INVENTORY OF ABANDONED COAL MINES IN THE STATE OF WASHINGTON

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INTRODUCTION

In 1977, Congress passed the Surface Mining Control and Reclamation Act (SMCRA) to ameliorate adverse effects of past coal mining and to regulate subsequent coal mining. SMCRA provided for a tax on active coal mines at a rate of 35 cents/ton for surface mines, 15 cents/ton for underground mines (or 10 percent of the value at the mine), and 10 cents/ton for lignite mines (or 2 percent of the value at the mine). The revenue from this tax is deposited in the Abandoned Mine Reclamation Fund. SMCRA also created the Office of Surface Mining (OSM) to administer the provisions of the act. OSM oversees state regulator agencies which administer the act or, as in the case of Washington, directly regulates the coal mining industry of a state. In addition, OSM performs reclamation of abanonded coal mines and provides for direct payments to state regulatory and reclamation agencies. The act provided that at least 50 percent of the proceeds should be used for these purposes in the state of origin which has an approved reclamation program when there is sufficient need for reclamation. As of the end of fiscal year 1983, more than $9 million had been collected from the Washington Irrigation and Development Company (WIDCO), and Palmer Coking Coal Company, operators of Washington's two active mines.

To determine the reclamation needs of the states, OSM contracted for a national inventory of abandoned mines. The inventory for the state of Washington identified 10 problem areas, four of which are in the vicinity of Roslyn and Cle Elum in central Washington. The other six problem areas were located near Centralia (two areas), Bellingham, Black Diamond, Newcastle, and Wilkeson.

Historic records (Schasse and others, 1983) indicate that more than 250 underground coal mines have operated in the state of Washington all of

which were abandoned before the passage of SMCRA. In the course of other investigations, geologists with the Washington Division of Geology and Earth Resources (DGER) have noted numerous abandoned mine entries and subsidences that were not included in the inventory. The present report, produced by cooperative agreement between OSM and DGER, provides a more thorough accounting of the extent of abandoned-mined-lands hazards in the state of Washington.

Seven broad regions of interest, based on past coal mining activities, were defined for the study. These were (1) King County (Black Diamond, Issaquah, Renton, and the Green River coal mining area), (2) Pierce County (Wilkeson, Carbonado, Fairfax, and Ashford), (3) Lewis County (Centralia, Chehalis, Toledo, Morton, and Packwood), (4) Cowlitz County (Kelso and Castle Rock), (5) Kittitas County (Roslyn, Cle Elum, and Manastash), (6) Skagit County (Hamilton and Cokedale), and (7) Whatcom County (Bellingham, Glen Echo, Van Zandt, Blue Canyon, and Glacier). An average of 3 weeks was allotted for each of these broad study areas.

The study had three objectives: First, to inventory abandoned-coal-mine-related problems affecting the health, safety, and general welfare of the public at large. Second, to categorize these problems by severity, accessibility, and proximity to population. Finally, to recommend to OSM the priority in which these problems should be corrected.

In addition, five areas within the seven broad regions were targeted for more detailed inventories. These areas were Roslyn-Cle Elum, Issaquah, Newcastle-Coal Creek, Renton, and Bellingham. Each of these areas was selected because of the intensity of previous coal mining activities, the lack of detailed descriptions of the problems as they currently exist, and the presence of extensive residential or recreational development. Each of

these areas was selected by OSM in conjunction with DGER. The Office of Surface Mining (OSM) awarded contracts to consultants for the detailed inventories.

These contracted inventories proceeded from office compilation of mine map data held by the Division of Geology and Earth Resources and all available historical data, to field location of hazardous mines, followed by surveying and title searches of properties requiring reclamation. If necessary, drilling may be done to verify the existence of underground workings as shown on mine maps or to probe for mine voids in areas lacking mine maps. Finally, the contractors made recommendations for reclamation and ranked the severity of problem areas in consultation with OSM. The results of these studies will be available at DGER, OSM/Denver, and county planning office by January 1, 1985.

The contractors retained by OSM are listed below:

(1) Roslyn/Ronald/Cle Elum: George Maddox and Associates, Spokane, Washington. OSM budgeted $85,000 in fiscal year 1983 for the Roslyn area inventory. At least 26 mines were operated in this area (Schasse and others, 1983), and more than 80 mine openings and subsidence areas have been located; 12 have been targeted for reclamation, and OSM anticipates design and construction expenditures of approximately $100,000.

(2) Issaquah: Goodson and Associates, Denver, Colorado. OSM has budgeted $85,000 for the Issaquah area inventory which consists of lands east of state highway 900 and south of interstate highway 90. At least five mines have been operated in this area. Field work to date has shown that most of the surface expressions of mine openings and subsidence have been modified by urban development.

(3) Newcastle-Coal Creek: Skelly and Loy, Lexington, Kentucky. At least 19 mines have been operated in the area (Walsh, 1983) and extensive areas are still known to contain open mine workings. OSM reclaimed entries to the old Newcastle mine in 1983 and will fence off 16 extremely hazardous openings in the fall of 1984. OSM has budgeted $80,000 for this reclamation.

(4) Renton: Morrison-Knudsen, Boise, Idaho. At least 18 mines have been operated in Renton (Livingston, 1971). Investigations to date have uncovered at least three areas of probable mine subsidence. OSM has already reclaimed two areas of subsidence in Renton as emergency problems, and has budgeted $66,000 for further investigations, including drilling two properties.

(5) Bellingham: Tetra Tech, Englewood, Colorado. Two large mines and several smaller ones have been operated in Bellingham, and OSM has budgeted $50,000 for investigations.

This final report consists only of the information produced by the Division of Geology and Earth Resources. This inventory includes nearly all of the potential abandoned mine land problem areas in the state. An appendix containing photographic color slides of all the sites inventoried by DGER is on file in the DGER library. An index map (Plate 1) showing the locations of the problem areas identified in this report is contained in the pocket at the back of the report.

While this report is intended to be used principally for establishing reclamation needs and priorities, it is also expected to be used for land-use planning in the affected and neighboring areas. It is hoped that it may be useful for historical purposes as well.

PROBLEM SUMMARY BY COUNTY

This report deals with those abandoned mine sites which were investigated between the months of February and August 1984. It is unlikely to represent all of the abandoned mine land problems that exist within the state of Washington, nor does it reflect all of the problems which may exist within the areas investigated. It does, however, document that most prominent and severe problem areas and identifies areas within the state which will warrant further detailed study and investigation.

For the purpose of conciseness and simplicity each of the problem areas have been listed in tabular format on the following pages. Problems will be discussed in a general manner with respect to location and severity of problem. Each county will be discussed in alphabetical order with respect to the total number of problem areas present, and the need for action in the form of reclamation construction.

Two isolated occurrences of reported past coal mining in eastern Washington were also visited. One is in Chelan County (Dry Gulch) and the other in Stevens County (Colville Valley Mine). Both had only priority 3 problems and are included in the county, problem area, and quadrangle sorts in the appendices.

A brief series of definitions are presented here in order to clarify the use of priority one, two, and three criteria as used throughout the course of this investigation and report.

Priority 1 - Abandoned-mine-lands-related problems which represent a serious health, safety, and/or general welfare problem to the public at large. These are extreme danger problems.

Priority 2 - Abandoned-mine-lands-related problems which represent a moderate to limited health, safety and/or general welfare problem to the public at large.

Priority 3 - Abandoned-mine-lands-related problems which represent an environmental problem to the public at large. These include the restoration of land and water resources and the environment previously degraded by adverse effects of coal mining practices.

Priority 1 areas have been ranked according to severity in Table 9.

Cowlitz County

Six problem areas (Table 1) were defined in Cowlitz County. During the course of investigations in Cowlitz County only one area was recognized as containing a priority 1 reclamation problem. The remaining five areas were determined based on the existence of past coal mining activities within the boundaries of the problem areas and heresay reports of open tunnels. Site investigations within these areas did not locate any reclamation problems that existed at the time of investigation. It is recommended that more detailed investigations be conducted within the limits of the defined problem areas as funding and time permit, because priority 1 problems are thought to be present.

King County

Twenty-nine problem areas (Table 2) were defined in King County. Investigations in King County recognized eight areas with priority 1 problems, eight areas with priority 2 problems, and fifteen problem areas with priority 3 problems. Nine of the problem areas investigated did not

exhibit any noticeable reclamation problems at the time of investigation. However, these areas had a past history of coal mining activity and may exhibit abandoned coal mine related problems in the future.

It should be pointed out that several contract investigation areas were defined within the King County, and the work generated from those OSM supported programs is not included within the total number of problems discussed within this report.

Kittitas County

All of the seven identified problem areas in Kittitas County (Table 3) contain priority 3 problems, usually in the form of massive piles of gob. Four of these also contain priority 2 problems, invariably in the form of poorly sealed portals and ventilation shafts. Due to time limits, only a brief reconnaissance-type field survey was undertaken and none of the areas was studied in great detail. Before any recommendations can be made concerning a ranking of the problem areas, it is imperative that a detailed historical study be undertaken in conjunction with a meticulous, exhaustive field survey. This could be accomplished along the lines of the excellent report submitted by George Maddox and Associates (1984).

Lewis County

Nineteen problem areas (Table 4) were defined in Lewis County. Investigations recognized seven problem areas with priority 1 problems, four problem areas with priority 2 problems, and nine problem areas with priority 3 problems. Seven of the problem areas investigated did not contain any apparent reclamation problems at the time of investigation; however, these areas were historical coal producers and problems may exhibit themselves in the future.

Pierce County

Eleven problem areas were identified and defined in Pierce County. Only three of these (Table 5) displayed no evdience of AML-related health, safety, and general welfare and/or environmental hazards. These three (Fairfax, Fairfax Bridge, and Ashford P.A.) are not considered to have been investigated in a thorough manner. The Ashford problem area has yet to be visited as of the writing of this report.

Of those areas defined in Pierce County, the worst hazards are found in the Buckley, Carbon Hill, and Spiketon problem areas. The Buckley P.A., with its three open airshafts adjacent to and within a growing housing development, is a definite top-priority problem. It is recommended that immediate field study be undertaken, with frequent reference to a detailed examination of the appropriate mine maps. As soon as possible, reclamation efforts must be underway in this problem area.

Worst of the problems in the Spiketon area is the open airshaft off of the BPA powerline road. This should also be sealed ASAP. The portal which lies beneath the old Spiketon road, on the other hand, is a low priority two. Eventually it should be sealed, but probably by means other than blasting, as there is too little roof rock to form an arch capable of supporting the road above.

Although the huge gaping airshafts in the Carbon Hill P.A. are very impressive, it is hard to justify spending much on them immediatley, given their remote access behind a quarded locked gate. They do present an impressive and challenging engineering problem, in any case.

Skagit County

Three problem areas (Table 6) were defined in Skagit County; two of these problem areas contained priority 1 problems. One of the areas also contained priority 3 problems.

Thurston County

Five problem areas (Table 7) were defined in Thurston County. Of these only one exhibited priority 1 and priority 2 problems, a second had one priority 3 problem, and the remaining three were defined based on historical production of coal from the given area boundaries.

Whatcom County

Four problem areas (Table 8) were defined in Whatcom County. Of these, two exhibited priority 3 and one of these also had priority 2 problems. The fourth area (Glacier) was defined based on the limits of reported past coal mining activity.

The Bellingham area was studied in detail under a separate OSM contract, and any areas defined during the course of that investigation are not included within this report.

TABLE 1. COWLITZ COUNTY

P.A.#	P.A. Name	Quadrangle	# Problems PI	PII	PIII
98	Anchor Mine	Kelso	0	0	0
94	Carbondale	Castle Rock	0	0	0
95	Idleman	Castle Rock	0	0	0
96	Lavell/Chapman	Castle Rock	1	0	0
93	Red Ash Mine	Castle Rock	0	0	0
97	Silver Lake	Toutle	0	0	0

TABLE 2. KING COUNTY

P.A.#	P.A. Name	Quadrangle	# Problems PI	PII	PIII
88	Bayne	Cumberland	0	4	5
52	Beacon	Des Moines	0	0	0
30	Black Diamond	Cumberland	4	19	40
72	Black Nugget	Fall City	5	2	1
87	Carbon Mine	Cumberland	0	0	3
71	Danville	Cumberland	0	0	0
51	Diamond Mine	Renton	0	0	2
56	Durham	Cumberland	2	0	1
85	Elk	Cumberland	0	0	5
86	Eureka	Cumberland	0	0	0
58	Hudson	Cumberland	0	0	0
84	Hyde Cannon	Cumberland	0	0	0
64	Independent	Cumberland	3	9	8
70	John Henry	Cumberland	0	5	0
57	Kangley	Cumberland	0	0	0
67	Krain	Cumberland	0	0	1
55	Mad Dog	Cumberland	0	0	0
82	New Black Dia.	Maple Valley	0	0	4
81	New Lk Youngs	Maple Valley	0	0	1
89	Nolte St. Pk.	Cumberland	1	0	0
61	Occidental	Cumberland	0	0	0
78	Preston	Fall City	0	0	1
50	Railroad	Renton	0	0	1
9	Ravensdale	Cumberland	5	6	0
77	Red Devil	Maple Valley	0	2	1
53	Reynolds Mine	Fall City	0	0	1
66	Rose Marshall	Cumberland	0	0	0
79	Ruffner	Hobart	1	0	0
80	Tiger Mtn. Mine	Hobart	2	2	0

TABLE 3. - KITTITAS COUNTY SUMMARY

P.A.#	P.A. Name	Quadrangle	PI	PII	PIII
110	NWI Mines	Cle Elum	0	0	3
5	NWI No. 3 Mine	Easton	0	8	3
233	NWI No. 3 Strip	Easton	0	0	3
3	NWI No. 5 Mine	Cle Elum	0	4	3
232	NWI No. 7 Mine	Cle Elum	0	2	4
231	NWI No. 8 Mine	Cle Elum	0	0	5
4	NWI No. 9 Mine	Cle Elum	0	6	4

TABLE 4. LEWIS COUNTY

P.A.#	P.A. Name	Quadrangle	# Problems PI	PII	PIII
90	Atlas Coal	Morton	0	0	1
38	Bruner	Centralia	1	0	0
32	Bunker	Centralia	1	0	2
35	Centralia Coal	Centralia	0	0	0
34	Christian	Centralia	0	0	1
31	City of Chehalis	Centralia	2	2	3
48	Fords Prairie	Tenino SW	0	2	1
45	Freeburn	Bucoda	0	0	0
7	Hanaford	Bucoda	0	0	0
37	Lincoln	Centralia	0	0	0
46	Littel	Adna	0	0	0
6	Majestic	Tenino SW	3	0	0
39	Monarch	Centralia	0	0	2
49	Pit	Centralia	0	0	0
91	Pleasant Vly Cmp.	Mineral	2	0	1
33	Reliance	Centralia	1	0	7
36	Salzer	Centralia	7	1	0
92	Sloan	Morton	0	0	0
47	Stoker	Tenino SW	0	7	2

TABLE 5. - PIERCE COUNTY SUMMARY

P.A.#	P.A. Name	Quadrangle	PI	PII	PIII
113	Ashford	Kapowsin	0	0	0
105	Buckley	Buckley	3	0	0
106	Burnett	Buckley	0	0	4
111	Carbon Hill	Wilkeson	5	0	0
99	Fairfax	Wilkeson	0	0	0
101	Fairfax Bridge	Wilkeson	0	0	0
103	Gleason	Wilkeson	2	0	3
104	Spiketon	Wilkeson	1	1	0
100	Upper Fairfax	Wilkeson	1	0	0
10	Wilkeson	Wilkeson	1	1	4
102	Wingate	Wilkeson	1	0	1

TABLE 6. SKAGIT COUNTY

P.A.#	P.A. Name	Quadrangle	# Problems PI	PII	PIII
76	Cokedale	Sedro Woolley	1	0	0
74	Hamilton	Hamilton	0	0	4
75	Minkler Lake	Lyman	1	0	0

TABLE 7. THURSTON COUNTY

P.A.#	P.A. Name	Quadrangle	# Problems PI	PII	PIII
83	Black Bear	Bucoda	0	0	1
42	Buffer	Bucoda	0	0	0
41	Quality	Bucoda	0	0	0
40	Thurston	Bucoda	0	0	0
43	Tono	Bucoda	100*	100*	0

TABLE 8. WHATCOM COUNTY

P.A.#	P.A. Name	Quadrangle	# Problems PI	PII	PIII
108	Blue Canyon	Lake Whatcom	0	0	6
69	Glacier	Mt. Baker	0	0	0
68	Glen Echo	Lawrence	0	0	0
73	Van Zandt	Deming	0	2	1

* A large number of AML problems were observed at this site. The number represents an estimate rather than an exact count.

Recommendations and Conclusions

It is recommended that, as an initial step to priority 1 reclamation activities within the defined problem area boundaries, a detailed ground mapping of the entire problem area should be seriously considered during the winter and early spring months when vegetation does not impair access or visibility. It is further recommended that a land status ownership investigation of affected lands be conducted.

Furthermore, the definition and investigation of abandoned mine lands within the state of Washington should continue. Universities and the appropriate state and federal agencies should all be made aware of the areas that were involved in past coal production. Any field-oriented activities conducted within these areas which recognize an existing problem should have a system (i.e., contacts with the OSM inspector in Olympia) in which the problem can be reported for further investigation. In this manner, as problems are recognized action can be taken to rectify any hazard which may affect the public at large.

For a more detailed description of the areas defined within each of the respective counties the reader is referred to individual abandoned mine land report forms and maps which are available for inspection at DGER's office in Lacey. Photographic color slides of many of the problem areas are also available for inspection.

