

27-27-3511
15-057-20338

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS 75207

Cities Service Oil Company
3545 N W 58th Street
Oklahoma City, Okla. 73112

April 2, 1975
File No. MGL 75 GC 40

Att: Mr. Don Wright

Re: Residual Hydrocarbon Analysis
Alexander "D" No. 2 Well
Grant Co., Kansas

Gentlemen:

Representative samples from various zones in this well between the depths of 2884 feet and 3117 feet were selected for residual hydrocarbon analysis. Results of this analysis are herein submitted in tabular and graphical form with interpretation.

The core data submitted herein is from routine analysis performed in our Oklahoma City laboratory unless otherwise indicated.

The opportunity to have been of service on this well is indeed appreciated.

Very truly yours,

CORE LABORATORIES, INC.

Mabre Maness

Mabre Maness
District Manager - Michigan

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Formation: Council Grove

Smpl. No.	Core Depth	Perm. Poro.	K max	90°	Sro	Stw	Gr.Dens.	Carbon	
1	2884	10.6	0.3	0.3	0.0	65.1		861,414	Gas
2	2892	8.0	81.0	75.9	0.0	89.9		787,370	Gas (Marginal
3	2895	4.0	<0.1	<0.1	0.0	81.8		1,429,100	Non-producti
4	2899	11.6	0.4	(1)	0.0	91.0	2.738	1,468,983	Gas (Marginal
5	2902	9.6	0.1	0.1	0.0	87.1		648,624	Gas
6	2908	15.5	0.5	(1)	0.0	89.9	2.827	981,050	Gas (Marginal
7	2911	13.2	0.4	0.4	0.0	88.5		490,637	Gas
8	2916.3	10.5	0.2	(1)	0.0	78.2	2.639	945,982	Gas
9	2924	10.4	1.8	0.3	0.0	69.6		734,205	Gas
10	2926	14.8	2.0	(1)	0.0	83.3	2.743	909,325	Gas (Marginal
11	2928	11.2	0.9	0.9	0.0	64.3		307,941	Gas
12	2931	9.3	0.2	0.2	0.0	65.5		741,026	Gas (Marginal
13	2937.8	2.1	2.0	1.6	0.0	43.8		825,564	Non-producti
14	2942	5.8	25.0	24.0	0.0	83.0		766,766	Non-producti
15	2944	7.2	49.0	39.0	0.0	75.3		876,856	Non-producti
16	2946	8.3	9.7	(1)	0.0	78.9	2.763	1,391,454	Non-producti
17	2948	3.4	0.2	(1)	0.0	76.8	2.870	985,547	Non-producti
18	2950	6.9	0.4	(1)	0.0	72.0	2.699	784,160	Non-producti
19	2957	6.7	0.2	(1)	0.0	60.5	2.743	405,321	Non-producti
20	2960	5.8	0.1	0.1	0.0	54.5		264,825	Non-producti
21	2961.5	10.1	1.7	0.1	0.0	66.3		325,009	Non-producti
22	2965	3.5	0.3	<0.1	0.0	74.0		172,845	Non-producti
23	2968	5.3	43.0	40.0	0.0	78.6		1,030,787	Non-producti
24	2970	5.6	33.0	31.0	0.0	84.2		374,940	Non-producti
25	2974	15.4			0.0	85.2		1,179,696	Non-producti
26	2976	7.8	0.2	(1)	0.0	60.5	2.762	888,880	Non-producti
27	2979.4	8.4	0.4	(1)	0.0	67.4	2.709	138,164	Non-producti
28	2981	12.7	6.8	(1)	0.0	55.7	2.718	103,161	Gas
29	2983.5	9.2	0.7	0.2	0.0	68.8		668,849	Gas
30	2986	7.6	<0.1	(1)	0.0	62.1	2.734	174,023	Non-producti

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Smpl. No.	Core Depth	Porosity	Perm. K max	Perm. 90°	Sro	Stw	Gr.Dens.	Carbon	
31	2993	9.2	0.9	<0.1	0.0	80.0		679,481	Gas
32	2997	7.8	0.2	(1)	0.0	66.0	2.723	412,283	Gas (Marginal)
33	3002	7.1	0.5	0.3	0.0	58.3		346,309	Gas
34	3010	9.0	0.2	(1)	0.0	75.3	2.713	273,836	Gas (Marginal)
35	3016	11.9	1.0	0.6	0.0	49.3		307,914	Gas
36	3023.5	9.6	3.6	2.9	0.0	57.9		415,215	Gas
37	3026	15.8	8.4	(1)	0.0	69.4	2.773	81,870	Gas
38	3030	8.7	<0.1	(1)	0.0	63.1	2.697	164,958	Gas (Marginal)
39	3033.4	11.7	0.9	0.7	0.0	59.1		173,864	Gas
40	3049	10.5	158.0	124.0	0.0	75.2		531,752	Non-productive
41	3061		No Anal.					920,219	Non-productive
42	3064.2	7.0	0.6	0.6	0.0	55.7		108,966	Gas (Marginal)
43	3066	5.4	7.7	1.1	0.0	74.4		150,004	Non-productive
44	3067	7.8	<0.1	(1)	0.0	70.3	2.639	764,551	Gas (Marginal)
45	3070	2.9	1.3	0.9	0.0	52.9		298,952	Non-productive
46	3073	15.3	0.4	(1)	0.0	60.5	2.727	385,783	Trans.-Wtr
47	3077	3.5	1.4	0.4	0.0	59.9		949,085	Non-productive
48	3096	6.8	78.0	36.0	0.0	82.3		5,590,900	Non-productive
49	3107	3.2	<0.1	<0.1	0.0	68.6		1,183,881	Trans.-Wtr
50	3113.8	14.9	6.4	5.6	0.0	64.9		295,516	Trans.-Wtr
51	3117	10.6	4.3	3.5	0.0	53.3		458,448	Water

(1) Perm. & Porosity data from plug
measurements in Michigan laboratory.

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April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 1 - 2884' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	8,888	1.03	1.03
C-6	4,852	0.56	1.59
C-7	16,270	1.89	3.48
C-8	22,738	2.64	6.12
C-9	13,180	1.53	7.65
C-10	19,746	2.29	9.94
C-11	29,010	3.37	13.31
C-12	50,094	5.82	19.13
C-13	34,568	4.01	23.14
C-14	37,464	4.35	27.49
C-15	75,772	8.80	36.29
C-16	83,576	9.70	45.99
C-17	81,696	9.48	55.47
C-18	106,516	12.37	67.84
C-19	240,872	27.96	95.80
C-20	<u>36,172</u>	4.20	
	861,414		

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Max. GC Temp. 230° C.

Sample No. 2 - 2892' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	6,824	0.87	0.87
C-6	3,186	0.40	1.27
C-7	14,484	1.84	3.11
C-8	17,008	2.16	5.27
C-9	4,208	0.53	5.80
C-10	7,980	1.01	6.81
C-11	15,174	1.93	8.74
C-12	24,568	3.12	11.86
C-13	32,268	4.10	15.96
C-14	47,664	6.05	22.01
C-15	58,752	7.46	29.47
C-16	76,666	9.74	39.21
C-17	182,360	23.16	62.37
C-18	126,310	16.04	78.41
C-19	121,426	15.42	93.83
C-20	48,492	6.17	
	<u>787,370</u>		

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Max. GC Temp. 230° C.

Sample No. 3 - 2895' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	844	0.06	0.06
C-6	985	0.07	0.13
C-7	10,505	0.74	0.87
C-8	61,149	4.28	5.15
C-9	6,714	0.47	5.62
C-10	15,962	1.12	6.74
C-11	26,044	1.82	8.56
C-12	36,652	2.56	11.12
C-13	51,301	3.59	14.71
C-14	68,196	4.77	19.48
C-15	84,599	5.92	25.40
C-16	102,577	7.18	32.58
C-17	224,424	15.70	48.28
C-18	153,061	10.71	58.99
C-19	175,794	12.30	71.29
C-20	187,559	13.12	84.41
C-21	222,734	15.59	
	<u>1,429,100</u>		

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Sample No. 4 - 2899' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	4,502	0.31	0.31
C-6	4,859	0.33	0.64
C-7	16,956	1.15	1.79
C-8	54,706	3.72	5.51
C-9	10,128	0.69	6.20
C-10	16,765	1.14	7.34
C-11	26,980	1.84	9.18
C-12	35,446	2.41	11.59
C-13	51,070	3.48	15.07
C-14	70,582	4.80	19.87
C-15	82,778	5.64	25.51
C-16	96,565	6.57	32.08
C-17	124,506	8.48	40.56
C-18	249,545	16.99	57.55
C-19	<u>623,595</u>	42.45	
	1,468,983		

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Sample No. 5 - 2902.5' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	5,497	0.85	0.85
C-6	8,483	1.31	2.16
C-7	15,366	2.37	4.53
C-8	13,599	2.10	6.63
C-9	10,132	1.56	8.19
C-10	13,120	2.02	10.21
C-11	19,462	3.00	13.21
C-12	29,581	4.56	17.77
C-13	33,693	5.19	22.96
C-14	48,928	7.54	30.50
C-15	59,892	9.23	39.73
C-16	68,916	10.62	50.35
C-17	97,028	14.96	65.31
C-18	148,745	22.93	88.24
C-19	<u>76,182</u>	11.76	
	648,624		

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Sample No. 6 - 2908' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	3,439	0.35	0.35
C-6	3,324	0.34	0.69
C-7	17,161	1.75	2.44
C-8	73,504	7.49	9.93
C-9	13,648	1.39	11.32
C-10	23,532	2.40	13.72
C-11	38,805	3.96	17.68
C-12	48,141	4.91	22.59
C-13	61,457	6.26	28.85
C-14	70,369	7.17	36.02
C-15	86,025	8.77	44.79
C-16	91,938	9.37	54.16
C-17	126,363	12.88	67.04
C-18	206,931	21.09	88.13
C-19	<u>116,413</u>	11.87	
	981,050		

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Max. GC Temp. 230° C.

Sample No. 7 - 2911' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	1,859	0.38	0.38
C-6	455	0.09	0.47
C-7	10,954	2.23	2.70
C-8	3,391	0.69	3.39
C-9	1,970	0.40	3.79
C-10	5,204	1.06	4.85
C-11	10,951	2.23	7.08
C-12	18,395	3.75	10.83
C-13	27,721	5.65	16.48
C-14	39,490	8.05	24.53
C-15	50,718	10.34	34.87
C-16	65,797	13.41	48.28
C-17	90,232	18.39	66.67
C-18	<u>163,500</u>	33.33	
	490,637		

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Sample No. 8 - 2916.3' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	12,237	1.29	1.29
C-6	14,397	1.52	2.81
C-7	33,035	3.49	6.30
C-8	39,169	4.14	10.34
C-9	30,322	3.21	13.65
C-10	32,708	3.46	17.11
C-11	42,797	4.52	21.63
C-12	57,205	6.05	27.68
C-13	61,525	6.50	34.18
C-14	71,798	7.59	41.77
C-15	70,692	7.47	49.24
C-16	95,099	10.05	59.29
C-17	179,678	18.99	78.28
C-18	116,016	12.26	90.54
C-19	89,404	9.46	
	945,982		

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Sample No. 9 - 2924' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	19,415	2.64	2.64
C-6	19,748	2.69	5.33
C-7	42,333	5.77	11.10
C-8	35,359	4.82	15.92
C-9	23,890	3.25	19.17
C-10	21,988	2.99	22.16
C-11	26,913	3.67	25.83
C-12	46,651	6.35	32.18
C-13	53,587	7.30	39.48
C-14	30,400	4.14	43.62
C-15	60,212	8.20	51.82
C-16	81,253	11.07	62.89
C-17	73,284	9.98	72.87
C-18	115,170	15.69	88.56
C-19	84,002	11.44	
	<u>734,205</u>		

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Sample No. 10 - 2926' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	3,747	0.38	0.38
C-6	4,698	0.48	0.86
C-7	13,615	1.39	2.25
C-8	43,285	4.42	6.67
C-9	113,973	11.64	18.31
C-10	30,819	3.15	21.46
C-11	43,474	4.44	25.90
C-12	68,487	6.99	32.99
C-13	72,816	7.44	40.33
C-14	83,229	8.50	48.83
C-15	76,841	7.85	56.68
C-16	95,782	9.78	66.46
C-17	100,535	10.27	76.73
C-18	171,174	17.48	94.21
C-19	56,670	5.79	
	979,145		

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Sample No. 11 - 2928' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	3,472	1.13	1.13
C-6	1,524	0.49	1.62
C-7	2,583	0.84	2.46
C-8	6,631	2.15	4.61
C-9	7,995	2.60	7.21
C-10	7,119	2.31	9.52
C-11	11,765	3.82	13.34
C-12	21,262	6.90	20.24
C-13	16,133	5.24	25.48
C-14	29,215	9.49	34.97
C-15	37,312	12.12	47.09
C-16	54,644	17.74	64.83
C-17	72,808	23.64	88.47
C-18	35,478	11.53	
	<u>307,941</u>		

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Sample No. 12 - 2931' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	14,150	1.91	1.91
C-6	14,727	1.99	3.90
C-7	22,818	3.08	6.98
C-8	46,797	6.32	13.30
C-9	48,869	6.59	19.89
C-10	32,993	4.45	24.34
C-11	38,785	5.23	29.57
C-12	42,733	5.77	35.34
C-13	46,129	6.23	41.57
C-14	59,063	7.97	49.54
C-15	60,195	8.12	57.66
C-16	86,083	11.62	69.28
C-17	100,751	13.60	82.88
C-18	<u>126,933</u>	17.12	
	741,026		

29-27-300

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Sample No. 13 - 2937.8' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	7,855	0.95	0.95
C-6	11,419	1.38	2.33
C-7	17,454	2.11	4.44
C-8	100,442	12.17	16.61
C-9	82,038	9.94	26.55
C-10	55,377	6.71	33.26
C-11	50,521	6.12	39.38
C-12	39,139	4.74	44.12
C-13	40,324	4.88	49.00
C-14	50,823	6.16	55.16
C-15	48,328	5.85	61.01
C-16	67,937	8.23	69.24
C-17	83,906	10.16	79.40
C-18	121,093	14.67	94.07
C-19	<u>48,908</u>	5.93	
	825,564		

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Sample No. 14 - 2942' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	38,372	5.00	5.00
C-6	9,827	1.28	6.28
C-7	36,469	4.76	11.04
C-8	162,217	21.16	32.20
C-9	193,373	25.22	57.42
C-10	49,409	6.44	63.86
C-11	47,197	6.16	70.02
C-12	37,415	4.88	74.90
C-13	4,121	0.54	75.44
C-14	8,307	1.08	76.52
C-15	16,640	2.17	78.69
C-16	28,515	3.72	82.41
C-17	48,406	6.31	88.72
C-18	51,573	6.73	95.45
C-19	34,925	4.55	
	<u>766,766</u>		

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Sample No. 15 - 2944' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	79,649	9.08	9.08
C-6	8,552	0.98	10.06
C-7	20,126	2.30	12.36
C-8	47,179	5.38	17.74
C-9	168,015	19.16	36.90
C-10	37,937	4.33	41.23
C-11	42,559	4.85	46.00
C-12	42,639	4.86	50.94
C-13	33,333	3.80	54.74
C-14	44,356	5.06	59.80
C-15	55,060	6.28	66.08
C-16	62,911	7.17	73.25
C-17	<u>234,540</u>	26.75	
	876,856		

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Sample No. 16 - 2946' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	166,365	11.96	11.96
C-6	179,078	12.87	24.83
C-7	27,740	1.99	26.82
C-8	81,297	5.85	32.67
C-9	297,914	21.41	54.08
C-10	66,727	4.80	58.88
C-11	65,459	4.70	63.58
C-12	50,614	3.64	67.22
C-13	35,485	2.55	69.77
C-14	46,239	3.32	73.09
C-15	61,877	4.45	77.54
C-16	67,718	4.87	82.41
C-17	244,940	17.59	
	<u>1,391,454</u>		

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS 75207

Cities Service Oil Company
Alexander "D" No. 2 Well
Grant Co., Kansas

April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 17 - 2948' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	113,871	11.55	11.55
C-6	7,817	0.79	12.34
C-7	10,317	1.05	13.39
C-8	32,385	3.29	16.68
C-9	164,252	16.67	33.35
C-10	42,599	4.32	37.67
C-11	45,812	4.65	42.32
C-12	39,103	3.97	46.29
C-13	29,900	3.03	49.32
C-14	42,415	4.30	53.62
C-15	52,242	5.30	58.92
C-16	62,935	6.39	65.31
C-17	263,538	26.74	92.05
C-18	<u>78,361</u>		
	985,547		

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS 75207

Cities Service Oil Company
Alexander "D" No. 2 Well
Grant Co., Kansas

April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 18 - 2950' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	97,587	12.44	12.44
C-6			
C-7	3,334	0.43	12.87
C-8	23,584	3.01	15.88
C-9	106,567	13.59	29.47
C-10	50,181	6.40	35.87
C-11	62,095	7.92	43.79
C-12	49,642	6.33	50.12
C-13	38,297	4.88	55.00
C-14	41,797	5.33	60.33
C-15	40,951	5.22	65.55
C-16	42,005	5.36	70.91
C-17	75,470	9.62	80.53
C-18	81,864	10.44	90.97
C-19	70,516	9.03	
	<u>784,160</u>		

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS 75207

Cities Service Oil Company
Alexander "D" No. 2 Well
Grant Co., Kansas

April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 19 - 2957' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	55,458	13.68	13.68
C-6	311	0.08	13.76
C-7	101	0.02	13.78
C-8	7,984	1.97	15.75
C-9	12,088	2.98	18.73
C-10	17,129	4.23	22.96
C-11	23,887	5.89	28.85
C-12	21,239	5.24	34.09
C-13	16,776	4.14	38.23
C-14	26,204	6.46	44.69
C-15	38,280	9.44	54.13
C-16	47,575	11.74	65.87
C-17	67,782	16.72	82.59
C-18	<u>70,507</u>	17.41	
	405,321		

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Petroleum Reservoir Engineering
DALLAS, TEXAS 75207

Cities Service Oil Company
Alexander "D" No. 2 Well
Grant Co., Kansas

April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 20 - 2960' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	295	0.11	0.11
C-6	25,426	9.60	9.71
C-7	5,976	2.26	11.97
C-8	14,695	5.55	17.52
C-9	11,766	4.44	21.96
C-10	17,710	6.69	28.65
C-11	24,517	9.26	37.91
C-12	14,931	5.64	43.55
C-13	2,048	0.77	44.32
C-14	8,740	3.30	47.62
C-15	15,870	5.99	53.61
C-16	24,565	9.28	62.89
C-17	36,324	13.72	76.61
C-18	<u>61,962</u>	23.39	
	264,825		

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS 75207

Cities Service Oil Company
Alexander "D" No. 2 Well
Grant Co., Kansas

April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 21 - 2961.5' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	31,581	9.72	9.72
C-6	1,622	0.50	10.22
C-7	4,267	1.31	11.53
C-8	13,842	4.26	15.79
C-9	15,710	4.83	20.62
C-10	30,497	9.38	30.00
C-11	40,523	12.47	42.47
C-12	28,898	8.89	51.36
C-13	19,355	5.96	57.32
C-14	25,872	7.96	65.28
C-15	35,605	10.96	76.24
C-16	40,146	12.35	88.59
C-17	37,091	11.41	
	<u>325,009</u>		

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS 75207

Cities Service Oil Company
Alexander "D" No. 2 Well
Grant Co., Kansas

April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 22 - 2965' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	2,877	1.66	1.66
C-6			1.66
C-7	5,803	3.36	5.02
C-8	1,298	0.75	5.77
C-9	5,246	3.04	8.81
C-10	9,550	5.53	14.34
C-11	18,774	10.86	25.20
C-12	12,395	7.17	32.37
C-13	2,194	1.29	33.64
C-14	7,724	4.47	38.11
C-15	15,080	8.72	46.83
C-16	21,397	12.38	59.21
C-17	44,210	25.58	84.79
C-18	<u>26,297</u>	15.21	
	172,845		

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DALLAS, TEXAS 75207

Cities Service Oil Company
Alexander "D" No. 2 Well
Grant Co., Kansas

April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 23 - 2968' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	172,321	16.72	16.72
C-6	11,825	1.15	17.87
C-7	18,393	1.78	19.65
C-8	26,989	2.62	22.27
C-9	156,839	15.22	37.49
C-10	71,783	6.96	44.45
C-11	84,298	8.18	52.63
C-12	65,713	6.38	59.01
C-13	38,664	3.75	62.76
C-14	46,236	4.49	67.25
C-15	49,507	4.80	72.05
C-16	65,400	6.34	78.39
C-17	101,874	9.88	88.27
C-18	<u>120,945</u>	11.73	
	1,030,787		

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Petroleum Reservoir Engineering

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Alexander "D" No. 2 Well
Grant Co., Kansas

April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 24 - 2970' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	20,698	5.52	5.52
C-6			5.52
C-7			5.52
C-8	7,160	1.91	7.47
C-9	9,579	2.55	9.98
C-10	18,644	4.97	14.95
C-11	27,448	7.32	22.27
C-12	22,913	6.11	28.38
C-13	15,629	4.17	32.55
C-14	26,194	6.99	39.54
C-15	34,203	9.12	48.66
C-16	41,384	11.04	59.70
C-17	75,383	20.11	79.81
C-18	75,705	20.19	
	<u>374,940</u>		

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Cities Service Oil Company
Alexander "D" No. 2 Well
Grant Co., Kansas

April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 25 - 2974' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	195,053	16.53	16.53
C-6	1,705	0.14	16.67
C-7	6,478	0.55	17.22
C-8	7,545	0.64	17.86
C-9	166,057	14.08	31.94
C-10	65,328	5.54	37.48
C-11	71,260	6.04	43.52
C-12	47,735	4.05	47.57
C-13	27,474	2.33	49.90
C-14	40,768	3.46	53.36
C-15	51,936	4.40	57.76
C-16	71,627	6.07	63.83
C-17	106,659	9.04	72.87
C-18	167,079	14.16	87.03
C-19	152,992	12.97	
	<u>1,179,696</u>		

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Alexander "D" No. 2 Well
Grant Co., Kansas

April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 26 - 2976' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	190,112	21.39	21.39
C-6	9,830	1.11	22.50
C-7	7,393	0.83	23.33
C-8	25,139	2.83	26.16
C-9	82,135	9.24	35.40
C-10	55,414	6.23	41.63
C-11	72,136	8.12	49.75
C-12	65,044	7.32	57.07
C-13	39,630	4.46	61.53
C-14	46,722	5.26	66.79
C-15	51,812	5.83	72.62
C-16	63,922	7.19	79.81
C-17	99,575	11.20	91.01
C-18	<u>80,016</u>	8.99	
	888,880		

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Petroleum Reservoir Engineering

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Alexander "D" No. 2 Well
Grant Co., Kansas

April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 27 - 2979.4' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	770	0.56	0.56
C-6			
C-7	340	0.25	0.81
C-8	1,036	0.75	1.56
C-9	3,268	2.37	3.93
C-10	9,031	6.54	10.47
C-11	19,775	14.31	24.78
C-12	8,058	5.83	30.61
C-13	3,267	2.36	32.97
C-14	9,851	7.13	40.10
C-15	18,249	13.21	53.31
C-16	26,468	19.16	72.47
C-17	38,051	27.53	
	<u>138,164</u>		

27-27-354

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Cities Service Oil Company
Alexander "D" No. 2 Well
Grant Co., Kansas

April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 28 - 2981' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5			
C-6			
C-7	851	0.82	0.82
C-8	1,238	1.20	2.02
C-9	2,451	2.38	4.40
C-10	4,050	3.93	8.33
C-11	12,718	12.33	20.66
C-12	9,675	9.38	30.04
C-13	1,984	1.92	31.96
C-14	6,636	6.43	38.39
C-15	12,919	12.52	50.91
C-16	19,631	19.03	69.94
C-17	<u>31,008</u>	30.06	
	103,161		

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS 75207

Cities Service Oil Company
Alexander "D" No. 2 Well
Grant Co., Kansas

April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 29 - 2983.5' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	4,187	0.63	0.63
C-6	2,292	0.34	0.97
C-7	239	0.04	1.01
C-8	2,331	0.35	1.36
C-9	9,369	1.40	2.76
C-10	8,594	1.28	4.04
C-11	13,878	2.07	6.11
C-12	18,945	2.83	8.94
C-13	29,674	4.44	13.38
C-14	43,366	6.48	19.86
C-15	56,308	8.42	28.28
C-16	70,645	10.56	38.84
C-17	108,493	16.22	55.06
C-18	159,218	23.80	78.86
C-19	<u>141,310</u>	21.14	
	668,849		

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Petroleum Reservoir Engineering
DALLAS, TEXAS 75207

Cities Service Oil Company
Alexander "D" No. 2 Well
Grant Co., Kansas

April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 30 - 2986' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5			
C-6	315	0.18	0.18
C-7	260	0.15	0.33
C-8	2,023	1.16	1.49
C-9	19,791	11.37	12.86
C-10	3,979	2.29	15.15
C-11	12,749	7.33	22.48
C-12	8,347	4.80	27.28
C-13	2,157	1.24	28.52
C-14	2,674	1.54	30.06
C-15	9,402	5.40	35.46
C-16	16,678	9.58	45.04
C-17	27,466	15.78	60.82
C-18	50,395	28.96	89.78
C-19	<u>17,787</u>	10.22	
	174,023		

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

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Cities Service Oil Company
Alexander "D" No. 2 Well
Grant Co., Kansas

April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 31 - 2993' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	2,207	0.32	0.32
C-6	106	0.02	0.34
C-7	5,656	0.83	1.17
C-8	4,676	0.69	1.86
C-9	2,464	0.36	2.22
C-10	5,056	0.74	2.96
C-11	12,068	1.78	4.74
C-12	14,081	2.07	6.81
C-13	43,045	6.33	13.14
C-14	50,583	7.44	20.58
C-15	64,150	9.44	30.02
C-16	76,091	11.20	41.22
C-17	133,870	19.70	60.92
C-18	167,067	24.59	85.51
C-19	<u>98,361</u>	14.49	

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April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 32 - 2997' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	6,666	1.62	1.62
C-6	4,796	1.16	2.78
C-7	8,366	2.03	4.81
C-8	11,112	2.70	7.51
C-9	3,033	0.74	8.25
C-10	8,341	2.02	10.27
C-11	17,274	4.19	14.46
C-12	28,687	6.96	21.42
C-13	24,632	5.97	27.39
C-14	41,792	10.14	37.53
C-15	48,019	11.65	49.18
C-16	61,061	14.81	63.99
C-17	81,365	19.74	83.73
C-18	67,139	16.27	
	<u>412,283</u>		

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Alexander "D" No. 2 Well
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Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 33 - 3002' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5			
C-6			
C-7	323	0.09	0.09
C-8	2,920	0.84	0.93
C-9	4,628	1.34	2.27
C-10	5,422	1.57	3.84
C-11	4,933	1.42	5.26
C-12	2,703	0.78	6.04
C-13	14,905	4.30	10.34
C-14	21,975	6.35	16.69
C-15	32,943	9.51	26.20
C-16	44,596	12.88	39.08
C-17	77,683	22.43	61.51
C-18	77,804	22.47	83.98
C-19	<u>55,474</u>	16.02	
	346,309		

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Petroleum Reservoir Engineering

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Alexander "D" No. 2 Well
Grant Co., Kansas

April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 34 - 3010' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	475	0.17	0.17
C-6	1,419	0.52	0.69
C-7	1,648	0.60	1.29
C-8	8,893	3.25	4.54
C-9	1,718	0.63	5.17
C-10	3,598	1.31	6.48
C-11	3,423	1.25	7.73
C-12	8,817	3.22	10.95
C-13	18,484	6.75	17.70
C-14	28,953	10.57	28.27
C-15	42,634	15.57	43.84
C-16	58,392	21.32	65.16
C-17	<u>95,382</u>	34.84	
	273,836		

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Alexander "D" No. 2 Well
Grant Co., Kansas

April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 35 - 3016' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5			
C-6	647	0.21	0.21
C-7	2,067	0.67	0.88
C-8	6,442	2.09	2.97
C-9	8,261	2.68	5.65
C-10	13,382	4.35	10.00
C-11	21,714	7.05	17.05
C-12	22,364	7.26	24.31
C-13	13,413	4.36	28.67
C-14	22,447	7.29	35.96
C-15	26,355	8.56	44.52
C-16	35,443	11.51	56.03
C-17	44,279	14.38	70.41
C-18	49,791	16.17	86.58
C-19	41,309	13.42	
	<u>307,914</u>		

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Alexander "D" No. 2 Well
Grant Co., Kansas

April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 36 - 3023.5' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	141	0.03	0.03
C-6	322	0.08	0.11
C-7	892	0.21	0.32
C-8	4,904	1.18	1.50
C-9	3,048	0.73	2.23
C-10	7,883	1.90	4.13
C-11	7,514	1.81	5.94
C-12	10,302	2.48	8.42
C-13	9,617	2.32	10.74
C-14	18,234	4.39	15.13
C-15	28,240	6.80	21.93
C-16	44,419	10.70	32.63
C-17	75,138	18.10	50.73
C-18	83,852	20.19	70.92
C-19	80,808	19.46	90.38
C-20	<u>39,901</u>	9.62	
	415,215		

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Alexander "D" No. 2 Well
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April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 37 - 3026' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	51	0.06	0.06
C-6	0	0.06	0.06
C-7	357	0.44	0.50
C-8	1,067	1.30	1.80
C-9	331	0.40	2.20
C-10	2,934	3.58	5.78
C-11	6,637	8.11	13.89
C-12	12,271	14.99	28.88
C-13	8,560	10.46	39.34
C-14	13,927	17.01	56.35
C-15	16,626	20.31	76.66
C-16	7,110	8.68	85.34
C-17	6,313	7.71	93.05
C-18	<u>5,686</u>	6.95	
	81,870		

