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WESTERN UNION TELEGRAM

1206 (4-55)

W. P. MARSHALL, PRESIDENT

INTERNATIONAL SERVICE	
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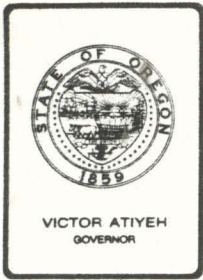
Send the following message, subject to the terms on back hereof, which are hereby agreed to

JULY 22, 1982

WILLIAM THOMAS
OFFICE OF SURFACE MINING
WYOMING STATE OFFICE
935 PENDELL BLVD. (P.O. BOX 1420)
MILLS, WYOMING 82644

PURSUANT TO THE FEDERAL REGISTER NOTICE OF JUNE 21, 1982 (VOL. 47, NO. 119,
P. 26786) WE HEREBY REQUEST THAT A HEARING BE HELD IN PORTLAND, OREGON ON
JULY 26, 1982 SO THAT WE MAY PRESENT TESTIMONY ON PROPOSED RULE 30 CFR - PART 937.
THANK YOU.

DONALD A. HULL, STATE GEOLOGIST
STATE OF OREGON DEPARTMENT OF GEOLOGY
& MINERAL INDUSTRIES



Department of Geology and Mineral Industries
ADMINISTRATIVE OFFICE

1005 STATE OFFICE BLDG., PORTLAND, OREGON 97201 PHONE (503) 229-5580

July 2, 1982

Mr. Robert Haskins
Justice Department
500 Pacific Building
520 S. W. Yamhill
Portland, Oregon 97204

Dear Rob:

The question of State versus Federal authority over coal mine reclamation has been the subject of continued discussion in Oregon and other states in recent years. I would appreciate your written and informal answer to the following question:

Can the Federal Office of Surface Mining supersede the regulatory authority of the State of Oregon for reclamation of surface coal mines under the provisions of the Surface Mining Control and Reclamation Act of 1977 (Public Law 95-87)?

Please let me have your opinion by July 21st.

Sincerely,

Donald A. Hull
State Geologist

DAH:bj

cc: Pat Amedeo
Bill Young
John Beaulieu
Paul Lawson



STATE OF OREGON

INTEROFFICE MEMO

DEPT.

TELEPHONE

TO: Paul Lawson

DATE: July 12, 1982

FROM: Don Hull

SUBJECT: OSM - Federal Program for Oregon

The enclosed pages 26786 - 26794 from the Federal Register of June 21, 1982 describe the proposed rule for an OSM coal program for Oregon.

Please prepare a short written analysis of this rule and a draft of written testimony for the July 26, 1982 hearing in Portland by July 20, 1982. You should plan to testify on behalf of the Department at the hearing. We should meet here to discuss the hearing on Friday, July 23, 1982, at 2:00 p.m.

Finally, send copies of these Federal Register pages to the coal companies currently active in Oregon.

#

DAH:bj

Encl.

cc: John Beaulieu
Robert Haskins



STATE OF OREGON

INTEROFFICE MEMO

DEPT.

TELEPHONE

TO: John Beaulieu
Paul Lawson

DATE: June 17, 1982

FROM: Don Hull

SUBJECT:

OSM has tentatively scheduled a hearing in Portland on July 26 to review new coal mine reclamation rules.

The hearing will be held only if someone files a formal request.

We should decide if we want to file such a request.

A handwritten signature, possibly "RQ", in dark ink.

DAH:jr



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

July 1980

OREGON STATE OFFICE
P.O. Box 2965 (729 N.E. Oregon Street)
Portland, Oregon 97208

M I N I N G C L A I M R E C O R D S

Records of more than a million unpatented mining claims throughout the United States have been filed with the Bureau of Land Management since the Federal Land Policy and Management Act was enacted in 1976. For the first time since passage of the 1872 mining law, mining claim records now are centrally located in each BLM State Office.

PURPOSE

Central records enable land managing agencies like the Forest Service and Bureau of Land Management to consider mining claims along with other resource uses. It also provides a convenient source of information about mining claims for other interested persons. About 34,000 mining claims had been filed in the Oregon State Office by mid-1980. Since mining claim records are available for public use, and copies can be purchased, information is not abstracted from the records upon request.

EFFECT

Recording unpatented claims with BLM gives public notice that the claims have been abandoned or filed and maintained of current record. Those claims that have not been filed and maintained of current record are deemed to be abandoned and void. Abandonment for failure to maintain claims of current record is mandated by statute. No action is required by BLM except for posting the records and informing claimants of abandonment record entries.

Recording unpatented mining claims with BLM does not establish claim ownership. Claims are recorded by BLM without proof of ownership and record entries are made in the names of persons named as owners in documents received. Questions concerning claim ownership or possessory title and rights in a claim are determined under State law. In addition recording claims with BLM does not establish that the claims are valid. Claims are recorded by BLM without examining or determining whether they meet discovery, assessment work or other requirements of the mining laws.

RECORDING PROCEDURES

All acceptable mining claim filings involving any federal land in Oregon and Washington are assigned BLM case serial numbers (OR MC serial numbers) by the Oregon State Office of the Bureau of Land Management in Portland. At that time, claim owners are provided fee receipts showing assigned serial numbers.

Following serial number assignment, vital data concerning claims are abstracted from claim documents for entry into a computerized system. Sometimes mining claim owners must be contacted for supplemental information. An additional year may be required to complete, compare and verify data against documents. During the interim, the records will be useful but they may not be complete and accurate in every instance. It must be kept in mind that even after the record data are verified, claim locations and other facts may not have been accurately described by claimants in document filings. Also, errors are possible in entering mass data into a computer system. New claims, required to be filed within 90 days after the date of their location, are entered in the record system as soon after receipt as the workload allows.

The Bureau of Land Management produces mining claim index records on microfilm to reduce paper volume and costs for providing information to people who need it. If the data has been correctly and currently entered into the system, and if the claim location and other information have been accurately described by claimants, the mining claim index will serve most purposes. (However, it is necessary to determine that the lands were open to mineral location at the time the claims were located.)

Presently, about 4,000 claim filings now listed in a temporary alphabetical claimant name index that have been accepted remain to be entered into the system. New claim filings and annual assessment and other current filings ordinarily are entered shortly after receipt. Claim abandonments resulting from failure to file affidavits of assessment work or notices of intention to hold claim by October 22 or December 30, 1979, are expected to be identified and entered into the system within about three more months. During succeeding years, identification and recordation of such abandonments should be accomplished within a few months after the end of each calendar year. Entries are additionally made to show invalidation of claims located on lands closed to mining. These entries are made as invalid claims are identified and decisions are issued to formally invalidate the claims.

Aids in using BLM mining claim records are described below. Information may be found or verified by use of one or more of the records or indexes.

GEOGRAPHIC INDEX

The geographic index provides the most frequently used access to mining claim information. It lists data for all claims entered into the system by land description: state, meridian, township, range, section, and 160-acre quarter. Of course, land descriptions must be correctly and currently entered and claimants must accurately describe claim locations in documents for proper indexing. The index arranges information for each claim by legal description. Legal description, within a quarter section, means that a claim is located somewhere within the boundaries of a 160-acre quarter of a mile-square section. (In some instances, placer claims might be located for an entire quarter section.) The OR MC serial number for each claim is

identified. The index also shows claim names and claimants' names. The date of location for each claim is specified but dates of location for amendments of claims which alter claim locations do not appear on the index. Closed case entries on the index relate to abandonment of claims for failure to submit supplemental data and annual assessment work filings or refer to invalidation of claims located on lands not open to mining and invalidation of claims that were voided for noncompliance with mining law requirements.

CLAIM NAME INDEX

In instances where a claim legal description is not available and the claim name is known, the claim name index may be used to identify claim serial numbers and locations. This does become difficult if a claim has a popular name used by many other claimants. Claims without names are listed first and those with only number identity are listed last. The claim name and/or number is shown at the far left on the listing followed by OR MC serial number, claimant name (or names), legal description, and the date of location, plus a closed case entry indicating that the claim was abandoned or invalidated when that pertains.

CLAIMANT NAME INDEX

If a claim legal description is not available and the claimant's name is known, the claimant name index may be used to learn about claims owned by each claimant and their serial numbers, names and locations. Claimants' names and current addresses will not appear in the index unless they were reported to BLM and were identified when claim data were entered. In exceptional instances where owners did not furnish a current address with a filing, no address is shown on the index. Since case closures result in removal of claims and claimants' names on this index, claimants' names do not appear on the index when all of their claims have been closed by abandonment or invalidation. Name abbreviations and spelling errors sometimes cause names to appear elsewhere in the index.

SERIAL NUMBER INDEX

This index lists all claim serial numbers in numerical order. It is used to determine lead or parent file numbers assigned to the first case file for groups of claims filed by the same owner at one time, and for other administrative purposes.

SERIAL REGISTER PAGES

The serial register pages are accessed numerically by ORMC serial number and present all data entered into the record system for a single claim. It is used when there is need to know vital data concerning a claim, including case-documented actions affecting filing, ownership, abandonment, validity or any BLM contest of the claim.

CASE FILES

Case files are consulted only when necessary for reference to maps and documents to verify claim locations and data entered into the computer system. Public use of case files may interfere with routine case file maintenance and adjudication, and therefore should be held to a minimum.

A case file contains all documents filed with BLM relating to the claim including BLM contests and certain other actions. Where an owner filed a group of mining claims, the first case filed is serialized for the group and it is designated as the lead or parent file. All other claim files in the group have individual serial numbers but make reference to the lead file. In these instances, fee receipts, maps, affidavits of assessment work performed, letters, and other documents may be found in the lead file rather than in each of the individual files for the group.

Plans call for replacement of the paper case files with microfilm records. The case files will be retained until integrity of the microfilm system has been well established.

SURVEY AND LAND STATUS RECORDS

Survey and land status records are the vital records used to identify federal lands open to mining including reserved minerals in patented lands. The master title plats for a township should be examined prior to prospecting, exploration, and location of mining claims to avoid trespass on privately owned lands and on public lands closed to mining.

RECORDS INSPECTION AND PURCHASE OF COPIES

Record Locations. Survey, land status, and mining claim records are available for public inspection and copies may be purchased in person or by mail at BLM's Oregon State Office, 920 N.E. 7th Avenue, P. O. Box 2965, Portland, Oregon 97208 from 7:30 a.m. to 4:15 p.m., on all normal working days.

Additionally, survey, land status, and mining claim index records are distributed to the ten BLM District Offices in Oregon located in Salem, Eugene, Roseburg, Coos Bay, Medford, Prineville, Lakeview, Burns, Vale, and Baker; and to the only BLM office in Washington, which is located at Spokane. Copies of the mining claim index records may be available at certain Forest Service offices.

Copy Fees. Present charges for records purchased at BLM's Oregon State Office are:

<u>Item</u>	<u>Cost</u>
Township Master Title, Geothermal and Other Leasable Mineral Plat Records	\$1.00 per plat
Microfiche Mining Claim Index Records for viewing on microfilm readers (produced monthly) Each fiche has capacity for over 200 computer page listings of claims indexed by geographic location, claim name, claimant name or serial number. Each index series for all claims entered into the system presently consists of six fiche.	.50 per fiche
Print Copy of Image from Microfilm Index Page A print copy of a single index page from the above fiche represents a single computer printout page listing of indexed claims.	.50 per image
Serial Register Pages	.25 per page
Case file Materials excepting maps	.25 per page
Maps depending on size	.25 to \$2.00 per map
Certification of Documents	.25 per certification
Maps (A listing of available maps is furnished upon request)	

NOTE: Orders for copies of records must be in writing and remittances are payable in advance to the Bureau of Land Management. There is a minimum \$.50 charge per request.

MINING CLAIM SERVICES

Mining claims and related activities generally are covered by laws and regulations administered by various offices of the Bureau of Land Management and the Forest Service. Other Federal or State agencies sometimes are concerned with certain mining claim activities. The responsibilities of each office and the kinds of actions to be taken by each are stated in regulations. Services available from each office therefore are limited to those specified in the regulations.

It is inappropriate for BLM employees to provide legal advice or to assist in locating mining claims by abstracting record information and in preparing applications or other papers. BLM is responsible for recording all mining claims even if they happen to involve lands where other claims have been filed. The Bureau remains neutral in respect to conflicts between rival claimants involving the same lands by refraining from commenting on the rights of either party. If rights of possession to a claim are not resolvable by the claimants, such matters are decided by State courts - not BLM.

It is also inappropriate for BLM to initiate proceedings to contest claim deficiencies or to request criminal prosecution for an alleged fraudulent statement based on the request of rival claimants which are more appropriately decided by State courts.

BLM OREGON STATE OFFICE

There are a number of services related to mining claim records that are performed for Oregon and Washington mining claimants by units of the Bureau of Land Management's Oregon State Office in Portland.

Office of Public Affairs

Through news media and by other means, inform miners and the public of significant mining activities and mining requirements on federal lands, and also provide information on other resource management subjects.

Branch of Records and Data Management

Distribute mining regulations and publications upon request.

Maintain survey, land status and mining claim records for agency and public uses.

Sell and certify copies of records upon request.

Receive, receipt money and maintain records for mining claim filings, applications for mineral patents, mineral lease transactions, applications for deferment of assessment work, and requests for mining claim contest proceedings.

Request supplemental information for incomplete mining claim filings; reject mining claim filings failing to comply with recordation requirements; issue decisions informing owners of claims abandoned on the records for failure to file annual documents with BLM; and issue decisions invalidating claims that were located on lands closed to mining.

Branch of Lands and Minerals Operations

Issue complaints contesting the validity of mining claims based on reports of mining examinations showing lack of discovery or other noncompliance with mining law requirements.

Examine, process and adjudicate applications for mineral patents; reject defective applications; and issue patents for claims meeting mining law patent requirements.

Examine, process and adjudicate applications for deferment of assessment work; approve applications where access to claims for performance of assessment work is legally barred; and reject others.

Upon request, determine disputed bonding requirements for mining claim operations located on lands where the United States does not own the surface but has reserved minerals in patent conveyances.

Initiate hearing proceedings where placer claims located within power withdrawals are deemed to interfere with other uses of lands.

Determine whether claims within power withdrawals are located on lands open to mining; and if not, issue decisions invalidating such claims.

Take appropriate action on mining claim conflicts with mineral lease and land transactions.

Branch of Cadastral Survey

Process and take appropriate action on applications for mineral surveys.

BLM OREGON AND WASHINGTON DISTRICT AND RESOURCE AREA OFFICES

BLM district and resource area offices have specified responsibilities for managing surface and mineral resources relating to mining claims and other uses of public lands under BLM jurisdiction.

Advise miners and others concerning BLM requirements for authorized lands and minerals uses.

Review mining operation plans and establish requirements under new BLM regulations for mining operations.

Issue trespass notices or request civil or criminal court action for occupancy, removal of minerals, or other use of federal lands in violation of the laws.

Examine mining claims outside the National Forest System and the National Park System under program criteria to determine compliance with mining laws and regulations and report claims failing to comply with the mining law requirements to the BLM Oregon State Office recommending contest proceedings be initiated to invalidate mining claims.

FOREST SERVICE OFFICES

Forest Service offices manage the surface resources where mining claims are located in national forests and monitor mining operations.

Advise miners and others concerning Forest Service requirements for authorized lands and minerals uses.

Distribute Forest Service mining claim publications and regulations upon request.

Review notice of intent mining operation plans and establish requirements under Forest Service regulations.

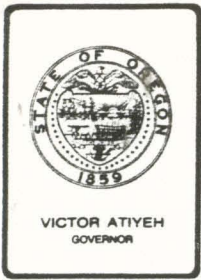
Initiate civil or criminal actions for occupancy, removal of minerals, or use of national forest lands in violation of the laws.

Examine mining claims within the national forests to determine compliance with mining laws and regulations. Claims failing to comply with the mining law requirements are reported to the BLM Oregon State Office recommending contest proceedings be initiated to invalidate mining claims.

STATE AND OTHER FEDERAL AGENCIES

Numerous State and other Federal laws and regulations may relate to varying types of mining operations and activities. These agencies should be contacted where mining activity presents a matter of concern within their areas of responsibility.

Roger F. Dierking
Chief, Branch of Records and
Data Management



Department of Geology and Mineral Industries
ADMINISTRATIVE OFFICE

1005 STATE OFFICE BLDG., PORTLAND, OREGON 97201 PHONE (503) 229-5580

May 10, 1982

TO: C. Stanley Rasmussen
Allen P. Stinchfield
Donald A. Haagensen

FROM: Donald A. Hull

Enclosed are pages 18232-18238 of the FEDERAL REGISTER of April 28, 1982 which describes the final coal exploration rules promulgated by the Federal Office of Surface Mining. We do not have as yet a copy of the final rules for Oregon but will forward them to you as soon as possible.

These rules will become effective May 28, 1982.

It is noteworthy that the Office of Surface Mining has judged that the Oregon MLR law (ORS 517.750 to 517.990) is superseded by these regulations because the State law is less stringent. The OSM particularly noted the portion of the Oregon law (ORS 517.780) concerning county options as being less strict and comprehensive than the Federal law and rules.

In addition to the Federal determination regarding the supremacy of the Federal law and rules for coal exploration vis-a-vis the Oregon law, OSM announced the intent to propose a full coal regulatory program for Oregon. This complete program would include coal production activities as well as exploration.

It will be important to research the respective State authorities in the area of coal regulation if we anticipate significant industry activity in the months and years ahead.

DAH:jr
cc John Beaulieu
cc Paul Lawson
cc Robert Haskins



United States Department of the Interior

GEOLOGICAL SURVEY
RESTON, VIRGINIA 22092
Mail Stop 956 National Center
Office of Energy Resources
Branch of Coal Resources

*Ralph -
Are you interested
in this?*

January 17, 1975

Mr. Raymond E. Corcoran, State Geologist
State Department of Geology
and Mineral Industries
1069 State Office Building
Portland, Oregon 97201

Dear Mr. Corcoran:

Robert B. Erwin, as Chairman of the National Coal Data Committee, NCDC, has invited all State Geologists to a meeting tentatively scheduled for February 19 and 20, 1975, at Reston, Virginia. Background material pertaining to a National Coal Data System is enclosed for you and your staff's consideration and comments. Attachment "A" is a "Working Draft" for a National Coal Data System; Attachment "B" are guidelines used by our Branch for coal sampling in the U.S.G.S.; and Attachment "C" are forms we use to record point source data in the field.

As Staff Geologist in the Branch of Coal Resources, I am the liaison with State Surveys on matters of mutual interest relating to coal. If the U.S.G.S.'s Branch of Coal Resources can be of help to you or your staff, please feel free to contact me directly at the above address, or by telephone (703) 860-7734.

Sincerely yours,

John E. Johnston
John E. Johnston, Staff Geologist
Branch of Coal Resources

Enclosures

RECEIVED-PTLD

JAN 22 1975

DEPT OF GEOLOGY



LARAMIE ENERGY
RESEARCH CENTER

UNITED STATES
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION
P. O. BOX 3395, UNIVERSITY STATION
LARAMIE, WYOMING 82071

February 7, 1975

Mr. Ralph S. Mason
Deputy State Geologist
Department of Geology and Minerals Industries
1069 State Office Building
Portland, Oregon 97201

Dear Mr. Mason:

We at the Laramie Energy Research Center have been involved in underground coal gasification for the past two years. The program is designed to make available a low-Btu gas produced from coal in place for direct generation of electrical power or for upgrading to a high-Btu pipeline quality gas.

The field operation is very similar to oil and gas producing systems. Rather than mine the coal we drill vertical holes to the coal seam and combust the gas in place.

It is necessary to have support facilities on the surface of the ground. Items such as heavy mobile equipment, small buildings, air compressors, piping, and wellheads are commonplace.

We have made several studies as a result of our experimentation and, generally speaking, are encouraged by our results to date. We do plan additional experimentation which will be initiated this spring and carried out through the summer months. We would be happy to have you visit our facility during this time so that you could obtain on site information.

I am enclosing several reports which explain various phases of our research program. However, reading through the reports, you may have some specific information which you will wish to discuss with me. If you do, please feel free to contact me.

Sincerely,

Leo A. Schrider
Program Manager

Enclosures



United States Department of the Interior
BUREAU OF MINES

Suite 7, Standard Insurance Bldg.
475 Cottage St. NE
Salem, Oregon 97301

March 12, 1974

R.E. Corcoran, State Geologist
Department of Geology and Mineral Industries
1069 State Office Bldg.
Portland, Oregon 97201

Subject: Federal Research and Development Projects on Coal - 1974

I have obtained some additional information on the Bureau's synthane process. This information is attached. I do not have too much hope for this process on the Coos Bay coals. Primarily, the coal has to be mined and pulverized prior to treatment. As I stated in my previous letter, I do not think that the Coos Bay coals can be mined economically by underground mining.

Sincerely yours,

Walter E. Lewis
Liaison Officer - Oregon

Attachment

WEL:lp

RECEIVED
MAR 13 1974

DEPT. OF GEOLOGY
& MINERAL IND.

U.S. Bureau of Mines Synthane Process

The U.S. Bureau of Mines has developed a process for converting any rank of coal to a gas having the essential characteristics of natural gas, that is, non-polluting, and a high heating value per cubic foot compared with other conventional gaseous fuels. The main process steps include coal pretreatment to destroy any caking tendencies during heating: (1) gasification of the treated coal in a fluidized bed with oxygen and steam to make a mixture consisting mainly of methane, hydrogen, carbon monoxide, carbon dioxide, hydrogen sulfide, and steam; (2) tar and dust removal; (3) shift conversion to obtain a 3-to-1 ratio of hydrogen and carbon monoxide; (4) purification of the gas from the converter to remove carbon dioxide and sulfur compounds; and (5) catalytic methanation to convert the carbon monoxide and hydrogen to methane, the principal constituent in natural gas.

Hydrocarbon Research, Inc., (HRI) and the Lummus Company have been awarded contracts that will provide substantial scale-up of the Synthane Process.

Several years ago, HRI designed, constructed, and operated a fluid-fed gasifier to determine the technical and economic feasibility of gasifying anthracite silt. After renovations and additions to meet Bureau specifications for the Synthane Process, the HRI gasifier will be operated in a manner to furnish data for scale-up to a much larger pilot plant. The principal changes made in the HRI system include reducing the gasifier internal diameter from 26.5 inches to 18 inches, installing a conical gas distributor in the bottom of the gasifier, and adding a fluid-bed pretreater.

Tests will be made at 400 psig, with Illinois No. 6 coal sized to 20 mesh by 0, and fed at a rate of 900 pounds per hour. Compared with the Bureau's gasifier, the HRI gasifier represents a 16-fold scale-up in terms of reactor cross-sectional area. The scale-up is about 36-fold in terms of hourly coal throughput.

The Lummus Company is designing a large Synthane pilot plant that will gasify 70 tons of coal daily. Compared with the Bureau's pilot plant, this represents a scale-up factor of 240. The process design, which has been described 1/, is based mainly on Bureau research and development on coal pretreatment, fluid-bed gasification, and methanation. Supplementary design guides will depend on operating experience with the HRI gasifier, and on Lummus' broad experience in industrial process design and development.

1/ Frith, J.F.S. Engineering Aspects of the Synthane Coal Gasification Process. Presented at the Second Fuels-from-Coal Conference, Oklahoma State University, Stillwater, Oklahoma, May 1 and 2, 1972.



United States Department of the Interior
BUREAU OF MINES

Suite 7, Standard Insurance Bldg.
475 Cottage St. NE
Salem, Oregon 97301

March 8, 1976

Ralph Mason, Geologist
Department of Geology and Mineral Industries
1069 State Office Bldg.
Portland, Oregon 97201

Dear Ralph:

Reference is made to our telephone conversation Friday regarding the basic requirements for coal gasification. The Process Evaluation Group in Morgantown, West Va., have estimated the following:

Operation:	330 days/year
Minimum size gasification plant:	250,000,000 cu. ft./day
Raw material required:	7,000,000 tons/year
(Coal 10,000 Btu)	21,000 tons/day
Water:	42,000,000 gallons/year
	128,000 gallons/day

The capital cost of the minimum size plant is about \$600,000,000. The period for amortization is 20 to 40 years, averaging 30. To amortize the plant in 30 years, a reserve of 210,000,000 tons of coal is needed to meet exactly the amount required. However, to be on the safe side, about 25 percent above this amount would be needed. The required reserve total should be roughly about 260,000,000 tons.

The only way that the above costs can be cut is to produce low B.t.u. solely for industrial uses. However, such production would have to be utilized in the immediate area, no greater than 20 miles from the plant. This type of plant would require development of the industrial use before construction and developing the economics on the basis of the demand.

-2-

The American Chemical Society is meeting in New York in April. After this meeting, ERDA will have available several papers on the economics of the gasification of coal. I will attempt to get them for you at the earliest opportunity.

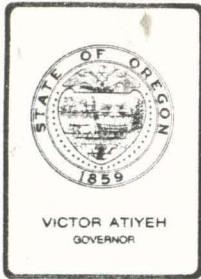
Sincerely yours,



Walter E. Lewis
Liaison Officer - Oregon

WEL:lp

CC: R.H. Mote



Department of Geology and Mineral Industries

1129 S.E. SANTIAM ROAD, ALBANY, OREGON 97321 PHONE (503) 967-2039

December 15, 1980

Ms. Elizabeth S. Stockdale
Assistant Attorney General
Department of Justice
Tax Division
100 State Office Building
Salem, OR 97310

Dear Elizabeth:

That hearing was interesting. I bet it goes to tax court.

I spent 11 hours on your project, drove 77 miles, and placed four phone calls to the Federal Office of Surface Mining. Therefore, please submit the total below to the Department of Geology and Mineral Industries, 1069 State Office Building, Portland, OR 97201.

TIME	11 hours @ \$ 40/hour	\$440.00
TRAVEL	77 miles @ \$.17/mile	13.00
PHONE CALLS	Est. Cost	10.00
TOTAL		\$463.00

Thank you.

Sincerely,

Jerry J. Gray
Economic Geologist

JJG/dy



United States Department of the Interior
OFFICE OF SURFACE MINING
Reclamation and Enforcement
BROOKS TOWERS
1020 15TH STREET
DENVER, COLORADO 80202

November 25, 1980

Jerry Gray
Oregon Department of Geology
and Minerals Industries
1129 S.E. Santiam Road
Albany, Oregon 97321

Dear Jerry:

In reference to our telephone conversation of November 24, 1980, the State severance tax on coal mining operations is 17 percent in Wyoming. Information about royalties on State coal (this is in addition to the severance tax), can be requested from Oscar Swan, Commissioner of Public Lands in Wyoming at (307) 777-7331. Mr. Swan can give you the amount of royalty set on any particular State lease.

The following charts that you requested are enclosed:

Chart #1 shows the process of Mine Plan Review and approval.

Chart #2 shows what is involved in the apparent completeness. This process takes 100-days.

Chart #3 shows the Technical Environmental Analysis process. This can take up to a year.

Chart #4 shows general topics of review in both processes above.

Chart #5 shows the Environmental Impact Statement process

A description of the Mine Plan Review process is also enclosed. Again, as we discussed, this is the process used under the Interim Program. The State's main responsibilities will be for mine plan review under the permanent program.

If I can be of further assistance please give me a call. Good luck!

Sincerely,

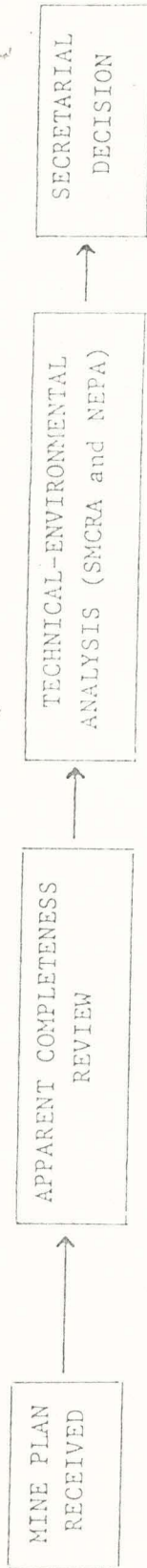
Thomas E. Ehmett
Assistant Regional Director for I&E

Enclosures:

1. Charts
2. Description of Mine Plan Review
3. Interim Regulations
4. The Act (Public Law 95-87)

①

MINE PLAN REVIEW PROCESS - OVERVIEW



From A. Nelson
The secretariat
is reviewing the
plan and will
submit a
recommendation
to the Secretary
of the Interior
by 3/21/80.
A final decision
will be made
by the Secretary
of the Interior
by 3/21/80.

STATE OF OREGON
DEPARTMENT OF REVENUE

SUBPOENA

TO: Jerry J. Gray, Staff)
Geologist, Oregon)
Department of Geology and) ORDER TO APPEAR
Mineral Industries,)
1129 South Santiam Road)
Albany, Oregon 97321)

By virtue of the authority vested in the Department of Revenue under the provisions of ORS 305.190 and related statutes, you are hereby directed to appear before the Oregon Department of Revenue at 406 Public Service Building, Salem, Oregon on the 10th day of December 1980 at 8:30 a.m. to give evidence in a hearing on behalf of the Department of Revenue.

Done at Salem, Oregon, this 19th day of November 1980.

DEPARTMENT OF REVENUE

/s/ Robert B. Geltz

1 STATE OF OREGON)
2) ss.
3 County of Marion)

4 I, Elizabeth S. Stockdale, an agent of the Department of
5 Revenue, State of Oregon, do hereby certify that I served the
6 foregoing Subpoena on Jerry J. Gray on the 20th day of
7 November 1980, by personally delivering a copy thereof, certi-
8 fied by me as a true and correct copy.

9
10 /s/ Elizabeth S. Stockdale
11 Elizabeth S. Stockdale
12 Assistant Attorney General
13

14 STATE OF OREGON)
15) ss.
16 County of Marion)

17 I hereby certify that I have carefully compared this copy of
18 the Subpoena with the original thereof, and that it is a true and
19 and correct copy thereof.

20 Dated this 20th day of November 1980.

21 Elizabeth S. Stockdale
22 Elizabeth S. Stockdale
23 Assistant Attorney General
24
25

JAMES M. BROWN
ATTORNEY GENERAL



DEPARTMENT OF JUSTICE

TAX DIVISION
100 State Office Building
Salem, Oregon 97310
Telephone: (503) 378-4494

November 19, 1980

Mr. Jerry J. Gray
Staff Geologist
Department of Geology and
Mineral Industries
1129 South Santiam Road
Albany, Oregon 97321

Dear Jerry:

The Department of Revenue has authorized me to engage your services as an expert witness in the hearing before the Department of Revenue concerning coal lease tax shelters. The Department has agreed to compensate you in the amount of \$40 an hour for your time in preparation and testifying in this matter. It is the Department's understanding that the Department of Geology and Mineral Industries will tender a bill for your services upon completion of the assignment.

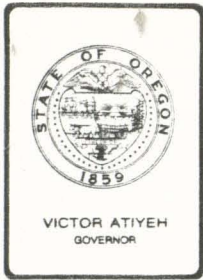
Thank you for your cooperation.

Very truly yours,

Elizabeth S. Stockdale
Assistant Attorney General

bem

cc: Donald A. Hull
State Geologist
Oregon Department of Geology
and Mineral Industries
1069 State Office Building
Portland, Oregon 97201



Department of Geology and Mineral Industries

1129 S.E. SANTIAM ROAD, ALBANY, OREGON 97321 PHONE (503) 967-2039

December 15, 1980

Ms. Elizabeth S. Stockdale
Assistant Attorney General
Department of Justice
Tax Division
100 State Office Building
Salem, OR 97310

Dear Elizabeth:

That hearing was interesting. I bet it goes to tax court.

I spent 11 hours on your project, drove 77 miles, and placed four phone calls to the Federal Office of Surface Mining. Therefore, please submit the total below to the Department of Geology and Mineral Industries, 1069 State Office Building, Portland, OR 97201.

TIME	11 hours @ \$ 40/hour	\$440.00
TRAVEL	77 miles @ \$.17/mile	13.00
PHONE CALLS	Est. Cost	10.00

TOTAL		\$463.00
-------	--	----------

Thank you.

Sincerely,

Jerry J. Gray
Economic Geologist

JJG/dy

QUESTIONS - Jerry Gray

1. Name and address
2. Current employer
3. Past employment experience
4. Education
5. Duties in present employment
6. Any direct experience in coal mining
7. Have you had occasion to become familiar with the economics of coal mining through your work?
8. Have you become familiar with the methods of coal mining through your work?
9. Is coal mining generally similar to or different from mining of other minerals?
10. As part of your work do you routinely handle inquiries about the methods and economics of coal mining?
11. As part of your work do you keep yourself informed in the area of coal mining statistics and economics?

Cambridge Corporation materials

1. Have you had an opportunity to examine exhibit yes
(material distributed by Cambridge Corporation)?
With respect to the mining lease; *Where is the land?
What kind of coal?*
2. Is the period of the lease realistic? *No* *What cost coal*
 - a. How long does it take for a coal mining operation to be started? Small operations vs. large operations? *- 10y*
Average would be 3 1/2 to 4 years
 - b. What kinds of permits must be obtained before a coal mining operation can be started? *SMP from Federal and
Water - air
Permits*
3. Is the amount of the royalty reserved by the lessor commercially reasonable? *No* *leases range from
2 to 12%*
Not for 6.00 coal
4. Is 100,000 tons an amount that is economically worthwhile to mine? *May be - if exposed on surface
No overburden*

- a. In order to make this judgment what information do you need about the market? *where is the market, who has the market, how far the market*
- b. What information do you need about mining costs? *How much cost compared to sale*
5. With respect to the contract for sale of coal:
 - a. Is the period in which coal must be mined under this agreement reasonable? *Not to bring a mine into production*
 - b. Is the royalty or price specified in this contract commercially reasonable? Is more information necessary to make this determination? *Not for \$6.00 coal*
6. With respect to the geology reports:
 - a. Was the report specific enough to make a determination of the profitability of the program? *No. No mining cost. No markets for coal*
 - b. Are any particular kinds of information necessary to a determination of profitability missing from these reports? *Yes how will coal be mined*
7. According to these materials, what kind of coal is to be mined on the leased property? *some where between lignite and sub-bituminous*
8. Where does sub-bituminous coal fall among other kinds of coal? What are its potential uses? *power generation source for gasification*
9. Are there any characteristics of sub-bituminous coal that affect the cost of mining it? *some ~~will~~ will start to burn when the air hits it. some the back does not start*
10. Are there any characteristics that could affect the potential marketability of such coal? *low BTU. can not be upgraded - limited market - can not sell well*
11. What kind of investment in equipment is necessary for strip-mining coal? *100,000,000 for large mine*
12. Before actual proven coal reserves can be established, what kind of testing or exploration is necessary? *close drilling, cost of mining.*
13. Does it appear that the necessary exploration has been done - sufficient to support guarantee of 100,000 tons of recoverable coal? *No*
14. If a person came to you and told you that he was trying to decide whether this coal lease program would be profitable, what would you advise that person after you had examined the coal lease, and the geology reports accompanying the lease? *Run the other way*

JAMES M. BROWN
ATTORNEY GENERAL



DEPARTMENT OF JUSTICE

TAX DIVISION

100 State Office Building

Salem, Oregon 97310

Telephone: (503) 378-4494

November 5, 1980

Mr. Jerry Gray
Staff Geologist
Oregon Department of Geology
and Mineral Industries
1129 South Santiam Road
Albany, Oregon 97321

Re: Expert Testimony for Oregon
Department of Revenue Regarding
Coal Leases

Dear Jerry:

Enclosed are the materials that I would like you to review for the Department of Revenue hearing on coal lease tax shelters. They appear to be two different geology reports on coal bearing regions in Wyoming and Colorado. Please review them with the idea that they have been supplied to a potential investor in coal.

The hearing has been rescheduled to December 10, 1980 at 8:30 a.m. in the State Office Building in Salem. Prior to that time, after you have had a chance to review these materials, I would like to get together with you and discuss your thoughts on these reports. I will prepare a subpoena for you before the day of the hearing. If you prefer I can try to arrange to have you testify out of order so that you will only have to be in Salem for a short period of time.

I appreciate your willingness to help us in this matter, and look forward to discussing these reports with you.

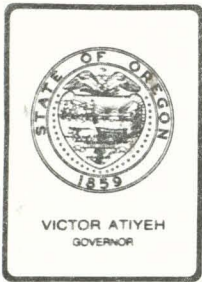
Very truly yours,

Elizabeth S. Stockdale

Elizabeth S. Stockdale
Assistant Attorney General

bem

enc.



Department of Geology and Mineral Industries
ADMINISTRATIVE OFFICE

1069 STATE OFFICE BLDG., PORTLAND, OREGON 97201 PHONE (503) 229-5580

February 10, 1981

Mr. Thomas K. Matson, Project Manager
U.S. Department of Energy
Western Energy Data Field Office
555 Zang Street, First Floor N.E.
Lakewood, Colorado 80228

RECEIVED

FEB 13 1981

DEPT OF GEOLOGY
& MINERAL INDUS.

Dear Mr. Matson:

Thank you for your letter of February 5, 1981, concerning coal reserve information.

I reviewed the tabulation regarding coal reserves in Oregon and find it to be in serious error.

Due to recent significant discoveries of coal and lignite sources in Oregon, our re-evaluation of known fields in the published literature is clearly inadequate.

I would be happy to visit with you at length on this subject with a view to explore a joint project designed to update coal data for the State of Oregon.

Sincerely,

DAH:jr

Donald A. Hull
State Geologist



Department of Energy
Energy Information Administration
Western Energy Data Field Office
555 Zang Street, First Floor N.E.
Lakewood, CO 80228

RECEIVED-PED

1981

DEPT OF GEOLOGY
RECEIVED-PED

1981

DEPT OF GEOLOGY

February 5, 1981

Donald Hull, State Geologist
State Dept. of Geology &
Mineral Industries
1069 State Office Bldg.
1400 S.W. Fifth Avenue
Portland, OR 97201

Dear Mr. Hull:

Pursuant to Sec. 801, "Coal Reserves Disclosure," of the Powerplant and Industrial Fuel Use Act of 1978 (P.L. 95-620), the Energy Information Administration (EIA), U.S. Department of Energy, is required to publish early this year, and annually thereafter, estimates of the Demonstrated Reserve Base (DRB) of coal in the United States.

The purpose of this letter, therefore, is to request your affirmation and/or comments on the enclosed DRB estimates of coal and accompanying written material pertaining to your State. The draft material for your State is identical in format to that for other States where the DRB can be delineated, and will be included in the published report. The enclosed draft "Summary" section of the report is for your information.

The DRB data represent estimates by EIA based on information currently available. As new data are developed or become known, future annual reports will be updated accordingly.

Please respond to this request at your earliest opportunity. Due to publication deadlines, we must receive your response by February 20, 1981. A telephone response is preferred (303-234-5715) with a follow-up letter for our records.

In instances where disagreements may occur and cannot be resolved within the time limit for publication, you may wish to have a letter stating your position appended to the published report, and the estimates for your State will be so noted in all tables and text material.

Your cooperation is appreciated.

Sincerely,

Thomas K. Matson

Thomas K. Matson
Project Manager

Enclosure

STATE WARRANT NO.
INDICATES CLAIM
ALLOWED BY
EXECUTIVE DEPARTMENT

AGENCY VOUCHER NO.

#519755 11/8/81

6975

AGENCY VOUCHER NO.

12/31/80

DATE

Department of Geology & Mineral Industries
1129 SE Santiam Road
Albany, Oregon 97321

JUSTICE DEPARTMENT

CHAPTER 432, O. L. 1979-81
137

TRANS-
ACTION
CODE

C

ADMIN.
EXPENSES

99-01-1

A

OPERATING
ACCOUNT

02-01-1

\$ 463.00

A

ANTI-TRUST
REVOLVING

06-01-1

A

FEDERAL
EXPENSE

02-03-1

AUDITED BY

TOTAL AMOUNT

\$ 463.00

DATE

FUND

ACCOUNT

AMOUNT

FUND

ACCOUNT

AMOUNT

410-1-02-01-06-00

925.900

463.00

RECEIVED
JAN - 9 1981
DEPT OF GEOLOGY
& MINERAL INDUS.

12/15/80
150-11-101-02630

NOTICE TO VENDOR

REMITTANCE ADVICE

Enclosed is warrant in full payment of claim listed above. Please refer to Voucher Number indicated if you have any question regarding this payment.

FOR STATE AGENCY USE ONLY

This certifies that the materials, services, cash advanced, or expenses covered by this claim have been furnished, rendered or expended on behalf of the State of Oregon. The provision for payment is made by law and appropriation, the obligation or expenditure is authorized by law and the claim otherwise satisfies the requirements as provided by ORS 293.295. This claim has been approved for payment in the above amount.

By

By

TO THE STATE TREASURER
SALEM, OREGON 97310

State of Oregon

Executive Department

96-10
1232

CONTROL NO.

ORIGINATING AGENCY

VOUCHER NO.

FUND

TRANSACTION NO.

ISSUE DATE

3080413

137 DEPARTMENT OF JUSTICE

006975

401

519755

01/08/81

Pay EXACTLY *****463 DOLLARS

To DEPARTMENT OF GEOLOGY & MINERAL
The INDUSTRIES

Order Of

STATE OF OREGON

1859

\$463.00

AMOUNT THIS WARRANT

VOID AFTER 2 YEARS FROM DATE OF ISSUE



UNITED STATES
DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY
656 U. S. Court House
W. 920 Riverside Avenue
Spokane, Washington 99201

RECEIVED
FEB 15 1968

STATE DEPT. OF GEOLOGY
& MINERAL IND.

February 14, 1968

Mr. Ralph S. Mason
Through Hollis M. Dole
Department of Geology and Mineral Industries
State of Oregon
1069 State Office Building
Portland, Oregon 97201

Dear Ralph:

I am enclosing the first two pages of your manuscript on coal. These have been retyped because of some slight changes that I have made. On page 2 I have revised the second and third paragraphs in order to work in the references to the literature a little more smoothly, and on page 1 I have made a minor change in the third paragraph. In the rest of the manuscript, the only changes I have made are to insert references to your bibliography in a few places. It doesn't seem to be necessary to return these pages to you. However, I observed on pages 11 and 12 that you refer to Diller (1895). I believe you are referring to his chapter in the 17th Annual Report, in which case it should be Diller (1896). I checked this and it is given in Circular 362 as 1895. Inasmuch as this is a quote, theoretically it should be left the way it is, but I don't think anybody would notice the difference if we changed it to the correct(?) date, and it would be more logical to do so.

You pulled a real sly trick. Since about half of your report is a quote, it has to be accepted by the editor verbatim. However, it's a good report, and I'm quite happy with it. I have only one additional suggestion. If you have the data, I would like to see a graph showing the coal production from the State. This would bring out very lucidly the sad state of the Oregon coal industry.

With best regards,

A. E. Weissenborn
Research Geologist
Branch of Resources Research

Enclosure

COAL

(By R. S. Mason, Oregon State Department of Geology and
Mineral Industries, Portland, Ore.)

Coal has been mined in Oregon since pioneer times. Many of the seams were opened to provide fuel for purely local consumption, but for the period 1888 through 1911 the Coos Bay field mined an average of more than 60,000 tons per year. During this time there were four years when production exceeded 100,000 tons. Shipments to California reached a peak shortly after 1900 and declined rapidly with the discovery of the prolific California oil fields. Large tonnages of coal were also used for firing steam locomotives operating in the West until they were outmoded by diesel equipment. Following a brief period of renewed activity during World War II, coal production in the State has declined almost to the vanishing point (fig. ____).

Figure ____ near here.--Coal produced in Oregon 18__ to 1966)?

The competition from other thermal energy sources has always been severe in Oregon. Wood and wood by-products, fuel oil, coke, low-cost hydroelectrical energy, and more recently, natural gas, have been favored over coal for heating purposes.

For many years a small quantity of coal has been mined in Clackamas County, mostly for use as a soil amendment.

~~not~~ Consideration has also been given to the utilization of the high volatile Coos Bay coals for the production of by-products. A report by M. D. Curran (1944) discusses this as well as the beneficiation of the Coos Bay coals.

The important coal fields of Oregon include: the Coos Bay field, the Eden Ridge field, and the Rogue River field (fig. ____). Other areas in

Figure ____ near here.--Coal in Oregon

which small tonnages of coal have either been developed or have small tonnages indicated include: the Vernonia coals of Columbia County, the Wilhoit area of Clackamas County, the Waldo Hills area of Marion County, the Eckley and Squaw Basin coals of southern Coos County, and the Shasta Costa coal of Curry County. Counties in which thin seams of low-grade coal are known to crop out include, in addition to the coals listed above, Tillamook, Lincoln, Yamhill, Douglas, Grant, Morrow, Wheeler, and Wasco.

The Coos Bay coals have been investigated many times in the last 70 years. The first published geological report on the Coos Bay area was by J. S. Diller (1896). This was followed by further reports (Diller, 1899, 1901, 1914; Diller and Diskel, 1911). A comprehensive study of the field was conducted by the State of Oregon Department of Geology and Mineral Industries in cooperation with Coos County in 1943-44. Results of the work, which, in addition to geologically mapping the area, included detailed mapping of many of the mines, sampling of unmined exposures, and hand and power augering of possible strip mine areas, were published ^{by the Department} (Allen and Baldwin, 1944). At about the same time the U. S. Bureau of Mines and the U. S. Geological Survey deep-drilled several areas to determine possible reserves. Results of this work are described in two publications (Toenges and others, 1948; Duncan, 1955). Other pertinent publications on the Coos Bay area include Libby (1938), Yancey and Geer, (1940), and Weaver (1942). Coal occurrences to the south in Curry County were included in some of Diller's investigations and were also discussed by Butler and Mitchell (1916).

Allen and Baldwin (1944, p. 1) summarize the geologic setting for the Coos Bay coals as follows:

"About 6,000 feet of upper Eocene Coaledo sediments are confined to a complex structural basin occupying the central portion of the quadrangle. The lower and upper Coaledo members consist of medium-bedded tuffaceous sandstones made up largely of basaltic

H, and J of the Coaledo formation. No reserves were calculated in areas where the coal beds had an overburden of more than 1,500 feet.

"Toenges (1948) estimated that measured reserves of Beaver Hill coal underlie 1,020 acres and total 10,810,000 tons, of which 8,600,000 tons is considered recoverable. Of an additional 6,193,000 tons of indicated and inferred coal, 4,955,000 tons is considered to be minable. These reserve figures are not shown in table 1, as the coal reserves estimated by Allen and Baldwin, and Duncan include the area covered by Toenges' estimates.

"Although the above reserve estimates include the more promising areas of the Coos Bay field, only a small part of the total area of the field was considered."