TABLE 9. RANKING OF PRIORITY ONE PROBLEM AREAS

Rank	P.A.#	P.A. Name	County	Quad	PI	PII	PIII
1	72	Black Nugget	King	Fall City	5	2	1
2	33	Reliance	Lewis	Centralia	1	0	7
3	36	Salzer	Lewis	Centralia	7	0	0
4	105	Buckley	Pierce	Buckley	3	0	0
5	31	City of Chehalis	Lewis	Centralia	2	2	3
6	89	Nolte State Park	King	Cumberland	1	0	0
7	91	Pleasant Vly Cmp	Lewis	Mineral	2	0	1
8	32	Bunker	Lewis	Centralia	1	0	2
9	104	Spiketon	Pierce	Wilkeson	1	1	0
10	79	Ruffner	King	Hobart	1	0	0
11	111	Carbon Hill	Pierce	Wilkeson	5	0	0
12	80	Tiger Mtn. Mine	King	Hobart	2	2	0
13	75	Minkler Lake	Skagit	Lyman	1	0	0
14	56	Durham	King	Cumberland	2	0	1
15	6	Majestic	Lewis	Tenino SW	3	0	0
16	43	Tono	Thurston	Bucoda	100	100	0
17	9	Ravensdale	King	Cumberland	5	6	0
18	30	Black Diamond	King	Cumberland	4	19	40
19	10	Wilkeson	Pierce	Wilkeson	1	1	4
20	64	Independent	King	Cumberland	3	9	8
21	102	Wingate	Pierce	Wilkeson	1	0	1
22	103	Gleason	Pierce	Wilkeson	2	0	3
23	100	Upper Fairfax	Pierce	Wilkeson	1	0	0
24	38	Bruner	Lewis	Centralia	1	0	0
25	96	Lavell/Chapman	Cowlitz	Castle Rock	1	0	0
26	76	Cokedale	Skagit	Sedro Wlly	1	0	0

AREAS IN NEED OF FURTHER INVESTIGATION

Although this AML inventory is a dramatic improvement over the minimal effort which resulted in the original inventory (Oak Ridge National Laboratory, 1982), it would be a mistake to assume that all Washington State abandoned coal mine areas which may provide problems in the future have been examined. Indeed, dozens of mines referred to in the long series of State Mine Inspector's reports have not been located on a base map nor field-inspected.

Therefore, to help guide future efforts in AML location, a listing of Washington State coal mine areas not examined during the course of this project is included in this report. The listing is divided into two segments. The first (Table 10) lists mines, alphabetically by county, that were located "on paper" but never examined in the field to any degree of thoroughness. It will be noticed that this list includes several mines for which problem area numbers have been assigned and AML update forms have been completed. Due to various reasons, however, the sites were never visited, or visited too briefly for any serious consideration.

The second listing (Table 11) includes mines which had a production history to one extent or another, but for which it was not possible to obtain a location. Some of these "unlocated" mines on this list may already be included on existing problem areas. A more thorough historical literature search should turn up information on the location of many of these mines.

It is recommended on the basis of the above that (1) those abandoned mine land areas on the first list be visited in the future; and (2) more

TABLE 10. SUMMARY OF LOCATED, UNEXAMINED COAL MINES, BY COUNTY

Mine Operator (last known)	Name of Mine	Total Production (short tons)
Clallam County		
Clallam County	Clallam Mine	7,177
King County		
Carbon Coal & Clay Co.	Carbon-Daly Mine	1,092,693
Cumberland Coal Mining Co.	* Eureka Mine	87,011
Palmer Coking Coal Co.	* Danville Mine	874,339
Palmer Coking Coal Co.	* Kummer Mine	88,829
Palmer Coking Coal Co.	* Occidental Mine	709,433
Rose-Marshall Coal Co.	Cumberland Mine	25,336
Lewis County		
Columbia Colleries Co.	-------	39,478
Connely Creek Coal Co.	Toby Mine	814
K & K Mining Co.	Belle Slope Mine	24,665
Sunburst Coal Co., Inc.	------	127
Eureka Coal Co.	Eureka Mine	13,475
Florence Coal Corp.	Florence Mine	14,430
Pierce County		
Bartoy Coal Co.	------	2,103
Silvio Burelli	------	3,841
Burn-It Coal Co.	------	12,715
Carbonado Coal Co.	Carbonado Mine	42,913
Commercial Coal Co.	------	7,367
East Miller Coal Co.	South-4 Mine	18,439
Gale Creek Coal Co.	* Peanut Mine	54,181
Peloli & Locke Coal Co.	* Burnett No. 1	3,878
Queen Coal Co.	Queen Mine	11,841
Thurston County		
D & F Coal Mining Co.	------	6,077
Great Western Coal Mining Co.	Tenino Mine	45,408
Majestic Coal Co.	Majestic Mine	579
Richmond Coal Co.	Richmond Mine	1,173
Whatcom County		
Whatcom County Coal Co.	Blue Canyon Mine	276,287
----------	Glacier Area Prospects	(none)

* Mines with several other previous operators.

TABLE 11. SUMMARY OF UNLOCATED COAL MINES, BY COUNTY

Operator (last known)	Mine Name	Total Production (short tons)
Cowlitz County		
Boback Coal Co.	------	26
Cherry Valley Coal Co.	Cherry Valley Mine	5,746
Coal Banks Mining Co.	------	75
Cowlitz Coal Co.	Castle Rock Mine	1,532
Elling-Park Coal Co.	No. 1 Mine	464
Glenz Coal Co.	------	115
Hi-Way Coal Co.	Hi-Way Mine	1,569
Quesnoy Coal Co.	------	132
Silver Lake Coal Co.	------	82
Three Forks Coal Co.	------	32
Kittitas County		
Sunset Coal Mining Co.	Ellensburg Mine	238
Lewis County		
Anthracite Coal Corp.	------	390
Arrow Coal Co.	Centralia Mine	191
Arrowsmith Coal Co.	Arrowsmith Mine	434
Associated Coal Mining Co.	Divide Mine	11,152
Black Badger Coal Co.	------	967
Blankenship & Burleson	------	100
Cambridge Coal Co.	------	239
Coal Canyon Coal Co.	* Coal Canyon Mine	8,743
Crystal Coal Co.	------	384
W.G. Gibson	W.G. Gibson Mine	6,500
H.W. Giesy	No. 1 Mine	678
Hi-Carbon Coal Co.	------	8,189
Newaukum Coal Co.	------	1,371
Old MacDonald Coal Co.	Old MacDonald Mine	569
Pennsylvania Coal Co.	Watkins Mine	18,299
Rex Coal Co.	------	2,031
Royal Coal Co.	------	9,106
T. & T. Coal Co.	------	403
Tregoning Coal Co.	Ajax Mine	20,173
Wabash Coal Co.	------	29,154
Western Coal Co.	------	1,386
West Fuel Co.	* No. 2 Mine	2,196
Winlock-Vader Coal Co.	------	88

* Mines with several other previous operators.

TABLE 11. Summary of unlocated coal mines, by county (continued)

Operator (last known)	Mine Name	Total Production (short tons)
Pierce County		
Blue Bell Coal Co.	------	260
Bondemant & Crosini Coal Co.	------	622
Bondemant & Webb Coal Co.	------	435
Briar Hill Coal & Coke Co.	Briar Hill Mine	1,030
Carbonado Fuel/Timber Prod. Co.	------	367
Carbon Canyon Coal Co.	------	21
Pacific Coal & Oil Co.	Snell Mine	11,230
Peacock Coal Co.	------	775
Sparton Coal Co.	------	1,503
Webb & Hurfurst Coal Co.	------	192
Windsor-Stoker Co.	------	168
Skagit County		
Skagit Coal Co.	* Lake McMurray Mine	123
Thurston County		
Arrowsmith Coal Co.	------	59
Black Jewel Coal Co.	------	580
Boxer Coal Co.	------	1,301
Centralia Coal Co.	------	523
Crystal Coal Co.	------	160
King Coal Mining Co.	Slope No. 1	1,467
Pleasant Hill Coal Co.	------	823
Scatter Creek Coal Co.	------	253
Whatcom County		
Fairhaven Coal & Coke Co.	Fairhaven Mine	1,200
Pacific Atomized Fuel Co.	Geneva Mine	150
Rome Hill Coal Co.	No. 1 Mine	259

* Mines with several other previous operators.

time be devoted to "tracking down" the mines on the second list, with subsequent field visits should the need be apparent.

A final word of recommendation takes the form of a reminder that very few of the sites visited during this inventory effort in King, Kittitas, and Pierce Counties were exhaustively inventoried. Problems noted during the course of this study were generally those most accessible and well exposed. A more detailed approach -- the next step -- would entail careful examination of all available mine maps, noting all features such as entries and airshafts which may be problematical. Site visitation could then follow to determine if such problems do exist.

Coal Mine Production Figures

A complete listing of coal production as recorded in reports of the State Mine Inspector accompanies this report as Plate 2 (in three parts). It is hoped that the figures of total mine production will be of some aid in the estimation of void space to be expected in a given problem area. Although there is no clear-cut algebraic relation between tons of coal produced and the number of airshafts or slope entries employed, a mine with a total production of a million tons over thirty years may be expected to have had more development work than a mine which had a lifespan of five years and produced one-tenth the amount of coal. However, without some knowledge of the local geology it will be misleading to equate total production with potential hazard. The geologic structure of the area, the engineering nature of the roof and floor, thickness of glacial till, and even geomorphology will have their effect on hazard potential. Such variables explain the necessity for detailed studies whenever problems show up.

Although the figures of total coal production were sometimes derived from a variety of sources, dependent on year, the vast majority of statistics came from the long series of State Coal Mine Inspector's Reports. Generally this was an annual or biennial publication concerned primarily with mine ventilation and safety. Thus the series is full of gruesome stories of death and dismemberment, asphyxiations, disasters, and such illuminating statistics as number of tons of coal mined per fatal injury. Thankfully, one needn't arrive at figures for total annual production by multiplying through such grisly ratios. A separate column was usually provided for that data. The Inspector's Reports are not indexed in the bibliography, as it was felt that seventy-five years worth of iterative referencing would swell the bibliography beyond the patience of the author, the typist, and the average reader. Copies of all Mine Inspector's Reports are on file at DGER's office in Lacey, Washington. The Washington State Library also has a complete set. All figures are in short tons.

COAL MINING METHODS AND TERMS

The following was extracted in its entirety from an excellent outline discussion of coal-mining procedures by S.H. Green (1947). It is included in this report to help those unfamiliar with the subject understand coal mining and its subsidence potential. Although the use of the present tense may throw the unsuspecting reader off guard, confusion should be avoided if one bears in mind that this was written in 1947.

UNDERGROUND MINING AND COAL PREPARATION

In the early days of mining in the state, most of the coal was mined from "water levels," or self-draining tunnels; however, as the coal above

these water levels has been practically exhausted, slopes driven down on the dip of the seam are now in the majority.

Slopes are usually sunk at dips not to exceed 40° in order that cars may be used for bringing the coal to the surface, and generally are held to 30° or less by sinking the slope diagonally across the full dip when necessary.

The "room and pillar," or "breast and pillar," method is used almost exclusively in the gentler dipping seams, and the "chute and pillar" method in the steeply dipping beds. Modifications of these two methods are occasionally used, such as the "panel" and "modified longwall" systems.

In coal-mining practice in this state, the term "chute" is used for passageways not over 12 feet wide that are driven up the dip or "to the rise," from the haulageways or gangways, for the purpose of extracting the coal between the different levels. When this passageway exceeds 12 feet in width it is called a "room" or "breast." The terms "room" and "breast" are synonymous, breast being used in the steeper pitching veins, and room in the flatter ones. The terms "gangway" and "entry" are also synonymous; the former is generally used in the mines of western Washington and the latter in the Roslyn field of eastern Washington.

In the "room and pillar" method the general practice is to drive double slopes and entries, one being used for haulage and the other for ventilation purposes. Usually the haulageway is the air intake or "inby," and the air course the exhaust or "outby."

A fan is located at the exhaust end of the air course to pull the air through the workings. Slopes are driven 9 to 15 feet in width, and the size of the air course is dependent on the amount or volume of air required for ventilation purposes when the mine is fully developed. Entries which

are turned off the main slope on the strike of the seam are driven in pairs also. One is usually called the "gangway" and is used for haulage purposes, and the other is called the "counter" and is used as a traveling way for the return air. Where the main air course, or in fact any air course, crosses a haulageway, it is carried overhead in an airtight and fireproof tunnel usually shot out of the roof and floored with reinforced concrete; this is called an "overcast." The gangways are usually about 8 feet in width, and where the seam is not sufficiently high, the roof rock is "brushed" to give the necessary height.

On long gangways "partings," or sidetracks, are constructed at intervals to facilitate the handling of the loaded and empty "trips" or cars. Rooms are driven off the gangway to the rise, starting as "necks" about 8 feet wide for approximately 40 feet and then widened to the desired width. They are driven at intervals in order to leave between them pillars of coal from 20 to 40 feet in thickness. Crosscuts from one room to the next are driven about 4 feet wide at intervals of not to exceed 60 feet. These are used for both traveling ways and ventilation. Two types of chutes are in use: (1) the narrow chute, about 4 to 6 feet in width, and (2) the compartment chute, from 8 to 12 feet in width. Several factors control the selection of the type of chute to be used: (1) the dip and thickness of the seam, (2) the thickness and quantity of the partings (intervening rock strata) in the seam, (3) the strength and characteristics of the roof and footwall, (4) the presence and extent of faults, (5) gas conditions, and (6) the length of the "lift," or distance up the chute. Where narrow chutes are used, they are generally driven about 6 feet wide from the gangway up to the counter, on 40- to 60-foot centers, and from the counter to the top of the lift they are driven from 4 to 6 feet wide. Timbering in the

chutes varies with the condition of the ground; but while driving, unless the ground is "heavy," only a center post and cap, about 5 feet apart, is usual. The posts are used primarily to enable the miner to reach the working face from the last crosscut, also to carry a brattice for ventilation of the face. As soon as the pillar is about to be "drawn" or mined, it is customary to put in 3-piece sets for added protection to the miner. It is impossible to use the narrow chutes as traveling ways while the mined coal is moving down to the haulageway; so that every fourth chute is generally made into a manway with a permanent ladderway installed, the miner reaching the other pillars through the crosscuts. The practice in most general use is to drive the compartment-type chute. These are, as a rule, driven from 6 to 10 feet wide up to the counter, on 50- to 70-foot centers; above the counter the chutes are widened to an average of 12 feet. They are timbered with 3-piece sets on 6-foot centers. A wooden brattice up the center of the chute divides it into two equal compartments: one to run the coal down, and the other, in which a ladder is built, for a manway. A hole is cut in the brattice at each crosscut to give access across the chute for persons traveling from one pillar to another, and a battery is placed on the high side to hold the coal back when loading out is not in progress. The length of the chute varies in different localities, but generally is around 400 feet, as experience has shown that this is usually the economical limit. "Chain pillars" are left between the top of the chutes and the level above, for protective purposes.

Pillars are extracted by starting at the top block and mining successive "skips" or slices until the coal is all recovered. In order to hold back caves and falling rock while extracting the pillars, wood "batteries," or bulkheads are put in with either posts or cogs for support.

The "booming" method is used where the coal is too thick for the roof to be securely timbered. Though various methods are used dependent on local conditions, booming is usually worked by mining the bottom bench of the pillar, then, after batteries are placed below to hold back the loosened coal, the pillar is drilled and shot to bring down all the coal. The loose coal is then run through the battery until the roof rock, which has falled with the shooting, is encountered. If the roof is strong a large recovery of the total coal is gained by this method, but in the event of a weak roof much coal is lost, owing to the amount of rock that falls on the coal.

Both the "retreating" and "advance" methods of extraction are in use. In the retreating method the gangway and counter are driven to the mine boundary before any chutes are turned off or driven, then when the boundary is reached the chutes are started and the pillar coal is taken on the retreat. This is by far the most economical method, as the percentage of coal extracted is higher, the cost of maintenance of the haulageways much less and, in the event of bad gas condition, the ventilation problem is greatly simplified. The initial investment, however, is of course higher, as the cost of the development comes before any returns are realized from the coal developed.

In the advance method, the extraction of the coal takes place as soon as the gangway or entry is turned off, the first chute being driven up just as soon as the slope and air course pillar is passed.

Modifications of the advance and retreat methods are used occasionally. One plan is to work panels of rooms or chutes for ten or more places on the advance, then to leave a block of ten or more unworked, taking this coal on the retreat; another plan is to leave each succeeding

chute and pillar, the coal so left being recovered on the retreat. The nature of the ground that is being worked is the prime factor in deciding the best method of extraction.

As an addendum to the above, it should be noted that , as Thornadale (1965) points out, varying mine conditions caused constant modification of the mine plan. What worked on the fourth level of a slope mine may have proven to have been economically unfeasible or unsafe in the fifth level workings. It was the mining engineers' job to adapt to changing conditions and to plan techniques which would minimize costs, maximize profits, and yet protect the miners and the property.

