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DEPARTMENT OF MINES AND TECHNICAL SURVEYS

DEVONIAN ELK POINT GROUP, CENTRAL AND SOUTHERN ALBERTA

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Helen R. Belyea

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By
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DEVONIAN ELK POINT GROUP, CENTRAL AND SOUTHERN ALBERTA

The term Elk Point formation was introduced by McGehee (1949) for the variable sequence of beds between dolomites of Ordovician age and the carbonate-shale sequence of late Middle or Upper Devonian age, now known as the Beaverhill Lake formation in central and southern Alberta. The type section designated by McGehee is a composite of wells of the Elk Point area, townships 56 and 57, ranges 5 and 6, west of the 4th meridian. It is shown in Figure 2 and may be compared with Anglo-Canadian Elk Point No. 11 well in the same area, for which a radioactivity log is available. Belyea (1952) raised the Elk Point to group status and the term is used here as a group, in that it seems to contain separately mappable units that are not necessarily coextensive. McGehee (1949, Figure 2) included with the Elk Point not only the thick sequence of the type area, but thinner deposits in southern Alberta that occupy approximately the same part of the geological section. In this thin sequence, south of approximately township 40, separate units cannot yet be mapped extensively, and units present in the type section are missing. Hence, correlation with the type area is uncertain. Probably only the latest part of the Elk Point is represented and, in places, the entire section may be younger than Elk Point. These beds were previously designated by Belyea (1957 and 1958 a and b) as pre-Upper Devonian, but the term Elk Point of McGehee has precedence over Belyea's usage, and is here retained.

DISTRIBUTION

Sediments of the Elk Point group in northeastern Alberta were deposited in a northwesterly trending basin of deposition extending from southern Manitoba to the Northwest Territories, as shown by Crickmay (1954, Figure 2). A thick sequence, assumed to occupy the central part of the basin, contains from one bed to three, and locally four, beds of salts, largely halite, and was distinguished by Crickmay as the 'evaporite basin'. The south western limit of the salt deposits is indicated in Figure 1. Lithology, correlation, and attendant problems within the Elk Point 'basin' in Saskatchewan and Manitoba have been discussed by Baillie (1953, 1955), Buller (1958), Crickmay (1954), Van Hees (1956), and Walker (1957). Belyea (1952), Crickmay (1954), and Law (1955) discussed the group in north-central and northern Alberta.

SUBDIVISIONS

Crickmay (1954) subdivided the Elk Point group in the 'evaporite basin' into 9 informal members, using Anglo-Canadian Elk Point No. 11 in 2-21-57-5 W4th mer. as the reference well. These members are shown in Figure 2, Section A-A and are compared with McGehee's composite log and with the subdivisions of Van Hees and Law.

The following is a brief summary of the lithology of each member. Depths from McGehee's composite log that correspond to each of Crickmay's informal members are shown in parentheses.

Member 1 (corresponding to McGehee's composite log 2,705-2,760) consists of three units. From the top down they are: a red, green, or grey dolomitic, anhydritic shale, in places silty; a buff, sugary dolomite, or dolomite and anhydrite (McGehee 2720-30); and a red and green dolomitic shale, limestone, and anhydrite. Member 2 (McGehee 2760-3206) is the 'First Salt' of Alberta, and grades laterally to salt, anhydrite, dolomite, and shale (see Imperial Dinant No. 1 in Figure 2, Section A-A). This is the most extensive salt zone of the three. Member 3, correlated by Crickmay with the Winnipegosis formation, consists, from the top down, of: a shale unit less than 10 feet thick; a light brown limestone or dolomite containing zones with abundant organisms (including stromatoporoids); and a brown dolomitic shale and shaly dolomite unit that was excluded from the Winnipegosis formation by Van Hees (1956). Member 4 consists of shales, siltstones, and argillaceous dolomites, dominantly orange-red in colour. This member has been correlated with the Ashern by Van Hees in disagreement with Crickmay's (1954) correlation of the Ashern with members 7, 8 and 9. The contact between members 3 and 4 is subject to revision when the red-bed unit, member 4, is better understood. The two members are not readily separable in McGehee's descriptions, but together make up the interval 3206-3480. Member 5 (McGehee 3480-3635) is the 'Second Salt' of the Elk Point area and, underlying it, is a red shale. The latter was excluded by Van Hees from this member. Member 6 (McGehee 3635-3675) consists of white anhydrite and light grey limestone that carries ostracods. Member 7 (McGehee 3675-3702) is a thin, grey and red shale sequence. Member 8 (McGehee 3702-4135) is the 'Third Salt' of the Elk Point area. Member 9 (McGehee 4135-4262) consists predominantly of orange-red shales, siltstones, and anhydrite. It becomes sandy towards the base and contains scattered large quartz grains. Locally it is glauconitic. In Imperial Willingdon No. 1 well, a fourth salt zone occurs within it.