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Alexander "D" No. 2 Well
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April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 38 - 3030' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5			
C-6	77	0.05	0.05
C-7	1,046	0.63	0.68
C-8	5,155	3.13	3.81
C-9	4,290	2.60	6.41
C-10	7,539	4.57	10.98
C-11	9,648	5.85	16.83
C-12	5,303	3.21	20.04
C-13	2,195	1.33	21.37
C-14	7,524	4.56	25.93
C-15	12,768	7.74	33.67
C-16	20,500	12.43	46.10
C-17	35,911	21.77	67.87
C-18	40,943	24.82	92.69
C-19	<u>12,059</u>	7.31	
	164,958		

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April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 39 - 3033.4' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	306	0.18	0.18
C-6	2,478	1.43	1.61
C-7	2,931	1.69	3.30
C-8	5,298	3.05	6.35
C-9	7,115	4.09	10.44
C-10	6,689	3.85	14.29
C-11	12,450	7.16	21.45
C-12	17,787	10.23	31.68
C-13	10,940	6.29	37.97
C-14	16,242	9.34	47.31
C-15	20,669	11.89	59.20
C-16	27,667	15.91	75.11
C-17	43,292	24.89	
	<u>173,864</u>		

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS 75207

Cities Service Oil Company
Alexander "D" No. 2 Well
Grant Co., Kansas

April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 40 - 3049' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	100,270	18.86	18.86
C-6	8,399	1.58	20.44
C-7	12,067	2.27	22.71
C-8	18,766	3.53	26.24
C-9	16,250	3.06	29.30
C-10	35,776	6.73	36.06
C-11	33,524	6.30	42.33
C-12	32,038	6.02	48.35
C-13	25,157	4.73	53.08
C-14	34,183	6.43	59.51
C-15	41,692	7.84	67.35
C-16	77,383	14.55	81.90
C-17	72,077	13.55	95.45
C-18	24,170	4.55	
	<u>531,752</u>		

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS 75207

Cities Service Oil Company
Alexander "D" No. 2 Well
Grant Co., Kansas

April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 41 - 3061' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	36,228	3.94	3.94
C-6	5,868	0.64	4.58
C-7	18,093	1.97	6.55
C-8	56,598	6.15	12.70
C-9	13,396	1.46	14.16
C-10	27,950	3.04	17.20
C-11	40,545	4.41	21.61
C-12	50,740	5.51	27.12
C-13	38,401	4.17	31.29
C-14	66,086	7.18	38.47
C-15	77,212	8.39	48.86
C-16	96,850	10.52	57.38
C-17	141,710	15.40	72.78
C-18	188,081	20.44	93.22
C-19	<u>62,461</u>	6.78	
	920,219		

20-27-35W
15-06-20338

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Petroleum Reservoir Engineering
DALLAS, TEXAS 75207

Cities Service Oil Company
Alexander "D" No. 2 Well
Grant Co., Kansas

April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 42 - 3064.2' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	1,202	1.10	1.10
C-6	330	0.30	1.40
C-7	738	0.68	2.08
C-8	6,798	6.24	8.32
C-9	8,205	7.53	15.85
C-10	9,067	8.32	24.17
C-11	4,835	4.44	28.61
C-12	10,129	9.30	37.91
C-13	11,247	10.32	48.23
C-14	16,979	15.58	63.81
C-15	19,708	18.09	81.90
C-16	8,165	7.49	89.39
C-17	7,242	6.65	96.04
C-18	<u>4,321</u>	3.96	
	108,966		

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Petroleum Reservoir Engineering

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Cities Service Oil Company
Alexander "D" No. 2 Well
Grant Co., Kansas

April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 43 - 3066' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	2,985	1.99	1.99
C-6	4,441	2.96	4.95
C-7	153	0.10	5.05
C-8	14,791	9.86	14.91
C-9	1,183	0.79	15.70
C-10	4,239	2.83	18.53
C-11	12,686	8.46	26.99
C-12	21,516	14.34	41.33
C-13	17,414	11.61	52.94
C-14	25,461	16.97	69.91
C-15	30,949	20.63	90.54
C-16	<u>14,186</u>	9.46	
	150,004		

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Petroleum Reservoir Engineering

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Cities Service Oil Company
Alexander "D" No. 2 Well
Grant Co., Kansas

April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 44 - 3067' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	47,290	6.19	6.19
C-6	1,661	0.22	6.41
C-7	12,693	1.66	8.07
C-8	17,794	2.33	10.40
C-9	22,508	2.94	13.34
C-10	32,949	4.31	17.65
C-11	49,856	6.52	24.17
C-12	68,828	9.00	33.17
C-13	87,785	11.48	44.65
C-14	86,969	11.38	56.03
C-15	78,770	10.30	66.33
C-16	54,797	7.17	73.50
C-17	71,241	9.32	82.82
C-18	85,954	11.23	94.05
C-19	<u>45,456</u>	5.95	
	764,551		

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Cities Service Oil Company
Alexander "D" No. 2 Well
Grant Co., Kansas

April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 45 - 3070' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5			
C-6	9,365	3.13	3.13
C-7	1,364	0.46	3.59
C-8	873	0.29	3.88
C-9	1,424	0.48	4.36
C-10	6,568	2.20	6.56
C-11	17,413	5.82	12.38
C-12	26,193	8.76	21.14
C-13	18,508	6.19	27.33
C-14	25,512	8.53	35.86
C-15	32,763	10.96	46.82
C-16	49,152	16.44	63.26
C-17	65,775	22.00	85.26
C-18	44,042	14.74	
	<u>298,952</u>		

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Petroleum Reservoir Engineering

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Cities Service Oil Company
Alexander "D" No. 2 Well
Grant Co., Kansas

April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 46 - 3073' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	12,904	3.34	3.34
C-6			
C-7	1,720	0.45	3.79
C-8	34,204	8.87	12.66
C-9	7,717	2.00	14.66
C-10	14,322	3.71	18.37
C-11	25,541	6.62	24.99
C-12	46,130	11.96	36.95
C-13	32,767	8.49	45.44
C-14	38,597	10.00	55.44
C-15	40,268	10.44	65.88
C-16	41,308	10.71	76.59
C-17	90,305	23.41	
	<u>385,783</u>		

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Petroleum Reservoir Engineering

DALLAS, TEXAS 75207

Cities Service Oil Company

Alexander "D" No. 2 Well

Grant Co., Kansas

April 2, 1975

Pyrolysis Temp. @ 120° C.

Max. GC Temp. 230° C.

Sample No. 47 - 3077' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	208,752	22.00	22.00
C-6	6,386	0.67	22.67
C-7	10,968	1.16	23.83
C-8	43,418	4.57	28.40
C-9	148,188	15.61	44.01
C-10	44,278	4.67	48.68
C-11	57,389	6.05	54.73
C-12	57,816	6.09	60.82
C-13	35,252	3.71	64.53
C-14	42,776	4.51	69.04
C-15	42,396	4.47	73.51
C-16	50,761	5.35	78.86
C-17	66,418	7.00	85.86
C-18	84,427	8.90	94.76
C-19	49,860	5.24	
	949,085		

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Petroleum Reservoir Engineering

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Cities Service Oil Company
Alexander "D" No. 2 Well
Grant Co., Kansas

April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 48 - 3096' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	109,140	1.95	1.95
C-6	41,766	0.75	2.70
C-7	219,630	3.93	6.63
C-8	679,635	12.16	18.79
C-9	952,708	17.04	35.83
C-10	639,890	11.45	47.28
C-11	583,987	10.45	57.73
C-12	475,944	8.51	66.24
C-13	592,434	10.60	76.84
C-14	329,828	5.90	82.74
C-15	229,843	4.11	86.85
C-16	184,188	3.29	90.14
C-17	207,610	3.71	93.85
C-18	111,401	1.99	95.84
C-19	112,800	2.02	97.86
C-20	120,096	2.14	
	<u>5,590,900</u>		

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Petroleum Reservoir Engineering

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Cities Service Oil Company
Alexander "D" No. 2 Well
Grant Co., Kansas

April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 49 - 3107' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	64,104	5.41	5.41
C-6	8,740	0.74	6.15
C-7	17,293	1.46	7.61
C-8	43,204	3.65	11.26
C-9	120,444	10.17	21.43
C-10	72,732	6.14	27.57
C-11	123,114	10.40	37.97
C-12	103,844	8.77	46.74
C-13	97,527	8.24	54.98
C-14	96,539	8.15	63.13
C-15	92,434	7.81	70.94
C-16	88,627	7.49	78.43
C-17	100,795	8.51	86.94
C-18	98,414	8.31	95.25
C-19	56,070	4.75	
	<u>1,183,881</u>		

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Petroleum Reservoir Engineering

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Cities Service Oil Company
Alexander "D" No. 2 Well
Grant Co., Kansas

April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 50 - 3113.8' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5			
C-6	227	0.08	0.08
C-7	4,084	1.38	1.46
C-8	18,678	6.32	7.78
C-9	16,088	5.44	13.22
C-10	13,675	4.03	17.85
C-11	19,436	6.58	24.43
C-12	34,004	11.51	35.94
C-13	23,932	8.10	44.04
C-14	31,142	10.54	54.58
C-15	37,795	12.79	67.37
C-16	42,268	14.30	81.67
C-17	54,187	18.33	
	<u>295,516</u>		

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Petroleum Reservoir Engineering
DALLAS, TEXAS 75207

Cities Service Oil Company
Alexander "D" No. 2 Well
Grant Co., Kansas

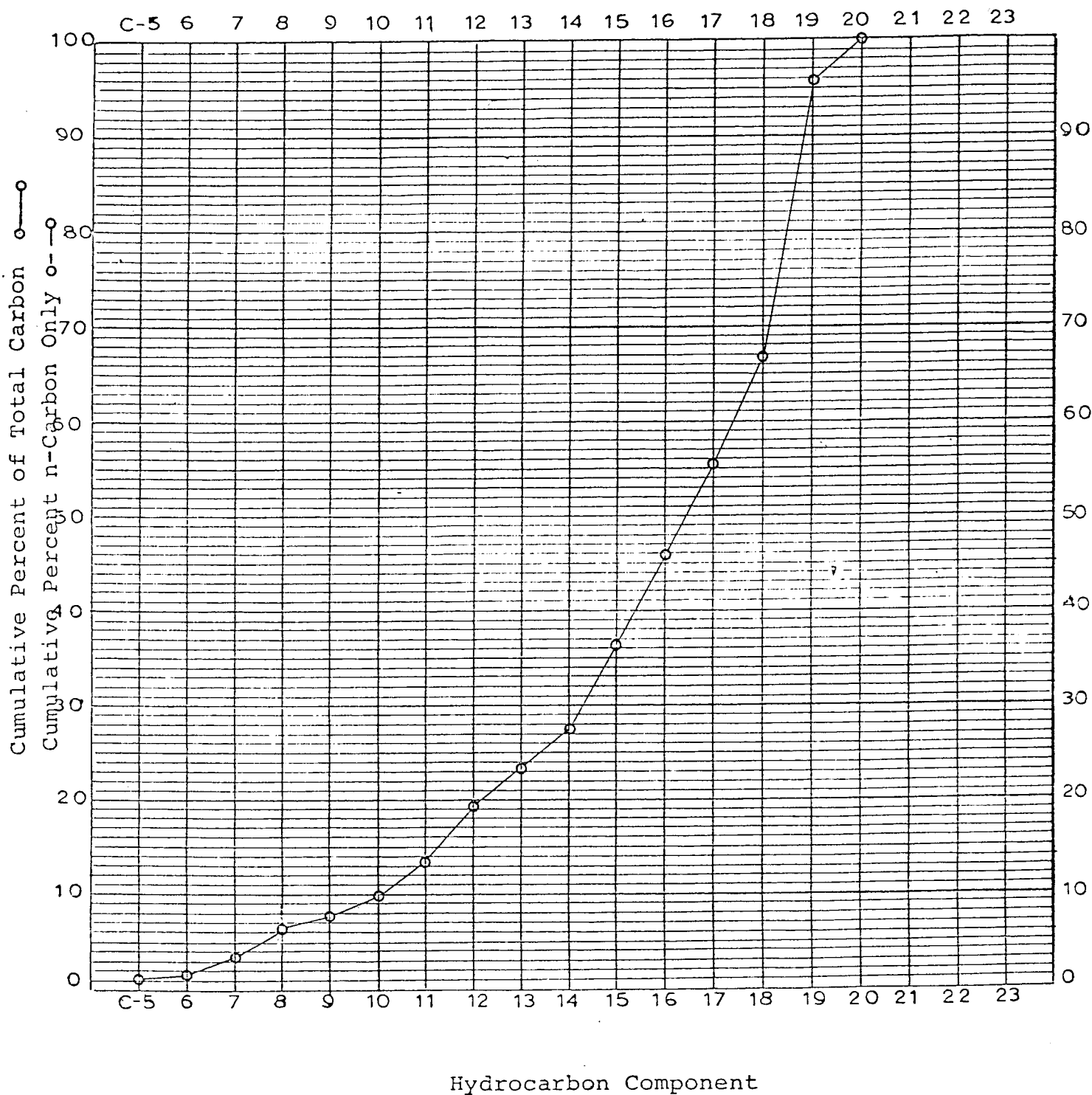
April 2, 1975
Pyrolysis Temp. @ 120° C.
Max. GC Temp. 230° C.

Sample No. 51 - 3117' Core Depth

Component	Total Carbon	% Total Carbon	Cumulative % Total Carbon
C-5	1,774	0.39	0.39
C-6	132	0.03	0.42
C-7	12,605	2.75	3.17
C-8	21,333	4.65	7.82
C-9	87,443	19.07	26.89
C-10	20,196	4.41	31.30
C-11	27,300	5.95	37.25
C-12	34,058	7.43	44.68
C-13	35,110	7.66	52.34
C-14	41,375	9.03	61.37
C-15	47,028	10.26	71.63
C-16	56,769	12.38	84.01
C-17	<u>73,325</u>	15.99	
	458,448		

Company Cities Service Oil Co.Well Alexander "D" No. 2Field Formation Council GroveCounty Grant Co.State KansasSample No: 1 Depth: 2884

Total Carbon: 861,414



Company Cities Service Oil Co.

Formation Council Grove

Well Alexander "d" No. 2

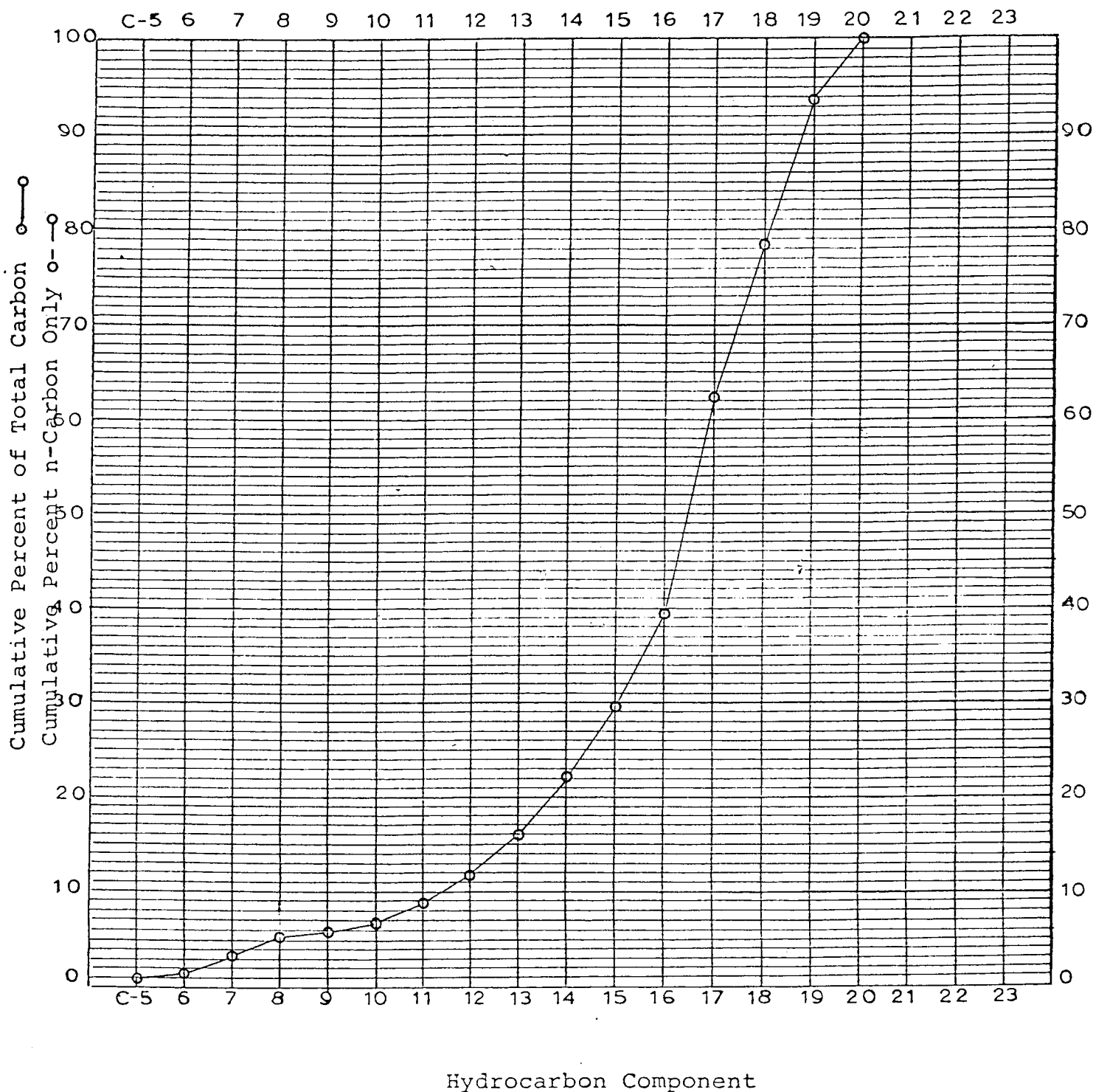
County Grant

Field

State Kansas

Sample No: 2 Depth: 2892

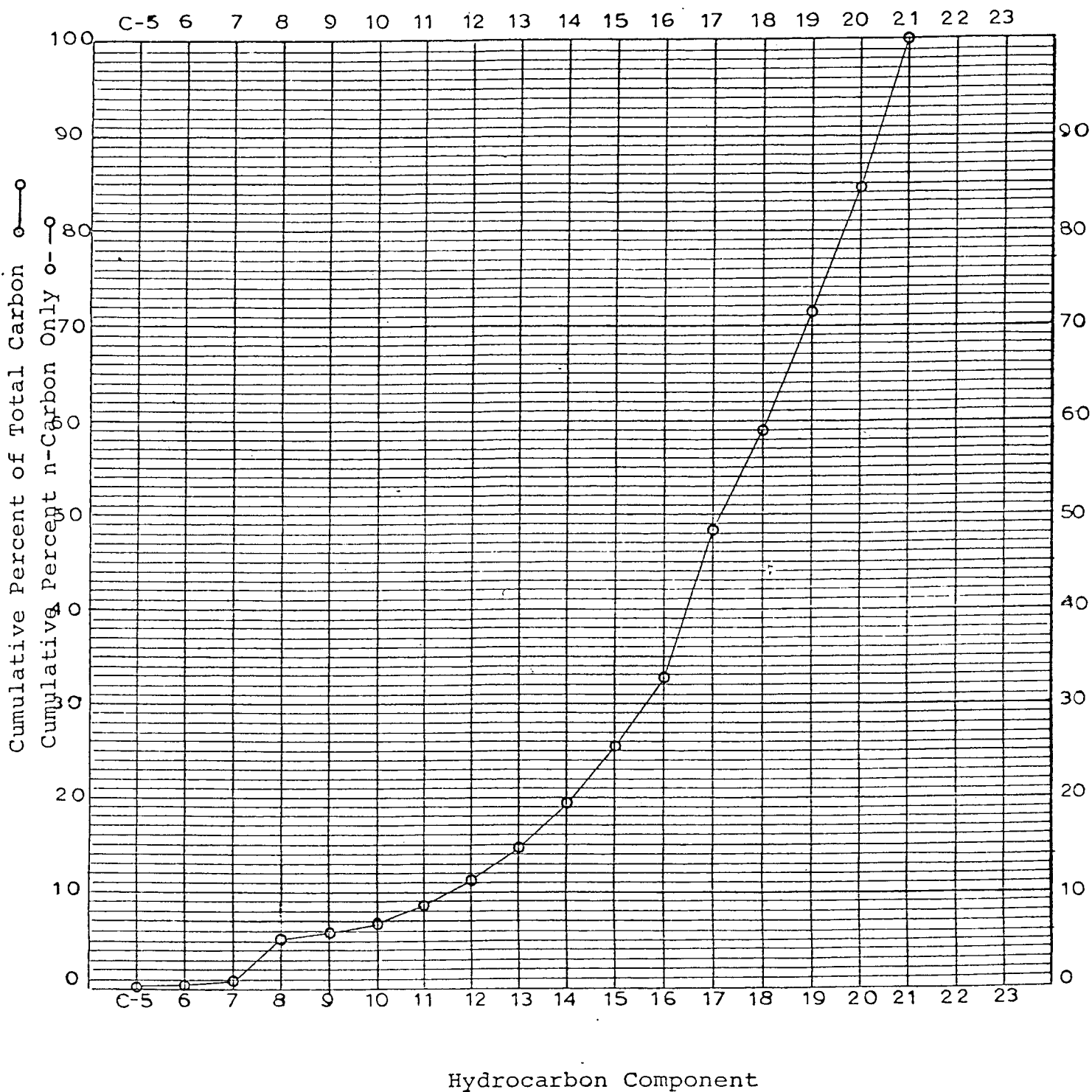
Total Carbon: 787,370



Company Cities Service Oil Co. Formation Council Grove
Well Alexander "D" No. 2 County Grant
Field State Kansas

Sample No: 3 Depth: 2895

Total Carbon: 1,429,100

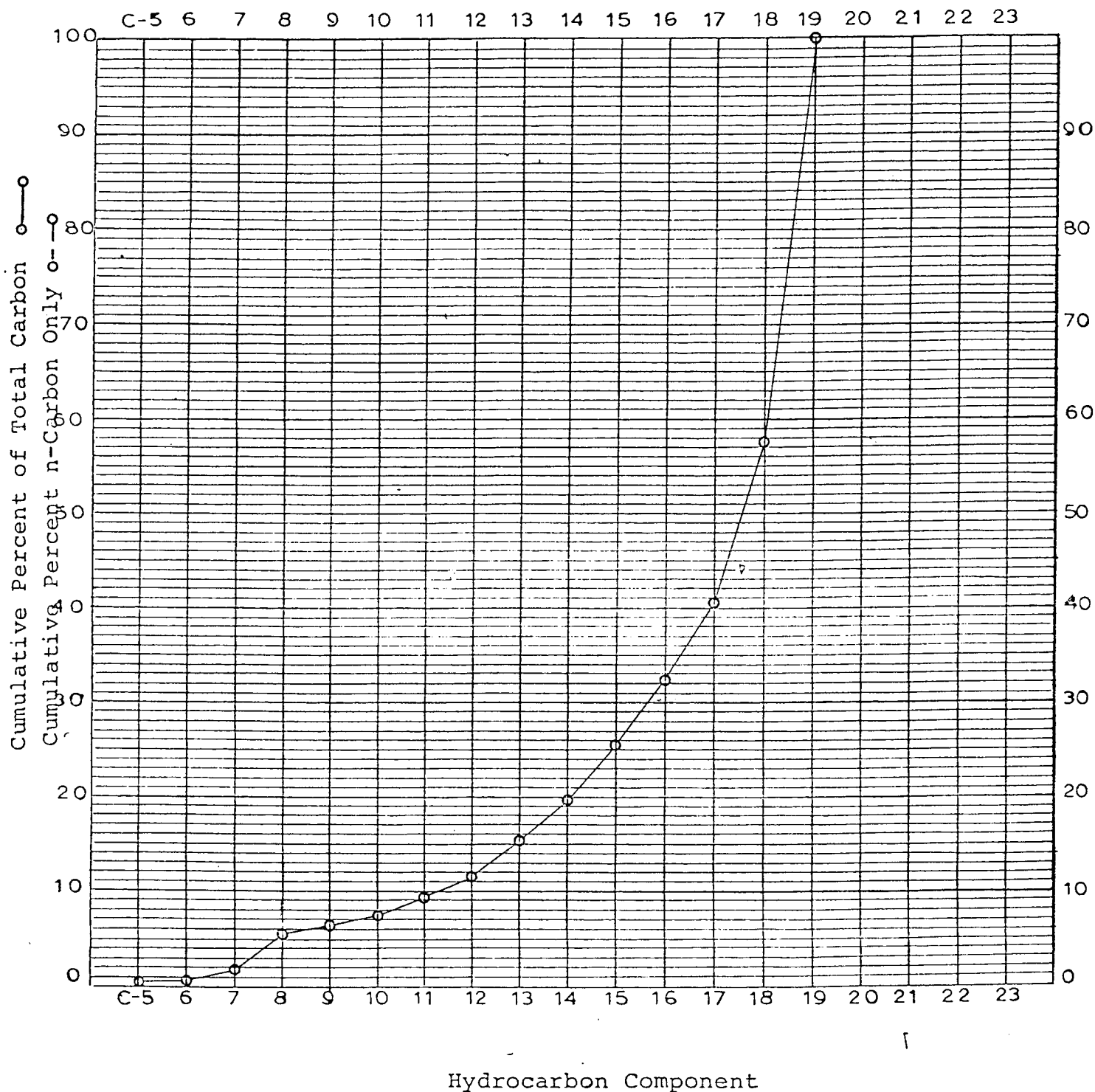


Company Cities Service Oil Company
Well Alexander "D" No. 2
Field

Formation Council Grove
County Grant
State Kansas

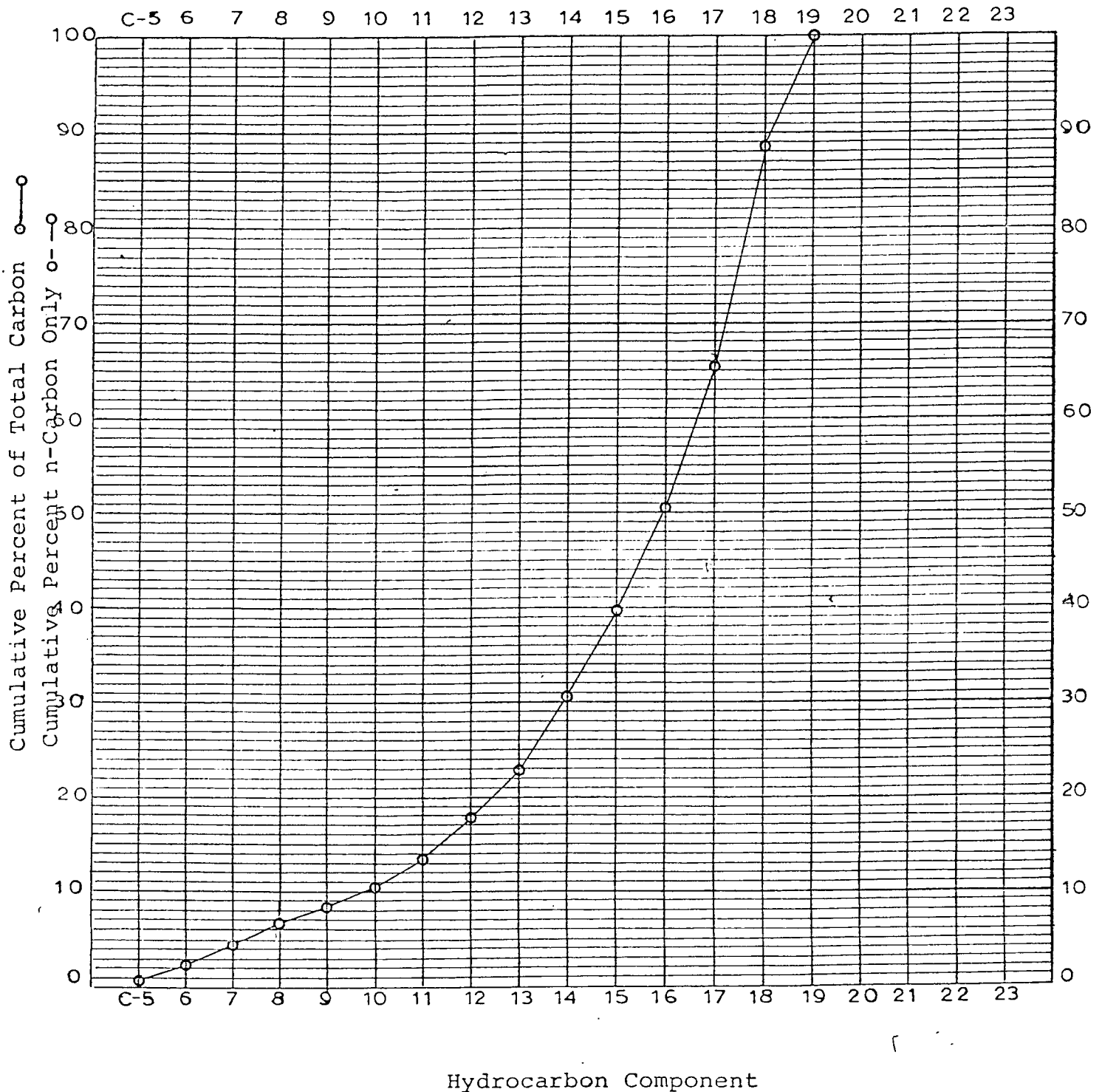
Sample No: 4 Depth: 2899

Total Carbon: 1,468,983



Company Cities Service Oil Co.Well Alexander "D" No. 2Field Formation Council GroveCounty GrantState KansasSample No: 5 Depth: 2902.5

