NANAIMO COAL FIELD
COMPOSITES
KEYMAP

In January 1979, Island Geotechnical Services was commissioned by the B.C. Ministry of Mines and Petroleum Resources and the City of Nanaimo to compile existing information on the abandoned coal mines in the Nanaimo area. The purpose of the compilation was to provide relatively detailed physical information on Nanaimo's coal mining past and to present it in relation to the surface topography and street structure. The following map sheets, then, present this information.

As-abandoned plans for most of the local mines have been filed with the Ministry of Mines Inspection Branch in Victoria. The plans are at a variety of scales and were produced with varying degrees of completeness and accuracy. All available plans were reviewed and the most complete ones were photographically reduced to the common scale for this project of 1 inch equals 500 feet. The mine plans were then oriented with respect to each other and to the present ground surface using topographic features, geological information and old legal survey information. The mine outlines and the location of the surface openings were then transferred onto the topography.

Written records of Nanaimo mining operations were then reviewed for descriptions of operations not previously covered and for descriptions of mining techniques, mine conditions and surface collapses. Several mines have been reentered after their original abandonment and the workings have been extended or the coal pillars have been removed. Where there is a record of this additional mining activity, it has been listed in this compilation.

Discrepancies in records of mine locations do occur, however, the differences are usually less than 100 feet. In one instance there is a disagreement of as much as 500 feet. The differences are usually due to faulty mechanical scale change from originals which no longer exist. It should also be noted that records of the Hudson's Bay Company workings in the downtown area are incomplete.

Details of the workings of the East Wellington (Chandler) mine are not available and mining prospects such as the Little Ash Mine west of Wellington and the Oyster Colliery south of Cassidy, have been recorded in the literature only. In addition, both mines are located beyond the limits of the available topography.

Details of the Lantzville mines are available, however, they have not been included since the available topography does not extend that far.

The adjoining map shows the approximate outline of the coal workings along with the location of the detailed map sheets, with respect to local major geographical features. This plan should be used to help choose the correct detailed sheet.

Every effort has been made in the project to transcribe information accurately, however, due to lack of completeness and accuracy of the original information, no guarantee can be made as to the accuracy of the information presented here. This [redacted] is intended for use as a guide only.

MINING HISTORY

In 1851, the existance of coal in the area now known as Nanaimo, was brought to the attention of Joseph McKay, a Hudson's Bay Company clerk in Fort Victoria, by local natives. The following year, McKay was instructed by Governor Douglas "to proceed with all possible diligence to Winthuysen Inlet, commonly known as Nanymo, and formally take possession of the coal beds lately discovered".

Later that same year, the Hudson's Bay Company began mining operations and in August of 1852 the first coal shipment of 50 tons left Nanaimo, thus starting a coal mining industry in Central Vancouver Island that lasted for more than a century.

The Hudson's Bay Company continued to operate mines in the downtown Nanaimo area as well as on Newcastle Island, until 1861 when all local HBC operations were sold to the Vancouver Coal Company. This company continued mining without local competition until 1871 when the Wellington Field, six miles north of Nanaimo, began producing coal. This field had been discovered two years earlier by Robert Dunsmuir, a former Hudson's Bay Company miner, and was operated initially by Dunsmuir, Diggle & Company.

After 1871 there were two major coal mining companies operating in the Nanaimo area, one started by the Hudson's Bay Company and the other formed by Robert Dunsmuir. Both were reorganized several times, leading to the following series of company names.

*In 1861, the Vancouver Coal Company bought out the holdings of the Nanaimo Coal Company, a subsidiary of the Hudson's Bay Company. Subsequent reorganizations resulted in: the New Vancouver Coal Mining and Land Company in 1889, the Western Fuel Company in 1908, the Canadian Western Fuel Company in 1918 and the Western Fuel Corporation of Canada in 1921. In 1928, this corporation was purchased by the Dunsmuir companies but continued to operate independantly until its final closure in 1939.

The second major coal company was that begun by Robert Dunsmuir and maintained by his heirs. In 1883, Robert Dunsmuir became sole owner of Dunsmuir, Diggle and Company and renamed the company, R. Dunsmuir and Sons Ltd. In 1899, it was reorganized as Wellington Colliery Company Ltd., and from 1910 to 1960 the company has operated as Canadian Collieries (Dunsmuir) Ltd. Recently the company has become part of Weldwood of Canada Ltd.