Members 1 to 4 were grouped together by Van Hees as the upper Elk Point; members 5 to 9 as the lower.

The lower Elk Point group of Van Hees extends into Alberta from Saskatchewan, following the southwesterly strike indicated by Buller (1958). About township 40 the trend of the margin must change from a southwesterly to a westerly direction, and west of the 5th meridian, swing still more to a northwesterly direction. The approximate margin, as estimated from information now available, is indicated on Figure 1. However, some part of the lower Elk Point may be present, though as yet unrecognized in the condensed Elk Point section in southern Alberta. Members 5 to 9 are separable only in sections in which the salt members occur. Elsewhere the entire section consists of shale, argillaceous and silty dolomite, and sandstone, much of which is red or green in colour. In places anhydrite is present. Limestone and limy shale beds occur in thicker sections. With present well control, definite correlation of members is uncertain. Changes in facies and the rapid wedging out of the unit are shown in Figure 2. The lower Elk Point in northeastern Alberta was designated by Belyea (1952) as the "lowest red bed and salt unit".

The lower Elk Point is overlain in the western part of the area by a sandy, pale dolomite, with grey, pink, and yellow tints. This unit is present in wells west of Imperial Dinant No. 1 well (see Figure 2). It was referred to as the "dense dolomite unit" by Belyea (1952). It may grade northeastward into the argillaceous dolomites of the lower part of member 3 or, as suggested by Van Hees (1956), it may be a part of member 4; it may be even lower in the section. Its correlation with sandstones and sandy dolomites in western Alberta is suggested (see Figure 2). A lithologically similar unit is present at the base of the Elk Point section in the California Standard Spotted Lake No. 4-21 well.

The upper Elk Point of Van Hees (1956), which includes members 1 to 4, is more extensive than the lower and is probably the only part of the Elk Point group present in southern Alberta. The four members are as yet separable only within the evaporite basin. Moreover, member 4, the basal 'red-bed' cannot be separated from the 'red-bed' sequence of the lower Elk Point much beyond the limits of the 'evaporite basin'. Member 3, is present not only in the evaporite basin but well beyond its limits. It is probably continuous with the Methy formation (Greiner, 1956), referred to as the stromatoporoid-coral-algal zone in northeastern Alberta by Belyea (1952). Member 3 seems to be present as far south as the California Standard Spotted Lake 4-21 well in 4-21-41-22 W4 from which D. J. McLaren (personal communication) identified *Emanuella richardsoni* (Meek), *Lingula* sp., stropheodontids, crinoid stems, and acanthodian fish fin-spines from 7,466-7,504 feet. He stated that "the collection is of Middle Devonian age. The *Emanuella* is very abundant in the Pine Point formation; it also occurs in the Winnipegosan." This fossiliferous marine limestone seems to change laterally to the southwest to fine-grained limestones and dolomites, and calcareous shales not yet clearly separable from the underlying and overlying units. Towards the margin of the basin of deposition marine and non-marine beds seem to intertongue. This interpretation is supported by the occurrence of acanthodian fish fin-spines, generally considered to be of freshwater origin, in close proximity to beds carrying marine fossils. Member 2, the 'First Salt' also wedges out to the southwest, (see Figure 2). That it may change laterally to anhydrite and brown, anhydritic, dolomitic claystones, is suggested by Imperial Dinant No. 1 well (see Figure 2). Member 1 is traceable at least as far as Imperial Eyot No. 1 well (see Figure 2) and seems to be present farther southwest and west. Law (1955) has suggested its correlation with the Watt Mountain formation to the northwest, and Van Hees (1956) correlates the dolomite bed between the red beds with the Dawson Bay formation in Saskatchewan.