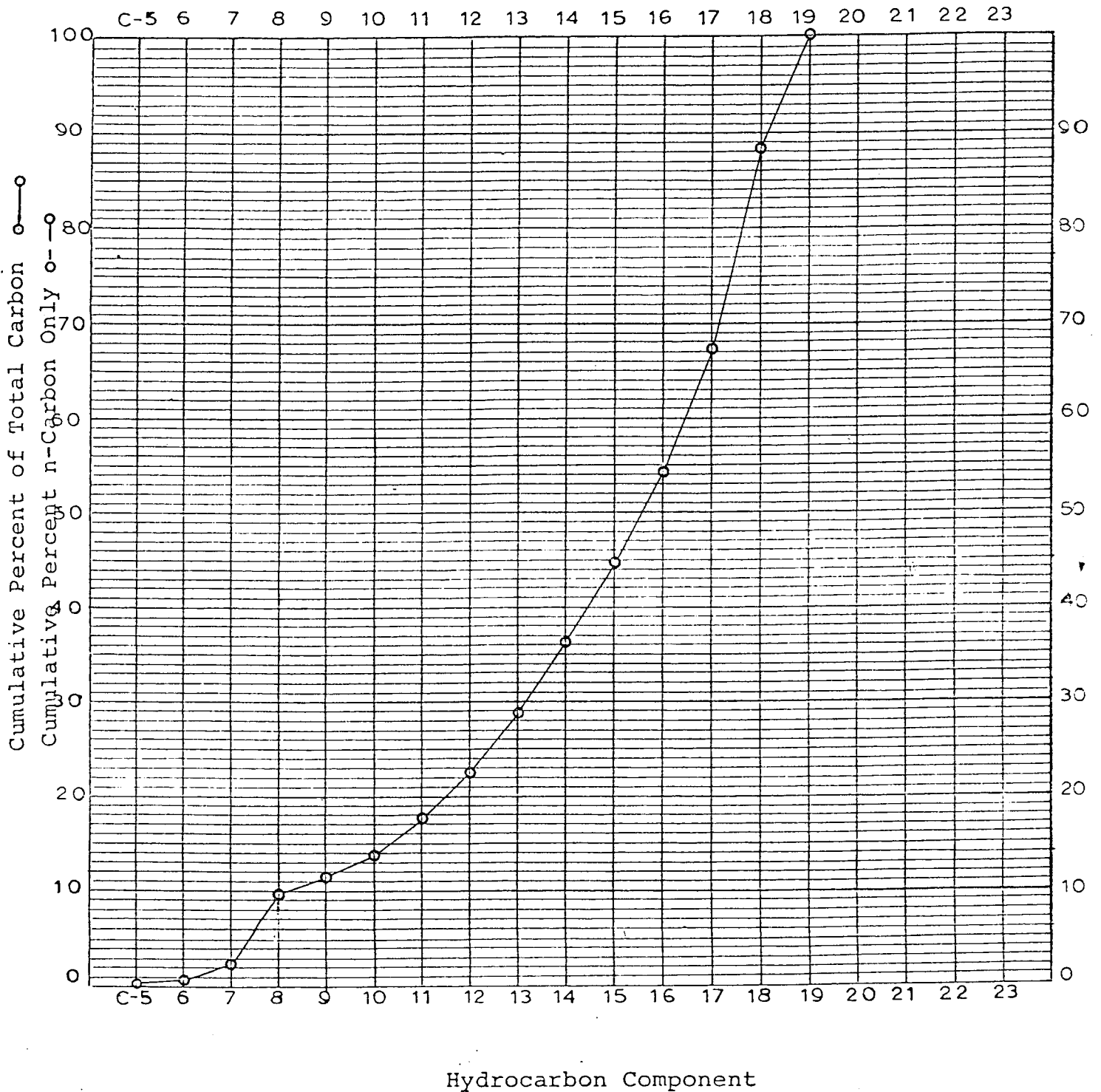
Total Carbon: 648,624



Company Cities Service Oil Co Formation Council Grove
Well Alexander "D" No. 2 County Grant
Field State Kansas

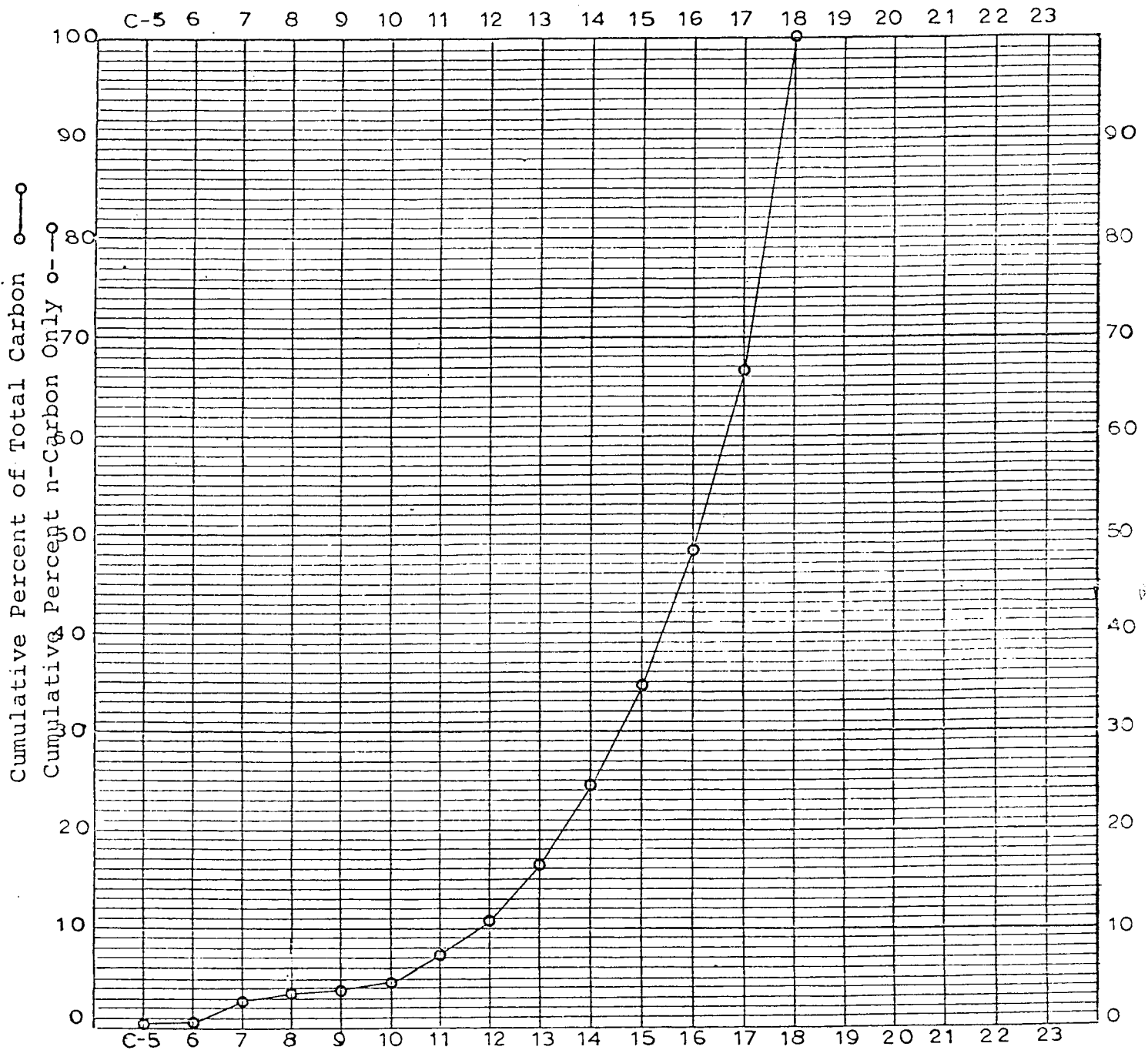
Sample No: 6 Depth: 2908

Total Carbon: 981,050



Company Cities Service Oil Co.Formation Council GroveWell Alexander "D" No. 2County GrantField State KansasSample No: 7 Depth: 2911

Total Carbon: 490,637

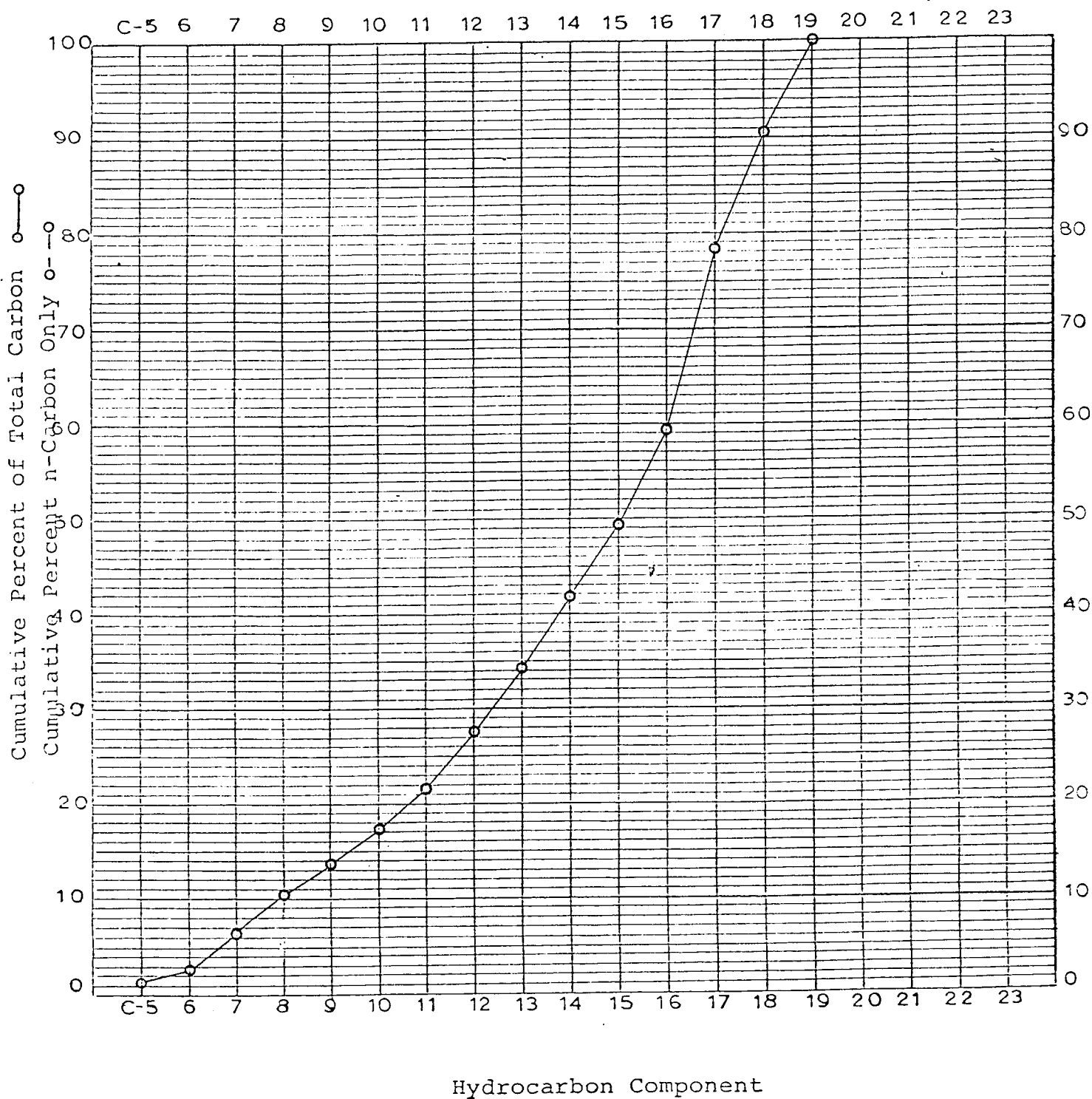


Hydrocarbon Component

Company Cities Service Oil Co. Formation Council Grove
Well Alexander "D" No. 2 County Grant
Field State Kansas

Sample No: 8 Depth: 2916.3

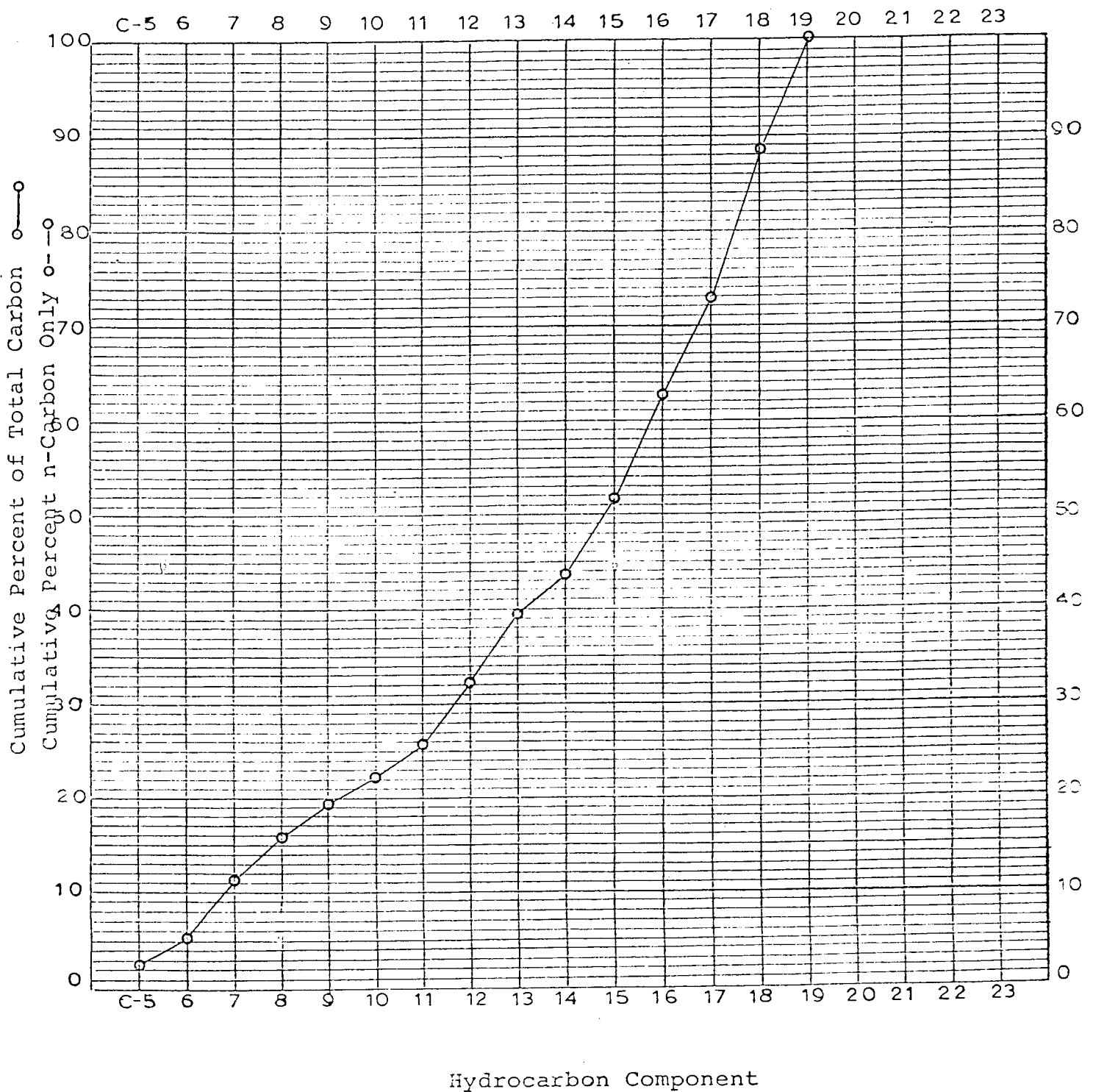
Total Carbon: 945,982



Company Cities Service Oil Co. Formation Council Grove
Well Alexander "D" No. 2 County Grant
Field _____ State Kansas

Sample No: 9 Depth: 2924

Total Carbon: 734,205



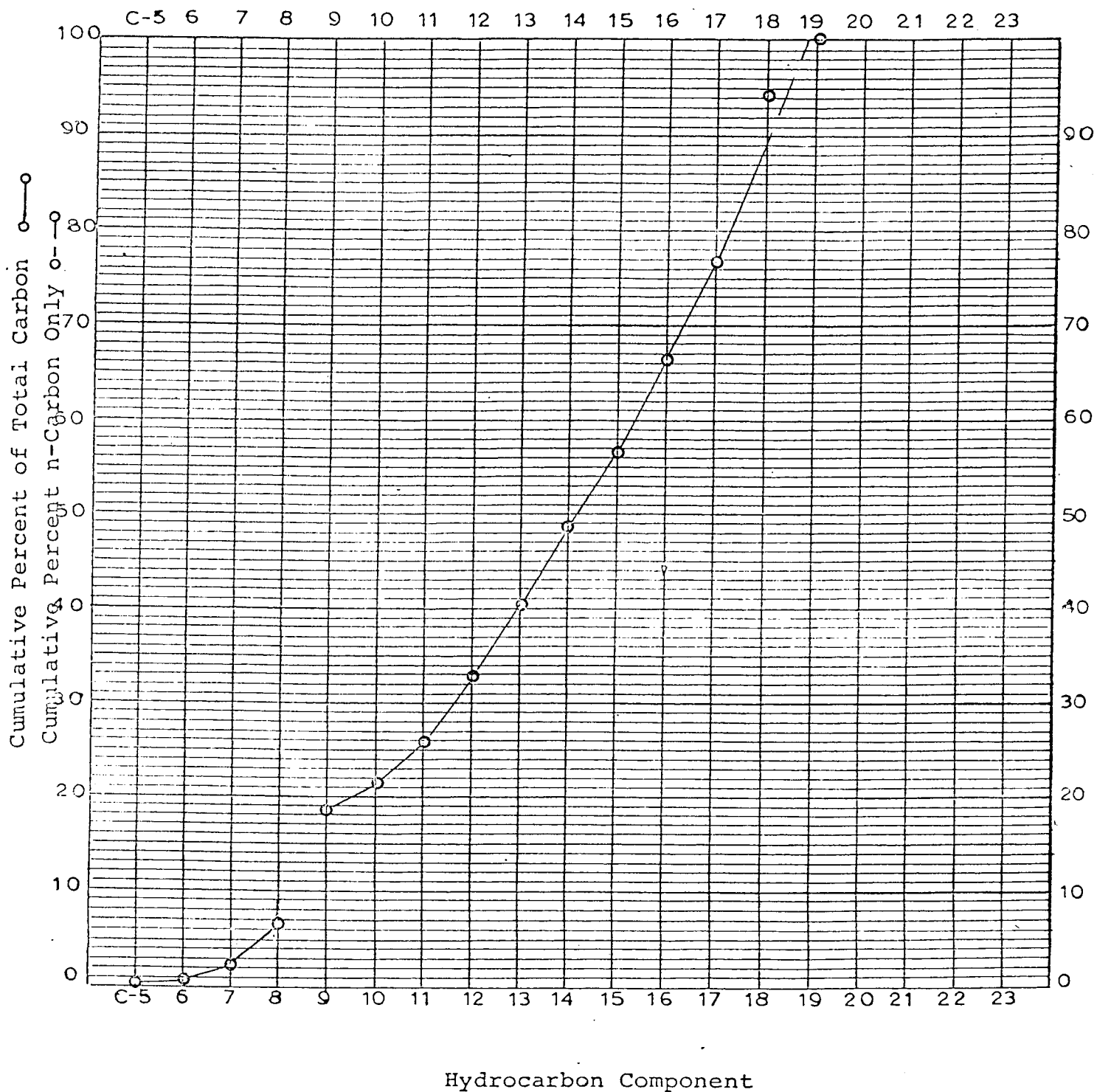
CORE LABORATORIES, INC.
Dallas, Texas

Page 7 of
File MGL 75 GC 40

Company Cities Service Oil Co. Formation Council Grove
Well Alexander "D" No. 2 County Grant
Field State Kansas

Sample No: 10 Depth: 2926

Total Carbon: 979,145

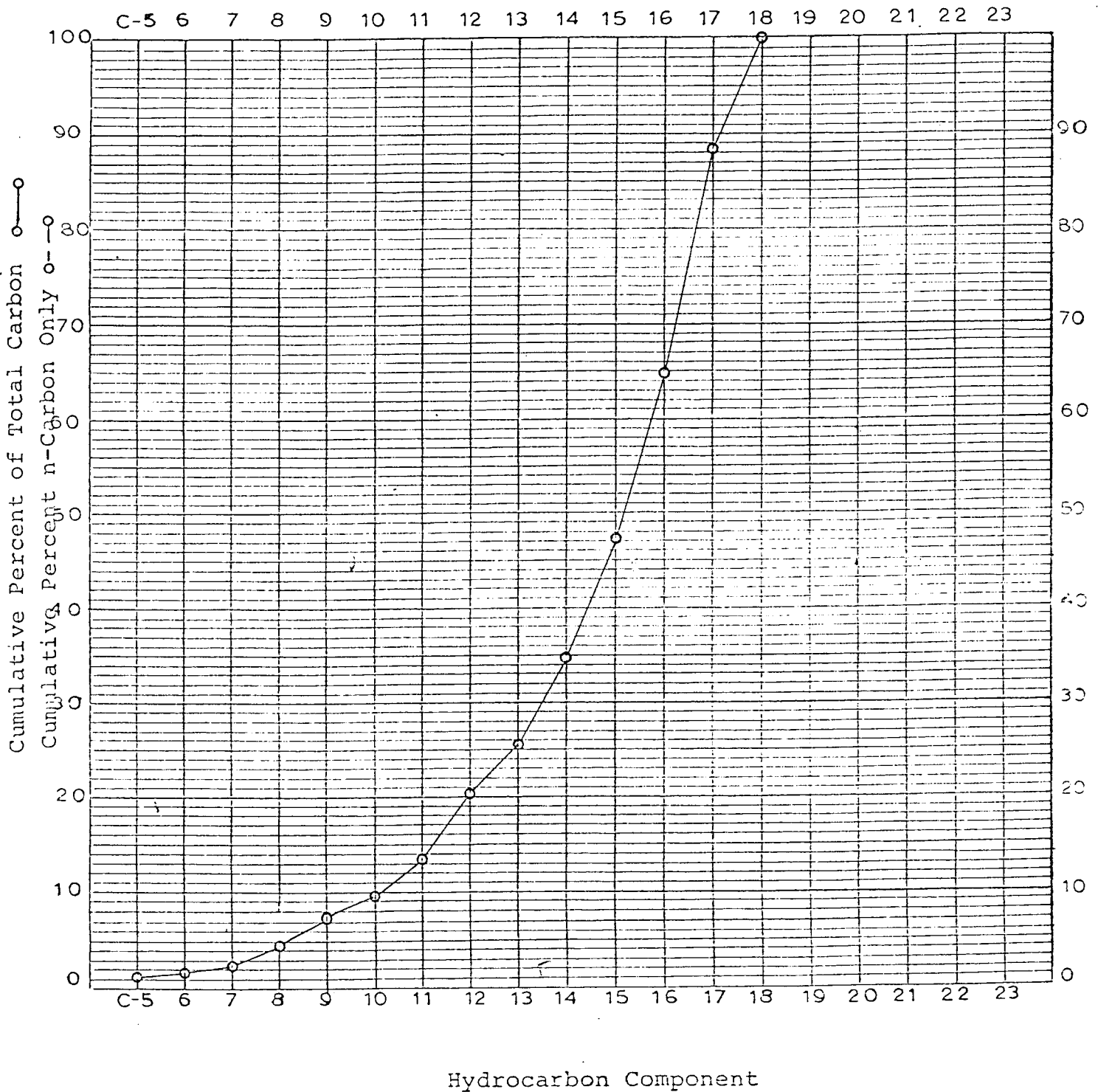


Company Cities Service Oil Co.
Well Alexander "D" No. 2
Field

Formation Council Grove
County Grant
State Kansas

Sample No: 11 Depth: 2928

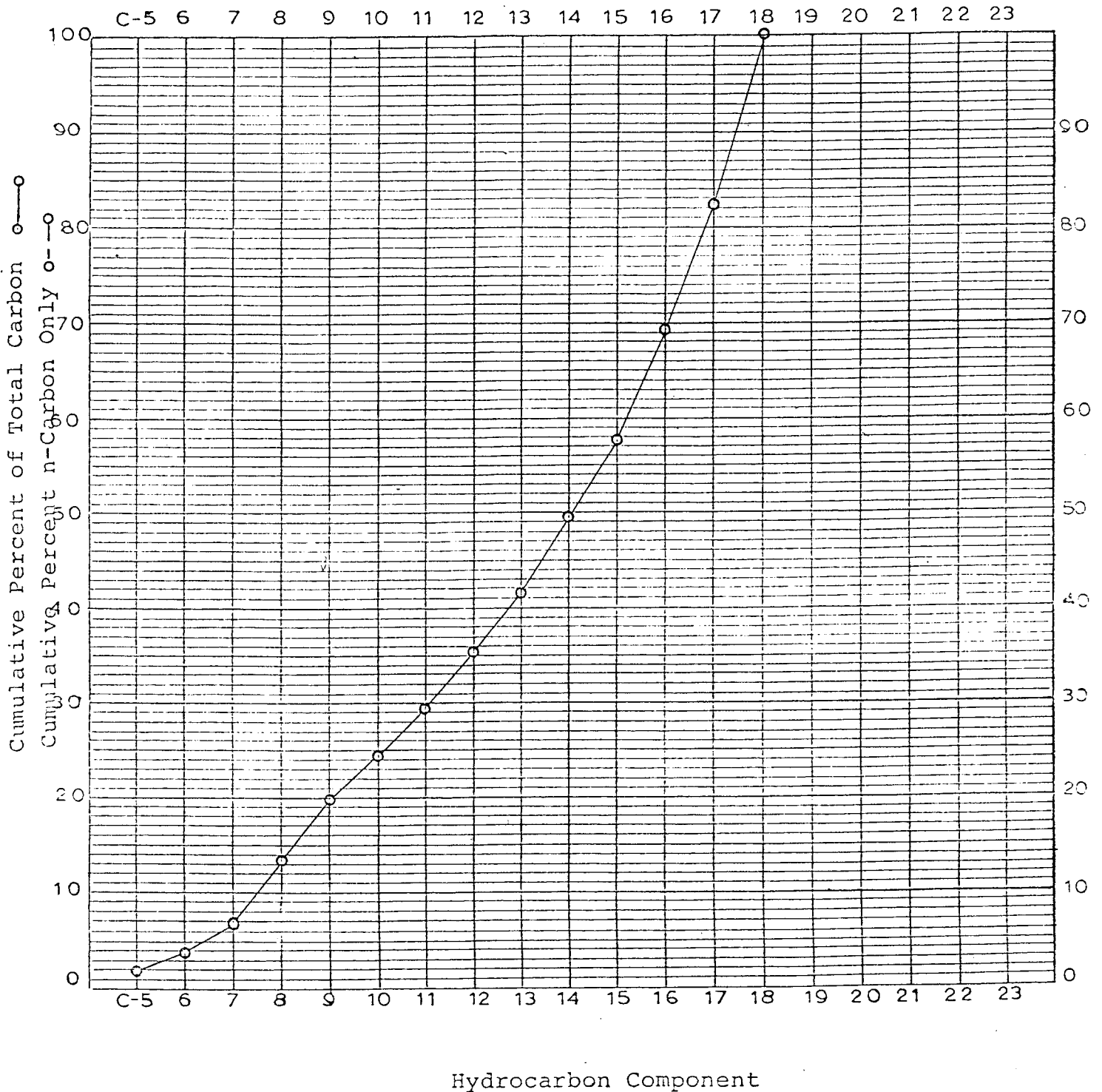
Total Carbon: 307,941



Company Cities Service Oil Co. Formation Council Grove
Well Alexander "D" No. 2 County Grant
Field State Kansas