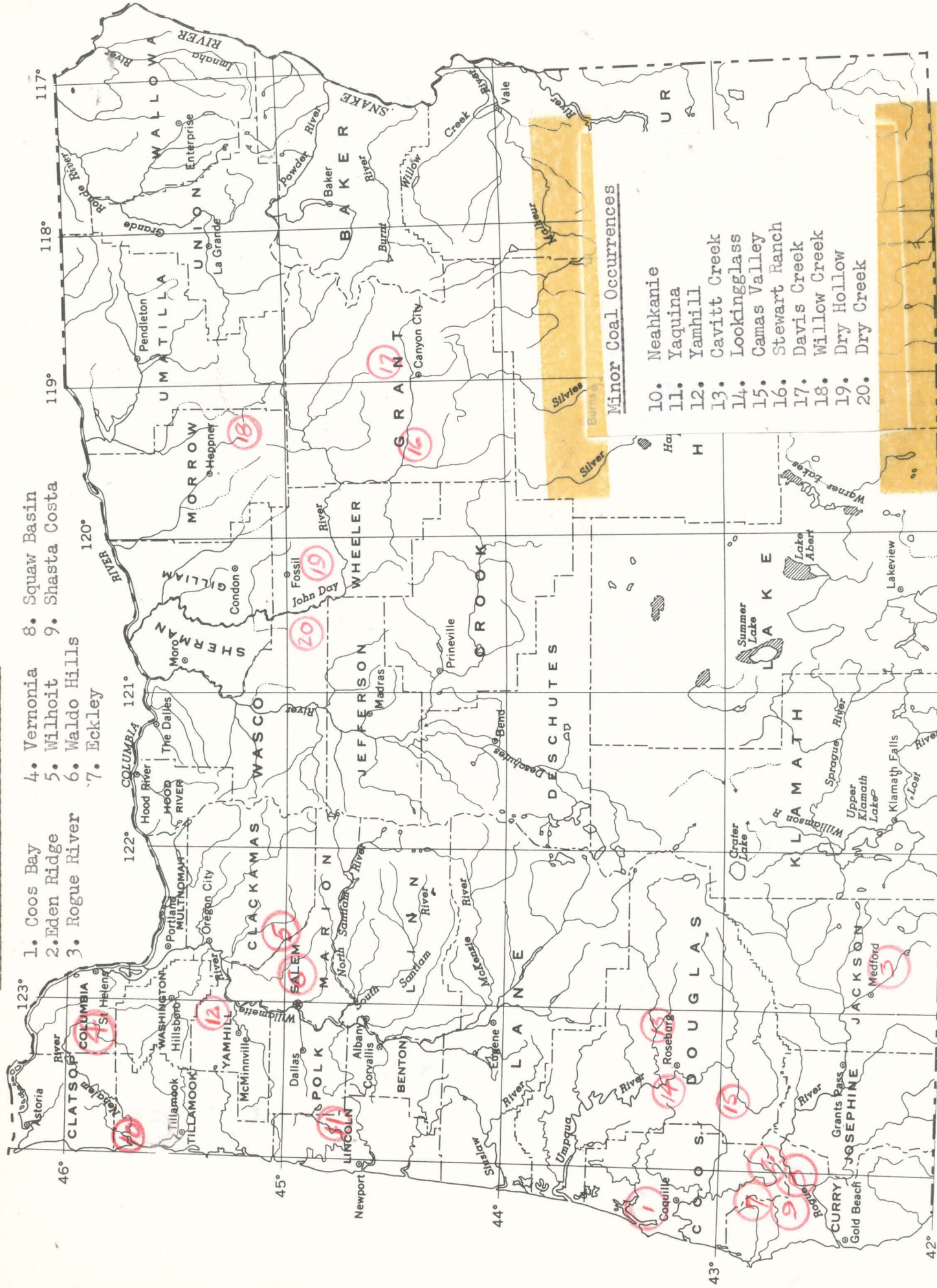
Table 1.—Coal reserves, in thousands of short tons, in parts of the Coos Bay field shown in figure 1

[Southport and Thomas, and Beaver Slough reserve figures are included in Duncan's estimates]

	Average thickness (feet)	Measured	Indicated	Inferred	Total
Areas					
[After Allen and Baldwin, 1944, p. 54]					
South Slough-----			263	2,362	2,625
Englewood-----		¹ 219	¹ 85	-----	304
Riverton-----		¹ 50	¹ 15	-----	65
Lillian-----				132	132
Beds					
[After Duncan, 1953, p. 70]					
Beaver Hill-----					
Bed <u>D</u> -----	4.9	17,245	26,636	12,611	56,492
Bed <u>E</u> -----	3.3	3,628	-----	-----	3,628
Bed <u>H</u> -----	2.7	1,404	-----	-----	1,404
Bed <u>J</u> -----	3.6	738	-----	-----	738
	2.9	475	-----	-----	475
Total-----		23,759	26,999	15,105	65,863

¹Stripping coal.

Principal Coal Fields in Oregon



150 MILES

100

50

0

COAL

Coal has been mined in Oregon since pioneer times. Many of the seams were opened ~~up~~ to provide fuel for purely local consumption, but for the period 1888 thru 1911 the Coos Bay field mined an average of more than 60,000 tons per year. During this time there were four years when production exceeded 100,000 tons. Shipments to California reached a peak shortly after 1900 and declined rapidly with the discovery of ^{THE CALIFORNIA} prolific oil fields. Large tonnages of coal were also used for firing steam locomotives operating in the west until they were outmoded by diesel equipment. Following a brief period of renewed activity during World War II coal production in the state has declined almost to the vanishing point.

The competition from other thermal energy sources has always been severe in Oregon. Wood and wood by-products, fuel oil, coke, ^{low cost hydro} electrical energy and more recently natural gas have been favored over coal for heating purposes.

Industrial interest has been focused on the Eden Ridge field as a possible source of base-load energy for a mine-mouth coal-fired steam ^{power} plant. A report ~~by Mason (1956)~~

B13 → Mason, Ralph S., 1956, Eden Ridge Coal to Be Investigated, State of Oregon Department of Geol. and Mineral Indust., The Ore.-Bin vol 18, no 8.

indicated that 50 million tons of coal could be developed. Consideration has also been given to the utilization of the high volatile Coos Bay coals for the production of by-products. A report by M.D. Curran ⁽¹⁹⁴⁴⁾ discusses the

1944
Curran, M.D./Report of Investigations Concerning the Development of Coal Production in the Coos Bay Region of Oregon (in Allen, John E. and Baldwin E.M. 1944, Geology and Coal Resources of the Coos Bay Quadrangle, Oregon, State of Oregon Dept. of Geol and Mineral Indust, Bull. 27.)

B13 →

beneficiation of the Coos Bay coals and the production of higher quality fuel. A small coal mining operations in Clackamas County has been conducted for many years. Most of the coal mined is sold as a soil amendment rather than for fuel.

IMPORTANT
The coal fields ~~and coals~~ of Oregon, in ~~order of their importance~~, and include; the Coos Bay field, the Eden Ridge field, the Rogue River field. *(SEE MAP)* either or have small tonnage. Other areas in which small tonnages of coal have been developed/include s indicate the Vernonia coals of Columbia County, the Wilhoit area of Clackamas County, the Waldo Hills area of Marion County, the Eckley and Squaw Basin coals of and southern Coos County, the Shasta Costa coal of Curry County. Counties in which thin seams of low grade coal are known to crop out include, in addition to the coals listed above, Tillamook, Lincoln, Yamhill, Douglas, Grant, Morrow, and Wheeler, Wasco.

70
The Coos Bay coals have been investigated many times in the last 50 years. Among the more important reports are those by Allen and Baldwin, Campbell, *WEAVER*, Libbey, Diller, Duncan, Toengas, and Yancey and Geer. A comprehensive study of the field was conducted by the State of Oregon Department of Geology and Mineral Industries in cooperation with Coos County in 1943-4. Results of the work, which in addition to geologically mapping the area, included detailed mapping of many of the mines, sampling of unmined exposures, and hand and power augering of possible strip mine areas, were published with Allen and Baldwin as authors. *(1944)* and the U.S. Geological Survey. At about the same time the U.S. Bureau of Mines/deep-drilled several areas Survey's to determine possible reserves. Results of the ~~Survey's~~ work were prepared for publication by ~~Duncan in 1953~~. Toengas and others in 1948. A further report on ~~this work~~ *THE PROJECT* was published by the Bureau of Mines in 1955 with Duncan as author.

Have about the recent work published or unpublished by Baldwin & WEILAND (?) of the USGS

The first published geological report⁶ on the Coos Bay area ^{WAS} were by J.S. Diller in 1897, followed by further studies published in 1901, and 1911. The studies by Allen and Baldwin, and Duncan have already been mentioned. Allen and Baldwin summarize the geologic setting for the Coos Bay coals as follows: (copy para 3, p 1 of bull 27)

Duncan condenses the structural relationships of the basin;

(copy para 3, p 53 of usgs bull 982-B)

The Coos Bay coals characteristically have sound roofs which have required little or no support during mining. In some mines rooms remain open for years after operations have ceased. Despite the fact that the Coos Bay area ~~is~~ has a heavy annual rainfall, the mines are almost without exception dry, even in cases where the workings have been carried far below sealevel. Very little if any gas has been encountered in most of the mines and open flame lamps were used prior to World War II. The Overland Mine produced a little gas which was disposed of by driving pipes into the breast and lighting the escaping gas. One of the greatest difficulties encountered in the mines was the faulting which offset the seams vertically as much as several feet. The presence of these "jumps" as they were called locally, necessitated the construction of rock tunnels to reach the ~~new~~ offset blocks. In some mines the seam was not thick enough to permit normal height gangways and slopes and portions of the roof had to be "brushed" to give headroom. Nearly all of the seams in the district had one or more clay partings. Normally the clay was firm enough to permit removing ~~it~~ and gobbing ~~it~~.

Almost without exception the mines in the Coos Bay field are abandoned and caved. ~~Portals~~ Portals of many mines have been purposely blocked to prevent access. ~~Maps~~ Maps of the workings of nearly all of the mines in the field have been reproduced in Allen and Baldwin, together with typical coal sections, a history of the operation and production figures. There is

ADD 1

W&MR--addl to p 4

An estimate prepared by the State of Oregon Department of Geology and Mineral Industries in 1953 (Libbey, 1953) for the Oregon Development Commission, divided the reserves in the Coos Bay field into eight areas. The study showed that a total of 51.4 million tons of minable coal were available. Various recovery percentages, ranging from as low as 30 per cent for the deeper portions of the Beaver Hill bed, to 100% for the Englewood, Southport, Thomas and Riverton stripping areas, were used in arriving at the reserve figure.

excellent access to ~~nearly~~^A all parts of the field but heavy vegetative cover has obscured nearly all of the workings. The unmined portions of the various seams are situated for the most part down-slope from the old workings.

Various estimates have been made of the remaining reserves. The estimates differ widely due to a variety of factors. In some cases only coal that could be mined economically at the time of the survey or in the immediate future was considered. Other studies included "geologic" coal which, based available upon/geologic and engineering data, very probably exists in the study area.

Some estimates were based on the "geologic" coal but made allowances for losses incurred in mining ^{plus} ~~and~~ a safety factor for possible breaks in the continuity of the seams ~~or~~, lowering of/grade or thinning of ~~the seams~~.
 (1)

Campbell estimated the reserves at one billion tons in 1913. Allen and Baldwin agreed with this figure but felt that certain reservations should be made on the basis of economics. Duncan split the reserves up ~~on the~~ ^{INTO} basis of the various beds and other factors, with a total of 56.5 million tons for the Beaver Hill bed and an additional 6.2 million tons in the coals overlying the Beaver Hill. Of this total of 62.5 million tons, Duncan estimated that from 25 to 50% could be recovered by ~~mining~~ depending upon the type of mining. No coal deeper than 1500 feet below sea level was considered as minable by Duncan. ^{ADD 1} Mason and Erwin (1955) summarized the Coos Bay reserves:

(add last para p 2 thru to "Eden Rige field on p 3)

also add verifax of Table 1

The Coos Bay field has produced approximately 2.5 million tons of subbituminous C coal. Although estimates vary widely there are probably an additional 50 million tons of recoverable coal in the field. Whether any of this coal will be mined in the future will depend upon many factors.

G. Janson
 diary EST →

ADD 1 →

w&MR--coal add 2 to p 5

Immediately south of ~~the~~ Eden ~~Ridge~~ Ridge there are coal exposures in Squaw Basin. The correlation of the two coals has been made by Wayland (1964). Only minor exploratory work has been done in Squaw Basin.

Local energy sources are presently/largely supplied by petroleum products delivered by ^{ships} ~~bottoms~~. At some time in the future natural gas may be provided from an extension ^{of} to present lines located in the Willamette Valley. The discovery of either offshore or upland oil and gas should be considered. All of these factors place the mining of Coos Bay coals under a distinct handicap. The exploitation of the coals for the production of coal tars and other by-products is a possibility but would require moderately heavy capital expenditures.

The Eden Ridge field in the extreme southern part of Coos County was first reported on by Leshner ~~in~~ (1912,) followed by Campbell and Clark, (1916), ^{AND WAYLAND (1964).} ~~and Daniels in~~ (1920.) Little exploration was conducted in the area until the middle 1950's when ^{THE VARIOUS SEAMS WERE} ~~Pacific Power and Light Company~~ intensively drilled ~~the various seams~~. The coal has been classified as bituminous C. It is high volatile and does not slack readily. The B.t.u. content per pound averages as high as 11,000. Eden Ridge lies at an elevation of about 3000 feet above sea level in fairly rugged, forest-clad mountains. The seams are gently dipping and range in thickness from 4' to 8 feet. Due to the steepness of the terrain there would be little coal that could be stripped. Preliminary estimates indicate that there are about 50 million tons in the three seams that have been drilled. A possibility exists that other coal may lie below the lowest known seam. Further details on the exploration work at Eden Ridge is contained in a report by Mason (1956).

The remoteness of the Eden Ridge field restricts its probable utility to the production of thermal energy in a mine-mouth steam power plant. One interesting feature of the proposed Pacific Power and Light Company venture is the harnessing of a small stream to provide peaking hydro power. Due to the circuitous route taken by the South Fork of the Coquille River, a relatively short tunnel through Eden Ridge would permit a 1650 foot drop through penstocks to ^{at} the powerhouse on the same stream.

Compared to the Coos Bay and Eden Ridge fields, all of the other coals in Oregon are of little economic importance. A review of the Rogue River, together with some additional occurrences Eckley and John day Basin areas/ ^{by} Mason and Erwin (1956) summarizes ~~these~~ them as follows:

(add from p 4 Rogue River, Eckley ~~and~~ John Day basin)
and Other Coal-bearing areas)

References to published and unpublished reports on Oregon coal appear at the end of this section.

#

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Mason

So. 157 Howard Street
Spokane, Washington 99204

June 19, 1967

Mr. Paul Averitt
U. S. Geological Survey
Federal Center
Denver, Colorado 80225

Dear Paul:

I believe that you have heard that we are preparing a report on the Mineral and Water Resources of Oregon cooperatively with the Oregon Department of Geology and Mineral Industries. I wish to ask you to take the responsibility for the chapter on Coal in Oregon with Ralph Mason of the Oregon Department as coauthor. The plan is for you to take the lead in preparing the chapter. If you will send the first draft of the manuscript to me, I will forward it to Ralph. After his review it will be returned to you for your approval of whatever suggestions and additions he may make.

I am enclosing a cronaflex copy of the base map plus two ozalid prints for use as work sheets. If you need more cronaflex copies, please let me know. I am also enclosing some suggestions I have prepared for the guidance of authors of the report.

The first draft of the manuscript will be welcome at any time, but in order not to interfere unduly with the field season (mine included) we do not expect to get the job under a full head of steam until next fall. The deadline for all final manuscripts is December 15.

I'm looking forward to receiving your manuscript. It will not be easy to better the standard you set for the Eastern Montana report, but I am sure we will get a highly professional job.

With best regards,

A. E. Weissenborn
Research Geologist
Branch of Resources Research

Enclosures

cc: Hollis Dole

RECEIVED
JUN 21 1967

STATE DEPT. OF MINES
TRAIL ENDS.

Recommendations for storage of subbituminous coal
with particular reference to the storage of nut-size
or smaller in a large silo-type bin.

by
John Eliot Allen

CONCLUSIONS

The factors which affect the heating, spontaneous combustion, slacking, degradation, and loss of heating value of subbituminous coals may be summarized in parallel columns as follows:

Factors which tend
to prevent

Factors which tend
to accelerate

Ventilation

Lack of air circulation, or air
access, by means of "fireproofing"
or other surface seals, tight bins,
etc.

Ventilation and free access
of air.

Coal characteristics

High rank coals.
Coarser sizes of coal.
Even distribution of coal sizes.
Lack of foreign material.

Low rank coals.
Finer sizes of coal.
Segregation of coal sizes in
the pile or bin.
Presence of wood, rags, waste.

Temperature

Original and continued low
temperatures.
Minor variations in
temperature.

High original and storage
temperatures.
Great fluctuations of
temperature.

Moisture

Saturation of air with
water vapor, or
Submergence under water.

Excessive dryness, or excessive
moisture without saturation.

RECOMMENDATIONS

The application of these listed factors to the specific problem of storage of subbituminous coal in fine or slack sizes in a silo-type bin of 300 tons capacity results in the following recommendations:

1. At a consumption rate of 25 tons every 24 hours, some of the coal would remain in a 300-ton silo for at least 12 days, which, if the silo is constructed so as to spill all the coal, should give a safe time margin for overheating, if other listed factors are cared for.
2. Special care should be taken to make the silo air tight, especially at the lower outlet, but also at the top, so that a current of air circulation cannot be started or maintained, even if the coal does heat up slightly.
3. It is of great importance that the coal be deposited in the silo in such a fashion that it cannot segregate into sizes. Possibly a distribution cone or a movable or rotating pipe would spread it evenly in the silo.
4. After each shipment of coal is deposited in the silo, it should be leveled and surfaced with at least 6 inches of coal dust, in order to seal it from the air. This seal may need to be renewed, if the construction of the bin is such that the top of the pile tends to "cone" as coal is removed from the base.
5. Some means of recording temperatures should be provided for, and regular records should be kept at fairly frequent intervals. A vertical pipe with a closed end down the center of the silo, would permit the lowering of a thermometer to any point. A pipe projecting upwards through the base of the silo for 8 or 10 feet would possibly serve even better, since the highest temperatures should be towards the base of the silo, and this type of pipe would not extend through the coal to create a possible aircourse along its sides.
6. In case the temperature should exceed 150° , some means should be provided to flood the silo quickly with water in such an emergency.

In the following pages there are given pertinent quotations from several Bureau of Mines publications (listed on last page) dealing with characteristics of subbituminous coals in storage.

John Eliot Allen
October 3, 1944

Landers and Parry (1944:2-3)

"The investigation revealed that if care is exercised in placing subbituminous lump coal in a closed bin, no significant slacking or degradation occurs, no hazards arise....."

"Any steps taken to decrease air circulation through a lot of stored coal will retard slacking or deterioration. In this investigation 10 tons of subbituminous lump was placed in a closed bin, the coal was leveled and wrapping paper was placed over the top. The door was sealed and the coal was left in storage for 8 months. No significant physical or chemical changes were observed....."

Hood. (1939:

"The heating of coal is believed to be a surface phenomenon..... spontaneous combustion originates in fine coal, because the great increase in extent of surface does not begin until we get below the $1\frac{1}{4}$ -inch, or nut size. If fine coal is kept out of the pile, the heating surface is relatively so small as to remove the cause of spontaneous combustion."

"The amount of heat generated depends upon the temperature of a piece of coal coal stored during the hot months of summer and in heated regions is much more liable to spontaneous combustion than coal stored in colder climes and in cooler seasons of the year."

"..... for the first few days or weeks a freshly broken surface (of coal) is very much more active than after a few weeks or months - a fact that must be borne in mind when considering the wisdom of crushing coal immediately before storing it. Spontaneous fires rarely occur after the coal surfaces have been exposed for three months."

"As the rate of heating increases with the temperature, it is evident that if the heat generated is not removed, the process becomes a self-aggravating one immediately the question of getting rid of the heat is presented."

"A coal pile is cooled by radiation and by the movement of air through it. Air moves rather freely through a pile of coal the natural ventilation produced within a coal pile by differences in temperature and by the daily variation in barometric pressure is enough to carry away the heat generated."

".... in a conical pile a foundation under nearly the whole pile, of larger sized pieces and the lower flanks of the pile will also be of the larger sizes. Nearly all the smallest pieces will be in the central core of the pile."

"In the region of large pieces in such a pile the air would move freely and the area of coal surface exposed would be a minimum; hence there would be little likelihood of heating. In the center of the pile the movement of air would be small, and the total of heating surface would be great Somewhere between the two extremes.... there may be areas where the ventilating current is just sufficient to supply oxygen for a maximum rise in temperature and insufficient to remove the heat as generated."

"....if coal can be sealed tight the coal cannot continue to heat because of lack of oxygen. Since we have no means of knowing just what the ventilation is in any given portion of a pile, there is great hesitancy in advocating ventilating schemes for coal piles, as we are as likely to make trouble as to prevent it, unless extreme and uniform ventilation is assured."

Barkley (1943:

"Studies by the Bureau of Mines show that the loss of heating value of coal in storage commonly has been over-estimated."....subbituminous Wyoming coal suffered 2 to 3 percent (loss) in the first year, and as much as 5.5 percent in three years."

".... an average yearly heat loss of 0.1 percent (is reported) for five fireproofed piles and an average yearly loss of 0.9 percent for five unfireproofed piles By "fireproofing" is meant covering the pile with a material such as asphalt or coal dust to cut down the air flow through the pile."

"The lower-rank coals, such as subbituminous coals, slack from weathering much more readily than the higher-rank coals. The slack-ing under good storage conditions, ordinarily extends only a short distance into the coal from any exposed surface."

"Coals that slack in storage provide much more surface area for oxidation Coal stored wet gives more trouble than coal stored dry. Attempting to cool a pile with water frequently causes further hot spots Foreign substances in a coal pile are always a hazard."

"Coal covered so that there is no air flow into and out of the pile cannot give heating troubles. Capping can even put out fires down in the pile Coverings that have been used (other than coal dust) include cut-back asphalts, asphalt emulsion, and road tarexperiments show asphalt emulsions to be a much better type of covering than the others.... is not so subject to cracking due to any settling or movement of the coal pile as are other materials At present, these materials cost 6 to 12 cents a gallon. A gallon will treat about 1 to 2 square yards of surface to a depth of 1/16 to 1/8 inchSpecial spraying equipment is available for capping purposes."

"Storing in bins, bunkers, and silos. For best results with such storage, remove all foreign material such as sticks, and oily rags, avoid segregation of sizes and external sources of heat, and prevent access of air. Usually the handling equipment for such storage appears designed to segregate sizes rather than prevent it. Many of the difficulties now being experienced in bins, bunkers, and silos could be lessened greatly if care were taken as to how the coal was spilled by the chutes. Another chronic trouble in present equipment is its inability to spill all the coal. There are corners or spaces in which old coal will remain until hand-shoveled, often causing heating difficulties. It is seldom realized what a relatively large amount of air can flow into the coal through small slits, cracks, or poorly closing gates. Some air usually flows up through a coal chute, having the ordinary cut-off, and on up into the bunker, whether or not the chute is full of coal. This applies particularly to high silos. Often air flow can be located with an ordinary candle flame. Most coals piled into a container really airtight on sides and bottom will not fire from air that reaches it only at the top. A layer of fine dust over the top is an additional protection."

"Storing sized coals. Sized coals with the fines removed give much less difficulty from heating ... Conditions are changed somewhat if the sized coal slacks in storage, producing much fines."

"The temperature of a coal pile should be tested periodically lengths of ordinary gas pipe of about 3/4-inch size, closed at the bottom, may be placed about every 25 feet. A thermometer may be dropped down the pipe to explore for temperature. The pipe should not be removed once it has been inserted, this ordinarily leaves a little chimney in the coal, which facilitates heating. If a temperature of about 120° F is reached, the coal should be watched closely for any rapid rise in temperature. Plans should be completed so that the coal can be moved when desired or satisfactorily water-flooded...."

"Spraying the top of the pile with water from a nozzle usually is ineffective; the water seldom gets down to the hot spot. It would be better to run the nozzle down into the coal."

"Small storage fires have been put out by smothering with carbon dioxide gas. Either dry ice or the tanked liquid may be used as a source of the gas."

Parry and Goodman (1941:

"....successful storage of low-rank coals depends upon control of the factors that influence change of moisture."

"....several thousand tons of lignite can be stored successfully for many months in earthen pits in which only the top surface of the

coal is exposed to the weather thousands of tons of subbituminous slack are stored under water for several months each year at the sugar factories in northern Colorado."

"A typical subbituminous coal from northern Colorado was stored under various conditions for 180 days. Part of the sample was exposed to average outside weather conditions, and other parts were stored in a ventilated concrete bin and in a closed concrete bin"

"It was observed that when subbituminous coal is stored in a closed bin having minor variations in temperature and minimized air circulation only minor physical and chemical changes take place in the coal in 3 months. The change in average size was 8.3 percent, and the heating value of the coal substance declined 0.6 percent. In 35 days a sample stored under similar conditions changed only 5 percent in average size, whereas the change of size in a sample stored for the same period but in a ventilated bin was 17.0 percent. In contrast, a similar sample exposed to the weather changed 75.0 percent in size. During 20 days exposure in a ventilated bin friability increased from 16.1 percent to 38.4 percent."

"This investigation indicates that subbituminous coal can be stored without much degradation for long periods in closed bins under conditions that control the factors influencing moisture changes. The preferred conditions for storage are: (1) a closed tight bin having minimum circulation of air; (2) slow rate of change of temperature of the interior of the bin, which allows the coal to become adjusted to temperature conditions without excessive surface stressing; (3) low temperatures, if possible, to reduce vapor pressures and evaporation. Under these conditions, the atmosphere in the bin will remain essentially saturated with water vapor. This prevents loss of moisture from the surface of the coal and retards degradation by minimizing its cause. Deterioration of the heating value of subbituminous coal by oxidation is less if physical degradation is retarded by proper storage."

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FLOAT-AND-SINK TESTS OF COAL FROM BLACK
BEAR MINE, MEDFORD, OREGON

Sampling

A sample of the bed in the Black Bear mine, located 5-1/2 miles southeast of Medford, Oregon, in the west one-half of section 36, township 37 S., range 1 W., at an elevation of 2,050 feet, was obtained in October 1939 by J. E. Morrison of the Oregon State Department of Geology and Mineral Industries. It consisted of 1600 pounds of material representing the upper 8 feet of the bed and about 1100 pounds of material from the lower 6 feet of the seam. The sample was sent to the Northwest Experiment Station of the Bureau of Mines, Seattle, Wash., for washability examination. The work was done with the co-operation of the College of Mines, University of Washington.

Ash analyses of the two lots of material were made preliminary to the float-and-sink examination to determine roughly the relative quality of the two portions of the bed. These analyses showed that the upper portion of the bed contained 51 percent ash on the moisture-free basis and the lower portion 62 percent, thus indicating that the lower portion of the bed contains decidedly more impurity and, of course, correspondingly less recoverable coal. Calculations based on subsequent float-and-sink tests indicate that the lower portion of the bed probably contains little more than half as much material of under 1.70 specific gravity as that found in the upper part of the bed. The natural advantages inherent in mining the full height of the seam, nearly 14 feet, would probably be

more than offset by the difficulty of handling the larger amount of impurity in the bottom portion of the bed. Consequently, the float-and-sink tests were confined to the material from the upper 8 feet of the bed, the lower 6 feet being excluded as too impure to warrant examination.

A section of the upper part of the bed measured at the point of sampling follows:

Section of upper part of bed in Black Bear mine

Roof, sandstone	Ft.	in.
Coal, some bone	1	4
Coal		6
Shale, brown, firm		1-1/2
Bone		1
Coal		4
Bone		2-1/2
Coal		1-1/2
Bone		2-1/2
Coal		6-1/2
Bone		4
Shale, brown		2
Coal, bone streaks		2-1/2
Bone		1/2
Coal		1/2
Bone		3/4
Coal, bright		4-1/4
Bone and shale		5-1/2
Coal		3-1/4
Bone		1/2
Coal		5
Bone, soft		1-3/4
Bone, hard		2-1/2
Shale, light gray		1/2
Coal		5-1/4
Bone		3-1/2
Shale, light gray		1/2
Shale, dark gray		1-1/2
Coal, bony		3-1/2
Shale and bone		2
Clay, light		3
Total thickness <u>1</u>	8	1/4

1 - The section given above is underlain by an additional 6 feet of the bed, similar in character but containing more impurities and less coal. The main floor of the bed is sandstone.

All of the material in the upper portion of the seam, that is, all of the partings and bands of impurity as well as the coal, was included in the sample. Thus, the sample represents the product that would be obtained in mining this part of the seam if no impurities were removed and gobbled underground. Partial cleaning of the coal at the face would probably not be feasible because of the large number and relative thinness of the partings.

Plan of Work

As received in the laboratory, the sample contained a small percentage of material coarser than 3 inches in size. These lumps, composed largely of impurities, were broken to pass a 3-inch round-hole screen and added to the balance of the material, thereby limiting the range of sizes to that suited to treatment in coal-washing jigs.

A float-and-sink test was made on 500 pounds of the 3 inch to 0 material, in two sizes, namely, over and under 20-mesh, using specific gravities of 1.40, 1.50, and 1.70. The resulting specific-gravity fractions of the 3 inch to 20 mesh oversize were then screened at 1 inch and 1/4 inch round-hole size, and the percentage of ash in each size of material determined. From the information obtained, the specific-gravity composition of each size component in the raw coal was calculated. The slight inaccuracies involved in screen-sizing after the float-and-sink test, due to size degradation of the sink 1/70 fraction during the manipulation, rather than testing each size of the raw coal separately are not important in a preliminary investigation of this type.

A second float-and-sink test was made on a portion of the 3 inch to 0 material crushed to pass a 1/2-inch round-hole screen to determine what increase in yield of clean coal could be made if all of the coal were crushed to a size suitable for tabling.

Results of Tests

Table 1 shows the results of the float-and-sink tests for each size of material in the original sample and for the product crushed to 1/2-inch size. The table is arranged to show, for each size of material, the weight percentage occurring within each specific-gravity fraction, its ash content, and the cumulative weight and percentage of ash at each specific gravity.

Inspection of the figures in the table shows immediately that every size of the Black Bear coal contains an unusually large proportion of heavy impurities high in ash content. More than half of the material is over 1.70 in specific gravity. Consequently, yields of float coal even at high percentages of ash are small, and a low-ash product is out of the question.

A convenient method of interpreting the float-and-sink data is to establish the highest percentage of ash that would probably be tolerated in a commercial product, and then determine, by means of interpolation between the figures for the several specific gravities, the yields of float coal of that ash content in each size of the raw coal. As 20 percent ash, on the moisture-free basis, is the upper limit

Table 1.--Results of float-and-sink tests on coal from Black Bear mine

<u>Product¹</u>	<u>Specific gravity</u>	<u>Weight, percent</u>	<u>Ash, percent²</u>	<u>Cumulative</u>	
				<u>Weight percent</u>	<u>Ash, percent²</u>
3 inch to 1 inch Weight, percent, 43.2	Under 1.40	9.3	15.5	9.3	15.5
	1.40 to 1.50	16.4	23.5	25.7	20.6
	1.50 to 1.70	24.4	37.3	50.1	28.7
	Over 1.70	49.9	73.0	100.0	50.8
1 inch to 1/4 inch Weight, percent, 41.5	Under 1.40	13.5	13.2	13.5	13.2
	1.40 to 1.50	16.0	23.7	29.5	18.9
	1.50 to 1.70	18.3	40.4	47.8	27.1
	Over 1.70	52.2	75.2	100.0	52.2
1/4 inch to 20 mesh Weight, percent, 10.4	Under 1.40	28.5	9.7	28.5	9.7
	1.40 to 1.50	15.2	24.3	43.7	14.8
	1.50 to 1.70	14.6	39.5	58.3	21.0
	Over 1.70	41.7	74.5	100.0	43.3
Through 20 mesh Weight, percent, 5.9	Under 1.40	25.1	7.1	25.1	7.1
	1.40 to 1.50	12.5	19.5	37.6	11.2
	1.50 to 1.70	10.5	36.4	48.1	16.7
	Over 1.70	51.9	73.9	100.0	46.4
Composite, 3 inch to 0 Weight, percent, 100.0	Under 1.40	13.5	12.6	13.5	12.6
	1.40 to 1.50	15.6	23.5	29.1	18.4
	1.50 to 1.70	19.6	38.6	48.7	26.6
	Over 1.70	51.3	74.1	100.0	51.0
All crushed to pass 1/2 inch Weight, percent, 100.0	Under 1.40	19.8	10.8	19.8	10.8
	1.40 to 1.50	13.8	22.8	33.6	15.7
	1.50 to 1.70	15.1	39.0	48.7	22.9
	Over 1.70	51.3	74.9	100.0	49.6

1 - All round-hole sizes except 20 mesh.

2 - Moisture-free basis.

for coals currently marketed in Washington, it may logically be applied to this coal. Utilizing this limit in ash, table 2 shows the yield of float coal in each size, expressed both as a percentage of that size and as a percentage of the total 3 inch to 0 material. It gives, in addition, the specific gravity at which each separation would have to be made to obtain a 20-percent-ash product, and, finally, the estimated recovery of washed coal to be expected from an actual washing operation. The estimate of washed-coal recovery is based on the assumption that a washer would recover 80 percent of the float coal of 20 percent ash shown to be present by the float-and-sink test. The efficiency of 80 percent is necessarily speculative for no comparative data are available on washing coal as difficult to clean as is the Black Bear.

Table 2 shows that the yield of float coal at 20 percent ash varies from 23.5 percent of the 3-inch to 1-inch size to 56 percent of the material between 1/4 inch and 20 mesh in size. For the 3-inch to 0 coal as a whole, the yield of float coal is 33 percent at a specific gravity of 1.53. An actual washing operation would probably recover 26.4 percent of washed coal having 20 percent ash, made up of about one-third 3-inch to 1-inch material and two-thirds 1-inch slack.

Table 2.-- Yields of float coal and washed coal having 20 percent ash, coal from Black Bear mine

<u>Screen size¹</u>	<u>Weight, percent</u>	<u>Specific gravity of separation</u>	<u>Float coal containing 20 percent ash²</u>		<u>Estimated recovery of washed coal of 20 percent ash,² percent of total raw coal</u>
			<u>Percent of size</u>	<u>Percent of total raw coal</u>	
3 to 1	43.2	1.49	23.5	10.2	8.2
1 to 1/4	41.5	1.52	32.0	13.3	10.6
1/4 to 20 mesh	10.4	1.65	56.0	5.8	4.6
Through 20 mesh	5.9	1.704	54.0	3.2	2.6
3 to 0	100.0	1.53	33.0	33.0	26.4
Through 1/2 inch	100.0	1.60	43.0	43.0	34.4

1 - All round-hole sizes except 20 mesh.

2 - Moisture-free basis.

The bottom line of table 2 gives the data for crushing all of the coal to pass 1/2 inch before washing. A separation at 1.60 specific gravity yields 43 percent of float coal having 20 percent of ash, and washing on a table probably would allow the recovery of 34.4 percent of cleaned coal at that ash content. A gain of 8 percent in the yield of washed coal at 20 percent ash is thus possible if the material is crushed to 1/2 inch rather than 3 inch.

Summarizing, a yield of 26.4 percent, or about one-fourth of washed coal of 20 percent ash, probably could be attained in washing a 3 inch to 0 size. By crushing to 1/2 inch this yield could be increased to 34.4 percent or about one-third of washed coal.

These extremely low yields of high-ash washed coal would seem to preclude any possibility of a profitable commercial operation on coal from the Black Bear mine.

Relation of Yield to Cost of Washed Coal

Naturally, the cleaned product produced in a washing operation must bear the total cost of mining and preparing all the raw coal. The yield of one-fourth washed coal indicated for washing at 3-inch to 0 size means that the cost of the washed coal would be four times the mining and preparation costs per ton of raw coal. Thus, if mining and washing costs at Black Bear are assumed to be \$2.50 per ton of raw coal mined, the washed 3-inch to 0 coal would cost \$10.00 per ton. Similarly, if the coal were crushed to 1/2 inch and washed with a yield of one-third

cleaned coal, the product would, on the same basis, cost \$7.50 per ton. In the case of washing run-of-mine coal crushed to pass 3 inches, the coal under 1 inch in size, amounting as it does to about two-thirds of the total washed product, would have to bear much of the cost even though the realization is usually higher on the coarser sizes.

Washing Equipment

The proportion of refuse that would have to be rejected from the Black Bear coal is, of course, much greater than that for most coals now washed. Washing equipment especially adapted to the removal of large percentages of reject would have to be selected to clean this coal. Special design of jigs or tables might be necessary to obtain units that would operate with acceptable efficiency.

Quality of Washed Coal

Black Bear coal, if washed to obtain a product containing 20 percent ash on the moisture-free basis, would have the analysis shown in the following tabulation:

Probable analysis of washed Black Bear coal

<u>Basis</u>	<u>Moisture percent</u>	<u>Volatile matter, percent</u>	<u>Fixed carbon percent</u>	<u>Ash, percent</u>	<u>Sulphur, percent</u>	<u>B.t.u., per pound</u>
As received	10.0	35.0	37.0	18.0	1.8	9,970
Moisture free	----	38.9	41.1	20.0	2.0	11,080

The finer sizes of washed coal might, depending on the extent of dewatering and drying, contain more than the indicated percentage of moisture, and have correspondingly lower heating value.

Utah coal with which the Black Bear product would presumably compete probably has a heating value of at least 13,000 B.t.u. on the as-received basis, or 30 percent greater than that indicated above for the washed Black Bear coal. It also has the advantage of much lower ash, namely, 5 to 8 percent.

Purely on the basis of heating value, Utah coal would be worth 30 percent more than Black Bear. Coal for domestic use can hardly be sold on a heating-value basis, however. The reputation of a coal, its appearance, ash content, and general suitability for the equipment in which it is burned are more potent considerations to the domestic consumer.

Northwest Experiment Station,
Bureau of Mines,
University Campus,
Seattle, Wash.,
December 6, 1939.

Coal

XXXXXXXXXXXX

1069 State Office Building
December 19, 1951

Mr. Leonard Gibbs
P.O. Box 463
Coquille, Oregon

Dear Mr. Gibbs:

Last month I wrote you in an effort to secure a 100-pound sample of your coal to be used for testing purposes. I asked if you could deliver it to Consolidated Freightways to be shipped collect to us, with bill of lading marked to have shipment held at the Freightways warehouse waiting for notification to us of its arrival. Since then I have had no word concerning my letter or the sample. I have found out from Mr. Kern that your address is Coquille and that you live at the mine.

Would it be possible for you to ship us about 100 pounds of your coal in double burlap sacks as directed above? The moisture content is not important so it can be shipped in a cloth sack. I am enclosing a self-addressed envelope so that you can notify me if you cannot send the sample, also when you send it.

Mr. James Orr, mining engineer of Portland, may call on you to investigate possibilities of obtaining a fairly large production. Mr. Orr is reliable and may be able to dispose of an amount of your production which would be interesting to you.

The coal sample should be representative of the clean coal which could be supplied on a quantity basis.

Very truly yours,

Director

FWL:jr
Encl.

NORTH BEND, OREGON, _____

194 _____

IN ACCOUNT WITH

NORTH BEND IRON WORKSFOUNDERS :: MACHINISTS
ACETYLENE AND ELECTRIC WELDERS

TERMS: THIRTY DAYS NET

Lenord Gibbs

P.O. Box 463

Coquille City Oregon

Mr Gibbs lives at
the Coal mine at the
head of South Slough
On Sec 2 Twp 27-SR 14

H.G. Kern

XXXXXXXXXXXXXXXXXXXX
1069 State Office Building
November 14, 1951

Mr. Leonard Gibbs
c/o South Slough Mine
Bandon, Oregon

Dear Mr. Gibbs:

We have need for a bulk sample of Coos Bay coal, about 100 pounds in amount, and I am wondering if you could ship us this sample, say in two double gunny sacks - that is, doubled in order to insure against tearing and loss of the coal.

If you can do this, please deliver it to Consolidated Freightways in Coquille and ship it to us collect in Portland, to be held at their warehouse for us. Bill of lading should have notation "notify on arrival". We can then call at the warehouse and handle it ourselves. I would like to have shipment that way because we are just in the process of getting set up in our new quarters and do not want to have any new material come in here at the present time because of the confusion we have now.

I am enclosing a self-addressed envelope which you can use in forwarding us a copy of the bill of lading. If you cannot obtain the sample and ship it to us I would appreciate it if you would notify me.

Sincerely yours,

Director

FWL:jr

State Department of Geology and Mineral Industries

702 Woodlark Building
Portland 5, Oregon

Samples taken by F. W. Libbey and Ralph S. Mason April 27, 1948.

- (1) Tunnel No. 1
468 feet from portal
Thickness of bed - 6 feet $3\frac{1}{4}$ inches
Thickness of sample - 6 feet $3\frac{1}{4}$ inches
Thickness of bright coal - 2 feet $8\frac{3}{4}$ inches
- (2) Tunnel No. 2
Sample taken 67 feet from portal
Thickness of bed - 7 feet 1 inch
Thickness of sample - 5 feet 8 inches

Both samples were placed in sealed cans and sent to U.S. Bureau of Mines station in Seattle. No. 1 sample was sent for a sink and float test which was made by Mr. Centenero of the Chemical Engineering Department, University of Washington; No. 2 sample for proximate analysis by the Bureau of Mines and returned the following:

Moisture, as received	15.7 %
Volatile matter	18.4
Fixed carbon	24.5
Ash	41.4

The sink and float test of sample No. 1 returned results showing that coal recovery was about $47\frac{1}{2}$ percent with such coal having 15.4 percent ash. Higher recovery would mean higher ash.

In August 1944, samples were taken in tunnels No. 1 and 2 by F. W. Libbey and J. E. Allen.

Sample No. 1 taken at a point 325 feet from portal in tunnel No. 1
Total thickness of bed - 7 feet $2\frac{1}{2}$ inches
Total thickness of coal - 2 feet 11 inches

Sample No. 2 taken 60 feet from portal in tunnel No. 2
Total thickness of bed - 8 feet 8 inches
Total thickness of coal - 2 feet 1 inch

These samples were sent to the U.S. Bureau of Mines station in Seattle for a sink-float test and the enclosed copy of letter from H. F. Yancey, Supervising Engineer, giving results of this test, is self-explanatory. We have some other results of sampling by U.S. Bureau of Mines men giving analyses as follows:

- (1) H. Fowler - Lab. No. C-1417
Sampled May 28, 1943
Total thickness of bed - 6 feet $3\frac{1}{4}$ inches
Thickness in sample - 2 feet $6\frac{1}{4}$ inches
Proximate analysis (as received):

Moisture	15.2 %
Volatile matter	26.3
Fixed carbon	40.7
Ash	17.8
B.t.u.	9,080

- (2) Yancey and Coughlin - Lab. No. C-12927
Sampled December 20, 1943
Thickness of bed - 6 feet $6\frac{3}{4}$ inches
Thickness in sample - 3 feet $6\frac{1}{4}$ inches
Proximate analysis (as received):

Moisture	15.9 %
Volatile matter	23.9
Fixed carbon	33.1
Ash	27.1
B.t.u.	7,510

January 12, 1951

Mr. Emil R. Peterson
Route 1, Box 542
North Bend, Oregon

Dear Mr. Peterson:

I have received your very interesting letter dated January 8 and was greatly intrigued with the extract of the letter you quote.

The best information we have on coal prospects in Curry County is contained in the old Oregon Bureau of Mines and Geology bulletin entitled "Preliminary Survey of the Geology and Mineral Resources of Curry County, Oregon" by Butler and Mitchell, 1916, and I am enclosing a copy of their report on coal. This report also quotes from the Port Orford Folio by J. S. Diller. I believe that there has been no mining or development work on the coal prospects since the report that I am sending you.

If I can supply any further information, please feel free to call upon me.

Very truly yours,

Director

FWL:jr

Director F. W. Libbey
Dept. of Geology and
Mineral Industries
702 Woodlark Building
Portland 5, Oregon

North Bend, Oreg
Route 1, Box 542
January 8, 1950

Dear Mr. Libbey:

Do you have any report on coal mining in Curry County?
I understand that coal was never of any great importance there.
But the pioneers had to be convinced of that fact by considerable prospecting, experimenting and labor and money outlay.

This is revealed in a letter that I received a couple of years ago from Mrs. Joel Hedgpeth, of Walnut Creek, California. Mrs. Hedgpeth is a granddaughter of Captain William Tichenor, the founder of Port Orford. I quote from Mrs. Hedgpeth's letter:

"Some years ago I came across a letter which a New Jersey relative of my grandfather had written to him. As nearly as I can recollect, the writer said:

I am sick and tired of your letters about the rich opportunities at Port Orford, and now it's coal. You have spent all your money as well as that of your relatives, making journeys to Washington or having us go out there. For goodness sake drop it and move away from there. I tell you now I have made my last trip to the coast.

"And so great was grandfather's magnetism that as a postscript, this writer added ++

By the way, you might send me a sample of that coal."

I understand there was a coal prospect at New Castle, later changed to Eckley. Just what was done there in the way of development, I do not know; have never seen a report of it.

Also on Shasta Costa Creek, on the south side of Rogue River, a few miles above Agness, some mining was done. Whether Hume opened it or took it over from someone else, I do not know. I visited the "mine" about two years ago. The wreckage indicated that it must have been worked within the past half century. A riffle on the Rogue is named "Coal" riffle. I am told that a cargo of coal was lost there. Somemaps have it wrongly marked "Cole" riffle.

Anything that you may tell me about these or other coal prospects or projects in Curry County will be appreciated. I have made good use of Bulletin No. 27 which you sent me sometime ago.

Sincerely,

Emil R. Peterson
Emil R. Peterson, Local Historian
Coos-Curry Pioneer & Historical Assn.

Coal

Curry County, Oregon

Coal has been found in the Eocene beds of Curry County at a number of points. The two most promising regions are in the vicinity of Eckley and near the mouth of Shasta Costa Creek. Diller describes¹ the former occurrences as follows:

"Within the Arago (Eocene) formation of the Eckley area coal is known only close to its base where it comes in contact with the Myrtle formation, and the most important outcrops yet found are along the southern border near the head of the Middle Fork of the Sixes, and two miles nearly west of Eckley, on the eastern slope of Sugar Loaf Mountain.

Near the southern line of sec. 14, T. 32 S., R. 13 W., a number of tunnels and open cuts have been run in various directions into a mass of coal and coaly shale that varies greatly in structure and composition. Much of it is crushed and slickensided, but other portions appear to be good coal with bright luster on fresh fractures.

A short distance further south at an elevation of over 2,000 feet above the larger mass an outcrop of coal and coaly shale similar to that already noted occurs in place, and is penetrated by a tunnel running almost directly east and parallel to the strike of the bedding. The total thickness of the coal and associated carbonaceous shale is not well exposed, but may be nearly fifty feet.

Another outcrop which has been developed is in sec. 35 at the eastern part of Sugar Loaf Mountain, close to the contact of the Arago beds with the underlying rocks. Here the coal-bearing beds at the base of the series have a thickness of not much over fifty feet and are overlain by nearly one hundred feet of firm sandstone. The coal-bearing series are shales and soft sandstones, and contain two beds of coal, one of which is so much crushed that its thickness (said to be twenty feet) cannot be definitely measured. Near it are a few feet of sandstones and shales, and then a five-foot bed of the best looking coal seen in the region. * * * A number of other outcrops occur on the small streams tributary to the main stream flowing through sec. 35 and along the North Fork within a mile below Eckley, but the best coal cannot be identified at any other point.

The coal beds vary greatly and abruptly indicating that they are not of great extent. Aside from the difficulty of transportation it is not believed that there is sufficient coal in that country to warrant the expectation of profitable mines."

The Shasta Costa coal beds are well exposed and are on the right hand bank of Shasta Costa Creek near its mouth. The material there is mostly bone and shale. In fact, no seam of pure coal over one inch wide was found.

¹ U.S. Geol. Surv. Folio 89, pp. 4-5, 1903

Mr. Harry Hillis claims that he has made attempts to burn this coal in campfires, and, that although it did burn under these conditions, the chunks retained their shape and were approximately the same size after burning as when put in the fire. Diller states¹ that

"An attempt to mine the coal has not proved successful. It has a thickness of not over four to six feet, and looks on the whole to be of poor quality, but in composition it is remarkable, resembling in some respects the pitch coal, and in others the normal lignite of the Coos Bay coal field. * * * It contains a remarkably low percentage of water, and, when heated, partially fuses like pitch coal; but, like the normal lignite, it contains a larger percentage of ash and a much more nearly equal amount of volatile matter and fixed carbon. It appears to coke well, but the large amount of non-combustible ash in the coke reduces its value. Where exposed on Shasta Costa Creek the coal shale has a thickness of ten feet."

The coal shale is overlain by sandstone containing Eocene fossils, while beneath it is a heavy bed of conglomerate. These strata dip gently in an easterly direction, and are underlain unconformably by highly tilted and crushed shale, and other Myrtle sediments. These last are well exposed along the bank of the Rogue River.

Coal is also reported to occur in the Eocene sediments along the coast in the southern part of the county, but the reports which reached the field party were of so indefinite and unpromising a nature that the occurrences were not investigated. It is claimed, however, that outcrops of small beds exist at several points along the north fork of the Chetco, and that Jeffries and Aikens have opened a 10-foot bed in the bluff above Thomas Creek at its mouth. Still other outcrops are said to occur along the creek next north of Thomas Creek.

Probable economic importance of the coal beds. From all the data available the conclusion is inevitable that known occurrences of coal in Curry County are hardly of sufficient importance to compete successfully with the more extensive deposits of the Coos Bay region. As the widespread use of the cheap California crude oil has made it impossible to work many of the last mentioned beds profitably, it is unlikely that any of the Curry County deposits will prove valuable until the purer coals more plentiful elsewhere have been exhausted.

¹ U.S. Geol. Surv. Folio 89, p. 5, 1903



STATE DEPARTMENT OF GEOLOGY
AND MINERAL INDUSTRIES

702 WOODLARK BUILDING
PORTLAND 5, OREGON

September 5, 1946

Sample submitted by F. W. Libbey

Analysis by: _____

Sample received on August 14, 1946

Analysis requested As reported

Assayer _____

Coal ash from Goose Bay coal, Southport Mine

Lab. No.	Sample Marked	Results of Analysis		Remarks
P-5076	Dry crushed	Silica (SiO ₂)	49.24 %	-----
		Alumina (Al ₂ O ₃)	20.64	
		Iron (Fe ₂ O ₃)	11.74	
		Lime (CaO)	6.66	
		Magnesia (MgO)	3.32	
		Titania (TiO ₂)	5.72	
P-5077	Washed - two sizes	Silica (SiO ₂)	40.60 %	-----
		Alumina (Al ₂ O ₃)	18.52	
		Iron (Fe ₂ O ₃)	14.75	
		Lime (CaO)	8.25	
		Magnesia (MgO)	3.35	
		Titania (TiO ₂)	6.90	
***	*****	*****		*****
The Department did not participate in the taking of this sample and assumes responsibility only for the analytical results.				