Outside the area in which members 1 to 4 can be distinguished, the rocks consist of brown limestones and dolomites, light brown, argillaceous, anhydritic dolomite, and shales. Anhydrite beds are present in some wells. Shales are common and vary from greenish and brownish grey shales that carry marine fossils, to brown and green dolomitic and non-calcareous shales. Siltstones and sandstones increase in prominence westward. The variability of this sequence is illustrated by wells shown in Figure 2. A summary of the section in Imperial Canadian Superior Norbuck 2-6-47-4 well in 2-6-47-4 W 5 is given by Belyea (1958a).

None of the members found within the 'evaporite basin' can readily be recognized in the scattered wells drilled in most of southern Alberta in which the Elk Point is less than 200 feet thick. The sequence there varies from well to well, as shown in Figure 2. It consists of light brown and grey dolomitic shales, argillaceous and sandy dolomites, fine-grained brown limestones, anhydrite, shale, and sandstone. Red and green colours are common. The sequence is extremely variable in thickness and the isopachs drawn there are subject to revision as more wells are drilled. This group seems to form a basal Devonian sequence and may include time equivalents of the lower part of the Beaverhill Lake formation as well as the Elk Point group (see Belyea, 1958b, and Figure 2). It is also not certain whether this group includes beds equivalent to both the lower and upper Elk Point.

AGE

The Elk Point group was assigned to the Middle Devonian by McGehee (1954), and Crickmay (1954) supported this thesis. Since that time some discussion has arisen about the age of the lower Elk Point. Van Hees (1956) suggested a Lower Devonian age and Walker (1957) has proposed an Ordovician age for lower Elk

Point beds in Saskatchewan. More recently, Buller (1958) has supported the idea of a Middle Devonian age for these beds. No definite evidence has been obtained from the lower Elk Point beds in Alberta.

UNDERLYING SEDIMENTS

The Elk Point group rests on truncated Cambrian and Ordovician sediments, the distribution of which is indicated by symbols in Figure 1.

In eastern Alberta the Elk Point, there consisting only of the upper three members, overlies finely crystalline dolomites that are continuous with the Upper Ordovician of Saskatchewan (Warren, in McGehee, 1949). The edge of the Ordovician dolomite comes into Alberta from Saskatchewan at about township 53. There it has a southwesterly strike (see Buller, 1958), but gradually swings south and then southeast.

In southwestern Alberta, in wells indicated in Figure 1 by squares, the Elk Point rests on limestones probably continuous with those shown by Raasch and Campau (1957) in the California Standard Parkland No. 4-12 well in 4-12-15-27 W4, as Middle Cambrian in age.

Between these two areas and northward over most of the map-area the Elk Point was deposited on interbedded light grey, calcareous, glauconitic siltstones and green, brown, and maroon micaceous shales generally referred to the Upper Cambrian (McGehee, 1949). In this area the position of the contact of the Elk Point with the Cambrian is not always certain, as Cambrian sediments may be reworked in the basal Elk Point or weathering and staining of Cambrian strata may cause them to resemble the overlying Elk Point. Moreover, facies changes in the Upper Cambrian in the northwestern part of the map-area are not yet thoroughly understood and these may also have led to inaccuracy in selecting the Elk Point-Cambrian contact. In this study the glauconitic siltstones and maroon shales have been placed in the Cambrian and the orange-red shales and siltstones with scattered, large, sand grains have been placed in the Elk Point.

In western Alberta, in wells shown in Figure 1 by triangles, the Elk Point rests in fine- to coarse-grained, poorly sorted, quartzose sandstones. These are white at the top, grade downward to red, and contain interbedded red and green shales. These sandstones may be in part correlative with the sandy beds included in the Elk Point group in Figure 2, but definite correlation depends on more closely spaced well control.