Sample No: 12 Depth: 2931

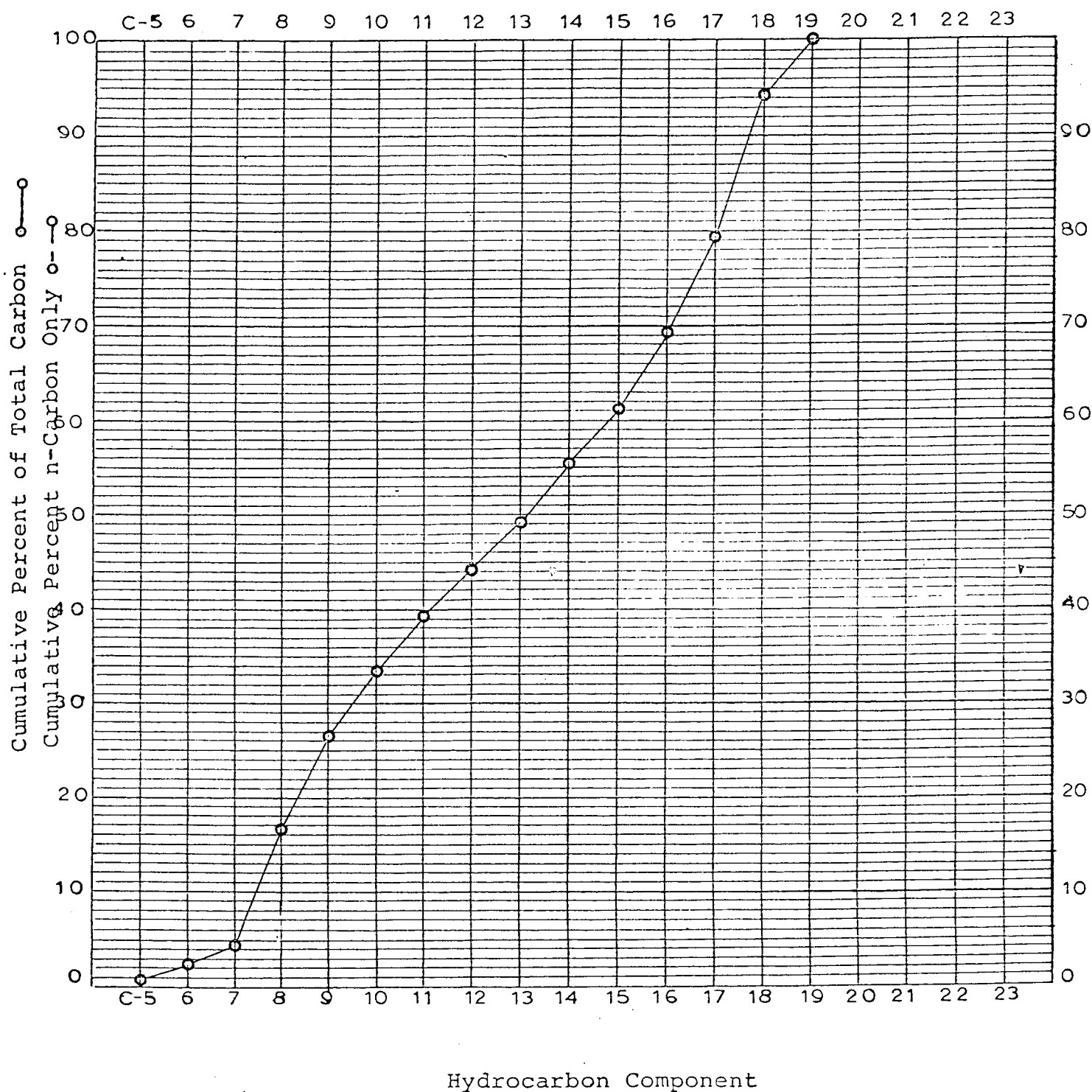
Total Carbon 741,026



Company Cities Service Oil Co. Formation Council Grove
Well Alexander "D" No. 2 County Grant
Field State Kansas

Sample No: 13 Depth: 2937.8

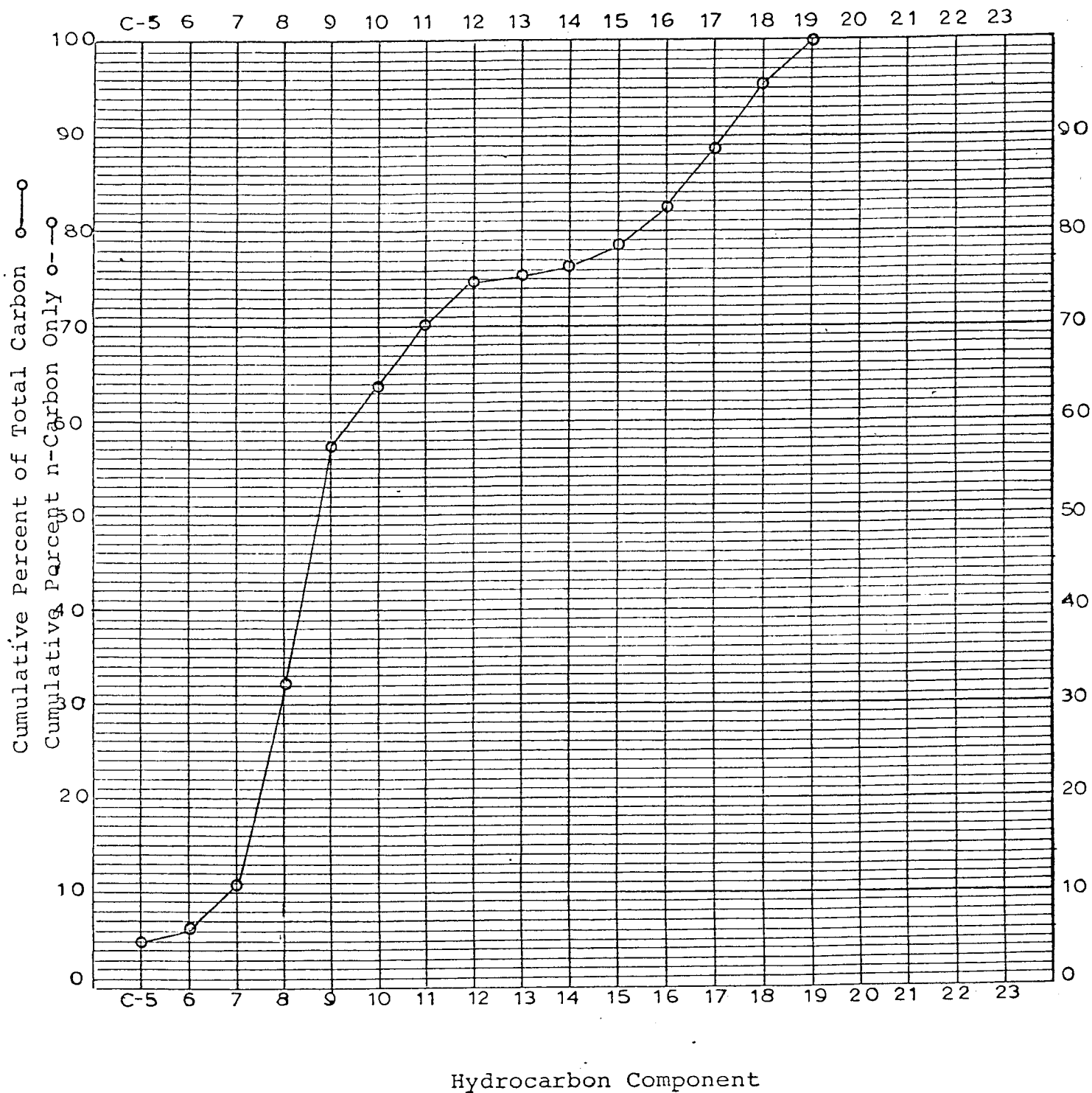
Total Carbon: 825,564



Company Cities Service Oil Co. Formation Council Grove
Well Alexander "D" No. 2 County Grant
Field State Kansas

Sample No: 14 Depth: 2942

Total Carbon: 766,766

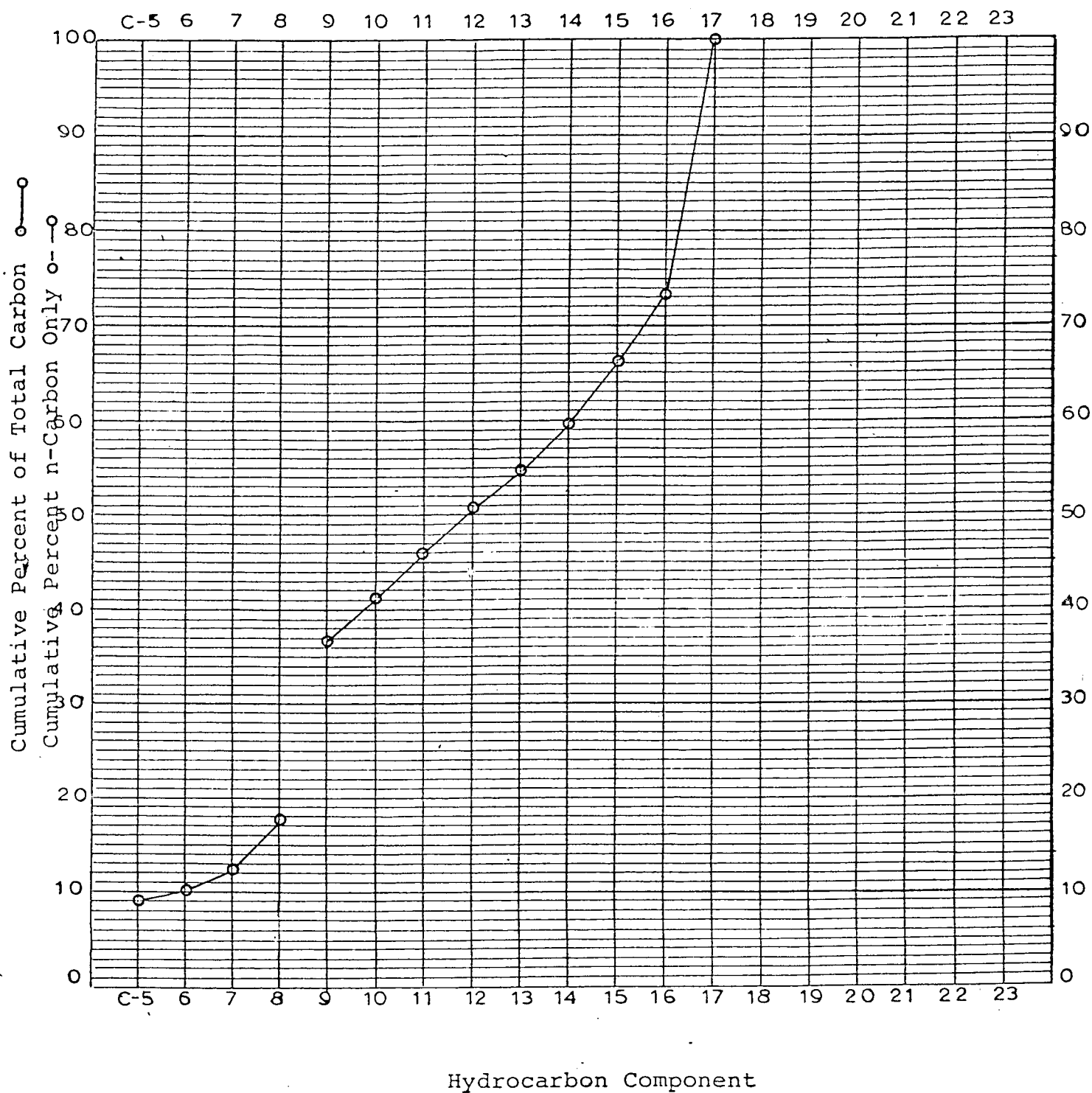


Company Cities Service OilCo.
Well Alexander "D" No. 2
Field _____

Formation Council Grove
County Grant
State Kansas

Sample No: 15 Depth: 2944

Total Carbon: 876,856

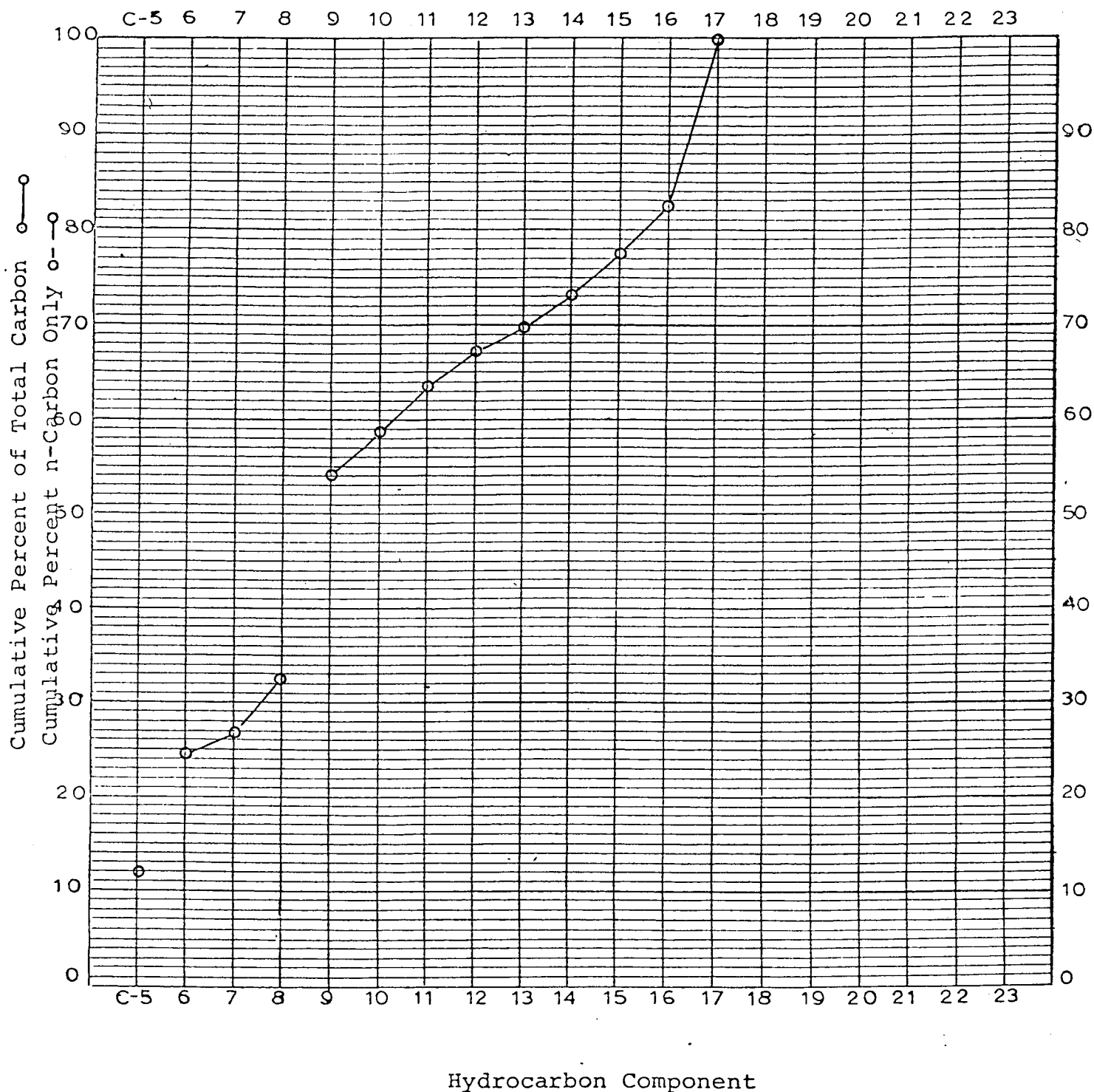


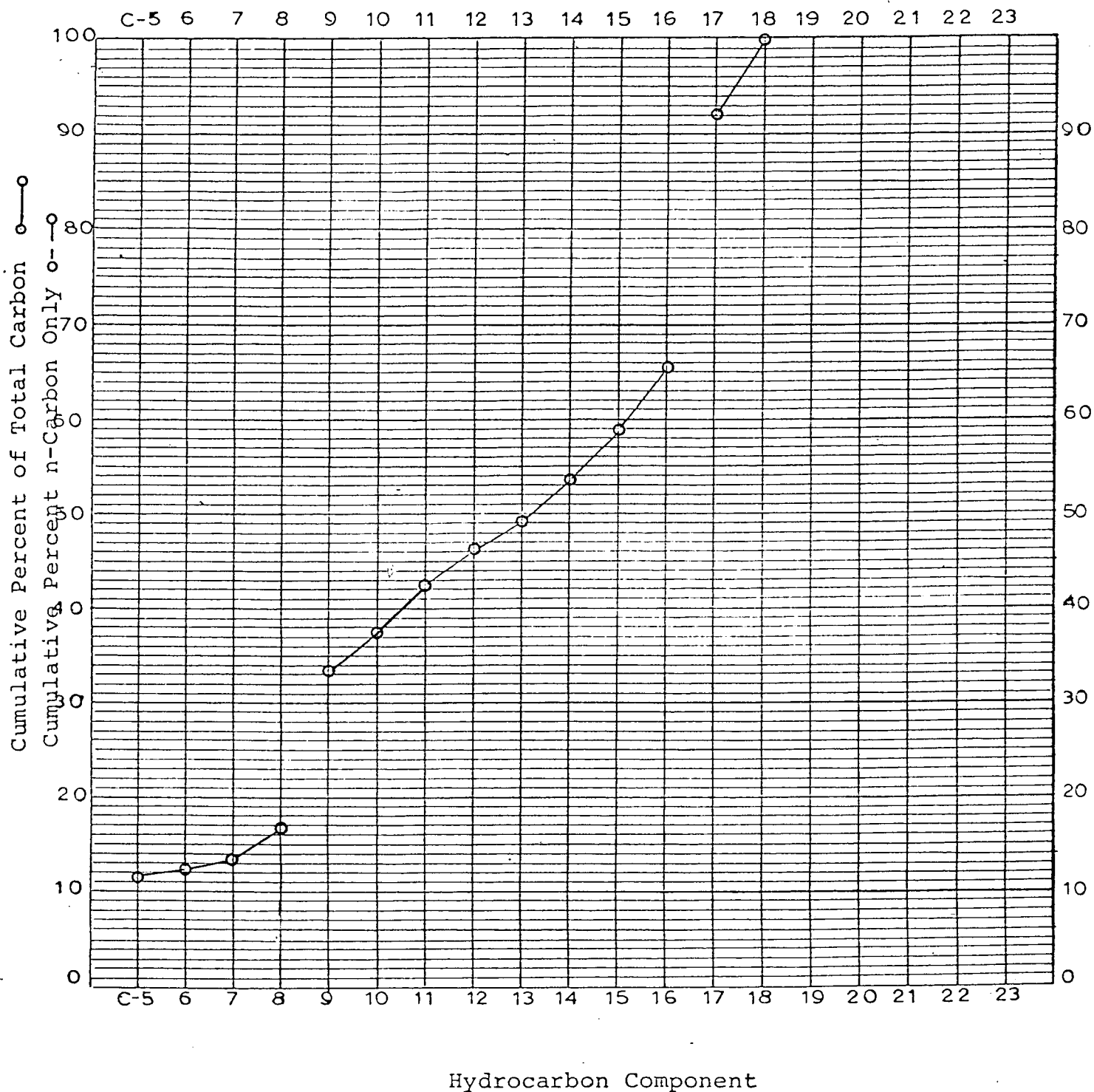
Company Cities Service Oil Co.
Well Alexander "D" No. 2
Field

Formation Council Grove
County Grant
State Kansas

Sample No: 16 Depth: 2946

Total Carbon: 1,391,454



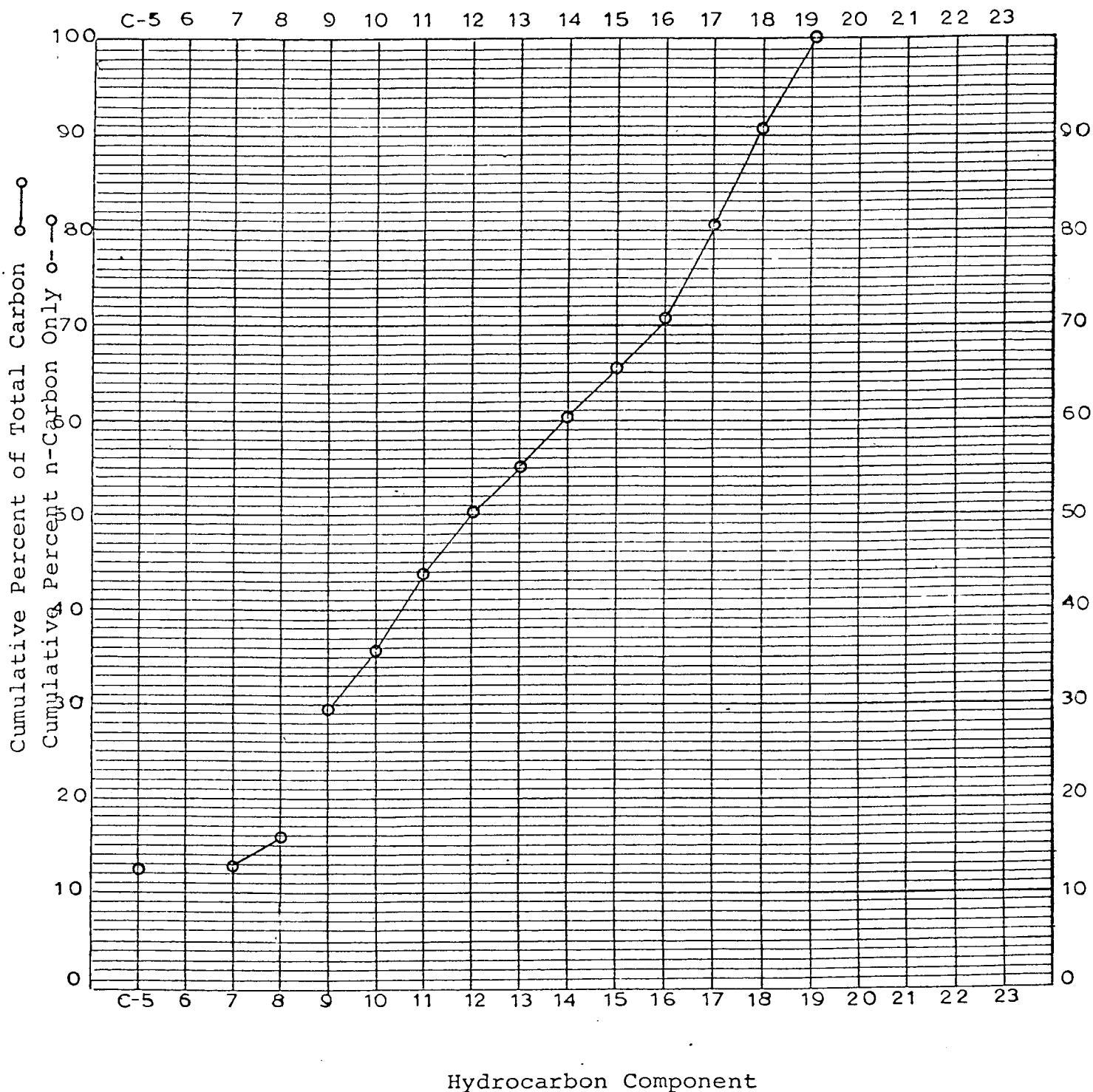
Company Cities Service Oil Co.Formation Council GroveWell Alexander "D" No. 2County GrantField State KansasSample No: 17 Depth: 2948Total Carbon: 985,547

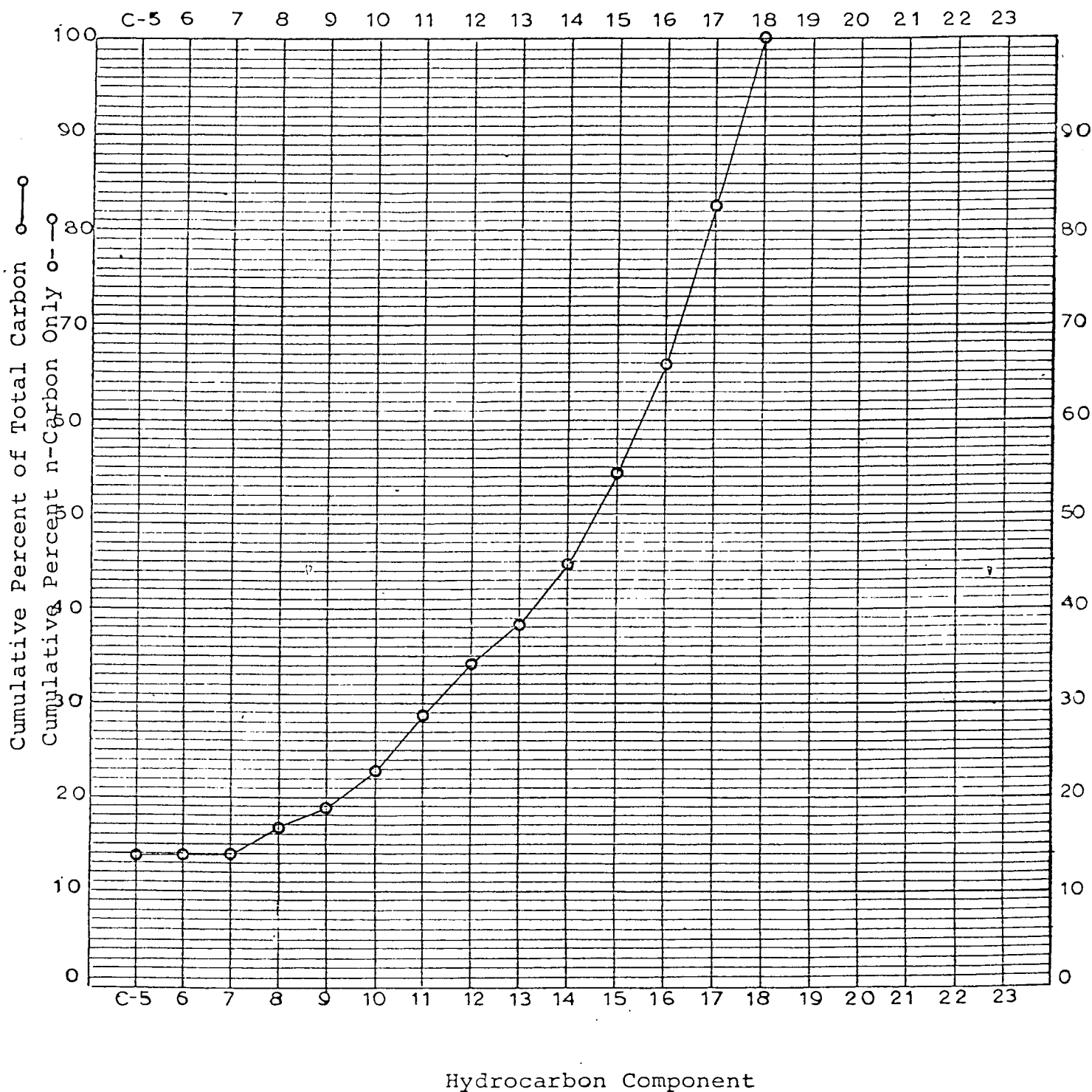
Company Cities Service Oil Co.
Well Alexander "D" No. 2
Field

Formation Council Grove
County Grant
State Kansas

Sample No: 18 Depth: 2950

Total Carbon: 784,160



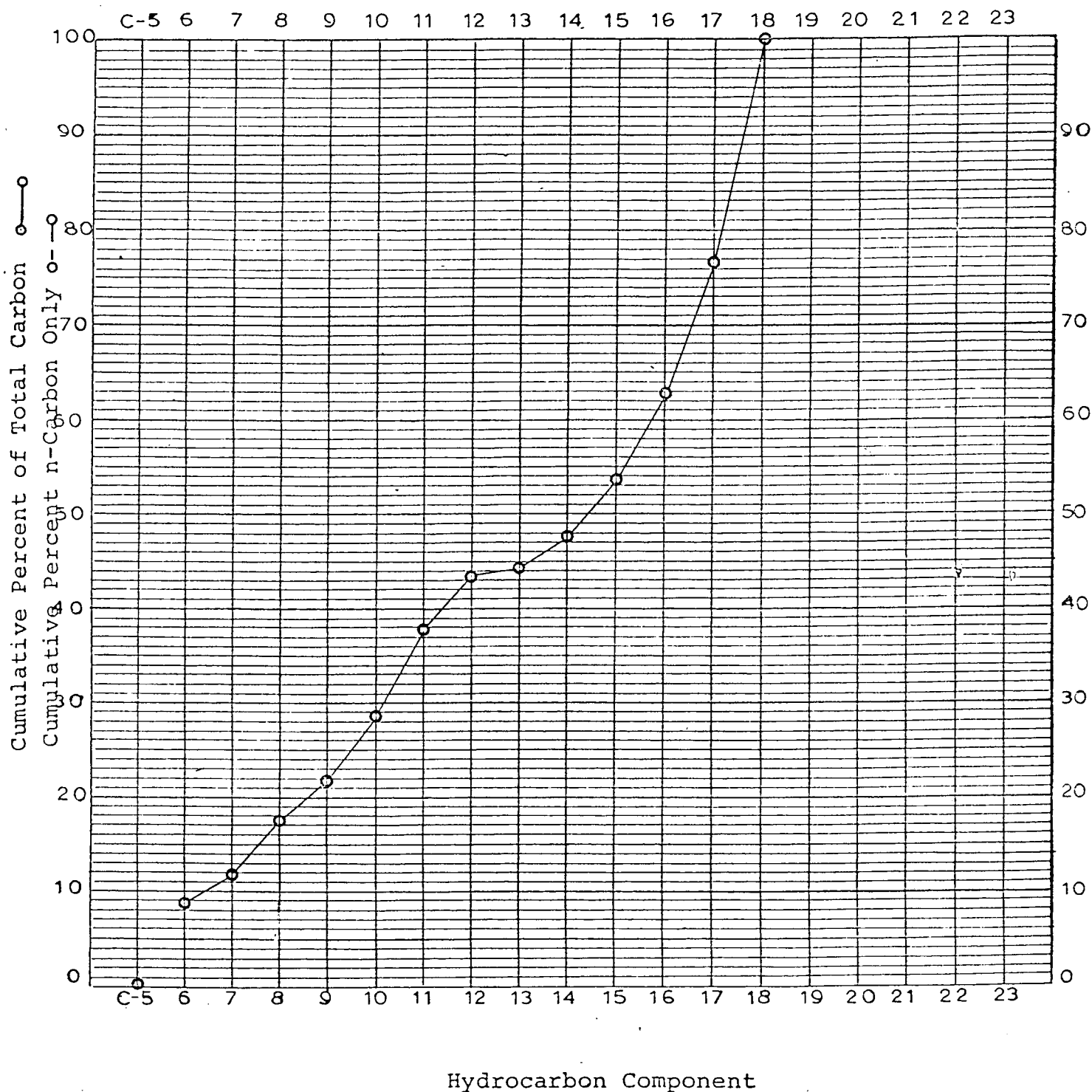
Company Cities Service Oil Co.Formation Council GroveWell Alexander "D" No. 2County GrantField State KansasSample No: 19 Depth: 2957Total Carbon: 405,321