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APPENDICES

APPENDIX A

WASHINGTON STATE AML PROBLEM AREAS

SORTED BY COUNTY

P.A. #	P.A. Name	County	Quad	PI	PII	PIII
107	Dry Gulch	Chelan	Wenatchee	0	0	1
112	Clallam	Clallam	Pysht	0	0	0
98	Anchor Mine	Cowlitz	Kelso	0	0	0
94	Carbondale	Cowlitz	Castle Rock	0	0	0
95	Idleman	Cowlitz	Castle Rock	0	0	0
96	Lavell/Chapman	Cowlitz	Castle Rock	1	0	0
93	Red Ash Mine	Cowlitz	Castle Rock	0	0	0
97	Silver Lake	Cowlitz	Toutle	0	0	0
88	Bayne	King	Cumberland	0	4	5
52	Beacon	King	Des Moines	0	0	0
30	Black Diamond	King	Cumberland	4	19	40
72	Black Nugget	King	Fall City	5	2	1
87	Carbon Mine	King	Cumberland	0	0	3
71	Danville	King	Cumberland	0	0	0
51	Diamond Mine	King	Renton	0	0	2
56	Durham	King	Cumberland	2	0	1
85	Elk	King	Cumberland	0	0	5
86	Eureka	King	Cumberland	0	0	0
58	Hudson	King	Cumberland	0	0	0
84	Hyde Cannon	King	Cumberland	0	0	0
64	Independent	King	Cumberland	3	9	8
70	John Henry	King	Cumberland	0	5	0
57	Kangley	King	Cumberland	0	0	0

P.A. #	P.A. Name	County	Quad	PI	PII	PIII
67	Krain	King	Cumberland	0	0	1
55	Mad Dog	King	Cumberland	0	0	0
82	New Blk Dia.	King	Maple Valley	0	0	4
81	New Lk Youngs	King	Maple Valley	0	0	1
89	Nolte St Pk	King	Cumberland	1	0	0
61	Occidental	King	Cumberland	0	0	0
78	Preston	King	Fall City	0	0	1
50	Railroad	King	Renton	0	0	1
9	Ravensdale	King	Cumberland	5	6	0
77	Red Devil	King	Maple Valley	0	2	1
53	Reynolds Mine	King	Fall City	0	0	1
66	Rose Marshall	King	Cumberland	0	0	0
79	Ruffner	King	Hobart	1	0	0
80	Tiger Mtn Mine	King	Hobart	2	2	0
110	NWI Mines	Kittitas	Cle Elum	0	0	3
5	NWI No. 3	Kittitas	Easton	0	8	3
233	NWI No. 3 strip	Kittitas	Easton	0	0	3
3	NWI No. 5 mine	Kittitas	Cle Elum	0	4	3
232	NWI No. 7 mine	Kittitas	Cle Elum	0	2	4
231	NWI No. 8 mine	Kittitas	Cle Elum	0	0	5
4	NWI No. 9 mine	Kittitas	Cle Elum	0	6	4
90	Atlas Coal	Lewis	Morton	0	0	1
38	Bruner	Lewis	Centralia	1	0	0
32	Bunker	Lewis	Centralia	1	0	2
35	Centralia Coal	Lewis	Centralia	0	0	0
34	Christian	Lewis	Centralia	0	0	1

P.A. #	P.A. Name	County	Quad	PI	PII	PIII
31	City Chehalis	Lewis	Centralia	2	2	3
48	Fords Prairie	Lewis	Tenino SW	0	2	1
45	Freeburn	Lewis	Bucoda	0	0	0
7	Hanaford	Lewis	Bucoda	0	0	0
37	Lincoln	Lewis	Centralia	0	0	0
46	Littel	Lewis	Adna	0	0	0
6	Majestic	Lewis	Tenino SW	3	0	0
39	Monarch	Lewis	Centralia	0	0	2
49	Pit	Lewis	Centralia	0	0	0
91	Pleasant Vly Cmp	Lewis	Mineral	2	0	1
33	Reliance	Lewis	Centralia	1	0	7
36	Salzer	Lewis	Centralia	7	0	0
92	Sloan	Lewis	Morton	0	0	0
47	Stoker	Lewis	Tenino SW	0	7	2
113	Ashford	Pierce	Kapowsin	0	0	0
105	Buckley	Pierce	Buckley	3	0	0
106	Burnett	Pierce	Buckley	0	0	4
111	Carbon Hill	Pierce	Wilkeson	5	0	0
99	Fairfax	Pierce	Wilkeson	0	0	0
101	Fairfax Bridge	Pierce	Wilkeson	0	0	0
103	Gleason	Pierce	Wilkeson	2	0	3
104	Spiketon	Pierce	Wilkeson	1	1	0
100	Upper Fairfax	Pierce	Wilkeson	1	0	0
10	Wilkeson	Pierce	Wilkeson	1	1	4
102	Wingate	Pierce	Wilkeson	1	0	1

P.A. #	P.A. Name	County	Quad	PI	PII	PIII
76	Cokedale	Skagit	Sedro Woolley	1	0	0
74	Hamilton	Skagit	Hamilton	0	0	4
75	Minkler Lake	Skagit	Lyman	1	0	0
109	Colville Vly Mine	Stevens	Waitts Lake	0	0	2
83	Black Bear	Thurston	Bucoda	0	0	1
42	Buffer	Thurston	Bucoda	0	0	0
41	Quality	Thurston	Bucoda	0	0	0
40	Thurston	Thurston	Bucoda	0	0	0
43	Tono	Thurston	Bucoda	100	100	0
108	Blue Canyon	Whatcom	Lake Whatcom	0	0	6
69	Glacier	Whatcom	Mt. Baker	0	0	0
68	Glen Echo	Whatcom	Lawrence	0	0	0
73	Van Zandt	Whatcom	Deming	0	2	1

APPENDIX B

WASHINGTON STATE AML PROBLEM AREAS

SORTED BY PROBLEM AREA

P.A.#	P.A. Name	County	Quad	PI	PII	PIII
98	Anchor Mine	Cowlitz	Kelso	0	0	0
113	Ashford	Pierce	Kapowsin	0	0	0
90	Atlas Coal	Lewis	Morton	0	0	1
88	Bayne	King	Cumberland	0	4	5
52	Beacon	King	Des Moines	0	0	0
83	Black Bear	Thurston	Bucoda	0	0	1
30	Black Diamond	King	Cumberland	4	19	40
72	Black Nugget	King	Fall City	5	2	1
108	Blue Canyon	Whatcom	Lake Whatcom	0	0	6
38	Bruner	Lewis	Centralia	1	0	0
105	Buckley	Pierce	Buckley	3	0	0
42	Buffer	Thurston	Bucoda	0	0	0
32	Bunker	Lewis	Centralia	1	0	2
106	Burnett	Pierce	Buckley	0	0	0
111	Carbon Hill	Pierce	Wilkeson	5	0	0
87	Carbon Mine	King	Cumberland	0	0	3
94	Carbondale	Cowlitz	Castle Rock	0	0	0
35	Centralia Coal	Lewis	Centralia	0	0	0
34	Christian	Lewis	Centralia	0	0	1
31	City Chehalis	Lewis	Centralia	2	2	3
112	Clallam	Clallam	Pysht	0	0	0
76	Cokedale	Skagit	Sedro Woolley	1	0	0

P.A.#	P.A. Name	County	Quad	PI	PII	PIII
109	Colville Vly Mine	Stevens	Waitts Lake	0	0	2
71	Danville	King	Cumberland	0	0	0
51	Diamond Mine	King	Renton	0	0	2
107	Dry Gulch	Chelan	Wenatchee	0	0	1
56	Durham	King	Cumberland	2	0	1
85	Elk	King	Cumberland	0	0	5
86	Eureka	King	Cumberland	0	0	0
99	Fairfax	Pierce	Wilkeson	0	0	0
101	Fairfax Bridge	Pierce	Wilkeson	0	0	0
48	Fords Prairie	Lewis	Tenino SW	0	2	1
45	Freeburn	Lewis	Bucoda	0	0	0
69	Glacier	Whatcom	Mt. Baker	0	0	0
103	Gleason	Pierce	Wilkeson	2	0	3
68	Glen Echo	Whatcom	Lawrence	0	0	0
74	Hamilton	Skagit	Hamilton	0	0	4
7	Hanaford	Lewis	Bucoda	0	0	0
58	Hudson	King	Cumberland	0	0	0
84	Hyde Cannon	King	Cumberland	0	0	0
95	Idleman	Cowlitz	Castle Rock	0	0	0
64	Independent	King	Cumberland	3	9	8
70	John Henry	King	Cumberland	0	5	0
57	Kangley	King	Cumberland	0	0	0
67	Krain	King	Cumberland	0	0	1
96	Lavell/Chapman	Cowlitz	Castle Rock	1	0	0
37	Lincoln	Lewis	Centralia	0	0	0

P.A.#	P.A. Name	County	Quad	PI	PII	PIII
46	Littel	Lewis	Adna	0	0	0
55	Mad Dog	King	Cumberland	0	0	0
6	Majestic	Lewis	Tenino SW	3	0	0
75	Minkler Lake	Skagit	Lyman	1	0	0
39	Monarch	Lewis	Centralia	0	0	2
82	New Black Diamond	King	Maple Valley	0	0	4
81	New Lake Youngs	King	Maple Valley	0	0	1
89	Nolte St Pk	King	Cumberland	1	0	0
110	NWI Mines	Kittitas	Cle Elum	0	0	3
5	NWI No. 3	Kittitas	Easton	0	8	3
233	NWI No. 3 Strip	Kittitas	Easton	0	0	3
3	NWI No. 5 Mine	Kittitas	Cle Elum	0	4	3
232	NWI No. 7 Mine	Kittitas	Cle Elum	0	2	4
231	NWI No. 8 Mine	Kittitas	Cle Elum	0	0	5
4	NWI No. 9 Mine	Kittitas	Cle Elum	0	6	4
61	Occidental	King	Cumberland	0	0	0
49	Pit	Lewis	Centralia	0	0	0
91	Pleasant Vly Camp	Lewis	Mineral	2	0	1
78	Preston	King	Fall City	0	0	1
41	Quality	Thurston	Bucoda	0	0	0
50	Railroad	King	Renton	0	0	1
9	Ravensdale	King	Cumberland	5	6	0
93	Red Ash Mine	Cowlitz	Castle Rock	0	0	0
77	Red Devil	King	Maple Valley	0	2	1
33	Reliance	Lewis	Centralia	1	0	7

P.A.#	P.A. Name	County	Quad	PI	PII	PIII
53	Reynolds Mine	King	Fall City	0	0	1
66	Rose Marshall	King	Cumberland	0	0	0
79	Ruffner	King	Hobart	1	0	0
36	Salzer	Lewis	Centralia	7	0	0
97	Silver Lake	Cowlitz	Toutle	0	0	0
92	Sloan	Lewis	Morton	0	0	0
104	Spiketon	Pierce	Wilkeson	1	1	0
47	Stoker	Lewis	Tenino SW	0	7	2
40	Thurston	Thurston	Bucoda	0	0	0
80	Tiger Mtn Mine	King	Hobart	2	2	0
43	Tono	Thurston	Bucoda	100	100	0
100	Upper Fairfax	Pierce	Wilkeson	1	0	0
73	Van Zandt	Whatcom	Deming	0	2	1
10	Wilkeson	Pierce	Wilkeson	1	1	4
102	Wingate	Pierce	Wilkeson	1	0	1

APPENDIX C

WASHINGTON STATE AML PROBLEM AREAS

SORTED BY QUADRANGLE

P.A. #	P.A. Name	County	Quad	PI	PII	PIII
46	Littel	Lewis	Adna	0	0	0
105	Buckley	Pierce	Buckley	3	0	0
106	Burnett	Pierce	Buckley	0	0	4
83	Black Bear	Thurston	Bucoda	0	0	1
42	Buffer	Thurston	Bucoda	0	0	0
45	Freeburn	Lewis	Bucoda	0	0	0
7	Hanaford	Lewis	Bucoda	0	0	0
41	Quality	Thurston	Bucoda	0	0	0
40	Thurston	Thurston	Bucoda	0	0	0
43	Tono	Thurston	Bucoda	100	100	0
94	Carbondale	Cowlitz	Castle Rock	0	0	0
95	Idleman	Cowlitz	Castle Rock	0	0	0
96	Lavell/Chapman	Cowlitz	Castle Rock	1	0	0
93	Red Ash Mine	Cowlitz	Castle Rock	0	0	0
38	Bruner	Lewis	Centralia	1	0	0
32	Bunker	Lewis	Centralia	1	0	2
35	Centralia Coal	Lewis	Centralia	0	0	0
34	Christian	Lewis	Centralia	0	0	1
31	City Chehalis	Lewis	Centralia	2	2	3
37	Lincoln	Lewis	Centralia	0	0	0
39	Monarch	Lewis	Centralia	0	0	2

P.A. #	P.A. Name	County	Quad	PI	PII	PIII
49	Pit	Lewis	Centralia	0	0	0
33	Reliance	Lewis	Centralia	1	0	7
36	Salzer	Lewis	Centralia	7	0	0
110	NWI Mines	Kittitas	Cle Elum	0	0	3
3	NWI No. 5 mine	Kittitas	Cle Elum	0	4	3
232	NWI No. 7 mine	Kittitas	Cle Elum	0	2	4
231	NWI No. 8 mine	Kittitas	Cle Elum	0	0	5
4	NWI No. 9 mine	Kittitas	Cle Elum	0	6	4
88	Bayne	King	Cumberland	0	4	5
30	Blk Diamond	King	Cumberland	4	19	40
87	Carbon Mine	King	Cumberland	0	0	3
71	Danville	King	Cumberland	0	0	0
56	Durham	King	Cumberland	2	0	1
85	Elk	King	Cumberland	0	0	5
86	Eureka	King	Cumberland	0	0	0
58	Hudson	King	Cumberland	0	0	0
84	Hyde Cannon	King	Cumberland	0	0	0
64	Independent	King	Cumberland	3	9	8
70	John Henry	King	Cumberland	0	5	0
57	Kangley	King	Cumberland	0	0	0
67	Krain	King	Cumberland	0	0	1
55	Mad Dog	King	Cumberland	0	0	0
89	Nolte St Pk	King	Cumberland	1	0	0
61	Occidental	King	Cumberland	0	0	0
9	Ravensdale	King	Cumberland	5	6	0
66	Rose Marshall	King	Cumberland	0	0	0

P.A. #	P.A. Name	County	Quad	PI	PII	PIII
73	Van Zandt	Whatcom	Deming	0	2	1
52	Beacon	King	Des Moines	0	0	0
5	NWI No. 3	Kittitas	Easton	0	8	3
233	NWI No. 3 strip	Kittitas	Easton	0	0	3
72	Black Nugget	King	Fall City	5	2	1
78	Preston	King	Fall City	0	0	1
53	Reynolds Mine	King	Fall City	0	0	1
74	Hamilton	Skagit	Hamilton	0	0	4
79	Ruffner	King	Hobart	1	0	0
80	Tiger Mtn Mine	King	Hobart	2	2	0
113	Ashford	Pierce	Kapowsin	0	0	0
98	Anchor Mine	Cowlitz	Kelso	0	0	0
108	Blue Canyon	Whatcom	Lake Whatcom	0	0	6
68	Glen Echo	Whatcom	Lawrence	0	0	0
75	Minkler Lake	Skagit	Lyman	1	0	0
82	New Blk Diamond	King	Maple Valley	0	0	4
81	New Lk Youngs	King	Maple Valley	0	0	1
77	Red Devil	King	Maple Valley	0	2	1
91	Pleasant V Cmp	Lewis	Mineral	2	0	1
90	Atlas Coal	Lewis	Morton	0	0	1
92	Sloan	Lewis	Morton	0	0	0
69	Glacier	Whatcom	Mt. Baker	0	0	0
112	Clallam	Clallam	Pysht	0	0	0
51	Diamond Mine	King	Renton	0	0	2
50	Railroad	King	Renton	0	0	1
76	Cokedale	Skagit	Sedro Woolley	1	0	0

P.A. #	P.A. Name	County	Quad	PI	PII	PIII
48	Fords Prairie	Lewis	Tenino SW	0	2	1
6	Majestic	Lewis	Tenino SW	3	0	0
47	Stoker	Lewis	Tenino SW	0	7	2
97	Silver Lake	Cowlitz	Toutle	0	0	0
109	Colville Vly Mine	Stevens	Waitts Lake	0	0	2
107	Dry Gulch	Chelan	Wenatchee	0	0	1
111	Carbon Hill	Pierce	Wilkeson	5	0	0
99	Fairfax	Pierce	Wilkeson	0	0	0
101	Fairfax Bridge	Pierce	Wilkeson	0	0	0
103	Gleason	Pierce	Wilkeson	2	0	3
104	Spiketon	Pierce	Wilkeson	1	1	0
100	Upper Fairfax	Pierce	Wilkeson	1	0	0
10	Wilkeson	Pierce	Wilkeson	1	1	4
102	Wingate	Pierce	Wilkeson	1	0	2