Project #807, Coos Bay, Oregon
Log of Drill Hole #5-9

Copy of U.S.B.M. drill log -

Coos Bay

Coal file

Location: 774' North and 1187' West of Southeast corner, sec. 9, T. 27 S.,
R. 13 W. W.M.

Elevation at Collar of hole: 30.6'

Started March 22, 1944

Finished April 11, 1944

<u>Depth</u>		<u>Description of Material</u>	<u>Thick- ness</u>	<u>Elev. Top of Coal</u>
<u>From</u>	<u>To</u>			
0' 0"	36' 0"	Overburden	36' 0"	
36' 0"	47' 0"	Sandy shale	11' 0"	
47' 0"	53' 0"	Sandstone and shale	6' 0"	
53' 0"	88' 0"	Medium sandstone	35' 0"	
88' 0"	90' 0"	Carbonaceous clay shale	2' 0"	
90' 0"	104' 0"	Medium to coarse sandstone	14' 0"	
104' 0"	109' 0"	Clay shale	5' 0"	
109' 0"	128' 0"	Sandy clay shale	19' 0"	
128' 0"	129' 6"	Carb. shale, bone and coal	1' 6"	- 97.4'
129' 6"	136' 10"	Shale	7' 4"	
136' 10"	140' 0"	Bone, carbonaceous shale, and coal	3' 2"	-106.2'
140' 0"	140' 7"	Clay shale	0' 7"	
140' 7"	140' 10"	Coal	0' 3"	
140' 10"	153' 10"	Clay sandstone	13' 0"	
153' 10"	154' 0"	Bone	0' 2"	
154' 0"	181' 0"	Clay sandstone	27' 0"	
181' 0"	191' 0"	Sandstone streaks of shale	10' 0"	
191' 0"	204' 0"	Sandy clay shale	13' 0"	
204' 0"	250' 0"	Medium to coarse sandstone	46' 0"	
250' 0"	251' 6"	Dark shale	1' 6"	
251' 6"	253' 0"	Coal and carbonaceous shale	1' 6"	-220.9'
253' 0"	253' 6"	Muddy shale	0' 6"	
253' 6"	267' 0"	Sandstone, streaks of shale	13' 6"	
267' 0"	267' 6"	Carbonaceous shale	0' 6"	
267' 6"	281' 0"	Medium sandstone, 5" band shells at 275'	13' 6"	
281' 0"	286' 0"	Sandstone numerous streaks shale	5' 0"	
286' 0"	292' 0"	Sandy shale, shells	6' 0"	
292' 0"	292' 6"	Carbonaceous shale and coal	0' 6"	-261.4'
292' 6"	295' 0"	Sandy shale	2' 6"	
295' 0"	314' 6"	Sandstone, occasional shale	19' 6"	
314' 6"	317' 0"	Dark shale	2' 6"	
317' 0"	346' 6"	Sandstone, occasional bands shale	29' 6"	
346' 6"	347' 0"	Shale and shells	0' 6"	
347' 0"	347' 2"	Coal	0' 2"	
347' 2"	347' 10"	Dark shale and shells	0' 8"	-316.4'
347' 10"	351' 0"	Coal and bony coal	3' 2"	
351' 0"	352' 6"	Dark shale, streaks coal	1' 6"	
352' 6"	352' 8"	Coal	0' 2"	
352' 8"	353' 0"	Dark shale, streaks of coal	0' 4"	

<u>Depth</u>			<u>Description of Material</u>	<u>Thick- ness</u>	<u>Elev. Top of Coal</u>
<u>From</u>		<u>To</u>			
353'	0"	355'	0"	Dark shale	2' 0"
355'	0"	358'	0"	Medium sandstone	3' 0"
358'	0"	367'	3"	Sandstone and shale	9' 3"
367'	3"	370'	0"	Coal	2' 9"
370'	0"	383'	0"	Sandy clay shale	13' 0"
383'	0"	426'	0"	Shaly sandstone, numerous shells and bands of shells	43' 0"
426'	0"	438'	10"	Dark shale	12' 10"
438'	10"	442'	4"	Coal	3' 6"
442'	4"	444'	0"	Coal and clay particles	1' 8"
444'	0"	446'	4"	Dark shale	2' 4"
446'	4"	454'	0"	Medium to coarse sandstone, streaks shale	7' 8"
454'	0"	465'	6"	Sandy shale	11' 6"
465'	6"	470'	0"	Medium to coarse sandstone	4' 6"
470'	0"	474'	0"	Coarse sandstone	4' 0"
474'	0"	542'	6"	Medium to coarse sandstone	68' 6"
542'	6"	545'	0"	Dark shale filled with oyster shells	2' 6"
545'	0"	545'	9"	Coal	0' 9"
545'	9"	546'	6"	Dark clay shale	0' 9"
546'	6"	552'	0"	Muddy sandstone	5' 6"
552'	0"	555'	0"	Sandy shale	3' 0"
555'	0"	563'	10"	Muddy sandstone	8' 10"
563'	10"	564'	4"	Dark shale	0' 6"
564'	4"	565'	6"	Carb. shale and shaly coal	1' 2"
565'	6"	597'	0"	Medium sandstone	31' 6"
597'	0"	604'	0"	Dark medium sandstone	7' 0"
604'	0"	626'	0"	Medium sandstone streaks shale	22' 0"
626'	0"	630'	8"	Shale and sandstone	4' 8"
630'	8"	631'	5"	Coal	0' 9"
631'	5"	631'	11"	Sandy shale	0' 6"
631'	11"	632'	0 $\frac{1}{2}$ "	Coal	0' 1 $\frac{1}{2}$ "
632'	0 $\frac{1}{2}$ "	632'	1 $\frac{1}{2}$ "	Clay parting	0' 1"
632'	1 $\frac{1}{2}$ "	634'	0 $\frac{1}{2}$ "	Coal	1' 11"
634'	0 $\frac{1}{2}$ "	634'	7 $\frac{1}{2}$ "	Sandy shale	0' 7"
634'	7 $\frac{1}{2}$ "	637'	7 $\frac{1}{2}$ "	Coal	3' 0"
637'	7 $\frac{1}{2}$ "	639'	0"	Dark shale	1' 4 $\frac{1}{2}$ "
639'	0"	646'	0"	Shaly sandstone	7' 0"

Finished drilling nite shift 4/11/44

Lower 340' of hole cemented, 18 sacks cement used, 4/12/44

Hole was making small amount of water and also some gas

The following dips were measured in core:

<u>Depth</u>	<u>Dip</u>
354'	25°
454'	31°
564'	29°
632'	25°

United States
Department of the Interior
Bureau of Mines

G — COAL-ANALYSIS REPORT

Test No. 1A

Lab. No. C-18091

Sample of Coal--Naa. (Drill Hole 5-9, Project 807, Coos Bay) Can. No. _____

Core logged 136'10" to 140'0"; core received 31"; 3½" to 10" from top;
6½" coal in this sample; Coos County, Oregon

Method of sampling _____ Gross weight, lbs. _____ Net weight, grams 155.5

Date cored: 3/25/44 Date of Lab. sampling 4/4/44 Date of analysis _____

Rec. Lab: 4/1/44

B. of M. or U.S.G.S. section Coal Constitution Laboratory Collector J. J. Dowd

Air-Dry Loss <u>4.5</u>		Coal (Air dried)	Coal (As rec.)	Coal (Moist. free)	Coal (Moist. & Ash free)
Proximate Analysis	Moisture	14.0	17.8		
	Volatile matter	34.6	33.0	40.2	47.4
	Fixed carbon	38.2	36.6	44.4	52.6
	Ash	13.2	12.6	15.4	
		100.0	100.0	100.0	100.0
Ultimate Analysis	Hydrogen	5.5	5.7	4.6	5.4
	Carbon	53.9	51.4	62.6	74.0
	Nitrogen	1.4	1.4	1.7	1.9
	Oxygen	25.6	28.5	15.2	18.2
	Sulphur	.4	.4	.5	.5
	Ash	13.2	12.6	15.4	
		100.0	100.0	100.0	100.0
British thermal units		9290	8870	10790	12750

Fusibility of Ash, °F	Initial deformation temperature	<u>2380</u>	Real Specific Gravity <u>1.534</u>
	Softening temperature	<u>2430</u>	
	Fluid temperature	<u>2670</u>	

Date April 12, 1944
MH

(Signed) H. M. Cooper
Chemist

(This report is in a public file in the Bureau of Mines and it is not to be used, in full or in part, for advertising or sales promotion purposes without permission of the Director of the Bureau of Mines)

United States
Department of the Interior
Bureau of Mines

G -- COAL-ANALYSIS REPORT

Test No. 1B

Lab. No. C-18092

Sample of Coal--NAa. (Drill Hole 5-9, Project 807, Coos Bay) Can No. _____

Core logged 136' 10" to 140' 0"; core received 31"; 24½" to 31" from top
(Basal Part) 7" coal in this sample; Coos County, Oregon.

Method of sampling _____ Gross weight, lbs. _____ Net weight, grams 150.5

Date cored: 3/25/44 Date of Lab. sampling 4/4/44 Date of analysis _____

Rec. Lab: 4/1/44

B. of M. or U.S.G.S. section Coal Constitution Laboratory Collector J. J. Dowd

Air-dry Loss 5.3		Coal (Air dried)	Coal (As rec.)	Coal (Moist. free)	Coal (Moist. & Ash free)
Proximate Analysis	Moisture	13.2	17.8		
	Volatile matter	32.8	31.1	37.8	45.6
	Fixed carbon	39.1	37.0	45.0	54.4
	Ash	<u>14.9</u>	<u>14.1</u>	<u>17.2</u>	
		100.0	100.0	100.0	100.0
Ultimate Analysis	Hydrogen	5.3	5.6	4.4	5.3
	Carbon	52.8	50.0	60.8	73.3
	Nitrogen	1.5	1.4	1.7	2.1
	Oxygen	25.1	28.5	15.4	18.7
	Sulphur	.4	.4	.5	.6
	Ash	<u>14.9</u>	<u>14.1</u>	<u>17.2</u>	
		100.0	100.0	100.0	100.0
British thermal units		9080	8600	10460	12620

Fusibility
of Ash, °F

Initial deformation temperature 2420
Softening temperature 2450
Fluid temperature 2680

Real Specific Gravity 1.560

Date April 12, 1944
MH

(Signed) H. M. Cooper
Chemist

(This report is in a public file in the Bureau of Mines and it is not to be used, in full or in part, for advertising or sales promotion purposes without permission of the Director of the Bureau of Mines.)

United States
Department of the Interior
Bureau of Mines

G -- COAL-ANALYSIS REPORT

Test No. _____

Lab. No. C-18752

Sample of Coal—NAa. (Drill Hole 5-9, Project 807, Coos Bay)

Can No. _____

Core logged 251' 6" to 253' 0"; core received 12"; 12" of coal in this sample; Loc. ca $1\frac{1}{4}$ mi. E.N.E. of town of Beaver Hill, Coos Co., Oregon

Method of sampling _____ Gross weight, lbs. _____ Net weight, grams 273.5

Date cored: 4/6/44 Date of Lab. sampling 4/15/44 Date of analysis _____

Rec. Lab: 4/13/44

B. of M. or U.S.G.S. section Coal Constitution Laboratory Collector J. J. Dowd

Air-Dry Loss <u>7.9</u>		Coal (Air dried)	Coal (As rec.)	Coal (Moist. free)	Coal (Moist. & Ash free)
Proximate Analysis	Moisture	11.6	18.5		
	Volatile matter	30.8	28.4	34.8	46.2
	Fixed carbon	35.8	33.0	40.6	53.8
	Ash	<u>21.8</u>	<u>20.1</u>	<u>24.6</u>	
		100.0	100.0	100.0	100.0
Ultimate Analysis	Hydrogen	5.0	5.5	4.2	5.6
	Carbon	49.5	45.6	56.0	74.3
	Nitrogen	1.4	1.2	1.5	2.0
	Oxygen	21.5	26.9	12.8	16.9
	Sulphur	.8	.7	.9	1.2
	Ash	<u>21.8</u>	<u>20.1</u>	<u>24.6</u>	
		100.0	100.0	100.0	100.0
British thermal units		8580	7900	9700	12870

Fusibility of Ash, °F	Initial deformation temperature	<u>2190</u>
	Softening temperature	<u>2280</u>
	Fluid temperature	<u>2460</u>

Real Specific Gravity 1.586

Date April 27, 1944

MH

(Signed)

H. M. Cooper

Chemist

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United States
Department of the Interior
Bureau of Mines

G -- COAL-ANALYSIS REPORT

Test No. _____

Lab. No. C-18753

Sample of Coal--NAa. (Drill Hole 5-9, Project 807, Coos Bay)

Can No. _____

Core logged 347' 10" to 351' 0"; core received 36"; 6 3/4 shale rejected;
29 1/4 coal in this sample: Loc. ca 1 1/4 mi. E.N.E. of town of Beaver Hill, Coos
County, Oregon.

Method of sampling _____ Gross weight, lbs. _____ Net weight, grams 805.0

Date cored: 4/6/44 Date of Lab. sampling 4/15/44 Date of analysis _____

Rec. Lab: 4/13/44

B. of M. or U.S.G.S. section Coal Constitution Laboratory Collector J. J. Dowd

Air-Dry Loss <u>4.7</u>		Coal (Air dried)	Coal (As rec.)	Coal (Moist. free)	Coal (Moist. & Ash free)
Proximate Analysis	Moisture	12.6	16.7		
	Volatile matter	34.7	33.1	39.7	48.0
	Fixed carbon	37.5	35.7	42.9	52.0
	Ash	<u>15.2</u>	<u>14.5</u>	<u>17.4</u>	
		100.0	100.0	100.0	100.0
Ultimate Analysis	Hydrogen	5.4	5.7	4.6	5.5
	Carbon	52.8	50.3	60.4	73.1
	Nitrogen	1.4	1.3	1.6	1.9
	Oxygen	23.1	26.2	13.6	16.6
	Sulphur	2.1	2.0	2.4	2.9
	Ash	<u>15.2</u>	<u>14.5</u>	<u>17.4</u>	
		100.0	100.0	100.0	100.0
British thermal units		9190	8760	10520	12730

Fusibility of Ash, °F	Initial deformation temperature	<u>2210</u>
	Softening temperature	<u>2260</u>
	Fluid temperature	<u>2480</u>

Real Specific Gravity 1.541

Date April 27, 1944

MH

(Signed)

H. M. Cooper

Chemist

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United States
Department of the Interior
Bureau of Mines

G -- COAL-ANALYSIS REPORT

Test No. _____

Lab. No. C-18754

Sample of Coal--NAB (Drill Hole 5-9, Project 807, Coos Bay)

Can No. _____

Core logged 367'3" to 370'0"; core received 32"; $\frac{1}{2}$ " shale rejected; 31 $\frac{1}{2}$ " coal in this sample. Loc: ca 1 $\frac{1}{4}$ mi. E.N.E. of town of Beaver Hill, Coos County, Oregon.

Method of sampling _____ Gross weight, lbs. _____ Net weight, grams 687.0

Date cored: 4/6/44 Date of Lab. sampling 4/15/44 Date of analysis _____

Rec. Lab. 4/13/44

B. of M. or U.S.G.S. section Coal Constitution Laboratory Collector J. J. Dowd

Air-dry loss <u>6.0</u>		Coal (Air dried)	Coal (As rec.)	Coal (Moist. free)	Coal (Moist. & Ash free)
Proximate Analysis	Moisture	11.4	16.7		
	Volatile matter	35.8	33.7	40.4	46.5
	Fixed carbon	41.3	38.7	46.6	53.5
	Ash	<u>11.5</u>	<u>10.9</u>	<u>13.0</u>	
		100.0	100.0	100.0	100.0
Ultimate Analysis	Hydrogen	5.5	5.8	4.8	5.5
	Carbon	57.5	54.1	64.9	74.6
	Nitrogen	1.3	1.3	1.5	1.7
	Oxygen	22.0	25.9	13.4	15.4
	Sulphur	2.2	2.0	2.4	2.8
	Ash	<u>11.5</u>	<u>10.9</u>	<u>13.0</u>	
		100.0	100.0	100.0	100.0
British thermal units		10080	9480	11380	13090

Fusibility
of Ash of

Initial deformation temperature 1960

Softening temperature 2020

Fluid temperature 2410

Real Specific Gravity 1.497

Date April 27, 1944

(Signed)

H. M. Cooper

Chemist

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United States
Department of the Interior
Bureau of Mines

G -- COAL-ANALYSIS REPORT

Test No. _____

Lab. No. C-18755

Sample of Coal--NAa (Drill Hole 5-9, Project 807, Coos Bay)

Can No. _____

Core logged 438'10" to 442'4"; core received 41"; 3" shale rejected; 38" coal in this sample. Loc: ca 1 $\frac{1}{4}$ mi. E.N.E. of town of Beaver Hill, Coos County, Ore.

Method of sampling _____ Gross weight, lbs. _____ Net weight, grams 858.5

Date cored: 4/7/44 Date of Lab. sampling 4/15/44 Date of analysis _____

Rec. Lab. 4/14/44

B. of M. or U.S.G.S. section Coal Constitution Laboratory Collector J. J. Dowd

Air-dry loss <u>4.8</u>		Coal (Air dried)	Coal (As rec.)	Coal (Moist. free)	Coal (Moist. & Ash free)
Proximate Analysis	Moisture	12.4	16.6		
	Volatile matter	35.0	33.3	40.0	45.6
	Fixed carbon	41.7	39.7	47.6	54.4
	Ash	<u>10.9</u>	<u>10.4</u>	<u>12.4</u>	
		100.0	100.0	100.0	100.0
Ultimate Analysis	Hydrogen	5.6	5.8	4.8	5.5
	Carbon	57.3	54.6	65.4	74.7
	Nitrogen	1.5	1.4	1.7	1.9
	Oxygen	24.0	27.2	14.9	17.0
	Sulphur	.7	.6	.8	.9
	Ash	<u>10.9</u>	<u>10.4</u>	<u>12.4</u>	
		100.0	100.0	100.0	100.0
British thermal units		9920	9450	11330	12930

Fusibility of Ash of	Initial deformation temperature	<u>2340</u>
	Softening temperature	<u>2380</u>
	Fluid temperature	<u>2580</u>

Real Specific Gravity 1.511

Date April 27, 1944
MH

(Signed)

H.M. Cooper
Chemist

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United States
Department of the Interior
Bureau of Mines

G -- COAL-ANALYSIS REPORT

Test No. _____ Lab. No. C-19044

Sample of Coal - NAA. Drill Hole 5-9, Project 807 (Coos Bay) Can No. _____

Core logged 545'0" to 545'9"; core received 8½"; 8½" coal in this sample.
Location: Ca. 1¼ mi. E.N.E. of town of Beaver Hill, Coos County, Oregon.

Method of sampling _____ Gross weight, lbs. _____ Net weight, grams 197.5

Date cored: 4/12/44 Date of Lab. sampling 4/20/44 Date of analysis _____

Rec. Lab. _____

B. of M. or U.S.G.S. section Coal Constitution Laboratory Collector J. J. Dowd
J. M. Schopf

Air-Dry Loss 3.8		Coal (Air dried)	Coal (As rec.)	Coal (Moist. free)	Coal (Moist. & Ash free)
Proximate Analysis	Moisture	11.8	15.2		
	Volatile matter	34.9	33.6	39.6	48.5
	Fixed carbon	37.0	35.5	41.9	51.5
	Ash	<u>16.3</u>	<u>15.7</u>	<u>18.5</u>	
		100.0	100.0	100.0	100.0
Ultimate Analysis	Hydrogen	5.4	5.6	4.6	5.6
	Carbon	51.8	49.9	58.8	72.1
	Nitrogen	1.4	1.3	1.6	1.9
	Oxygen	21.7	24.2	12.6	15.7
	Sulphur	3.4	3.3	3.9	4.7
	Ash	<u>16.3</u>	<u>15.7</u>	<u>18.5</u>	
		100.0	100.0	100.0	100.0
British thermal units		9210	8860	10440	12810

Fusibility of Ash ° F	Initial deformation temperature	<u>2080</u>
	Softening temperature	<u>2130</u>
	Fluid temperature	<u>2230</u>

Real Specific Gravity 1.556

Date April 28, 1944 (Signed) H. M. Cooper
Chemist

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United States
Department of the Interior
Bureau of Mines

G — COAL-ANALYSIS REPORT

Test No. _____

Lab. No. C-19045

Sample of Coal - NAa. Drill Hole 5-9, Project 807 (Coos Bay)

Can No. _____

Core logged 630'8" to 637'7½"; core received 84"; 17" shale rejected; 67" coal in this sample. Location: Ca 1¼ mi. E.N.E. of town of Beaver Hill, Coos County, Oregon.

Method of sampling _____ Gross weight, lbs. _____ Net weight, grams 1340.0

Date cored: 4/12/44 Date of Lab. sampling 4/20/44 Date of analysis _____

Rec. Lab. _____

B. of M. or U.S.G.S. section Coal Constitution Laboratory Collector J. J. Dowd
J. M. Schopf

Air-Dry Loss 3.3		Coal (Air dried)	Coal (As rec.)	Coal (Moist. free)	Coal (Moist. & Ash free)
Proximate Analysis	Moisture	12.0	14.9		
	Volatile matter	35.1	33.9	39.9	46.9
	Fixed carbon	39.6	38.4	45.0	53.1
	Ash	<u>13.3</u>	<u>12.8</u>	<u>15.1</u>	
		100.0	100.0	100.0	100.0
Ultimate Analysis	Hydrogen	5.5	5.7	4.7	5.6
	Carbon	55.7	53.9	63.3	74.5
	Nitrogen	1.3	1.3	1.5	1.8
	Oxygen	23.4	25.5	14.5	17.0
	Sulphur	.8	.8	.9	1.1
	Ash	<u>13.3</u>	<u>12.8</u>	<u>15.1</u>	
		100.0	100.0	100.0	100.0
British thermal units		9710	9390	11030	12980

Fusibility of Ash of	Initial deformation temperature	<u>2290</u>
	Softening temperature	<u>2350</u>
	Fluid temperature	<u>2520</u>

Real Specific Gravity 1.505

Date April 28, 1944
FH

(Signed) H. M. Cooper
Chemist

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October 16, 1946

Mr. George Haines
1255 Taylor Street
San Francisco, California

Dear Mr. Haines:

I am returning to you herewith drill log and coal
analyses which you lent us recently.

I am also enclosing an extra copy, as you requested.

Very truly yours,

Secretary to Director

jr
Encl.

OREGON COAL MINE STEPS UP PRODUCTION

by

Ralph S. Mason, Engineer

Oregon State Department of Geology and Mineral Industries

Introduction

The Southport coal mine, operated by the Coast Fuel Corporation, is located 5 miles south of the city of Coos Bay, formerly Marshfield, which borders the bay of the same name on the southern Oregon coast. The area is served by a branch of the Southern Pacific Railroad and U. S. Highway 101, both of which are about half a mile from the mine. It would also be possible for ocean-going vessels to load at a dock on Isthmus Slough, less than half a mile from the mine.

Although coal mining has been carried on in this region for many years, the Southport is the first mine to be completely mechanized both in its surface plant and underground. Fuel shortages arising from increased war-time consumption, coupled with an increased local demand brought about by a shortage of wood fuels, make this mine of prime importance at this time.

The Coos Bay field lies within a roughly elliptical structural basin, measuring 35 miles north and south by 11 miles east and west. Topographic relief is moderate, with numerous streams cutting steep-sided valleys through the hills. The area has been extensively logged off and is now largely covered with dense brush and second-growth timber.

History

Mining in the coal field which surrounds Coos Bay and extends south for more than 30 miles to a point beyond Coquille began soon after the region was settled in the early 1850's. Coal was discovered near Empire in 1854, and

the mines just southwest of Marshfield first operated in 1855. By 1880, when records were first kept, production was about 40,000 tons a year, and for 15 years annual production ranged between 30,000 and 75,000 tons. In 1896 and 1897 the production mostly from the Eastport and Newport mines exceeded 100,000 tons a year, a figure not reached again until 1904, the year of maximum production, when 111,540 tons of coal was shipped. The coal was often loaded for shipment to the San Francisco Bay region on coastwise steamers which came far up the sloughs, in some cases almost to the mine portals. Since 1905 there has been a general decrease in production, attributable in part to the decline of the California market, and because in the 1920's oil began to replace coal in railroad operation and in domestic heating. From 1903 to 1920, at least half the total production came from the Beaver Hill mine, which was owned and operated by the Southern Pacific Company. When it closed down in 1923, it had reached a depth of 1,400 feet below sea level and a distance of 3,030 feet down the dip of the coal. Since that time, coal has been produced largely for local consumption at a rate varying from 7,000 to 15,000 tons a year. The recorded production of the Coos Bay field from 1880 to 1920 was 2,380,000 tons. Probably the total production is in the order of 3,000,000 tons.

Characteristics of the coal

The coals are of Eocene age and subbituminous in rank. None of the coals has coking properties. The Coos Bay coals are characterized by a relatively high moisture content, a moderate percentage of ash, low sulfur content, and a heating value of 9,260 to 10,080 B.t.u. per pound, as received.

All of the coals have low friability indices, thus indicating that they

will withstand well the forces of impact and attrition that produce breakage and degradation in size during handling.

Slacking tests showed that all of the coals will weather or slack to some extent when exposed to the elements after mining. Most of the coals are classed as strongly slacking and therefore will not withstand storage during dry weather unless oxidation and loss of moisture can be prevented.

The thickness of the coal beds in the Coos Bay area ranges from less than an inch to more than 19 feet, but only the Beaver Hill and Riverton beds have been extensively mined. The Beaver Hill bed has a fairly uniform thickness over an outcrop distance of about 7 miles from the Southport on the north to the Klondike mine on the south. The thickness of minable coal is rarely less than 4 feet and usually is more than 5 feet. In the Newport basin, the thickness was usually over 5 feet in the Libby, Eastport, and Englewood mines. The Riverton bed averages between 3 and 4 feet in thickness.

The attitude of the coal beds in the Coos Bay field varies widely. Horizontal or gently dipping beds are present in the Libby, Englewood, Eastport, and South Marshfield mines; dips of 8° to 15° are present in the Southport and Smith-Kay mines; 15° to 30° in the Alpine and Thomas mines; and 30° to 45° in the Delmar, Overland, Martin, Beaver Hill, and Klondike mines.

Investigations

The first detailed survey of the coals in the Coos Bay field was made in 1896 for the U. S. Geological Survey by J. S. Diller. The survey was continued and the results were published in 1899, 1901, and 1911.

A geologic study of the Coos Bay quadrangle, with particular emphasis

on the coal resources of the Coos Bay field was made by the State of Oregon Department of Geology and Mineral Industries from April 1943 to April 1944. J. E. Allen and E. M. Baldwin, Department geologists, collaborated on the geological work.

During the detailed examination of the selected projects, areas totaling 980 acres were mapped on a scale of 200 feet to the inch with a 10-foot contour interval. A total of nearly 9,000 feet in 322 holes was drilled by hand and power drill. Coal was faced, measured, and sampled in 107 places, and coal outcrops on the eight projects were traced by shallow drilling and open cuts for a distance of 18,500 feet.

Present status

Of all the mines in the Coos Bay field which have been in operation at one time or another, only half a dozen are at all active today and only one of these, the Southport mine, is producing more than a few tons per day. The other small operations are conducted entirely by hand, have intermittent production, and make little or no attempt to either size or wash their product.

Southport Mine

The Southport mine was first opened up in 1875 and subsequently extended some 2000 feet through the hill. About 55 acres of coal have been mined from the property with a production of about 250,000 tons. For several years the mine maintained a fairly large production, most of which was sent to San Francisco by water. In June 1944, the Coast Fuel Corporation leased the mine, which is owned by the Southport Land and Commercial Company of San Francisco

and deepened a new slope which had been started by Oscar Larson the year before. The Southport portal is located near the foot of a fairly steep hillside about 75 feet above tidewater on a branch of Isthmus Slough. The coal dips about 7° but has local variations. The coal bed is 56 inches thick with a parting in the middle 6 to 10 inches in width. Roof and floor are of sandstone. The coal mined at present has 9,780 B.t.u.'s, 8.6 percent ash, 13.4 percent moisture on an "as received" basis, and an ash fusion temperature of 2150° F. On a dry basis the coal has 11,800 B.t.u.'s.

Mine

The present operation is adjacent to and down the dip from the former workings which have been abandoned. A 400-foot slope on a 5° angle was sunk on the vein, and a double entry was turned off at the bottom. There is approximately 300 feet of coal between the upper gangway and the lower limits of the old working above. The mine is currently operating 2 shifts a day, 6 days a week. Shifts are 8 hours - portal to portal. The mine crew on the day shift consists of 5 men to a face, plus one haulage man, 2 track men, and 2 timber men. On the night shift there are at present 4 men to a face, plus 1 haulage man and 1 timber man. Only development is being done and no rooms are being turned until the two entries have been driven to the property line, about 1,250 feet from the present face which is now 1,200 feet from the bottom of the slope. The lower entry is 16 feet wide and the upper 20 feet wide. Current production of coal from the two headings is 200 tons per day. The coal will be mined by the room and pillar system with 300-foot rooms, 36 feet wide and with a 30-foot rib.

Equipment

Two Goodman coal cutters, one with a $6\frac{1}{2}$ -foot blade, the other with an 8-foot blade, are used to undercut the seam. Both cutters are powered by 50 h.p. 440 volt A.C. motors. Each heading is drilled with three $1\frac{1}{4}$ -inch holes, which are 6 inches shorter than the undercut, and loaded with three sticks of either duPont CC lump or Monobel AAA. Rotary air drills fitted with regular coal augers are used for drilling. The round is fired electrically using instant primers and a hand-held magneto. Thirty-six tons of coal are produced per round and are transported to cars by means of chain-supported shaking conveyors driven by 25 h.p. motors. Conveyor lines are kept as short as possible. The line from the upper entry passes through a crosscut near the face and discharges with the lower pan line into the cars.

A novel cross-drive for the pan conveyor was designed and built at the mine when the conventional unit failed to give satisfactory performance on the turn from the upper entry. This new unit consists of three sections of 3-inch pipe, two of them 8 feet long and the other 6 feet long. One end of each of the 8-foot pipes is connected to the bottom of the two sections of the pan conveyor with pivots; the other ends are pivotted to the corners of a triangular plate. One end of the 6-foot pipe is attached rigidly to this plate, while the other turns on a pivot anchored on the floor.

Chain suspension of the pan lines was installed when rollers caused trouble. The loading pan at the face is moved by a rope from the drum of the coal cutter and is handled by four miners and the machine man. Wooden end-dump coal cars with a capacity of $2\frac{1}{2}$ tons each were constructed locally. Four cars constitute a trip and can be loaded in five minutes when both

conveyors are working. The cars are spotted by hand after delivery by a 2-ton electric locomotive made locally by the combined efforts of the Hansen and Whitney Electric Company and the Neish Machine Shop of Coos Bay. It is the first electric mine locomotive in the area and is powered by a $7\frac{1}{2}$ h.p. D.C. motor equipped with a V-belt drive. The two axles are connected by chain drive. The unit is equipped with 19-inch wheels, and has a speed of 600 feet per minute. A 25 h.p. motor-generator unit supplies current to an overhead trolley wire. The locomotive hauls cars between the face and the siding at the foot of the slope where they are connected to the hoist rope.

The hoist on surface has a 30-inch diameter drum, chain-driven by a 50 h.p. electric motor. A $\frac{3}{4}$ -inch wire rope serves as a hoisting cable. One and one-half minutes are required to hoist a trip of four cars to the surface where they are each spragged and then pushed separately by hand to the surge bin.

The entries are run on a 1 percent grade for drainage but so far little water has been encountered. Drainage of the mine is accomplished by collecting the small amount of mine water in a 100-foot sump at the foot of the slope and pumping it to the washery at the plant with two 2-inch centrifugal electrically driven pumps. Ventilation for the entries and headings is provided by a 36-inch Austin exhaust fan which is supplemented by two 12-inch Austin booster fans located near the faces. Twelve-inch metal pipe is used to convey the air along the entries. As the work progresses, this present ventilation equipment will become inadequate and an 8-foot Air-Vane fan has been ordered. A recent test for gas at the face, by the U. S. Bureau of Mines, revealed that there is practically none present. Lighting along the

entries is with regular electrical fixtures; the crew uses M.S.A. cap lamps.

Timbering is required in the entries and both split and round Douglas fir posts, obtained locally, and set on 6-foot centers, are used. The roof is uniformly strong and even, and causes little trouble. The floor tends to roll slightly and light jackhammers are used to level it for the track. The track has been built with 30-pound rail in the past but 45-pound rail will be used in the future, since the 30-pound weight is now unobtainable.

Surface plant

The washery has a capacity of over 25 tons of raw coal an hour. Coal from the surge bin passes over a 30-inch Link-Belt reciprocating pan feeder with a 2-3/8 inch punched plate deck. The undersize goes to a bin, feeding into a 12-inch Link-Belt bucket conveyor which elevates the coal to a 60-inch Link-Belt jig with a 3-inch stroke and a 3/16-inch screen. The oversize from the pan feeder passes over a 36-inch Link-Belt picking table. Lump coal is either transferred to a 50-ton storage bin or broken in a Jeffries 24 x 36 inch single roll and delivered to the same bin which feeds into the boot of the bucket elevator handling the undersize material from the pan feeder. All of the jigged coal passes over a double deck vibrating Link-Belt screen which makes three products - nut, stoker, and buckwheat - which are delivered to 50-ton bins. A 15-inch dewatering drag is installed to permit recirculation of the jig water to the washery tank. Rock and waste are also delivered to a bunker and hauled away by truck for road ballast. A 6-ton Ree dump-truck is used to transport the coal to the rail siding 6/10 mile distant.

All local deliveries are made either by local dealers operating their own trucks and picking the coal up at the washery bunkers, or by contract

haulers who deliver coal as far away as 95 miles to some towns and Government institutions. The washery crew numbers four on the day and night shifts and consists of one hoist man, one spragger, one picking table operator, and one washery man. A blacksmith, electrician, trucker, and trucker's helper complete the crew. The surface buildings consist of an office-warehouse, a dry room and change house, a blacksmith and welding shop, a compressor house, and the fully enclosed washery. Compressed air is furnished by a 284 cu. ft. Worthington air-cooled compressor, powered by a 50 h.p. electric motor. Welding repairs to both surface plant and the mine are made with a 200 amp. 440 volt, 3-phase Lincoln electric arc welder mounted on a mine car chassis.

Markets

The bulk of the coal being produced presently is shipped to several Government institutions. The largest order is one of 27,000 tons for the Klamath Falls Veterans Marine Hospital; 6,000 tons is also being delivered to the North Bend Naval Air Base; 3,000 tons to the Roseburg Veterans Hospital; and 2,500 tons to the Army's Camp White, Medford.

Prior to the installation of the present Southport washery, local consumption of Coos coals was limited. This was in part due to the poor condition of the coal offered for sale, and partly to the abundance and cheapness of local wood fuels. The picture is changed now, however, with carefully washed and screened coal available for the first time, and with most wood fuels either scarce or unobtainable. Local wood fuels are by-products of the sawmills on the bay, which at present are shut down by labor management difficulties. In addition to this immediate shortage, there is a gradual reduction of lumber sawed locally as forests are cut back. In the future,

wood fuels will rise in cost as delivery distances increase, while coal costs should remain stabilized.

The wage scale at the mine is \$8.00 a day for trucker's helper, \$9.00 for coal pickers, spraggers, and hoist men, \$10.00 for truckers and muckers, and \$11.00 for machine men and bunker foremen. The mine is not unionized. The Coast Fuel Corporation is headed by T. O. Toon, president. M.W. Bennett is general manager at the mine, with W. A. Wilson, consulting mining engineer, and Frank Churchich, mine foreman. Forty-five men are employed at the present time, but this number will be reduced to 36 when some extra surface work is completed and both underground shifts are brought up to full strength.

Future plans

Future plans for the mine include driving to the property line, turning rooms and robbing pillars while retreating. Once the present entries are completed, the slope will be deepened another 300 feet and a new set of entries started. A separate block of coal lying up the dip from the present operation and above the abandoned workings of the original mine is to be opened up by the No. 2 mine as soon as labor and materials permit. Coal from this operation will be delivered to the washery by a surface tram or some similar system.

LEWIS D. GRIFFITH
CLERK

STATE OF OREGON
OFFICE OF THE STATE LAND BOARD
STATE CAPITOL
SALEM

IN REFERRING TO THIS COMMUNICATION
IT IS IMPORTANT THAT YOU MENTION

FILE NO.

August 13, 1945

State Department of Geology,
and Mineral Industries,
702 Woodlark Building,
Portland 5, Oregon.

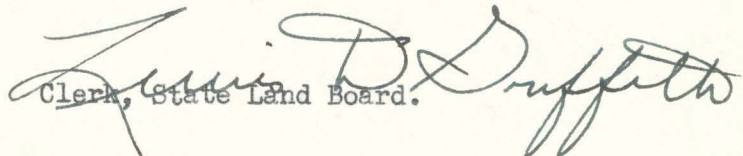
Attention of: Mr. F. W. Libbey.

Dear Mr. Libbey:

I thank you for your letter of August 11th regarding the coal
analyses on state-lands in Coos County.

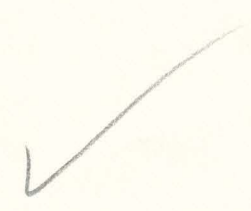
It will be appreciated, however, if you will return to this
department, the analyses and report send us by the Federal
Government, so that our file may be complete on this matter.

Very truly yours,


Clerk, State Land Board.

LDG:MM

*With analyses
JPK
8-18-45*



RECEIVED
AUG 17 1945
STATE DEPT OF GEOLOGY
& MINERAL INDS.

August 11, 1945

Mr. Lewis D. Griffith
State Land Board
Salem, Oregon

Dear Mr. Griffith:

Please refer to your letter dated July 28 enclosing log of drill hole and reports of analyses of coal samples. The delay in replying to your letter was caused by my absence from the office.

The coal beds, as shown by samples and drill log, are all somewhat lower grade than the coal which has generally been mined in the Coos Bay field and considered commercial. Moreover all the seams except the uppermost are too thin to be mined economically. With regard to the uppermost horizon, from 268' 3" to 275' 10" which represents, according to the analyses, 75" of coal, might be commercial under certain conditions. As received, this coal would be rather low-grade but a washing plant, such as is now in operation at the Southport Mine, might clean the coal so that the ash would be reduced and the B.t.u. raised. This could only be determined by testing work. In order to be competitive with coal now being mined at the Southport Mine, the clean product should contain approximately 6 to 8 percent ash and better than 10,000 B.t.u. (as received). It seems to me likely that the B.t.u. could be raised sufficiently by proper washing. I am not so sure that the ash content could be reduced by washing to the above mentioned percentage as, according to the samples C-22726 and C-22780, the ash content to start with is quite high.

Summing up, I should think the uppermost coal bed would probably be rather marginal.

If this Department can furnish any further information, please feel free to call upon us.

Yours very truly,

Director

FWL:jr

LEWIS D. GRIFFITH
CLERK

STATE OF OREGON
OFFICE OF THE STATE LAND BOARD
STATE CAPITOL
SALEM

IN REFERRING TO THIS COMMUNICATION
IT IS IMPORTANT THAT YOU MENTION

FILE NO.

July 28, 1945

Mr. F. W. Libby, Director
State Department of Geology & Mineral Industries
702 Woodlark Building
Portland, Oregon

Dear Mr. Libby:

I am enclosing, herewith, a drilling log and chemical analyses of the coal found on property upon which the State owns the minerals in Coos County.

Will you kindly look over this log and advise me if the coal shown therein is of merchantable value. You will also note the chemical analyses of the coal. I am not familiar enough with mining properties to intelligently read this report and I would like you to advise me, please.

Very truly yours

Lewis D. Griffith
Clerk, State Land Board

LDG:ASC
Encl

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JUL 30 1945
STATE DEPT OF GEOLOGY
& MINERAL IND.

Coal

STATE LANDS

132-124. Coal land - Not to be sold - Leases - Permit to prospect.

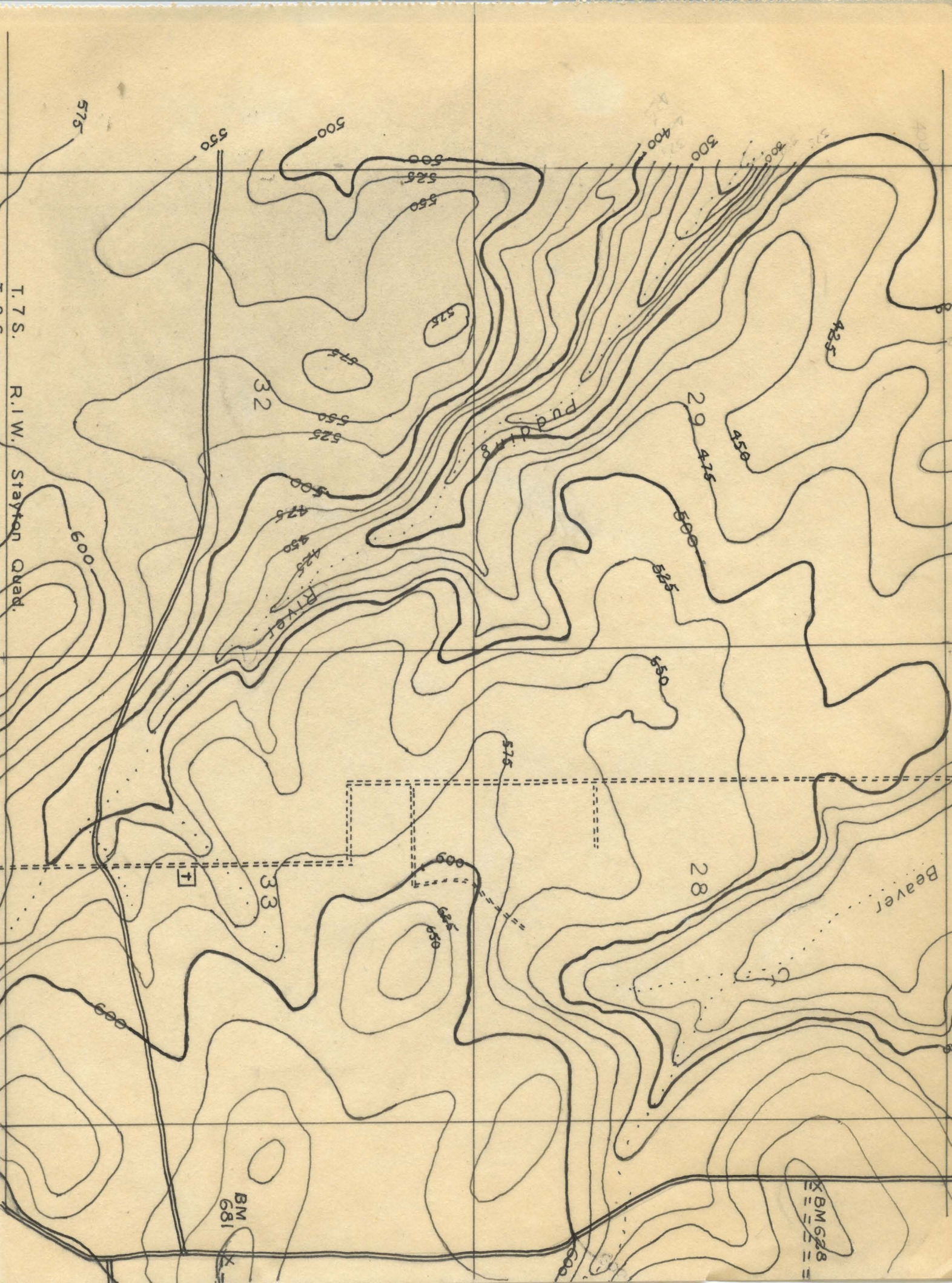
Lands belonging to the state and known to contain deposits of coal shall not be sold, but shall be leased by the commissioner as hereinafter provided in this chapter. Any person, association of persons, or corporation may apply under the provisions of this chapter for an exclusive right to prospect for coal, for which purpose permit may be issued covering a specified area, conforming to legal subdivisions of not less than forty acres nor more than six hundred and forty acres, and for a term not exceeding one year, and upon such terms and conditions as the commissioner may prescribe.

132-125. Id. - Leases - Rental - Area. On or before the expiration of such permit, the commissioner may grant the applicant the right to develop and extract coal, in specified areas, for periods not exceeding five years, on such terms and conditions as are in accordance with customary methods of operation of coal mines and will be to the best interests of the state; Provided, that rental therefor shall be on a royalty basis, which shall be not less than eight cents per ton, payable quarterly. The minimum sum to be paid to the state under such lease shall be as follows: for the first year, not less than three dollars per acre in the aggregate for the tract leased; second year, not less than four dollars per acre; and for each year thereafter during the life of the lease, not less than five dollars per acre. Any such lessee shall have a right to extend his development into, and extract coal from, any state lands contiguous or adjacent to the lands he has leased, and for such purpose a lease may be granted upon not exceeding six hundred and forty acres additional, when such additional area is tributary to the shaft, slope or other opening through which the lessee has developed or is developing the first acquired lease area, Provided, that there shall not at the time be any other such lessee of such contiguous or adjacent lands.

132-126. Id. - Lease -Renewal. At the expiration of any such lease, the lessee shall have the preference right of renewal, subject to such laws as may be in force at the expiration of his lease.

132-127. Id. - Lease - Tonnage - How determined. The commissioner may employ some competent person, who shall measure the cubical contents of every opening from which coal has been extracted in every leased coal mine, and shall calculate the tonnage of coal extracted therefrom, using the specific gravity of the coal as a basis of calculation, and shall check the returns made by the lessee against such calculation, allowing a reasonable percentage for the usual losses in mining and handling the production, and shall deduct for such bands of bone or rock as may be included in the coal seam, but unfit for fuel.

132-128. Id. - Lease - Additional land. The commissioner may lease to the lessee of any state coal lands a tract of state lands, adjacent or contiguous thereto, not exceeding three hundred and twenty acres, when such adjacent or contiguous lands are necessary for the development or operation of the coal lands leased, or for trackage, yards, dwellings, offices, or for any purpose incidental or necessary to the development or operation of the coal lands so leased. Any such lease shall terminate at the same time as the lease upon the coal lands. The rental for the land, prescribed to be leased by this section, shall be \$3.00 per acre per annum. Provided, that should such leased land be underlain with coal, the coal therein shall be subject to lease, and the lessee first mentioned shall not hinder nor obstruct any other lessee from extracting the coal thereunder, and shall surrender so much of said premises to any such lessee as may be necessary for mine equipment or building used in the immediate process of extraction of the coal; and the later lessee shall pay damages to the earlier as same may appear, be agreed upon, or as determined by arbitration in the manner prescribed by law.



WALDO HILLS COAL MINE 2-7-51

STA	HOR DIST	VERT DIFF	ELBV
1-2	37.47	- 5.58	594.42
2-3	40.79	- 7.89	586.53
3-4	57.53	- 7.92	578.61
4-5	72.03	+ 2.00	580.62
5-FACE	34.-	+ 1.42	582.04
1-6	378.10	+ 41.56	641.56
6-7	193.8	+ 47.40	688.96
7-COX	159.5	+ 13.14	702.10

WALDO HILLS COAL MINE 2-7-51

STA 1-2

⁴
539.2

⁸
39.2

ELEV OF STA 1 = 600.00

WHICH IS ASSUMED

⁸
.956

.293

2352

1176

600.00

-11.48

1960

3528

+ 4.90

+ 5.90

3528

784

604.90

-5.58

37.4752 -11.4856

-11.48

593.42

+ 1.00

5.94.42

STA 2-3

¹
42.4

¹
42.4

- 11.49

594.42 (2)

.962

.271

- 0.90

- 7.89

848

424

-12.39

586.53

2544

2968

+ 4.50

3816

848

- 7.89

40.7888 -11.4904

STA 3-4

⁶
58.7

⁶
58.7

586.53

11.62

⁷
.980

⁷
.198

- 7.92

.9
-12.52

4686

4696

578.61

+ 4.60

5283

5283

-7.92

57.526

587

-11.6226

WALDO HILL COAL MINE - CONT 2

STA 4-5

72.1	72.1	578.61	-3.75
<u>.052</u>	<u>.999</u>	<u>+ 2.00</u>	<u>-.50</u>
1442	6489	580.61	-4.25
3605	6489		<u>+6.25</u>
-3.7492	6489		+2.00
	72.0279		

5-FACE

34.0	580.62	1.00	-1.00
<u>.017</u>	<u>+ 1.42</u>	<u>+5.00</u>	<u>-0.58</u>
238	582.04		-1.58
34			<u>+3.00</u>
- .578			+1.42

STA 1-6	⁴ 380	⁵ 380	600.00	+4.70
	<u>.995</u>	<u>.097</u>	<u>+41.56</u>	<u>+36.86</u>
	1900	2660	641.56	41.56
	3420	3420		
	<u>3420</u>	<u>+36.860</u>		
	378.100			

STA 6-7

200.00	200.00	641.56	+4.20
<u>.969</u>	<u>.246</u>	<u>+47.40</u>	<u>+49.20</u>
1800	1200	688.96	+53.40
1200	800		-6.00
<u>1800</u>	<u>400</u>		<u>+47.40</u>
193.800	+49.200		

WALDO HILLS COAL MINE - 3

SSN 7-COR

⁵
4 160

.997

11 20

144 0

1440

159.520

160

.074

640

1120

+ 11.840

688.96

+ 13.14 + 4.3

+ 702.10 + 11.84

+ 16.14

- 3

+ 13.14

WALDO H.

