaceous, grayish-black; weathers light gray	Strong	- do -	24 21 2	010000										!	
62	3.0 Chert, calcareous, grayish-black, weathers grayish black. 1 inch of nodular, calcareous phosphate rock at base. Sample from phosphate rock at base. 7.0 Mudstone similar to bed 59	- do -	53APa154 53APa152	5 .0	005	3				96 95 1.	Limestone, argillaceous, grayish-black; weathers to light-gray platy fragments stained with limonite 0. Mudstone, calcareous, fissile, grayish-black; weathers medium gray	Strong - do -				Mudstone
59	<ol> <li>Phosphate rock, calcareous, grayish-black; weathers medium gray. Bed is lenticular</li> <li>Mudstone, calcareous, phosphatic, soft, fissile, grayish-black; weathers grayish black</li> </ol>		53APa153 53APa152						55	94 7.	Phosphate rock, calcareous, argillaceous, colitic, grayish-black, weathers to medium-gray shaly     Tragments with characteristic phosphate bloom     Nudstone, calcareous, phosphatic, soft, thinly laminated, grayish-black		53APa180 53APa179			
58 1	7.0 Limestone, argillaceous, phosphatic, grayish-black; weathers light gray. 2 inches of	- do -	53APa151	5 .0	003						+	ate				Calcareous mudst
50 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	cherty limestone at top								<b>1</b>	92 16.	0 Limestone, argillaceous, phosphatic, grayish-black; weathers to light gray, tinkly, shaly fragments	Strong	53APa179	5	.005	
57 1	7.0 Mudstone similar to bed 49	- do -	53APa146	5 .0	005					91 18.	5 Mudstone, calcareous, phosphatic, grayish-black; weathers medium gray; thinly laminated at top and bottom, thickly laminated in middle	Moder-	53APa179	5	.005	Limestone
56	7.5 Limestone, grayish-black; phosphatic at base. Siliceous concretions 5 by 14 inches at top 4.0 Mudstone similar to bed 49		53APa150 53APa146								Phosphate rock, argillaceous, calcareous, grayish-black; weathers with characteristic phosphate bloom. Pisolites and nodules. Secondary purple fluorite. Top contact undulant	1 1	53APa178		.012	
54	5.0 Phosphate rock, calcareous, grayish-black; weathers medium gray with characteristic phosphate bloom. Secondary purple fluorite		53APa149				<u> </u>		<b>A</b>	89 7. 88 2.	Mudstone, calcareous, phosphatic, thinly laminated, grayish-black; weathers medium gray     Phosphate rock, argil laceous, calcareous, grayish-black; weathers medium gray with characteristic phosphate bloom. Oblites and nodules	Strong :	53APa179 53APa177	5 30	.005 .021	Argillaceous limes
52	3.5 Mudstone similar to bed 49 2.0 Phosphate rock, calcareous, siliceous, grayish-black; weathers medium dark gray	- do -	53APa146 53APa148 53APa146	30 .0	017					87 19.	Limestone, argillaceous, thinly laminated at top, thickly laminated at base, grayish-black; weathers to light-gray tinkly plates	- do -	53APa176	0 .	.001	
50	7.0] Mudstone similar to bed 49  3.0 Phosphate rock, calcareous, grayish-black; weothers medium gray with a characteristic phosphate bloom. Secondary purple fluorite		53APa147			,1					- To right-gray mikry plates					Bedded chert
49	6.0 Mudstone, calcareous, phospharic, soft, fissile, grayish-block; weathers grayish black	- do -	53APa146	5 .0	005					86 36.	D Limestone, argillaceous; similar to bed 87	- do -	53APa176	0	.001	@
															l	Chert nodules, conc
48 5 48 5 48 5	3.0 Limestone, grayish-black; weathers grayish yellow; massive ledge-maker	- do -	53APa145	< 5 .0	002					+						and lenses
									;	85 38 <sup>±</sup>	Poorly exposed. Appears to be limestone as in bed 86					Limestone nodul
47	5.5 Phosphate rock similar to bed 45; pisolites and nodules on upper surface		53APa144			2	_									concretions, and le
45	6.0] Phosphate rock similar to bed 44 2.5 Phosphate rock, argilloceous, calcareous, oolitic, grayish-black; weathers light gray with characteristic phosphate bloom		53APa143 53APa144					墨		84 7.	5 Phosphate rock, calcareous, grayish-black; oalites at base grading to nodules at top. Weathers with characteristic phosphate bloom. Top contact undulant	Strong	53APa175	30 .	.015	
44 1	O Phosphate rock, argillaceous, calcareous, fissile, soft, grayish-black. Several 1/6- to 3/4-inch nonfissile lenses	- do -	53APa143	20.82	008			豆		83 24.	0 Mudstone, calcareous, thinly laminated, grayish-black; weathers medium gray. 1½ inches of phosphate rock 7 inch es above base	-do - 5	3APa174	5 .	005	Phosphate roc
43 1	6.0 Phosphate rock, calcareous, grayish-black; weathers light gray with characteristic phosphobloom. Pisolites and nodules	ate - do -	53APa142	20.5 <sup>2</sup> .0	800				<u> </u>	82 4.	5 Phosphate rock, calcareous, argillaceous, oolitic, grayish-black	- do - 5	3APa173	22.1 <sup>2</sup>	013	
	.0 Limestone, medium-gray, weathers grayish yellow. Oolites at top 7.0 Mudstone similar to bed 37		53APa141 53APa140								0 Mudstone, phosphatic, grayish-black; poorly exposed	1	53APa172		.006 Ar	rgillaceous phospha