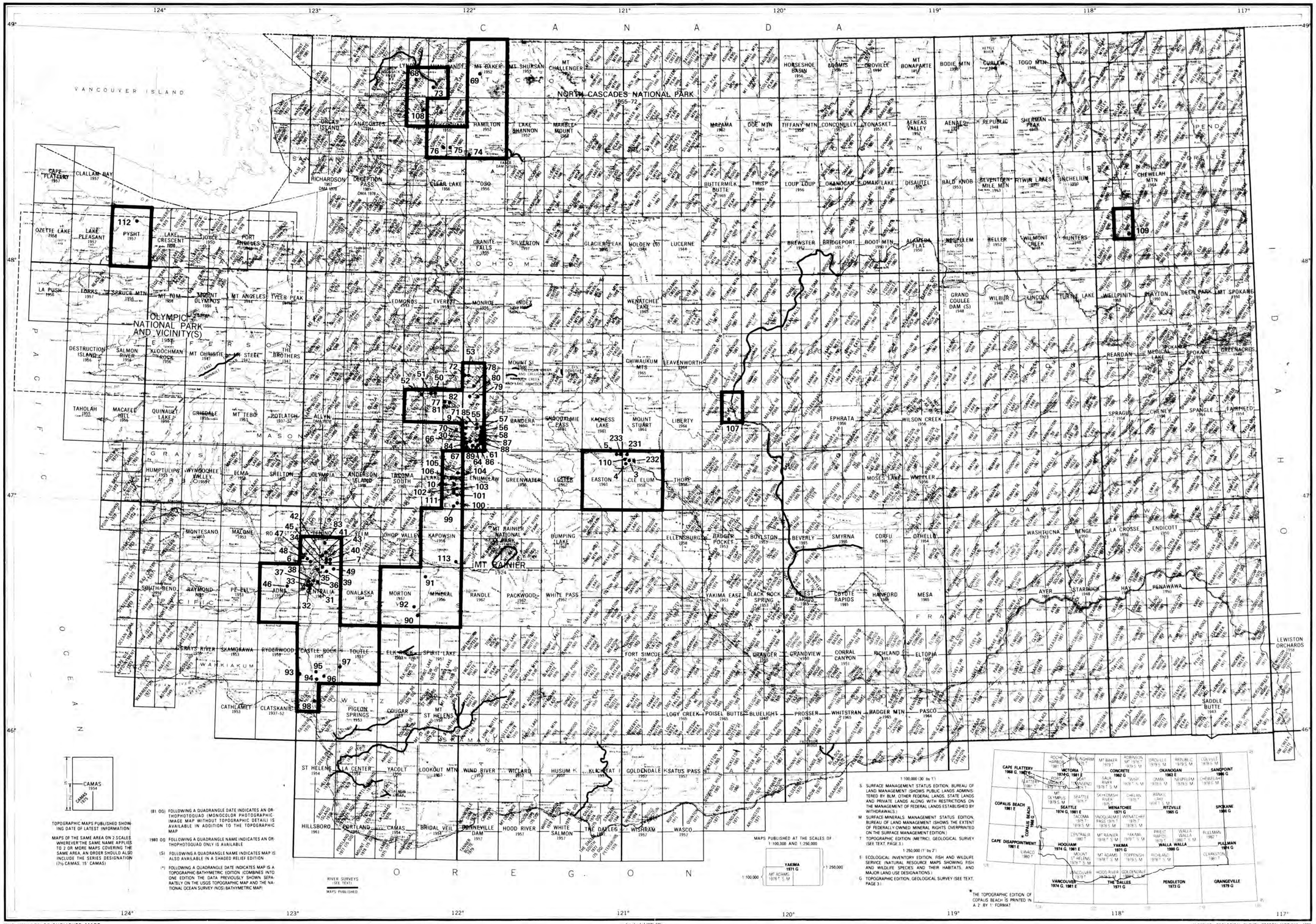
INDEX MAP: AML PROBLEM AREAS

WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES
DIVISION OF GEOLOGY AND EARTH RESOURCES

INDEX TO TOPOGRAPHIC MAPS OF WASHINGTON
ORDER MAPS BY NAMES PRINTED IN BLACK AND BY SERIES DESIGNATION
ALL MAPS SHOWN ON THIS INDEX
ARE DISTRIBUTED BY THE GEOLOGICAL SURVEY

OPEN-FILE REPORT 84-6
PLATE I

PROBLEM AREA NO.	PROBLEM AREA NAME
98	Anchor Mine
113	Ashford
90	Atlas Coal
88	Bayne
52	Beacon
83	Black Bear
72	Black Nugget
30	Black Diamond
108	Blue Canyon
38	Bruner
105	Buckley
42	Buffer
32	Bunker
106	Burnett
111	Carbon Hill
87	Carbon Mine
94	Carbondale
35	Centralia Coal
34	Christian
31	City Chehalis
112	Clallam
76	Cokedale
109	Colville Valley Mine
71	Danville
51	Diamond Mine
107	Dry Gulch
56	Durham
85	Elk
86	Eureka
99	Fairfax
101	Fairfax Bridge
48	Fords Prairie
45	Freeburn
69	Glacier
103	Gleason
68	Glen Echo
74	Hamilton
7	Hanaford
58	Hudson
84	Hyde Canyon
95	Idleman
64	Independent
70	John Henry
57	Kangley
67	Krain
96	Lavell/ Chapman
37	Lincoln
46	Littel
55	Mad Dog
6	Majestic
75	Minkler Lake
39	Monarch
82	New Black Diamond
81	New Lake Youngs
89	Nolte State Park
110	NWI Mines
5	NWI No. 3 Mine
233	NWI No. 3 Strip
3	NWI No. 5 Mine
232	NWI No. 7 Mine
231	NWI No. 8 Mine
4	NWI No. 9 Mine
61	Occidental
49	Pit
91	Pleasant V Camp
78	Preston
41	Quality
50	Railroad
9	Ravensdale
93	Red Ash Mine
77	Red Devil
33	Reliance
53	Reynolds Mine
66	Rose Marshall
79	Ruffner
36	Salzer
97	Silver Lake
92	Sloan
104	Spiketon
47	Stoker
40	Thurston
80	Tiger Mountain Mine
43	Tono
100	Upper Fairfax
73	Van Zandt
10	Wilkeson
102	Wingate



THE NUMBER OF PUBLISHED MAPS SHOWN ON THIS INDEX IS 1365

NOVEMBER 1, 1982

CAMAS 1954
CAMAS 1979

TOPOGRAPHIC MAPS PUBLISHED SHOWING DATE OF LATEST INFORMATION

MAPS OF THE SAME AREA ON 2 SCALES WHEREVER THE SAME NAME APPLIES TO 2 OR MORE MAPS COVERING THE SAME AREA, AN ORDER SHOULD ALSO INCLUDE THE SERIES DESIGNATION (7½ CAMAS, 15 CAMAS)

(81 00) FOLLOWING A QUADRANGLE DATE INDICATES AN ORTHOPHOTOQUAD (MONOCOLOR PHOTOGRAPHIC IMAGE MAP WITHOUT TOPOGRAPHIC DETAIL) IS AVAILABLE IN ADDITION TO THE TOPOGRAPHIC MAP

1980 00 FOLLOWING A QUADRANGLE NAME INDICATES AN ORTHOPHOTOQUAD ONLY IS AVAILABLE

(SI FOLLOWING A QUADRANGLE DATE INDICATES MAP IS ALSO AVAILABLE IN A SHADED RELIEF EDITION

(*) FOLLOWING A QUADRANGLE DATE INDICATES MAP IS A TOPOGRAPHIC-BATHYMETRIC EDITION (COMBINES INTO ONE EDITION THE DATA PREVIOUSLY SHOWN SEPARATELY ON THE USGS TOPOGRAPHIC MAP AND THE NATIONAL OCEAN SURVEY (NOS) BATHYMETRIC MAP)

RIVER SURVEYS (SEE TEXT)
MAPS PUBLISHED

MAPS PUBLISHED AT THE SCALES OF 1:100,000 AND 1:250,000

YAKIMA 1971 G
MT ADAMS 1978 T S M

1:250,000

1:100,000

1:100,000 (30 by 1°)

S SURFACE MANAGEMENT STATUS EDITION, BUREAU OF LAND MANAGEMENT (SHOWS PUBLIC LANDS ADMINISTERED BY BLM, OTHER FEDERAL LANDS, STATE LANDS AND PRIVATE LANDS ALONG WITH RESTRICTIONS ON THE MANAGEMENT OF FEDERAL LANDS ESTABLISHED BY WITHDRAWALS.)

M SURFACE-MINERALS MANAGEMENT STATUS EDITION, BUREAU OF LAND MANAGEMENT (SHOWS THE EXTENT OF FEDERALLY-OWNED MINERAL RIGHTS OVERPRINTED ON THE SURFACE MANAGEMENT EDITION.)

T TOPOGRAPHIC EDITION (METRIC), GEOLOGICAL SURVEY (SEE TEXT, PAGE 3.)

1:250,000 (1° by 2°)

E ECOLOGICAL INVENTORY EDITION, FISH AND WILDLIFE SERVICE (NATURAL RESOURCE MAPS SHOWING FISH AND WILDLIFE SPECIES AND THEIR HABITATS, AND MAJOR LAND USE DESIGNATIONS.)

G TOPOGRAPHIC EDITION, GEOLOGICAL SURVEY (SEE TEXT, PAGE 3.)

* THE TOPOGRAPHIC EDITION OF COPALIS BEACH IS PRINTED IN A 2° BY 1° FORMAT

Scale 1:1 000 000

INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—1982

ADDITIONAL INFORMATION CONCERNING THE PROGRESS OF MAPPING IN WASHINGTON MAY BE OBTAINED FROM THE U. S. GEOLOGICAL SURVEY, NATIONAL CARTOGRAPHIC INFORMATION CENTER, WESTERN MAPPING CENTER, 345 MIDDLEFIELD ROAD, MENLO PARK, CA 94025 OR THE U. S. GEOLOGICAL SURVEY, NATIONAL CARTOGRAPHIC INFORMATION CENTER, RESTON, VA 22092