STA/BS	VERT	BEAR	MAG BEAR	H.I.	H.P.	S. DIST.
1/TREE	-17°03'	91°30"	(N 56° E) N 78° E	4.9	1.0	39.2
2/1-3	-15°45'	180°29'	-	0.9	4.5	42.4
3/2-4	-11°26'	178°18'	-	0.9	4.6	58.7
4/2-SIDE	-	140°	-	0.9	-	100±
4/3-5	-3°01'	169°02'	-	0.5	6.25	72.1
5/4-FACE	-1°	168°55'	-	1.0	3.0	34.0
1/TREE	+5°33'	91°34'	(S 56° W) S 78° W	4.70	0	380
1/TREE-COR	+5°	91°34'		4.70	2	56
6/1-CR	-	360°	(N 57° E) N 79° E	4.2		270
7/1-END THICK	-3°30"	360°	"	4.2	3	105
8/1-7	+14°15'	184°35'	(S 61° W) S 83° W	4.2	6	200
2/6-COR	+4°14'	199°	(S 56° E) S 78° E	4.3	3	160

BS. ON TREE BY ROAD

NAIL IN 14" FIR

STR 1 - NAIL IN TIE

BY PORTAL

Z = STAPLE IN CAP

NO DECL SET OFF

2-7-51

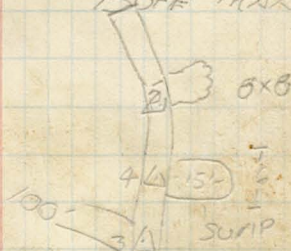
RAIN

R.S. MASON T

D.J. WHITE ROD

BUFF TRANSIT

6=



78" COAL AT FACE



ON HILL TOP

FENCE CORNER 17' NORTH



6



Department of Energy
Washington, D.C. 20585

2/22
Jenny G
FYI; no answer req'd.
Q

RECEIVED-PTLD
FEB 22 1983
DEPT. OF GEOLOGY
& MINERAL INDUS.

18 FEB 1983

Donald A. Hull
Department of Geology and
Mineral Industries
Administration Office
1069 State Office Building
Portland, Oregon 97201

Dear Mr. Hull:

Pursuant to Public Law 95-620, the Energy Information Administration (EIA), U.S. Department of Energy, is required to report, early in 1983, its third annual update of the Demonstrated Reserve Base (DRB) of coal in the United States.

The purpose of this letter, therefore, is to request your affirmation and/or comments on the enclosed DRB estimates of coal, as of January 1, 1982, for your State. This update covers a two-year period; no DRB data as of January 1, 1981 will be reported.

The third annual DRB summary will consist of summary tables, salient footnotes, a brief discussion of its contents, and additional references used. A copy of the final report will be sent to you when available.

Please respond at your earliest convenience and no later than March 1, 1983. To expedite this review, a telephone response to me (202) 252-2982, or to Richard Bonskowski (202) 252-5299 or John Hoover (202) 252-6866 of this office is requested; a follow-up letter is not required.

Your cooperation is appreciated.

Sincerely,

Robert E. Harris

Robert E. Harris
Coal Division
Forrestal Building, Room 2G-069
1000 Independence Avenue, S.W.
Washington, D.C. 20585

Enclosure

Table 2. - Demonstrated Reserve Base^a of Coal in the United States on January 1, 1980, and January 1, 1982, by Rank
(Million Short Tons)

State ^b	Anthracite		Bituminous		Subbituminous		Lignite		Total ^c	
	1980	1982	1980	1982	1980	1982	1980	1982	1980	1982
Alabama	-	-	3,916.8	4,118.9	-	-	1,083.0	1,083.0	4,999.8	5,201.9
Alaska	-	-	697.5	697.5	5,443.0	5,441.0	14.0	14.0	6,154.5	6,152.6
Arizona	-	-	410.0	381.9	-	-	-	-	410.0	381.9
Arkansas	96.4	104.1	288.7	288.4	-	-	25.7	25.7	410.7	418.1
Colorado	25.5	25.5	9,086.1	9,044.7	3,979.9	3,962.7	4,189.9	4,189.9	17,281.3	17,222.8
Georgia	-	-	3.6	3.6	-	-	-	-	3.6	3.6
Idaho	-	-	4.4	4.4	-	-	-	-	4.4	4.4
Illinois	-	-	67,606.0	78,769.3	-	-	-	-	67,606.0	78,769.3
Indiana	-	-	10,586.1	10,510.0	-	-	-	-	10,586.1	10,510.0
Iowa	-	-	2,197.6	2,195.9	-	-	-	-	2,197.6	2,195.9
Kansas	-	-	993.8	990.9	-	-	-	-	993.8	990.9
Kentucky	-	-	34,001.9	33,511.8	-	-	-	-	34,001.9	33,511.8
Eastern	-	-	12,927.5	12,564.8	-	-	-	-	12,927.5	12,564.8
Western	-	-	21,074.4	20,947.0	-	-	-	-	21,074.4	20,947.0
Maryland	-	-	822.4	809.9	-	-	-	-	822.4	809.9
Michigan	-	-	127.7	127.7	-	-	-	-	127.7	127.7
Missouri	-	-	6,069.1	6,056.2	-	-	-	-	6,069.1	6,056.2
Montana	-	-	1,385.4	1,385.4	103,277.4	103,198.7	15,765.2	15,764.5	120,428.0	120,348.6
New Mexico	2.3	-	1,835.7	-	2,683.4	-	-	-	4,521.4	-
North Carolina	-	-	10.7	10.7	-	-	-	-	10.7	10.7
North Dakota	-	-	-	-	-	-	9,952.3	9,908.5	9,952.3	9,908.5
Ohio	-	-	19,056.1	18,944.8	-	-	-	-	19,056.1	18,944.8
Oklahoma	-	-	1,637.8	1,623.8	-	-	-	-	1,637.8	1,623.8
Oregon	-	-	-	-	17.5	17.5	-	-	17.5	17.5
Pennsylvania	7,092.0	7,079.2	23,188.8	22,926.0	-	-	-	-	30,280.8	30,005.2
South Dakota	-	-	-	-	-	-	366.1	366.1	366.1	366.1
Tennessee	-	-	983.7	952.8	-	-	-	-	983.7	952.8
Utah	-	-	-	-	-	-	12,659.7	13,480.3	12,659.7	13,480.3
Virginia	125.5	125.5	6,476.5	6,422.6	1.1	1.1	-	-	6,477.6	6,423.7
Washington	-	-	3,345.9	3,196.7	-	-	-	-	3,471.4	3,322.2
West Virginia	-	-	303.7	303.7	1,169.4	1,157.2	8.1	8.1	1,481.3	1,469.0
Wyoming	-	-	39,776.2	39,346.8	-	-	-	-	39,776.2	39,346.8
	-	-	4,460.5	4,447.5	65,463.5	65,227.1	-	-	69,924.0	69,674.6
Total ^c	7,341.7		239,272.9		182,035.0		44,063.9	44,840.0	472,713.6	

^a Includes those parts of the measured and indicated resource categories as defined by the FIA and represents 100 percent of the coal in place.

^b Excludes coal-bearing areas in which either the resources are not currently economically recoverable or the publicly available resource data do not provide the detail required for DPR delineation.

^c Data may not add to totals shown due to rounding.

DRAFT

US DOE WASHINGTON, D.C.

Table 3. - Demonstrated Reserve Base^a of Coal in the United States on January 1, 1980, and January 1, 1982, by Potential Method of Mining (Million Short Tons)

State ^b	Underground		Surface		Total ^c	
	1980	1982	1980	1982	1980	1982
Alabama	1,776.3	1,740.0	3,223.5	3,461.9	4,999.8	5,201.9
Alaska	5,423.0	5,423.0	731.5	729.6	6,154.5	6,152.6
Arizona	101.6	101.6	309.5	280.3	410.0	381.9
Arkansas	272.5	272.5	138.2	145.6	410.7	418.1
Colorado	12,297.5	12,272.0	4,983.9	4,950.8	17,281.3	17,222.8
Georgia	1.9	1.9	1.7	1.7	3.6	3.6
Idaho	4.4	4.4	-	-	4.4	4.4
Illinois	52,892.2	63,112.2	14,713.8	15,657.1	67,606.0	78,769.3
Indiana	8,937.2	8,934.8	1,648.9	1,575.3	10,586.1	10,510.0
Iowa	1,734.1	1,733.6	463.6	462.3	2,197.5	2,195.9
Kansas	-	-	993.8	990.9	993.8	990.9
Kentucky	25,718.1	25,413.8	8,283.8	8,098.0	34,001.9	33,511.8
Eastern	8,723.3	8,492.7	4,204.2	4,072.1	12,927.5	12,564.8
Western	16,994.8	16,921.1	4,079.5	4,025.9	21,074.4	20,947.0
Maryland	712.8	706.1	109.7	103.8	822.4	809.9
Michigan	123.1	123.1	4.6	4.6	127.7	127.7
Missouri	1,479.1	1,479.1	4,590.0	4,577.1	6,069.1	6,056.2
Montana	70,958.7	70,958.7	49,469.3	49,389.9	120,428.0	120,348.6
New Mexico	2,144.3	-	2,377.1	-	4,521.4	-
North Carolina	10.7	10.7	-	-	10.7	10.7
North Dakota	-	-	9,952.3	9,908.5	9,952.3	9,908.5
Ohio	13,066.7	13,019.5	5,989.4	5,925.3	19,056.1	18,944.8
Oklahoma	1,238.4	1,238.4	399.4	385.4	1,637.8	1,623.8
Oregon	14.5	14.5	2.9	2.9	17.5	17.5
Pennsylvania	28,983.7	28,831.6	1,297.1	1,173.6	30,280.8	30,005.2
South Dakota	-	-	366.1	366.1	366.1	366.1
Tennessee	656.2	636.7	327.5	316.1	983.7	952.8
Texas	-	-	12,659.7	13,480.3	12,659.7	13,480.3
Utah	6,209.7	6,155.8	267.9	267.9	6,477.6	6,423.7
Virginia	2,625.3	2,497.8	846.2	824.4	3,471.4	3,322.2
Washington	1,332.3	1,332.3	149.0	136.7	1,481.3	1,469.0
West Virginia	34,581.1	34,211.2	5,195.1	5,135.6	39,776.2	39,346.8
Wyoming	42,567.2	42,562.7	27,356.9	27,112.0	69,924.0	69,674.6
Total ^c	315,862.5	-	156,851.1	-	472,713.6	-

^a Includes those parts of the measured and indicated resource categories as defined by the FIA and represents 100 percent of the coal in place.

^b Excludes coal-bearing areas in which either the resources are not currently economically recoverable or the publicly available resource data do not provide the detail required for RRR delineation.

^c Data may not add to totals shown due to rounding.

DRAFT

Table 4. - Demonstrated Reserve Based of Coal in the United States on January 1, 1980, and January 1, 1982, Potentially Minable by Underground Methods
(Million Short Tons)

US DOE WASHINGTON, D.C.

DRAFT

State ^b	Anthracite		Bituminous		Subbituminous		Lignite		Total ^c	
	1980	1982	1980	1982	1980	1982	1980	1982	1980	1982
Alabama	-	-	1,776.3	1,740.0	-	-	-	-	1,776.3	1,740.0
Alaska	-	-	617.0	617.0	-	-	-	-	5,423.0	5,423.0
Arizona	-	-	101.6	101.6	-	-	-	-	101.6	101.6
Arkansas	88.6	88.6	183.9	183.9	-	-	-	-	272.5	272.5
Colorado	25.5	25.5	8,433.4	8,408.6	3,838.6	3,837.9	-	-	12,297.5	12,272.0
Georgia	-	-	1.9	1.9	-	-	-	-	1.9	1.9
Idaho	-	-	4.4	4.4	-	-	-	-	4.4	4.4
Illinois	-	-	52,892.2	63,112.2	-	-	-	-	52,892.2	63,112.2
Indiana	-	-	8,937.2	8,934.8	-	-	-	-	8,937.2	8,934.8
Iowa	-	-	1,734.1	1,733.6	-	-	-	-	1,734.1	1,733.6
Kansas	-	-	-	-	-	-	-	-	-	-
Kentucky	-	-	25,718.1	25,413.8	-	-	-	-	25,718.1	25,413.8
Eastern	-	-	8,723.3	8,492.7	-	-	-	-	8,723.3	8,492.7
Western	-	-	16,994.8	16,921.1	-	-	-	-	16,994.8	16,921.1
Maryland	-	-	712.8	706.1	-	-	-	-	712.8	706.1
Michigan	-	-	123.1	123.1	-	-	-	-	123.1	123.1
Missouri	-	-	1,479.1	1,479.1	-	-	-	-	1,479.1	1,479.1
Montana	-	-	1,385.4	1,385.4	69,573.3	69,573.3	-	-	70,958.7	70,958.7
New Mexico	2.3	-	1,253.0	-	889.0	-	-	-	2,144.3	-
North Carolina	-	-	10.7	10.7	-	-	-	-	10.7	10.7
North Dakota	-	-	-	-	-	-	-	-	-	-
Ohio	-	-	13,066.7	13,019.5	-	-	-	-	13,066.7	13,019.5
Oklahoma	-	-	1,238.4	1,238.4	-	-	-	-	1,238.4	1,238.4
Oregon	-	-	-	-	14.5	14.5	-	-	14.5	14.5
Pennsylvania	6,962.4	6,960.8	22,021.3	21,870.8	-	-	-	-	28,983.7	28,831.6
South Dakota	-	-	-	-	-	-	-	-	-	-
Tennessee	-	-	656.2	636.7	-	-	-	-	656.2	636.7
Texas	-	-	-	-	-	-	-	-	-	-
Utah	-	-	6,208.6	6,154.7	-	-	-	-	6,209.7	6,155.8
Virginia	125.5	125.5	2,499.8	2,372.3	1.1	1.1	-	-	2,625.3	2,497.8
Washington	-	-	303.7	303.7	-	-	-	-	1,332.3	1,332.3
West Virginia	-	-	34,581.1	34,211.2	-	-	-	-	34,581.1	34,211.2
Wyoming	-	-	3,903.2	3,899.6	38,663.9	38,663.0	-	-	42,567.2	42,562.7
Total ^c	7,204.3	-	189,843.2	-	118,815.0	-	-	-	315,862.5	-

^a Includes those parts of the measured and indicated resource categories as defined by the FTA and represents 100 percent of the coal in place.

^b Excludes coal-bearing areas in which either the resources are not currently economically recoverable or the publicly available resource data do not provide the detail required for NER delineation.

^c Data may not add to totals shown due to rounding.

Table 5. - Demonstrated Reserve Base^a of Coal in the United States on January 1, 1980, and January 1, 1982, Potentially Minable by Surface Methods (Million Short Tons)

US DOE WASHINGTON, D.C.

DRAFT

State ^b	Anthracite		Bituminous		Subbituminous		Lignite		Total ^c	
	1980	1982	1980	1982	1980	1982	1980	1982	1980	1982
Alabama	-	-	2,140.5	2,378.9	-	-	1,083.0	1,083.0	3,223.5	3,461.9
Alaska	-	-	80.5	80.5	637.0	635.1	14.0	14.0	731.5	729.6
Arizona	-	-	308.5	280.3	-	-	-	-	308.5	280.3
Arkansas	7.8	15.5	104.8	104.4	-	-	25.7	25.7	138.2	145.6
Colorado	-	-	652.8	636.1	141.2	124.8	4,189.9	4,189.9	4,983.9	4,950.8
Georgia	-	-	1.7	1.7	-	-	-	-	1.7	1.7
Idaho	-	-	-	-	-	-	-	-	-	-
Illinois	-	-	14,713.8	15,657.1	-	-	-	-	14,713.8	15,657.1
Indiana	-	-	1,648.9	1,575.3	-	-	-	-	1,648.9	1,575.3
Iowa	-	-	463.6	462.6	-	-	-	-	463.6	462.3
Kansas	-	-	993.8	990.9	-	-	-	-	993.8	990.9
Kentucky	-	-	8,283.8	8,098.0	-	-	-	-	8,283.8	8,098.0
Eastern	-	-	4,204.2	4,072.1	-	-	-	-	4,204.2	4,072.1
Western	-	-	4,079.5	4,025.9	-	-	-	-	4,079.5	4,025.9
Maryland	-	-	109.7	103.8	-	-	-	-	109.7	103.8
Michigan	-	-	4.6	4.6	-	-	-	-	4.6	4.6
Missouri	-	-	4,590.0	4,577.1	-	-	-	-	4,590.0	4,577.1
Montana	-	-	-	-	33,704.0	33,625.4	15,765.2	15,764.5	49,469.3	49,389.9
New Mexico	-	-	582.7	-	1,794.4	-	-	-	2,377.1	-
North Carolina	-	-	-	-	-	-	-	-	-	-
North Dakota	-	-	5,989.4	5,925.3	-	-	9,952.3	9,908.5	9,952.3	9,908.5
Ohio	-	-	399.4	385.4	-	-	-	-	399.4	385.4
Oklahoma	-	-	-	-	2.9	2.9	-	-	2.9	2.9
Oregon	-	-	-	-	-	-	-	-	-	-
Pennsylvania	129.6	118.3	1,167.5	1,055.3	-	-	-	-	1,297.1	1,173.6
South Dakota	-	-	-	-	-	-	366.1	366.1	366.1	366.1
Tennessee	-	-	327.5	316.1	-	-	-	-	327.5	316.1
Texas	-	-	-	-	-	-	-	-	-	-
Utah	-	-	267.9	267.9	-	-	-	-	267.9	267.9
Virginia	-	-	846.2	824.4	-	-	-	-	846.2	824.4
Washington	-	-	-	-	140.9	128.6	8.1	8.1	149.0	136.7
West Virginia	-	-	5,195.1	5,135.6	-	-	-	-	5,195.1	5,135.6
Wyoming	-	-	557.3	547.9	26,799.6	26,564.1	-	-	27,356.9	27,112.0
Total ^c	137.4	-	49,429.7	-	63,220.1	-	44,063.9	44,840.0	156,851.1	-

^a Includes those parts of the measured and indicated resource categories as defined by the FTA and represents 100 percent of the coal in place.

^b Excludes coal-bearing areas in which either the resources are not currently economically recoverable or the publicly available resource data do not provide the detail required for DRR delineation.

^c Data may not add to totals shown due to rounding.

June 21, 1974

Mr. F. A. Hodge
Tax and Insurance Administrator
Scott Packaged Products Division
Scott Paper Company
P.O. Box 925
Everett, Washington 98206

Dear Mr. Hodge:

Thank you for your inquiry concerning the possible effects on the surface of the South Slough area resulting from extraction of underlying coal.

The Beaver Hill Bed, one of the principal coal seams in the Coos Bay field, is sharply down-folded under the Slough, reaching depths in excess of 3,000 feet. This great depth would preclude mining the seam from any point in the vicinity of the Slough but conceivably the seam might be opened up either east or west of this area where the seam is closer to the surface.

In the event that the Beaver Hill coal was mined at some time in the future there would be no detrimental or observable effect on the surface in the Slough area. The Beaver Hill Bed is less than 5 feet thick and even if there was no back-filling with gob and washery tailings, the subsidence would be dissipated in the myriad voids created as the rocks immediately above tunnel level collapses. Coal extracted from shallow depths does create surface subsidence, but at great depths this does not hold true.

Our Department is currently attempting to get funding to determine the economic posture of the coals in the Coos Bay area. Quite possibly the study will be made and the feasibility of mining the coals for either thermal energy or petro-chemicals affirmed. One of the critical factors in arriving at this determination will be the environmental restraints on the mining and processing operations. The area is characterized by several well developed urban areas, some excellent wildlife sanctuaries, numerous highly scenic coastal areas, and some lands of medium to low value and potential. Every possible source of available energy will have to be evaluated in the years ahead but other values must also be considered.

Sincerely yours,

Ralph S. Mason
Deputy State Geologist

RSM:lk

-1.

June 19, 1974

Mr. Ralph S. Mason, Deputy
State Office Building
State Department of Geology
Portland, OR 97201

Dear Mr. Mason:

I certainly appreciated the opportunity of discussing the Coos County Mineral Deposit question with you today.

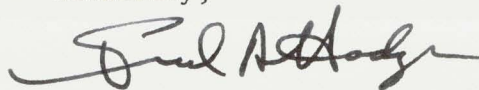
It is my understanding that certain facts about the presence of coal deposits are well documented, but that further efforts in your department are underway to update and refine the existing data and particularly to make further study into the economic feasibility of commercial extraction.

For the sake of discussion, I will assume that commercially significant quantities of coal, and possibly gas, do exist. In your view, would exploitation of these resources have any adverse effect on development or maintenance of a proposed Estuarine Sanctuary in Township 26 South, Ranges 13 and 14 West, in Coos County?

I certainly would appreciate your answer to this question, particularly in view of your personal knowledge of the area, and of methods available for development of the resource.

We look forward to your early response.

Sincerely,



F. A. Hodge
Tax and Insurance Administrator

FAH:rlo

cc: Mr. R. I. Thieme
Mr. A. M. Miller
Mr. C. M. Olsen

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May 5, 1978

Ms. Sandy Cooper, Planning Aide
Department of Planning
P.O. Box 1118
Coos Bay, Oregon 97420

Dear Ms. Cooper:

Thank you for your recent request for information regarding the Coos Bay coal mines. This Department has issued the following three publications:

Bull. 27, Geology and Coal Resources of the Coos Bay Quadrangle, by Allen and Baldwin, 1944. (Out of print)

Bull. 80, Geology and Mineral Resources of Coos County, Oregon, 1973. (\$6.00)

Open File Report O-75-6, Economic Factors Affecting Mining, Processing, Gasification, and Marketing of Coos Bay Coals, by Mason and Hughes, 1975. (\$10.00)

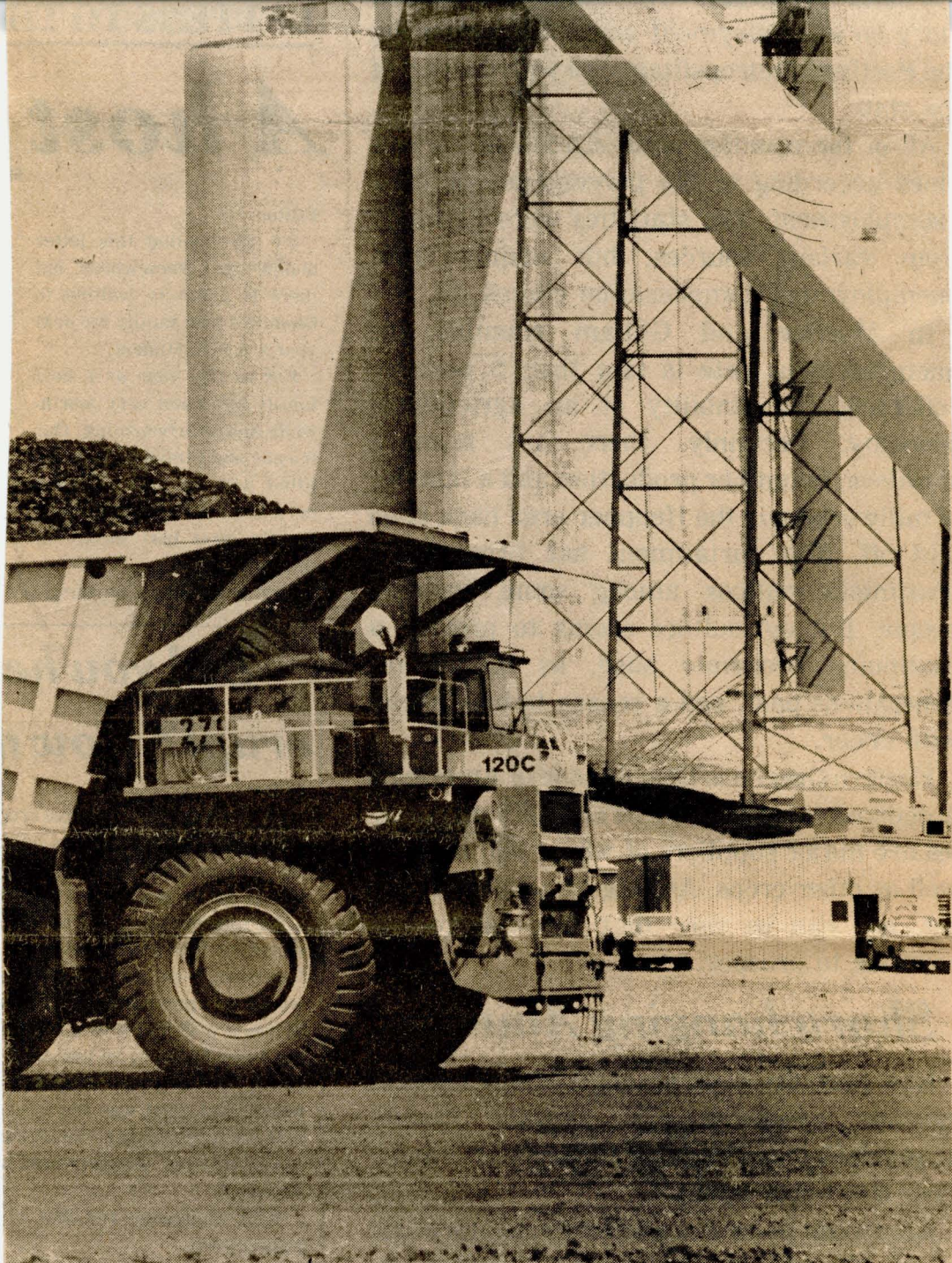
The latter two publications were issued in cooperation with the Coos County Commissioners, and numerous copies of each were delivered to the county for internal distribution.

We also suggest that the actual ownership and location of the mines, which is your major concern, are recorded at the county level. In our studies we did not pursue this avenue of inquiry and therefore can offer only the general assistance above.

Sincerely,

John D. Beaulieu
Deputy State Geologist

JDB:lk



A truck carrying 120 tons of coal drives up to a hopper near the four silos at Amax's Eagle Butte Mine near Gillette, Wyoming.

Boardman coal plant to generate in August

by Steven A. Powell

Portland General Electric's Carty coal-fired plant near Boardman is scheduled to begin generating power some-

time in August.

Two million tons of coal have been piled in the storage yard at Carty for the past six months. The coal has been packed tightly to reduce the chance of spontaneous combustion.

Coal trains pass through a thaw shed since the trains

have to travel across the Rocky Mountains. At the end of the thaw shed is a rotary car dumper which rotates the railroad cars and dumps the coal into hoppers. A rotary coupling enables the cars to be dumped without disconnecting the car from the rest of the train. Cars are dumped every 105 seconds.

Conveyor belts take the coal to the main pile, an emergency dump pile or directly to the power plant. A rotating-scoop scoop wheel picks up the coal

and dumps it on the conveyor belt that leads to the plant.

Coal in railroad cars arrives about the size of tennis balls so before the coal can be burned in the plant's boiler, crushers reduce the coal to about 1½ inches in size and then a pulverizer smashes it to a fine powder.

A 10,000 ton coal train arrives every two and one half days with a little more than one day's fuel. A magnet pulls out any tools that may be in

(Continued on Page 11)

...in the cost of

Coal-fired plant near Boardman designed with concern for

(Continued from Page 1)
the coal which would damage the crushers.
The fine powder is blown into the combustion chamber

where temperatures reach 3,000 degrees. The boiler walls contain steel tubing in which distilled water is circulated and heated to form high

pressure steam. Distilled water is used because impurities can cause severe corrosion within the boiler turbines. Steam is pumped from the

boiler to the high pressure turbine generator which produces the electricity.

Concern for the environment has played a vital role in

the operation of the Boardman Coal Plant.

PGE has been monitoring the area since the early 1970's and tens of millions of dollars

have been spent on environmental control equipment.

The Boardman plant will use sub-bituminous, (very soft) low-sulphur coal from

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coal from
Modern air quality control

the Almax Coal Co. mines in
Gillette, Wyoming. Emissions
from the plant will be released
from a 656-foot-high chimney.

Modern air quality control

equipment will control the
emissions. When the coal is
burned, 15 to 20 percent of the
ash falls to the floor and is
called bottom ash. About 80 to
85 percent of the ash leaves
the furnace with the gases and
is called fly ash.

a \$27.5 million electrostatic
precipitator will collect 99.5
percent of the fly ash. A high
voltage electric field collects
the fly ash particles and when
the plates are vibrated, the
ash falls to the bottom into a
hopper. About 40,000 pounds of
fly ash will be produced every
hour.

To further cut down pollution,
the ash, when removed
from the plant site, is taken in
covered trucks and then
buried. Coal on the plant site
is washed with liquid sprays to
suppress the dust.

The Boardman plant, built
by Bechtel Power Corp., costs
more than \$525 million. PGE
owns 80 percent with Idaho
Power Co. and Pacific Northwest
Generating Co. each
owning 10 percent. About 125
employees will work there
permanently once the construction
is completed. The
plant will produce 530,000
kilowatts.

Last week, Heppner Gazette-Times News Editor Steve
Powell flew on a private PGE
airplane to Gillette, Wyoming
to visit the Amax Coal Mines
in wealthy Campbell County,
which has 17 coal companies
operating in it.

Gillette was a small town of
about 2,500 until 1956 when it
increased to 7,000 when oil was
discovered. There is still oil in

... 36,000 by 1990.
said Don Warfield, Amax
media representative.

Amax Coal Company is the third largest coal producer in the United States. It has two mines in Campbell County. The Belle Ayr Mine is 18 miles north of Gillette and is the largest producing coal mine in the U.S. It began production in 1973. The Amax Eagle Butte Mine eight miles north of Gillette is another mine PGE coal will come from.

Amax Coal Co. owns 11 coal mines and all but one is a surface coal mine. Its largest work force is at its only underground mine in Illinois. Most of the coal, about 99 percent, sold by Amax is purchased by electric utilities.

In the open pit method, top soil is removed by giant electric powered shovels. Overburden (older soil) is then removed. Overburden depth is anywhere from a few feet to a few hundred feet with an average of about 90.

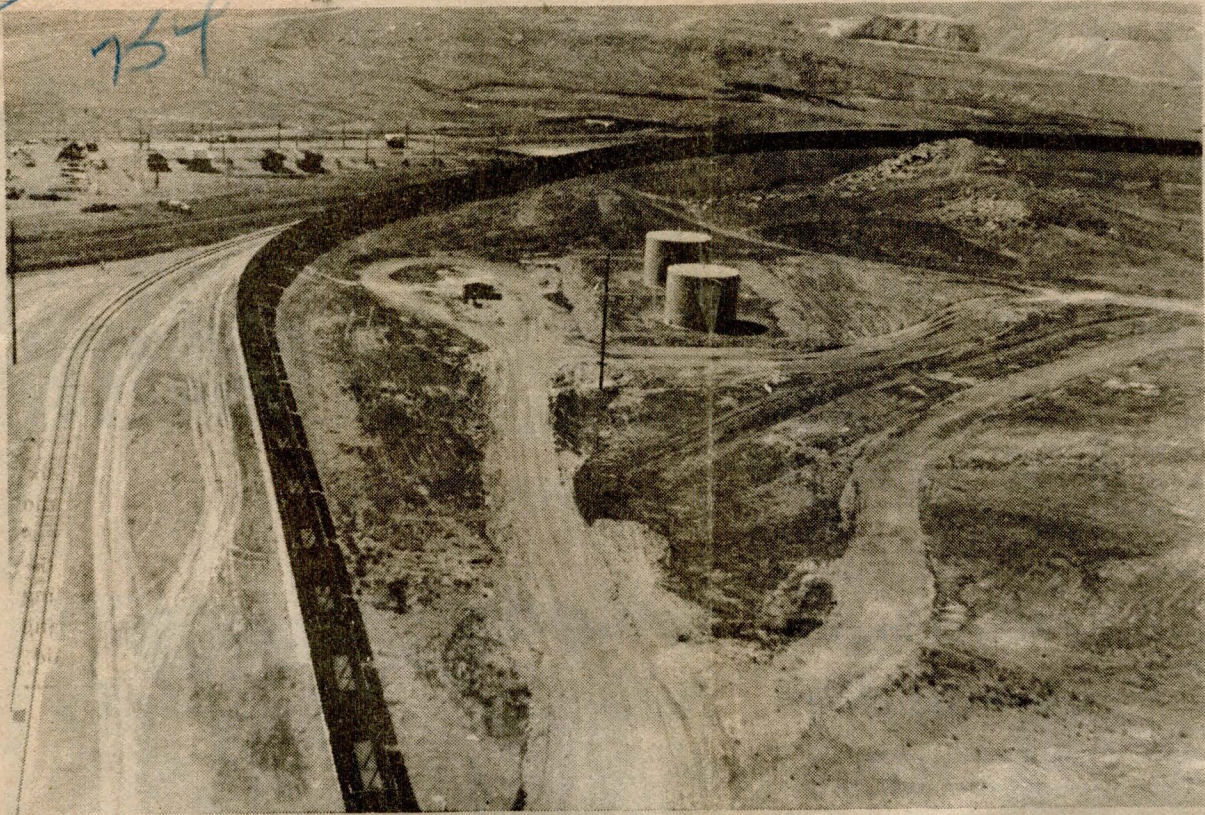
When the coal seam is reached, the shovels put the coal into 120-ton-capacity diesel electric haul trucks which take the coal to a hopper. Crushers 80 feet below the hopper reduce the size of the coal, which is then carried up a huge conveyor belt to four 200-foot high silos. The silos can hold 12,000 tons each.

Railroad trains travel underneath the silos and the coal is deposited into the empty cars. The coal is not treated in any way because it is so clean. Warfield said.

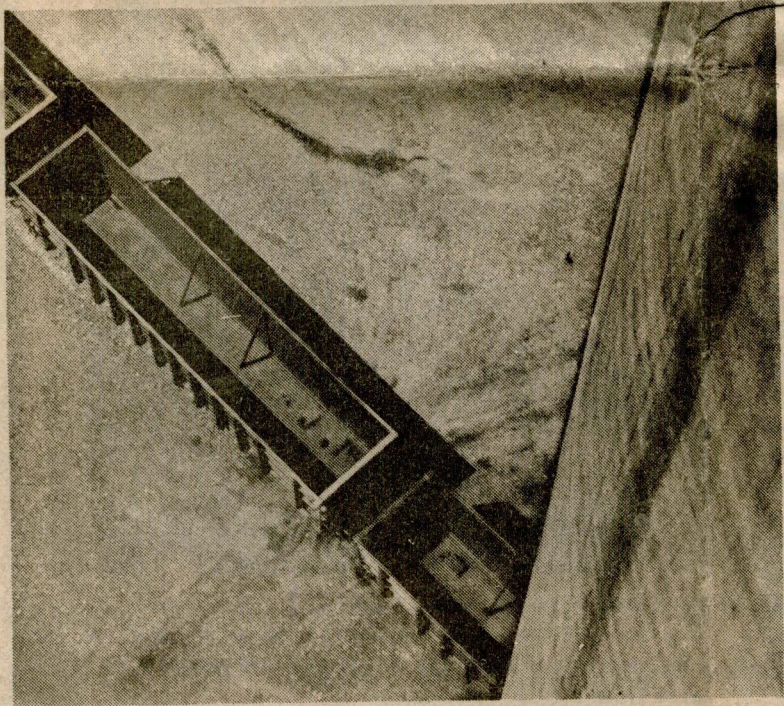
Coal is loaded continually for one hour and 15 minutes until the trains are loaded. The trains travel through the silo on cruise control at one mile per hour. One hundred tons of coal can be loaded in 30 to 40 seconds. The trains are 105 cars long with each carrying 100 tons.

The Belle Ayr Mine produces almost 15 million tons of coal a year with a coal seam of an average of 75 feet. It has 426 employees and pays more than \$13 million in state and local taxes. Belle Ayr loads four to five trains a day.

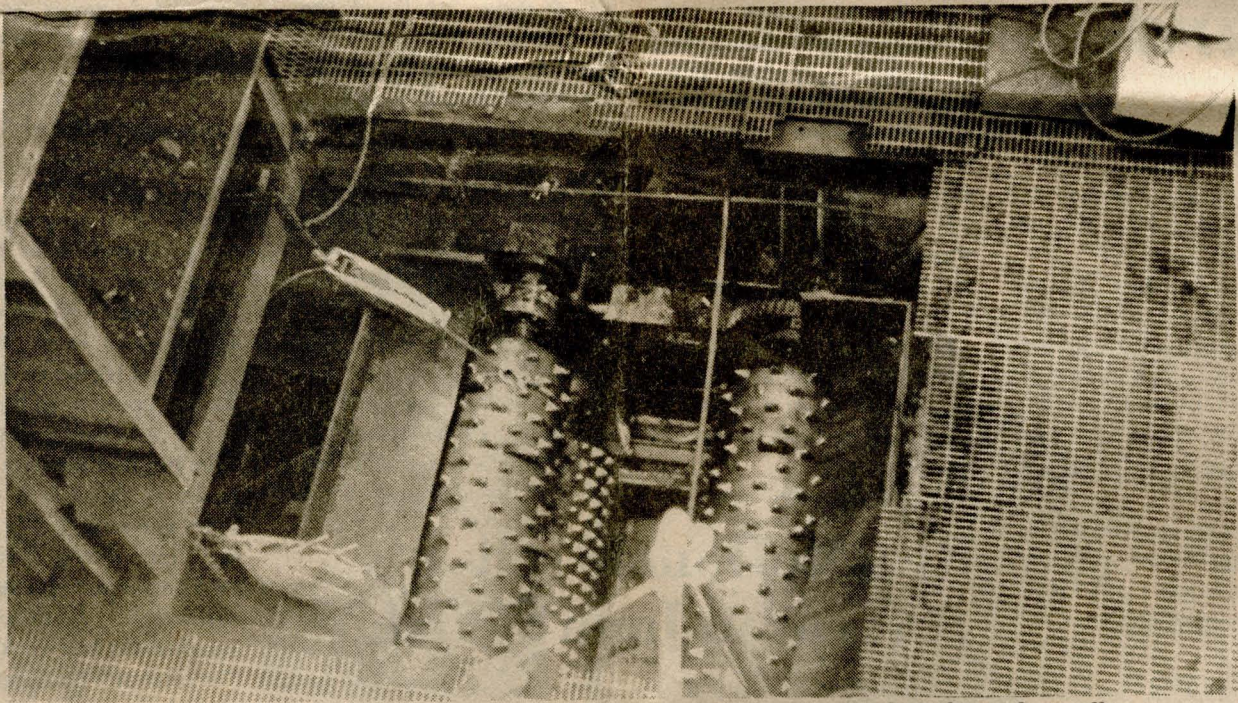
The Eagle Butte Mine produced almost 4 million tons of coal last year with an average coal seam of 130 feet. It has 199 employees and paid almost \$4 million in state and local taxes. It loads one or two trains a day.



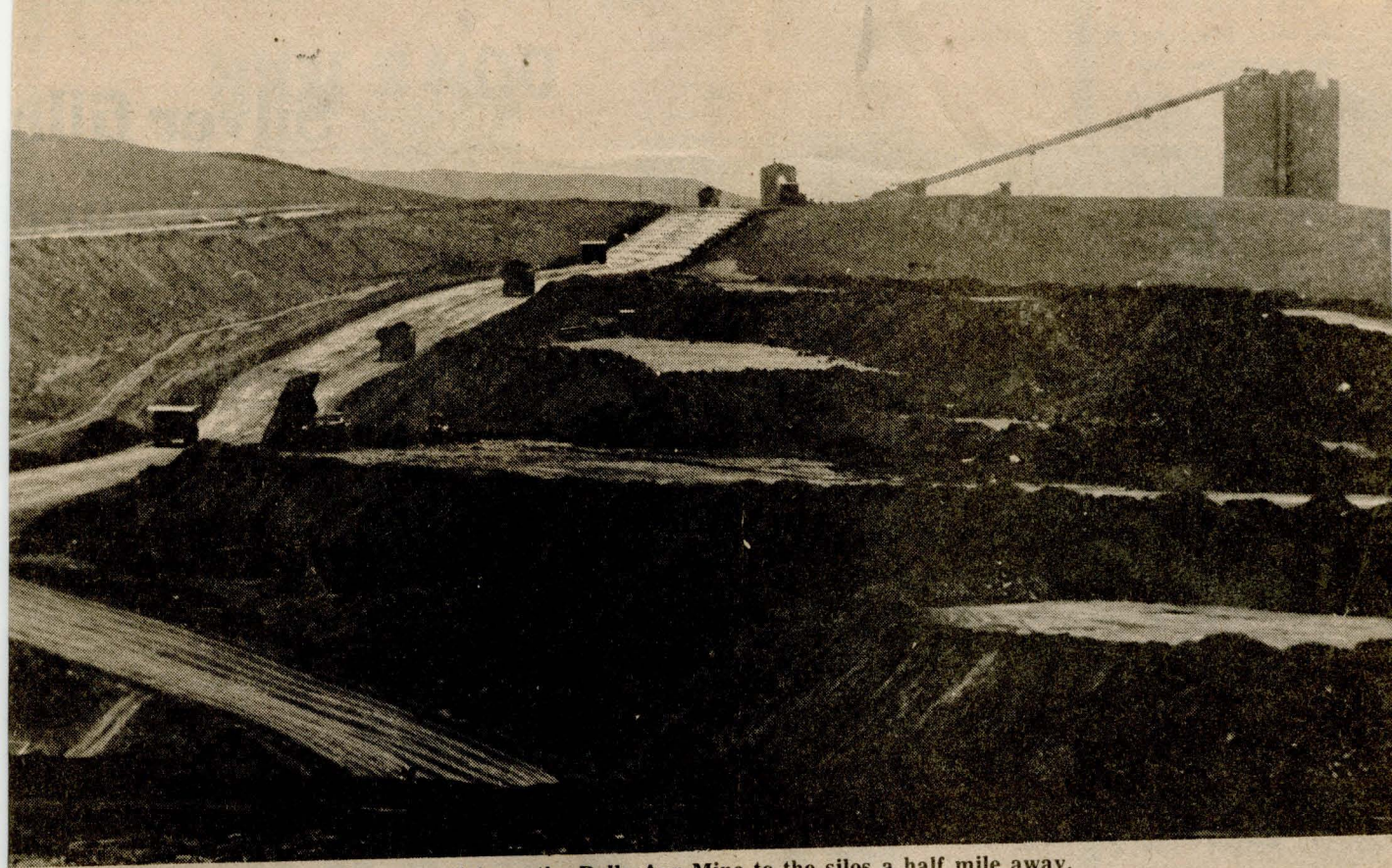
An empty train pulls under a silo at the Eagle Butte Mine.



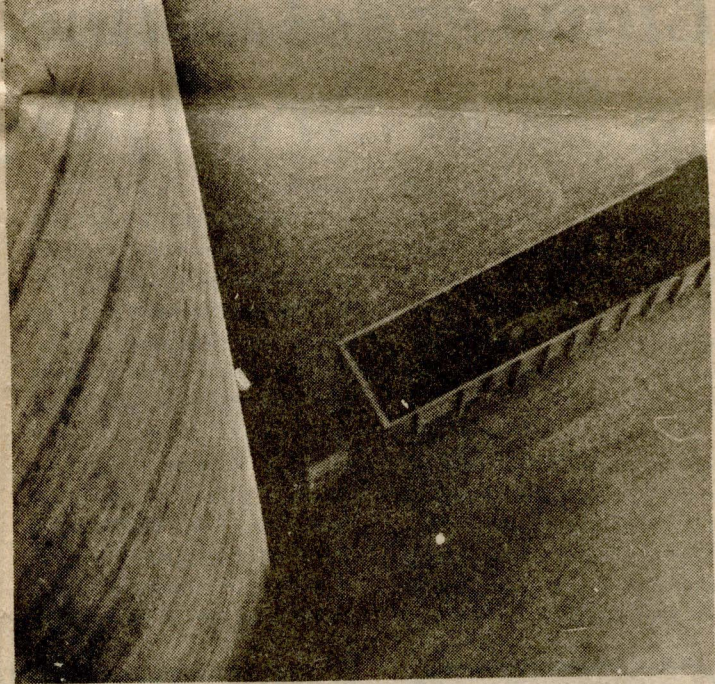
Empty train cars go into the silo...



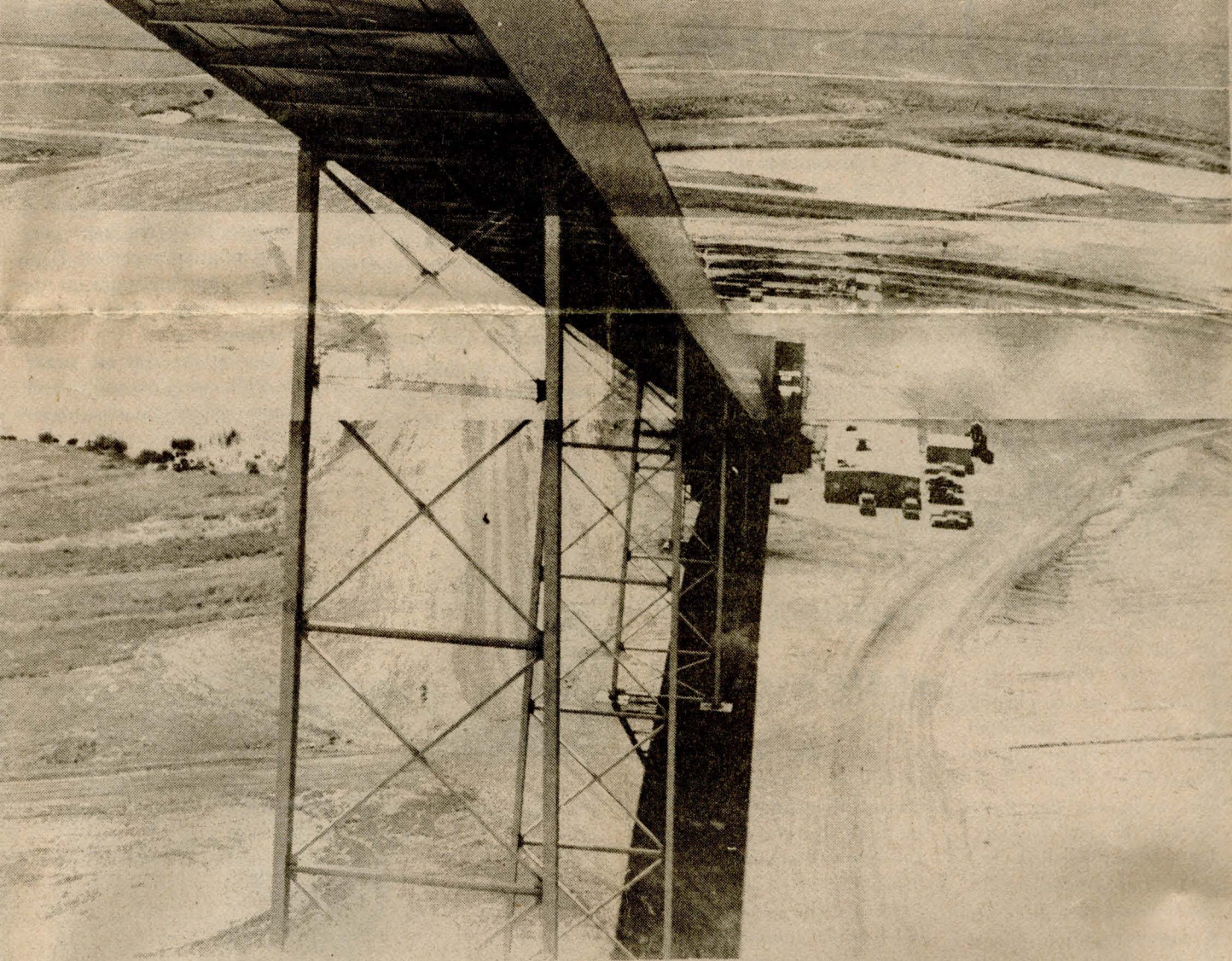
This crusher, 80 feet underground from where the massive dump trucks drop the coal, usually chops the coal into smaller pieces but its cover is off and it is shut down because of a mechanical problem.