Other companies that operated in the Nanaimo field included the East Wellington (Chandler) Coal Company, the Nanoose Wellington Colliery Company, the Pacific Coast Coal Company, the Granby Consolidated Mining, Smelting & Power Company, and several smaller operations that operated principally in and around the abandoned mines of the larger companies.

GEOLOGY

The Nanaimo Group of sedimentary rocks are approximately 70 Million years in age: relatively young in terms of the geological time scale. They consist of an interlayered series of conglomerate, sandstone, siltstone and shale that include, in the Nanaimo area, three major coal seams.

These coal seams have been mined extensively and are known as the Douglas, Newcastle and Wellington seams. The Douglas, or upper seam has been mined over an area roughly 9 miles long and as much as two miles wide. The seam varies in thickness from almost nothing to 30 feet and averages approximately 5 feet in thickness. This seam was mined beneath the bed of the Nanaimo Harbour and extended to a depth of 1,700 feet below sea level. Most of the mines operated by Western Fuel and predecessor companies were in this and the Newcastle seam.

The Newcastle seam occurs some 50 to 70 feet below the Douglas and was mined extensively only under Newcastle and Protection Islands. A small amount from this seam was mined in the downtown area of Nanaimo. This seam was thinner though more regular than the others, averaging 3 to 4 feet in thickness.

The Wellington seam is the lowest seam and occurs generally east of the Douglas and Newcastle seams. If it were to extend beneath the Douglas seam, it would be encountered approximately 1000 feet lower in the sedimentary sequence. The Dunsmuir group of companies operated principally in the Wellington seam, eventually working an area some 12 miles long by 1 mile wide. Three minor seams that occur above the main Wellingron seam were also worked, though mainly in the northern part of the area.

The cover illustration shows a schematic cross-section through a portion of Nanaimo, extending beneath the harbour and Protection Island. While the section is slightly exaggerated vertically, it does show the approximate relationship between the mine openings and the surface.

MINING METHODS

Two coal mining methods were used in the Nanaimo area. Most of the older mines were worked using the room and pillar method and most of the more recent mines were worked using the long wall method. Because of the great variation in the orientation, quality and thickness of the coal, many mines were worked using both methods.

*this description of company lineages from GSC Paper 70-53, by J.E. Muller & M.E. Atchison (1971) Pg. 18-19.

Since several variations of each method were used, the following descriptions are general in nature.

Room and Pillar Method

The mines were entered through a vertical "shaft" or through an inclined tunnel or "slope". The "slopes" usually followed the dip of the coal seam and were started at the coal outcrop. Extending from this entry way, a series of roughly parallel tunnels called "levels" were driven at right angles to the main slope and a second series of tunnels were driven up and down the dip of the coal bed. A grid work of tunnels or "rooms" were thus formed, leaving roughly rectangular blocks of unmined coal or "pillars" between the openings. The function of the pillars was to prevent collapse of the mine opening. The size of the pillars (or the spacing between tunnels) was increased, to support the added overburden weight as the mine extended deeper beneath the ground surface.

Once the limit of mineable coal or the edge of that companies coal lease was reached, the construction of tunnels or "rooms" was stopped and the mining of pillars was commenced. This process of "pillar robbing" was usually started at the furthest point from the mine access. The mined out side of the pillar to be extracted would be heavily timbered and the pillar removed in sections. After the pillar was removed, the timbering was also extracted and the mine roof allowed to collapse. The process was then repeated with the next pillar. Permanent haulage ways were kept open by heavy timbering that was regularly maintained and/or by the construction of waste rock pillars or "cogs", whereas, the remainder of the workings were allowed to collapse.

Long Wall Method

The entrances to long wall mines were not materially different from mines worked by the room the pillar method. However, instead of first developing a network of tunnels and then removing the remaining coal, the longwall method removed all of the coal in one sweep through the mine.

After leaving several large pillars near the mine entrance to prevent collapse, several widely spaced tunnels were driven usually either up or down the slope of the coal seam. The band of coal that was left between the tunnels was then removed in strips working progressively away from the access route. Heavy timbering was maintained near the working face of coal and as that face was advanced, the timbering was also removed and advanced. Haulage ways were kept open by timbering or cogging, however, the remainder of the workings were allowed to collapse.