40	5.5 Phosphate rock; argillaceous, calcareous, grayish-black. Alternating thick and thin beds.  Secondary purple fluoritie 2.5 Mudstone similar to bed 37	do -	53APa139 53APa140	30 .0	010				-		0 Mudstone, phosphatic, thickly laminated, grayish-black		53APa172		.006	
38	1.0 Phosphate rock, calcareous, grayish-black; weathers light gray with a characteristic phosphate bloom	- do -	53APa139	30 .0	010					- 12.	0 Mudstone, phosphatic, fissile, soft, grayish-black	Weak	53APa172		.006	40
	Mudstone, calcareous, soft, fissile, grayish-black; weathers grayish black     Phosphate rock, calcareous, pisolitic, grayish-black; weathers light gray with a characteristic phosphate bloom. Bed is lenticular	- do -	53APa139	30 .0	010	,										
35	.0 Mudstone similar to bed 33  .0 Phosphate rock, calcareous, colitic and pisolitic, grayish-black; weathers light gray with characteristic phosphate bloom. Breaks into platy fragments		53APa137 53APa138			,1				44-	Not exposed					
33 32	1.0 Mudstone similar to bed 31 but only slightly calcareous 7.5 Phosphate rock, calcareous, oolitic, grayish-black; weathers light gray with a characteristic phosphate bloom. Bed is lenticular		53APa137 53APa138			11				70 5			53APa171		100	
31 1	Mudstone, phosphatic, cal careous, fissile, grayish-black; weathers medium gray		53APa137							77 6.	0 Mudstone, calcareous, siliceous, thickly laminated, medium-gray; weathers medium gray  0 Mudstone, calcareous, soft, thinly laminated, grayish-black  0 Mudstone similar to bed 78	- do -	53APa171 53APa171	< 5	.001	-6
30 2	1.5 Mudstone, thickly laminated, medium-gray; weathers to medium light-gray platy fragments. Phosphatic near top. Calcareous concretions 10 by 24 inches	Weak	53APa136	10 .0	003					70 1.	Michaele shirter to bee 70					_
29	5.0 Limestone, argillaceous, medium-gray; weathers light gray. Phosphatic near top	1	53APa136							36	Not exposed					- 4
77	7.0 Mudstone, calcareous, phosphatic, grayish-black; weathers medium gray. Fissile at base 3.0 Limestone, siliceous, grayish-black; weathers light gray. Oolites on top	ate	53APa135 53APa133													-
26	3.5 Mudstone, similar to bed 24	Weak	53APa134	5 .0	002					+	†					- 2
25 1	2.0 Limestone, grayish-black; weathers to blocky light-gray fragments. ½-inch layer of oolites at top. Black siliceous limestone concretions 9 by 18 inches, 10 inches below to	ор	53APa133			***************************************				75 35.	.5 Mudstone, calcareous, siliceous, thickly laminated, grayish-black; weathers light gray	- do -	53APa170	< 5	.001	-
24	4.5 Mudstone, phosphatic, grayish-black; weathers medium gray. Fissile at base 8.5 Limestone, medium-gray; weathers light gray. A few phosphate onlites on top. Bed is	1 1	53APa134 53APa133	i !	1					74 5	Mudstone, calcareous, phosphatic, platy, grayish-black; weathers medium gray	- do -	53APa169	5	.003	Lo
22 2	1 Inticular. I inch of chert at base  5.5 Mudstone similar to bed 18. 2½-inch lens of black calcareous chert, 7 inches above base	1 1	53APa131	5 .0	002						5 Mudstone, calcareous, siliceous, thickly laminated; weathers to light-gray shaly fragments		53APa170			Vertical scale (in feet)
21	.75 Limestone similar to bed 19. Oolites on top. Discoidal concretions as much as 6 by 18	ate	53APa132	< 5	001					72 3.	5 Mudstone, calcareous, thinly laminated. Oolites in center	- do -	53APa169	5 .	.003	
19	inches in diameter composed of limestone occur along this horizon  3.5 Mudstone similar to bed 18  1.5 Limestone, argillaceous, grayish-black; weathers light gray	Strong	53APa131 53APa132		100					71 32.	Mudstone, calcareous, siliceous, platy, grayish-black; weathers light gray	Strong	53APa168	<5	.002	
SECTION IB	Nudstone, calcareous, phosphatic, grayish-black; weathers grayish black	++	53APa131 53APa130	5 .0		?			3							
THE SECTION ID			(top 23 inches)												<sup>1</sup> A Mar	Analyses for P <sub>2</sub> O <sub>5</sub> and increase Delevaux, Wendel
SECTION 1B	Limestone, argillaceous, siliceous, massive, grayish-black; weathers light gray. 2½ inche of phosphate rock 9 inches below top. 2 inches of chert 18 inches below top. Sample from top 23 inches														Geo	I Esma Campbell, U. S cological Survey Analyses for P2O5 and drey Smith, U. S. Geo
CECTION 14		:	ļ			I		<b>三</b>		70 57.	5 Limestone, argillaceous, dark-gray; weathers light gray. Siliceous concretions as much as 20 by 36 inches in diameter along this horizon	- do - !	53APa168	<5 .	Surv	
SECTION 1A															Gec A	ological Survey Analysis of equivalent (
						, , , , , , , , , , , , , , , , , , ,					O Chert, argillaceous, grayish-black; weathers to grayish-black blocky fragments		53APa167	I I	a Surv	205 results by Matzko
							11			68 -	Mudstone, calcareous, siliceous, thickly laminated, grayish-black; weathers to light-gray shaly fragments	Moder- ate	-	-	- app	proximate, based on a s antitative field test (Sh anard, 1952)
								121	y <b>v</b> ·							