Trucks carry coal from the Belle Ayr Mine to the silos a half mile away.



...while cars full of the black gold flow out the other side.



From atop the 200-foot tall silos, the photo looks down the long chute that surrounds the conveyor belt.



WYOMING

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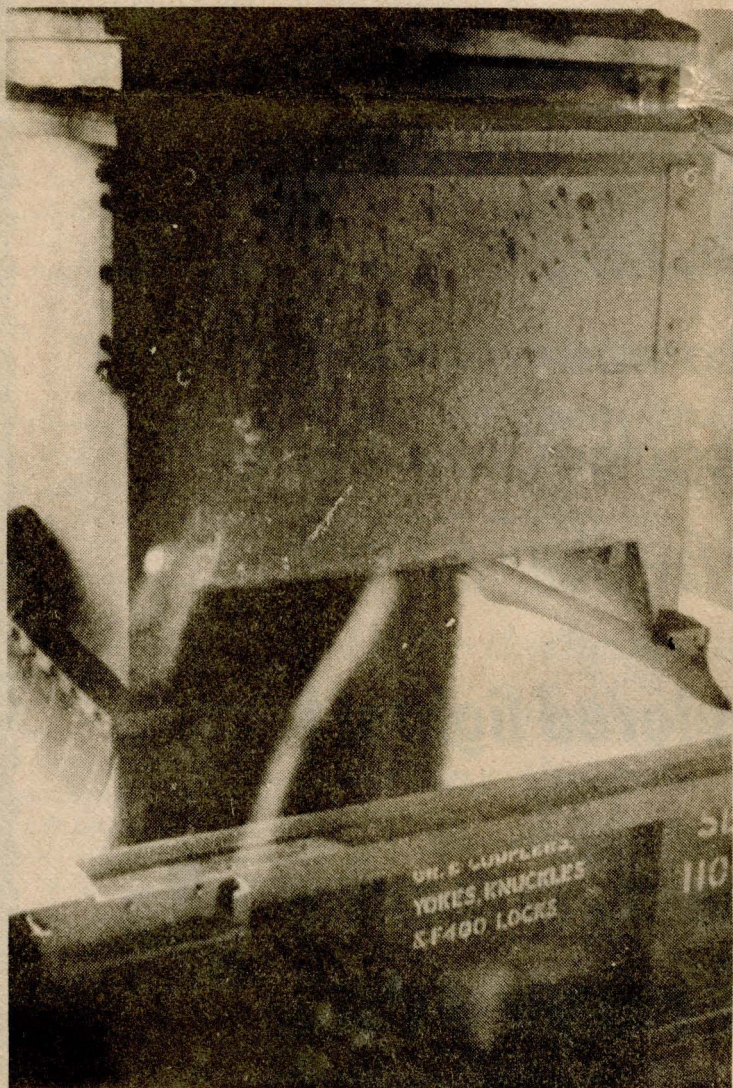
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Photos by

Steve Powell

Back at the Holiday Inn where we stayed, coal statues were for sale at the gift shop.



DR. E. CAMPBELL
YOKES, KNUCKLES
& F400 LOCKS

36
110

Inside a silo the coal drops out of a chute into an empty car



No-This is not a Mt. St. Helens shot but an explosion to loosen up the coal at the Eagle Butte Mine. Animals do not seem to be scared of the mine activity at all as this bunny (at right) was within 100 yards of the mine and almost got hit by a grader moments after this shot.

Medford official seeks city, county ban on coal

By MARK KIRCHMEIER
Correspondent, The Oregonian

MEDFORD — Rising fuel costs have encouraged some Jackson County residents to start using coal for home heating, but Ashland has banned its sale and Medford may follow.

"Coal is one of the dirtiest fuels you can burn for home heating, and I'm absolutely incensed that it's currently being sold in Jackson County," said Medford City Councilman John Hallet.

At the City Council's Thursday night meeting at 7:30, Hallet will lead a fight to ban the sale of coal for home heating use in Medford. Industrial firms already holding valid state air-pollution permits would be allowed to continue purchases. He said he would also ask the county commissioners to enact a similar ban.

The ordinance, which passed the

council 5-4 in its first reading Jan. 17, banned the sale of coal, rather than its usage for home heating, since the latter would be difficult to enforce, Hallet said.

"With the horrible air-quality problems we already have here, we'd be foolish to add to our problems by burning coal," he said.

The federal Environmental Protection Agency has identified the Rogue Valley as having the second-worst potential natural air inversion in the United States.

The inversion is caused by the Siskiyou and Cascade mountain ranges which surround the valley. The mountains prevent ventilation in the valley, causing an air inversion that keeps pollution locked in.

"With that inversion threat, there's no way in the world we could get the

sulfur dioxide from coal out of this valley," Hallet said. Besides causing health problems, he said, coal particulate impairs plant photosynthesis and could stifle tree growth in the area's nearby commercial forest.

All of which are contentions coal proponent Gerald Stroshane disputes.

"I think they're making a mountain out of a mole hill without any statistics to back themselves up," Stroshane said.

The owner of Coal Co. in Medford, Stroshane said U.S. Department of Energy research shows that woodstoves emit greater quantities of particulate and unburned hydrocarbons in coal per unit of energy. And, when improperly operated, woodstoves will emit "objectionable" quantities of carbon monoxide, he said.

"Granted, coal combustion does release more sulfur, but the coal I'm dis-

tributing here has only one-half of 1 percent sulfur content, vs. the 3 percent or higher sulfur content in coal commonly burned in the Eastern United States," he said.

Stroshane said high-sulfur coal is burned in the East because most of the low-sulfur coal deposits are west of the Mississippi River. Consequently, he said, allegations of environmental problems from coal use in the East aren't applicable to Medford because of the availability of low-sulfur coal in nearby Western states.

"We won't have high-sulfur particulate problems because we won't be selling high-sulfur content coal," he said.

And besides, he added, banning coal usage would be an infringement upon the rights of the individual to choose whatever heating source he prefers.

Hallet disagreed, saying, "We've

reached the point where the rights of the public — like the right to breathe — should be valued higher than an individual's business."

Stroshane countered: "Hallet hasn't presented one piece of evidence to support his statements, other than emotional statements, hearsay and opinion."

Stroshane said coal usage would curb rising electricity demands and stave off possible future brownouts and blackouts.

"One ton of coal equals 7,500 kilowatt hours of electricity," he said. "And if just half of the 20,000 wood and coal stove owners in the county started using coal regularly, we'd see a tremendous savings in electricity consumption."

Hallet said he'll ask the Jackson County commissioners to pass a similar coal-sale ban next week. He made an

Weeks city, county ban on coal sales

sulfur dioxide from coal out of this valley," Hallet said. Besides causing health problems, he said, coal particulate impairs plant photosynthesis and could stifle tree growth in the area's nearby commercial forest.

All of which are contentions coal proponent Gerald Strohane disputes.

"I think they're making a mountain out of a mole hill without any statistics to back themselves up," Strohane said.

The owner of Coal Co. in Medford, Strohane said U.S. Department of Energy research shows that woodstoves emit greater quantities of particulate and unburned hydrocarbons in coal per unit of energy. And, when improperly operated, woodstoves will emit "objectionable" quantities of carbon monoxide, he said.

"Granted, coal combustion does release more sulfur, but the coal I'm dis-

tributing here has only one-half of 1 percent sulfur content, vs. the 3 percent or higher sulfur content in coal commonly burned in the Eastern United States," he said.

Strohane said high-sulfur coal is burned in the East because most of the low-sulfur coal deposits are west of the Mississippi River. Consequently, he said, allegations of environmental problems from coal use in the East aren't applicable to Medford because of the availability of low-sulfur coal in nearby Western states.

"We won't have high-sulfur particulate problems because we won't be selling high-sulfur content coal," he said.

And besides, he added, banning coal usage would be an infringement upon the rights of the individual to choose whatever heating source he prefers.

Hallet disagreed, saying, "We've

reached the point where the rights of the public — like the right to breathe — should be valued higher than an individual's business."

Strohane countered: "Hallet hasn't presented one piece of evidence to support his statements, other than emotional statements, hearsay and opinion."

Strohane said coal usage would curb rising electricity demands and stave off possible future brownouts and blackouts.

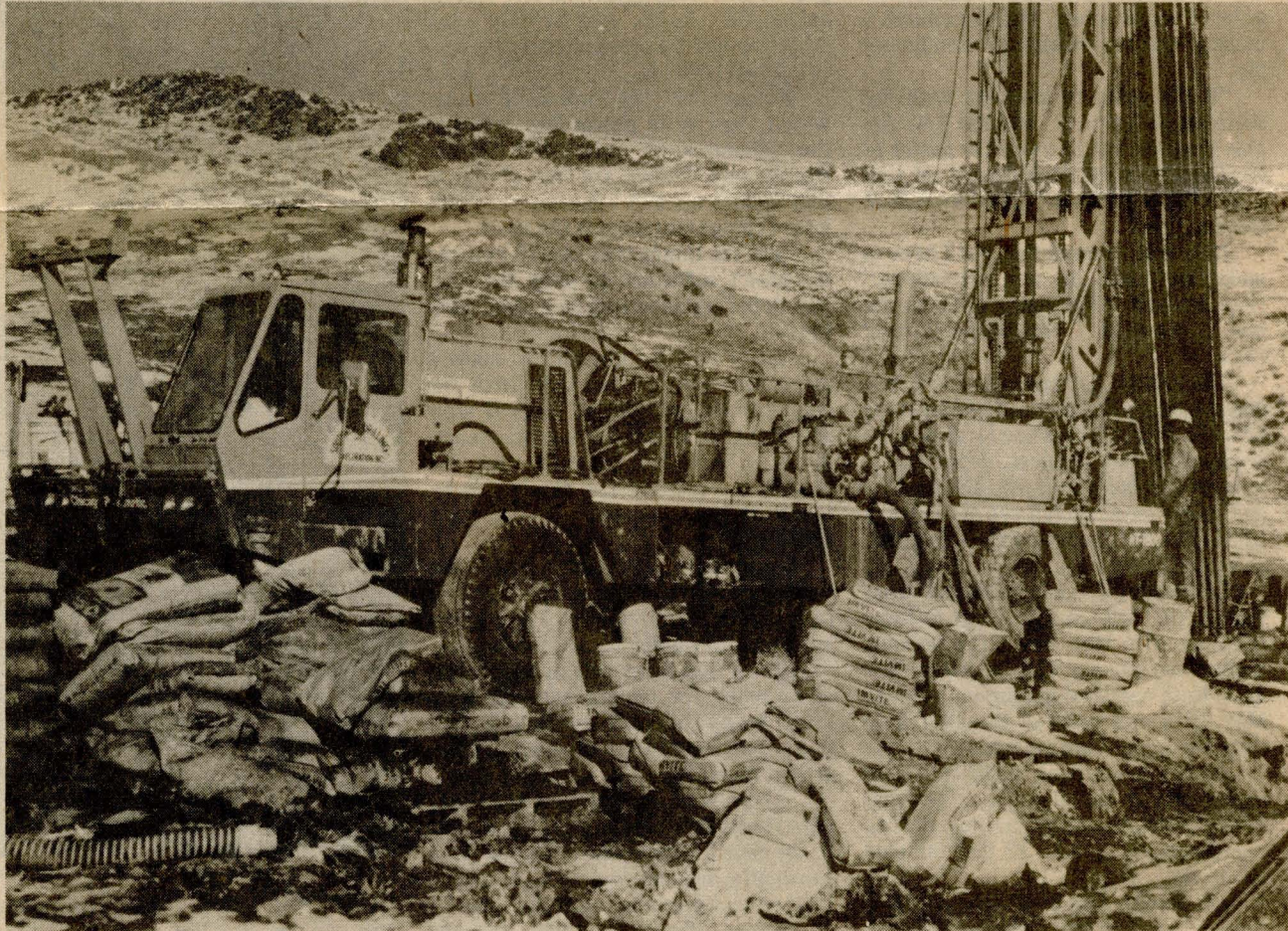
"One ton of coal equals 7,500 kilowatt hours of electricity," he said. "And if just half of the 20,000 wood and coal stove owners in the county started using coal regularly, we'd see a tremendous savings in electricity consumption."

Hallet said he'll ask the Jackson County commissioners to pass a similar coal-sale ban next week. He made an

effort to do so in January, but the commissioners tabled the request. Hallet also assisted air-quality advocates in Ashland where city officials adopted a coal-selling ban in January.

"But now, with the two largest cities in the county either having or preparing coal-sale bans, I don't think the commissioners can afford to avoid the issue much longer," he said.

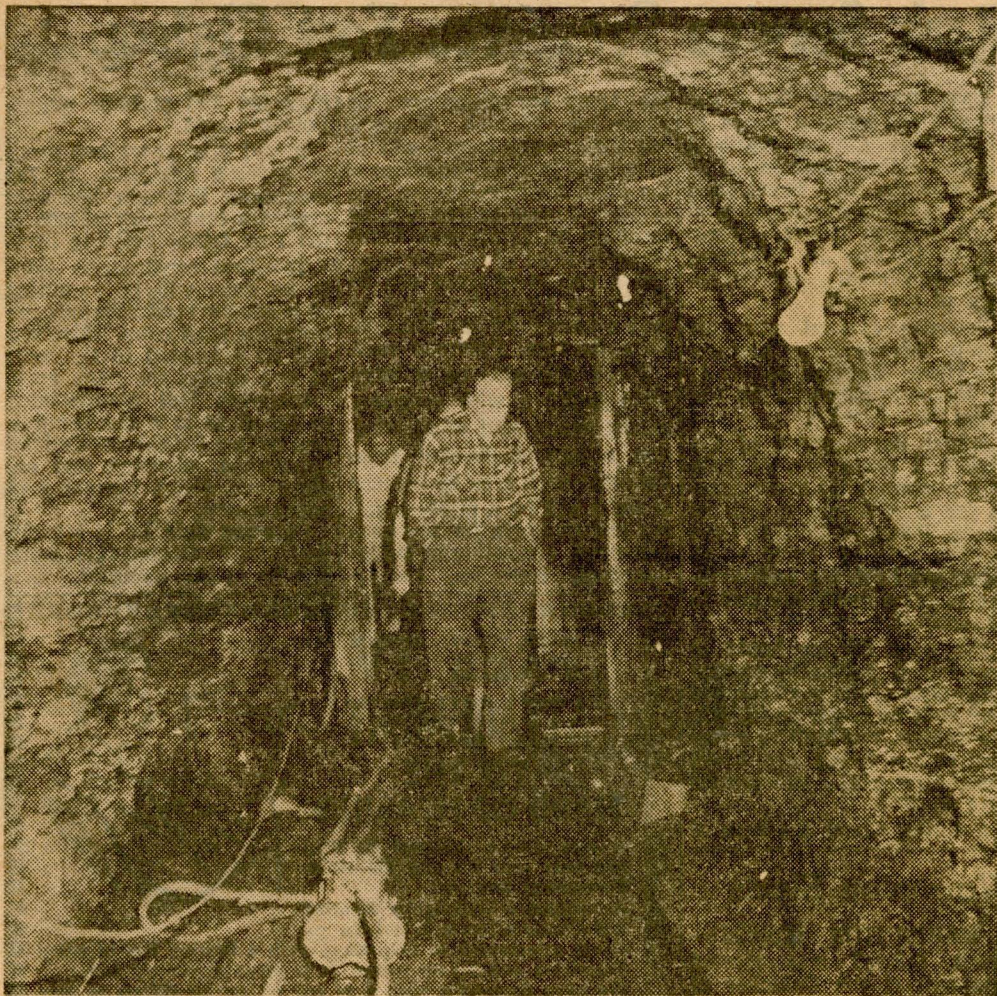
Hallet also will ask the City Council to enact an ordinance banning open burning in the city for nine months out of the year. If approved, the ordinance would allow open burning by permit only during the months of March, April and May. It would prohibit burning during the rest of the year. Currently, burning is allowed at any time during the year when air conditions allow for proper ventilation, he said.



Photos by CHRIS MOORE

DRILLING UNDER WAY — Chevron, in conjunction with Southwest Drilling and Resources, a Utah firm, has be-

gun drilling geothermal test wells near Vale. Chevron officials say drilling is "purely exploratory at this time."



Mining of a 60-ton sample of coal from Pacific Power and Light Co.'s Peacock Mine south of Powers at Eden Ridge has been completed by Pacific Power crews in preparation for shipment of the coal for a series of laboratory analyses. Slope mine enters Anderson coal bed high on the ridge, reaches 150 feet into the mountain to the working face of the coal. PP&L is investigating the coal for possible use to fuel a future mine-mouth electric plant for southwest Oregon.

Coal

EXTRACTED FROM
OREGON DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES BULLETIN 20,
"ANALYSES AND OTHER PROPERTIES OF OREGON COALS
AS RELATED TO THEIR UTILIZATION"

The Waldo Hills coal is similar in character to Coos Bay coal although somewhat higher in moisture content and consequently lower in heating value. The coal is noncoking but a char can be produced. A char is formed by low temperature (450° - 700° C.) carbonization of coal. Ordinarily a char must be briquetted to convert into a form suited to domestic use. The Waldo Hills coal has a high ash softening temperature - namely, 2710° F. The friability index of the coal is 37.6 percent which is high and indicates the coal will be reduced in size (fines will be formed) due to handling. The slacking index is 34.3 percent which is on the borderline between moderate and strongly slacking coal. Strong slacking of coal is an undesirable characteristic as it does not allow for satisfactory storage.

The attached data is based on mine samples. These samples usually contain a lower percentage of ash than can be attained in commercial shipments. This fact must be borne in mind when analyses of mine samples are interpreted in terms of delivered coal. The "as received" analysis represents the natural coal in the bed and therefore is useful in judging quality of commercial shipments, allowance being made for lower ash content of mine samples compared with delivered coal.

August 2

1960

Ralph -

Mrs. Keller of the Corporation Department called and gave me the following information in regard to your inquiry.

Present name: Mandrones Mining Co., Inc.

President and registered agent: T. G. Mandrones
Route 1, Box 337
Molalla, Oregon

Secretary-Treasurer: Marie Mandrones
(Address same as above)

An Oregon corporation in good standing.

J.

COAL RESEARCH, INC.

A NON - PROFIT ORGANIZATION DEDICATED TO
THE DEVELOPMENT OF PACIFIC NORTHWEST COAL

OLYMPIA, WASHINGTON

September 10, 1952

Dear Subscriber:

The Three attached drawings are supplied for the purpose
of being included in your copy of the:

PROCEEDINGS OF THE 4TH CONFERENCE OF COAL
RESEARCH INC., DECEMBER 7, 8, 1951.

These three pages: Figure No. 1, Figure No. 3, and Figure
No. 5, are referred to as slide No. 3, and slide No. 5, on
pages 17 and 18 of the proceedings.

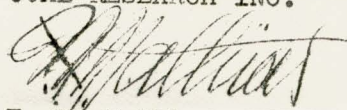
Figure No. 6 and Figure No. 7 which were bound as the
last two pages of the proceedings are referred to on
page 18.

The missing figures are photographs which cannot be
reproduced satisfactorily with equipment available.

We trust this will enable you to properly identify the
pages.

Very truly yours,

COAL RESEARCH INC.

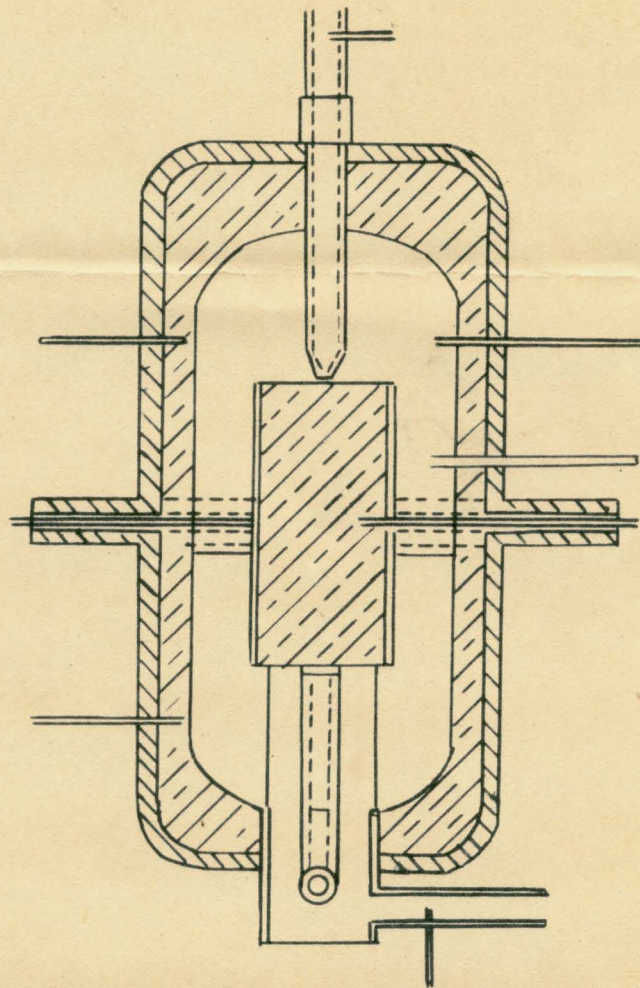


F. W. Mathias

Secretary

FWM:bl

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SEP 12 1952
STATE DEPT. OF GEOLOGY
& MINERAL IND.



CROSS SECTION OF REACTOR

FIGURE NO. 1

GASIFICATION UNIT

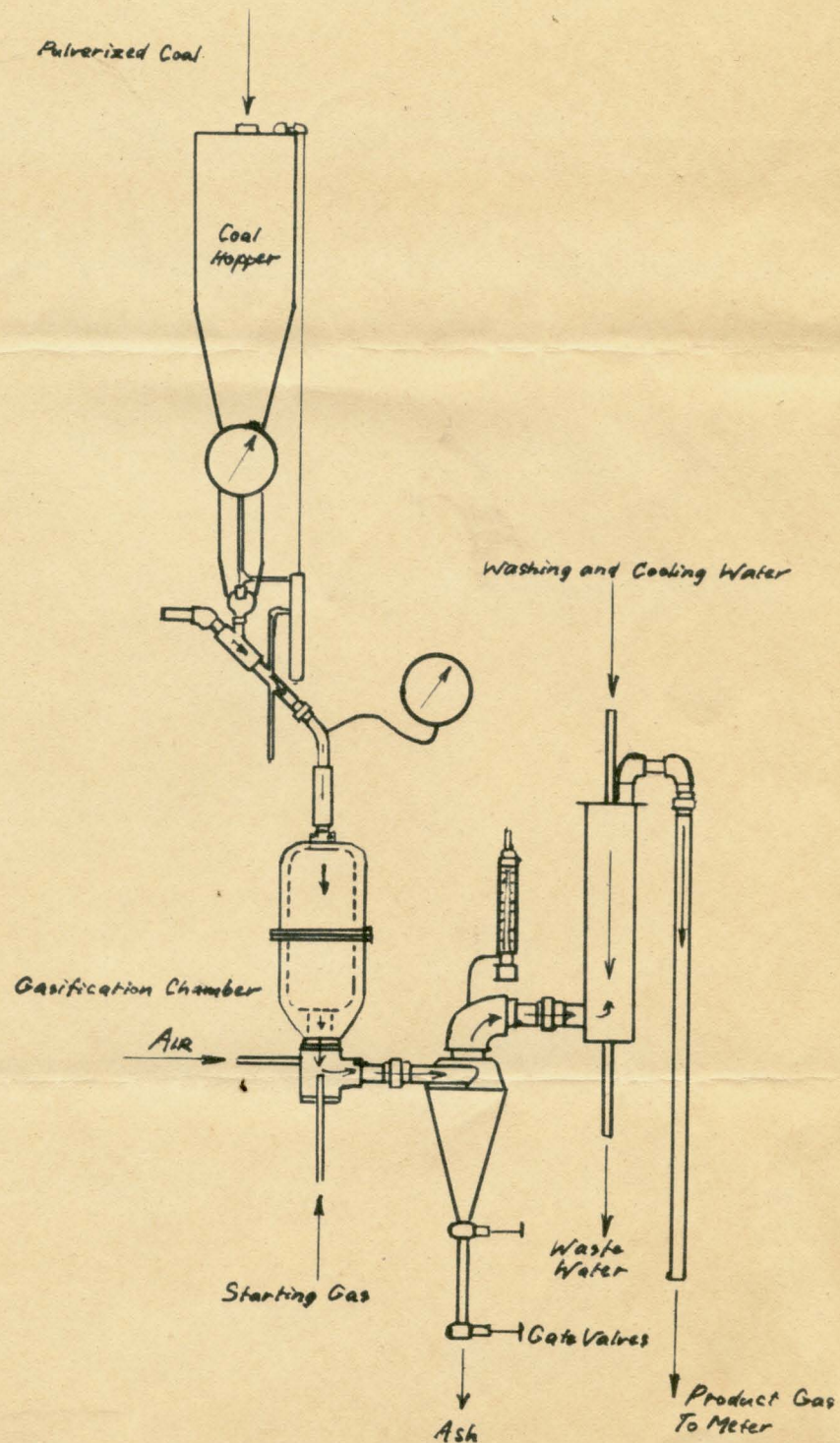


FIGURE No. 3

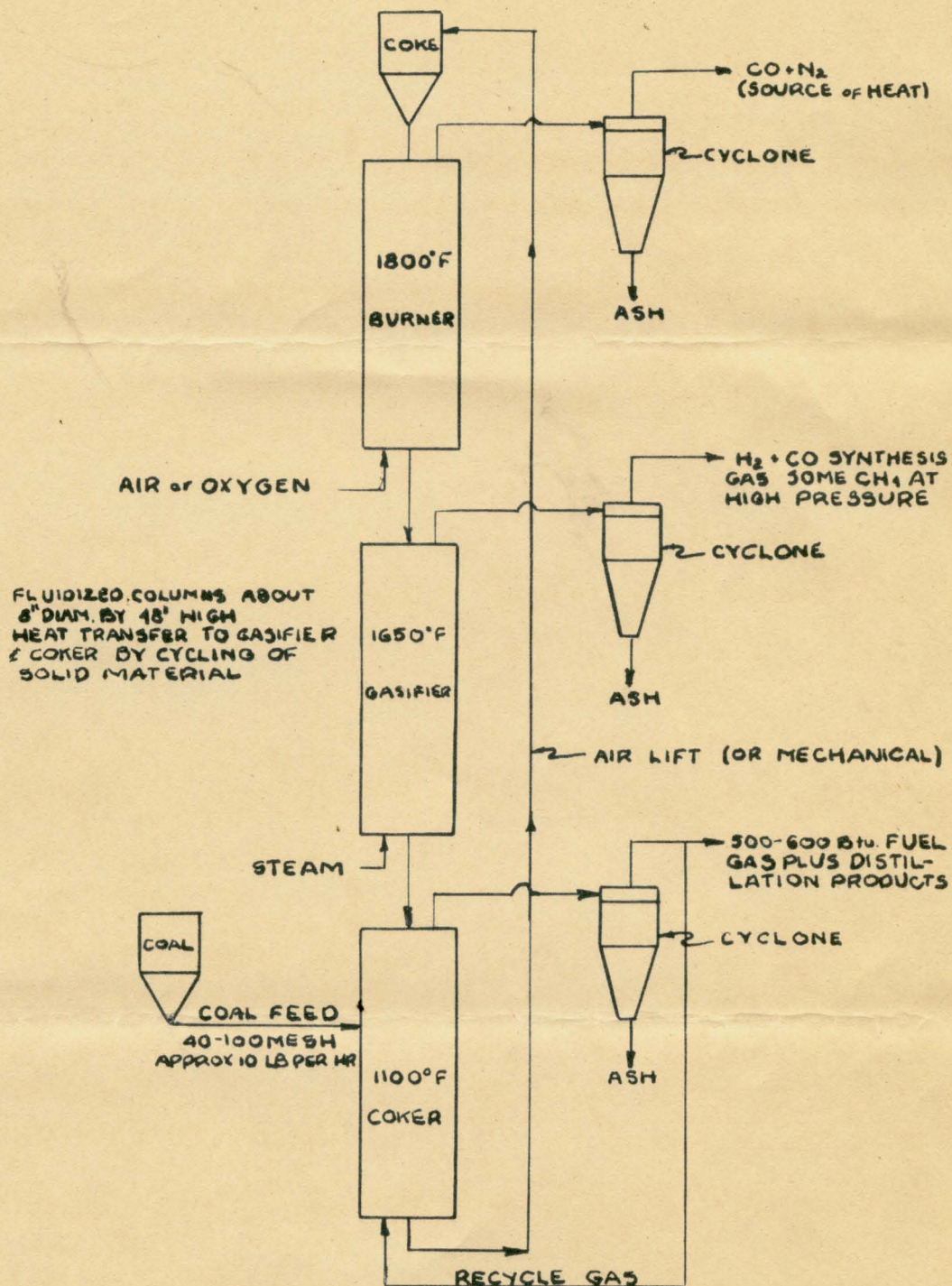


FIG. NO. 5



Shell Mining Company

P.O. Box 2906
Houston, TX 77252

Subsidiary Companies
R&F Coal Company
Triton Coal Company
Turris Coal Company

February 21, 1984

Dr. Donald A. Hull
State Geologist
Oregon Dept. of Geology and
Mineral Industries
1005 State Office Building
Portland, OR 97201

Dear Don,

Thank you again for the consideration and assistance you and your staff extended to us during our recent visit to Portland.

Shell's recently completed Coos Bay coal drilling program was conducted under option to the American Coal Company. All data acquired during this program became the property of American Coal at the time that we elected to withdraw from the project. I suggest that you contact William Shockley for access to this information.

Dr. Jerry Gray was very helpful, and we are looking forward to a return visit to Portland.

Sincerely,

J. E. Curl
Sr. Minerals Geologist
Shell Mining Company

JEC:PI
Mr. Willaim N. Shockley
American Coal Company
P.O. Box 11063
Coos Bay, Oregon 97420
(503) 269-7331

RECEIVED-PTID
FEB 27 1984
DEPT. OF GEOLOGY
P. BOX 1000 TACOMA

Enterprise, OR
Wallowa Co. Chieftain
(Cir. W. 3,886)

DEC 8 - 1983

Allen's P. C. B Est. 1888

Watershed gains planning nod

5018
By Elane Dickenson
of the Chieftain

The Wallowa County Planning Commission made quick affirmative decisions on four land use planning matters at its Tuesday, Nov. 29, meeting before becoming bogged down in discussion at the continuation of the Enterprise Watershed Protection Area hearing.

The planners eventually recommended approval of a revised version of protective measures for the watershed overlay zone, with boundaries reduced from those proposed the previous month. These measures, if approved by the Wallowa County Court, will be incorporated into the county's zoning ordinance and land use plan.

Utah International CUP

Among other requests approved was an application for a conditional use permit from Utah International to drill about 10 more exploratory holes in the Promise area to gain further information on the area's lignite resource, and also to drill a total of 6-10 additional holes at two different sites to conduct hydro-electric testing.

Peter Mattson, senior geologist for Utah International, explained that the two sites, located about a mile apart, are being considered as sites for bulk lignite samples in the future. The purpose of testing would be to determine what effect lignite excavation would have on ground water quality and quantity, ground water flow and other water-related information.

The holes would be drilled on land owned by Boise Cascade which is presently under lease option to Utah International. Last spring the coal company was granted a CUP to drill 46 holes at 36 sites on the 44,000 acre parcel to determine extent of the lignite resource. That part of the project was completed in September.

Mattson emphasized that in addition to UII's hydrologist, an independent hydrologist hired by Boise

Cascade would be on the site to conduct a separate evaluation of the data.

For the first time in the almost three years Utah International has been presenting CUP applications before the planning commission, there was no opposition expressed, verbal or oral.

After a short discussion, the planners voted 6-0 to approve the permit.

Non-conforming uses

Two requests for expansion of non-conforming uses were approved 6-0 by the planning commission. A non-conforming use is a use not allowed in a certain zone under the current zoning ordinance, but which was already established prior to the ordinance.

The Oregon Department of Fish and Wildlife applied for expansion of the Wallowa Fish Hatchery, located just outside Enterprise in the R-1 rural residential zone.

The expansion of existing facilities would include large ponds for steelhead spawning, egg hatching and smolt acclimation and additional structures for office space, truck and trailer storage and apartments

Continued on Page 3



DEPARTMENT of the INTERIOR

news release

RECEIVED-PTLD
OCT 4 - 1983

DEPT. OF GEOLOGY
& MINERAL INDUS.

OFFICE OF THE SECRETARY

For Release September 28, 1983

INTERIOR SECRETARY AWARDS RESEARCH CONTRACT TO COAHOMA COLLEGE TO STUDY MISSISSIPPI'S LIGNITE POTENTIAL; FIRST BLACK COLLEGE TO RECEIVE OSM FUNDS

In the first contract of its kind, Secretary James Watt has announced the awarding of an Interior Department contract for \$125,000 to an historically Black college, Coahoma College of Clarksdale, Miss., to determine the feasibility of developing the State's lignite coal resources.

"Geological studies have indicated that Mississippi has large lignite deposits," Watt said. "Through this contract, Coahoma College will study the effects mining could have in the State from a socio-economical and environmental aspect, and report to the Office of Surface Mining (OSM).

According to Ira J. Hutchison, Director of the Interior's Office of Historically Black College and University Programs (HBCUP), "this particular joint venture is a direct result of a HBCUP special campaign initiated by Secretary Watt to substantially increase the participation of Historically Black Colleges and Universities in Interior Department contract, procurement, education and training activities." Secretary Watt established the HBCUP in February after speaking before several predominately Black colleges and has made the Interior Department the first cabinet-level agency to establish an office to work exclusively with historically Black colleges and universities.

Coahoma College President, Dr. McKinley C. Martin, said he was pleased to join Secretary Watt and the Department of the Interior in this "important and highly unique research effort that has so much potential for Coahoma College and the Mississippi Delta."

"Mississippi has an approved coal mine regulatory program, but has no mining at this point," Watt said. "We think a premining study would be very beneficial, since it would look at all factors--employment and the social costs involved, the temporary loss of land until it is reclaimed, and the value of the lignite in terms of its resource."

(more)

Topics the study will address include:

- The amount and types of land with potential mineable deposits;
- Possible economic disruption caused by mining and the shifting of job types;
- Land potential for agriculture after mining;
- Impacts on surface and ground waters and;
- Vegetation, revegetation and final land uses if mining occurs.

An active lignite operation in the State could provide relief for this economically distressed area of Mississippi.

Interior Department officials will join Coahoma College President Martin at a contract signing ceremony scheduled for Wednesday, September 28, 1983, at 11:00 a.m. at Coahoma College.

The University of Mississippi will assist Coahoma as a subcontractor in the project. A final report of the study is to be completed for OSM by September 30, 1984.

x x x



STATE OF OREGON

INTEROFFICE MEMO

TO: Jerry Gray

DATE: November 17, 1983

FROM: Don

SUBJECT: Coal Resources

In recent years Kennicott and American Coal Company have conducted extensive work on the coal deposits in the Coos Bay area. Both companies appear to be losing interest in that area and it may be timely to ask them for copies of their recently developed data on the geology and reserves.

Please contact both of these companies with a friendly letter request for such information. We can be flexible on public disclosure as this type of information is probably considered to be a trade secret under Oregon law. The key individual to contact would be Rauno Perttu with Kennicott and Bill Schockley with American Coal Company.

DAH:ab

William N. Schockley
Director of Corporate Services
P.O. Box 1063
Coos Bay, Oregon 97420

Called Schockley 12/9/83 we can have the data if they move out. same day called Russel Ralls he said that he has all the data would like us to publish it. Jerry

*Rauno Perttu
(801) 322-7000*

*12/15/83
we could would be alright with Perttu for us to have the report.*

*must ask Calvin Calhoun
713-651-9261*

*2/19/83
Edward Calhoun
GCO Minerals Company
International Paper Corp
P.O. Box 4258
Houston, Texas 77210
(713) 651-9261*

The company is taking more of a look, may try to bring some one else in to the project. when they are done we can have the data.



Contains Recycled Materials



United States Department of the Interior

OFFICE OF SURFACE MINING

Reclamation and Enforcement

BROOKS TOWERS

1020 15TH STREET

DENVER, COLORADO 80202

RECEIVED
NOV 28 1983

DEPT OF GEOLOGY
& MINERAL

NOV 22 1983

Mr. Paul Lawson, Supervisor
Mined Land Reclamation Office
Department of Geology and Minerals Industries
1129 Southeast Santiam Road
Albany, Oregon 97821

Dear Mr. Lawson:

Reference is made to the letter dated May 31, 1983, from William R. Thomas regarding the update of the National Abandoned Mine Land (AML) inventory. In that letter, you were asked to update and change the existing inventory data base if appropriate. To date, you have not responded. If you do not intend to make any changes, please let us know.

A reference in the above letter was made to new and/or revised Problem Areas for the AML Inventory. If you know of any other areas with past abandoned coal mining, please advise us so we may include these areas into the AML Inventory. Some funding for reclamation projects in your state may be available for the coming fiscal years. However, the selected projects must be included in the inventory to receive funding. It is also important to include all areas which may require reclamation so that planning and design can be initiated now.

Please respond as soon as possible. Should you have any questions, please contact Dwight Araki at (303) 837-5918.

Sincerely,

Russell Price
Chief

Engineering Analysis Division

cc: Casper Field Office



STATE OF OREGON

INTEROFFICE MEMO

TO: John B., Howard B., and Jerry G.

DATE: November 25, 1983

FROM: Don H.

SUBJECT: Coal Project

On November 23, 1983 I discussed with Durga Rimal-BLM their needs to compile data on coal and lignite occurrences in three areas in northeastern Oregon. This work is part of their continuing evaluation of mineral resources on Federal lands in the state.

The BLM would like to retain us under an Intergovernmental Personal Act agreement to prepare a summary report of coal lignite resources in each of the areas. The work would include some field checking of published information. An index map showing each of the three areas is attached.

I indicated to Durga that we would definitely be interested in undertaking this work if it could be started on or before January 1984 and completed except for field checking by April, 1984.

I asked Durga to write us a letter soon to outline the scope of work involved in such a project including a statement of the expected product. It appears that the available monies would be \$5,000-16,000. The BLM probably would not fund the project at the high end of the range. After we receive this written statement of the expected product we can discuss the exact timing, publications and other aspects. Because of the nature of the contract mechanism, it would be necessary to assign a single individual to perform the work.

DAH:ab

Attachment.

STATE OF OREGON

--- WILLAMETTE BASE LINE
 --- WILLAMETTE MERIDIAN

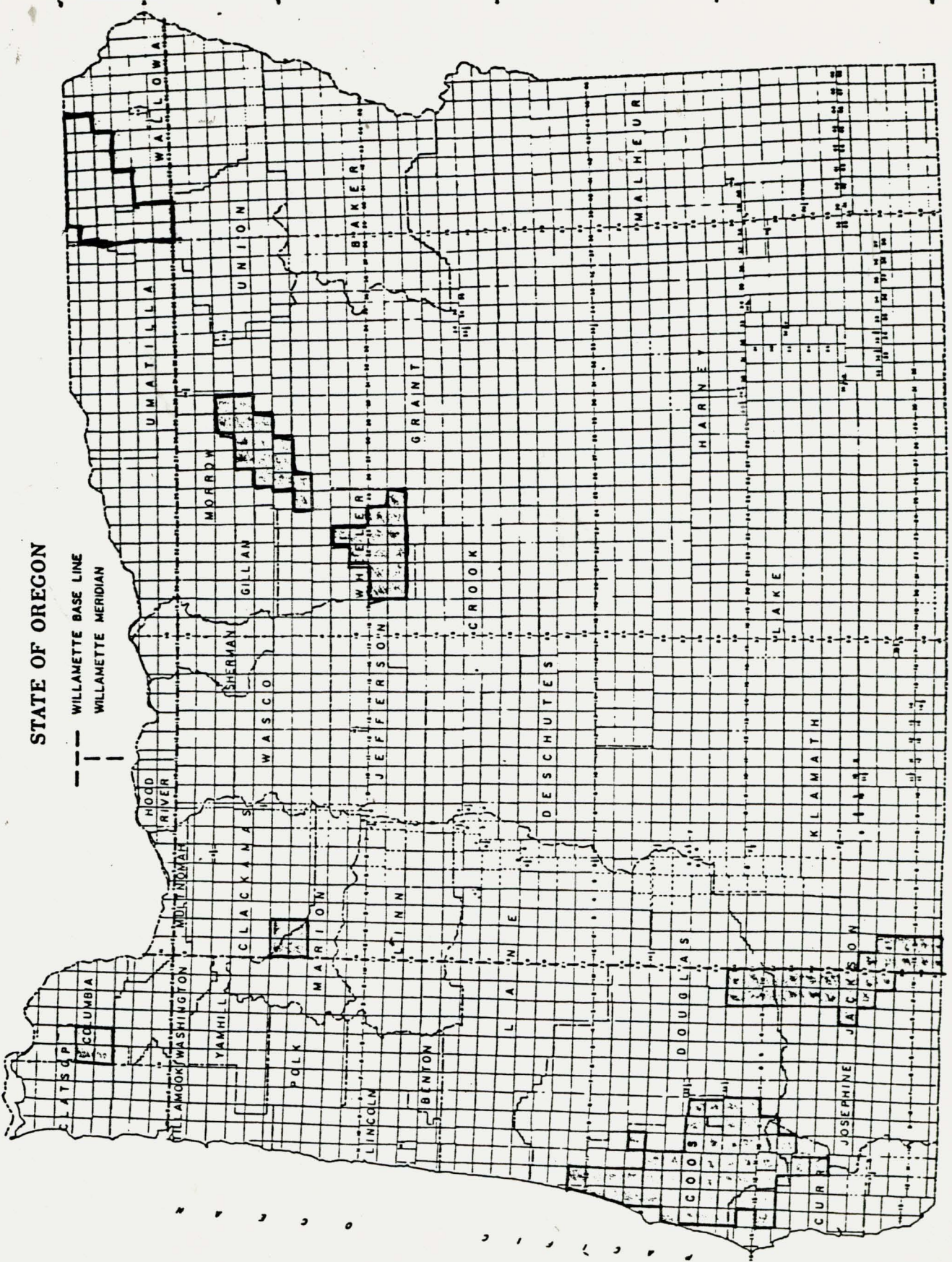


Fig. 1. Map of Oregon showing Township and Range System measured from the Willamette Base Line and Willamette Principal Meridian.



United States Department of the Interior

OFFICE OF SURFACE MINING

Reclamation and Enforcement

Casper Field Office

P.O. Box 1420

Mills, Wyoming 82644

December 13, 1983

RECEIVED-PTI
DEC 16 1983
DEPT. OF GEOLOGY
& MINERAL INDUSTRIES

Donald A. Hull, State Geologist
Department of Geology and Mineral Industries
Administrative Office
1005 State Office Building
Portland, Oregon 97201

Dear Mr. Hull:

After our visit last summer, your research proposal for studying landslides, hydrology, etc. in potential coal mine areas in Oregon was resubmitted to the Office of Surface Mining, Technical Services Division in Washington with our recommendation that it be approved. Approval has not been received to date.

We do not see an applicability of abandoned mine land funds for the activity addressed in your letter of December 8, 1983. These funds are intended for use in reclaiming abandoned coal mine lands in which mining took place prior to August 1977.

We still support your proposal. Thank you for your continued interest.

Sincerely,

E. E. Fide

for

William R. Thomas, Director
Casper Field Office

Coal

Coos Bay, OR
World
(Cir. D. 17,621)

Jerry G

OCT 9 1981

Allen's P. C. B Est. 1888

Coos board gets three proposals

Coal leases step closer

5018
COQUILLE — Three coal company lease proposals were given to the commissioners Thursday, and a fourth is expected today, moving Coos County one step closer to signing mineral rights agreements that could open up production of local coal resources.

The Houston, Texas-based, GCO Minerals, Pittsburgh, Pa.-based, Consolidation Coal Co. and Salt Lake City, Utah-based, Kennecott Minerals Co. had submitted lease offers to the commissioners by Thursday afternoon, according to county officials.

Canasia Coal Co. spokesman Bill Shockley said this morning his firm will turn in its proposal today, the deadline for entering offers for an initial commissioner review on Monday, according to Commissioner Bob Emmett.

The lease proposals will be used by county officials to determine whether they will negotiate leases on the county-owned coal rights or award the leases through public bidding, the commissioners agreed in September.

The commissioners decided last month to give the firms 30 days to put together offers and submit them to the county.

Revisions of the proposals or new offers will be accepted in the future, however, Commissioner Ed Stevenson explained Thursday.

The commissioners this week approved a resolution — at the request of the coal firms — to exempt the company offers from public inspection until leases are signed.

During September talks coal firm representatives objected to the commissioners' plans to place coal development deadlines in the leases. The commissioners argued the deadlines were necessary to speed up mining operations and the creation of local jobs.

Emmett said today the development time frames proposed by the companies will be "one of the big factors in whom we choose to lease to."

Other factors the commissioners will consider are royalty payment offers and land rental proposals, Emmett said.

Stevenson said Thursday he is pleased by a comment in a cover letter to the GCO Minerals proposal. The firm indicated it has speeded up the time frame for planned development of local coal mining operations, but had to reduce royalty offers.

"I think we have gotten people to understand we want quick development," the commissioner said.

A fifth firm, AMAX Coal Co., had been conducting coal explorations on private land near Riverton, but has not expressed interest in county mineral rights thus far.



United States Department of the Interior

OFFICE OF SURFACE MINING
Reclamation and Enforcement
WASHINGTON, D.C. 20240

RECEIVED

OCT 30 1978

DEPT OF GEOLOGY
& MINERAL INDUS.

October 26, 1978

Stanley Ausmus, Administrator
Mined Land Reclamation Office
Department of Geology and Mineral
Industries
1129 South Santiam Road
Albany, Oregon 97321

Dear Mr. Ausmus:

As you may know, the Fiscal Year 1979 appropriation has been enacted. It authorizes \$13.4 million for interim program grants and \$4 million for program development grants. This is a significant increase over Fiscal Year 1978 and represents a strong commitment to assisting the States in enforcing surface mining regulations. Since most of the grants that were approved in Fiscal Year 1978 expire at the end of November, we would appreciate receiving your applications for Fiscal Year 1979 grants by November 10. Assuming that the application is complete and there are no major problems, we should be able to process them so that there is no lapse in the funding in States with previously approved grant programs.

Our Regional Office, State and Federal Programs Divisions are now staffed and ready to assist you. Enclosed is a list of these people, their addresses and telephone numbers. From now on, all grant applications, amendments, and related information should be submitted directly to the appropriate Regional Office.

The following information should be submitted to the Regional Offices to request an interim program grant:

1. Three (3) copies of the short form application for nonconstruction programs as specified in the Office of Management and Budget Circular No. A-102.

2. Supplementary information concerning your base program, statutory provisions, and additional resources required to enforce the initial regulatory program as specified in the attached copy of Part 725.15 of the regulations published in the December 13, 1977, Federal Register (Vol. 42 No. 239). However, if you have previously submitted a summary of your permit, inspection, and enforcement program, your statutory provisions, and the opinion of your legal officer (Part 725.15(c) (1-4)), you need not resubmit them.

Please make sure that all necessary information is sufficiently detailed to enable us to have a complete understanding of what you plan to do in Fiscal Year 1979.

For a program development grant, the following information should be submitted:

1. Three (3) copies of the short form application for nonconstruction programs as specified in the Office of Management and Budget Circular No. A-102.
2. Supplementary information concerning the changes necessary to conform to the requirements of the Surface Mining Control and Reclamation Information Act of 1977 as specified in Part 740.18 of the attached regulations. Information previously submitted for a program development grant and which has not changed need not be resubmitted.

States requesting a cooperative agreement grant should include the information mentioned above for program development grants (unless previously submitted) plus:

1. A description of the specific operations which will be implemented during the period for which the grant is requested.
2. A description and justification of any major equipment (equipment which has a unit acquisition cost of \$1,000 or more) which you propose to acquire with the grant.

If this application is submitted at the same time as your program grant application, please keep this information separate as we plan to process it as a separate grant.

In order for us to obtain an idea of your financial requirements for this year's program, we plan to contact you prior to November 1. At that time, please give us your best available estimate on the amount of Federal funds you will be requesting for interim program grants, program development grants and cooperative grants.

We want to thank all of you for your cooperation. We realize that the past year has been a difficult one due to the establishment of this new program and our lack of adequate staff to assist you. Hopefully, from now on, we will be better able to relate to your needs. If there is any way in which we can help, please contact the appropriate Regional State program person or let us know.