Company Cities Service Oil Co.
Well Alexander "D" No. 2
Field

Formation Council Grove
County Grant
State Kansas

Sample No: 20 Depth: 2960

Total Carbon: 264,825

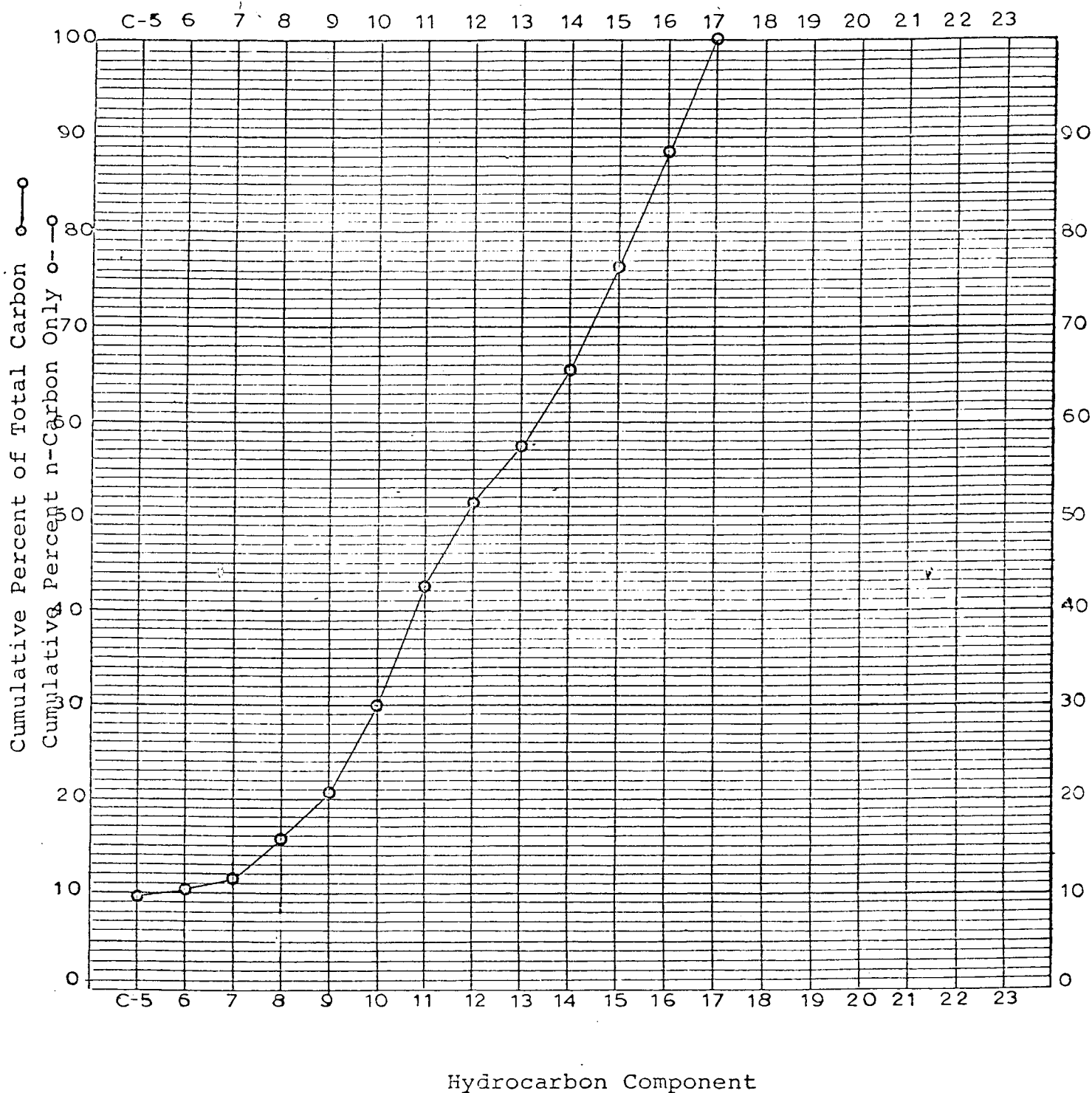


Company Cities Service Oil Co.
Well Alexander "D" No. 2
Field

Formation Council Grove
County Grant
State Kansas

Sample No: 21 Depth: 2961.5

Total Carbon: 325,009

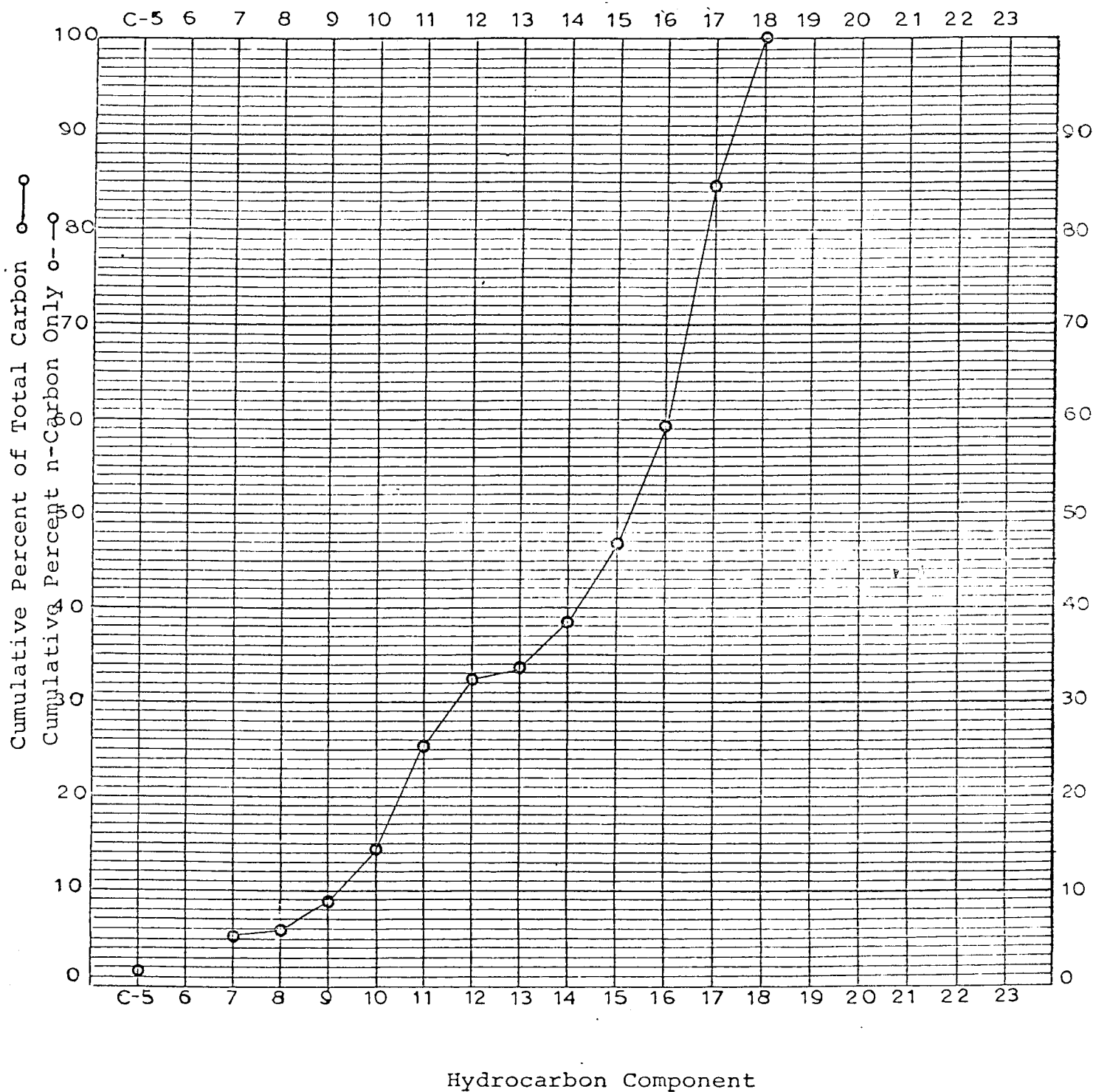


Company Cities Service Oil Co.
Well Alexander "D" No. 2
Field

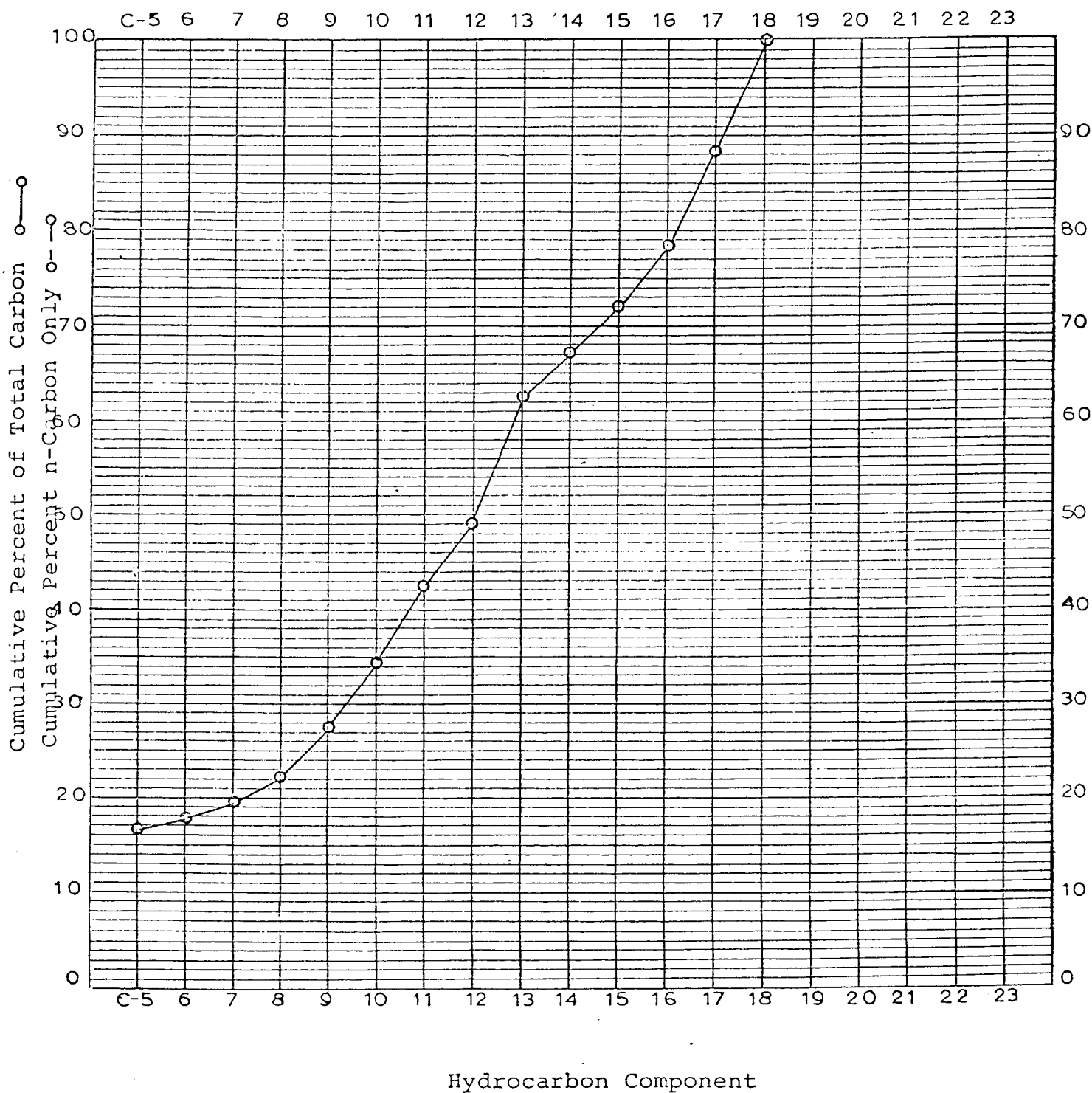
Formation Council Grove
County Grant
State Kansas

Sample No: 22 Depth: 2965

Total Carbon: 172,845



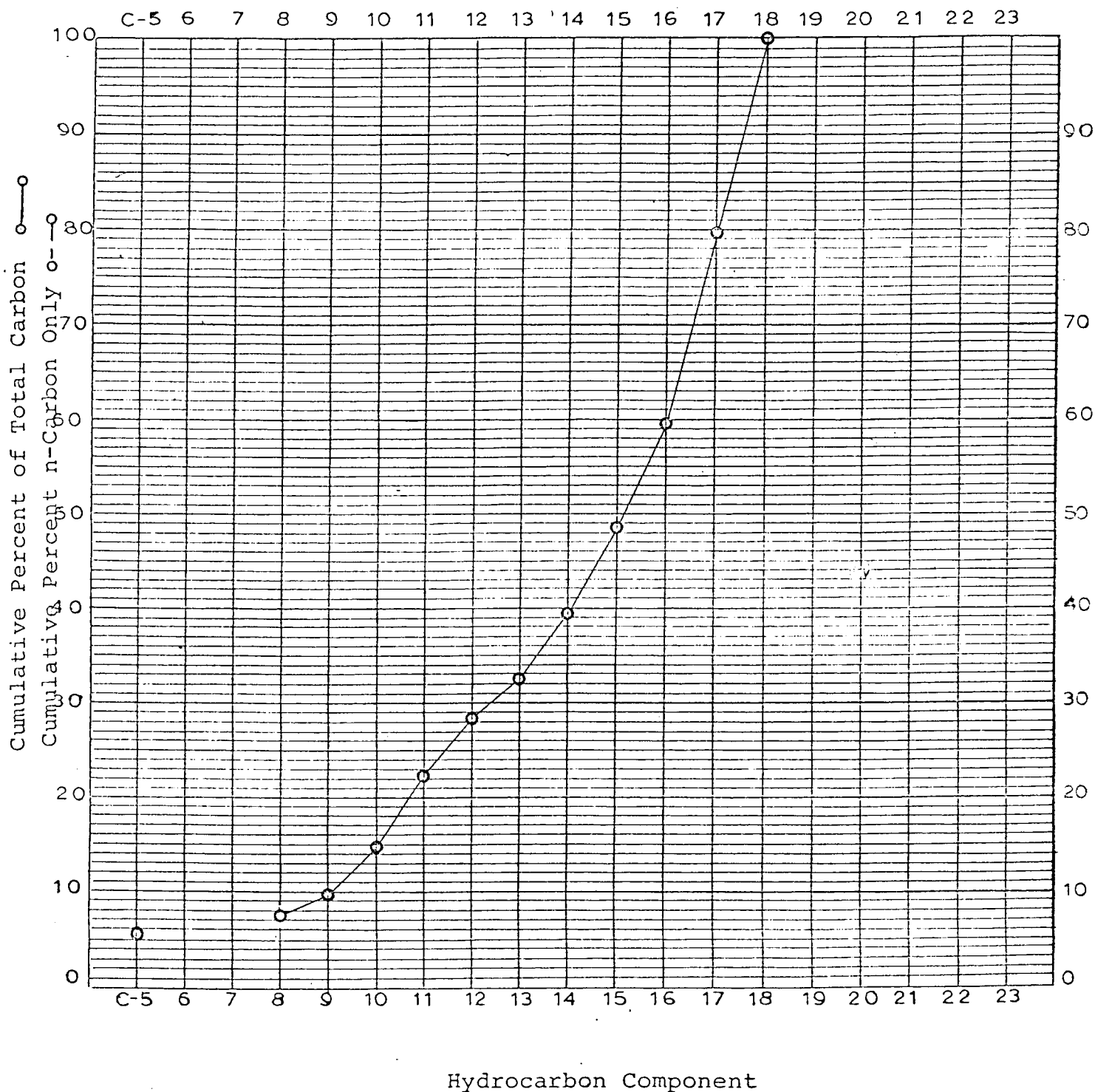
Company Cities Service Oil Co. Formation Council Grove
Well Alexander "D" No. 2 County Grant
Field State Kansas

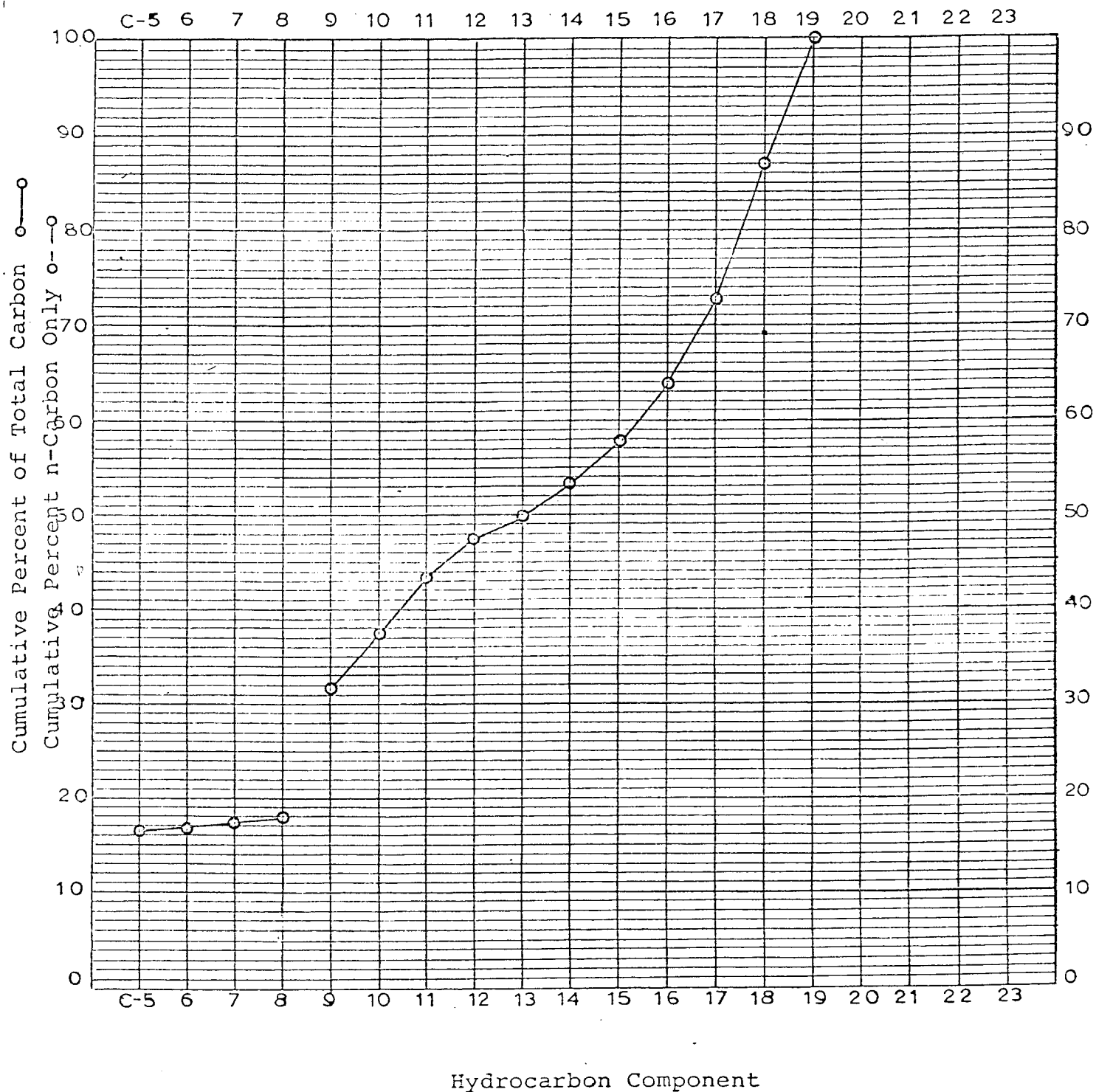
Sample No: 23 Depth: 2968Total Carbon: 1,030,787

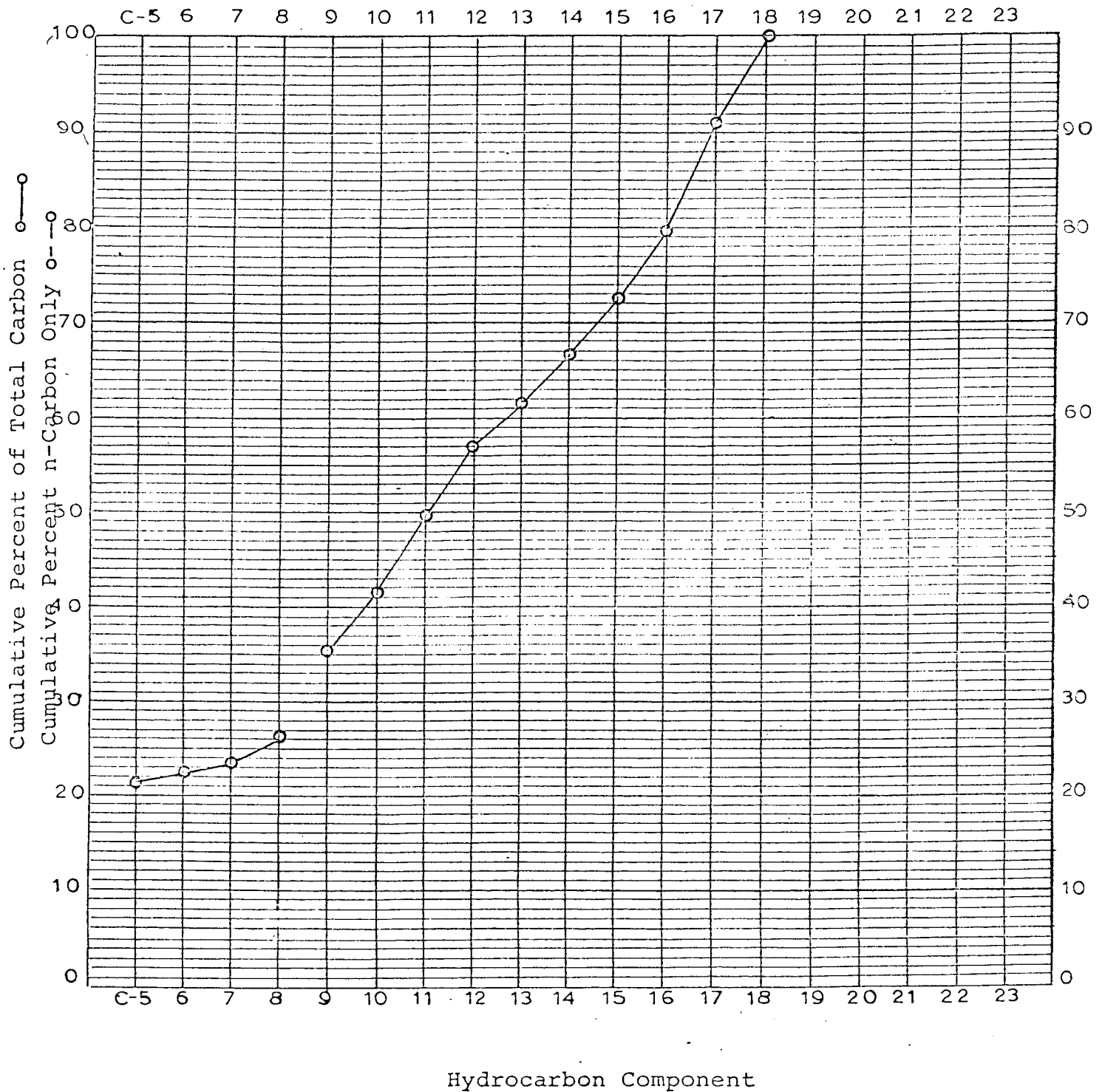
Company Cities Service Oil Co Formation Council Grove
Well Alexander "D" No. 2 County Grant
Field State Kansas

Sample No: 24 Depth: 2970

Total Carbon: 374,940



Company Cities Service Oil Co.Formation Council GroveWell Alexander "D" No. 2County GrantField State KansasSample No: 25 Depth: 2974Total Carbon: 1,179,696

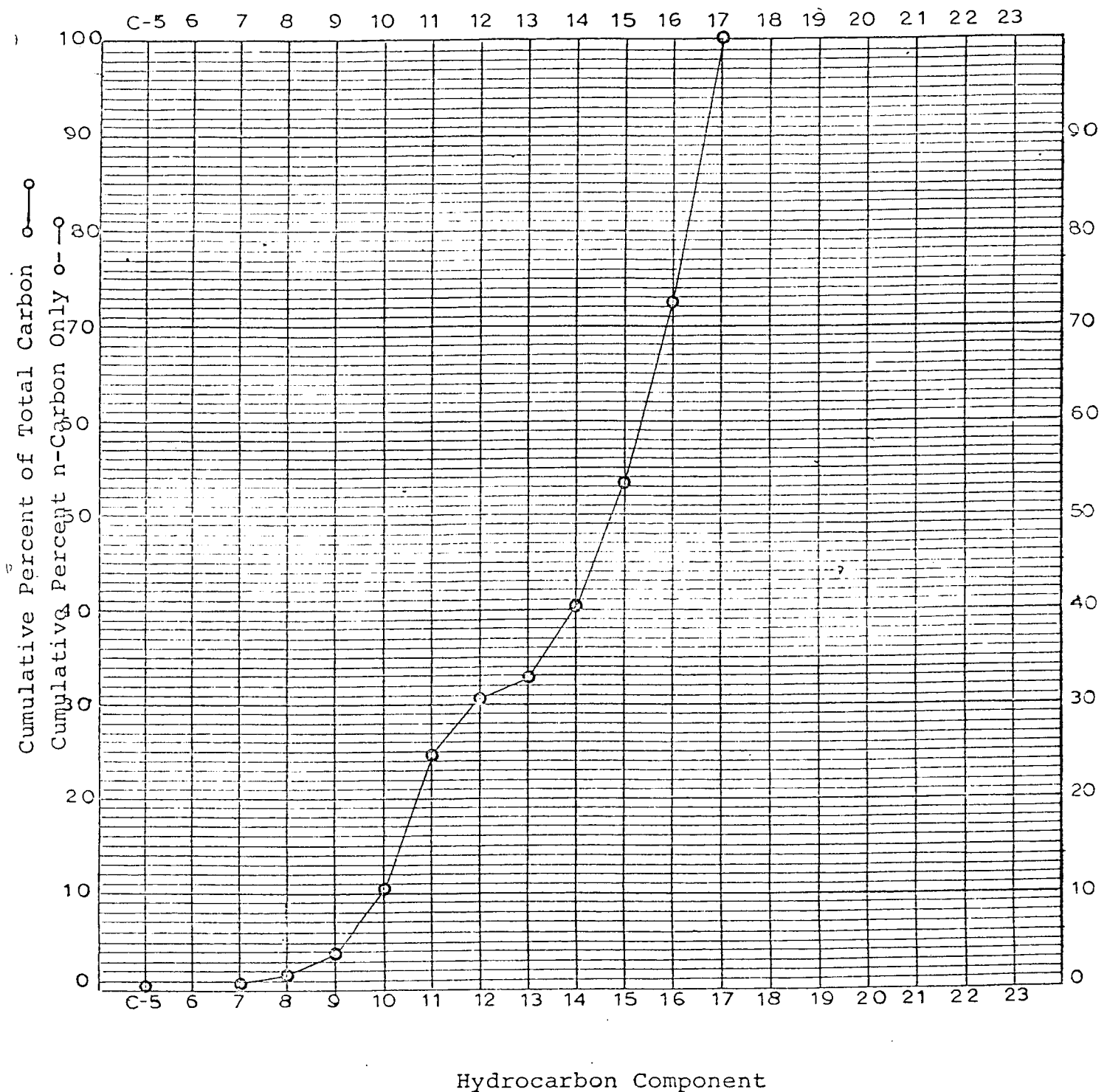
Company Cities Service Oil Co.Formation Council GroveWell Alexander "D" No. 2County GrantField State KansasSample No: 26 Depth: 2976Total Carbon: 888,880

Dallas, Texas

File MGL 75 GC 40

Company Cities Service Oil Co.
Well Alexander "D" No. 2
Field

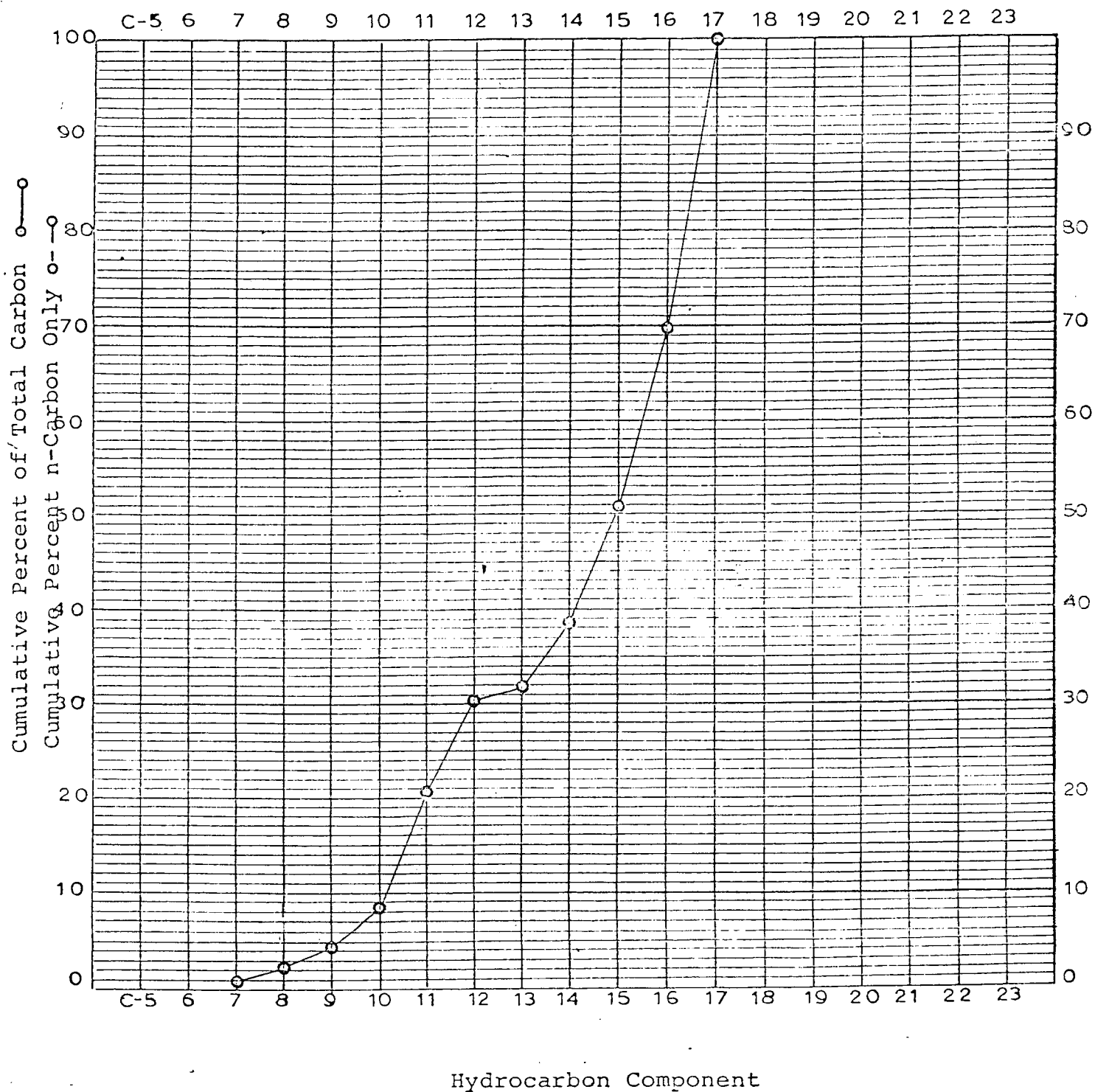
Formation Council Grove
County Grant
State Kansas