PRESENT CONDITION OF THE MINES

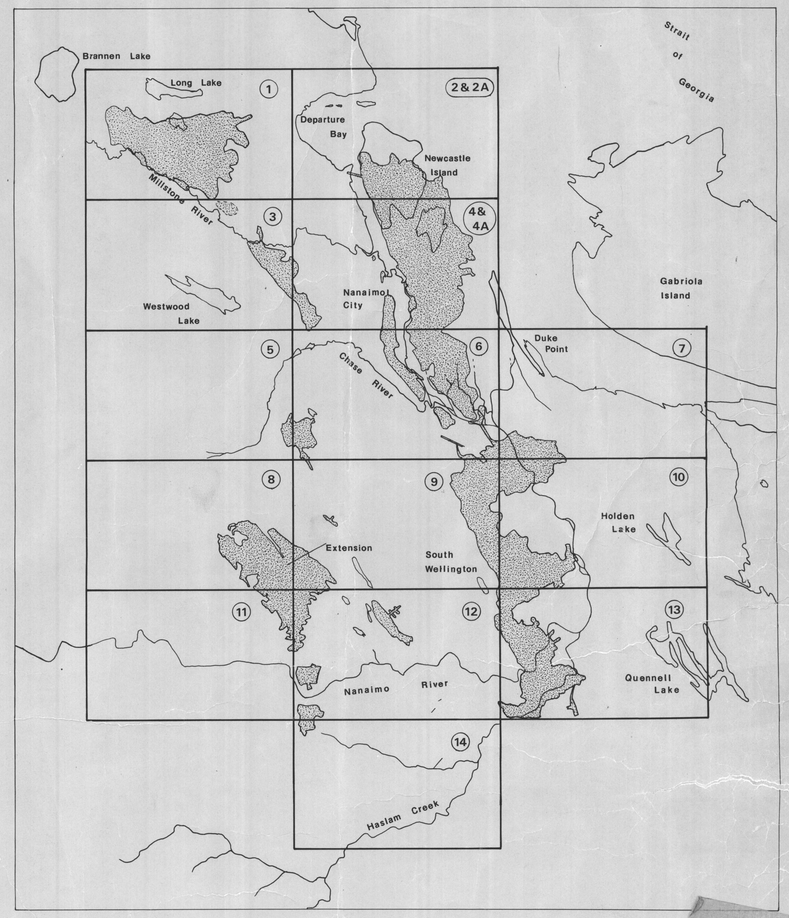
Both mining methods produced large underground openings of the order of several hundred and sometimes thousands of feet across, that, at the time of abandonment were partially collapsed. The effects of complete collapse of underground openings of this extent would most certainly be noticed on the surface, however, to date only a relatively small amount of localized surface subsidence has been recorded. It seems evident, therefore, that the openings still exist to a large extent, however, their present state of stability can only be speculated upon.

Surface damage due to mine subsidence has been mainly associated with the downtown HBC workings and the Old Douglas Mine beneath south Nanaimo, near Nicol Street. The damage, typically, shows up as a hole in the street pavement, as a depression in unsurfaced ground or as excessive settlement and cracking of buildings.

Other mines have at least partially collapsed as indicated by mine company correspondance that describes a tunnel near South Wellington that collapsed beneath a train; a mine plan that describes the rupture of surface rock over the abandoned Old No.1 Extension Mine and surface indications of mine collapse that exist over part of the Wellington Mine, north of Nanaimo.

It is likely that most of the mine openings and the overlying material are relatively stable, however, an accurate estimation of the stability would require further investigation.

This compilation is open to revision, and any users who may have any additional information regarding location of entrances and surface subsidences due to mine collapse are invited to contact the author.



KEY PLAN

GRID LINES SHOW AREA COVERED BY EACH CORRESPONDINGLY NUMBERED MAP SHEET FOLLOWING. NOTE THAT FOR SHEETS 2 AND 4, THE INFORMATION FROM THE NEWCASTLE SEAM IS PRESENTED SEPARATELY FROM THE DOUGLAS SEAM WORKINGS.

CAUTION

THE FOLLOWING MINE PLANS HAVE BEEN COMPILED FROM EXISTING INFORMATION ONLY. DUE TO LACK OF ACCESS TO THE MINES AND THE POSSIBILITY OF UNRECORDED WORKINGS. THE ACTUAL LOCATIONS OF THE MINE WORKINGS CANNOT BE CONFIRMED.

THESE PLANS ARE INTENDED FOR USE AS A GUIDE ONLY AND NO RESPONSIBILITY RELATING TO THE LOCATIONS OF THE MINE WORKINGS CAN BE ACCEPTED.

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