OFR
84-6
Plate 1

COAL PRODUCTION IN WASHINGTON AS REPORTED TO THE STATE MINE INSPECTOR BETWEEN 1860 AND 1982

WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES
DIVISION OF GEOLOGY AND EARTH RESOURCES

OPEN-FILE REPORT 84-6
PLATE 2 PART 1

COMPANY	MINE	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	TOTAL PRODUCTION (tons)
CHELAN COUNTY																																																																																																							
WENATCHEE COAL CO.	DRY GULCH																																																	235	615	362	63																																																						1,275
CLALLAM COUNTY																																																																																																							
CLALLAM COAL CO.	CLALLAM					500																									300	2,979	2,702	696																																																																																																																																																														7,177
COWLITZ COUNTY																																																																																																							
ANCHOR COAL AND DEVELOPMENT CO.	ANCHOR											1,203		200		3,220																																																																																													4,623
BOBACK COAL CO.																																																						26																																																		26
CASTLE ROCK COAL CO.	IDLEMAN													125	800	1,141																																																																																									2,066
CHERRY VALLEY COAL CO.	CHERRY VALLEY																																											114	1,162	984	2,208	626	556						96																																																				5,746
COAL BANKS MINING CO.																																																														75																																										75
COWLITZ COAL CO.	CASTLE ROCK																																												180	605	468	90						189																																																						1,532
ELLING-PARK COAL CO.	NO. 1																																																			162	302																																																				464
GLENZ COAL CO.																																																				107	8																																																				115
HI-WAY COAL CO.	HI-WAY																																																									482	572	258				257																																												1,569
QUESNOY COAL CO.																																																						4	128																																																	132
SILVERLAKE COAL CO.																																																					67	15																																																			82
THREE FORKS COAL CO.																																																				32																																																							32
KING COUNTY																																																																																																							
ACME COAL CO.	NO. 1																																																					598																																																598
ALTA COAL & COKE CO.	NO. 1																																																	300	2,275	2,483	2,214																																																							7,272
ANDERSON COAL MINES	NO. 1																																																														2,267	11,562																																															13,829
	NO. 7																																																																13,229	8,684	7,855																																													29,768
	STRIP																																																																			4,108																																													4,108
ATLANTIC-PACIFIC COAL CO.	NO. 1																																																												97																																																		97
BEACON COAL CO.	NO. 1																																															71																																																														71
BIANCO COAL CO.	QUEEN NO. 1																																																		2,073	27,511	39,110	24,423	26,171	39,840	43,319	22,991	21,685	19,668	34,632	67,631	52,135	37,886	41,681	31,350	33,031	33,927	29,795	28,348	17,858	12,535	11,184	1,542																																		700,326
BIG FOUR COAL CO.	NO. 1 ELK																																																3,429	14,618	37,947	39,080	43,503	28,537	25,953	28,689	26,654	23,857	31,079	26,230	28,074	28,892	20,662	16,834	32,264	29,916	34,046	14,586	8,670	19,220	19,720	15,137	6,818																																			604,415
BIRDSEYE COAL CO.	BIRDSEYE																																											122																																																																		122
BLUE BLAZE COAL CO.	NO. 1																																																											415	85																																																				500
BLACK BEAUTY COAL CO.	NO. 1																																																					269	744	493	682	32	136	221	23																																																				2,600
BLACK DIAMOND COAL (MINING) CO.	BLACK DIAMOND				10,562	71,356	86,500	30,880	105,255	NO RPT.	111,422	89,935	127,442	120,694	115,028	100,337	99,956	109,000	227,538	220,346	227,000	258,996	278,922																																																																																															2,371,169
	NO. 14																							107,763	110,624	97,593	93,633																																																																																																409,613
	MORGAN SLOPE																							162,892	201,666	269,875	231,984																																																																																																866,417
	CEDAR MOUNTAIN							10,878	23,120	NO RPT.	15,866	12,573			500	20,000	12,000	8,500	11,500	6,000	13,500			14,500	35,000	17,500																																																																																												201,437
BLACK NUGGET COAL CO.	BLK. NUG. NO. 107																																																								853	3,509	3,404	1,747	1,240			194	2,109	2,063	542																																														15,661
BLACK RIVER COAL CO.	BLK. RIVER NO. 1																																				265		99	600	4,134	6,215												636																																																							11,949
BOJACK COAL CO.	NO. 1																																																									411																																																					411
B.P.D. COAL CO.	NO. 1																																																																		2,391	4,378	5,043	852																																									12,664
B & R COAL CO.	NEWCASTLE																																																			16,271	26,431	21,475	25,157	24,442	18,099	7,142	9,144	9,921	16,699	30,340	26,516	22,323	31,025	24,009	16,998	18,310	22,326	24,899	26,333	26,282	20,866	18,800	25,462	21,304	13,381																															543,954
	GRAND RIDGE																																																								3,171	11,790	16,908	12,425	13,000	16,812																																																		74,106
	ISSAQUAH																																																													4,901	17,791	19,756	20,630	12,911	7,868	13,909	12,427	8,853	832																																									119,878
	BAGLEY																																																																													8,954	8,992	6,756	4,252	3,835																														32,789
CALIF-ALASKA COAL CO.	NO. 1																																													2,492	6,429	437																																																																	9,358
CARBON COAL & CLAY CO.	AMERICAN																3,500	8,500																																																																																											12,000
	CARBON (DALY)																							235	15,000	20,500	22,300	21,177	26,934	31,816	11,926	41,291	43,610	63,999	79,847	44,425	51,806	68,727	72,096	64,627	17,831	15,587	15,555	1,398	2,300	3,485	3,340	2,159	2,377		10,521	21,522	24,740	32,245	19,275	16,592	11,247	16,749	14,754	16,660	17,840	20,877	17,148	16,304	6,903	11,761	13,242	17,434	20,283	17,453	4,795																																1,092,693
CAROLINE COAL CO.	CAROLINE NO. 1																																													133	4,638	6,069	7,010	5,603	2,370																																																													25,823
CARR COAL MINES	TIGER MTN.																																																			941																																																							941
CASH M COAL CO.	NO. 1																																															245																																																														245
CASSIDY COAL CO.	EUREKA																																				4,500																																																																					4,500
CAVANAUGH COAL CO.	CAVANAUGH																																																198																																																													198
CEDAR MTN. COAL CO.	CEDAR MTN.																																																								52,023	42,350	39,602																																																										133,975
CEDAR RIVER COAL CO.	CEDAR MTN.				21,605	21,605	21,605																																																																																																									64,815
CENTRAL COAL CO. (OPERATED BY ANDREW KENNEDY IN 1916)	GRAND RIDGE												591															6,913	39,484	40,411	53,709	63,685	21,465		24,097		81,929	45,849	78,565	20,790																																																																														477,488
	RAVENSDALE																																									7,764	10,375																																																																18,139
CITY COAL MINES	NO. 1																																																											367	36																																																				403
C & M COAL CO.	NO. 1																																																																			1,206	1,582	2,575	2,672	2,204	203																																					10,442
COLGATE COAL CO.	OCCIDENTAL																																												8,607	5,982																																																																			14,589
COALFIELD COAL CO.	COALFIELD																																																							268	369																																																								637
CONSOLIDATED COAL MINES	CEDAR MTN.																																																											35,977	39,397	18,368	1,209	3,549																																																98,500
CONTINENTAL FUEL CO.	LISCO NO. 1																																												2,972	1,931	140																																																																		5,043
CONTINENTAL COAL CO.	McKAY																																																													114,224	82,553	63,498																																																260,275
CO-OPERATIVE COAL CO.	SUNSET																		2,276	4,719	9,000	8,600	6,700				23,556	1,693																																																																																																												56,544
CRANE VALLEY COAL CO.	JONES																																								742	292																																																																												1,034
CROW LAKE DEVEL. CO.	NAVY																																																628	771																																																																				1,399
CUMBERLAND CO. MINING CO.	EUREKA																																							1,202	10,444	28,165	5,629	8,915	6,691	14,609	6,856																																																																						82,511
DALE COAL CO.	DALE NO. 1 & NO. 2																																											2,212	1,308	4,050	8,316	38,669	53,586	51,181	38,023	36,245	57,346	63,907	116,615	132,513	144,235	115,375	136,270	137,366	162,404																																																		1,299,621
DANVILLE COAL CO.	NO. 1															500		1,000	1,500					1,447			7,720	2,547																					2,945	8,585	11,118																																																																				37,362
	OCCIDENTAL																		15,000	13,427		3,225	16,024	16,786	18,242	31,834	38,038	20,984	29,711	34,562	10,467																																																																																													248,300
DEEP CR. COAL MINE CO.	SUNSET																															4,474																																																																																								4,474
DENNY-RENTON CLAY & COAL CO.	DENNY-RENTON																									12,364	16,556	8,619	16,837	30,945	19,784	6,950		9,950	9,822	7,480	3,311	5,143																																																																																					147,761
(PROBABLY KNOWN AS DENNY-RENTON COAL & COKE CO. PRIOR TO 1918)	NO. 1																								15,500	15,109	21,891	47,365	47,652	68,309	85,045	33,588	13,937	34,639	21,280	20,882	55,344	64,639	38,945	45,200	4,440																																																																																		633,765
	KUMMER																																								925																																																																														925
DESIMONE COAL CO.	LANDSBURG NO. 1																																																				3,133	12,870	12,675	4,306																																																												32,984
DIAMOND COAL CO.	DIAMOND NO. 1																																														120	698	1,434	3,839	195																																																																	6,286
DRAGHI COAL CO.	NO. 1																																																																						1,297	2,145	2,881	2,869	2,496																																										11,688
	NO. 3																																																																											2,289	2,156	1,605	1,294	1,078																																						8,422
	NO. 4																																																																																576	207	69																																						852
DURHAM COLLIERY CO.	NO. 1 & NO. 2																																				18,854	39,888	70,064	51,630	50,771	34,614																																																																																											265,821
DURHAM COAL CO.	MORRIS																																																			1,454																																																							1,454
EAGLE HILL COAL CO.	NO. 1																																																			125																																																							125
ECHO LAKE COAL CO.	ECHO NO. 1																																																				66	25																																																			91
ELK COAL CO.	ELK NO. 1																																								5,253	49,207	65,274	35,745	19,579	19,031	37,420	14,499																																																																									246,008
ENUMCLAW COAL CO.	NO. 1																																														412																																																															412
EUREKA NAVY COAL CO.	NO. 1 & NO. 2																																																	1,883	1,250				99				210	482	199																																																				4,123
EVANS COLLIAS	NO. 1																																																										481																																																							481
FIRE KING MINING CO.	NO. 1																																																																432	3,208	233	233																																													4,106
FOSTER COAL CO.	NO. 1																																																			109	482	174	59																																																								824
FRANKLIN GEM COAL CO.	NO. 1																																																													3,979	5,961	6,758	7,048	5,555	5,071	4,881	4,628	846																																									44,727
FRANKLIN QUEEN COAL CO.	NO. 1																																																														230	106																																																	336
GEBO-DRAKE COAL CO.	LANDSBERG																																																							64	645																																																								709
GEM COAL CO.	GEM																																																								1,469	1,037	2,798	1,968	387		890	756																																																9,305
GREEN RIVER COAL CO.	KRAIN NO. 1																																																		377	799	909	745	1,909	1,243	409		903	256		445	446	2,001	2,235	2,150	141																																														14,968
	BAYNE |||||||||||||||||||||||||||30|17,225|48,171|26,022|||91,448
GREEN R. GORGE COAL CO.	OKAY																																																					100	306	262	392	168	60																																																														1,288
HARRIS COAL CO.	HARRIS NO. 1																																									1,488	9,554	8,279	6,372	9,064	9,180	11,092	9,396	9,092	7,517	7,257	11,490	14,210	13,051	17,405	22,843	23,863	17,501	9,248	4,989	2,570	1,574																																																227,035
HIAWATHA COAL CO.	HIAWATHA																																											2,596																																																																2,596
HI-GRADE COAL CO.	NO. 1																																																									2,135	2,601	1,816																																																					6,552
HI-HEAT COAL CO.	NO. 1																																																					173	1,161	1,656	1,885	1,620	1,311	1,505	1,583	659	113	978																																																12,644
	NO. 10																																																																1,497	557																																															2,054
HYDE COAL CO.	HYDE																																		19,710	14,247	NO RPT.	16,596	75,919	78,036	66,757	36,688																																																																																											307,953
HYDE MINES INC.	NO. 1																																																										204	580	70		736	1,760																																																		3,350
	NO. 2																																																																2,892																																																2,892
IDEAL COAL CO.	NO. 1																																																										94																																																							94
INDIAN COAL CO.	INDIAN																																								1,017	2,574																																																																												3,591
ISSAQUAH COAL CO.	NO. 1																																																														799	5,588	3,153																																																	9,540
ISSAQUAH SUPERIOR COAL MINING CO.	ISSAQUAH																																	4,780	90,487	80,994	40,271	42,511																																																																																																							259,043
JENKINS-EVANS COAL CO.	FRANKLIN																																																							4,219	1,105																																																								5,324
JERGENSEN COAL CO.	NO. 1																																																			600																																																							600
JOHNSON COAL CO.	NO. 1																																																														153	2,501	2,327	2,222	1,722	1,942	2,098	883																																									13,848
JOHN McQUADE	McQUADE																																						874	1,399	2,321	1,500																																																																																6,094
J. J. COAL CO.	J. J.																																																							1,026	411																																																								1,437
JOHN-RICHMOND COAL CO.	NO. 1																																																						98	98																																																									196
KANGLEY COAL CO.	KANGLEY																																								2,416																																																																														2,416
KANGLEY COAL CO. INC.	NO. 1																																																						193	208																																																									401
KANGLEY COAL MINING CO.																																													12,513																																																																			12,513
KANGLEY WEST COAL CO.	NO. 1																																																	1,717																																																											1,717
KEOLER COAL CO.	NAVY NO. 1																																															2,187	1,402																																																																					3,589
K&F COAL CO.	NO. 3																																																						32																																																											32
KRAIN COAL CO.	NO. 1																																															324		611																																																																						935
KING CARBON COAL CO.																																										590																																																																													590
KUMMER COAL CO.	NO. 1																																																			206	3,142	2,791	3,310	263							417	952	3,106	4,218	4,223	3,879																																											26,507
KUMMER COAL OPERATORS	KUMMER																																																									5,748	16,761	22,731	8,239																																																				53,479
LAHEY COAL CO.	NO. 1																																																														288	5,206	6,275	4,590	1,454																																													17,813
LANDSBERG COAL CO.	NO. 1																																																			773	3,223																																																						3,996
LAWSON COAL MINES	NO. 1																																																				7,152	19,214	34,959	15,129																																																												76,454
LAWSON & CO.	LAWSON															11,000	28,860	45,834	52,161	78,600	97,329	107,750	186,987	98,587	79,200	92,656	91,935	73,015	83,694	83,687	7,099																																																																																																					1,218,394
LEARY COAL CO. (BECAME NW IMPROVEMENT CO. 1912)	LEARY																			48,000	63,578	71,426	187,900	183,883	184,370	257,705	261,688	32,545	162,625	152,327	166,018																																																																																																					1,772,065
LISCO COAL CO.	LISCO																																									2,013	3,810																																																																							5,823
MACKS COAL CO.	MACKS																																																																										840	2,572	1,186	343	131	61																																							5,133
MAPLE RIDGE COAL CO.	NO. 1																																																					1,170	105																																																										1,275
MAY CREEK COAL CO.	MAY CREEK																														3,003							1,211					714	1,246																																																																																						6,174
McKAY OPERATORS INC.	NO. 1																																																						45	268																																																										313
McKAY COAL CO.	NO. 1																																																																				179																																													179
MORRIS BROS. COAL CO.	DURHAM NO. 2																																									21,127	24,517	27,866	23,473	29,189	23,583	18,889	2,907																																																																									171,551
	DURHAM NO. 1																																																	4,946																																																											4,946
	MORRIS																																																		5,232																																																										5,232
	OCCIDENTAL																																															23,509	38,229	43,454	38,530	28,060	41,358	17,809	19,774	20,877	20,618																																																														292,218
MUD LAKE COAL CO.	NO. 1																																																			18																																																							18
NACO COAL CO.	NAVY																																												296																																																																				296
NATIONAL COAL CO.	NO. 6																																						22,071	27,256	3,381																																																																																			52,708
	NO. 1																																					14,800																											101	338	90																																																15,329
	SUNSET																																			18,555	9,326																																																																																							27,881
NATIONAL DEVEL. CO.	TAYLOR																																																									1,837	323																																																							2,160
NAVY COAL CO.	NAVY NO. 1																																												140	380							1,259	1,336	383	181																																																								3,679
NEWCASTLE-KING COAL CO.	KING																																																							2,073	3,682	2,319	1,851	584			322																																																10,831
NEW LAKE YOUNG COAL CO.	NO. 1																																																							4,581	11,191	9,945	5,836	7,560	11,578	14,384	9,508	5,892	5,685	1,824	641	2,402	458																																										91,485
NIBLOCK COAL CO.	NIBLOCK																																											1,260	618																																																																				1,878
NORTHWESTERN IMPROVEMENT CO.	RAVENSDALE																																	114,111	154,085	127,972	124,347																																																																																																									520,515
(WAS LEARY COAL CO.)	HIAWATHA																																							2,752	7,395	13,460	2,448	4,235	26,120																																																																														56,410
	McKAY																																																															7,774	47,894	38,580	25,252	24,474	293																																													888,268
	NO. 5 STRIP																																																																	7,076	69,935	101,722	15,669																																													194,402
OAKDALE COAL CO.	NO. 1																																																		180	623																																																												803
OCCIDENTAL COAL CO.	OCCIDENTAL																																														3,395																																																															3,395
OCCIDENTAL COKING & COAL CO.	OCCIDENTAL																																	25,984	32,745																																																																																																58,729
OKAY COAL CO.	McKAY NO. 1																																																													1,444	2,296	521																																																4,261
OLD LAWSON COAL CO.	NO. 1																																																							4,275																																																										4,275
OLSON COAL CO.	NO. 1																																																																		3,665	7,982	9,669	6,127	6,096	6,205																																						39,744
OLD SUNSET MINE	NO. 1																																																										57																																																							57
OREGON IMPROVEMENT CO. (CHANGED TO PACIFIC COAST COAL CO. 1898)	NEWCASTLE *	158,340	218,742	149,948	149,050	85,561	140,701	14,963	76,102		160,514	154,225	153,000	139,817	79,827	125,337	138,024	163,000																																																																																																			2,512,987
	FRANKLIN					8,350	37,922		136,844		44,557	73,500	88,000	99,180	70,584	56,063	105,268	168,000																																																																																																			841,996
	DURHAM |||||||6,360|22,319|||28,679
	KANGLEY ||||||||||5,544|14,152|16,673||7,190|1,519||45,078
	ALTA ||||||||||2,000|13,500|9,000|3,500|||28,000
OZARK MINING CO.	NAVY																																					5,838	37,641	35,090	27,902	58,580	7,759	5,318																																																																																		178,128
PACIFIC COAST COAL CO.	NEWCASTLE																		113,715	26,804																									6,470	10,176		256,385	344,609																																																																					758,159
	COAL CREEK																		41,517	165,538	130,957	140,841	145,374	148,312	133,750	168,360	269,932	166,473	233,791	223,728	224,342	210,331																																																																																																							2,403,246
	NO. 14																											49,983	94,713	131,079	123,851	108,315	119,045	67,683	44,512	3,148																																																																																																	742,329
	NO. 11																																		238,765	164,762	133,686	206,975	300,216	311,994	253,002	287,539	68,248	202,290	229,338	255,183	251,417	235,157	28,263																																																																																3,166,835
	FRANKLIN																																																													67,702	66,418	72,290	57,123	26,468																																														290,001
	GEM																		17,629	39,600	36,460	52,735	65,646	58,274	2,324	71,082	86,645	94,068	8,923	37,528	47,108	52,715	49,319																																																																																																					720,056
	NO. 1																					65,107	190,150	100,454	96,615	87,584	83,863	18,050																										168,042		320,345	320,345																																																																			1,450,555
	CANNON																																		6,125	36,858	5,196		15,745	40,534	14,388	13,385	6,607	5,400																																																																																									144,238
	LAWSON																																																							10,191	66,311	17,116																																																									93,618
	FULTON																																																																29,355	2,624																																																	31,979
	NEW BLACK DIAMOND																																																		219,990	197,172	189,300	152,889	155,704	154,173	175,340	141,429	87,994	44,075	22,757																																																				1,540,823
	WEST COAST																																													37,664	65,732	13,151																																																																			116,547
	FORD																																		292,124	244,778	238,343	301,563	368,096	324,247	181,072	163,182	94,164	232,255	211,443	215,118	156,343	55,402																																																																																						3,078,130
	PRIMROSE																																														92	83,057	99,158																																																																						182,307
CONTINUED ON PART 2		1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	

* EARLIER FIGURES FOR NEWCASTLE MINE ARE: 1879 - 127,381; 1880 - 128,853; 1881 - 149,602.

WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES
DIVISION OF GEOLOGY AND EARTH RESOURCES

COAL PRODUCTION IN WASHINGTON AS REPORTED TO THE STATE MINE INSPECTOR BETWEEN 1860 AND 1982

OPEN-FILE REPORT 84-6
PLATE 2 PART 2

COMPANY	MINE	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906
KING COUNTY (CONTINUED)																										
PACIFIC COAST COAL CO. (CONTINUED)	NO. 7																		148,612	128,000	92,711	72,238	82,480	47,046	63,347	55,984
	ISSAQUAH																									
	HYDE																									
	MORGAN SLOPE																									
	"B"																									
	NO. 12																									
	RENTON																									
	OLD LAWSON																									
PALMER COKING COAL CO.	DURHAM																									
	DANVILLE																									
	OCCIDENTAL																									
	PALMER																									
	FULTON STRIP PIT																									
	NO. 10, 11, 12																									
	McKAY - GEM STRIP																									
	GEM STRIP																									
	FRANKLIN NO. 10																									
	FRANKLIN NO. 12																									
	FRANKLIN (FULTON)																									
	NO. 12 STRIP PIT																									
	KUMMER																									
	FRANKLIN-FULTON NO. 1 & 2																									
	FULTON NO. 2																									
	ROGERS																									
	ROGERS NO. 2																									
	ROGERS NO. 3																									
	LANDSBURG STRIP																									
PALMER BITUMINOUS COAL CO.																										
PARKIN-KANGLEY COAL CO.	KANGLEY																									
	NO. 1																									
PIONEER COAL CO.	NO. 1																									
POCAHONTAS COAL CO. (ALSO CANAL COAL CO.)	POCAHONTAS																								540	849
	DAVIS																									
PUGET SOUND TRACTION LIGHT & POWER CO.	RENTON																									
RAINIER COAL CO.	NO. 1																									
RAVEN COAL CO.	RAVENSDALE																									
RED DEVIL COAL CO.	NO. 1																									
RENTON COAL CO.	RENTON																									
	SLUDGE DUMP																									
RENTON MINING CO.	TALBOT NO. 1																									
RENTON SUNBEAM COAL CO.	SUNBEAM NO. 1																									
REYNOLDS COAL CO.	NO. 1																									
RICHMOND-STANLEY COAL CO.	NO. 1 (NEWCASTLE)																									
	NO. 1 (BLK. DIAMOND)																									
RIVERTON COAL CO.																										
ROMANO COAL CO.	RED DEVIL																									
ROSE-MARSHALL	CUMBERLAND																									
SCRANTON COAL CO.	NAVY																									
SEATTLE COAL & IRON CO.	GILMAN							9,138	41,482		55,956	102,105	121,378	81,623	92,890	138,836	112,085	115,370	124,238	126,706	121,829	117,184	105,643	50,896		
(ALSO CALLED ISSAQUAH SUPERIOR COAL MINING CO.)	RENTON														2,420	7,000	11,200	35,000	38,000	37,170	72,865	104,071	134,743	91,777	117,120	116,452
SNOQUALMIE COAL & COKE CO.	SNOQUALMIE																						5,000	3,200		827
	DENNY											3,200	5,474	7,000	6,500	3,500	2,000	6,600				10,044	10,705	16,062	15,060	8,680
	EUREKA												800	16,000	8,000					35						
	NAVY													4,800	3,347	1,706	3,018	3,500	3,600	650						
SPRINGBROOK COAL CO.	NO. 1																									
SPRINGBROOK MINING CO.	NO. 1																									
	SPRINGBROOK																									
	NO. 3																									
	NO. 2																									
SPRINGBROOK KING COAL	NO. 1																									
SPRING GLEN COAL CO.	NO. 1																									
STRAIN COAL CO.	RENTON																									
	COAL CREEK																									
	McKAY																									
	FRANKLIN																									
	GINDER LAKE																									
	UPPER DIAMOND																									
SUCCESS COAL CO.	DANVILLE																									
SUNSET COAL CO.	SUNSET																									
SUPERIOR COAL & IRON CO.	SUPERIOR																									
SWAN PERSON COAL CO.	NO. 1																									
TALBOT COAL CO.	TALBOT				10,000	35,015																				
TALBOT MINING CO.	NO. 1																									
TAYLOR COAL CO.	TAYLOR NO. 1																									
TERTELING & SONS, INC.	McKAY STRIP																									
THERMAL COAL CO.	NO. 1																									
TIGER MOUNTAIN COAL CO.	TIGER MOUNTAIN																									
T & O COAL CORP.	KUMMER																									
TULLOCK COAL CO.	DANVILLE NO. 1																									
TWIN RIVER DEVELOPMENT CO.	KANGLEY DUMP																									
WEST COAST COAL CO.	CEDAR MTN. NO. 1																									
WESTERN COKE & COLLIERIES	SNOQUALMIE																									
WONDER COAL CO.	NO. 1																									
W. G. KEGLER COAL CO.	NAVY NO. 1																									
KITTITAS COUNTY																										
AMERICAN-CANADIAN FUEL CO.	AMERICAN																									
BEEKMAN COAL CO.																										
BLUE FLAME COAL CO.																										
BUSY BEE MINING AND DEVELOPMENT (GWINN AND GALLAGHER AFTER 1918)	BUSY BEE																									
CLE-ELUM COAL CO.	CLE-ELUM														7,745	8,420	7,806	8,500				212,584	331,400	377,114	313,987	434,629
CLE ELUM SUPERIOR COAL CO.																										
CONSERVATIVE COAL CO.	LAKEDALE																									
D.A. BROWN CO.	BROWN SLOPE																						3,000	1,000	3,951	
DENNY AND DENNY, INC.	WILSON																									
ELLENSBURG COAL CO.	GUNTHUR														1,000	1,200										
INDEPENDENT COAL AND COKE CO.	QUEEN																									
JONESVILLE COAL CO.	NO. 1																									
	NO. 2																									
	NO. 3																									
	NO. 4																									
KEELAN AND WARD															200	240										
LAKE COAL CO.																										
NORTHERN PACIFIC COAL CO.	ROSLYN 1, 2, 4, 6, 8 & DIP					1,742	104,782	230,548	294,701	445,311	348,018	285,088	241,441	232,282	267,176	255,358	322,500	555,774	635,318	867,204	1,005,027	1,039,870	1,032,530	954,620	952,353	970,165
(NORTHWESTERN IMPROVEMENT CO. AFTER 1898) (NORTHERN PACIFIC RAILWAY, COAL DEPT. AFTER 1955)	ROSLYN 3																									
	ROSLYN 5																									
	ROSLYN 7																									
	ROSLYN 9																									
	NWI STRIP																									
ROSLYN-CASCADE CO.	PLANT																							8,954	345	
	NOS. 1 & 2																									
	NO. 3																									
	NO. 4																									
ROSLYN COAL CO.															400	420										
ROSLYN COAL & COKE CO.																										
ROSLYN FUEL CO.	BEEKMAN NOS. 1 & 3																									
	BEEKMAN NO. 2																									
	SUMMIT																									
ROTHLISBERGER COAL CO.	NO. 1																									
SUMMIT COAL CO.																							2,000	5,000	3,951	
SUN RAY COAL CO.																										
SUNSET COAL MINING CO.	ELLENSBURG																									
SUPERIOR COAL CO.																										
SWAIN AND HAIGHT															450	300										
T.B. WRIGHT AND SONS	WRIGHT																									
TERRACE COAL AND COKE CO.																										
YAKIMA-ROSLYN COAL CO.	GUNTHUR																									
LEWIS COUNTY																										
AGNEW FUEL CO.																										
AJAX COAL CO.																										
ANTHRACITE COAL CORPORATION																										
ARROW COAL CO.	CENTRALIA																									
ARROWSMITH COAL CO.	ARROWSMITH																									
ASSOCIATED COAL MINING CO.	DIVIDE																									
ATLAS COAL MINING CO.																										
BLACK BADGER COAL CO.																										
BLACK PRINCE COAL CO.	BLACK PRINCE																									
	NO. 3 (CENTRALIA)																									
	VICTORY STRIP PIT																									
BLAKENSHIP & BURLESON																										
BUCODA COAL MINING CO.	BELLE SLOPE																									
CAMBRIDGE COAL CO.																										
CENTRALIA COAL CO.	POTLATCH																									
CENTRALIA COAL MINING CO.	EMPRESS																									
CHEHALIS COAL CO.	LEONARD'S																									
	MINE NO. 1														200	2,000										
	MINE NO. 2															141										
CHRISTIAN COAL CO.	NO. 1																									
COAL CANYON COAL CO.	COAL CANYON																									
COAST RANGE COAL CO.	LITTELL																									
COLUMBIA COAL CO.	SMITH																									
COLUMBIA COLLIERIES CO.																										
COMFORT COAL CO.																										
CONNELY CREEK COAL CO.	TOBY																									
CRESCENT COAL CO.	LITTELL																						500		3,000	
CRYSTAL COAL CO.																										
DOMESTIC COAL CO.																										
EAST CREEK COAL CO.	LADD																									
EMPRESS COAL CO.	EMPRESS																									
EUREKA COAL CO.	EUREKA													4,425	9,050											
EVERRETT-FISHER COAL CORP.	COAL CANYON																									
FLORENCE COAL CORP.	FLORENCE										4,350	5,241	1,423	2,116	1,300											
FORDS PRAIRIE COAL CO.	FORDS PRAIRIE																									
FREEBURNING COAL CO.	PACKWOOD																									
GOLDEN GLOW COAL CO.																										
H. W. GIESY	NO. 1																									
HANNAFORD VALLEY COAL CO.	HANNAFORD																									
HI-CARBON COAL CO.																										
HUTCHINSON COAL CO.	LITTELL																									
K & K MINING CO.	BELLE SLOPE																									
KING COAL CO.	SALZER VALLEY																									
KOAL GATE KOAL CO.																										
KOPIAH COAL CO.	KOPIAH																									
LINCOLN COAL CO.	RAINIER																									
MAJESTIC COAL & MINING CO.	MAJESTIC																									
	NONPAREIL																									

COMPANY	MINE	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932
PACIFIC COAST COAL CO. (CONTINUED)	NO. 7	11,199																									
	ISSAQUAH											49,363	66,652	42,047	124,629	26,255	113,279	19,384									
	HYDE															1,207											
	MORGAN SLOPE		209,805	278,981	272,662	255,736	246,042																				
	"B"						34,923	61,003	1,583																		
	NO. 12						2,462																				
	RENTON											133,770															
PALMER BITUMINOUS COAL CO.																614	810										
PARKIN-KANGLEY COAL CO.	KANGLEY																		28,210	64,141	70,452	44,978					
	NO. 1																					857	11,937				
PIONEER COAL CO.	NO. 1																									1,069	60
POCAHONTAS COAL CO. (ALSO CANAL COAL CO.)	POCAHONTAS	30							9,403	22,021	11,623	32,730	24,517	9,665	8,160												
PUGET SOUND TRACTION LIGHT & POWER CO.	RENTON						103,963	139,562	113,218	120,948	135,203																
RAVEN COAL CO.	RAVENSDALE												730	5,154													
RED DEVIL COAL CO.	NO. 1																										60
RENTON COAL CO.	RENTON												131,800	112,683	59				1,085								
	SLUDGE DUMP													6,995	52,341	62,413	22,151	8,829									
RENTON SUNBEAM COAL CO.	SUNBEAM NO. 1																			14,187	19,713	21,051	17,816	17,371			
REYNOLDS COAL CO.	NO. 1																						70	378			
RICHMOND-STANLEY COAL CO.	NO. 1 (NEWCASTLE)																									2,438	
RIVERTON COAL CO.																1,200											
ROSE-MARSHALL	CUMBERLAND		8,165	12,175	4,996																						
SCRANTON COAL CO.	NAVY								9,326	1,098																	
(ALSO CALLED ISSAQUAH SUPERIOR COAL MINING CO.)	RENTON	168,203	154,338	145,732	161,141	155,275																					
SNOQUALMIE COAL & COKE CO.	SNOQUALMIE	3,120																									
	DENNY	9,589	2,507	2,158	3,121	2,057																					
	EUREKA					2,400																					
	NAVY	6,236	7,616																								
SPRINGBROOK COAL CO.	NO. 1																									1,226	5,242
STRAIN COAL CO.	RENTON																20,089	22,578	23,132	23,903	20,314	28,304	22,245	17,798	17,438	29,435	23,024
SUCCESS COAL CO.	DANVILLE																		225	4,799	265						
SUNSET COAL CO.	SUNSET							9,924												206							
SUPERIOR COAL & IRON CO.	SUPERIOR				5,035	2,672																					
TAYLOR COAL CO.	TAYLOR NO. 1																										74
THERMAL COAL CO.	NO. 1																									9,867	2,015
TULLOCK COAL CO.	DANVILLE NO. 1																				435	178					
TWIN RIVER DEVELOPMENT CO.	KANGLEY DUMP												8,144														
WEST COAST COAL CO.	CEDAR MTN. NO. 1																			736	10,720		17,771	32,329	65,901	98,247	71,158
WESTERN COKE & COLLIERIES	SNOQUALMIE														3,109	937											
W. G. KEGLER COAL CO.	NAVY NO. 1																					1,029	2,187	1,402			
AMERICAN-CANADIAN FUEL CO.	AMERICAN						7,009																				
BLUE FLAME COAL CO.																										271	655
BUSY BEE MINING AND DEVELOPMENT (GWINN AND GALLAGHER AFTER 1918)	BUSY BEE	3,614	5,794	7,367	16,780	22,014							9,313														
CLE-ELUM COAL CO.	CLE-ELUM	443,259	284,536	314,092	307,683	157,744	150,207	181,196	148,091	89,012	136,968	118,304	39,605	1,613	3,332	2,806	2,137	533	115	647	540	177	96	273	1,896	2,817	2,247
CONSERVATIVE COAL CO.	LAKEDALE			798	6,399	1,454																					
DENNY AND DENNY, INC.	WILSON												917														
INDEPENDENT COAL AND COKE CO.	QUEEN										7,271	93,769	143,259	80,317	94,432	33,609	56,516	54,442	60,304	44,791	37,818	17,890					
JONESVILLE COAL CO.	NO. 1																										7,069
NORTHERN PACIFIC COAL CO.	ROSLYN 1, 2, 4, 6, 8 & DIP	802,940	647,341	510,644	357,542	229,454	220,320	208,468	257,992	140,457	241,611	258,228	306,471	259,344	420,683	358,896	267,740	340,715	248,065	278,949	370,939	400,444	43,654				
(NORTHWESTERN IMPROVEMENT CO. AFTER 1898) (NORTHERN PACIFIC RAILWAY, COAL DEPT. AFTER 1955)	ROSLYN 3	33,312	142,390	182,994	221,444	177,511	211,976	181,891	203,115	155,570	243,507	257,857	308,327	230,602	317,550	283,099	234,337	299,455	159,505			54,051	219,687	246,721	243,796	209,571	162,101
	ROSLYN 5	204,334	173,613	160,149	203,195	155,110	170,224	123,105	113,146	86,763	158,681	262,415	228,078	149,140	162,268	126,808	74,524	99,518	68,092	95,314	175,105	233,810	219,945	274,744	189,602	173,388	176,264
	ROSLYN 7		65,298	130,228	215,995	174,896	198,954	183,546	148,885	114,693	195,141	284,389	313,764	274,613	469,046	419,312	289,582	379,414	334,101	270,915	348,821	477,461	399,203	390,888	397,854	293,062	244,541
	ROSLYN 9																										10,283
ROSLYN-CASCADE CO.	PLANT		14,396	26,257	60,580	82,847	97,001	107,719	87,767	71,638	67,017		25,954														
	NOS. 1 & 2											105,116	108,526	109,922	110,050	107,342	73,177	70,306	82,335	82,983	76,784	70,646	80,839	104,654	99,106	98,471	76,791
	NO. 3																					34,076	37,602		16,779	16,803	17,887
ROSLYN COAL & COKE CO.									945	7,323	7,173	24,053		7,791													
ROSLYN FUEL CO.	BEEKMAN NOS. 1 & 3	1,941	47,869	168,954	253,971	241,909	132,484	211,940	208,560	136,387	122,008	118,394	107,573	124,509	205,709	60,319	54,591	112,654	103,400	85,464	67,300						
	BEEKMAN NO. 2					11,906	47,515	131,542	61,518	61,515	116,524	190,596	135,905	82,802	54,867												
	SUMMIT								7,545	15,041	20,788	20,716	11,687	1,426													
ROTHLISBERGER COAL CO.	NO. 1																				286	202	230	450	70		
SUPERIOR COAL CO.																											150
T.B. WRIGHT AND SONS	WRIGHT									663	304	7,400														174	10
TERRACE COAL AND COKE CO.																622	980	1,322	689	58							
YAKIMA-ROSLYN COAL CO.	GUNTHUR		8,785	25,990	23,864																						
AGNEW FUEL CO.																28,525	23,333	16,976	17,677	10,461	10,654	10,022	10,547	8,461	8,856	11,751	11,989
AJAX COAL CO.																			1722								
ARROW COAL CO.	CENTRALIA																			191							
ASSOCIATED COAL MINING CO.	DIVIDE																	1,400	4,200	4,108	1,243	201					
BLACK PRINCE COAL CO.	BLACK PRINCE																					759	390	945	9,132	5,612	9,823
BLAKENSHIP & BURLESON																											100
CAMBRIDGE COAL CO.																		239									
CENTRALIA COAL CO.	POTLATCH	6,759		2,950	5,760	1,134	733																				
CENTRALIA COAL MINING CO.	EMPRESS											10,017	8,398	1,728													
CHEHALIS COAL CO.	LEONARD'S									2,000								4,106	3,070	1,357							
CHRISTIAN COAL CO.	NO. 1																					420	536	341	328	170	
COAL CANYON COAL CO.	COAL CANYON																								4,629		
COAST RANGE COAL CO.	LITTELL	250	1,773																								
COLUMBIA COLLIERIES CO.																650	9,655	4,447	1,546	916	787	3,462	3,699	6,803	5,483	2,030	
CRYSTAL COAL CO.																							17	367			
EAST CREEK COAL CO.	LADD	23,951	19,275	26,841	59,390	44,952	24,933	32,525	7,140	3,476	4,521																
EMPRESS COAL CO.	EMPRESS									5,144	8,625																
EVERRETT-FISHER COAL CORP.	COAL CANYON																			2,872	1,242						
FORDS PRAIRIE COAL CO.	FORDS PRAIRIE					3,069	5,803	8,116	7,102	4,677	10,207	14,758	13,293	9,644	15,354	16,365	22,508	14,371	16,151	14,965	12,012	15,934	18,400	24,633	20,284	15,950	13,838
FREEBURNING COAL CO.	PACKWOOD										1,864	4,283															
HANNAFORD VALLEY COAL CO.	HANNAFORD																									544	781
HI-CARBON COAL CO.																							68	710	3,851	3,044	516
HUTCHINSON COAL CO.	LITTELL														300	1,662											
KING COAL CO.	SALZER VALLEY																									3,337	4,630
KOPIAH COAL CO.	KOPIAH							1,650	1,923																		
LINCOLN COAL CO.	RAINIER												6,441		12,052	9,314	1,039										
MAJESTIC COAL & MINING CO.	MAJESTIC																				1,113	7,653	6,792	7,157			