Sample No: 27 Depth: 2979.4Total Carbon: 138,164

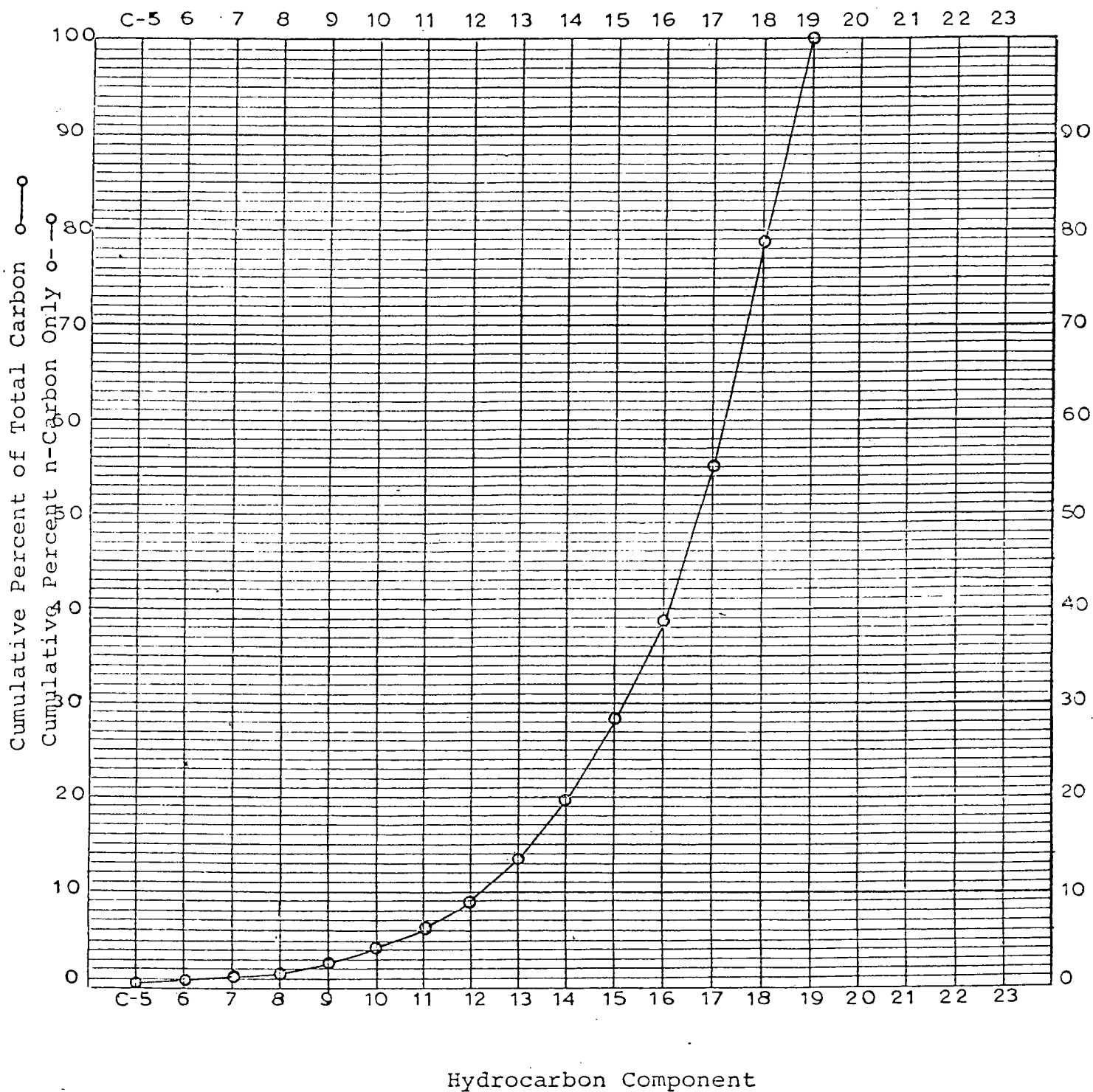
Company Cities Service Oil Co. Formation Council Grove
Well Alexander "D" No. 2 County Grant
Field State Kansas

Sample No: 28 Depth: 2981

Total Carbon: 103,161

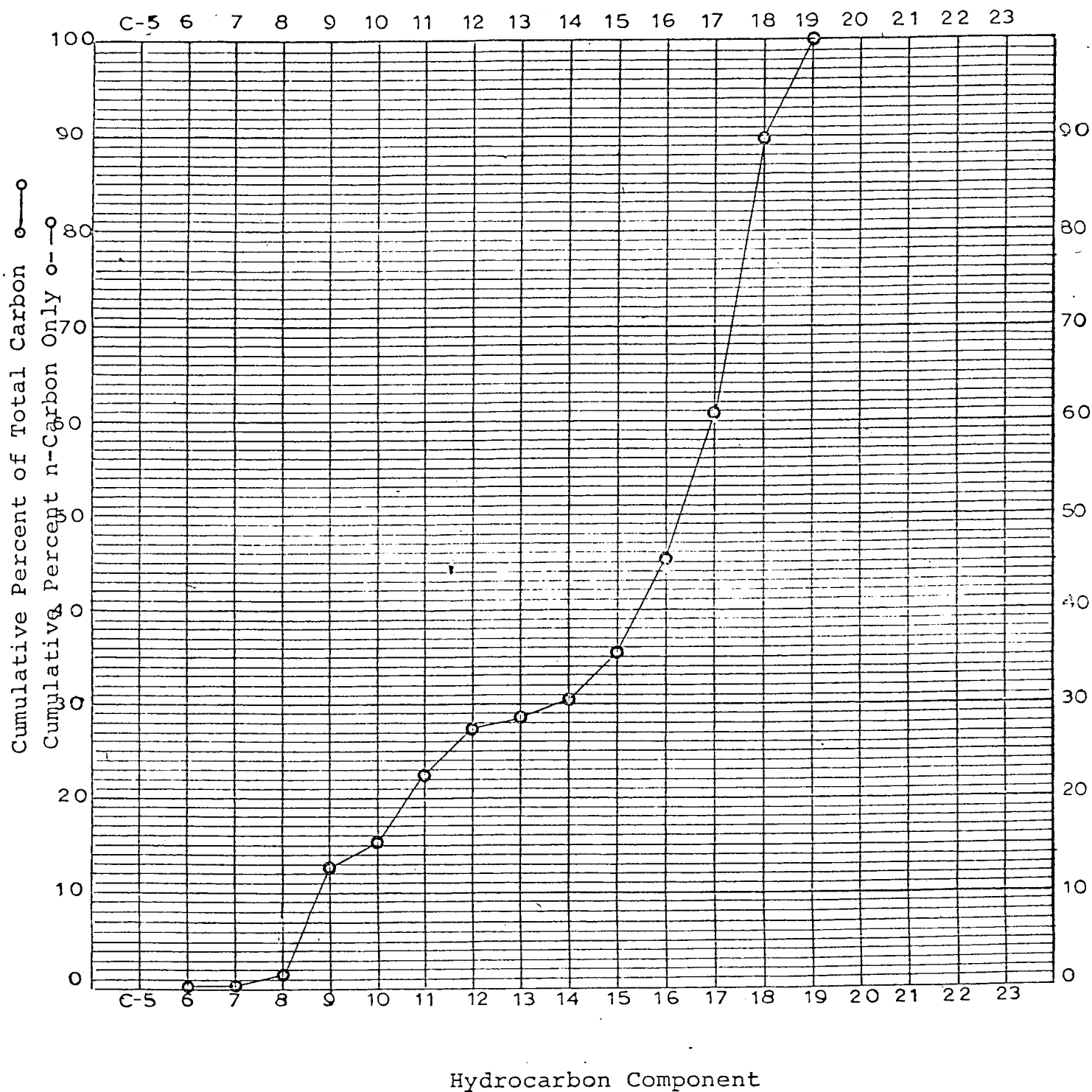


Company Cities Service Oil Co. Formation Council Grove
Well Alexander "D" No. 2 County Grant
Field State Kansas

Sample No: 29 Depth: 2983.5Total Carbon: 668,849

Company Cities Service Oil Co.
Well Alexander "D" No. 2
Field Formation Council Grove
County Grant
State KansasSample No: 30 Depth: 2986

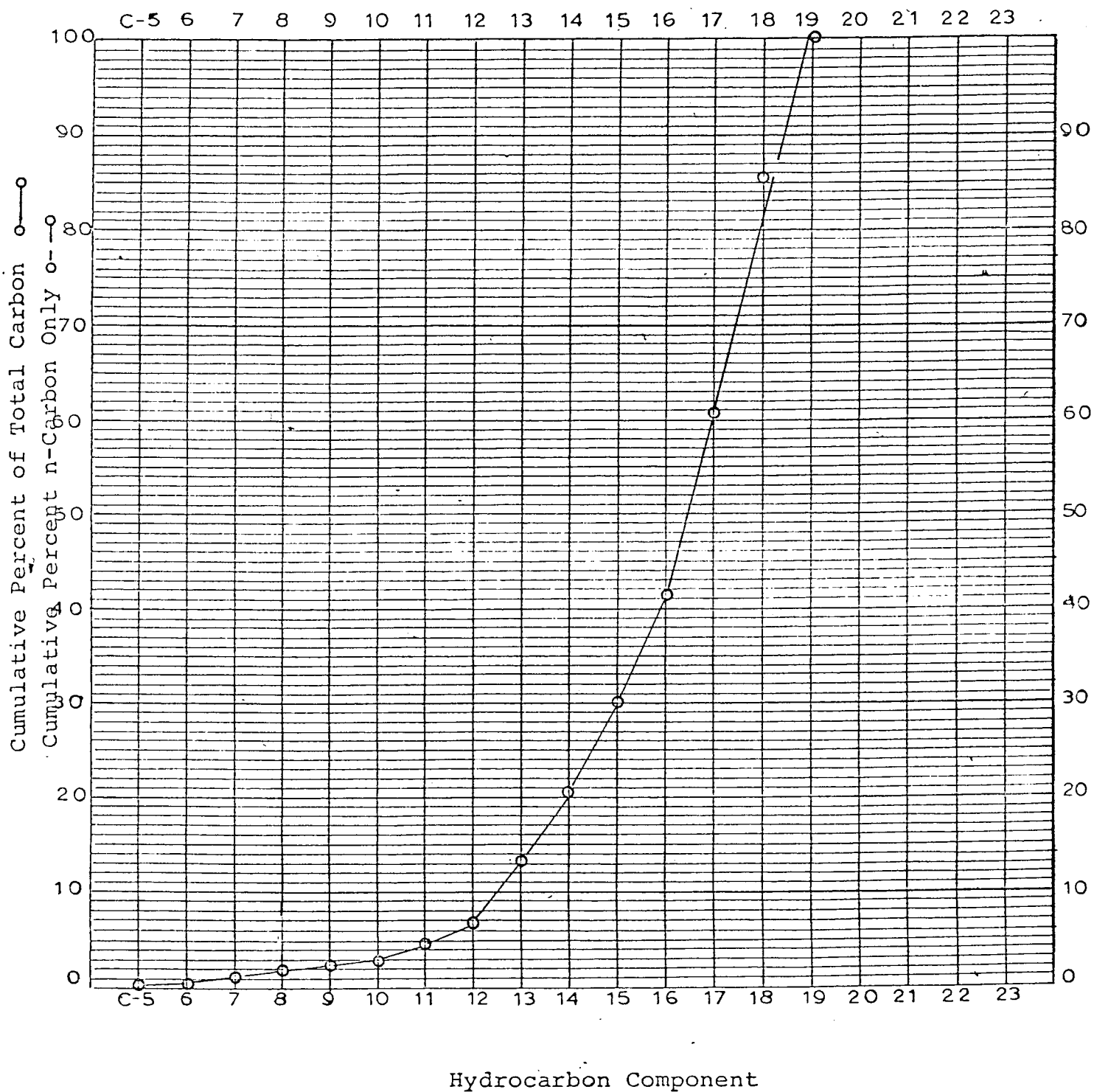
Total Carbon: 174,023

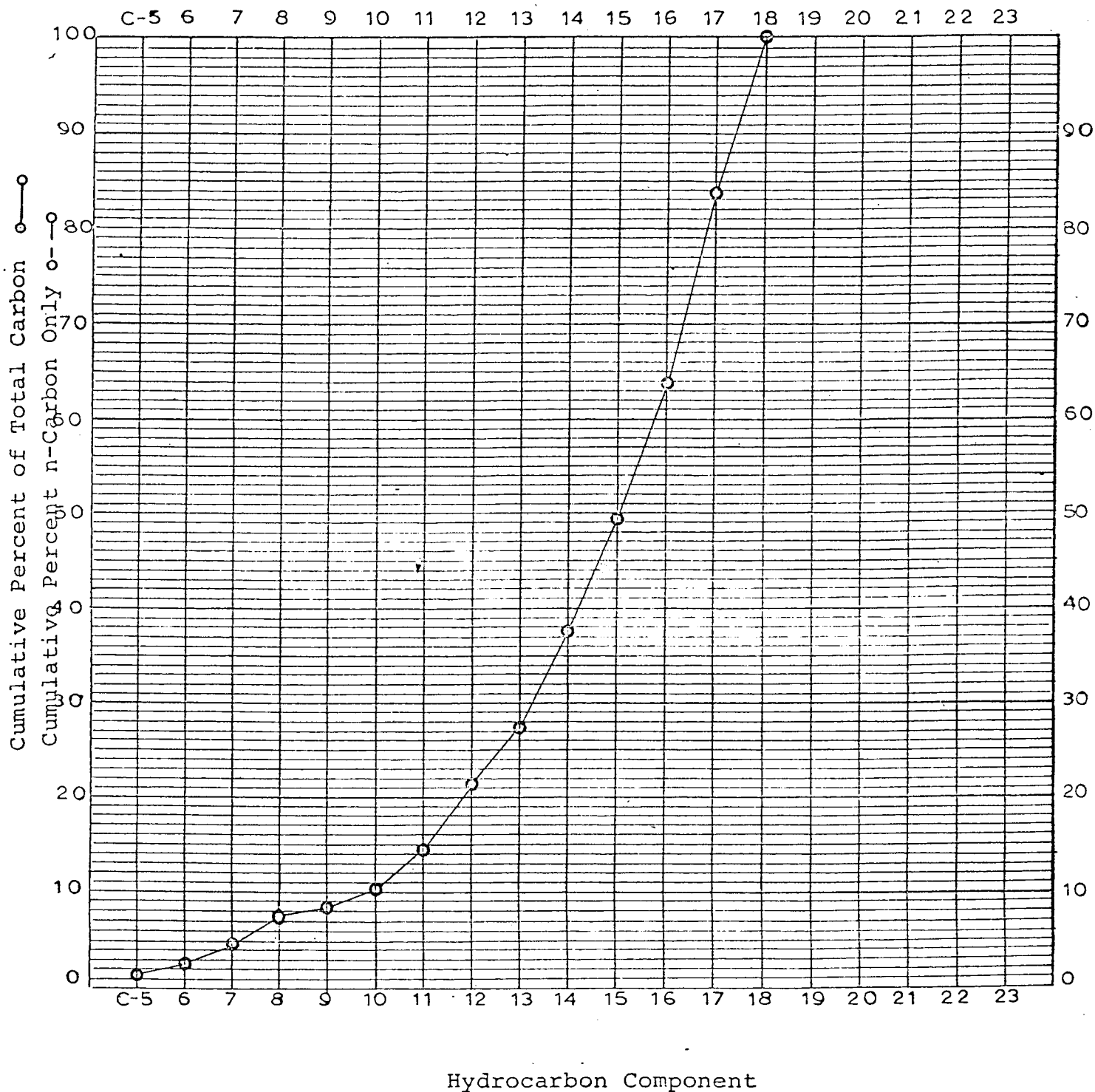


Company Cities Service Oil Co. Formation Council Grove
Well Alexander "D" No. 2 County Grant
Field State Kansas

Sample No: 31 Depth: 2993

Total Carbon: 679,481

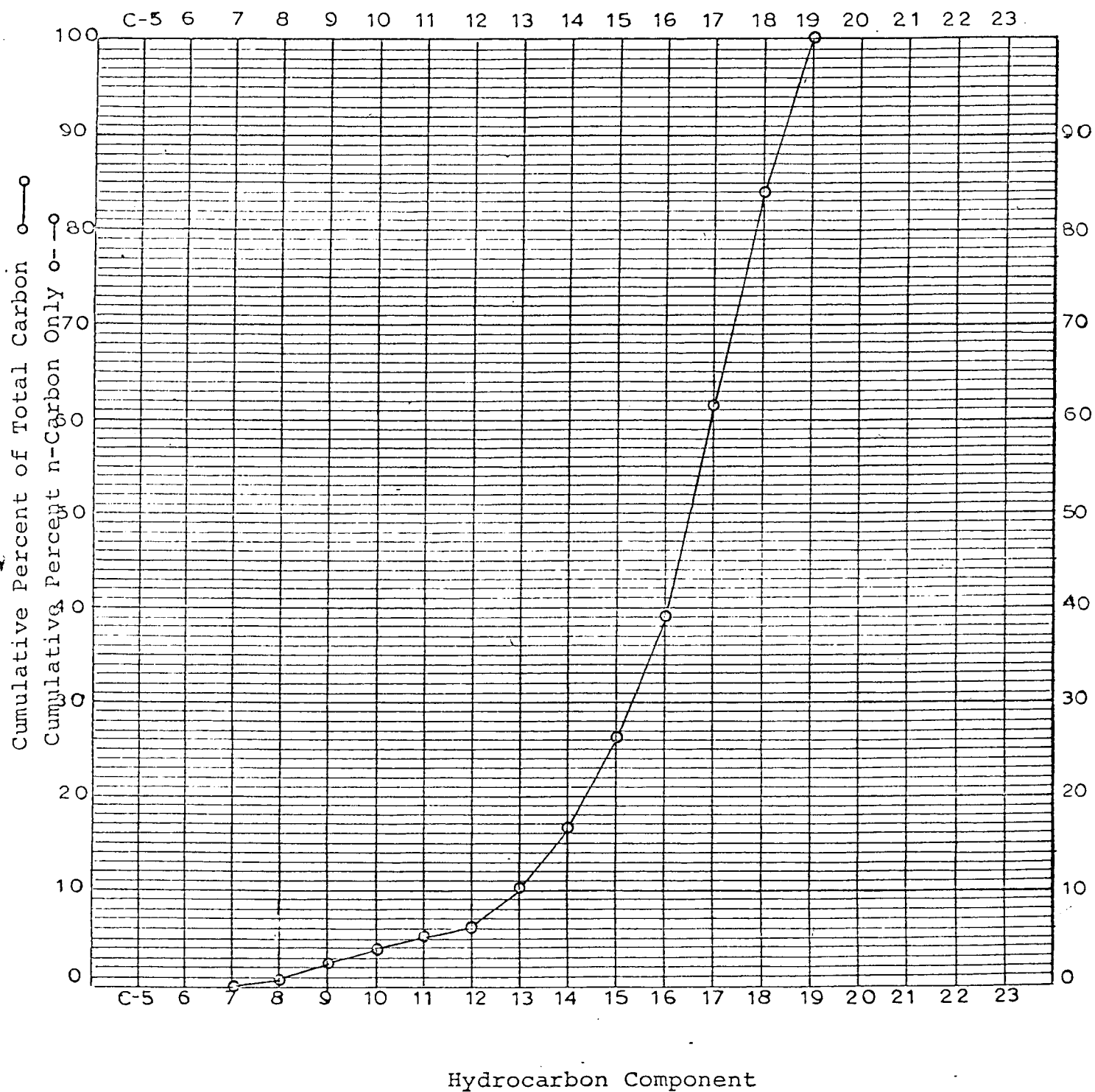


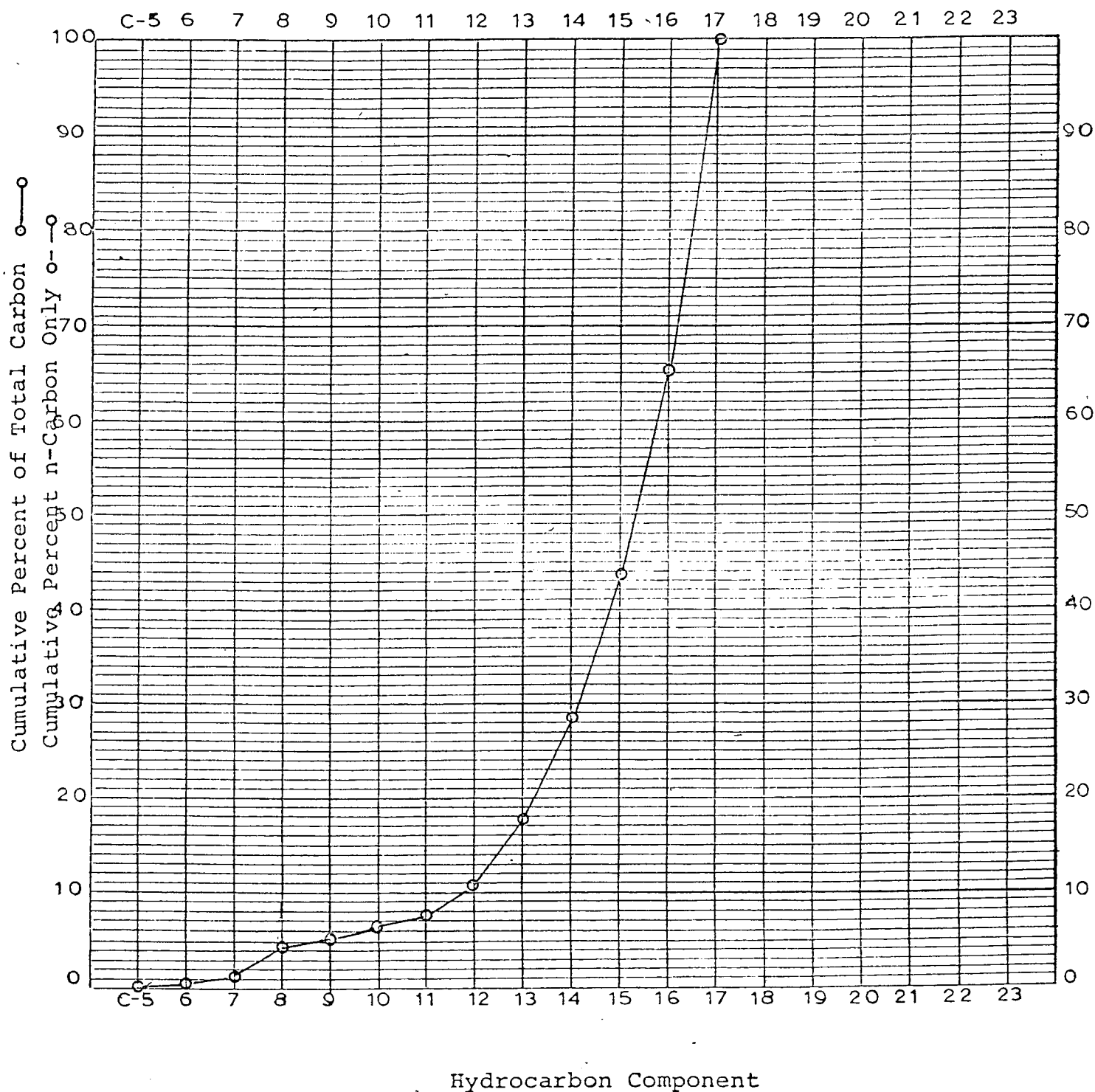
Company Cities Service Oil Co.Well Alexander "D" No. 2Field Formation Council GroveCounty GrantState KansasSample No: 32 Depth: 2997Total Carbon: 412,283

Company Cities Service Oil Co. Formation Council Grove
Well Alexander "D" No. 2 County Grant
Field State Kansas

Sample No: 33 Depth: 3002

Total Carbon: 346,309

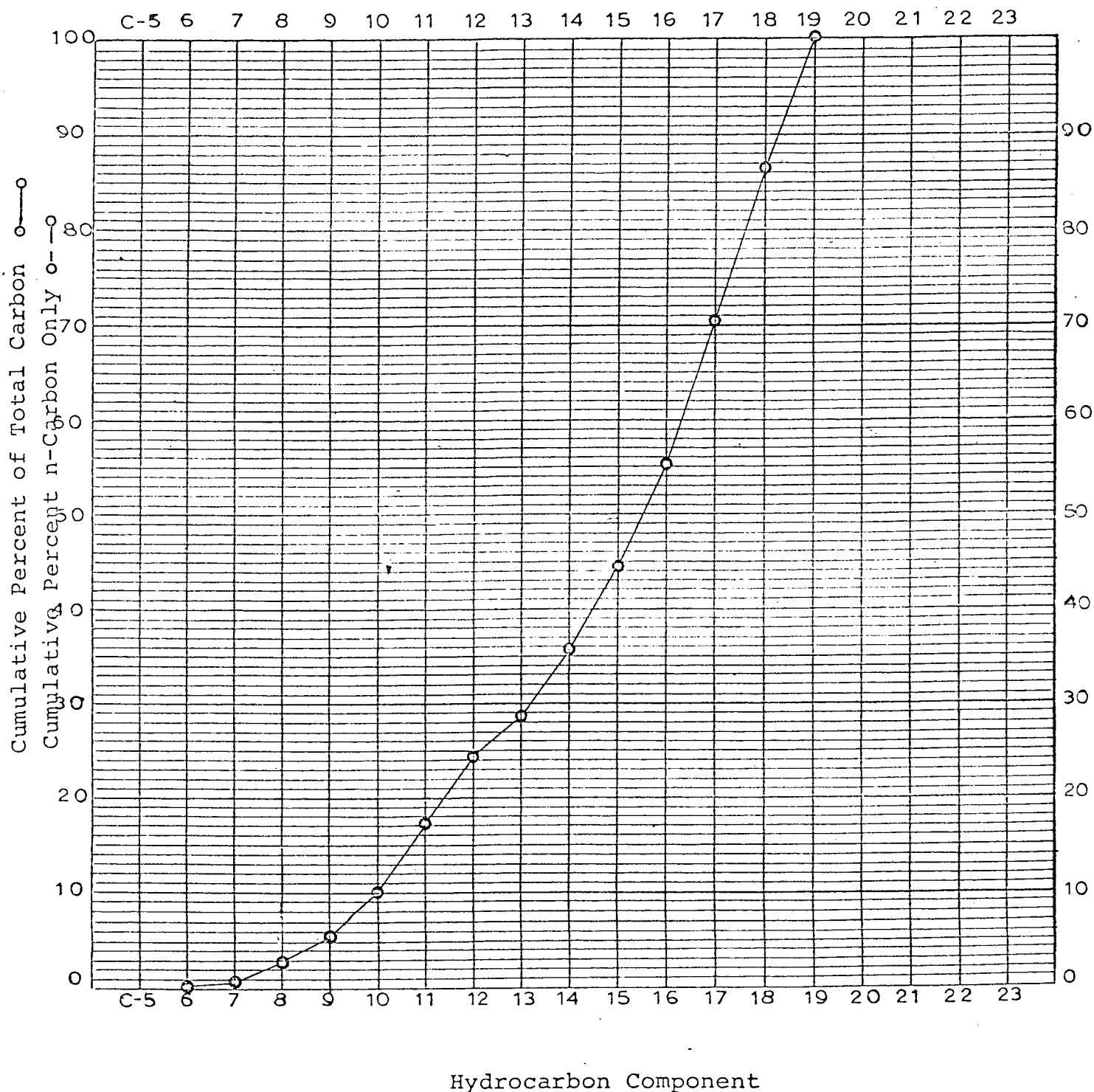


Company Cities Service Oil CoFormation Council GroveWell Alexander "D" No. 2County GrantField State KansasSample No: 34 Depth: 3010Total Carbon: 273,836

Company Cities Service Oil Co. Formation Council Grove
Well Alexander "D" No. 2 County Grant
Field State Kansas