Sincerely,



Carl C. Close
Assistant Director
State and Federal Programs

Enclosures

OSM Regional Listing
Section 725 of the Regulations
Section 740 of the Regulations

OFFICE OF SURFACE MINING

Region I - Charleston
State Programs contacts:

(304)-345-4550
Tom Morgan
David Hamilton

Address correspondence to:

Mr. Charles A. Beasley
Acting Regional Director
Office of Surface Mining
1st floor, Thomas Hill Bldg.
950 Kanawha Blvd. East
Charleston, West Virginia 25301

Region II - Knoxville
State Programs Contact:

(615)-637-8060 ex 276
Bob Harrison

Address correspondence to:

Mr. David Short
Regional Director
Office of Surface Mining
Farragut Building
530 Gay Street, S.W.
Knoxville, Tennessee 37902

Region III - Indianapolis
State Programs contacts:

(317)-269-2633
Lanay Moore
Jerry Ennis

Address correspondence to:

Mr. Edgar Imhoff
Regional Director
Office of Surface Mining
Federal Bldg. and Court House
Ohio and Pennsylvania Streets
Indianapolis, Indiana 46204

Region IV - Kansas City
State Programs contact:

(913)-374-5162
Jack Carson

Address correspondence to:

Mr. Raymond Lowrie
Regional Director
Office of Surface Mining
Room 1768
601 East 12th Street
Kansas City, Missouri 64106

Region V - Denver
State Programs contact:

(303)-837-5421
Herb Angle

Address correspondence to:

Mr. Donald Crane
Regional Director
Office of Surface Mining
Old Post Office-Downtown
1832 Stout Street
Denver, Colorado 80202

RULES AND REGULATIONS

in during the conference. The permittee shall be contacted by the Office of Hearings and Appeals prior to the conference to expedite the review. The Office shall consider all relevant information on the violation presented by the permittee and calculate either up or down on the proposed penalty. No information to which the permittee claims a right shall be considered as a reduction of a proposed assessment unless new facts warrant the imposition of a higher penalty, it shall be in the manner provided in this Part. Every change in an assessment shall be fully documented in the file including a written explanation of the reason the penalty was changed.

The time and place of the conference shall be posted at the Office of Hearings and Appeals, Mining Reclamation and Enforcement field office with jurisdiction over the mine at least 5 days prior to the conference. Any person shall have the right to attend the conference and par-

ticipate if the issues are resolved, the permittee shall be in writing and signed by the permittee and the representative of the Office. If payment is not received within 30 days, the Office may suspend the agreed upon amount as determined by the Secretary; or the Office may rescind the agreement and reinstate the original proposed assessment. Reduction of a proposed civil assessment of more than 25 percent or more than \$500 agreed to during the conference shall be approved by the Secretary or his designee before it is binding on the Secretary.

Request for hearing.

Within 30 days from receipt of the assessment, the permittee may request a hearing before the Office of Hearings and Appeals by filing a petition for full payment of the assessment to be held in escrow. The filing of a request for a hearing under § 723.17 of this Part shall suspend the running of the 30-day period for requesting a hearing. The suspension shall continue until the completion of the conference, which shall be within 60 days from the date of the conference. The permittee shall have 15 days after completion of the conference or after any disapproval by the Director or his designee under § 723.17(e), whichever occurs first, to request a public hearing.

The Office of Hearings and Appeals shall hold hearings and issues orders which terminate the petition procedures in 43 CFR Part 4. The Office of Hearings and Appeals may determine whether a violation occurred, determine the amount of the assessment, and use the point system and conclusions contained in this Part, except in which the Office has used the point system and conclusions pursuant to section 723.17 of this Part.

§ 723.19 Availability of records.

All records and files created or used in the assessment process under this Part shall be available for public inspection.

PART 725—REIMBURSEMENTS TO STATES

Sec.	
725.1	Scope.
725.2	Objectives.
725.3	Authority.
725.4	Responsibility.
725.5	Definitions.
725.11	Eligibility.
725.12	Coverage of grants.
725.13	Amount of grants.
725.14	Grant periods.
725.15	Grant application procedures.
725.16	Grant agreements.
725.17	Grant amendments.
725.18	Grant reduction and termination.
725.19	Audit.
725.20	Administrative procedures.
725.21	Allowable costs.
725.22	Financial management.
725.23	Reports.
725.24	Records.
725.25	Disclosure of information.

Authority: Secs. 201, 501, and 502, Pub. L. 95-87, 91 Stat. 445 (30 U.S.C. 1201).

§ 725.1 Scope.

This part sets forth policies and procedures for reimbursements to States for costs of enforcing the initial performance standards set forth in this chapter.

§ 725.2 Objectives.

The objectives of assistance under this part are:

- (a) To assist the States in meeting the increased costs of administering the initial performance standards.
- (b) To encourage the States to build strong reclamation and enforcement programs.

§ 725.3 Authority.

Section 502(e)(4) of the Surface Mining Control and Reclamation Act of 1977 (30 U.S.C. 1201) authorizes the Secretary to reimburse States for costs of enforcing the performance standards of the initial regulatory program.

§ 725.4 Responsibility.

(a) The Director shall administer the grant program for reimbursements to States for costs of enforcing performance standards during the initial regulatory program.

(b) The Regional Director of each of the Office regions shall receive, review, and approve grant applications under this part.

§ 725.5 Definitions.

As used in this Part, the following terms have the specified meanings:

Agency means the State agency designated by the Governor to receive and administer grants under this part.

Base program means the State program to regulate surface coal mining prior to August 3, 1977.

§ 725.11 Eligibility.

(a) **Assumption of responsibility.** To be eligible for a grant for reimbursements for the cost of enforcing performance standards during the initial regu-

latory program the State shall assume responsibility for enforcement of the initial regulatory program including the specific responsibilities identified under parts 710.4(b) and 720 of this chapter.

(b) **Designation of state agency.** In order to receive a grant for reimbursements for costs of enforcing performance standards during the initial regulatory program, the Governor of a State shall designate in writing one agency to submit grant applications, receive and administer grants under this part.

(c) **Periods covered by reimbursement grants.** An agency may apply for a reimbursement grant for any period during the initial regulatory program and for a reasonable start-up period beginning no earlier than August 3, 1977.

§ 725.12 Coverage of grants.

An agency may use grant money under this part to cover costs in excess of the base program for administering and enforcing the initial regulatory program. The Regional Director shall determine the base program from the State fiscal year budget in effect on August 3, 1977. Costs of the following items are eligible for reimbursement—

(a) Incorporation of the initial performance standards of this chapter in new permits issued by the State.

(b) Modification of existing permits to include the initial performance standards of this chapter.

(c) Additional inspections required to enforce the initial performance standards of this chapter.

(d) Inspections which are more detailed than inspections before the initial regulatory program.

(e) Responses to complaints related to the initial performance standards of this chapter.

(f) Enforcement actions required to secure compliance with the initial performance standards of this chapter.

(g) Additional administrative activities and supporting costs related to hiring additional inspectors and other personnel, revising permits, conducting inspections, preparing, copying and submitting reports required by part 720, and submitting applications for reimbursement grants under this part.

(h) Additional equipment required for inspection or support of inspections, as follows:

(1) An agency may charge any required item of equipment to the grant on a use basis in accordance with the principles set forth in Federal Management Circular 74-4, "Cost principles applicable to grants and contracts with State and local governments" (34 CFR 255).

(2) An agency may purchase equipment, excluding aircraft, with grant funds where cost recovery through use charges is prohibited, made impractical or more costly than purchase by existing State laws or procedures.

§ 725.13 Amount of grants.

The Office shall pay up to 100 percent of the costs to the agency in excess of the base program for administering and

enforcing the performance standards during the initial regulatory program.

§ 725.14 Grant periods.

The Regional Director shall approve a grant for a period of 1 year or less. The Regional Director shall fund a program that extends over more than 1 year by consecutive annual grants.

§ 725.15 Grant application procedures.

(a) The agency may submit its application (3 copies) for a grant to the Regional Director no later than March 1, 1978, for the first year and no later than September 1 of 1978 and each year thereafter.

(b) The agency shall use the short form application for nonconstruction programs and other procedures specified by Office of Management and Budget Circular No. A-102, "Uniform administrative requirements for grants-in-aid to State and local governments" (42 FR 45828). No preapplication is required.

(c) The agency shall include in Part III of the standard application sufficient information to enable the Regional Director to determine the agency's base program and increases over the base program eligible for reimbursement grants. The agency shall include the following information, plus any other relevant data:

(1) A summary of the State permit, inspection and enforcement program prior to the addition of the requirements of the Act of 1977, including—

(i) Permit requirements and the system for issuing permits;

(ii) Mining and reclamation plan requirements;

(iii) Coverage and frequency of inspections;

(iv) Actions required to enforce mining and reclamation requirements;

(v) The number and nature of responses to complaints; and

(vi) Other regulatory activities and related administrative functions affected by the performance standards of the initial regulatory program of this chapter.

(2) A statement of the number of employees and annual budget required to carry out functions described in paragraph (c) (1) of this section.

(3) A copy of all State constitutional, statutory and regulatory provisions applicable to the enforcement and administration of the initial regulatory program.

(4) An opinion of the State's chief legal officer as to whether and to what extent the State is authorized to enforce and administer the initial regulatory program.

(5) A statement of the additional work required to enforce the initial regulatory program for each of the agency activities described in paragraph (c) (1) of this section.

(6) The additional staff and funds required for the increased workload described in paragraph (c) (5) of this section.

(7) The number and types of major equipment (equipment with a unit acquisition cost of \$1000 or more) which

the State plans to purchase with grant funds.

(d) The Regional Director may waive the resubmission of information required by paragraphs (c) (2), (c) (3) and (c) (4) of this section in applications for a second or third reimbursement grant.

(e) The Regional Director shall notify the agency within thirty days after the receipt of a complete application, or as soon thereafter as possible, whether it is or is not approved. If the application is not approved, the Regional Director shall set forth in writing the reasons it is not approved, and may propose modifications if appropriate. The agency may resubmit the application within thirty days. The Regional Director shall process the revised application as an original application.

§ 725.16 Grant agreement.

(a) If a Regional Director approves an agency's grant application, the Regional Director shall prepare a grant agreement which includes—

(1) The approved scope of the program to be covered by the grant, including functions to be accomplished by other agencies.

(2) The base program budget and estimated costs in excess of the base program.

(3) The amount of the grant.

(4) Commencement and completion dates for the segment of the program covered by this grant and for major phases of the program to be completed during the grant period.

(5) Permissible transfers of funds to other State agencies.

(b) The Regional Director shall limit grants under this part to the additional costs to an agency for administering and enforcing the initial regulatory program.

(c) The Regional Director may permit the agency to assign functions and funds to other State agencies. The Regional Director shall require the grantee agency to retain responsibility for overall administration of the grant, including use of funds, accomplishment of functions and reporting.

(d) Except as may be provided by the grant agreement, costs may not be incurred prior to the execution of the agreement.

(e) The Regional Director shall transmit four copies of the grant agreement, by certified mail, return receipt requested, to the agency for signature. The agency shall execute the grant agreement and return all copies within 3 calendar weeks after receipt, or within an extension of such time that may be granted by the Regional Director.

(f) The Regional Director shall sign the grant agreement upon its return from the agency and return one copy to the agency. The grant is effective and constitutes an obligation of Federal funds in the amount and for the purposes stated in the grant agreement at the time the Regional Director signs the agreement.

(g) Neither the approval of a program nor the award of any grant will commit or obligate the United States to award any continuation grant or to enter into any grant amendment, including grant increases to cover cost overruns.

§ 725.17 Grant amendments.

(a) A grant amendment is a written alteration to the grant amount, grant terms or conditions, budget or period, or other administrative, technical, or financial agreement whether accomplished on the initiative of the agency or the Regional Director or by mutual action of the agency and the Regional Director.

(b) The agency shall promptly notify the Regional Director in writing by certified mail, return receipt requested, of events or proposed changes which may require a grant amendment, such as—

(1) Rebudgeting;

(2) Changes which may affect the approved scope or objective of a program; or

(3) Changes which may increase or substantially decrease the total cost of a program.

(c) The Regional Director shall approve or disapprove each proposed amendment within thirty days of receipt, or as soon thereafter as possible, and shall notify the agency in writing of the approval or disapproval of the amendment.

(d) The grant amendment establishes the effective date of the action. If no date is specified in the grant amendment then the date the Regional Director signs the amendment will be the effective date of the action.

§ 725.18 Grant reduction and termination.

(a) *Conditions for reduction or termination.* (1) If an agency fails to carry out its responsibilities pursuant to § 710.4 (b) and part 720 of this chapter the Regional Director shall reduce or terminate the grant. (2) If an agency violates the terms of a grant agreement, the Regional Director may reduce or terminate the grant. (3) If an agency fails to enforce the initial performance standards of this chapter the Regional Director may reduce or terminate the grant. (4) If an agency is not in compliance with the following nondiscrimination provisions, the Regional Director shall terminate the grant—

(i) Title VI of the Civil Rights Act of 1964 (78 Stat. 252), Nondiscrimination in Federally Assisted Programs, which provides that no person in the United States shall on the grounds of race, color or national origin be excluded from participation in, be denied the benefits of or be subjected to discrimination under any program or activity receiving Federal financial assistance, and the implementing regulations at 43 CFR 17.

(ii) Executive Order 11246, as amended by Executive Order 11375, Equal Employment Opportunity, requiring that employees or applicants for employment not be discriminated against because of race, creed, color, sex or national origin,

and the implementing regulations at 41 CFR 60.

(III) Section 504 of the Rehabilitation Act of 1973, as amended by Executive Order 11914, Nondiscrimination With Respect to the Handicapped in Federally Assisted Programs.

(5) If an agency fails to enforce the financial interest provisions of part 705 of this chapter the Director shall terminate the grant.

(6) If an agency fails to submit reports required by this part or Parts 705 and 720 of this chapter the Director shall reduce or terminate the grant.

(b) *Grant reduction and termination procedures.* (1) The Regional Director shall give at least ten days written notice to the agency by certified mail, return receipt requested, of intent to reduce or terminate a grant. The Regional Director shall include in the notice the reasons for the proposed action and the proposed effective date of the action.

(2) The Regional Director shall afford the agency opportunity for consultation and remedial action prior to reducing or terminating a grant.

(3) The Regional Director shall notify the agency of the termination or reduction of the grant in writing by certified mail, return receipt requested.

(4) Upon termination the agency shall refund or credit to the United States that portion of the grant money paid or owed to the agency and allocated to the terminated portion of the grant. However any portion of the grant that is required to meet commitments made prior to the effective date of termination shall be retained by the agency.

(5) Upon termination, the agency shall reduce the amount of outstanding commitments insofar as possible and report to the Regional Director the uncommitted balance of funds awarded under the grant.

(6) Upon notification of intent to terminate, the agency shall not make any new commitments without the approval of the Regional Director.

(7) The Regional Director may allow termination costs as determined by applicable Federal cost principles listed in Federal Management Circular 74-4.

(c) *Appeals.* (1) An Agency may appeal the Regional Director's decision to reduce or terminate a grant to the Director within 30 days of the Regional Director's decision.

(2) An Agency shall include in an appeal—

(i) The decision being appealed, and

(ii) The facts which the Agency believes justify a reversal or modification of the decision.

(3) The Director shall act on appeals within 30 days of their receipt, or as soon thereafter as possible.

§ 725.19 Audit.

The Office of Audit and Investigations, U.S. Department of the Interior is responsible for audits of reimbursement grants and will arrange for audits as appropriate.

§ 725.20 Administrative procedures.

The Agency shall follow administrative procedures governing accounting, payment, property, and related requirements contained in Office of Management and Budget Circular No. A-102.

§ 725.21 Allowable costs.

(a) The Regional Director shall determine costs which may be reimbursed according to Federal Management Circular 74-4.

(b) Costs must be in conformity with any limitations, conditions, or exclusions set forth in the grant agreement or this part.

(c) Costs must be allocated to the grant to the extent of benefit properly attributable to the period covered by the grant.

(d) Costs must not be allocated to or included as a cost of any other Federally assisted program.

§ 725.22 Financial management.

(a) The agency shall account for grant funds in accordance with the requirements of Office of Management and Budget Circular A-102. An agency shall use generally accepted accounting principles and practices, consistently applied. Accounting for grant funds must be accurate and current.

(b) The agency shall adequately safeguard all funds, property, and other assets and shall assure that they are used solely for authorized purposes.

(c) The agency shall provide a comparison of actual amounts spent with budgeted amounts for each grant.

(d) When advances are made by a letter-of-credit method, the agency shall make drawdowns from the U.S. Treasury through its commercial bank as closely as possible to the time of making the disbursements.

(e) The agency shall support accounting records by source documentation.

(f) The agency shall design a systematic method to assure timely and appropriate resolution of audit findings and recommendations.

§ 725.23 Reports.

(a) The agency shall, for each grant made under this part, submit annually to the Regional Director a Financial Status Report in accordance with Office of Management and Budget Circular A-102, Attachment II. This report shall be accompanied by a performance report prepared according to Attachment I of OMB Circular A-102.

(b) The Regional Director shall require through the grant agreement that annual reports also provide the relation of financial information to performance and productivity data, including unit cost information.

§ 725.24 Records.

(a) The agency shall maintain complete records in accordance with Office of Management and Budget Circular No. A-102. This includes books, records, documents, maps, and other evidence and accounting procedures and practices, sufficient to reflect properly—

(1) The amount, receipt, and disposition by the agency of all assistance received for the program.

(2) The total costs of the program, including all direct and indirect costs whatever nature incurred for the performance of the program for which the grant has been awarded.

(b) Subgrantees and contractors, including contractors for professional services, shall maintain books, documents, papers, maps, and records which are pertinent to a specific grant award.

(c) The agency's records and the records of its subgrantees and contractors including professional services contracts shall be subject at all reasonable times to inspection, reproduction, copying, and audit by the Office, the Department of the Interior, the Comptroller General of the United States, the Department of Labor, or any authorized representative.

(d) For completed or terminated grants, the agency, subgrantees and contractors shall preserve and make the records available to the Office, the Department of the Interior, the Comptroller General of the United States, Department of Labor, or any authorized representative pursuant to OMB Circular A-102.

§ 725.25 Disclosure of information.

All grant applications received by the Regional Director constitute agency records. As such, their release may be requested by any member of the public under the Freedom of Information Act (U.S.C. 552), and shall be disclosed unless exempt from disclosure under U.S.C. 552(b).

PART 740—GRANTS FOR PROGRAM DEVELOPMENT AND ADMINISTRATIVE AND ENFORCEMENT

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740.27	Disclosure of information.

AUTHORITY: Secs. 201, 501, and 502, Pub. 95-87, 91 Stat. 445 (30 U.S.C. 1201).

§ 740.1 Scope.

This part sets forth policies and procedures for grants to States to—

(a) Develop State programs for regulation and control of surface mining and reclamation operations;

(b) Administer and enforce State programs for the regulation and control of surface coal mining and reclamation operations; and

(c) Administer cooperative agreements for State regulation of surface coal mining and reclamation operations on Federal lands.

§ 740.2 Objectives.

The objectives of assistance under this part are—

(a) To assist the States in meeting the costs of administering reclamation and enforcement programs consistent with the Act;

(b) To encourage the States to build strong reclamation and enforcement programs; and

(c) To encourage the States to assume jurisdiction over the regulation of surface coal mining and reclamation operations.

§ 740.3 Authority.

Section 705 of the Surface Mining Control and Reclamation Act of 1977 (30 U.S.C. 1201) authorizes the Secretary to make grants to States for developing, administering, and enforcing State regulatory programs.

§ 740.4 Responsibility.

(a) The Director shall administer the State grant program for the development, administration, and enforcement of State programs under this part.

(b) The Regional Director of each of the Office regions shall receive, review, and approve grant applications under this part.

§ 740.5 Definitions.

As used in this part, agency means the State agency designated by the Governor to receive and administer grants under this part.

§ 740.11 Eligibility for program development grants.

(a) *Designation of State agency.* In order to receive a program development grant the Governor of a State shall designate in writing to the Director one agency to submit the grant applications, and to receive and administer the grants.

(b) *Periods covered by program development grants.* (1) An agency may apply for a program development grant for any period for which it does not have an approved State program. This is limited to periods during—

(i) The initial development of a State program;

(ii) The revision of a State program which has been disapproved by the Secretary; and

(iii) The revision of a State program from which the Secretary has withdrawn his approval.

(2) The Director shall limit grants for (b)(1)(i) and (iii) of this paragraph to the costs of making revisions necessary to secure approval of the State programs.

(3) The Director shall not approve grants for costs incurred prior to August 2, 1977.

(c) *Limits on duration of grants.* (1) The Regional Director shall limit a

State's program development grants to a maximum period of 18 months unless at least one of the following conditions exists—

(i) The 18-month period is insufficient because new legislation is required.

(ii) The State requests extension of the grant period, for a reason found appropriate by the Regional Director.

(2) If one of the two conditions in this paragraph exists, the Director may extend the grant period to a maximum of 24 months.

§ 740.12 Eligibility for administration and enforcement grants.

(a) *Approved program required.* In order to receive a grant to administer and enforce a State program, the State must have an approved State regulatory program.

(b) *Designation of a State agency.* In order to receive a grant to administer and enforce a State program, the Governor must designate a single agency to receive and administer administration and enforcement grants, including cooperative agreement grants described in section 740.16 of this part.

(c) *Nondiscrimination.* The agency shall monitor the compliance activity of its subrecipients with respect to the nondiscrimination provisions in section 740.21(a)(4) of this part.

§ 740.13 Submission of estimated annual budgets and allocation of funds.

(a) *Program development grants.* As early as possible prior to the Federal fiscal year in which the program development grant will be requested an agency shall submit to the Regional Director a summary of its program development budget. The Director will use these budget summaries in preparing the Federal budget estimates which he is required to submit.

(b) *Administration and enforcement grants.* (1) For the fiscal years beginning on and after October 1, 1980, the agency shall submit to the Regional Director 18 months prior to the Federal fiscal year for which the grant will be requested, a projection of its regulatory program budget, including the costs of administering State-Federal cooperative agreements pursuant to § 211.75 of this title, and any aircraft which the agency proposes to acquire.

(2) For the fiscal year beginning October 1, 1979, and each year thereafter, the agency shall submit to the Regional Director a current regulatory program budget 3 months prior to the beginning of the Federal fiscal year for which a grant will be requested.

(c) *Allocation of funds.* (1) The Director shall allocate to the agencies the full amount requested and approved in the States' revised or actual budgets provided that the amount available in the Federal budget is sufficient.

(2) If the funds available to the Director for grants are insufficient to cover the total grant needs, including cooperative agreement grants, the Director shall allocate the funds available according to the proportion of each agency's budget to the total of all agencies' budgets.

(3) Allocation of a specific amount of funds to an agency does not assure that grants for that amount will be approved. Each agency must apply for and secure approval of grants in accordance with the requirements of this part.

(4) On July 1 of each year the Director shall reallocate any funds which are not requested by agencies as of June 1 of that year. Such funds shall be allocated only to those agencies which have received less than the allowable percentage of their eligible costs.

(5) Agencies which are allocated additional funds on July 1 may have until August 15 to submit new or revised grant applications for the additional amounts.

§ 740.14 Coverage of grants.

(a) *Program development grants.* An agency may use grant money under this part to cover the costs of developing—

(1) New or revised State laws, regulations, and procedures;

(2) Revised or expanded inspection systems;

(3) Training programs for inspectors and other personnel;

(4) New or revised organizational structures;

(5) Information and communications systems, including data processing systems;

(6) A planning process including a data base and information system to receive and act upon petitions to designate lands unsuitable for mining;

(7) An application for the initial administration and enforcement grant to the extent not covered by indirect costs or other cost items;

(8) Other components necessary to obtain an approved State program, as mutually agreed upon by the Regional Director and the agency receiving a grant.

(b) *Administration and enforcement grants.* An agency may use grant money under this part to cover the costs of—

(1) Administering an approved State regulatory program;

(2) Providing supporting and administrative services required by the State regulatory program;

(3) Providing equipment required for the regulatory program and its support, either through use charges or direct purchase. Equipment charges and purchases will be allowed in accordance with Federal Management Circular 74-4, "Cost principles applicable to grants and contracts with State and local governments," (34 CFR 255) and Office of Management and Budget Circular No. A-102, "Uniform administrative requirements for grants-in-aid to State and local governments" (42 FR 45828).

§ 740.15 Amount of grants.

(a) *Amount of program development grants.* (1) For the first year of a program development grant the Regional Director shall approve grants for not more than 80 percent of the total of agreed upon costs pursuant to Section 740.14(a).

(2) For the second year of a program development grant the Regional Director

shall approve grants for not more than 60 percent of the total agreed upon costs pursuant to Section 740.14(a).

(b) *Amount of administration and enforcement grants.* (1) If no program development grant has been awarded, the Regional Director may approve the first administration and enforcement grant for not more than 80 percent of the agreed upon costs for administration and enforcement of the program.

(2) If a program development grant has been awarded for only one year, the Regional Director may approve an administration and enforcement grant for 60 percent of the agreed upon costs for administration and enforcement of the program.

(3) If a program development grant has been awarded for more than 1 year but less than 2 years, the Regional Director may approve the first administration and enforcement grant for 60 percent for that proportion remaining in the second year and for 50 percent for the proportion allocated to the third year.

(4) For the third and following years, the Regional Director may approve administration and enforcement grants for 50 percent of the agreed upon costs for administration and enforcement of the program.

§ 740.16 Special provisions for states with cooperative agreements.

(a) *Eligibility.* The Director may approve additional grants to States which have cooperative agreements pursuant to section 211.75 of this title for State regulation of surface coal mining and reclamation operations on Federal lands. This includes—

(1) States which had cooperative agreements on August 3, 1977, which have been modified to comply with the initial regulatory program; and

(2) States which enter into cooperative agreements following approval of the State's regulatory program.

(b) *Coverage of grants.* An agency may use cooperative agreements grants to carry out the functions assigned to the State under the agreement.

(c) *Amount of grants.* The Regional Director may approve grants for the approximate amount which he determines the Federal Government would have expended for regulation of coal mining on the Federal lands being regulated by the State, except that no grant may exceed the actual costs to the State.

(d) *Grant periods.* The Regional Director shall approve a grant for a period of 1 year or less. The Regional Director shall fund a program that extends over more than 1 year by consecutive annual grants.

(e) *Application procedures.* (1) States with cooperative agreements in effect on August 3, 1977, may apply for cooperative agreement grants using the procedures set forth in section 740.18 (a), (b) and (d).

(2) States with cooperative agreements established in conjunction with approved State regulatory programs may apply for cooperative agreement grants by including a supplement to an annual

administration and enforcement grant application submitted according to section 740.18. The State shall include in the supplemental section:

(i) A separate Part II for the costs of the cooperative agreement; and

(ii) A separate Part III describing the specific activities required by the cooperative agreement for the period for which the grant is requested.

(f) *Other requirements.* The procedures and requirements set forth in sections 740.17 through 740.26 are applicable to cooperative agreement grants.

§ 740.17 Grant periods.

The Regional Director shall approve a grant for a period of 1 year or less. The Regional Director shall fund a program that extends over more than 1 year by consecutive annual grants.

§ 740.18 Grant application procedures.

(a) The agency may submit its application (3 copies) to the Regional Director for a grant as soon as it is notified by the Regional Director that funds are available, but not later than May 31 of each calendar year.

(b) The agency shall use the short form application for nonconstruction programs and other procedures specified by Office of Management and Budget Circular No. A-102. No preapplication is required.

(c) For program development grant applications, agencies shall include in Part III of the standard application—

(1) An analysis and evaluation of the current State laws and changes required therein to conform to the requirements of the Surface Mining Control and Reclamation Act of 1977, unless previously submitted under Part 725;

(2) A description of the changes expected to be required in State regulations, organization, staffing, training and other policies and operations in order to develop a State program which can be approved; and

(3) A program to develop the legislation, regulations, procedures, organization, staffing, training materials, and other program elements necessary to obtain program approval.

(d) For administration and enforcement grants and cooperative agreement grants, agencies shall include in Part III of the standard application:

(i) A description of the specific operations in the approved program which will be implemented during the period for which the grant is requested.

(ii) A description and justification of any major equipment (equipment which has a unit acquisition cost of \$1,000 or more) which the agency proposes to acquire with the grant.

(e) The Regional Director shall notify the agency within thirty days after the receipt of a complete application, or as soon thereafter as possible, whether it is or is not approved. If the application is not approved, the Regional Director shall set forth in writing the reasons for disapproval, and may propose modifications if appropriate. The agency may resubmit the application within thirty

days. The Regional Director shall process the revised application as an original application.

§ 740.19 Grant agreement.

(a) If the Regional Director approves an agency's grant application, the Regional Director shall prepare a grant agreement which includes—

(1) The approved scope of the program to be covered by the grant;

(2) The approved budget, including the Federal share;

(3) Commencement and completion dates for the segment of the program covered by the grant and for major phases of the program to be completed during the grant period; and

(4) Permissible transfers of funds to other State agencies.

(b) The Regional Director may permit an agency to assign functions and funds to other State agencies. The Regional Director shall require the grantee agency to retain responsibility for overall administration of the grant, including use of funds, accomplishment of functions and reporting.

(c) Pre-agreement costs for program development grants shall be allowed only as specified in the grant agreement.

(d) The Regional Director shall transmit four copies of the grant agreement by certified mail, return receipt requested, to the agency for signature. The agency shall execute the grant agreement and return all copies of the agreement within 3 calendar weeks after receipt, or within an extension of such time that may be granted by the Regional Director.

(e) The Regional Director shall sign the grant agreement upon its return from the agency and return one copy to the agency. The grant is effective and constitutes an obligation of Federal funds in the amount and for the purposes stated in the grant agreement at the time the Regional Director signs the agreement.

(f) Neither the approval of a program nor the award of any grant will commit or obligate the United States to award any continuation grant or enter into any grant amendment, including grant increases to cover cost overruns.

§ 740.20 Grant amendments.

(a) A grant amendment is a written alteration in the grant amount, grant terms or conditions, budget or period, or other administrative, technical, or financial agreement whether accomplished of the initiative of the agency or the Regional Director, or by mutual action of the agency and the Regional Director.

(b) The agency shall promptly notify the Regional Director in writing by certified mail, return receipt requested, of events or proposed changes which may require a grant amendment, such as—

(1) Rebudgeting;

(2) Changes which may affect the approved scope or objective of a program; or

(3) Changes which may increase or substantially decrease the total cost of a program.

(c) The Regional Director shall approve or disapprove each proposed amendment within thirty days of receipt, or as soon thereafter as possible, and shall notify the agency in writing of the approval or disapproval of the amendment.

(d) The grant amendment establishes the effective date of the action. If no date is specified in the grant amendment then the date the Regional Director signs the amendment will be the effective date of the action.

§ 740.21 Grant reduction and termination.

(a) *Conditions for reduction or termination.* (1) If an agency violates the terms of a grant agreement, the Regional Director may reduce or terminate the grant.

(2) If an agency fails to implement, enforce or maintain an approved program, or cooperative agreement, the Regional Director shall terminate the administration and enforcement grant or cooperative agreement grant.

(3) If an agency fails to implement, enforce or maintain only a part of the program, the Regional Director shall reduce the grant to the amount of the program being operated by the agency.

(4) If an agency is not in compliance with the following nondiscrimination provisions, the Regional Director shall terminate the grant—

(i) Title VI of the Civil Rights Act of 1964 (78 Stat. 252), Nondiscrimination in Federally Assisted Programs, which provides that no person in the United States shall on the grounds of race, color or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal Financial assistance, and the implementing regulations at 43 CFR 17.

(ii) Executive Order 11246, as amended by Executive Order 11375, Equal Employment Opportunity, requiring that employees or applicants for employment not be discriminated against because of race, creed, color, sex, or national origin, and the implementing regulations at 41 CFR 60.

(iii) Section 504 of the Rehabilitation Act of 1973, as amended by Executive Order 11914, Nondiscrimination With Respect to the Handicapped in Federally Assisted Programs.

(5) If an agency fails to enforce the financial interest provisions of part 705 of this chapter the Director shall terminate the grant.

(6) If an agency fails to submit reports required by this part or parts 705 and 720 of this chapter the Director shall reduce or terminate the grant.

(b) *Grant reduction and termination procedures.* (1) The Regional Director shall give at least 10 days written notice to the agency by certified mail, return receipt requested, of intent to reduce or terminate a grant. The Regional Director shall include in the notice the reasons for the proposed action and the proposed effective date of the action.

(2) The Regional Director shall afford the agency opportunity for consultation and remedial action prior to reducing or terminating a grant.

(3) The Regional Director shall notify the agency of the termination or reduction of the grant in writing by certified mail, return receipt requested.

(4) Upon termination the agency shall refund or credit to the United States that portion of the grant money paid or owed to the agency and allocated to the terminated portion of the grant. However any portion of the grant that is required to meet commitments made prior to the effective date of termination shall be retained by the agency.

(5) The agency shall reduce the amount of outstanding commitments insofar as possible and report to the Regional Director the uncommitted balance of funds awarded under the grant.

(6) Upon notification of intent to terminate the agency shall not make any new commitments without the approval of the Regional Director.

(7) The Regional Director may allow termination costs as determined by applicable Federal cost principles listed in Federal Management Circular 74-4.

(c) *Appeals.* (1) An agency may appeal the Regional Director's decision to reduce or terminate a grant to the Director within 30 days of the Regional Director's decision.

(2) An agency shall include in an appeal—

(i) The decision being appealed, and
(ii) The facts which the agency believes justify a reversal or modification of the decision.

(3) The Director shall act upon appeals within 30 days of their receipt, or as soon thereafter as possible.

§ 740.22 Audit.

The agency shall arrange for independent audit not less frequently than once every two years, pursuant to the requirements of Office of Management and Budget Circular No. A-102. The audits will be performed in accord with the "Standards for Audit of Governmental Organizations, Programs, Activities, and Functions" published by the Comptroller General of the United States and audit guides provided by the Department of the Interior.

§ 740.23 Administrative Procedures.

The agency shall follow administrative procedures governing accounting, payment, property and related requirements contained in Office of Management and Budget Circular No. A-102.

§ 740.24 Allowable costs.

(a) The Regional Director shall determine costs which may be reimbursed according to Federal Management Circular 74-4.

(b) Costs must be in conformity with any limitations, conditions, or exclusions set forth in the grant agreement or this part.

(c) Costs must be allocated to the grant to the extent of benefit properly

attributable to the period covered by the grant.

(d) Costs must not be allocated to or included as a cost of any other federally assisted program.

§ 740.25 Financial management.

(a) The agency shall account for grant funds in accordance with the requirements of Office of Management and Budget Circular No. A-102. Agencies shall use generally accepted accounting principles and practices, consistently applied. Accounting for grant funds must be accurate and current.

(b) The agency shall adequately safeguard all funds, property, and other assets and shall assure that they are used solely for authorized purposes.

(c) The agency shall provide a comparison of actual amounts spent with budgeted amounts for each grant.

(d) When advances are made by a letter-of-credit method, the agency shall make drawdowns from the U.S. Treasury through its commercial bank as closely as possible to the time of making the disbursements.

(e) The agency shall support accounting records by source documentation.

(f) The agency shall design a systematic method to assure timely and appropriate resolution of audit findings and recommendations.

§ 740.26 Reports.

(a) The agency shall, for each grant made under this part, submit annually to the Regional Director a Financial Status Report in accordance with Office of Management and Budget Circular No. A-102, Attachment H. This report shall be accompanied by a performance report prepared according to Attachment I of OMB Circular No. A-102.

(b) The Regional Director shall require through the grant agreement that annual reports provide the relation of financial information to performance and productivity data, including unit cost information.

§ 740.27 Records.

(a) The agency shall maintain complete records in accordance with Office of Management and Budget Circular No. A-102. This includes books, documents, maps, and other evidence and accounting procedures and practices, sufficient to reflect properly—

(1) The amount, receipt, and disposition by the agency of all assistance received for the program.

(2) The total costs of the program, including all direct and indirect costs of whatever nature incurred for the performance of the program for which the grant has been awarded.

(b) Subgrantees and contractors, including contractors for professional services, shall maintain books, documents, papers, maps, and records which are pertinent to a specific grant award.

(c) The agency's records and the records of its subgrantees and contractors, including professional services contracts, shall be subject at all reasonable times

to inspection, reproduction, copying, and audit by the Office, the Department of the Interior, the Comptroller General of the United States, the Department of Labor or any authorized representative.

(d) For completed or terminated grants the agency, subgrantees, and contractors shall preserve and make their records available to the Office, the Department of the Interior, the Comptroller General of the United States, Department of Labor, or any authorized representative pursuant to OMB Circular No. A-102.

§ 740.28 Disclosure of information.

All grant applications received by the Regional Director constitute agency records. As such, their release may be requested by any member of the public under the Freedom of Information Act, 5 U.S.C. 552, and shall be disclosed unless exempt from disclosure under 5 U.S.C. 552(b).



United States Department of the Interior

GEOLOGICAL SURVEY
RESTON, VA. 22092

Mail Stop 908
July 23, 1981

RECEIVED
JUL 29 1981
DEPT OF GEOLOGY
& MINERAL INDUS.

RECEIVED-PTLD
JUL 27 1981
DEPT. OF GEOLOGY
& MINERAL INDUS.

Dr. Donald A. Hull
State Geologist
Dpt. of Geology and Mineral Industries
1069 State Office Building
1400 S.W. Fifth Avenue
Portland, Oregon 97201

Dear Dr. Hull:

Mr. Carl Close, the Assistant Director of the Office of Surface Mining for State and Federal Programs, recently sent me a research proposal entitled Coal Development and Mining Hazards, Northeastern Oregon. You had submitted it to OSM on May 28, 1981, with a letter of transmittal to Andrew V. Bailey, then Acting Director of OSM. Carl asked me to evaluate the proposal for funding by the U.S. Geological Survey.

It is my unpleasant duty to tell you that USGS presently cannot support the proposed project. We have no FY 1981 funds left, and the proposed level of funding is too large for uncommitted FY 1982 funds. Further, the proposal comes at a time of intense scrutiny of our coal program and operations by the people who determine our budget, and we are under great pressure to focus our efforts on areas of public lands that are underlain by coal. It is possible that we could support the project in FY 1983, if it proves competitive with other requests for support, but it is about six to eight months too early to evaluate that possibility.

I'm sorry to have bad news for you concerning your proposal. I hope that other subjects for cooperative work between USGS and the Oregon Program I will meet a more cheerful budget climate.

Best wishes.

Sincerely,

John O. Maberry
Deputy Chief, Coal Programs
Office of Environmental Geology

Copy to: Carl Close, OSM, (Washington)
Brent Dalrymple, Regional Geo. (Menlo)
Jack Medlin
Gordon Eaton

RECEIVED-PTLD
FEB 13 1984
DEPT. OF GEOLOGY
PORTLAND, OREGON

P. O. Box 262,
Rossland, B. C.,
Canada V0G 1Y0
February 6, 1984

Oregon Dept. of Geology & Mineral Industries,
1069 State Office Building,
Portland, Oregon 97201
U.S.A.

Re: Coal deposits in Morrow County

To Whom It May Concern

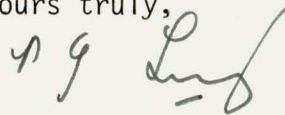
Dear Sirs:

Thank you for the information sent to me recently,
concerning coal deposits in Morrow County.

I enclose herewith copies of some historical notes
I have recently made on this subject, which you may like to
include in your files.

Thank you for your help.

Yours truly,



Peter J. Lewty

Enclosure

July 14 1882 EOP. (Pendleton "East Oregonian").

A few weeks ago Sid Brown left Pendleton for the mountains. While away he turned his attention to prospecting and struck a 15 inch vein of coal of good quality within 35 miles of Pendleton. It has a 12 face.

July 25 1882 EOP (Pendleton "East Oregonian").

Umatilla Coal mines. New discoveries. The coal mine discovered by Sid Brown, and now being worked by Br Sparks, and Squires is located on the head waters of Butter Creek and about $3\frac{1}{2}$ miles above what is known as the Van Armin sawmill. The vein was struck on the side of a hill 500 ft elevation above the waters of Butter Creek. The drift is now about 25 ft long and about 12 or 15 ft wide, and the vein of coal fully $3\frac{1}{2}$ ft thick. The casing above the coal as well as below it, is 30 inches thick. The coal is pronounced by blacksmiths to be inferior only to Cumberland coal. Joe Thrasher's mine is about $1\frac{1}{2}$ miles north of this mine. There are indications all through this region of immense coal deposits.

September 16 1884 EOP. (Pendleton "East Oregonian").

Quite a ledge of coal has been discovered on the 1 of C. Bolin on Camas Creek in this (Umatilla) county.

November 11 1884 EOP (Pendleton "East Oregonian").

Heppner "Gazette" says Bob and Edgar Matteson were down from the Matteson coal mine election day. The prospect is good for the speedy resumption of work on the mine. Negotiations are now being

conducted with a view to procuring a rock drilling and boring outfit which will expedite prospecting the hidden recesses of the mountains, being less laborious than sinking shafts and tunnels. For four long years the Matteson brothers have toiled away like slaves to develop their mine and although they have not struck the main vein their confidence in the mine remains as buoyant as ever. One cannot help admiring their persistent perseverance and hope their trials and struggles will be richly rewarded.

September 16 1887 EOP (Pendleton "East Oregonian")

Eastern Oregon Coal & Railway Co. has filed articles of incorporation with the clerks of Multnomah County. The incorporators are Charles S. Miller, Charles T. Moore, and James S. Cochrane. The capital stock is fixed at \$5 million. The company owns much coal land in Gilliam and Morrow Counties and is heavily interested in the proposed (rail)road from Pendleton to the Columbia via Heppner and their mines.

April 3 1888 PDO. (Portland Daily "Oregonian") - OR&N Co. manager Holcomb and associates propose to prospect for coal in the vicinity of Patah City (Washington). They have obtained \$20,000 worth of equipment. They will also look for alleged coal beds on Mill Creek (above Walla Walla)

August 2 1888 H.G.

(Heppner "Gazette")

Coal (2)

The Matteson mine. Saturday afternoon a party consisting of Charles Jungren, C.L. Andrews, Oscar Minor, and the Gazette man, left for the Matteson coal mine where they arrived at 10 o'clock on Sunday morning. The entire outfit was taken in hand by Bob and Edgar Matteson, who succeeded in inducing them to go 900 ft under the ground. They were shown the results of the greater part of 8 years of hard work. The boys really have a good prospect, small seams of excellent coal showing here and there, and if anyone should succeed they surely deserve it. It is a rare thing to meet with such evidence of pluck and energy. After looking over the mining property ^{where} the boys were shown the petrified leaves and other vegetation in a similar state they were taken up to the house and hospitably entertained.

September 21 1888 E.O.P. (Pendleton "East Oregonian")

The coal mine. W.D. Fletcher and C.J. Carson have returned from the Umatilla Coal Co. mine at the head of Butter Creek. Mr Fletcher brought back a quantity of samples from the mine, which burn splendidly and are of excellent quality. The present ledge, which has been followed into the mountain for a distance of over 100 ft varies from 18 inches to 36 inches in thickness. The company proposes to look for other seams further down, and will sink a shaft to look for them. If it is discovered the OR&N Co. have promised to build a branch to the mines as coal is the OR&N Co's great want hereabouts.

Coal 2A

October 9 1888 E.O.P. (Pendleton "East Oregonian").

320 acres in the coal region at head of Butter Creek have been deeded to C.J. Carlton for a period of three years for prospecting purposes.

June 6 1889 H.G. (Heppner "Gazette")

From Wasco "Observer." Coalfields. Sherman County in the lead. Coal mines at our door. A rich strike. Last week while Mr George Benidom, living about 6 miles east of town was sinking a well, he came upon a fine vein of coal of the very best quality and some of it has been tried by experts who pronounce it A1. The distance from the surface to where the coal was found is only about 18 ft. The vein tends to dip and is in wedge shape, showing that it widens out as it goes downwards. From the present indication there is an immense amount of this much valued article only a few feet from the surface, of good quality and paying quantities. We had a short conversation with Mr A.B. Tury who showed us a sample of the coal, and stated, that he intended at once, in partnership with Mr Benidom to send east for a boring machine and sink down on the ledge 100 ft or more.

August 26 1889 P.D.O. (Portland "Daily Oregonian").

The coal mine situated at the head of Butter Creek is looking fine. The company now have

a top vein averaging 3 ft in thickness for 130 ft and a second vein 21 ft under the first, 54 inches in thickness. A coal expert from here will visit the mine in a couple of days. I will give you a report.

September 25 1889 H.G. from EOP. (Heppner "Gazette", from Pendleton East Oregonian)

It is reported that a party of OR&N surveyors are now in the Butter Creek coal regions taking notes for the benefit of their company.

January 23 1890 H.G. (Heppner "Gazette").

A 15 ft vein of coal is being developed 1 mile from Castle Rock. Four of the mines lie within 5 miles of the town, upon which some work toward development has been done. It is thought that 1000 tons will be shipped this spring from Castle Rock daily.

March 13 1890 H.G. (Heppner "Gazette").

It is learned here on authentic authority that the Union Pacific is projecting a branch from Heppner to within a mile of the Umatilla County Coal Co. mine on the head waters of Butter Creek, thence to Camas Prairie and by the most practical route to Grande Ronde valley. A branch of this projected road, leading to Cracker Creek is also in contemplation according to our informant.

September 19 1890 RR Gaz Page 657 ("Railroad Gazette")

Eastern Oregon Railroad. This company has been incorporated in eastern Oregon to build a road from Heppner, Oregon to the coal mines and thence to Sumpter, Oregon. Among the incorporators are

Coal 3A.

WD Fletcher, JH Roley (or Roby?), T. Rourke, and J.R. Dickson.

(Note that the Sumpter Valley Railroad was incorporated to build from Baker to Sumpter at almost the same time. See RR Gaz September 26 1890 Page 673.).

March 12 1891 H.G. (Heppner "Gazette").

It is evident that the Union Pacific people are anxious to find coal near the present terminus of the Heppner branch. In that event this road will be extended to the mines.

March 12 1891 H.G. (Heppner "Gazette").

Our coal mines. E.G. Locke arrived here Monday evening last from Pendleton. Since his last visit here he has made an examination of the Fossil mine, and while he finds an excellent quality of coal at that place, there is not as much in sight as he anticipated. He says it is a different upheaval from any in Morrow County, dipping towards the John Day River. He left Tuesday morning for Butter Creek where he says no coal has been struck to his knowledge, other reports to the contrary notwithstanding.

April 16 1891 H.G. (Heppner "Gazette").

HR Sibly and CJ Carlson returned last evening from their trip to the Butter Creek coal mines where they went with a view to developing the Blue Mountain Coal and Mining Company's property and to decide upon the best means of conducting the work, preparations

for which are in progress.

April 30 1891 HQ From Fossil "Journal."

E G Locke, the Union Pacific mining expert will be over in this section to make a thorough investigation of the Fossil coal mines in about 10 days. An unexpected flow of artesian water while drilling for coal on Butter Creek brought operations to a standstill, but he has now moved the machine 1500 ft up the hill and started to bore afresh. We do not know what measure of success Mr Locke will have in that enterprise, but evidently he is a stayer, and if he will test the Fossil mines as thoroughly as he is doing those on Butter Creek, the proposed private road from The Dalles to the mines will be forestalled by the Union Pacific.

June 4 1891 HQ. (Heppner "Gazette")

The Matteson brothers are now working in slate in their tunnel near Black Butte and are more hopeful than ever. The "Gazette" adds again "May they succeed."

Note from "The History of Umatilla and Morrow Counties 1902."

Morrow County. A few tons of very excellent coal have been found and used for fuel in the blacksmith's forge but no great quantity has yet been found. The most determined and long continued effort to discover coal in Morrow County was that of Robert, Albert, Edgar, and Ben Matteson. Their prospect on surface seemed an unusually good one but as it went in on the ledge it narrowed. They sank shafts on the side of Black Butte (now Madison Butte). Then

Coal 4 A.
They drove a tunnel and by 1891 it was in 997 ft. It has since been extended to $\frac{1}{2}$ a mile but no coal of worthwhile quality has been found. In 1890 Union Pacific did much prospecting for coal in the Butter Creek country but at length gave up. It would seem that from all indications there must be large deposits of coal in the Blue Mountains somewhere. The Oregon Railway & Coal Company, composed of W.S. Lytle, George Conser, C.E. Redfield, and D.A. Herren are now vigorously pushing development work on their claim in the mountains 25 miles south of Heppner. In June last they procured an engine, drill, and other necessities from Portland. Assays of their product show it to be as good a quality as that found on the coast.