COMPANY	MINE	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957
	OLD LAWSON					8,887	1,657																			
PALMER COKING COAL CO.	DURHAM	4,339	20,469	24,409	28,732	42,823	28,063	15,633	10,721	19,070	31,326	16,329	13,969													
	DANVILLE					1,927	2,088	13,080	34,348	41,300	28,359	22,088	13,255	18,116	20,416	23,377	18,201	21,503	26,839	50,066	48,846	44,816	46,790	18,634	21,420	18,077
	OCCIDENTAL						20,274	18,715	14,512	14,577	5,124		5,944	13,056												
	PALMER													6,822	12,039	2,585	1,492									
	FULTON STRIP PIT															17,412										
	NO. 10, 11, 12																34,242	37,989	42,474	45,044	44,147	45,039	87,594	69,351		
	FRANKLIN NO. 10																								15,042	
	FRANKLIN NO. 12																								37,221	
	KUMMER																								7,527	
	FRANKLIN-FULTON NO. 1 & 2																									44,031
POCAHONTAS COAL CO. (ALSO CANAL COAL CO.)	DAVIS				171	97	44																			
RAINIER COAL CO.	NO. 1							25																		
RENTON MINING CO.	TALBOT NO. 1										4,856	16,964	15,843	23,694	19,929	15,275	9,248									
REYNOLDS COAL CO.	NO. 1	2,416	4,769	7,415	16,462	8,843																				
	NO. 1 (BLK. DIAMOND)		479	132																						
ROMANO COAL CO.	RED DEVIL	453																								
SPRINGBROOK COAL CO.	NO. 1	2,139																								
SPRINGBROOK MINING CO.	NO. 1	470	2,240	7,263																						
	SPRINGBROOK				7,008	12,758																				
	NO. 3						693	5,695	16,586	14,373	15,250	20,034	18,803	18,479	7,475	11,077	8,931	2,222	2,698	290						
	NO. 2						12,141	4,793																		
SPRINGBROOK KING COAL	NO. 1		231	2,031																						
SPRING GLEN COAL CO.	NO. 1							429	2,955	7,741	8,493	4,372	4,729	3,698	3,999	5,253	7,774	10,247	3,895							
STRAIN COAL CO.	RENTON	11,108																								
	COAL CREEK	120	17,351	33,914	44,791	42,360	39,480	40,203	53,665	62,704	131,753	115,335		34,908	32,301	33,826	17,051	12,048								
	McKAY					5,621	50,988	112,019	122,619																	
	FRANKLIN									54,087	9,075		90,623													
	GINDER LAKE									33,369																
	UPPER DIAMOND									33,918																
SWAN PERSON COAL CO.	NO. 1	216																								
TALBOT MINING CO.	NO. 1								155	564																
TAYLOR COAL CO.	TAYLOR NO. 1							123	110																	
TERTELING & SONS, INC.	McKAY STRIP																		6,245	20,714	31,927	21,263	17,977			
TIGER MOUNTAIN COAL CO.	TIGER MOUNTAIN	904	965	1,133	499	6,667	4,363	3,994	1,198																	
T & O COAL CORP.	KUMMER					391																				
WEST COAST COAL CO.	CEDAR MTN. NO. 1	65,529	79,437	70,074	64,082																					
WONDER COAL CO.	NO. 1					158	62																			
BEEKMAN COAL CO.		3,757	1,825	3,461	1,223																					
BLUE FLAME COAL CO.		2,360	1,376	1,277	1,011	1,279	874	416	435	151																
CLE-ELUM COAL CO.	CLE-ELUM	2,551	2,267	2,751	3,581	2,852	1,811	1,265	970	813	1,045	60														
CLE ELUM SUPERIOR COAL CO.									84	90																
JONESVILLE COAL CO.	NO. 1	12,747	4,290	4,063	6,062	5,837	3,561	1,712	520	77																
	NO. 2		6,649	10,481	10,605	6,882	7,714	5,925	981																	
	NO. 3				682	536	249	1,446	3,717	1,431																
	NO. 4									1,990	8,003	22,327	23,764	5,489	3,435	11,121	3,680									
LAKE COAL CO.			622	1,679	1,376	1,815	1,337	1,171	1,651	1,076	1,144	1,051	39		168											
(NORTHWESTERN IMPROVEMENT CO. AFTER 1898) (NORTHERN PACIFIC RAILWAY, COAL DEPT. AFTER 1955)	ROSLYN 3	111,126	203,036	254,786	284,913	283,237	212,268	229,702	270,775	355,931	328,485	226,551	233,510	187,296	126,617	167,256	227,628	190,665	228,863	219,279	232,331	150,714	139,853	212,009	110,152	37,345
	ROSLYN 5	108,593	57,744	38,270	129,056	252,509	189,683	199,316	171,358	182,386	176,386	132,483	139,135	160,084	118,675	83,800										
	ROSLYN 7	163,308	177,499	160,538	77,134																					
	ROSLYN 9	17,931	28,691	55,584	110,927	166,378	148,729	186,279	212,702	258,683	262,779	184,160	181,713	156,032	101,422	140,681	182,821	153,467	189,818	217,867	216,707	137,548	107,852	123,695	137,854	168,178
	NWI STRIP																77,444	37,888	37,819	31,336	56,496	51,096	23,305	31,714	30,787	16,875
ROSLYN-CASCADE CO.	NOS. 1 & 2	60,497	78,625	89,628	105,112	139,329	82,817	76,357	94,478	105,655	64,280															
	NO. 3	14,261	7,229	4,356	8,871	30,530	14,678	20,385	13,865																	
	NO. 4			140	1,981	17,322	20,898	3,570		32,202	110,967	150,850	161,242	145,702	92,624	100,952	106,328	76,298	64,009	59,296	71,722	66,631	67,956	95,895	64,804	38,184
SUN RAY COAL CO.																	77									
SUNSET COAL MINING CO.	ELLENSBURG	238																								
SUPERIOR COAL CO.		1,484	1,149	738	648																					
AGNEW FUEL CO.		9,636	8,227	10,473	10,612	12,321	9,503	14,769	19,417	15,720	20,345	20,654	28,287	38,254	36,095	34,137	36,870	32,533	31,175	22,520	15,146	18,347	17,856			
ANTHRACITE COAL CORPORATION					390																					
ATLAS COAL MINING CO.													282													
BLACK BADGER COAL CO.									393	567	7															
BLACK PRINCE COAL CO.	BLACK PRINCE	15,388	9,486	12,113	6,706	4,392	8,460	3,636	1,610	3,239	3,362	1,429	3,684													
	NO. 3 (CENTRALIA)													4,543	4,444	710	4,004	6,859	6,853	12,457	10,380	5,643	5,978	6,610	5,546	3,746
BUCODA COAL MINING CO.	BELLE SLOPE												13,041													
COLUMBIA COAL CO.	SMITH											2,879	11,207	10,947	5,458	3,172	3,267									
COMFORT COAL CO.				2,611	860																					
CONNELY CREEK COAL CO.	TOBY		348	303				128	35																	
DOMESTIC COAL CO.						1,793	2,223	1,426	1,080	199																
FORDS PRAIRIE COAL CO.	FORDS PRAIRIE	7,596	3,955	3,539	1,225																					
GOLDEN GLOW COAL CO.						594	285	355	420	406	830	965	776	657	745	502	430	73								
H. W. GIESY	NO. 1								164	470	44															
HANNAFORD VALLEY COAL CO.	HANNAFORD	310	245	147																						
K & K MINING CO.	BELLE SLOPE													6,464	3,543	344	1,273									
KOAL GATE KOAL CO.			1,861																							
MAJESTIC COAL & MINING CO.	NONPAREIL										9,677	9,807	3,903													

COMPANY	MINE	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	TOTAL PRODUCTION (tons)
KING COUNTY (CONTINUED)																											
PACIFIC COAST COAL CO. (CONTINUED)	NO. 7																										681,617
	ISSAQUAH																										1,143,226
	HYDE																										1,207
	MORGAN SLOPE																										1,263,226
	"B"																										97,509
	NO. 12																										2,462
	RENTON																										133,770
	OLD LAWSON																										10,544
PALMER COKING COAL CO.	DURHAM																										255,883
	DANVILLE	37,952	56,464	33,967	794																						662,723
	OCCIDENTAL																										92,202
	PALMER																										22,938
	FULTON STRIP PIT																										17,412
	NO. 10, 11, 12																										405,880
	McKAY - GEM STRIP																					13,998	14,631	6,009		7,248	41,886
	GEM STRIP																								4,214		4,214
	FRANKLIN NO. 10							2,287	8,172	8,043	8,599	9,581	14,546	10,002	1,629												86,480
	FRANKLIN NO. 12				6,139	15,789	15,617	5,029																			79,795
	FRANKLIN (FULTON)												1,761														1,761
	NO. 12 STRIP PIT																										
	KUMMER																										7,527
	FRANKLIN-FULTON NO. 1 & 2																										44,031
	FULTON NO. 2	42,685	18,092																								61,027
	ROGERS		15,217	12,573	8,516	14,375																					50,681
	ROGERS NO. 2			8,678	32,472	15,763	28,152	25,838	25,502	16,574																	152,979
	ROGERS NO. 3						5,383	22,780	8,824	23,372	39,069	31,197	31,314	21,791	29,836	28,572	16,295	14,950	12,684	5,268							329,384
	LANDSBURG STRIP																			16,613	14,232						30,845
PALMER BITUMINOUS COAL CO.																											1,424
PARKIN-KANGLEY COAL CO.	KANGLEY																										207,781
	NO. 1																										12,794
PIONEER COAL CO.	NO. 1																										1,129
POCAHONTAS COAL CO. (ALSO CANAL COAL CO.)	POCAHONTAS																										119,538
	DAVIS																										312
PUGET SOUND TRACTION LIGHT & POWER CO.	RENTON																										612,894
RAINIER COAL CO.	NO. 1																										25
RAVEN COAL CO.	RAVENSDALE																										5,884
RED DEVIL COAL CO.	NO. 1																										60
RENTON COAL CO.	RENTON																										245,627
	SLUDGE DUMP																										152,729
RENTON MINING CO.	TALBOT NO. 1																										105,809
RENTON SUNBEAM COAL CO.	SUNBEAM NO. 1																										90,138
REYNOLDS COAL CO.	NO. 1																										40,353
RICHMOND-STANLEY COAL CO.	NO. 1 (NEWCASTLE)																										2,438
	NO. 1 (BLK. DIAMOND)																										611
RIVERTON COAL CO.																											1,200
ROMANO COAL CO.	RED DEVIL																										453
ROSE-MARSHALL	CUMBERLAND																										25,336
SCRANTON COAL CO.	NAVY																										10,424
SEATTLE COAL & IRON CO.	GILMAN																										1,517,359
(ALSO CALLED ISSAQUAH SUPERIOR COAL MINING CO.)	RENTON																										1,552,507
SNOQUALMIE COAL & COKE CO.	SNOQUALMIE																										12,147
	DENNY																										114,257
	EUREKA																										27,235
	NAVY																										34,473
SPRINGBROOK COAL CO.	NO. 1																										8,607
SPRINGBROOK MINING CO.	NO. 1																										9,973
	SPRINGBROOK																										19,766
	NO. 3																										142,606
	NO. 2																										16,934
SPRINGBROOK KING COAL	NO. 1																										2,262
SPRING GLEN COAL CO.	NO. 1																										63,585
STRAIN COAL CO.	RENTON																										259,368
	COAL CREEK																										711,809
	McKAY																										291,247
	FRANKLIN																										153,785
	GINDER LAKE																										33,369
	UPPER DIAMOND																										33,918
SUCCESS COAL CO.	DANVILLE																										5,289
SUNSET COAL CO.	SUNSET																										10,130
SUPERIOR COAL & IRON CO.	SUPERIOR																										7,707
SWAN PERSON COAL CO.	NO. 1																										216
TALBOT COAL CO.	TALBOT																										45,015
TALBOT MINING CO.	NO. 1																										719
TAYLOR COAL CO.	TAYLOR NO. 1																										307
TERTELING & SONS, INC.	McKAY STRIP																										98,126
THERMAL COAL CO.	NO. 1																										11,882
TIGER MOUNTAIN COAL CO.	TIGER MOUNTAIN																										19,723
T & O COAL CORP.	KUMMER																										391
TULLOCK COAL CO.	DANVILLE NO. 1																										613
TWIN RIVER DEVELOPMENT CO.	KANGLEY DUMP																										8,144
WEST COAST COAL CO.	CEDAR MTN. NO. 1																										575,984
WESTERN COKE & COLLIERIES	SNOQUALMIE																										4,046
WONDER COAL CO.	NO. 1																										220
W. G. KEGLER COAL CO.	NAVY NO. 1																										4,618
KITTITAS COUNTY																											
AMERICAN-CANADIAN FUEL CO.	AMERICAN																										7,009
BEEKMAN COAL CO.																											10,266
BLUE FLAME COAL CO.																											10,105
BUSY BEE MINING AND DEVELOPMENT (GWINN AND GALLAGHER AFTER 1918)	BUSY BEE																										64,882
CLE-ELUM COAL CO.	CLE-ELUM																										4,112,077
CLE ELUM SUPERIOR COAL CO.																											174
CONSERVATIVE COAL CO.	LAKEDALE																										8,651
D.A. BROWN CO.	BROWN SLOPE																										7,951
DENNY AND DENNY, INC.	WILSON																										917
ELLENSBURG COAL CO.	GUNTHUR																										2,200
INDEPENDENT COAL AND COKE CO.	QUEEN																										724,418
JONESVILLE COAL CO.	NO. 1																										45,938
	NO. 2																										49,237
	NO. 3																										8,061
	NO. 4																										79,809
KEELAN AND WARD																											440
LAKE COAL CO.																											13,129
NORTHERN PACIFIC COAL CO.	ROSLYN 1, 2, 4, 6, 8 & DIP																										18,212,725
(NORTHWESTERN IMPROVEMENT CO. AFTER 1898) (NORTHERN PACIFIC RAILWAY, COAL DEPT. AFTER 1955)	ROSLYN 3	15,193																									10,219,890
	ROSLYN 5																										6,396,813
	ROSLYN 7																										7,593,081
	ROSLYN 9	78,292	77,922	123,974	119,249	168,392	122,456																				4,548,866
	NWI STRIP		3,414	480		2,114	7,359																				408,127
ROSLYN-CASCADE CO.	PLANT																										650,475
	NOS. 1 & 2																										2,353,826
	NO. 3																										237,322
	NO. 4	50,491	47,035	25,081	6,185																						1,678,365
ROSLYN COAL CO.																											820
ROSLYN COAL & COKE CO.																											47,286
ROSLYN FUEL CO.	BEEKMAN NOS. 1 & 3																										2,565,936
	BEEKMAN NO. 2																										894,690
	SUMMIT																										77,203
ROTHLISBERGER COAL CO.	NO. 1																										1,238
SUMMIT COAL CO.																											10,951
SUN RAY COAL CO.																											77
SUNSET COAL MINING CO.	ELLENSBURG																										238
SUPERIOR COAL CO.																											4,169
SWAIN AND HAIGHT																											750
T.B. WRIGHT AND SONS	WRIGHT																										8,551
TERRACE COAL AND COKE CO.																											3,671
YAKIMA-ROSLYN COAL CO.	GUNTHUR																										58,639
LEWIS COUNTY																											
AGNEW FUEL CO.																											631,949
AJAX COAL CO.																											1,722
ANTHRACITE COAL CORPORATION																											390
ARROW COAL CO.	CENTRALIA																										191
ARROWSMITH COAL CO.	ARROWSMITH	30	60	91	145	108																					434
ASSOCIATED COAL MINING CO.	DIVIDE																										11,152
ATLAS COAL MINING CO.																											282
BLACK BADGER COAL CO.																											987
BLACK PRINCE COAL CO.	BLACK PRINCE																										100,186
	NO. 3 (CENTRALIA)	2,790	3,780	3,805	2,794	3,108	2,928	3,154	2,201	2,558	2,874	3,029	3,503	5,004	8,793												128,094
	VICTORY STRIP PIT															8,959	7,285	7,592	7,492	2,592							33,920
BLAKENSHIP & BURLESON																											100
BUCODA COAL MINING CO.	BELLE SLOPE																										13,041
CAMBRIDGE COAL CO.																											239
CENTRALIA COAL CO.	POTLATCH																										17,336
CENTRALIA COAL MINING CO.	EMPRESS																										20,143
CHEHALIS COAL CO.	LEONARD'S																										10,533
	MINE NO. 1																										2,200
	MINE NO. 2																										141
CHRISTIAN COAL CO.	NO. 1																										1,795
COAL CANYON COAL CO.	COAL CANYON																										4,629
COAST RANGE COAL CO.	LITTELL																										2,023
COLUMBIA COAL CO.	SMITH																										36,930
COLUMBIA COLLIERIES CO.																											39,478
COMFORT COAL CO.																											3,471
CONNELY CREEK COAL CO.	TOBY																										814
CRESCENT COAL CO.	LITTELL																										3,500
CRYSTAL COAL CO.																											384
DOMESTIC COAL CO.																											6,721
EAST CREEK COAL CO.	LADD																										247,004
EMPRESS COAL CO.	EMPRESS																										13,769
EUREKA COAL CO.	EUREKA																										13,475
EVERRETT-FISHER COAL CORP.	COAL CANYON																										4,114
FLORENCE COAL CORP.	FLORENCE																										14,430
FORDS PRAIRIE COAL CO.	FORDS PRAIRIE																										313,749
FREEBURNING COAL CO.	PACKWOOD																										6,147
GOLDEN GLOW COAL CO.																											7,038
H. W. GIESY	NO. 1																										678
HANNAFORD VALLEY COAL CO.	HANNAFORD																										2,027
HI-CARBON COAL CO.																											8,189
HUTCHINSON COAL CO.	LITTELL																										1,982
K & K MINING CO.	BELLE SLOPE																										11,624
KING COAL CO.	SALZER VALLEY																										7,967
KOAL GATE KOAL CO.																											1,861
KOPIAH COAL CO.	KOPIAH																										3,573
LINCOLN COAL CO.	RAINIER																										28,846
MAJESTIC COAL & MINING CO.	MAJESTIC																										22,715
	NONPAREIL																										23,387