Sample No: 35 Depth: 3016

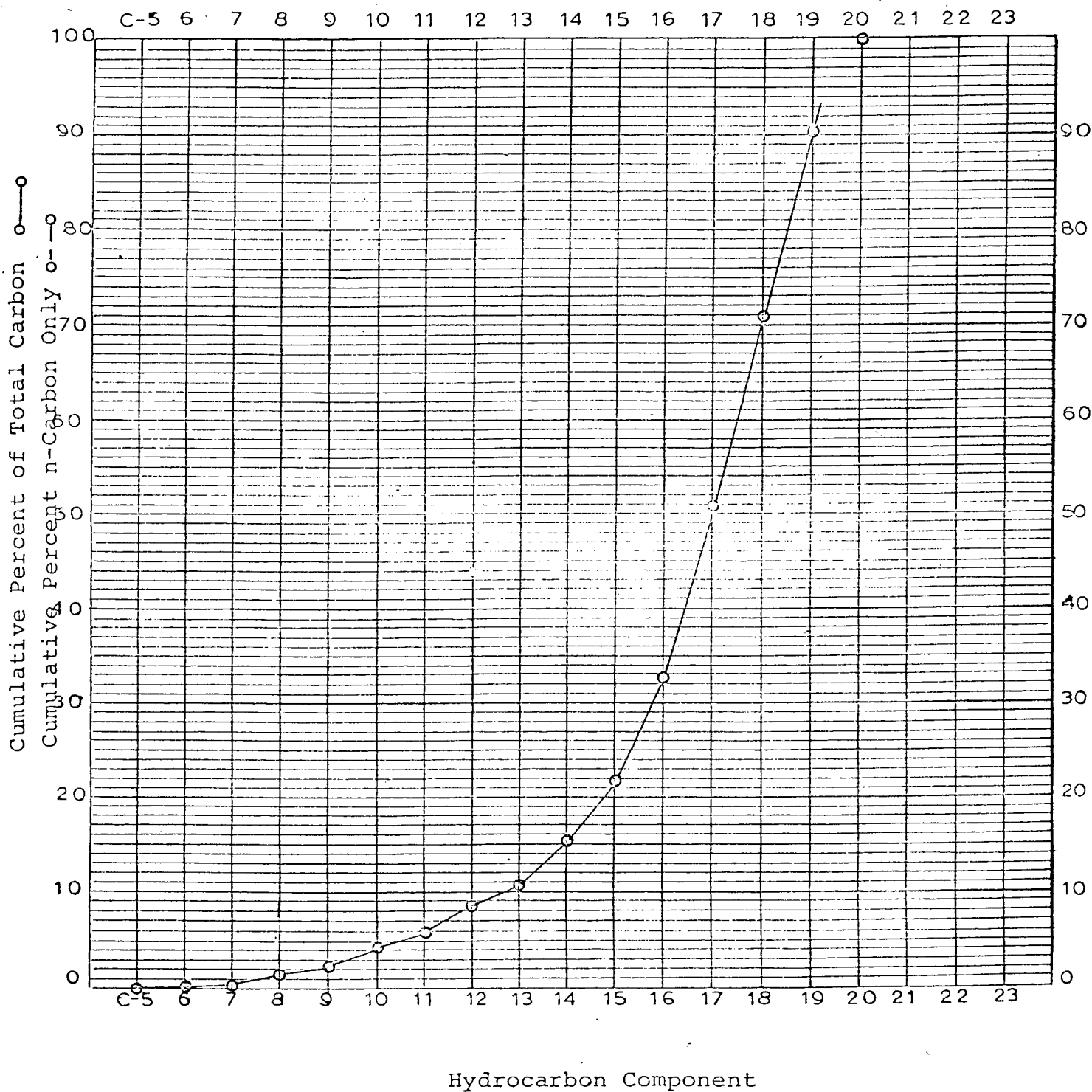
Total Carbon: 307,914



Company Cities Service Oil Co. Formation Council Grove
Well Alexander "D" No. 2 County Grant
Field State Kansas

Sample No: 36 Depth: 3023.5

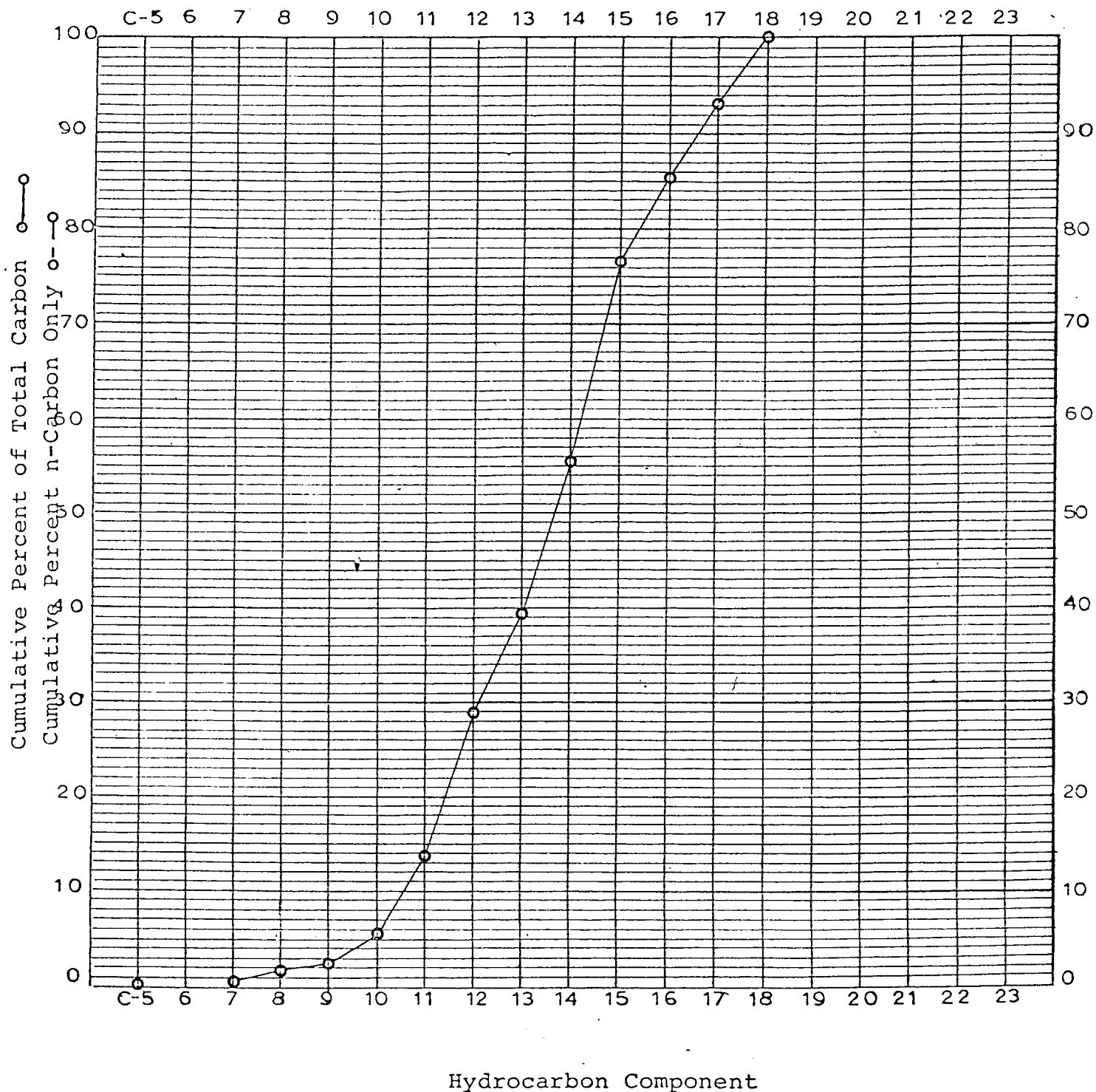
Total Carbon: 415,215



Company Cities Service Oil Co. Formation Council Grove
Well Alexander "D" No. 2 County Grant
Field State Kansas

Sample No: 37 Depth: 3026

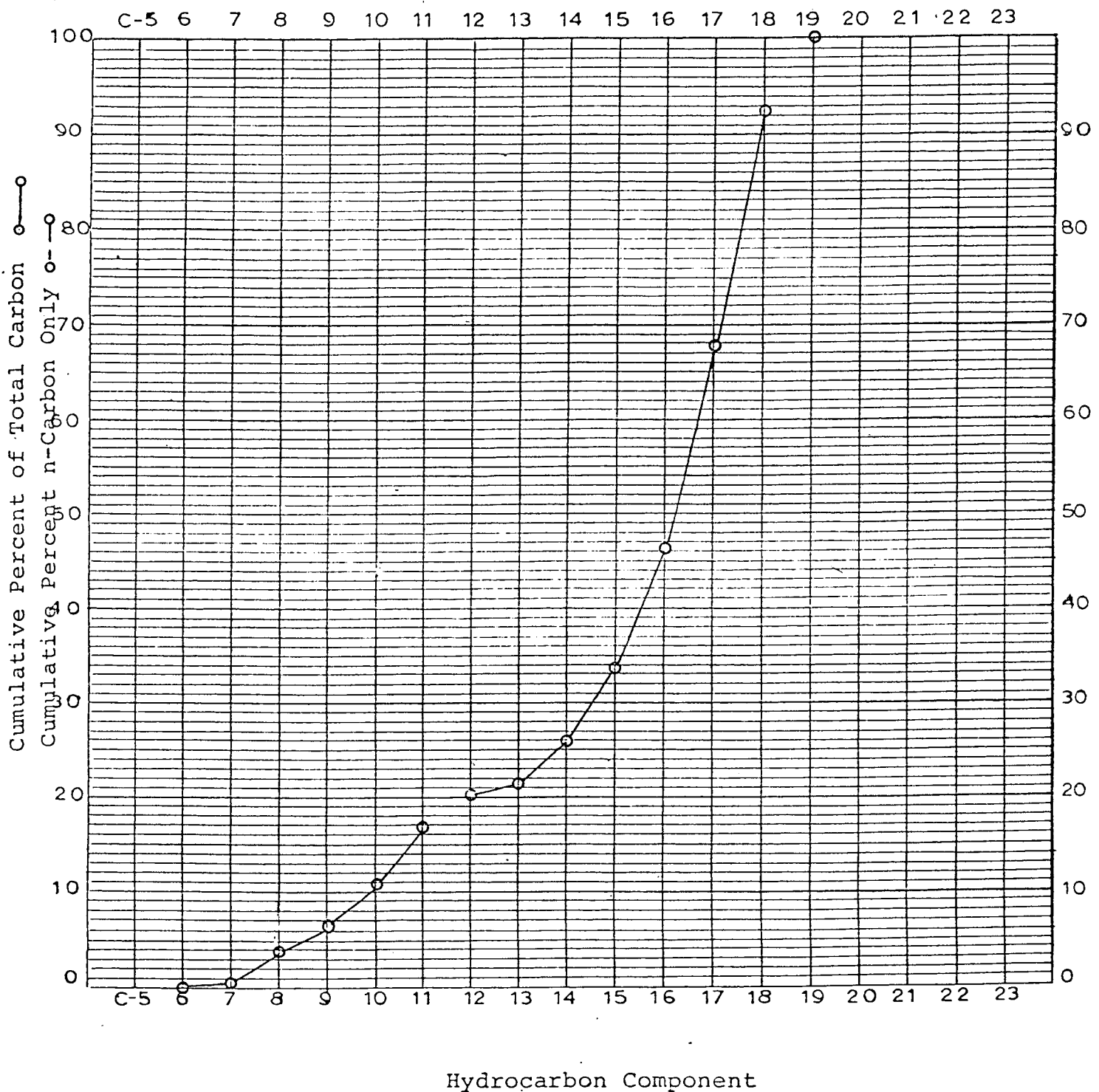
Total Carbon: 81,870

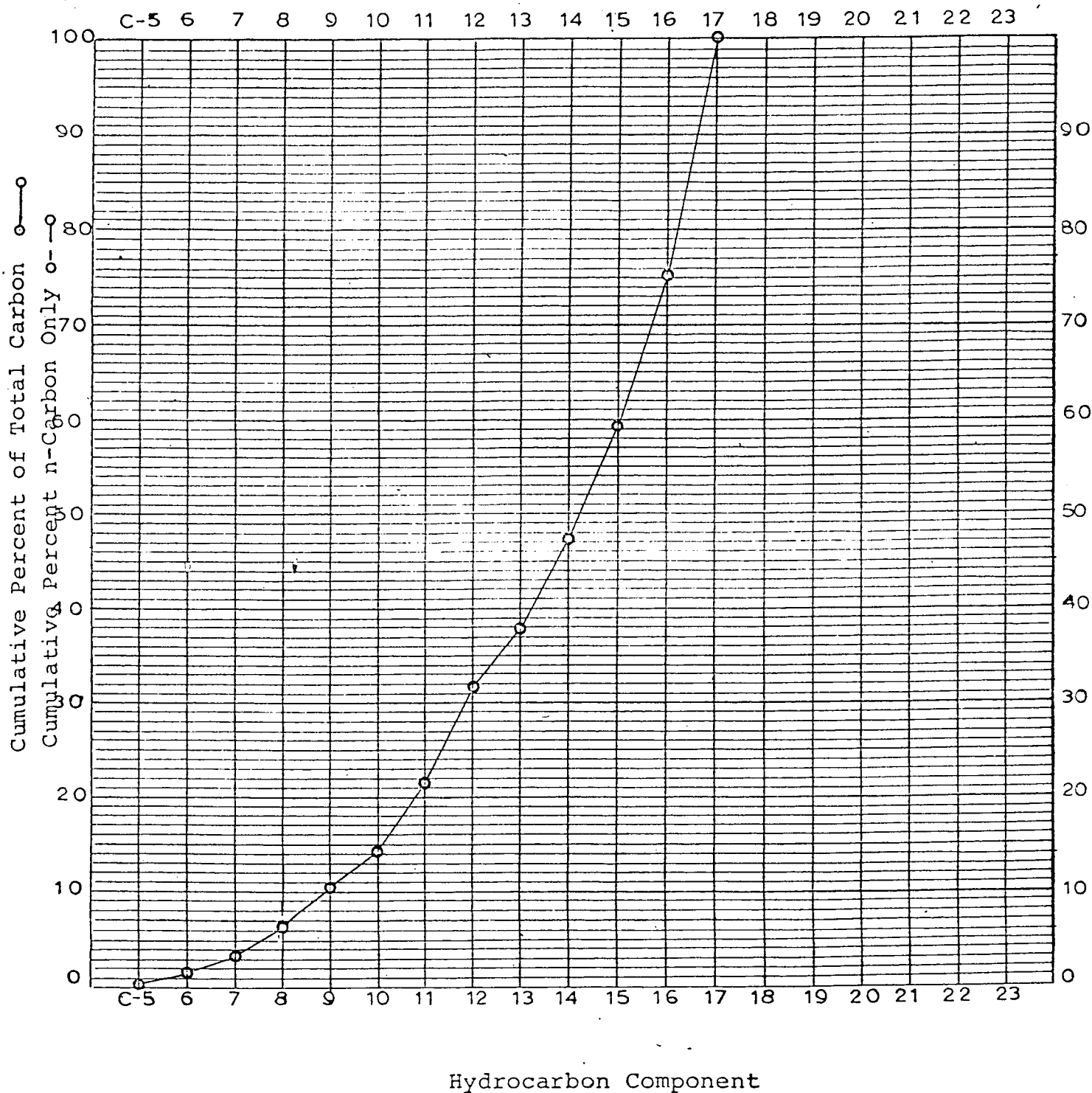


Company Cities Service Oil Co. Formation Council Grove
Well Alexander "D" No.2 County Grant
Field State Kansas

Sample No: 38 Depth: 3030

Total Carbon: 164,958

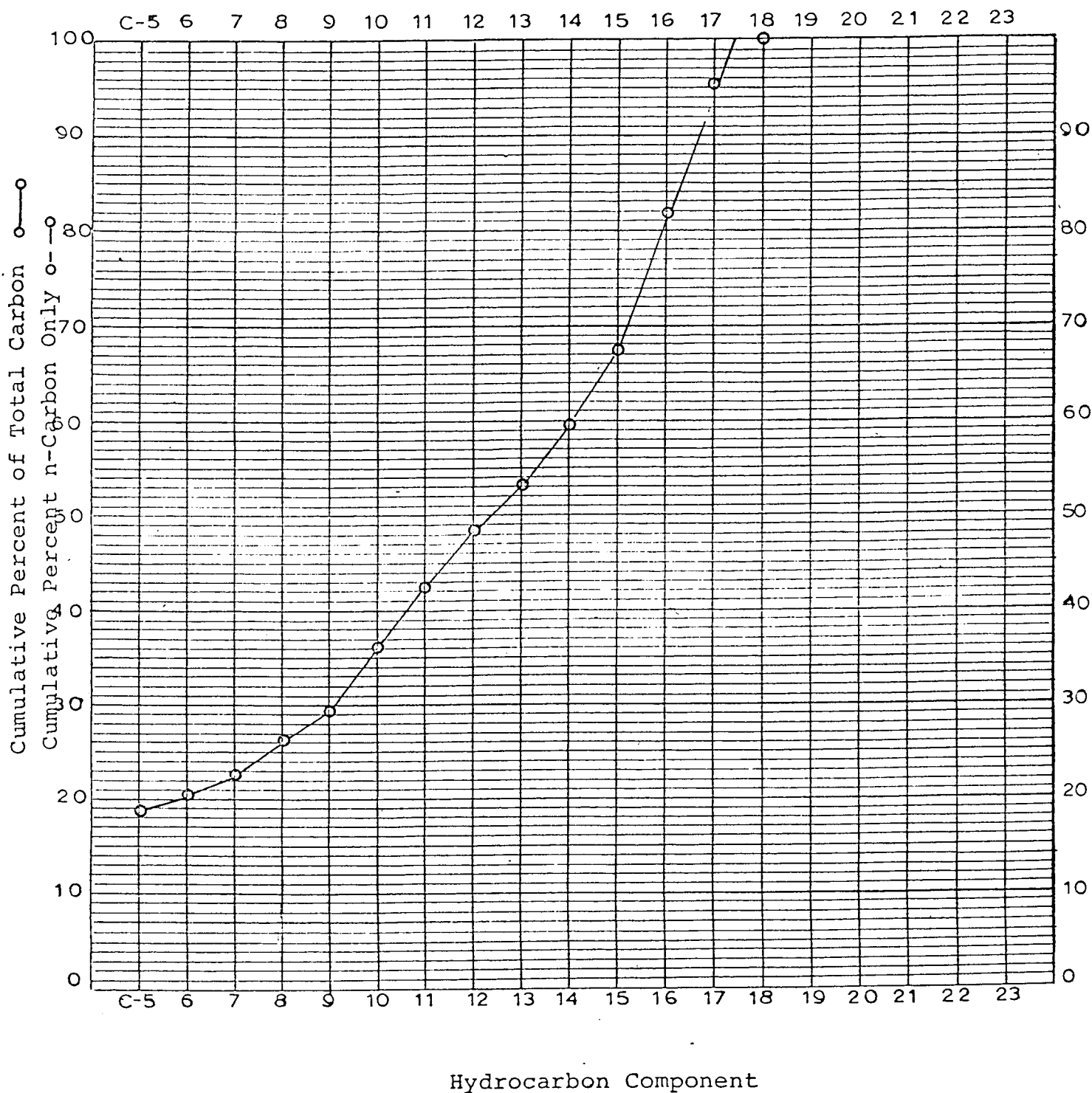


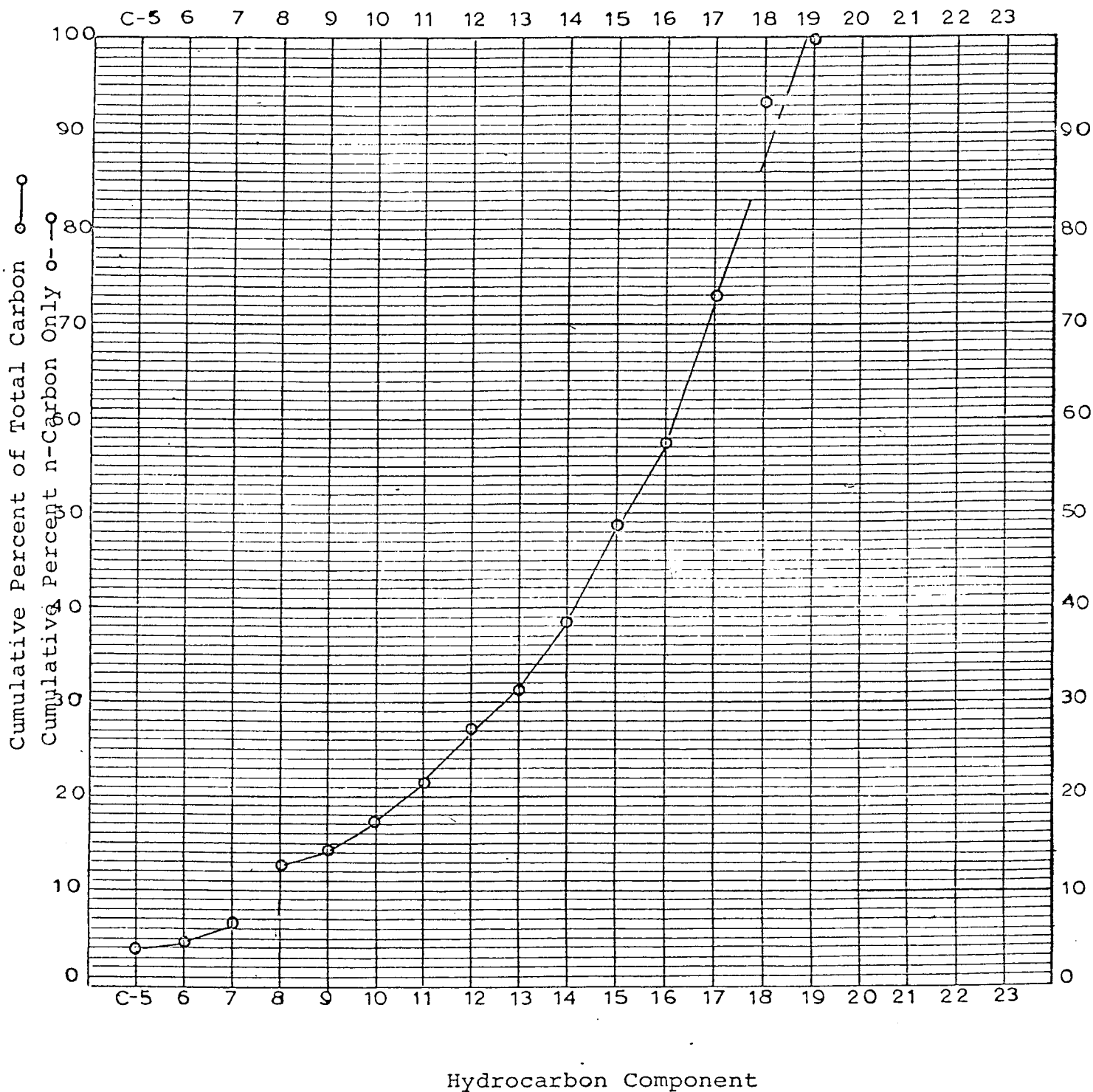
Company Citios Service Oil Co.Formation Council GroveWell Alexander "D" No. 2County GrantField State KansasSample No: 39 Depth: 3033.4Total Carbon: 173,864

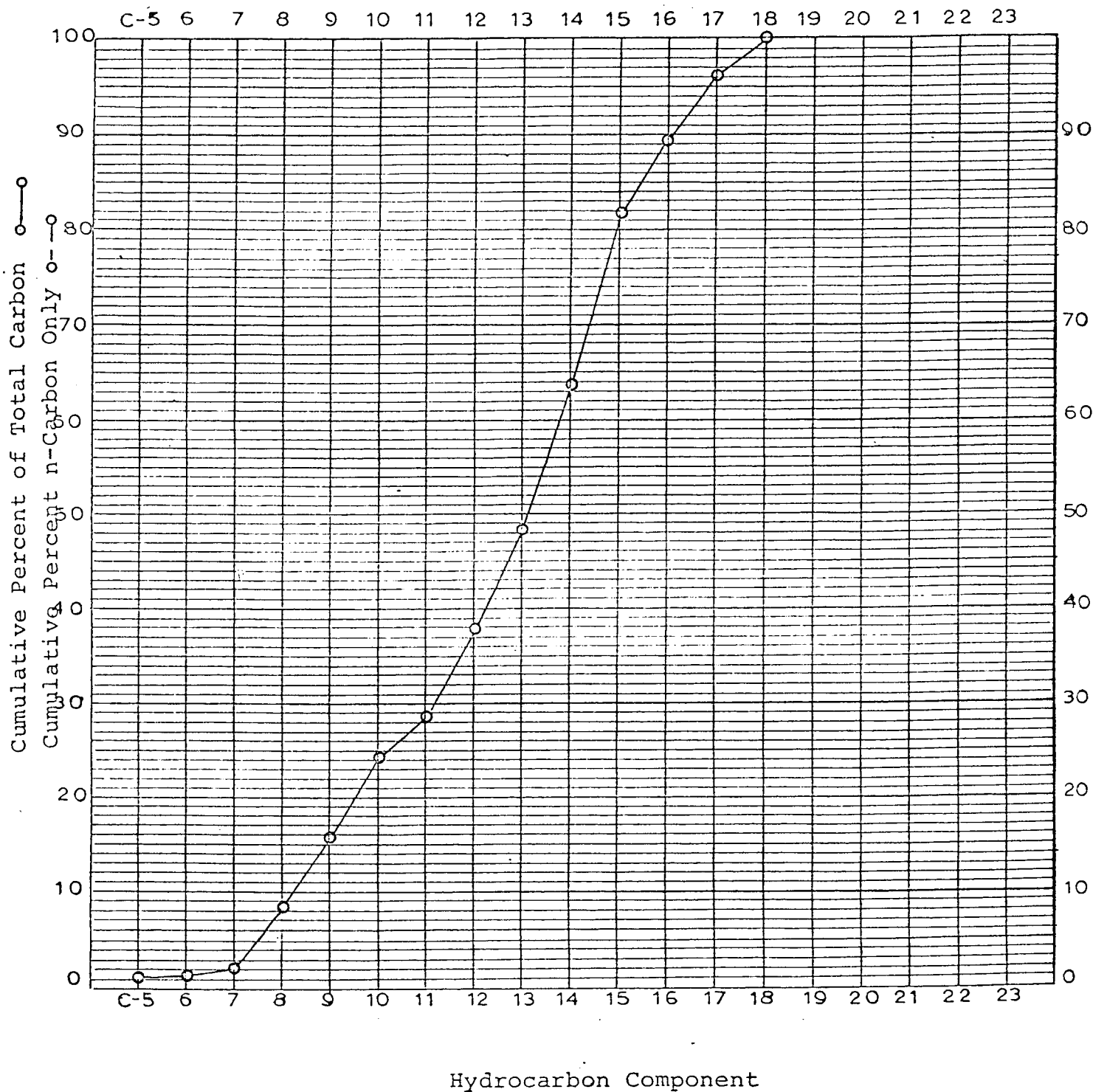
Company Cities Service Oil Co Formation Council Grove
Well Alexander "D" No. 2 County Grant
Field State Kansas

Sample No: 40 Depth: 3049

Total Carbon: 531,752



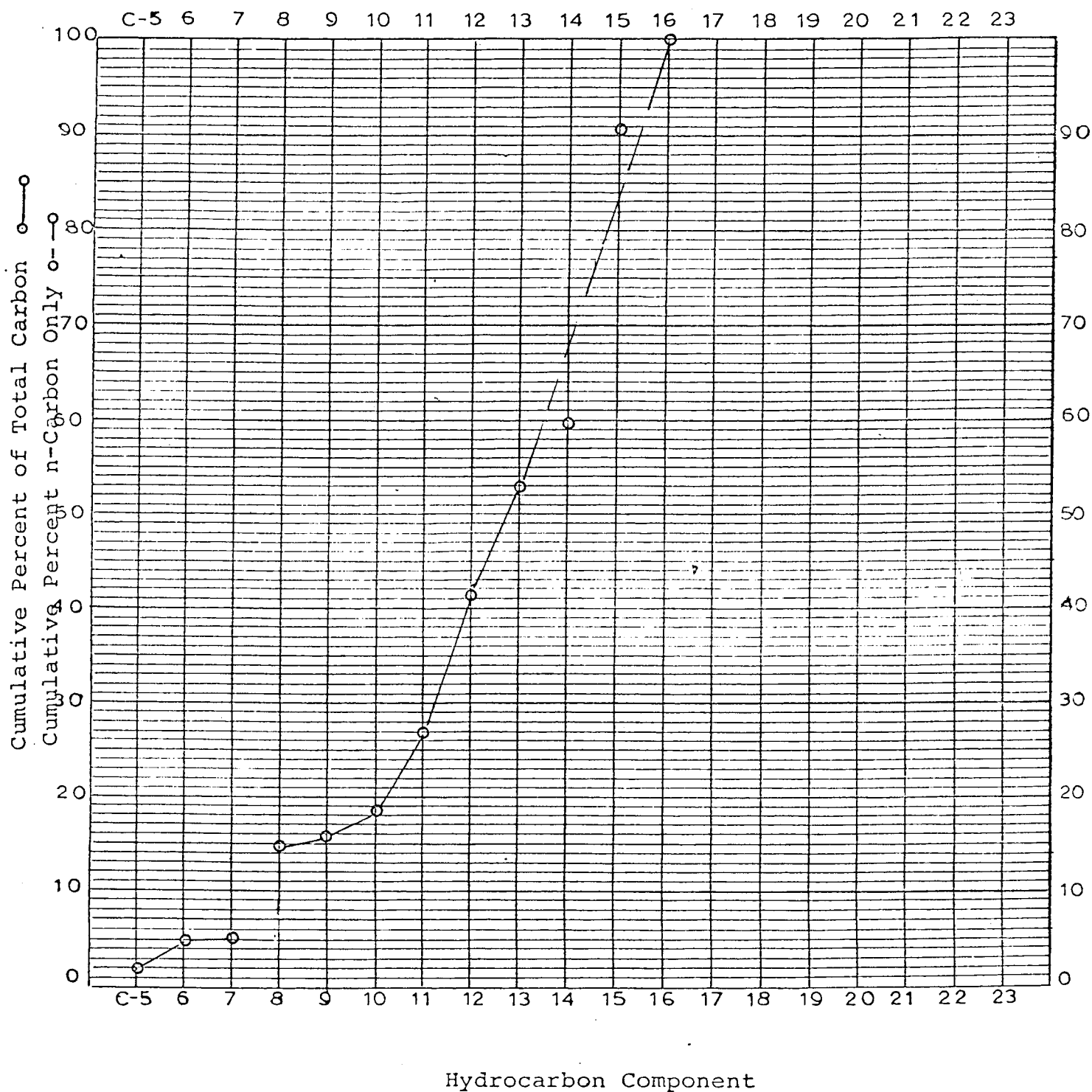
Company Cities Service Oil Co.Formation Council GroveWell Alexander "D" No. 2County GrantField State KansasSample No: 41 Depth: 3061Total Carbon: 920,219