Sandstones of more than one age may occur in this area. Professor P. S. Warren of the University of Alberta (personal communication) states that "the sandstones occurring below the Devonian in the Altoba and Canyon Clearwater well had Lower Ordovician elements in a Deadwood (Upper Cambrian) fauna". This suggests that Cambrian and Ordovician may both be present but difficult to separate as in Montana and elsewhere (see Lochman and Duncan, 1950). A sandstone bed underlies strata of Elk Point lithology and overlies unfossiliferous dolomites in the northwest corner of the map-area. DeMille (1958, Figure 3) showed the dolomites in Fina Stanolind Hudson's Bay Windfall 12-36 well in 12-36-59-15 W5 as Upper Cambrian, presumably placing the overlying sandstones in the Devonian. This is probably the most satisfactory interpretation for the age of the sandstones that can be given at this time. As to the age of the underlying beds, C. H. Crickmay (personal communication) has identified, from 10,203 feet in the Fina Stanolind Hudson's Bay Windfall 12-36 well, Lingulella sp. which he refers to the Upper Cambrian; and at 10,916 feet he identified Dictyonina sp., Ptarmigania sp., Glossopleura sp., and Alokistocare sp. of Middle Cambrian age. From Fina Stanolind Hudson's Bay Sundance 15-29 well, 15-29-55-17 W5, in which the base of the Elk Point sandstone is 12,000 feet, Crickmay identified the following, from 12,224 feet, as Upper Cambrian: Cystidea sp. ind., Lingula sp. ind., Orbiculoidea sp. ind., Platycolpus sp., and Dunderburgia sp.

BASIN DEVELOPMENT

Some inferences regarding the development of the Elk Point basin of deposition may be drawn from the distribution of members and variations in lithology and thickness. Deposition of the lower Elk Point was restricted to the northern part of the map-area only. To the south and west the carbonate members and salts disappear abruptly and are replaced by a thin red shale and sandstone unit, or, as in the California Standard Spotted Lake 4-21 well, they appear to be missing entirely (see Figure 2). To the southeast, at the Saskatchewan border, the lower Elk Point terminates as it does in Saskatchewan against truncated Ordovician carbonates as indicated by Buller (1958) and Van Hees (1956), or as a facies change of a part of the group as suggested by Walker (1957). The southeast boundary of the lower Elk Point beds in Alberta, where well control is poor, has been plotted on strike from its boundary in Saskatchewan following the curve of the isopachs. The upper Elk Point unit, thick in northeastern Alberta, thins rapidly towards the margin of the evaporite basin then more gradually into southern and southwestern Alberta. This thinning results from the abrupt termination of the salt beds, member 2, and the wedging out of the marine limestone, member 3, to the south and west, while, concomitantly, sandstones and red-coloured sediments appear in that direction. This evidence points strongly to the presence of a relatively positive area in southern and southwestern Alberta during deposition of the whole of the Elk Point group. Gradual subsidence of this area allowed the Elk Point deposits to onlap the high ground to the southwest, the uppermost member, member 1, being the most extensive. A period of relative stability may have closed Elk Point deposition, as there is little evidence of leaching of the salt zone, member 2, in spite of its thin cover. The southernmost part of Alberta may have remained relatively high for a longer time and, in fact, red sediments and sandstones included in the Elk Point there may be younger than any present in the Elk Point basin proper (see also Belyea,1958b).

The distribution of the sediments on which the Elk Point beds rest suggests that relatively positive areas were present in southern Alberta before the Elk Point was deposited and that the Elk Point sediments reflect, to some extent, the topography of the underlying surface. Thus, beds of Elk Point aggregating a small thickness overlie Upper Cambrian strata of wells in townships 26 to 30, ranges 18 to 24, west 4th meridian, and Middle Cambrian limestones occur under a thicker Elk Point section in the flexure to the south. Also, in the northern part of the map-area, thick lower Elk Point deposits are restricted to an area bounded to the southeast by Ordovician carbonates and to the west by dolomites dated as uppermost Cambrian by deMille (1958). Upper Cambrian siltstones and shales underlie, from east to west, Ordovician, lower Elk Point and Upper Cambrian(?) dolomites. This suggests that lower Elk Point deposits are thick because they occupy a former topographic basin between the carbonates. However, some modification of the pre-Elk Point topography has almost undoubtedly resulted from differential subsidence within the basin during deposition of the Elk Point.

Both northeasterly and northwesterly trends predominate in the configuration of the Elk Point basin; for example, the northeasterly bearing of the margin of the lower Elk Point in eastern Alberta and northwesterly direction of the margin of the evaporite basin. Also, northeasterly trending flexures divide the positive area of southwestern Alberta into noses, one extending from the southwest corner of the province, another from the mountains about the latitude of Bow River. Similar trends appear in beds below the Elk Point; a northeasterly bearing escarpment is shown by Buller (1958, Figure 3) to have been a feature of the sub-Devonian erosion surface and to have marked the northwest margin of the Ordovician carbonate facies. In southern Alberta the trend of the margin of the Ordovician is northwesterly. Along this line the Ordovician strata thin rapidly southwestward. These trends may be an expression of pre-Devonian erosion only or they may be indicative of structural weakness or movements that controlled both the depositional and erosional patterns of the pre-Devonian sediments. In the latter case they may reflect lines of weakness, for example, faults or joint systems, within the Precambrian basement. The arch in southern Alberta and northern Montana may result from the crossing of the northeasterly and northwesterly elements and may point to two sets of structural movement. It is notable that both northeasterly and northwesterly striking faults are shown in the Precambrian Shield on the Tectonic Map of Canada (1950). Moreover, Sikabonyi (1957) indicates both an arch or tectonic high in southern Alberta and northeasterly trending noses on the present Precambrian surface in the plains area.