CONTINUED ON PART 3

WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES
DIVISION OF GEOLOGY AND EARTH RESOURCES

COAL PRODUCTION IN WASHINGTON AS REPORTED TO THE STATE MINE INSPECTOR BETWEEN 1860 AND 1982

OPEN-FILE REPORT 84-6
PLATE 2 PART 3

COMPANY	MINE	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	TOTAL PRODUCTION (tons)
LEWIS COUNTY - CONTINUED	
MARION HOWELL	MARION HOWELL																						1,300	935																																																																																		2,235
MENDOTA COAL & COKE CO.	NO. 1																												28,443	59,997	57,446	70,927	65,089	42,435	38,774	50,985	53,372	65,553	33,246	11,118	790		7,359	4,768	9,093	1,297																																																									600,692
MONARCH COAL CO.	NO. 1																																			1,230		4,950	5,089																																																																	11,269
MORTON COAL & COKE CO.																																															199	2,026	2,218	175	2,839		230	151	521	810	788																																																	9,957
MOUNTAIN COAL CO.	LADD																																											3,373																																																																	3,373
NEWAUKUM COAL CO.																																															247	525	537	62																																																												1,371
NONPAREIL COAL & MINING CO.	NONPAREIL																																													141	318	1,062																																																													1,521
OLD McDONALD CO.	OLD McDONALD																																																															272	222	75																																										569
OLYMPIA COAL MINING CO.	PACKWOOD																																										13,775	14,359	14,133	15,234	12,753																																																											70,254
PACIFIC RED ASH COAL CO.	SHELDON																																											3,320	1,140																																																																4,460
PENNSYLVANIA COAL CO.	WATKINS																																		6,593	8,887	1,516	1,303																																																																			18,299
PEOPLE'S FUEL CO.	NONPAREIL																																																		1,214	5,090	2,640	3,490																																																						12,434
PEOPLE'S COAL & MINING CO.	NONPAREIL																																																				7,354	7,372	6,314	9,014	7,350	6,283	6,741	6,638	4,325	5,560	6,659	9,018																																										82,628
PHOENIX COAL CO.	LADD																																							6,032	19,125																																																																	25,157
POTLATCH COAL CO.	POTLATCH																																														800	595																																																														1,395
PREMIER COAL CO.	MENDOTA																																																										97																																															97
RAINIER COAL CO.	RAINIER																																			1,737	375																																																																			2,112
RELIANCE COAL CO.	RELIANCE																																																4,598	6,122	8,550	10,142	11,617	9,990	8,771	6,579	6,544	5,940	5,282	6,078	4,615	5,207	1,862																																												101,897
REX COAL CO.																																														1,772	259																																																												2,031
ROSENTHAL	ROSENTHAL															700																																																																																							700
ROSLYN COAL & COKE CO.	MURPHY-JOHNSON NO. 2																																											4,190	2,407	227			79																																																											6,903
ROYAL COAL CO.																																																					266	961	1,341	1,125	983	1,345	1,382	977	359	367																																												9,106
SALZER VALLEY COAL CO.	SALZER VALLEY																																						1,700	1,097	1,536	3,400	4,928	3,493	3,015	3,066	2,032	1,352	901	546	1,864	1,624	1,787																																																				32,141
SALZER VALLEY KING COAL CO.	SALZER VALLEY																																																				3,337																																																				3,337
SHELDON COAL CO.	SHELDON																																		2,100	10,357	11,003	9,417	14,377	14,756	7,019																																																																		69,029
SMITH COAL CO.	SMITH																																														2,624	9,594	5,406	4,189	2,033	4,418	6,200	3,451	7,105	5,175	4,403	4,490																																																59,088
STOKER COAL CO.	STOKER																																																						1,070	5,017	3,989	3,154	4,229	5,046	5,592	6,879	8,103	6,741	18,721	16,915	9,399	18,440	6,651	5,154	6,489	6,190	9,870	6,480	8,621	8,101	1,846				769	8,333																							181,799
SUNBURST COAL CO.																																																																	127																																								127
SUNSHINE MINING COMPANY	WILSON																																													945	2,076	1,614	2,672	2,064	1,816	2,053																																																						13,240
SUPERIOR COAL CO.	MURPHY-JOHNSON NO. 2																															8,378	7,605	16,335	14,359	8,518	11,753	17,659	18,888	29,367	22,562																																																														155,424
T & T COAL CO.																																																																						341	62																																				403
TILTON RIVER BITUMINOUS COAL CO.																																														2,702	3,760	7,498																																																												13,960
TREGONING COAL CO.	AJAX																																																	3,891	600																																																										4,491
VICTORY COAL MINING CO.	VICTORY																																											8,780	33,207	59,069	86,114	36,898	39,351	30,236	7,278	1,605																																																									302,538
W. G. GIBSON																											1,000	1,500	2,400	1,600																																																																													6,500
W. M. LADD	LADD																								15,000	17,492	957	248																																																																										33,697
WABASH COAL CO.																																																	158	1,500	1,595	1,780	3,655	7,791	8,338	3,390	836	111																																																29,154
WAKEFIELD COAL CO.																																																					1,748	1,639	768	1,066	598	2,217	1,683																																														9,719
WASHINGTON COAL & MINING CO.	EMPRESS																																			2,666	1,705																																																																			4,371
WESTERN COAL CO.																																																					152	817	349			68																																																1,386
WEST FUEL COAL CO.	NO. 2																																																		476																																																								476
WEST FUEL CO.																																																					1,073	647																																																						1,720
WIDCO (WASHINGTON IRRIGATION AND DEVELOPMENT CORP.)	CENTRALIA STRIP																																																																																											1,092,720	2,596,729	3,246,030	3,890,437	3,717,810	4,084,244	5,039,912	4,693,542	5,050,933	5,138,970	4,640,853	4,195,325	47,387,505
WILSON COAL CO.	WILSON																								22,260	51,223	36,870	42,968	47,072	43,822	9,288																																																																								253,503
WINLOCK-VADER COAL CO.																																																						16	72																																																		88
PIERCE COUNTY	
ACME COAL CO.	ACME												3,440	7,200	3,060																																																																																									13,700
ACME-GEM COAL CO.																																																											128	124	489	831																																												1,572
AMERICAN COAL CO.	PITTSBURG																																		8,916	100,051	28,228	17,743																																																																			154,938
AMERICAN SMELTING	FAIRFAX																																												18,514	36,095	20,203																																																													74,812
APEX COAL CO.																																																						475	1,262	1,163	333	608																																													3,841
BARTOY COAL CO.																																																									548	866	689																																												2,103
BLACK CARBON CO.	PITTSBURG																					4,000					5,039																																																																										9,039
BLUE BELL COAL CO.																																																							8	210	42																																															260
BONATO COAL CO.	MILLER																																																							166	1,114	1,975	1,487	1,058	303																																								6,103
BONDEMANT & CROSINI COAL CO.																																																					188	434																																																		622
BONDEMANT & WEBB COAL CO.																																																				355	80																																																			435
BRIAR HILL COAL & COKE CO.	BRIAR HILL																									800	230																																																																																				1,030
BURN-IT COAL CO.																																																				1,978	4,341	2,242	2,949	1,205																																																12,715
CARBONADO COAL CO.	CARBONADO																																																									4,264	2,900	3,991	831					1,722	2,781	3,371	5,804	3,632	2,770	2,403	943	1,788	2,081	1,602	815	566	434	215																							42,913
CARBONADO FUEL & TIMBER PRODUCTS CO.																																																														336	31																																								367
CARBON CANYON COAL CO.																																																							21																																																		21
CARBON HILL COAL CO.	CARBON HILL	64,745	140,135	122,060	135,926	120,965	173,808	213,145		129,457	161,041	203,980	267,545	266,111	303,087	297,000	310,488	335,000	287,952	341,633	323,395	169,733	280,123	233,705	173,206	191,939	246,718	251,721	239,612	277,723	319,213	283,422	293,542	157,907	199,469	249,124	204,552	215,843	163,823	189,206	43,650	110,175	109,220	81,227																																																										8,882,326
	MELMONT																																							9,510	5,792																																																																	15,302
CARBON RIVER COAL CO.	NO. 1																																																		593	809	578																																																					1,980
CARBON-WINGATE COAL CO.	WINGATE																																																																	86	1,001	442																																				1,529
CHAMPION COAL CO.	CHAMPION																																																																185	135	73	175	150																																				718
COAST COAL CO.	PITTSBURG																									2,770	10,166	42,813	78,961	84,781																																																																									219,491
COMMERCIAL COAL CO.																																																									1,451	927	3,112	991	886																																												7,367
COMMONWEALTH COAL CO.	SOUTH WILLIS																											31,483	94,230																																																																										125,713
CROCKER COAL CO.	CROCKER																																																		522	226	57																																																		805
DEPENDABLE COAL CO.	NORTH 4																																																				2,399	3,252	2,640	2,479																																														10,770
DEPENDABLE-WINGATE COAL CO.	NORTH 4																																																								3,589	2,640	2,340	2,616	5,758	5,410	2,855	1,907																																							27,115
DOMESTIC GEM COAL CO.																																																										376	153																																													529
EAST MILLER COAL CO.	SOUTH 4																																																												1,150	2,609	6,714	6,358	1,608																																							18,439
EVANS CREEK COAL & COKE CO.	MONTEZUMA																								5,333	22,775	16,737	13,625	3,084			305	4,133																																																																					65,992
FAIRFAX MINE INC.	FAIRFAX																																						16,108	32,335	39,504	19,861	33,967																																																														141,775
FAIRFAX MINES CO.	FAIRFAX																							26,111	21,864																																																																															47,975
GALE CREEK CO.	GALE CREEK																		17,501	18,900	29,640	37,182	42,000																																																																																		145,223
GALE CREEK COAL CO.	PEANUT																																																							4,088	2,672	5,058	3,838	3,525	2,406	2,210	2,346	2,273	2,388	2,685	1,048	3,159	2,557	1,639	1,426	1,129	685																													45,132
GALE CREEK COAL & COKE CO.	GALE CREEK																									44,739	56,319	29,689	4,676	28,759	37,829	49,245	29,132	19,585	32,018	37,130	18,776																																																																				387,897
	SOUTH WILLIS																								19,263		8,880																																																																												28,143
KELLY COAL CO.																																																										199	1,096	2,309	4,568	5,251	3,834																																									17,257
LUZON COAL CO.	OUIMETTE														3,010	300	300																																																																																								3,610
MINERS COAL & COKE CO.																				11,050																																																																																			11,050
NORTHWESTERN IMPROVEMENT CO.	MELMONT																						24,000	83,100	92,944	95,955	61,543	37,431	71,385	80,292	63,871	76,734	61,088	64,072	65,094	18,446																																																																					895,955
PACIFIC COAL & OIL CO.	SNELL																							2,400	4,408	4,422																																																																																11,230
PACIFIC COAST COAL CO.	CARBON HILL																																														38,644	132,651	104,984	128,660	177,292	192,903	200,223	139,994	139,024	142,285	117,991	106,005	113,658	26,783																																												1,761,097
	SOUTH PRAIRIE																								86,704	78,875	60,692	77,147	115,546	156,903	159,609	144,533	121,814	84,461	95,822	134,843	125,800	99,109	132,384	46,368	137,903	157,850	177,886	152,530	186,163	91,075																																																									2,624,017
PEACOCK COAL CO.																																																														520	255																																								775
PEANUT COAL CO.	PEANUT																																																				1,432	4,204	3,413																																															9,049
PELOLI & LOCKE COAL CO.	BURNETT NO. 1																																																																									448	807	806	686	670	396																						3,813
PIERCE COUNTY COAL CO.	SOUTH WILLIS																																											53,976	28,181	1,263																																																															83,420
QUEEN COAL CO.	WINGATE																																																				1,718	1,595	1,176	904		1,050	900	2,121	1,260	951	166																			472	608	501	547	404	396	378	388	374	230	233	385	374									17,131
REED, WILLIAMS, & CO.	PITTSBURGH										500	1,950																																																																																											2,450
SILVIO BURELLI																																																						475	1,262	1,163	333	608																																													3,841
SOUTH PRAIRIE COAL CO.	NO. 1																																																														65																																								65
SOUTH WILLIS COAL CO.	SOUTH PRAIRIE				34,314	45,653	52,524	40,934		42,153	44,450	43,955	52,541	56,235	47,626	37,006	67,329	56,031	56,745	106,500	77,255	32,003	69,912	60,197	59,040																																																																																1,082,403
	PITTSBURG																																						28,417	18,105																																																																	46,522
	SOUTH WILLIS																																						4,104	16,095	104,654																																																																124,853
SPARTON COAL CO.																																																																					226	487	790																																		1,503
SPIKETON COAL CO.																																																										107																																														107
STRAIN COAL CO.	CARBON HILL																																																									9,710	19,174	16,617	21,104																																											66,605
TACOMA COAL & COKE CO.	WILKESON				5,402	2,837	3,453	12,877		23,181	30,848	20,250																																																																																												98,848
TACOMA SMELTING CO.	FAIRFAX																									15,474	3,694	27,307	28,138	21,958		30,972	26,140	20,634																																																																					174,317
TREMONT COAL & COKE CO.	GALE CREEK																							26,640	19,200																																																																															45,840
WASHINGTON COOPERATIVE MINING CO.	MONTEZUMA																				6,702	11,970																																																																																				18,672
WASHINGTON MANGANESE, COAL, & COPPER CO.	MONTEZUMA																																					16,745	4,212																																																																		20,957
WEBB & HURFURST COAL CO.																																																					192																																																			192
WESTERN AMERICAN CO.	FAIRFAX																			250	8,549	30,513	32,117	33,600	22,000																																																																																	127,029
WESTERN STEEL CORPORATION	ASHFORD																													655																																																																										655
WILKESON COAL & COKE CO.	FAIRFAX																																																	14,006	22,112	30,028	19,899	23,027	6,766																																																					115,838
	WILKESON							10,000		2,720	31,489	82,132	77,546	86,972	85,688	88,480	83,613	96,838	116,148	116,622	125,028	106,896	55,399	63,724	72,512	67,700	139,272	68,543	72,663	118,732	107,420	132,960	127,843	117,737	110,425	103,357	113,424	90,548	60,872	29,722	10,546	36,769	52,550	68,985	96,362	84,919	85,130	79,704	85,800	55,371	36,851	11,550	19,750	10,913	17,537																																																3,515,762
WILKESON-MILLER COAL CO.	WILKESON																																																											3,487	2,487	3,176	3,510	2,155	2,125	9,775	8,259	11,475	9,836	3,266	1,347	3,293	1,841																													66,032
WILKESON PRODUCTS CO.	SKOOKUM SLOPE																																																													14,376	39,744																																								54,120
WILKESON-WINGATE COAL CO.	WILKESON																																																								10,533	6,964	3,145																																													20,642
WILLIS COAL CO.	PITTSBURG																				4,800																																																																																		4,800
WINDSOR-STOKER CO.																																																													101	67																																										168
SKAGIT COUNTY	
K. E. LOOP COAL CO.	LAKE McMURRAY																																																				83																																																	83
SKAGIT COAL CO.	LAKE McMURRAY																																																					40																																																40
SKAGIT COAL & TRANSPORTATION CO.	COKEDALE										1,400	4,703	3,000	7,537	20,764	18,000	15,192	16,500	6,558	10,430	12,643	19,017	19,256	10,650												1,000	5,897	3,820	2,988																																																														179,355
TIEG-TENNENT COAL CO.	COKEDALE																																											1,433																																																													1,433
STEVENS COUNTY	
COLVILLE VALLEY COAL COMPANY	COLVILLE VALLEY																																							844																																																																	844
THURSTON COUNTY	
ARROWSMITH COAL CO.																																																																																				59																				59
BLACK JEWELL COAL CO.																																																					210	297	73																																															580
BOXER COAL CO.																																																												25	311	471	466	28																																										1,301
BUCODA COAL CO.	SUNSHINE																																		2,600						2,712	17,299	15,647	19,049	20,322	20,812	21,995	18,473	23,902	21,946	11,619	5,357																																																	201,733
CENTRALIA COAL CO.																																														523																																																												523
CRYSTAL COAL CO.																																																														91	69																																								160
D & F COAL MINING CO.																																																														3,831	1,335	911																																							6,077
GREAT WESTERN COAL MINING CO.	TENINO																					1,000	15,000	8,383	1,993	19,032																																																																																		45,408
KING COAL MINING CO.	SLOPE NO. 1																													1,467																																																																										1,467
MAJESTIC COAL CO.	MAJESTIC																															579																																																																								579
NORTHWEST COAL & TRANSPORTATION CO.	BUCODA						15,295	42,000		7,639	13,385	12,456	9,451	4,510																																																																																												104,736
PENN-BUCODA COAL CO.																																																																	1,165	7,081																																						8,246
PERTH COAL MINING CO.	PERTH																													1,907	1,186																																																																										3,093
PLEASANT HILL COAL CO.																																																				426	338	59																																																			823
QUALITY COAL CO.																																																												74	115	119																																										308
RICHMOND COAL CO.	RICHMOND																																							202	971																																																																	1,173
SCATTER CREEK COAL CO.																																																					253																																																	253
SKOOKUM QUALITY COAL CO.																																																								28	27																																														55
STOKER COAL CO.	MARTIN NOS. 4 & 5																																																																														13,397	8,902	8,374	7,865	8,991	6,221	8,436	8,561	8,918	8,280	73												88,018
	TONO																																																																										5,942																										5,942
STRAIN COAL CO.	TONO																																																														58,351	63,436	49,429	50,132	61,077	43,295	4,548	950	2,279																															333,497
	TONO STRIP																																																																						21,368	10,068	3,277																															34,713
TENINO COAL & IRON CO.	BLACK BEAR																									6,740	550																																																																																				7,290
TONO COAL CO.	TONO																																																																											20,783	17,014	17,178	10,570	4,218																							69,763
WASHINGTON UNION COAL CO.	WASHINGTON UNION																									8,000	15,482																																																																																				23,482
WHATCOM COUNTY	
BELLINGHAM COAL CO.	BELLINGHAM BAY **																																																																																																							233,043
BELLINGHAM COAL MINES, INC.	MINE NO. 1																																						914	42,103	114,264	186,237	163,877	187,015	197,701	273,698	236,161	288,171	266,673	213,917	223,906	164,512	118,765	88,616	97,873	122,341	227,123	213,341	164,670	227,973	175,789	189,153	230,435	160,300	128,453	110,400	105,369	154,500	136,240	123,625	96,742	85,003	23,586	91,824	75,538	2,049																											5,888,857
BLUE FLAME COAL CO.	GLEN ECHO																																																				18	762	2,201	350	4,142	9,177	8,164	8,833	9,376	986																																										44,009
FAIRHAVEN COAL & COKE CO.	FAIRHAVEN										1,200																																																																																											1,200
GLEN ECHO COAL CO.	GLEN ECHO																																							240		618		427	309																																																												1,594
MT. BAKER ANTHRACITE COAL CO.	VAN ZANDT																																																				870																																																	870
PACIFIC ATOMIZED FUEL CO.	GENEVA																																											150																																																													150
ROME HILL COAL CO.	NO. 1																																																					259																																																259
WEST COAST COAL MINES, INC.	GLEN ECHO																																																														3,344	4,548	3,461	4,920	4,005	1,266																																						21,544
WHATCOM COUNTY COAL CO.	BLUE CANYON										7,200	25,675	26,000		28,764	12,000	5,853	6,300	6,650	48,200	8,200	6,010	600				3,160	18,963	14,632	12,415	3,476	6,523	7,325	6,602	6,255	5,983	4,841	3,689	543															333	95																																																		276,287

** EARLIER FIGURES FOR THE BELLINGHAM BAY MINE ARE: 1860 TO 1878 – 233,043.