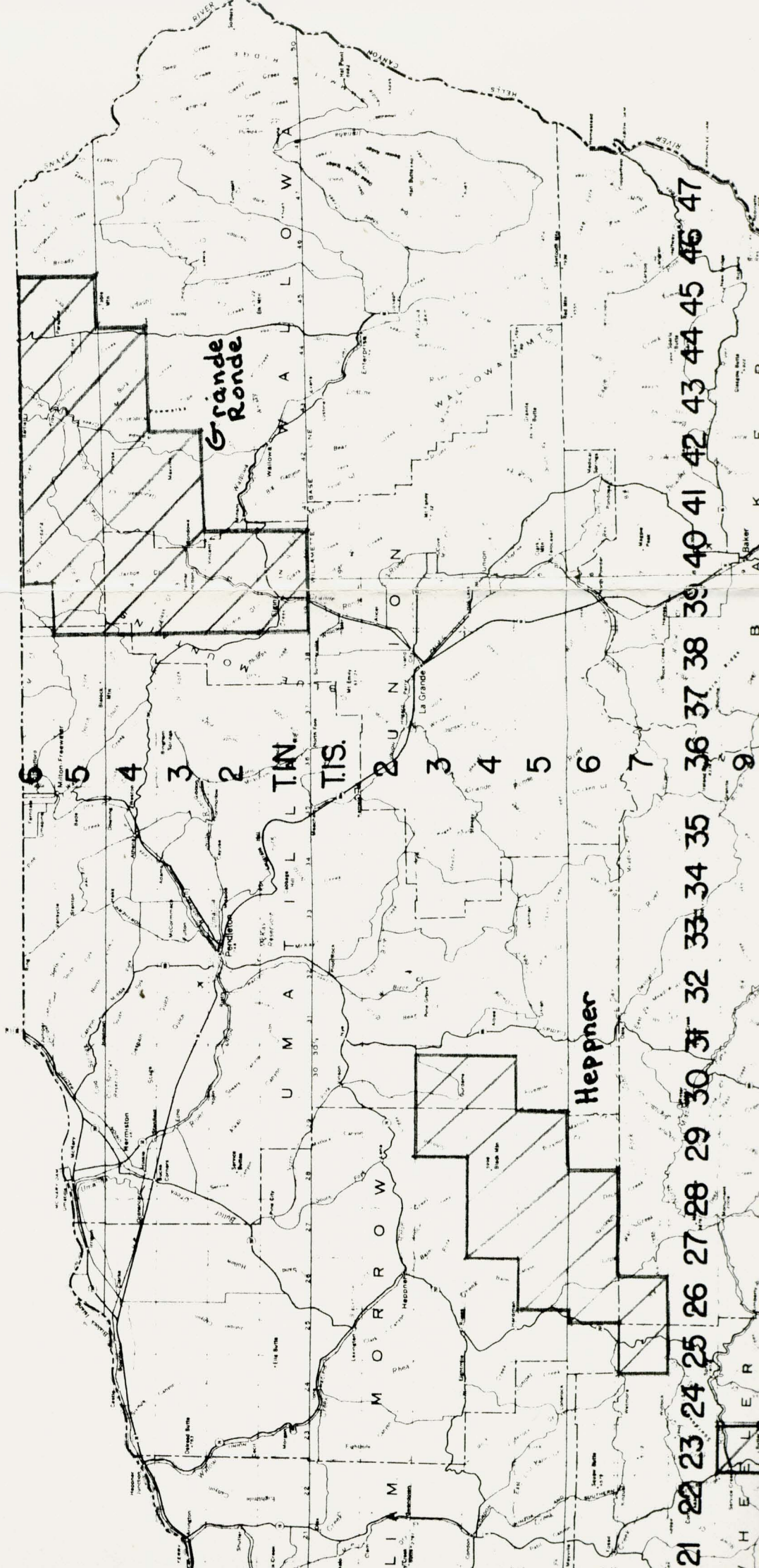
March 3 1905 Railway Age-Gazette.

Pendleton Railroad & Coal Company. Incorporated in Oregon to build a railroad from Pendleton via Heppner to the coal-fields south-east of that place, and a branch to Pilot Rock and Ukiah. Capital \$3 million. Incorporated by C.A. Rhea, C.E. Redfield, C.H. Carter, and C.J. Smith, all of Pendleton.

THESE NOTES ASSEMBLED BY

P.J. LEWIS PO BOX 262 ROSSLAND BC CANADA V0G1Y0.

Preliminary Coal Resource
Evaluation Areas
for NE Oregon



21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47



STATE OF OREGON

INTEROFFICE MEMO

TO: Don

DATE:

FROM: JJG

SUBJECT: BLM coal study

I think this could be an interesting study. The literature search would justify time spent on intergrating Loris' files with the counties and commodities files. The field time proposed seem short; however we may only have a short field season. The final report's date of end of the year may conflict with COMA and the offshore map.

So far my planning for the field totals about 2 weeks, which would finish COMA. The field work for the coal study could be combined with checking for gold the reports of kaolinite clay deposits and/or other deposits that seem to be associated with hot springs, which are part of Loris' files.

The studying of coal deposits should be part of a nonmetallic program. Coal may not have the highest priority but it is a start.

km



STATE OF OREGON

INTEROFFICE MEMO

TO: John B.
Howard B.
Jerry G.

DATE: February 1, 1984

FROM: Don H.

SUBJECT: Coal inventory - NE Oregon

Please let me have your written comments on this opportunity
by 2/15/84.

km



United States Department of the Interior

3400 (920)

BUREAU OF LAND MANAGEMENT

OREGON STATE OFFICE
P.O. Box 2965 (825 N.E. Multnomah Street)
Portland, Oregon 97208

JAN 27 1984

Donald A. Hull
State Geologist
Department of Geology and Mineral Industries
1005 State Office Building
Portland, Oregon 97201

Dear Mr. Hull,

The need for an assessment of coal/lignite occurrences in northeastern Oregon has been apparent for quite some time. In spite of the number of reported occurrences, some with possible development potential as expressed by industry interest, our documented knowledge of coal resource in this part of Oregon is minimal. Bureau coal classification maps do not presently show the area as prospectively valuable for coal. As an initial step to update the classification maps it will be necessary to conduct an inventory and assessment of coal/lignite occurrences. The enclosed proposal outlines the scope of the work and the areas selected for the assessment.

Please let us know if your agency will be willing to undertake the outlined tasks, or to suggest any modification that might be appropriate. We feel that the published/unpublished material available in your files and the expertise of your staff, uniquely qualifies your organization to do the job. The work could preferably be done under an agreement pursuant to the Intergovernment Personnel Act of 1970, where we would pay for the services of an experienced geologist for 3 to 4 months. We would provide analytical support through commercial laboratories. The final report should be made available by the end of calendar year 1984. However, in order to ascertain budgetary requirements for the next phase of work, the findings of the assessment need to be informally transmitted to us as the work progresses during the current fiscal year.

Please contact Denny Seymour (231-6952) if you have any questions or comments.

Sincerely yours,

State Director

Enclosure

RECEIVED
JAN 31 1984
DEPT. OF GEOLOGY
PORTLAND, OREGON

Northeastern Oregon Coal Resource Assessment

Scope of the Project

Area: The study is to include three separate areas: 1) NE of Elgin, Oregon centered along the Grand Ronde River; 2) a NE trending area about 15 miles SE of Heppner; and 3) an area surrounding Mitchell, Oregon as shown on the attached map.

The work may be conveniently broken into the following tasks:

- Task I. Literature Search and Data Collection: Comprehensive search will be made of all available published and unpublished information including personal communications, as appropriate, with knowledgeable personnel from agencies and private companies active in the area.
- Task II. Data Compilation and Review: Collected data will be compiled in suitable format for review and interpretation. Map scale at a minimum of 1"=4 miles will be used to depict the occurrence data and/or environments favorable for the occurrence of coal/lignite.
- Task III. Field Verification: Field verification will be done for selected occurrences and/or favorable areas where coal occurrence is suspected. The aim is not to make a comprehensive field investigation or mapping, but to verify or substantiate reported occurrences and to confirm probable continuity of coal resources on a regional basis. Limited number of samples may be taken and analyzed for BTU content, ash, moisture, carbon, volatiles and sulfur. Within the time available all verified coal occurrences should be recorded.
- Task IV. Reinterpretation of Data Base: The newly acquired information from field verification and sample analysis information will be integrated with the old data base. A reinterpretation, and if needed, modifications will be made on coal favorability for the region. Recommendations will be made on future work to evaluate coal resources of the region.

Task V. Report: A short technical report will be prepared. The essential components of the report are:

A description of the geologic setting and apparent geologic control of the coal resource.

A discussion of the coal/lignite resources, including potential for undiscovered resources, quality, thickness, continuity, structure and depth of overburden.

Recommendations regarding what future work is needed to improve the knowledge of the Federal coal/lignite resources for the study area and in general for the NE corner of Oregon.

Appropriate maps and data summaries including locations, geologic measurements, sample descriptions and sample results.

Note: For selection of areas for more detailed resource assessment, likelihood of occurrence of coal resources with the following reserve/resource criteria will be used:

a. Metallurgical or metallurgical-blend coal 12 inches or more thick; anthracite, semi-anthracite, bituminous, and sub-bituminous coal 28 inches or more thick; and lignite 60 inches or more thick to a depth of 500 feet.

b. Metallurgical and metallurgical-blend coal 24 inches or more thick; anthracite, semianthracite, bituminous and sub-bituminous coal 48 inches or more thick; and lignite 64 inches or more thick occurring from 500 to 3000 feet deep.

All data required to be kept confidential should be marked as such and enclosed as a separate attachment.

Coal Resource Evaluation NE Oregon

Townships

1) Mitchell Area

R 20E - T 11S, T 12S
R 21E - T 11S, T 12S
R 22E - T 10S, T 11S, T 12S
R 23E - T 9S, T 10S, T 11S, T 12S
R 24E - T 11S, T 12S
R 25E - T 12S

14

2) SE of Heppner

R 25E - T 7S
R 26E - T 5S, T 6S, T 7S
R 27E - T 4S, T 5S, T 6S
R 28E - T 4S, T 5S, T 6S
R 29E - T 3S, T 4S, T 5S
R 30E - T 3S, T 4S

15

3) Along Grande Ronde River

R 39E - T 1N, T 2N, T 3N, T 4N, T 5N
R 40E - T 1N, T 2N, T 3N, T 4N, T 5N, T 6N
R 41E - T 3N, T 4N, T 5N, T 6N
R 42E - T 3N, T 4N, T 5N, T 6N
R 43E - T 4N, T 5N, T 6N
R 44E - T 4N, T 5N, T 6N
R 45E - T 5N, T 6N

27

56

UMPQUA COAL COMPANY

Douglas County
Umpqua area

Summary: May 16, 1951 the writers were guided by George W. Dimmick of Roseburg and a Mr. Sayer, who lives on a farm a few miles west of Elkton, in an attempt to find the old workings of the Umpqua Coal Company in the vicinity of Rainy Peak. One caved portal and small dump were found, also some outcroppings of coal along a Long Bell Logging Company road on the west side of Rainy Peak were seen. A sample of coal was taken from one of these roadside outcrops.

Location: Sec. 16, T. 23 S., R. 8 W., in the vicinity of Rainy Peak. Outcrops can be reached from Elkton as follows:

From intersection of State Highways 38 and 225 on the east

side of Elkton westward via Sawyer's road to intersection

of Sawyer's road and Bridge road - - - - - 6.0 miles

Southward along Bridge road to intersection of Bridge road

and Lutsinger road - - - - - 3.0

Continue along Bridge road to first coal outcrop - - - - - 4.7

Bridge road can also be reached via a road starting at the Long Bell Logging Company offices at the south end of the Umpqua River bridge at Scottsburg and following along the Umpqua River to Lutsinger Creek where it turns southward to join Bridge road.

Miscellaneous: In the vicinity of Rainy Peak there is a narrow north-south divide between the drainages of Mehl Creek and Little Camp Creek. Mehl Creek is on the east side of the divide and Little Camp Creek on the west side. Mr. Sawyer led us to a cabin and caved portal in a small tributary to Mehl Creek. The dump at this portal contained a small amount of coal. The outcrops of coal were mainly on the Little Camp Creek side of the divide along the logging road near its terminus. Mr. Sawyer said that an adit was located near these outcrops, but we were unable to locate it. Presumably this adit was destroyed when the logging road was made.

Mr. Dimmick reported that the surface rights of most of sec. 16 were sold to the county several years ago and that the timber and surface rights were now owned by the Long Bell Lumber Company.

~~it turns southward to join Bridge road.~~

Geology: The coal seams occur within shaly members of a buff-colored micaceous sandstone. Outcrops of coal occur at intervals along the logging road. The seams strike E-W and dip about 5° S. At one outcrop the coal seam appeared to be faulted against sandy shale.

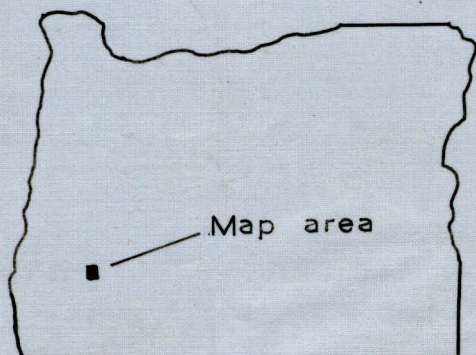
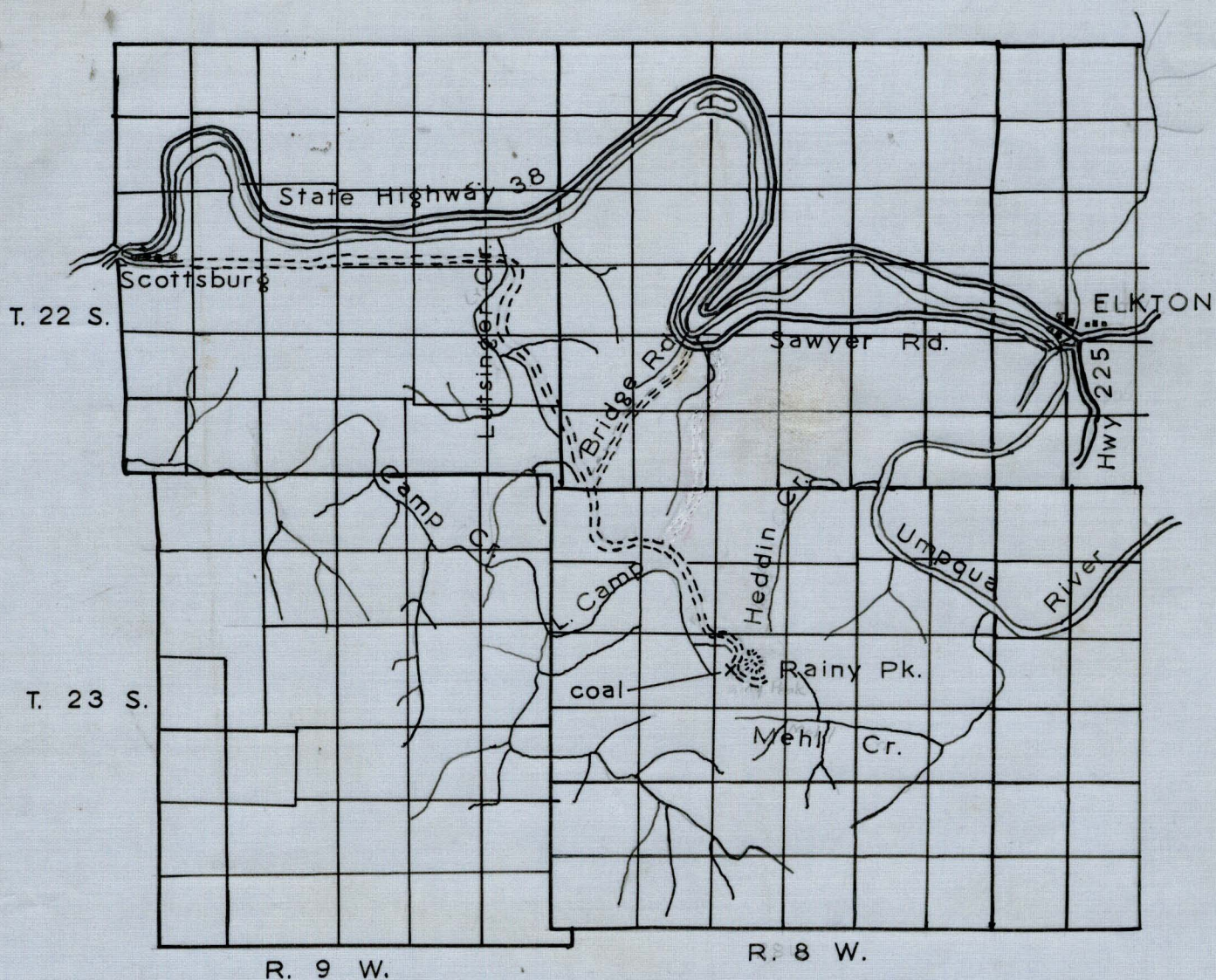
A channel sample 4 feet 5 inches long was taken from an outcrop of coal at an elevation of 1460 (altimeter). This sample measured as follows:

	<u>Feet</u>	<u>Inches</u>
Roof: Sandy shale		
Coal	2	7
Bone and sandy clay. .	1	6
Coal		4
Floor: Sandy clay		
Total thickness of sample 4		5

(Results of analysis)

Informant: Dimmick, Sawyer .

Report by: DJW and RSM



Index map showing location of Umpqua Coal Company's deposit, Douglas County, Oregon.

APPLICATION FOR GRANT

PROPOSAL SUBMITTED TO THE U.S. BUREAU OF MINES

by

OREGON DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
1069 State Office Building
Portland, Oregon 97201

Title of Proposed Project:

ESTIMATED CAPITAL INVESTMENT, OPERATING, AND PROCESSING COSTS
FOR MINING AND PROCESSING COAL FROM THE COOS BAY COAL FIELD,
COOS COUNTY, OREGON

Principal Investigator: Ralph S. Mason, Deputy State Geologist
Department of Geology & Mineral Industries
1069 State Office Building
Portland, Oregon 97201

Proposed starting date: June 1, 1974

Proposed completion date: December 31, 1974

AMOUNT REQUESTED FROM U.S. BUREAU OF MINES	\$ 4,000
OREGON DEPARTMENT OF GEOLOGY & MINERAL INDUSTRIES	4,000
OREGON ECONOMIC DEVELOPMENT DEPARTMENT	2,000
DIRECT PARTICIPATION BY PROCESS EVALUATION GROUP - MRED, MORGANTOWN, WEST VIRGINIA	Amount unknown

E N D O R S E M E N T S

Principal Investigator:

Approving Administrative Official:

Name: Ralph S. Mason

Raymond E. Corcoran

Signature: Ralph S. Mason

B. E. Corcoran

Title: Deputy State Geologist
Oregon Department of Geology
& Mineral Industries

State Geologist
Oregon Department of Geology
& Mineral Industries

Date: APRIL 15 1974

April 15, 1974

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PROJECT PROPOSAL FOR A COAL RESOURCE STUDY

COOS BAY, OREGON

OBJECTIVE

The objective of the study is twofold as follows: (1) Develop estimated capital investment and operating costs for mining the coal from the Coos Bay field, Coos County, Oregon; (2) develop estimated capital investment and processing costs for utilizing the coal for the following: (a) electric utility plant; (b) production of synthetic fuels; and/or (c) production of materials for the forest product industries in southwestern Oregon.

PURPOSE

The 1973 fall shortage of electrical power in the Pacific Northwest and the energy crisis that developed in late October 1973 because of the Arab oil embargo renewed interest throughout Oregon in any possible resource that could be used to produce energy. The State Department of Geology and Mineral Industries was well aware that the major known energy resource within Oregon boundaries, aside from hydropower, was the coal in the Coos Bay coal field and two additional fields about 30 miles south of Coos Bay. The reason for this immediate awareness was because the Department had been faced with the problem of making a study on the field because of the passage of the Federal Coastal Zone Management Act of 1972, a preliminary land-use control act, and the State Law passed by the 1973 Legislature which authorized the Department

of Land Conservation and Development, a State land-use planning agency. In the State Geologist's opinion, it was absolutely necessary that both State agencies now engaged in land-use planning, the Oregon Coastal Conservation and Development Commission (OCCDC) and the Land Conservation and Development Commission (LCDC), be fully aware of the energy resource in the vicinity of Coos Bay, so that their land-use plans could include it as a potential, minable energy resource.

With the energy crisis still fresh in the public's mind, the Federal Government moving toward enactment of the Land-Use Planning Act of 1974 (HR 10294), and the State with two active planning agencies in land-use planning (OCCDC and LCDC), the Governing Board of the State Department of Geology and Mineral Industries has reached the decision that to maintain these coals as a potential energy resource, input must be provided the State land-use agencies on their current and/or potential value.

The report needed on the coal deposits is one which will serve for the present and essentially in the timeless future to argue forcefully and make the point that the deposits be recognized as an energy resource, and their potentiality for this use be recognized in long-term planning for use of the land.

PLAN OF WORK

Introduction

To accomplish the above purpose, the Oregon Department of Geology and Mineral Industries earnestly solicits financial assistance from the Bureau of Mines and requests its active participation in the project. It is the only agency in the Federal Government that can aid the State in this endeavor, and it is the logical agency to give assistance because the Department of the Interior has already set up the Office of Land Use Planning directly under the Secretary of the Interior.

The type of report needed on the Coos Bay coal field is that kind exemplified by USBM Information Circular 8632 by Sidney Katell and E.L. Hemingway. The plan of work proposed by the State is set forth below in five phases:

Phase I

A. Base map preparation

1. Coal area outlined.
2. Mined-out areas delineated.
3. Land ownerships indicated.
4. All data presented in a form required for the development of the data required under Phase IV, below.

Phase II

A. Geologic analyses and determination of size of coal reserves.

1. Measured 1/, indicated 2/, inferred 3/ reserves, and undiscovered recoverable resources 4/ of coal determined.
2. Geologic analysis of the coal field.
 - a. Physical characteristics of deposit.
 - (1) All known contained coal beds mapped and geologic projections made as to their thickness.
 - (2) Varying dips of beds depicted and reserves of coal determined existing on various slopes.
 - (3) Effects of folding determined and geologically projected.
 - (4) Effects of faulting determined and geologically projected.
 - (5) Known locations of coal analyses depicted and estimated typical analyses presented on each coal bed.
 - (6) Depths of coal beds delineated together with their varying dips caused by folding.
3. All data presented in a form required for the development of the data required under Phase IV, below.
4. Additional data as required under Phase IV will be presented.

-
- 1/ Measured reserves: Identified resources from which an energy commodity can be economically extracted with existing technology, and whose location, quality, and quantity are known from geologic evidence supported by engineering evidence.
 - 2/ Indicated reserves: Reserves based partly upon specific measurements, samples or production data, and partly from projection for a reasonable distance on geologic evidence.
 - 3/ Inferred reserves: Those reserves based upon broad geologic knowledge for which quantitative measurements are not available. Such reserves are those estimated to be recoverable in the future as a result of extensions, revisions of estimates, and deeper drilling in known fields.
 - 4/ Undiscovered recoverable resources: Those quantities that may be reasonably expected to exist in favorable geologic settings, but which have not yet been identified by drilling. Exploration will permit the reclassification of such resources to the reserves category.

Phase III

A. Market study

1. Demand for solid fuel (local market).
2. Demand for coal-derived gas and associated by-products for lumber industry.
3. Demand for solid fuel at mine mouth (steam electrical generation).
4. All data presented in a form as required for the development of the data required under Phase IV, below.

Phase IV

A. Basic estimated capital investment, operating, and processing costs for the coals in the Coos Bay field (information comparable to IC 8632).

1. Develop the economics of the deposit today with current mining and processing technology available.
2. Develop the economics of the deposit with new processing technology now under development by the Bureau of Mines and OCR, including but not limited to the Bureau's hydrogenation, gasification, and synthane processes and OCR's liquefaction, gasification and other processes.
3. Develop the economics of the deposit on the basis of the deposit being amenable to the Bureau's in situ coal gasification process.

Phase V

A. Final report

1. Cartography, editing, typing, compiling, printing, liaison.
(Cartography comprises largest cost.)
2. IC series of U.S. Bureau of Mines

COSTS

The costs of the separate phases are estimated as follows:

Phase I	Base map preparation	\$ 1,000
Phase II	Geologic analysis and determination of the size of coal reserves	4,000
Phase III	Market study	2,000
Phase IV	Basic estimated capital investment, operating, and processing costs for the coals in the Coos Bay coal field	?
Phase V	Final report	3,000

Phases I and V, totaling \$4,000, will be funded by the Oregon Department of Geology and Mineral Industries. Phase III, totaling \$2,000, will be funded by the Oregon Economic Development Commission.

For Phase II, the State will need a grant of \$4,000 from the U.S. Bureau of Mines. These funds will be utilized to obtain the services of Ewart M. Baldwin, Department of Geology, University of Oregon, and Paul Hughes, private consultant, to make the geologic analysis of the deposit and determine the size of the coal reserves. Both geologists have had a long familiarity with the field, and their geologic projections and opinions on the deposit would be the best obtainable anywhere.

The data obtained under Phases I, II, and III will be forwarded to the Bureau's Process Evaluation Group - MRED, Morgantown, W. V., for its use in completing Phase IV of the project. The cost of this segment of the project is unknown. The State feels that the Morgantown group is the only unit in the United States that can develop the kind of information wanted as shown under Phase IV, A. 1, 2, and 3.

Cost Summary and Responsibility

Phase I -	Responsibility of State; funded by State . . .	\$1,000	
Phase II -	Responsibility of State; FUNDED BY BUREAU OF MINES	\$4,000	
Phase III -	Responsibility of State; funded by State . . .	\$2,000	
Phase IV -	RESPONSIBILITY OF BUREAU OF MINES; FUNDED BY BUREAU OF MINES TO PEG - MRED, MORGANTOWN		?
Phase V -	Responsibility of State; funded by State . . .	\$3,000	
	PUBLICATION OF IC SERIES RESPONSIBILITY OF BUREAU OF MINES		?
	Total funded by State	\$6,000	
	TOTAL FUNDED BY BUREAU OF MINES	\$4,000	
	TOTAL FUNDED BY BUREAU TO PEG-MRED, MORGANTOWN		?

BACKGROUND INFORMATION ON THE COOS BAY COAL FIELD

Location

The Coos Bay coal field is situated on the coast of southwest Oregon in Coos County readily accessible to railroad and to the harbor of Coos Bay. It lies within a roughly elliptical structural basin measuring 35 miles north and south by 11 miles east and west.

Past Investigations in the Coos Bay Coal Field

The first detailed survey of the coals in the Coos Bay field was made in 1896 for the U.S. Geological Survey by J.S. Diller. The results of the survey were published in 1889, 1901, and 1911. Other early reports were made by Newberry (1857), Goodyear (1877), Rockwell (1902), Smith (1902), and Stovall (1905).

In 1938, Libbey made a progress report, and in 1940, Yancey and Geer of the Bureau of Mines sampled and made analyses of the coals. The results of this study were published in Bulletin 20, Department of Geology and Mineral Industries.

The Department of Geology and Mineral Industries then made a detailed study in 1944. The study was made by Ewart Baldwin and published as Bulletin 27, Geology and Coal Resources of the Coos Bay Quadrangle, Oregon.

The Bureau of Mines, impressed with the findings in Bulletin 27, conducted a major study on the field in 1948. The results were published in Technical Paper 707, Movable Reserves, Petrography, Chemical Characteristics,

and Washability Tests of Coal Occurring in the Coos Bay Coal Field, Coos County, Oregon. In I.C. 8430, M.R. Geer discussed the problem of disposal of solid wastes from future mining activities.

General Geology

About 6,000 feet of upper Eocene Coaledo sediments are confined to a complex structural basin occupying the central portion of the quadrangle. The lower and upper Coaledo members consist of medium-bedded tuffaceous sandstones made up largely of basaltic glass, separated by the middle Coaledo member consisting of as much as 2,300 feet of dark tuffaceous shale of more acidic composition. The principal coal beds occur in the upper and lower sandstone members of the Coaledo Formation.

The Coaledo and the later Oligocene formations in the major basin were compressed during the Miocene into north-trending folds, and faulted by north-trending faults and by more numerous transverse faults. The Pliocene Empire Formation, comprising about 2,000 feet of poorly bedded sandstone, unconformably overlies the Oligocene and Eocene strata in the South Slough syncline and has been folded along the same axis as the older formations but to a lesser degree. Pleistocene terrace and estuarine deposits cover the coastal plain and major valley bottoms.

The coals of the upper Coaledo have been designated as the upper coal group and those of the lower Coaledo the lower coal group. Coals in undifferentiated parts of the Coaledo Formation have not been classified according to age.

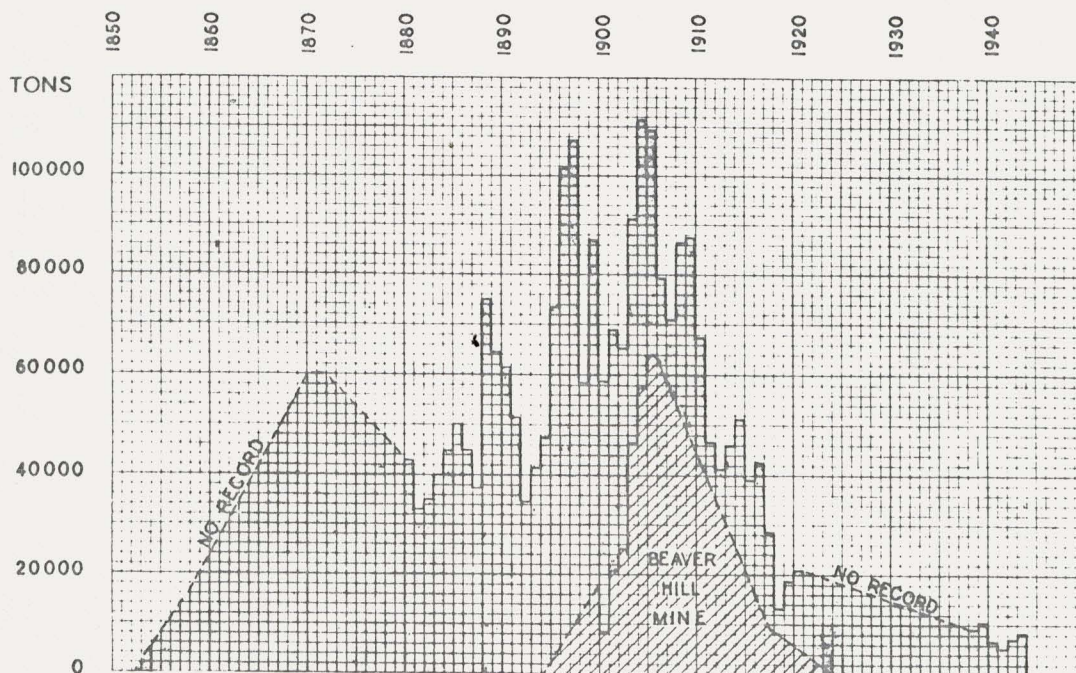
The Beaver Hill bed, lowest coal of the upper group, has been mined more extensively than any other bed. With a few exceptions, other beds of the Coaledo Formation have not yielded great tonnages, as these beds are usually higher in ash and contain more numerous partings. The coals of the lower group have a higher heating value but have a higher ash content, and mining conditions are relatively unfavorable.

History of Coos Bay Coal Production

Mining in the coal field which surrounds Coos Bay and extends south for more than 30 miles to a point beyond Coquille began soon after the region was settled in the early 1850's. Coal was discovered near Empire in 1854, and the mines just southwest of Coos Bay first operated in 1855. By 1880, when records were first kept, production was about 40,000 tons a year, and for 15 years, annual production ranged between 30,000 and 75,000 tons. In 1896 and 1897, the production mostly from Eastport and Newport mines exceeded 100,000 tons a year, a figure not reached again until 1904, the year of maximum production, when 111,540 tons of coal was shipped.

The coal was often loaded for shipment to the San Francisco Bay region on coastwise steamers which came far up the sloughs, in some cases almost to the mine portals. Since 1905, there has been a general decrease in production, attributable in part to the decline of the California market, and because in the 1920's, oil began to replace coal in railroad operation and in domestic heating. From 1903 to 1920, at least half the total production came from the Beaver Hill mine, which was owned and operated by the Southern

Pacific Company. When it closed down in 1923, it had reached a depth of 1,400 feet below sea level and a distance of 3,030 feet down the dip of the coal. Since that time, coal has been produced largely for local consumption, at a rate varying from 7,000 to 15,000 tons a year. The largest production in the Coos Bay district has been from the Newport basin, which includes the Eastport, the Newport or Libby, and the Englewood mines. This basin is a shallow canoe-shaped syncline located from 2 to 3 miles southwest and west of Coos Bay. It has produced over a million tons but is now practically mined out. The recorded production of the Coos Bay field from 1880 to 1920 was 2,380,000 tons. Probably the total production is in the order of 3,000,000 tons.



Annual production of Coos Bay coal, 1854-1943.

Character of the Coal

The Coos Bay coals are subbituminous in rank. None of the coals have coking properties and are characterized by a relatively high moisture content, a moderate percentage of ash, and a low sulfur content. The heating value ranges from 9,000 to 10,000 Btu per pound on an "as received" basis.

All of the coals have low friability indices, thus indicating that they will withstand well the forces of impact and attrition that produce breakage and degradation in size during handling.

Slacking tests showed that all of the coals will weather or slack to some extent when exposed to the elements after mining. Most of the coals are classed as strongly slacking and therefore will not withstand storage during dry weather unless the loss of moisture can be prevented.

On low-temperature carbonization in the laboratory, the coals yield 16 to 37 percent water, 4 to 12 percent tar and oil, 6 to 11 percent gas having a heating value of 450 to 730 Btu per cubic foot, and 475 to 70 percent char. The char is low in moisture and volatile matter, contains a moderate percentage of ash in most cases, and in general, has a high heating value, namely, over 13,000 Btu per pound. In short, it is a high-quality smokeless fuel.

Under laboratory conditions, 88 percent or more of the dry Thomas coal can be liquefied by hydrogenation, indicating that this coal would be technically suitable for full-scale commercial hydrogenation.

Burning tests of the Southport and Alpine coals on an overfeed-type domestic stoker and hot-water boiler demonstrated that the Coos Bay coals can be burned satisfactorily and with high efficiency on equipment of this type.

Estimated Reserves

The minable reserves in the Coos Bay coal field are many times that of the recorded production of $2\frac{1}{2}$ million tons. The Beaver Hill coal bed, from which most of this production has been derived, has seldom been mined below 500 feet down the dip, and only the Beaver Hill mine has approached the maximum practicable depth of mining.

Campbell (1913) estimated that the coal reserves of the Coos Bay area were a billion tons. Results of the present survey would not alter this estimate, but qualifications concerning economical grade should be made. Two major coal groups, the upper and lower Coaledo coals, have been mapped.

The lower Coaledo coals have an advantage in being slightly higher in rank although they are generally bonier and the ash is in such a form that it is inherent in the coal and difficult to separate. With improved mining methods, coupled with adequate washing and sorting, selected portions of the thick lower Coaledo and undifferentiated coals could produce a product equal to the more desirable upper coals. As the better and more available coal of the upper coal group is exhausted, and as the need for coal for by-products becomes greater, the vast reserve of the lower Coaledo and undifferentiated coals may be utilized.

Minability of the Coal

The thickness of the coal beds in the Coos Bay area ranges from less than an inch to more than 19 feet, but only the Beaver Hill and Riverton beds have been extensively mined. The Beaver Hill bed has a fairly uniform

thickness over an outcrop distance of about 7 miles from the Southport on the north to the Klondike mine on the south. The thickness of minable coal is rarely less than 4 feet and usually is more than 5 feet. In the Newport basin, the thickness was usually over 5 feet in the Libby, Eastport, and Englewood mines. The Riverton bed averages between 3 and 4 feet in thickness.

Attempts to mine coal in thinner beds have been numerous (Wilcox, Belfast, Reservoir, and other mines), but the additional expense of brushing out the roof or floor in order to permit access for miners and equipment has restricted such mining. Attempts to mine thicker beds (Sevenmile, Gilbert, and Gibbs) have been unsuccessful because of the steep attitude or bony nature of the coal.

April 10, 1975

Mr. Vernon E. Swanson, Deputy Chief
Branch of Coal Resources
United States Geological Survey
Denver Federal Center
Denver, Colorado 80225

Dear Mr. Swanson:

I very much enjoyed the telephone conversation we had last week concerning your offer to analyze coal samples from coal-producing states.

Although Oregon does not have any active coal mines at the present time, we are presently carrying out a re-evaluation of the Coos Bay coal fields over on the coast. This re-evaluation consists of gathering all pertinent geological data including the recent work of Dr. Ewart M. Baldwin of the University of Oregon, having some analyses made of fresh samples of coal by the U.S. Bureau of Mines, making a determination of mining costs, assessing possible products or by-products of coal mining, and a regional marketability study.

As I mentioned in our telephone conversation, one of the problems we have encountered is that of obtaining fresh uncontaminated coal samples in some of the critical areas. I therefore will be submitting a proposal to your office within the next few weeks for funds to do some selective drilling in the Coos Bay coal field. This drilling would have two primary purposes: (1) to develop additional subsurface geologic information in order to correlate some of the thicker coal seams in this area where we do not now have such data, and (2) to obtain some fresh coal samples to determine if there are significant variations in thickness and quality of the material.

I want to wait until we have essentially completed our present coal study before I submit ~~my~~ proposal so I will be able to indicate more precisely where these holes will need to be located and their approximate depth. I will then be able to assemble a reasonably accurate cost estimate. I will probably also include a preliminary report of our Coos Bay coal study so you will have a better idea of the results obtained thus far.

If you have any further questions concerning this program, please feel free to call or write me.

Sincerely yours,

REC:jr

Raymond E. Corcoran
State Geologist

*e Paul Hays
Dulger*



United States Department of the Interior

GEOLOGICAL SURVEY
Denver Federal Center
Denver, Colorado 80225

IN REPLY REFER TO:

Tel. (303) 234-3578

Office of Energy Resources
Branch of Coal Resources

RECEIVED-PTLD
APR 2 1975

DEPT OF GEOLOGY
20308

March 28, 1975

Mr. Raymond E. Corcoran
State Geologist
State Department of Geology
and Mineral Industries
1069 State Office Building
Portland, Oregon 97201

Dear Mr. Corcoran:

At our AASG-USGS meeting at Reston, Va., on February 19-20, 1975, we offered to chemically analyze coal samples from each coal producing State. Although to my knowledge there is no active coal mining in Oregon, the coal in the western part of the State constitutes a resource that you might want to have characterized by modern chemical methods.

You are invited to submit 10 to 15 representative coal samples to the U.S. Geological Survey at Denver for analyses. These could be collected whenever a member of your organization has an opportunity to obtain fresh or relatively fresh samples from cores, old mines, or road cuts. If you feel they are significant, a few of these could be of partings, underclay, or overlying rocks. We will analyze the samples and provide you with the analyses for publication. We also will incorporate the data in our national overview of coal composition, as funded by the Office of Coal Research.

If you want to start a sampling program and if time, money and personnel are just not available, you can prepare a 1- to 2-page proposal for obtaining U.S. Geological Survey funds to assist you in sample collection. Any proposal should be sent to Gordon H. Wood, Jr., Chief, Branch of Coal Resources, U.S. Geological Survey, 956 National Center, Reston, VA. 22092.

For your information I have enclosed a set of sampling guidelines and a printout of analyses to indicate the types of analyses performed. If you have questions that aren't answered in this material, please call or write me.

Sincerely yours,

Vernon E. Swanson, Deputy Chief
Branch of Coal Resources

Enclosure

cc: John Johnston
Jack Medlin
David L. Jones, Menlo Park



DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES

1069 STATE OFFICE BLDG. • PORTLAND, OREGON • 97201 • Phone (503) 229-5580

TOM McCALL
GOVERNOR

December 4, 1974

STATE GEOLOGIST
RAYMOND E. CORCORAN

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Grants Pass 97526

3523 S. Pacific Blvd.
P.O. Box 1028
Albany 97321

Mr. James F. Ross
Executive Director
OCCDC
P.O. Box N.
Florence, Oregon 97439

Dear Jim:

I am enclosing a memorandum on the coal resources beneath South Slough by Dr. Paul Hughes who is presently working on the coal project in that area.

I particularly want to call your attention to the fact that although coal does lie beneath the Slough, it is probably uneconomic to mine using present-day technology and therefore really has little value.

If a mining operation were to be carried on in that part of Coos Bay, the portals would be at least 2 miles from the Slough itself and there would be no surface disturbance in the proposed sanctuary.

Since the question of mining has arisen in reference to the South Slough sanctuary, I would like to call your attention to our recent report on the Geology and Mineral Resources of Coos County. On page 43 through 45 there is a brief summary on the black sand deposits in the Slough. Although there is no such activity going on at the present time, I have to point out that an operation was carried on several years ago and there is a possibility that these deposits could be economically processed sometime in the future.

If you have any further questions, please feel free to call or write me.

Sincerely yours,

Raymond E. Corcoran
State Geologist

REC:jr
Encl.

December 3, 1974

MEMORANDUM REPORT
COAL RESOURCES, SOUTH SLOUGH BASIN
COOS, COUNTY OREGON

South Slough lies along the axis of a north plunging syncline which is a part of a larger structural basin containing coal-bearing rocks. There are three inactive mines in the coal basin; Big Creek, McKenna, and Oldlands Mines. Big Creek is not within the surface drainage of South Slough as are the other two properties. The coal crops out along a U-shaped band around South Slough and nearly 2 miles distance from that body of water (see attached sketch).

Structural data indicates that the coal bearing rocks beneath South Slough are at a depth in excess of 2000' at the head of the slough and 4000' below the surface in the vicinity of Charleston. Underground mining in this area is generally limited to depths of 1500' below the surface, of coal seams having a maximum dip of 45 degrees. Under these constraints, underground mining of the coal beneath South Slough is not economically feasible at this time.

Mineable coal reserves have been estimated to exceed 2.5 million tons. This coal could be removed by underground mining, near the area of outcrop without affecting the environment at the proposed estuarine sanctuary. The following data is available for the coal prospects and mines.

Big Creek Mine- Approximately 2 miles west of South Slough near the center of Sec. 16 T26S R14W. Coal strikes N 13°E and dips 48°E. There is 2' 10" of coal in a 3' 10" bed. This un-named seam lies above the Beaver Hill coal, which is the major commercial bed in the Coos Bay area. Mine is located in the Big Creek drainage.

McKenna Mine- Approximately 2 miles south of South Slough on Winchester Creek, S½ Sec. 2 T27S R14W. Coal dips 17° to 25° N. Beaver Hill coal bed is 3' to 7' thick in this area. Mine is in South Slough drainage at the toe of the synclinal basin.

Oldlands Mine- Approximately 2 miles east of South Slough and .75 miles east of Joe Ney Slough in the SW¼ Sec. 8 T26S R13W. Coal strikes N 15°E and dips 65° W. Beaver Hill coal is 7' to 7.5' thick in a 8' 5½" bed. Mine is in the South Slough drainage.

Vey Prospect- Approximately 2 miles from South Slough and .75 miles from Joe Ney Slough in SW $\frac{1}{4}$ Sec. 5 T26S R13W. Strikes N 10⁰ W and dips 70⁰ W. Beaver Hill coal is 5' thick in a 5'3" bed. This prospect is in the South Slough drainage.

Paul W. Hughes

Paul W. Hughes
Consulting Geologist



SKETCH MAP OF SOUTH SLOUGH
COAL BASIN

SCALE: APPROX. 1" = 1 MILE

PWH
12/3/74

July 1, 1974

Dr. J. Wade Watkins
Assistant Director for Energy Research
United States Bureau of Mines
Washington, D.C. 20240

Dear Dr. Watkins:

As you may know, our Department has been asked by the Coos County Board of Commissioners to make a preliminary evaluation of the Coos Bay coal field on the Oregon coast. About two months ago we submitted the enclosed application for a grant to Dr. Joseph J. Yancik but we have not heard from him since.

Mr. Sheldon Wimpfen attended the recent national meeting of the State Geologists in Bend, Oregon, and I had an opportunity to discuss this proposed grant with him. Sheldon felt that this type of study should be directed to your office and I am therefore doing so at his suggestion.

As you will note, we are only asking for \$4,000 in cash from the Bureau of Mines but are also asking for the Process Evaluation Group at Morgantown, West Virginia to make some rather extensive tests on bulk samples of the Coos Bay material. I really feel that the bulk testing will be the most important phase in this entire study.

The Coos Bay coal field lies in an area that is being built up with new housing and any utilization of this resource will have to take this into account. For this reason, coal gasification appears to be one of the best means for extracting something useful from the coal with little, if any, surface disturbance. In any event the Coos Bay coal deposits appear to be large enough to warrant further investigation and their location on the coast makes them particularly desirable.

If you have any further questions about our project after you have read this proposal, please feel free to call or write me.

Sincerely yours,

REC:jr
Encl.

Raymond E. Corcoran
State Geologist

bc Sheldon Wimpfen
bc Walter E. Lewis
bc Walker Williams

April 15, 1974

Dr. Joseph J. Yancik, Chief
Division of Mining Research
U. S. Bureau of Mines
Interior Building
Washington, D.C. 20240

Dear Dr. Yancik:

I am enclosing a proposal for a preliminary evaluation of the economic feasibility of utilizing the coal deposits at Coos Bay, Oregon.

As you will note, this evaluation will include an estimate of the amount of minable coal in this area, a market study, and operating and processing costs.

The Coos Bay field is almost the only one along the entire West Coast that is easily accessible by ocean-going vessels. Although the coal has not been mined for many years, we firmly believe that the area warrants a new look.

I hope that the Bureau of Mines will act favorably on our proposal.

If you have any questions concerning this study, please feel free to call me or Mr. Walter E. Lewis, Bureau of Mines Liaison Officer in Salem.

Sincerely yours,

Raymond E. Corcoran
State Geologist

REC:jr
cc Walter E. Lewis
cc Sidney Katell

April 30, 1974

Mr. Elmore C. Grim
Mine Drainage Pollution Control Activities
Environmental Protection Administration
4676 Columbia Parkway
Cincinnati, Ohio 45226

Dear Mr. Grimm:

As you may know, our Department has proposed a cooperative project with the U.S. Bureau of Mines to evaluate the coal deposits at Coos Bay, Oregon. These deposits are not large but they do lie on tidewater and constitute one of the few such coal areas on the entire West Coast.

I understand that you might be willing to visit our Department and advise us on coal mining environmental problems. We would very much appreciate having your suggestions and advice, and would like to make a date to meet with you whenever it may be convenient.

For your information I am enclosing a copy of the proposal we submitted to the Bureau of Mines.

If you have any further questions, please feel free to call me.

Sincerely yours,

Raymond E. Corcoran
State Geologist

REC:jr
Encl.

cc Kenes C. Bowling
cc Walter E. Lewis
cc Karl L. Arney

c Ralph

Andy,

Kenes C. Bowling called this morning re inviting Elmore C. Grim of EPA out here to advise us on coal mining environmental problems.

An invitation, mentioning the coop study at Coos Bay etc should be sent to:

Elmore C. Grim

Mine Drainage Pollution Control Activities

Environmental Protection Administration

4676 Columbia Parkway

Cincinnati Ohio 45226

Tel (513) 684-4417)

A carbon should go to Kenes at:

Kenes C. Bowling

Executive Director, Interstate Mining Compact

P.O. Box 11751

Lexington, Ky. 40511

Tel (606) 253-1576

u
(2 hors time diff)

April 11 1974

TO: R.E.C.
FROM: R.S.M.
RE: Coos Coal Byproduct plant feasibility

On April 3rd I called Dick Anderson, Vice President, Battelle Memorial Institute, Columbus, Ohio re the possibility of their doing a "quick and dirty" study on the feasibility of a by-product operation at Coos Bay.

Anderson suggested that this could best be handled by a former employee, who had long experience in this field and is now retired. On April 4th a Mr. William T. Reid, 2470 Dorset Road, Columbus, Ohio, 43221, Tel. (614) 488-2055 called and discussed the matter with me.

Reid's first concern was the limited tonnage of minable coal needed to amortize the very considerable expense of erecting a by-product plant and ancillary structures and services. He said that if we could supply him with analyses of the coal he could make a quick study to determine whether or not the coal was suitable and amenable to processing into by-products. His charges are \$150 a day and he estimated that an additional \$50 to cover miscellaneous expenses would be required. He further estimated that about 3 days would be required to prepare the preliminary report. This, then would cost about \$500.

If this project is approached on a step-at-a-time basis it is entirely possible that the whole thing could be terminated after receiving a negative report from Reid, or if a favorable report was presented, we could go back to him for more detailed studies on specific marketing opportunities, by-products mix and other related items.


r.

April 17, 1974

Mr. Walker Williams
Dept. of Economic Development
Loyalty Building (9th floor)
Portland, Oregon 97204

Dear Walker:

Enclosed is a memorandum Ralph Mason prepared for me which concerns his discussion with the people at Battelle.

It would appear that Mr. Walter T. Reid is quite capable of making a preliminary market study of the coal deposits at Coos Bay and I am certain that the total cost for such a study would not exceed \$2,000.

Best regards.