The linear reef chains of the upper Devonian have been shown in Figure 1 superimposed on the Elk Point group so that trends in them can be compared with Elk Point and earlier trends. Parallelism of Upper Devonian reefs with basement faulting was suggested by Goodman (1951). Further to Goodman's suggestion a glance at the map shows that there is some correspondence between the location of the reef chains and curves in the Elk Point isopachs, although the latter are based on widely spaced wells. The shelf-margin reef complex of eastern Alberta follows closely the wedge edges of the Ordovician carbonates and the lower Elk Point beds. The southern end of the Rimbey-Meadowbrook reef chain seems to parallel the Elk Point isopachs. Farther north it may follow a fault system, as suggested by Goodman (1951). Other analogies may be drawn between Upper Devonian reef development and the Elk Point. For example, the stromatoporoid reefs of the basal Beaverhill Lake formation in southern Alberta (see Belyea, 1957) correspond to the break from areas where the Elk Point is thin (tectonic high) to areas where it is thick (tectonic low). The southwesterly trending Elk Point embayment north of the Princess area in southern Alberta may be reflected in the Duvernay embayment which is flanked to the southeast by stromatoporoid reefs (see Belyea, 1958c). Furthermore, the northeast front of the Redwater reef corresponds closely with the northwesterly trend of the Elk Point 'basin'.

In summary, it seems probable that early Palaeozoic sedimentation and erosion patterns in this area reflect the topography of the underlying Precambrian Shield and the structural trends within it. These early Palaeozoic features in turn, though modified by later epeirogenic movements and rejuvenation or accentuation of lines of weakness in the underlying basement, influenced deposition as least as late as the Middle Devonian[1] and seem to have been instrumental to some extent in determining the location of Upper Devonian reefs.

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[1]W. M. Tovell, in a paper published after submission of this manuscript (Geol. Assoc., Can., vol. 10, 1958, pp. 19-30), figures structure contour and isopach maps of Alberta south of the 51st parallel. His Figure 4, isopach map of the interval, base of the Milk River Formation to top of the Palaeozoic, demonstrates a distinct parallelism between the configuration of the post-Palaeozoic erosion surface at the close of Milk River deposition and that indicated by the Elk Point isopachs which, as previously noted, probably closely reflect the pre-Elk Point surface. Moreover, the northeasterly and northwesterly trending structural elements that control Elk Point deposition in this area, are also suggested by Tovell to influence Mesozoic sedimentation. Particularly notable is the trend of structure contours on the northwest side of the Bow Island arch (Tovell, Figure 2) which parallels the northwest side of the nose in the Elk Point isopachs on which the Princess field occurs. That this reflects an earlier structure seems indisputable in that the thickness of Cambrian sediments in California Standard Princess CPR No. 1, 13-22-20-12 W4, is 680 feet and Mobil Oil CPR Hutton 11-18-24-15, 11-18-24-15 W4, 30 miles to the northwest is reported as 1,730 feet, and in TGT Nacmine 6-8-28-21, 6-8-28-21 W4, 70 miles northwest of Princess is 1,820 feet.