Company Cities Service Oil Co.Formation Council GroveWell Alexander "D" No. 2County GrantField State KansasSample No: 42 Depth: 3064.2Total Carbon: 108,966

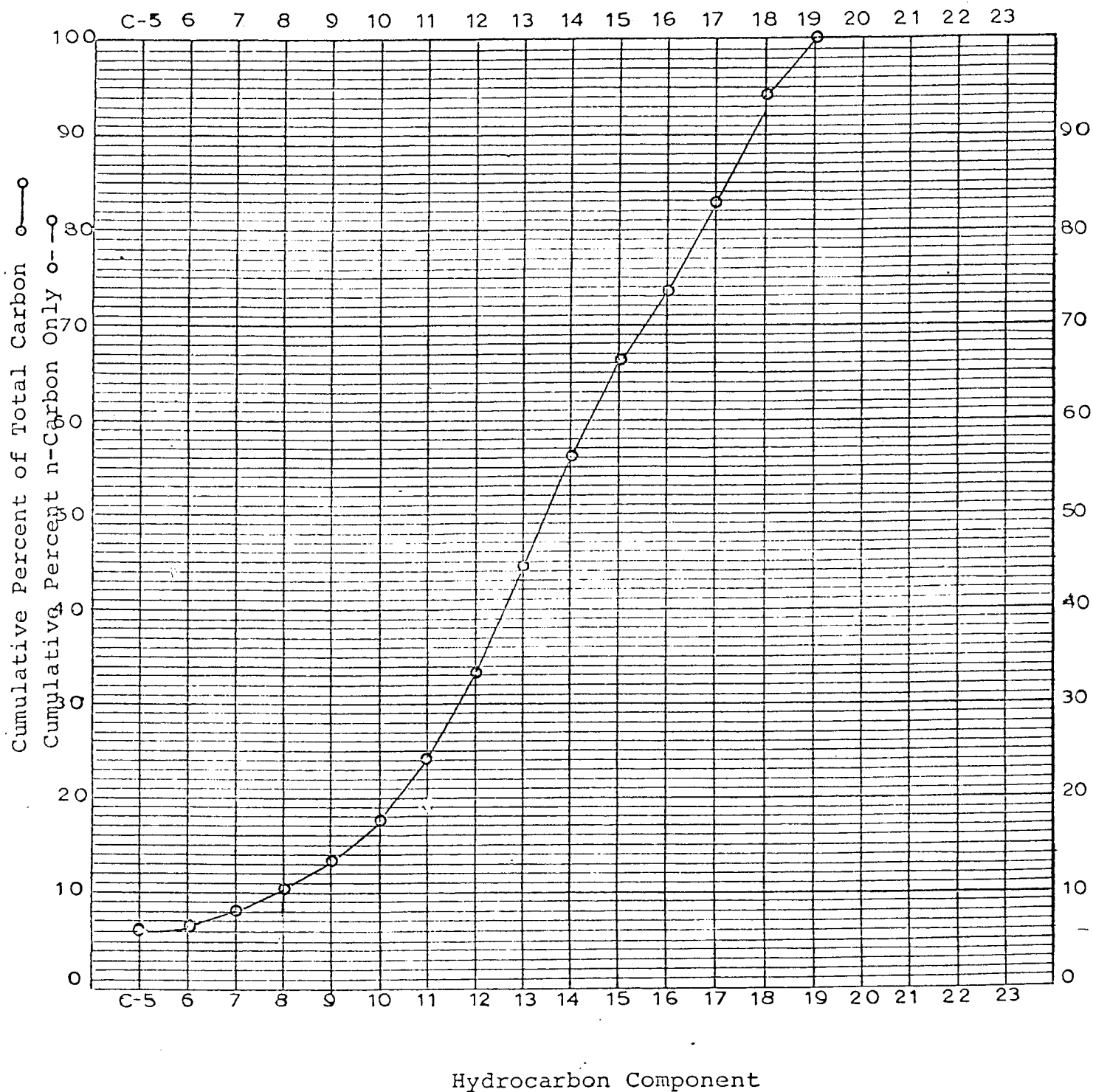
Company Cities Service Oil Co. Formation Council Grove
Well Alexander "D" No. 2 County Grant
Field State Kansas

Sample No: 43 Depth: 3066

Total Carbon: 150,004



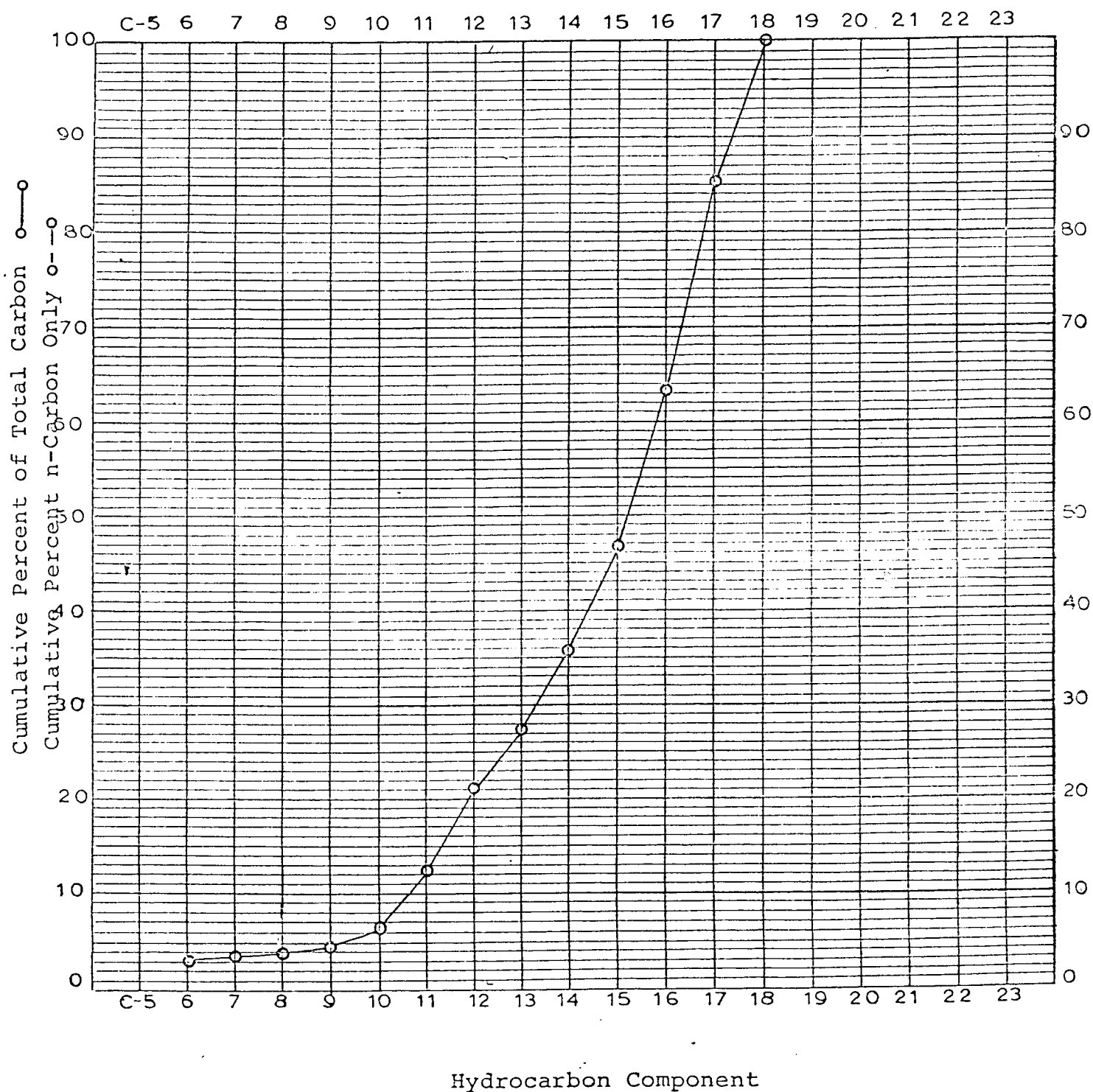
Dallas, Texas

File MGL 75 GC 40Company Cities Service Oil Co.Formation Council GroveWell Alexander "D" No. 2County GrantField State KansasSample No: 44 Depth: 3067Total Carbon: 764,551

Dallas, Texas

File MGL 75 GC 40Company Cities Service Oil Co.Formation Council GroveWell Alexander "D" No. 2County GrantField State KansasSample No: 45 Depth: 3070

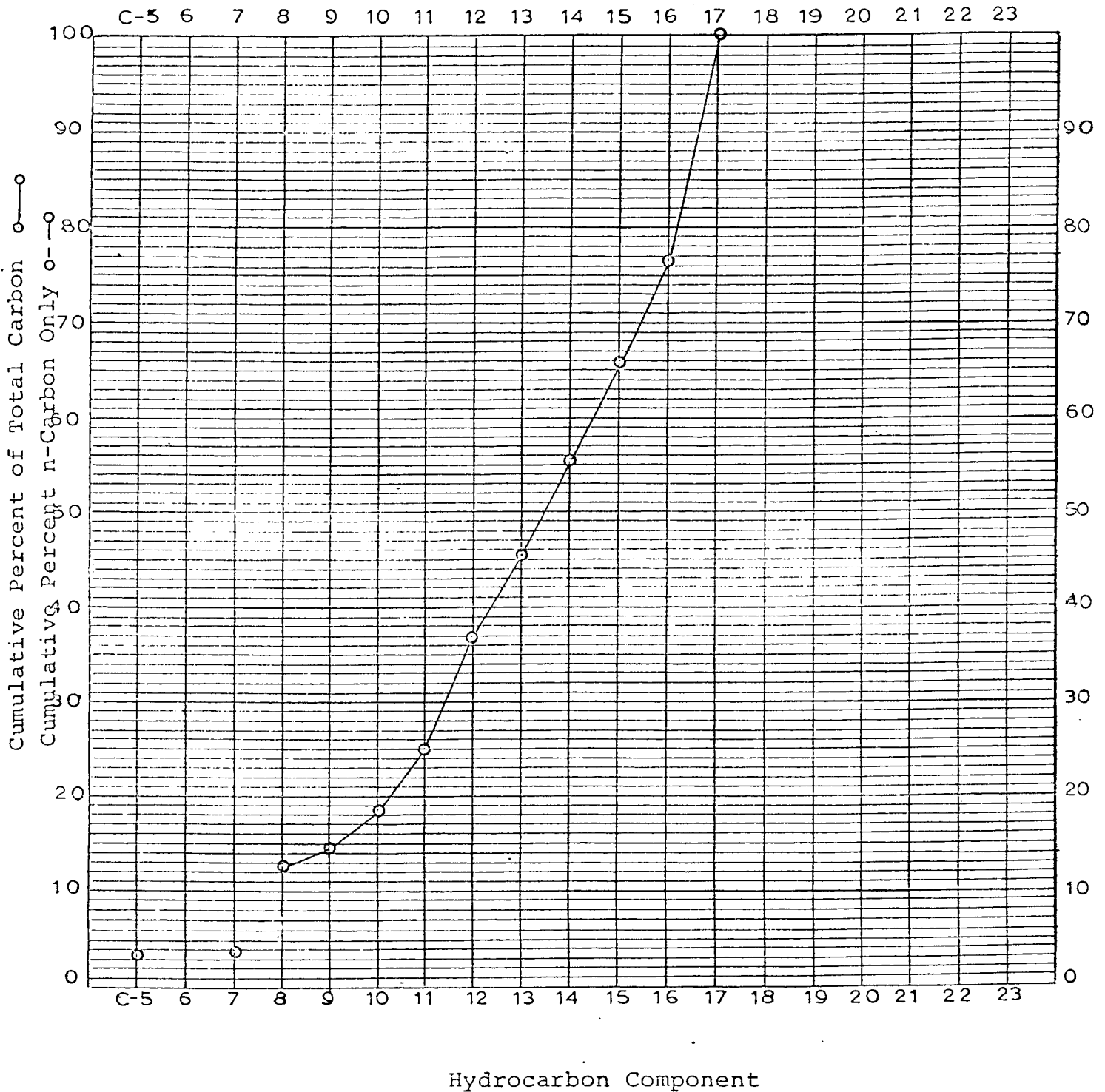
Total Carbon: 298,952



Company Cities Service Oil Co. Formation Council Grove
Well Alexander "D" No. 2 County Grant
Field State Kansas

Sample No: 46 Depth: 3073

Total Carbon: 385,783

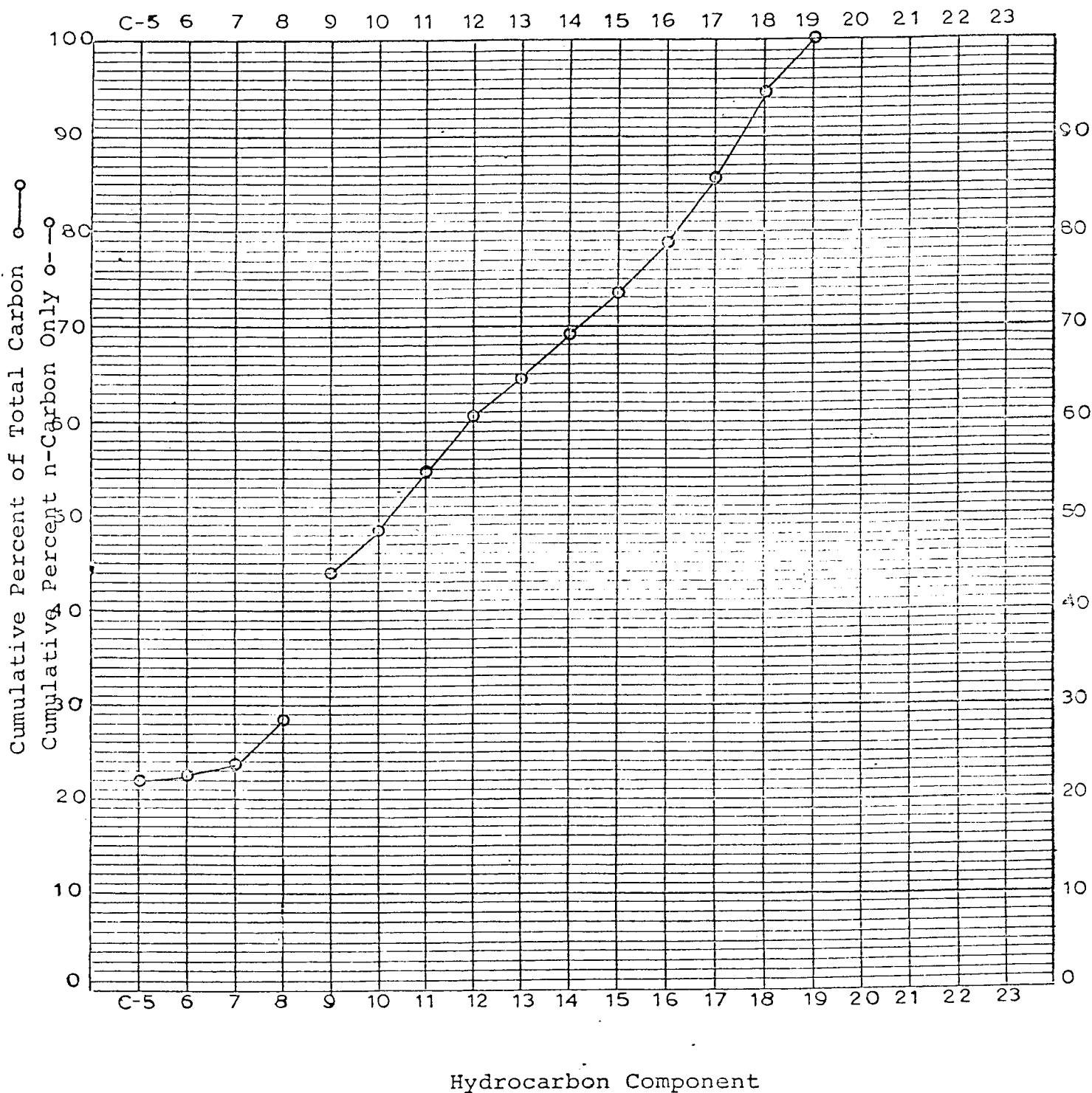


Company Cities Service Oil Co.
Well Alexander "D" No. 2
Field

Formation Council Grove
County Grant
State Kansas

Sample No: 47 Depth: 3077

Total Carbon: 949,085

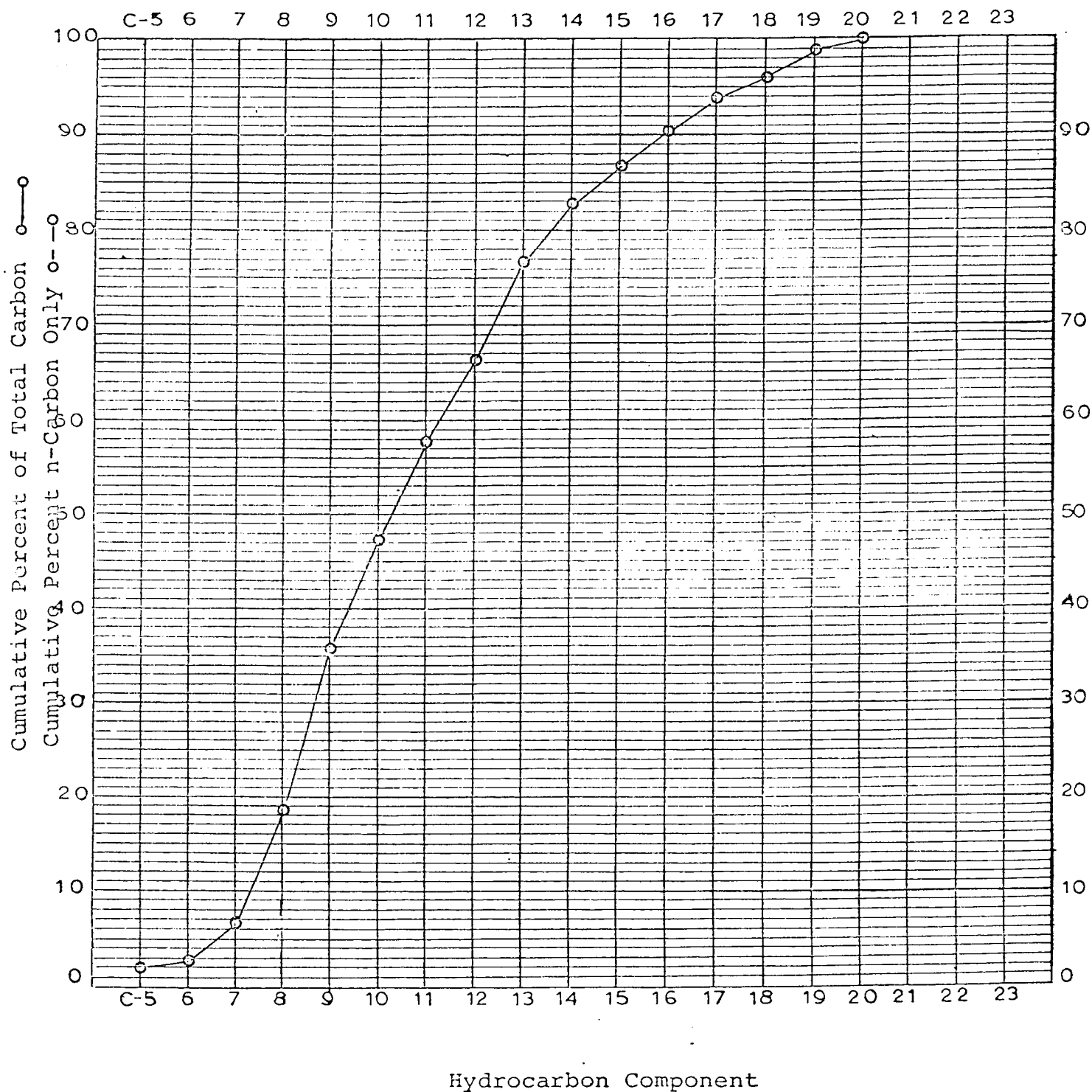


Company Cities Service Oil Co.Well Alexander "D" No. 2

Field _____

Formation Council GroveCounty GrantState KansasSample No: 48 Depth: 3096

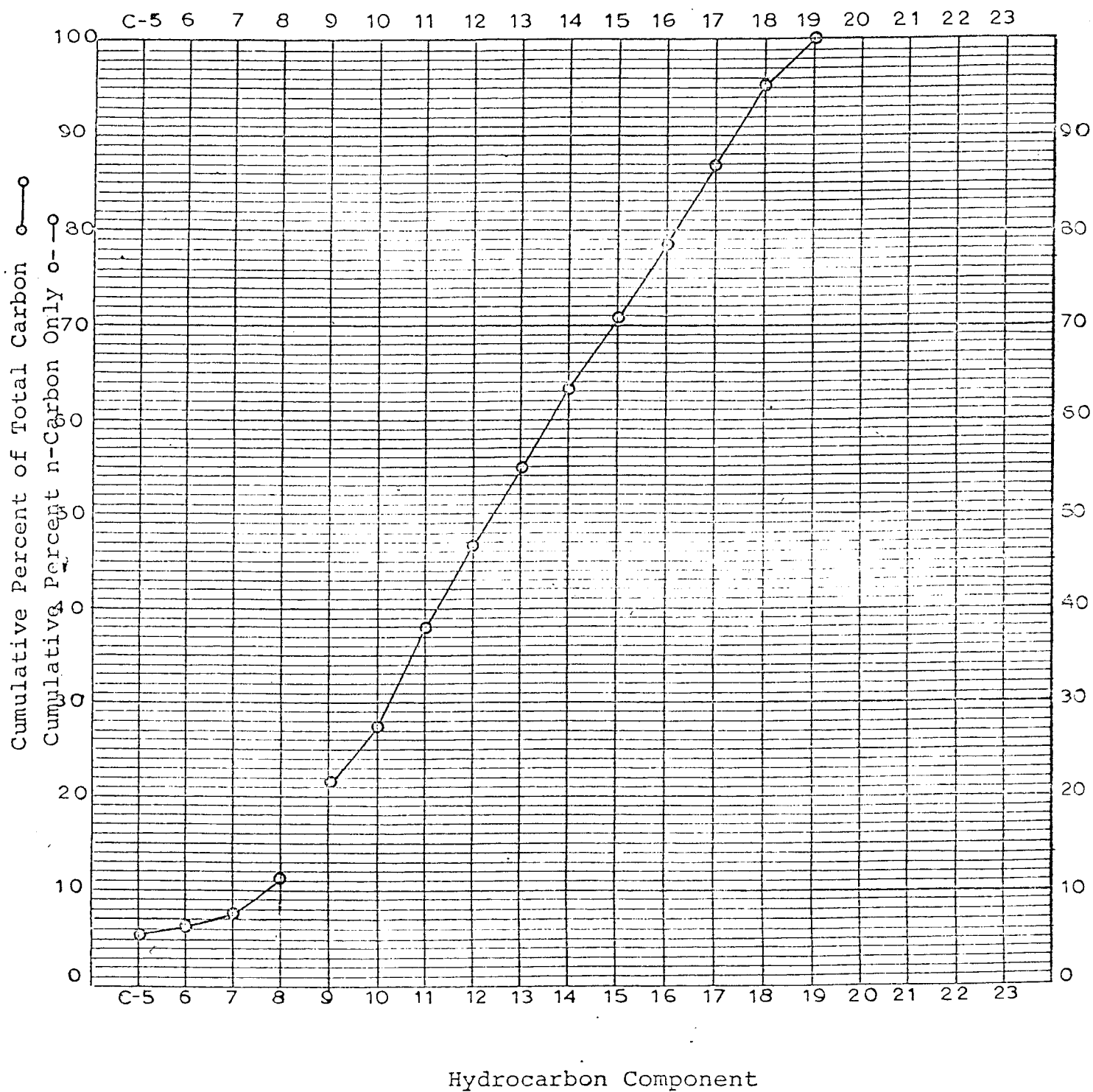
Total Carbon: 5,590,900



Company Cities Service Oil Co. Formation Council Grove
Well Alexander "D" No. 2 County Grant
Field _____ State Kansas

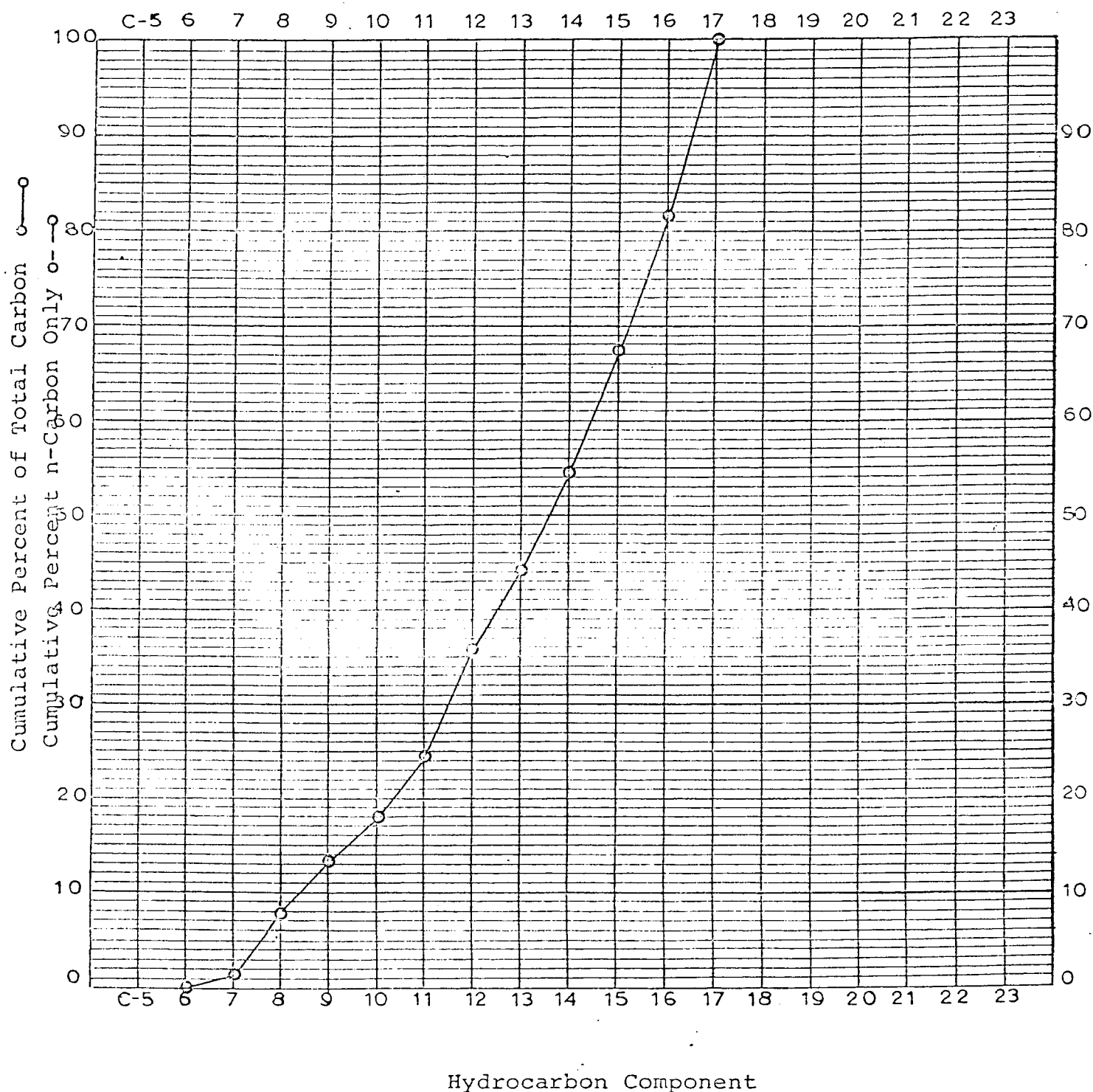
Sample No: 49 Depth: 3107

Total Carbon: 1,183,881



Company Cities Service Oil Co.Formation Council GroveWell Alexander "D" No. 2County GrantField State KansasSample No: 50 Depth: 3113.8

Total Carbon: 295,516



Company Cities Service Oil Co.Well Alexander "D" No. 2Field Formation Council GroveCounty GrantState KansasSample No: 51 Depth: 3117

Total Carbon: 458,448