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LIST OF WELLS CONSIDERED

Socony Wildhorse No. 1	15-36-1-2 W4
National Northland Regency No. 1	8-7-1-21 W4
Commonwealth No. 1	8-9-3-15 W4
Pacific H.B. Lucky Strike	13-8-4-13 W4
Sunderland Warner No. 1	13-20-4-16 W4
International Blood No. 1	2-7-8-22 W4
Imperial Grassy Lake No. 3	2-35-10-13 W4

California Standard Parkland No. 4-12	4-12-15-27 W4
Richfield Shell Rapid Narrows 11-20	11-20-16-4 W4
Shell C&E Little Bow River No. 1	9-23-16-26 W4
California Standard Princess CPR No. 1	13-22-20-12 W4
Shell MacKid No. 1	1-19-21-28 W4
Elbow Falls No. 2A	4-28-22-6 W5
Moose Oils No. 1	16-29-22-6 W5
McColl Frontenac Moose Mtn. No. 1	9-6-23-6 W5
Socony Tudor CPR No. 1	4-29-24-23 W4
Socony Rockyford CPR No. 1	13-36-26-24 W4
Shell Crossfield No. 1	4-22-27-1 W5
TGT Nacmine 6-8-28-21	6-8-28-21 W4
Socony Carbon No. 1	13-20-28-22 W4
Socony Entice No. 1	12-25-28-24 W4
Western Dome Socony Michichi 11-5	5-11-30-19 W4
B.A. et al Canmer 6-9-31-1	6-9-31-1 W4
Bailey Olds No. 1	2-18-31-27 W4
Socony Craigmyle No. 1	12-32-32-16 W4
Shell Olds No. 1	16-11-32-1 W5
Royalite Consort No. 1	12-2-34-6 W4
Shell Westerdale No. 1	10-4-34-3 W5
Altoba and Canyon Clearwater No. 1	5-31-34-9 W5
Imperial Eyehill No. 1	13-36-35-2 W4
Sun Loyalist No. 1	1-32-35-7 W4
Homestead Calvan Hamilton Lake 8-15	8-15-35-10 W4

Sage Meridian Century Kenare Rosenheim	11-20-37-1 W4
Imperial Provost No. 2	1-33-37-3 W4
Richland Ram River No. 1	1-2-37-11 W5
Ram River No. 2	8-12-37-11 W5
Rio Bravo Ronald No. 1-6	1-6-38-15 W4
Swanson No. 10	10-16-38-20 W4
Great Plains Triad Crimson Lake 9-23"A"	9-23-40-9 W5
Shunda No. 1	15-36-40-15 W5
California Standard Spotted Lake 4-21	4-21-41-22 W4
California Standard South Morningside 14-20	14-20-41-27 W4
California Standard East Gilbey 4-5	4-5-41-2 W5
Socony Duhamel 29-6	6-29-45-21 W4
Homestead Admiral Hope 8-33	8-33-46-4 W4
Imperial Irma No. 1	6-14-46-9 W4
Imperial Canadian Superior Norbuck 2-6-47-4	2-6-47-4 W5
Imperial Dinant No. 1	16-17-48-20 W4
Imperial Eyot No. 1	3-28-48-25 W4
Texaco Wizard Lake B3	15-21-48-27 W4
Imperial Canadian Superior Buck Creek 14-29-48-6	14-29-48-6 W5
Vermilion Consolidated No. 15	6-12-49-6 W4
California Standard Cynthia 16-21	16-21-49-13 W5
Imperial Leduc No. 530	8-17-50-26 W4
Imperial Canadian Superior Tomahawk 16-18-52-5	16-18-52-5 W5

Imperial Plain Lake No. 1	1-11-53-12 W4
Imperial Ardrossan No. 1	8-17-53-21 W4
Imperial Willingdon No. 1	14-14-55-15 W4
Imperial Volmer No. 1	2-16-55-25 W4
Fina Stanolind H.B. Sundance 15-29	15-29-55-17 W5
Anglo-Home C and E Elk Point 1	7-26-56-5 W4
Imperial Gibbons No. 1	2-16-56-22 W4
Imperial Mearns No. 1	15-6-56-26 W4
Hudson's Bay Stanolind Fina Beaver Creek No. 1	1-32-56-19 W5
Anglo-Home C and E Elk Point No. 3	15-35-57-5 W4
Anglo-Canadian Elk Point No. 11	2-21-57-5 W4
Canadian Seaboard White Rose Elk Point	7-14-57-6 W4
Anglo-Home C and E Elk Point No. 2	3-14-57-6 W4
Imperial Eastgate 1-34-57-22	1-34-57-22 W4
Imperial Egremont West 6-36-58-23	6-36-58-23 W4
Imperial Legal No. 1	8-18-58-24 W4
Imperial Clyde No. 1	9-29-59-24 W5
Fina Stanolind H.B. Windfall 12-36	12-36-59-15 W5
Stanolind Hudson's Bay Fina Marsh Head Creek No. A-1	15-1-59-21 W5