Sincerely yours,

Raymond E. Corcoran
State Geologist

REC:jr
Encl.

DRAFT
CORCORAN

ESTIMATED CAPITAL INVESTMENT, OPERATING, AND PROCESSING COSTS FOR
MINING AND PROCESSING COAL FROM THE COOS BAY COAL FIELD,
COOS COUNTY, OREGON

Send to:

✓ Dr. Joseph J. Yancik, Chief
Prog. Mining Research
U.S.B.M.
Interior Bldg
Wash, 20240, D.C.

copy:

Walker With

Army.

✓ Walt

✓ applying

Commissioner

✓ Gov. Bd.

Attn:

Lid Katell

✓ Gary Johnson (D.C.)

Backwood

Hallendrick

✓ Hal Brannin

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OBJECTIVE

The objective of the study is twofold as follows: (1) Develop estimated capital investment and operating costs for mining the coal from the Coos Bay field, Coos County, Oregon; (2) develop estimated capital investment and processing costs for utilizing the coal for the following: (a) electric utility plant; (b) production of synthetic fuels; and/or (c) production of materials for the forest product industries in southwestern Oregon.

2

PURPOSE

The 1973 fall shortage of electrical power in the Pacific Northwest and the energy crisis that developed in late October 1973 because of the Arab oil embargo renewed interest throughout Oregon in any possible resource that could be used to produce energy. The State Department of Geology and Mineral Industries was well aware that the major known energy resource within Oregon boundaries, aside from hydropower, was the coal in the Coos Bay coal field and two additional fields about 30 miles south of Coos Bay. The reason for this immediate awareness was because the Department had been faced with the problem of making a study on the field because of the passage of the Federal Coastal Zone Management Act of 1972, a preliminary land-use control act, and the State Law passed by the 1973 Legislature which authorized the Department of Land Conservation and Development, a State land-use planning agency. In the State Geologist's opinion, it was absolutely necessary that both State agencies now engaged in land-use planning, the Oregon Coastal Conservation and Development Commission (OCCDC) and the Land Conservation and Development Commission (LCDC), be fully aware of the energy resource in the vicinity of Coos Bay, so that their land-use plans could include it as a potential, minable energy resource.

3

With the energy crisis still fresh in the public's mind, the Federal Government moving toward enactment of the Land-Use Planning Act of 1974 (HR 10294), and the State with two active planning agencies in land-use planning (OCCDC and LCDC), the Governing Board of the State Department of Geology and Mineral Industries has reached the decision that to maintain these coals as a potential energy resource, input must be provided the State land-use agencies on their current and/or potential value.

The report needed on the coal deposits is one which will serve for the present and essentially in the timeless future to argue forcefully and make the point that the deposits be recognized as an energy resource, and their potentiality for this use be recognized in long-term planning for use of the land.

PLAN OF WORK

Introduction

To accomplish the above purpose, the Oregon Department of Geology and Mineral Industries earnestly solicits financial assistance from the Bureau of Mines and requests its active participation in the project. It is the only agency in the Federal Government that can aid the State in this endeavor, and it is the logical agency to give assistance because the Department of the Interior has already set up the Office of Land Use Planning directly under the Secretary of the Interior.

The type of report needed on the Coos Bay coal field is that kind exemplified by USBM Information Circular 8632 by Sidney Katell and E.L. Hemingway. The plan of work proposed by the State is set forth below in five phases:

Phase I

- A. Base map preparation.
 - 1. Coal area outlined.
 - 2. Mined-out areas delineated.
 - 3. Land ownerships indicated.
 - 4. All data presented in a form required for the development of the data required under Phase IV, below.

Phase II

- A. Geologic analyses and determination of size of coal reserves.
1. Measured 1/, indicated 2/, inferred 3/ reserves, and undiscovered recoverable resources 4/ of coal determined.
 2. Geologic analysis of the coal field.
 - a. Physical Characteristics of deposit.
 - (1) All known contained coal beds mapped and geologic projections made as to their thickness.
 - (2) Varying dips of beds depicted and reserves of coal determined existing on various slopes.
 - (3) Effects of folding determined and geologically projected.
 - (4) Effects of faulting determined and geologically projected.
 - (5) Known locations of coal analyses depicted and estimated typical analyses presented on each coal bed.
 - (6) Depths of coal beds delineated together with their varying dips caused by folding.
 3. All data presented in a form required for the development of the data required under Phase IV, below.
 4. Additional data as required under Phase IV will be presented.

-
- 1/ Measured reserves: Identified resources from which an energy commodity can be economically extracted with existing technology, and whose location, quality, and quantity are known from geologic evidence supported by engineering evidence.
- 2/ Indicated reserves: Reserves based partly upon specific measurements, samples, or production data, and partly from projection for a reasonable distance on geologic evidence.
- 3/ Inferred reserves: Those reserves based upon broad geologic knowledge for which quantitative measurements are not available. Such reserves are those estimated to be recoverable in the future as a result of extensions, revisions of estimates, and deeper drilling in known fields.
- 4/ Undiscovered recoverable resources: Those quantities that may be reasonably expected to exist in favorable geologic settings, but which have not yet been identified by drilling. Exploration will permit the reclassification of such resources to the reserves category.

Phase III

A. Market study

1. Demand for solid fuel (local market).
2. Demand for coal-derived gas and associated byproducts for lumber industry.
3. Demand for solid fuel at mine mouth (steam electrical generation).
4. All data presented in a form as required for the development of the data required under Phase IV, below.

Phase IV

A. Basic estimated capital investment, operating, and processing costs for the coals in the Coos Bay field (information comparable to IC 8632).

1. Develop the economics of the deposit today with current mining and processing technology available.
2. Develop the economics of the deposit with new processing technology now under development by the Bureau of Mines and OCR, including but not limited to the Bureau's hydrogenation, gasification, and synthane processes and OCR's liquefaction, gasification, and other processes.
3. Develop the economics of the deposit on the basis of the deposit being amenable to the Bureau's in situ coal gasification process.

Phase V

A. Final report

1. Compiling, printing, liaison.

a. limited number of copies (400)

2. I.C. series of U.S. B. M.

(cartog. comprise largest cost)

*Cartography
Editing
Typing
Compiling
Printing
Liaison.*

COSTS

The costs of the separate phases are estimated as follows:

Phase I	Base map preparation	\$1,000
Phase II	Geologic analysis and determination of the size of coal reserves	4,000
Phase III	Market study	2,000
Phase IV	Basic estimated capital investment, operating, and processing costs for the coals in the Coos Bay coal field	?
Phase V	Final report	3,000

Phases ~~I and V~~ ^{I and V}, totaling ~~\$4,000~~ ^{4,000}, will be funded by the Oregon Department of Geology and Mineral Industries. Phase III, totaling \$2,000, will be funded by the Oregon Economic Development Commission.

For Phase II, the State will need a grant of \$4,000 from the U.S. Bureau of Mines. These funds will be utilized to obtain the services of Ewart ^{M.} Baldwin, ~~Head~~, Department of Geology, University of Oregon, and Paul Hughes, private consultant, to make the geologic analysis of the deposit and determine the size of the coal reserves. Both geologists have had a long familiarity with the field, and their geologic projections and opinions on the deposit would be the best obtainable anywhere.

The data obtained under Phases I, II, and III will be forwarded to the Bureau's Process Evaluation Group - MRED, Morgantown, W. Va., for its use in completing Phase IV of the project. The cost of this segment of the project is unknown. The State feels that the Morgantown group is the only unit in the United States that can develop the kind of information wanted ~~by the Bureau of Mines~~ as shown under Phase IV, A. 1, 2, and 3.

Cost Summary and Responsibility

Phase I	Responsibility of State; funded by State	\$1,000	
Phase II	Responsibility of State; FUNDED BY BUREAU OF MINES		\$4,000
Phase III	Responsibility of State; funded by State	2,000	
Phase IV	RESPONSIBILITY OF BUREAU OF MINES; FUNDED BY BUREAU OF MINES TO PEG - MRED, MORGANTOWN		?
Phase V	Responsibility of State; funded by State 4 3,000 <i>PUBLICATION OF IC SERIES RESPON. OF U. S. B. M.</i>		?
Total funded by State		6,000	
TOTAL FUNDED BY BUREAU TO STATE			4,000
TOTAL FUNDED BY BUREAU TO PEG-MRED, MORGANTOWN			?

1/ If the Bureau of Mines prefers to publish the report under its own series, the Department of Geology and Mineral Industries will readily concur with such an arrangement. The main point is to have the report published and immediately available for use and reference.

BACKGROUND INFORMATION ON THE COOS BAY COAL FIELD

Location

The Coos Bay coal field is situated on the coast of southwest Oregon in Coos County readily accessible to railroad and to the harbor of Coos Bay. It lies within a roughly elliptical structural basin measuring 35 miles north and south by 11 miles east and west.

Past Investigations in the Coos Bay Coal Field

The first detailed survey of the coals in the Coos Bay field was made in 1896 for the U.S. Geological Survey by J.S. Diller. The results of the survey were published in 1889, 1901, and 1911. Other early reports were made by Newberry (1857), Goodyear (1877), Rockwell (1902), Smith (1902), and Stovall (1905).

In 1938, Libbey made a progress report, and in 1940, Yancey and Geer of the Bureau of Mines sampled and made analyses of the coals. The results of this study were published in Bulletin 20, Department of Geology and Mineral Industries.

The Department of Geology and Mineral Industries then made a detailed study in 1944. The study was made by Ewart Baldwin and published as Bulletin 27, Geology and Coal Resources of the Coos Bay Quadrangle, Oregon.

The Bureau of Mines, impressed with the findings in Bulletin 27, conducted a major study on the field in 1948. The results were published in Technical Paper 707, Movable Reserves, Petrography, Chemical Characteristics, and Washability Tests of Coal Occurring in the Coos Bay Coal Field, Coos County, Oregon. In I.C. 8430, M.R. Geer discussed the problem of disposal of solid wastes from future mining activities.

General Geology

About 6,000 feet of upper Eocene Coaledo sediments are confined to a complex structural basin occupying the central portion of the quadrangle. The lower and upper Coaledo members consist of medium-bedded tuffaceous sandstones made up largely of basaltic glass, separated by the middle Coaledo member consisting of as much as 2,300 feet of dark tuffaceous shale of more acidic composition. The principal coal beds occur in the upper and lower sandstone members of the Coaledo Formation.

The Coaledo and the later Oligocene formations in the major basin were compressed during the Miocene into north-trending folds, and faulted by north-trending faults and by more numerous transverse faults. The Pliocene Empire Formation, comprising about 2,000 feet of poorly bedded sandstone, unconformably overlies the Oligocene and Eocene strata in the South Slough syncline and has been folded along the same axis as the older formations but to a lesser degree. Pleistocene terrace and estuarine deposits cover the coastal plain and major valley bottoms.

The coals of the upper Coaledo have been designated as the upper coal group and those of the lower Coaledo the lower coal group. Coals in undifferentiated parts of the Coaledo Formation have not been classified according to age.

The Beaver Hill bed, lowest coal of the upper group, has been mined more extensively than any other bed. With a few exceptions, other beds of the Coaledo Formation have not yielded great tonnages, as these beds are usually higher in ash and contain more numerous partings. The coals of the lower group have a higher heating value but have a higher ash content, and mining conditions are relatively unfavorable.

History of Coos Bay Coal Production

Mining in the coal field which surrounds Coos Bay and extends south for more than 30 miles to a point beyond Coquille began soon after the region was settled in the early 1850's. Coal was discovered near Empire in 1854, and the mines just southwest of Coos Bay first operated in 1855. By 1880, when records were first kept, production was about 40,000 tons a year, and for 15 years, annual production ranged between 30,000 and 75,000 tons. In 1896 and 1897, the production mostly from Eastport and Newport mines exceeded 100,000 tons a year, a figure not reached again until 1904, the year of maximum production, when 111,540 tons of coal was shipped.

The coal was often loaded for shipment to the San Francisco Bay region on coastwise steamers which came far up the sloughs, in some cases almost to the mine portals. Since 1905, there has been a general decrease in production, attributable in part to the decline of the California market, and because in the 1920's, oil began to replace coal in railroad operation and in domestic heating. From 1903 to 1920, at least half the total production came from the Beaver Hill mine, which was owned and operated by the Southern Pacific Company. When it closed down in 1923, it had reached a depth of 1,400 feet below sea level and a distance of 3,030 feet down the dip of the coal. Since that time, coal has been produced largely for local consumption, at a rate varying from 7,000 to 15,000 tons a year. The largest production in the Coos Bay district has been from the Newport basin, which includes the Eastport, the Newport or Libby, and the Englewood mines. This basin is a shallow canoe-shaped syncline located from 2 to 3 miles southwest and west of Coos Bay. It has produced over a million tons but is now practically mined out. The recorded production of the Coos Bay field from 1880 to 1920 was 2,380,000 tons. Probably the total production is in the order of 3,000,000 tons.

Character of the Coal

The Coos Bay coals are subbituminous in rank. None of the coals have coking properties and are characterized by a relatively high moisture content, a moderate percentage of ash, and a low sulfur content. The heating value ranges from 9,000 to 10,000 Btu per pound on an "as received" basis.

All of the coals have low friability indices, thus indicating that they will withstand well the forces of impact and attrition that produce breakage and degradation in size during handling.

Slacking tests showed that all of the coals will weather or slack to some extent when exposed to the elements after mining. Most of the coals are classed as strongly slacking and therefore will not withstand storage during dry weather unless the loss of moisture can be prevented.

On low-temperature carbonization in the laboratory, the coals yield 16 to 37 percent water, 4 to 12 percent tar and oil, 6 to 11 percent gas having a heating value of 450 to 730 Btu per cubic foot, and 475 to 70 percent char. The char is low in moisture and volatile matter, contains a moderate percentage of ash in most cases, and in general, has a high heating value, namely, over 13,000 Btu per pound. In short, it is a high-quality, smokeless fuel.

Under laboratory conditions, 88 percent or more of the dry Thomas coal can be liquefied by hydrogenation, indicating that this coal would be technically suitable for full-scale commercial hydrogenation.

Burning tests of the Southport and Alpine coals on an overfeed-type domestic stoker and hot-water boiler demonstrated that the Coos Bay coals can be burned satisfactorily and with high efficiency on equipment of this type.

Estimated Reserves

The minable reserves in the Coos Bay coal field are many times that of the recorded production of $2\frac{1}{2}$ million tons. The Beaver Hill coal bed, from which most of this production has been derived, has seldom been mined below 500 feet down the dip, and only the Beaver Hill mine has approached the maximum practicable depth of mining.

Campbell (1913) estimated that the coal reserves of the Coos Bay area were a billion tons. Results of the present survey would not alter this estimate, but qualifications concerning economical grade should be made. Two major coal groups, the upper and lower Coaledo coals, have been mapped.

The lower Coaledo coals have an advantage in being slightly higher in rank although they are generally bonier and the ash is in such a form that it is inherent in the coal and difficult to separate. With improved mining methods, coupled with adequate washing and sorting, selected portions of the thick lower Coaledo and undifferentiated coals could produce a product equal to the more desirable upper coals. As the better and more available coal of the upper coal group is exhausted, and as the need for coal for byproducts becomes greater, the vast reserve of the lower Coaledo and undifferentiated coals may be utilized.

Minability of the Coal

The thickness of the coal beds in the Coos Bay area ranges from less than an inch to more than 19 feet, but only the Beaver Hill and Riverton beds have been extensively mined. The Beaver Hill bed has a fairly uniform thickness over an outcrop distance of about 7 miles from the Southport on the north to the Klondike mine on the south. The thickness of minable coal is rarely less than 4 feet and usually is more than 5 feet. In the Newport basin, the thickness was usually over 5 feet in the Libby, Eastport, and Englewood mines. The Riverton bed averages between 3 and 4 feet in thickness.

Attempts to mine coal in thinner beds have been numerous (Wilcox, Belfast, Reservoir, and other mines), but the additional expense of brushing out the roof or floor in order to permit access for miners and equipment has restricted such mining. Attempts to mine thicker beds (Sevenmile, Gilbert, and Gibbs) have been unsuccessful because of the steep attitude or bony nature of the coal.

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STATE DEPARTMENT OF GEOLOGY AND
MINERAL INDUSTRIES

702 WOODLARK BUILDING
PORTLAND, OREGON

Dear

The 1942 summer's field work will be the last for several years for most of us, unless we are working in strategic minerals. So that a record may be made of work already done, will you please list on the enclosed questionnaire any publications or geological work you have done in the State of Oregon since July, 1939 and return it to this office? If the material supplied us is to be kept confidential please let us know and we will, of course, follow your wishes. We certainly will appreciate any information you may supply us.

This will help to bring the "Bibliography of Oregon Geology" up to date for the duration, and also help us keep a record of "Reports in Progress" for confidential information to people doing research of a geological nature in Oregon. Any information as regards the progress of your associates whom we may not reach by this letter will be very welcome to us.

I am enclosing for your information a key map showing the progress of geologic mapping in Oregon - both those maps published, and those in manuscript or in progress. If this is not complete, we would appreciate your informing us as to how it may be brought up to date. Two errors have already appeared: (1) 7-a, Molalla Quadrangle, should be moved one quadrangle to the west; (2) Omission of area north of 13b mapped by Lupton, R. W., and published as "Jurassic Stratigraphy of Central Oregon"; Geological Society of America Bulletin, vol. 52, No. 2, 1941.

Yours very truly,

John Eliot Allen
Geologist

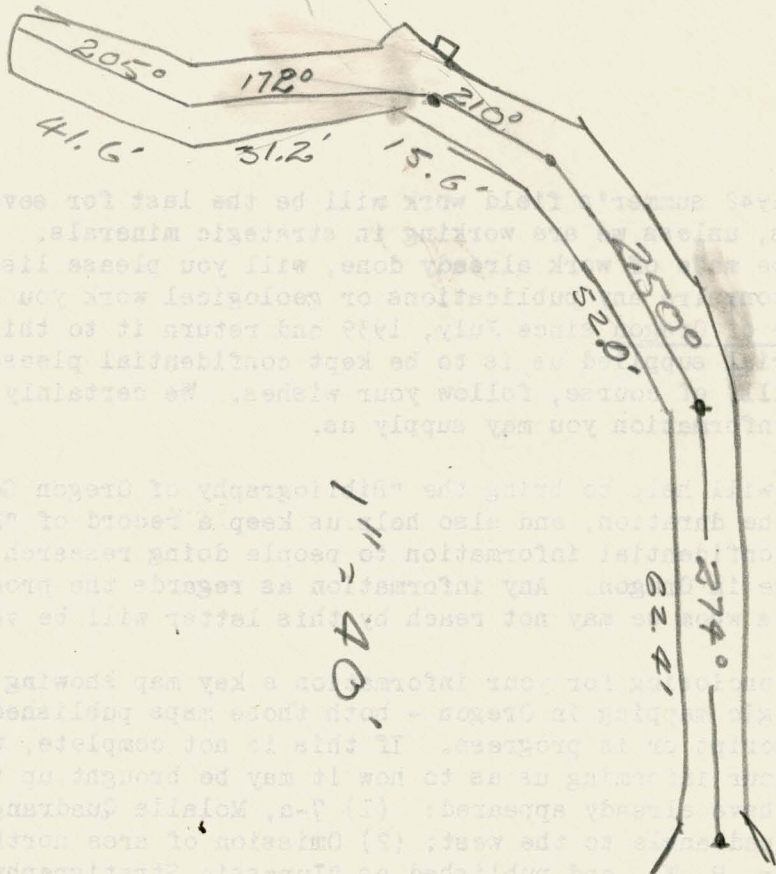
JEA:jr
Encl.

STATE ASSAY LABORATORY
 600 E. 1st Street
 Astoria, Oregon
 1911



STATE DEPARTMENT OF GEOLOGY AND
 MINERAL INDUSTRIES
 705 WOODLARK BUILDING
 PORTLAND, OREGON

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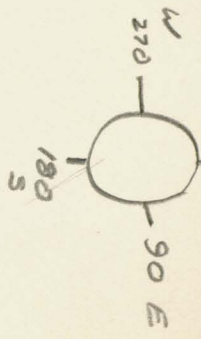
The 1922 map of Oregon, which will be the last for several years for work of us, and the work in stratigraphic minerals. So that a record may be made, with you please, will you please file on the enclosed questionnaires or publications or geological work you have done in the State of Oregon since July, 1919 and return it to this office. If the material is to be kept confidential please let us know and we will, of course, follow your wishes. We certainly will appreciate any information you may supply us.

This will be to bring the "Geography of Oregon" up to date for the future, and also to keep a record of "Oregon's Progress". For the most part, information is being done by a geological survey. Any information as regards the progress of your research may not reach this office, but it will be very welcome to us.

I am sending you for your information a key map showing the progress of geological work in Oregon - from those maps published, and those in preparation. If this is not complete, we would appreciate the work being done as to how it may be brought up to date. The work already appeared: (1) 1-a, Molalla Quadrangle, should be revised to the west; (2) Oregon of area north of 130 mapped by Lusk, H., and published as "Stratigraphic Geology of Central Oregon", Geological Society of America Bulletin, vol. 52, no. 2, 1941.

Yours very truly,

John Elliot Allen
 Geologist





STATE DEPARTMENT OF GEOLOGY
AND MINERAL INDUSTRIES

702 WOODLARK BUILDING
PORTLAND 5, OREGON

December 3, 1948

Sample submitted by D.O.G.A.M.I. (F.W.I.)

Analysis by:

Sample received on November 24, 1948

L. L. Hoagland
Assayer

Analysis requested Proximate coal analysis

Lab. No.	Sample Marked	Results of Analysis	Remarks
P-8097	Vernonia coal	"As received" basis Moisture 27.38% Ash 23.31% Volatile matter 26.30% Fixed carbon 23.14% B.t.u. 6,042	-----
***	****	*****	*****
The Department did not participate in the taking of this sample and assumes responsibility only for the analytical results.			

August 16, 1956

Coquille Power Plant Plans Revealed by PP&L

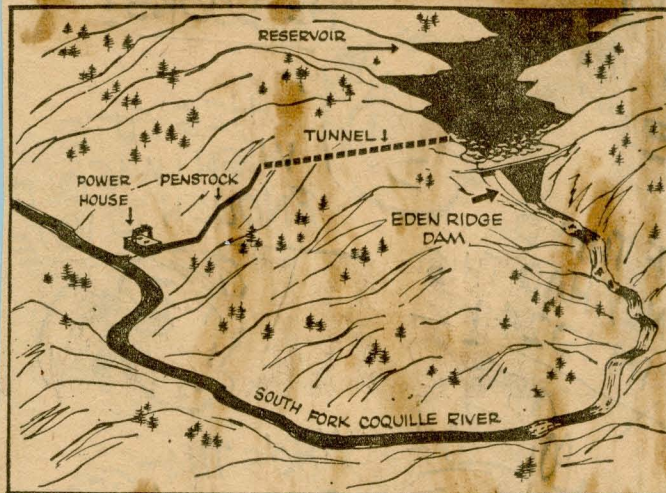


Diagram shows how two-mile tunnel through Eden Ridge would carry water from reservoir to power plant of proposed hydro-electric project which Pacific Power & Light company plans to investigate on south fork of Coquille in Coos county.

COQUILLE (Special) — Possibility of hydroelectric and coal projects on the south fork of the Coquille river was revealed here Tuesday night by Paul B. McKee, president of Pacific Power & Light company, in a meeting with Coos county civic and industrial leaders.

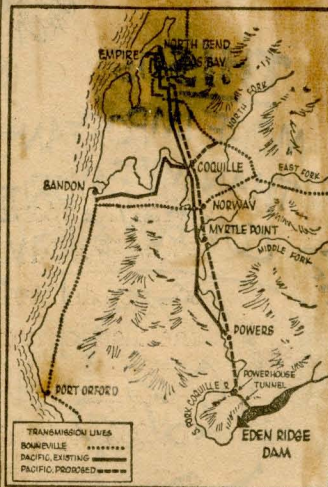
The company is ready to start active investigation of the proposed site at Eden Ridge, south of Powers, for the hydro project which is estimated at 67,500 kilowatts, McKee said. Plans also call for exploring the possibility of using coal from a nearby field for a modern steam-electric generating plant of 100,000 kilowatts as a companion development.

Applications Ready

McKee said the power company is ready to file applications with the Oregon hydro-electric commission and the federal power commission for preliminary permits to investigate the site.

It holds prospecting rights for investigation of coal beds which lie on Eden Ridge. Preliminary exploration indicates the coal fields may hold a reserve of 50,000,000 tons, he said.

The coal-hydro combination at the proposed site presents an unusual opportunity to utilize the hydro power of a highly seasonal river by firming it up



Eden Ridge hydro-electric site lies south of Powers on loop of Coquille's south fork. Proposed dam is estimated to turn out 67,500 kilowatts of power.

with steam-generated electricity, McKee said.

The proposed plant would make use of a 12-mile loop on the south fork in which the river drops to 1650 feet in its swing around the ridge. Distance across the neck of the loop is just over two miles. The company's preliminary study suggests a dam 170 feet high at a point behind the ridge and about 23 miles upstream from Powers.

Fish Not Affected

This is well above the highest point in the stream reached by migratory fish because of the natural obstacles presented by more than 1000 feet of fall concentrated in only 1½ miles of the river, McKee pointed out.

From this reservoir a tunnel 11,000 feet long would be drilled through the ridge to drop the water through penstock pipes to a power house near Delta creek, about 11 miles from Powers.

Studies of the project may show that a dam as high as 250 feet and a generating plant possibly as large as 100,000 kilowatts will be feasible, McKee said.

MINUTES OF THE NINTH MEETING OF THE STATE MAPPING ADVISORY COMMITTEE

May 21, 1956 - Portland, Oregon

The meeting was called to order at 1:15 p.m. by Chairman Libbey. Minutes of the previous meeting were approved.

Baum moved, with a second by Blair, that the secretary write to the Governor requesting that the present members of the Committee be reappointed for a period of one year. Motion carried.

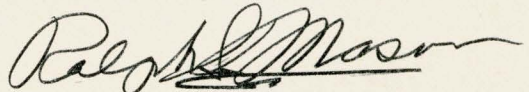
Libbey reported that at the last meeting of the Committee on Natural Resources, the State Engineer had agreed to put a \$50,000 item in his budget for the coming biennium for cooperative mapping with the U. S. Geological Survey. There was considerable discussion concerning how much additional mapping the cooperative funds would produce. It was agreed by Baum that he would write to FitzGerald as secretary of the Natural Resources Committee and request information on increase in mapping by the cooperative funds for the possible need of the Mapping Committee when the State Engineer's budget comes before Ways and Means Committee of Legislature. Baum reported that the Water Resources Board would help in backing the cooperative project. Libbey said that he would appoint a committee on appropriations in the near future. Both Flach and Latham offered to attend a Ways and Means hearing as observers and to answer questions on the desirability for appropriations.

It was suggested that Mr. E. J. Watson, engineer for the Water Resources Board, be invited to attend the next meeting of the Committee. It was also suggested that Mr. Glen Purnell be appointed a Committee member to replace the position vacated by Baum as member with the Soil Conservation Service.

A brief report on the progress of planimetric mapping by the U. S. Forest Service was presented by Flach. Latham reported on work being done by the Coast and Geodetic Survey in Netarts Bay, Tillamook Bay, the Siuslaw, and the mouth of the Columbia. Blair reported that the Highway Department is buying aerial photos in north-central Oregon which will be used for 15-minute planimetric quadrangles. Valentine said that the State Board of Forestry is preparing planimetrics on areas in Tillamook, Clackamas, and Marion counties. Hurst reported that the Tax Commission is preparing ownership maps in Columbia and Clatsop counties on a planimetric base.

A general discussion of the status of topographic mapping in the State preceded adjournment at 2:30 p.m.

Respectfully submitted,



Ralph S. Mason, Secretary

Roster of those attending

Robert C. Baum
Jay W. Blair
Aubrey H. Bond
Hollis M. Dole

V. H. Flach
N. V. Hurst
Ector B. Latham
F. W. Libbey

R. S. Mason
E. T. Pierce
Ralph R. Valentine
Chris L. Wheeler

SALEM STATESMAN

August 23, 1956

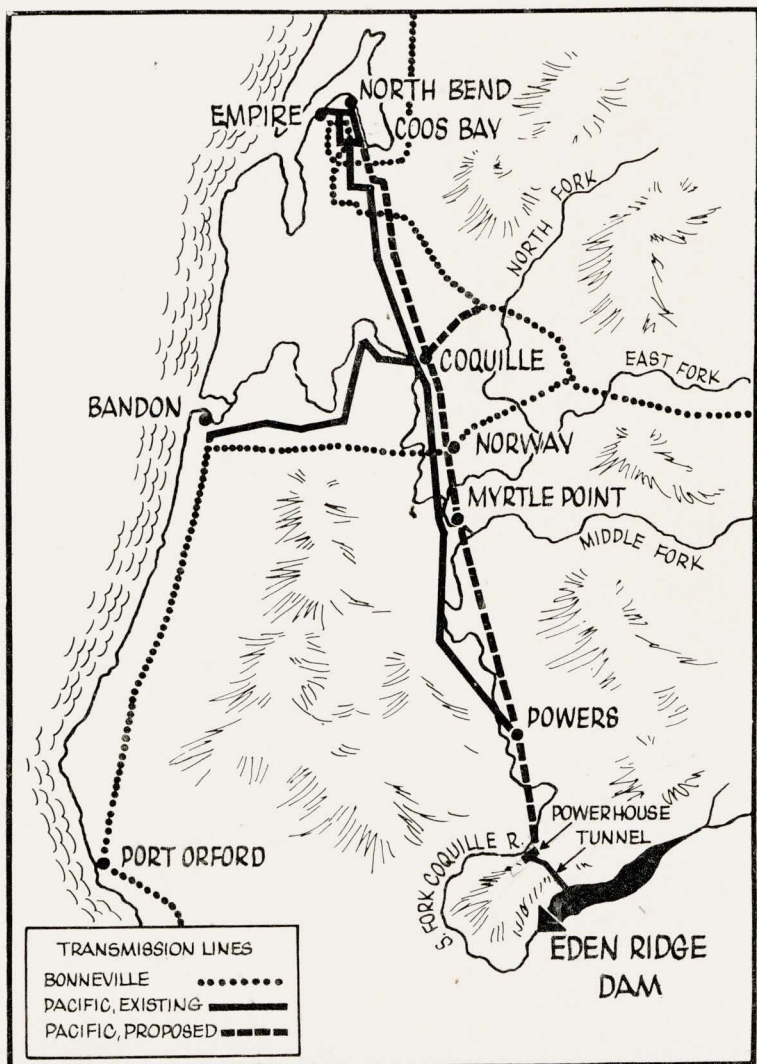
PP&L Asks Coquille River Dam Permit

WASHINGTON (AP) — Pacific Power Light Co., Portland, Ore., Wednesday asked the Power Commission for a preliminary permit for a proposed hydro-electric project on the Coquille River in Coos County, Ore.

The project would have installed capacity of about 67,500 kilowatts. However, the average output would be about 19,000 kilowatts with the average annual production about 163 million kilowatt-hours.

The company designated it as the Eden Ridge Hydro-electric Project. It would be located on the south fork of the Coquille.

A preliminary permit merely grants the holder priority of application for a commission license while conducting the necessary studies to prepare an application. It does not permit any construction.



An interesting and challenging possibility of development of large quantities of electric power from Coos county coal and hydroelectric resources was presented to civic, community and industrial leaders of the county Tuesday night by Paul B. McKee, president of Pacific Power & Light company, at a meeting in Coquille.

Pacific Power & Light, he declared, is ready to start active investigation of a site on the Coquille river which may be suitable for a large hydro project, estimated at 67,500 kilowatts.

At the same time, the power company will explore the possibility of using coal from a nearby field for a modern steam-electric generating plant of 100,000 kilowatts as a companion development.

McKee told the group that the power company is ready to file applications with the Oregon hydroelectric commission and the federal power commission for preliminary permits to investigate the proposed site at Eden Ridge on the South fork of the Coquille.

The company also holds prospecting rights for investigation of coal beds which lie on Eden Ridge. Preliminary exploration indicates the coal fields may hold a reserve of 50,000,000 tons, he said.

Cost of the exploration alone of the two potential developments is expected to run between \$300,000 and \$400,000.

If investigation proves both projects feasible, it might be possible under favorable circumstances to develop as much as 300,000 kilowatts, McKee said.

more

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STATE DEPT. OF GEOLOGY
& MINERAL INDS.

Questioned about the cost of a development such as the company plans to study, McKee said that it might run between \$30,000,000 and \$50,000,000.

The opportunity for such a possible power development program became apparent during continuing studies by Pacific Power and Light of the industrial possibilities of the Coos county area, McKee told the meeting.

"We have found what we feel is a good possibility for development and we are ready to invest the large sums necessary in investigation to prove out the economic feasibility of these resources," he declared.

"The combination of a possible hydroelectric site beside coal deposits is a rare one, especially here in the fuel-short Pacific Northwest.

"If we are able to work out a feasible development of these two resources, it could mean both fuel and an industrial raw material as well as a new source of power for the region."

Development of a large power source in this section of southwestern Oregon would be especially valuable as a stabilizing force for the northwest power pool as well as a strong reinforcement for the transmission lines and the local power plants which serve the area.

The coal-hydro combination at Eden Ridge, McKee pointed out, presents an unusual opportunity to utilize the hydro power of a highly seasonal river by ~~combining~~ ^{combining} it ~~up~~ with steam-generated electricity.

In answer to questions about the effect of the proposed Eden Ridge hydro project on fish, McKee said that the company believes that the development could be made to actually improve fishing conditions, ~~by augmenting the flow of water in the South fork, which falls to low levels during the summer.~~

He said that the company's own fish biologist is actively studying the project and declared that the company will work closely with the state departments of fish and game in its study, as well as with federal agencies concerned. The project area lies within the Siskiyou national forest.

Pacific's proposed Eden Ridge hydro plant would make use of a 12-mile loop on the South fork about 11 miles south of Powers, in which the river drops 1650 feet in its swing around the ridge. Distance across the neck of the loop is just over two miles.

The power company's preliminary study suggests a dam 170 feet high at a point behind the ridge and about 23 miles upstream from Powers.

This is well above the highest point in the stream reached by migratory fish because of the natural obstacles presented by more than 1000 feet of fall concentrated in only $1\frac{1}{2}$ miles of the river.

From this reservoir a tunnel 11,000 feet long would be drilled through the ridge to drop the water through penstock pipes to a power house near Delta creek, about 11 miles from Powers.

McKee said that studies of the project may show that a dam as high as 250 feet and a generating plant possibly as large as 100,000 kilowatts will be feasible.

He pointed out that the company will look into the ^{flood control} effect a higher dam and larger reservoir might have on ~~floodings~~ the Coquille river, ~~such as caused heavy damage last winter~~.

Drill rigs to carry out an intensive exploration of the Eden Ridge coal fields are expected to move into the area in the near future. The deposits lie in several beds, one above the other, and cover an area of more than 5000 acres.

McKee indicated that the cost of mining the coal will be one of the important studies, and expressed the ^{hope} ~~belief~~ that the deposits are in horizontal beds which ~~will not require expensive "deep" mining~~ ^{may be susceptible of low-cost mining.}

caption, 2-col mat:

EDEN RIDGE hydroelectric site in Coos county which Pacific Power & Light company plans to investigate lies south of Powers on loop of Coquille river's South fork. Project is estimated at 67,500 kilowatts. Coal deposits on same ridge will be investigated as possible fuel supply for a large steam-electric power plant.

May 23, 1956

Dr. H. F. Yancey, Chief
Division of Solid Fuels Technology
Region I
U. S. Bureau of Mines
University Campus
Seattle 5, Washington

Dear Dr. Yancey:

As I promised you on my recent visit to your office, I have got in touch with Mr. G. D. Rannells of Aurora. He informs me that he will have the coal faces at Eden Ridge in readiness for sampling by you the latter part of June. I hope to check up on his preparations between now and then, but have no definite time scheduled for such a trip.

Rannells indicated that he might be moving in a large trailer house to serve as a base of operations at the Ridge but will let you know about this later. If he does bring in a trailer house it will greatly simplify the sampling operation, since it would save making the long drive from Powers up to the coal more than once.

With kindest personal regards,

Sincerely yours,

Ralph S. Mason
Mining Engineer

RSM:lk



UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
UNIVERSITY CAMPUS
SEATTLE 5, WASHINGTON

December 16, 1955

Mr. Ralph S. Mason
Department of Geology and Mineral Industries
1069 State Office Building
Portland 1, Oregon

Dear Mr. Mason:

Your letter of December 14 about your trip to the new Eden Ridge coal prospect was not received until this morning. I hope you do not depart on your trip until you receive this reply as Messrs. McGuire and Grillos of the Bureau Safety Station just returned last night from a visit to the property.

They found that all work has been suspended for the winter and will not be resumed until next April. However, the mine opening is accessible except for a four-foot tree that has fallen across the road about 1/4 mile from the portal. Under the circumstances only specimens were obtained and when these are examined he will let you know the results.

Based on the information obtained by Mr. McGuire at the mine and by talking with Mr. Rannells in Riddle, I believe it is desirable for us to collect a sample for washability examination and also of course for analysis next spring when prospecting is resumed and a fresh face is available. When this work is completed we will send you a copy of the results.

Meanwhile, should you visit the property, we would appreciate receiving a channel sample taken according to our procedure.

Very truly yours,

H. E. Yancey, Chief
Division of Solid Fuels Technology
Region I

TBS/11

SIX RIGS OPERATING

Pacific Power Steps Up Eden Ridge Exploring

Exploration of coal deposits at Eden Ridge, site of Pacific Power and Light co.'s proposed hydroelectric and steam-electric generating project, has been stepped up in order to complete as much work as possible before the onset of hampering snow and mud conditions, according to Deskin O. Bergey, district manager for the power company.

Six drilling rigs and crews are in operation on a two-shift, six-day-week basis on the project and the company has constructed an exploration camp at Ash Swamp, four miles upstream from the proposed dam site.

Studies of the coal field, being made under prospecting permits obtained earlier by the company, will determine feasibility of the steam-electric project, Bergey said.

Coal May Be Better

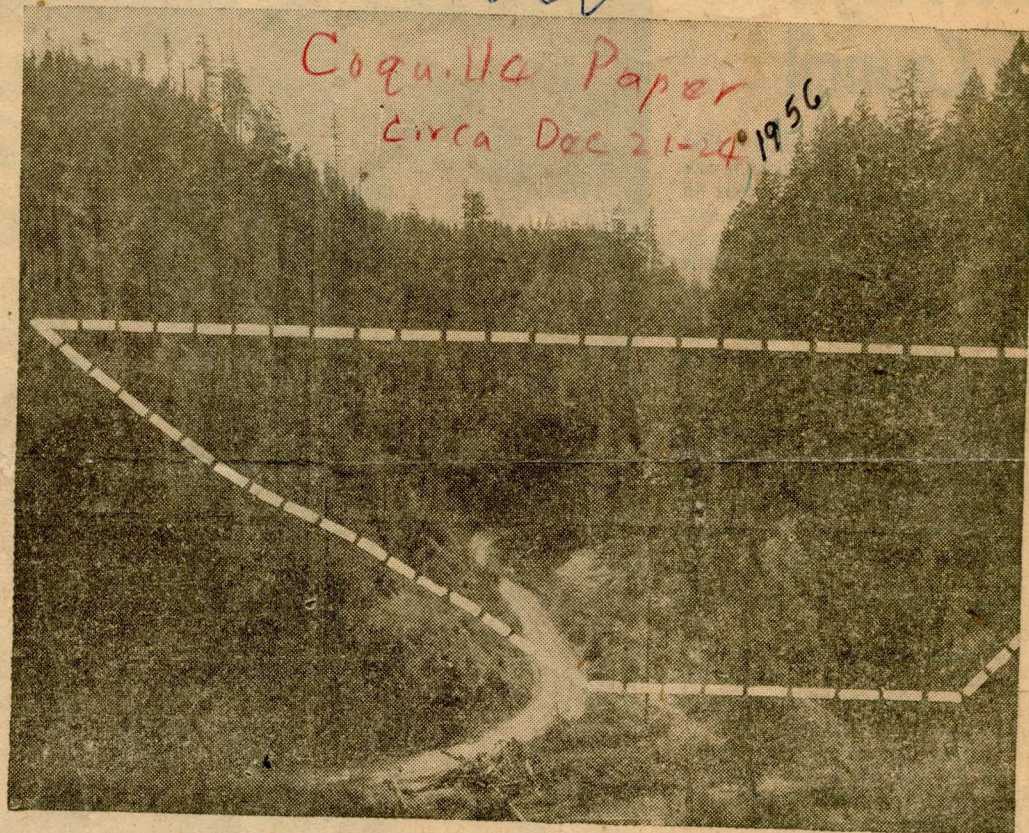
Recent indications are that there is more and better coal than had first been thought. The extent of the field is not yet known, but it is thought to be large.

The field is in somewhat horizontal layers, unlike other coal deposits in Coos County, which lie vertically, so mining operations would be easier and less expensive. It contains what has been termed a sub-bituminous grade of coal, a step above the brown coal common to the county.

Preliminary permits to investigate the proposed hydroelectric sited, located some 23 miles upstream from Powers on the south fork of the Coquille River, are pending before the Federal Power Commission and are likely to be forthcoming from the Oregon Hydroelectric Commission.

At a hearing Friday in the Coos County Courthouse, the Hydroelectric Commission will consider only provisional intervention by the City of Coquille and the Oregon Fish Commission. No formal protests had been filed at the deadline date last week.

The City of Coquille and the Oregon Fish Commission seek only routine assurances of protection against, respectively, the intrusion of salt water into the Coquille River and damage to fish life, neither of which is threatened by present dam-building plans. Conservative estimates by Pa-



Eden Ridge dam site, where Pacific Power & Light Co. contemplates hydroelectric development on south fork of the Coquille River, with approximate position of dam indicated by dotted lines. Photo was taken upstream from the site. Located 23 miles upstream from Powers, dam would be more than 200 feet high. Output of combined hydroelectric and steam-electric generating development as proposed by the power company would be at least 167,500 kilowatts.

cific Power engineers place generating capacity of the combined hydro-thermal project at 167,500 kilowatts. Bergey pointed out, however, that the estimated 67,500-kilowatt hydro site might prove capable of 100,000-kilowatt generation and coal deposits might make possible a steam plant with capacity of 200,000 kil-

owatts, double the original estimate.

The contemplated hydro project would utilize a 12-mile loop formed by the South Coquille as it winds around Eden Ridge. From the reservoir at the top of the loop, nearly three miles of tunnel and penstock would carry water through Eden Ridge and drop it 1650 feet to a power house on

the Coquille River at McGurdy Creek.

The proposed dam is located well upstream from the highest point on the river accessible to migratory fish and preliminary studies by Pacific Power's fish and wildlife biologist indicate that the project might improve present fishing conditions downstream.

P. 1601 B.

acid B.t.u. 81.0
5cm wire 25.2

6.03% H₂O
2.22% Sulphur,
moisture "as Rec'd" 22.95%
ash "as Rec'd" 14.31%

9397 gm. coal

Corrected Temperature

11.16 - 73.06

17 - 73.065

18 - 73.065

19 - 73.065

20 - 73.07

21 - 73.07

Initial 73.07 Final 76.505

Computation for Radiation

$$r_1 = \frac{0.1}{5} = .002^\circ \text{ per minute}$$

2203 - 75.13

$$(b-a) = 1.03 \text{ minutes}$$

Corrected Initial = 73.07

$$+ (.002 \times 1.03) = 73.072$$

26 - 76.505

27 - 76.505

28 - 76.505

29 - 76.505

30 - 76.505

$$r_2 = \frac{0.1}{5} = .002^\circ \text{ per minute}$$

$$\text{Corrected final} = 76.505 + (.002 \times 3.97) = 76.513$$

31 - 76.495

$$\text{Corrected total rise} = 76.513 - 73.072 = 3.441$$

$$\text{Total B.t.u.} = 2413 \times 3.441 = 8,303.0$$

Audity titration - 81.0

Correction for wire - 25.2

Correction for sulphur - 51.94

158.

B.t.u. for 9397 lb Coal - 8,145

B.t.u. per pound coal - 8,667

B.t.u. "as Rec'd" 6,678.

P. 1602 (1)

Room Temp. 76.7

1:20 - 75.74

"21 - 75.74

"22 - 75.74

"23 - 75.745

"24 - 75.75

(a) "25 - 75.75

(b) :2618 - 77.76

:30 - 79.10

:31 - 79.10

:32 - 79.10

:33 - 79.10

:34 - 79.10

:35 - 79.10

40.3 B.t.u. 8 cm wire

31.6 B.t.u. acid

11.40 Sulphur 0.48%

Water Equivalent = 2,413

Moisture "as Rec'd" 20.1%

Ash - 20.83

Corrected Temperature

Initial 75.75 Final 79.10

Computations for Radiation

$$r_1 = \frac{.01}{5} = 0.002^\circ \text{ per minute}$$

$$(b-a) = 1.18 \text{ min}$$

$$\text{Corrected initial} = 75.75$$

$$+ (0.002 \times 1.18) = 75.7524$$

$$r_2 = 0.0$$

$$\text{Corrected final} = 79.10$$

$$\text{Corrected total rise} = 79.10 - 75.7524$$

$$= 3.3476$$

$$\text{Total B.t.u.} = 2413.0 \times 3.3476 = 8,077.75$$

acidity titration - - - 31.6

Correction for wire - - - 40.3

Correction for sulphur - - - 11.4

83 X

B.t.u. for .19548 lb Coal - - - 7,994.

B.t.u. per pound - - - 8,372.

B.t.u. per pound Coal "as Rec'd" 6,689.

9,000

P-1602-2 Room Temp 74.5 4.52% H₂O

acid - 29.4 B.t.U.

wire - 40.3 ✓

Sulphur - 11.4 ✓ = 0.485%

moisture "as Rec'd" = 20.1%

ash - 20.82%

10:14 - - - - 73.005

11:5 - - - - 73.005

11:16 - - - - 73.005

11:17 - - - - 73.005

11:18 - - - - 73.005

(a) 11:19 - - - - 73.005

Corrected Temperature

Initial 73.005 Final 76.37

Computations for Radiation

$r_1 \times 0 = 0^\circ \text{ per minute}$

(b) 12:01:2 - - - - 75.024

(b-a) = 1.12 min

Corrected Initial 73.005

(c) 12:24 - - - - 76.37

12:25 - - - - 76.37

12:26 - - - - 76.37

12:27 - - - - 76.37

12:28 - - - - 76.37

12:29 - - - - 76.36

$r_2 = \frac{0.01}{5} = 0.002^\circ \text{ per minute}$

Corrected final = $76.37 + (0.002 \times 3.88)$

= 76.378

Corrected total rise = $76.378 - 73.005$

= 3.373

Total B.t.U. = $2413 \times 3.373 = 8,139.0$

Acidity titration - - - - 29.4

Correction for wire - - - - 40.3

Correction for Sulphur - - - - 11.4

81

B.t.U. for 9548 lb Coal - - - 8,058

B.t.U. per pound Coal. - - - 8,439

B.t.U per # Coal "as Rec'd" 8,743

P.1603-2

Room Temp 73°

14.33% H₂O = .8567 gr.

and 78.0 B.t.u.

wire 40.3 B.t.u.

moisture "as Rec'd" = 10.89

Sulphur. 43.17 ✓ = 1.8%

ash ✓ ✓ = 19.94

91.18 - - - - - 71.425

119 - - - - - 71.43

120 - - - - - 71.43

121 - - - - - 71.435

122 - - - - - 71.44

(a) 123 - - - - - 71.44

Corrected Temperature

Initial 71.44 Final 76.37

Computations for Radiation

$$r_1 = \frac{0.15}{5} = .003^\circ \text{ per minute}$$

(b) .2412 - - - - - 73.666

(b-a) = 1.12 min

Corrected Initial = 71.44

$$+ (0.003 \times 1.12) = 71.443$$

(c) 128 - - - - - 75.15

29 - - - - - 75.15

30 - - - - - 75.15

31 - - - - - 75.15

32 - - - - - 75.15

33 - - - - - 75.145

34 - - - - - 75.14 6 min

$$r_2 = \frac{.01}{6} = .00166^\circ \text{ per minute}$$

$$\text{Corrected final} = 75.15 + (.00166 \times 3.88) = 75.1564$$

$$\text{Corrected total rise} = 75.1564 - 71.443 = 3.7134$$

$$\text{Total B.t.u.} = 2413 \times 3.7134 = 8,960$$

Acidity titration - - - - - 78.0

Correction for Wire - - - - - 40.3

Correction for Sulphur - - - - - 43.7

152

B.t.u. for .8567 lb Coal 8,808

B.t.u. per pound coal - - - - - 10,281

B.t.u. per pound Coal "as Rec'd." - - - - - 9,161

P. 1605 - 2

Room Temp. 74.5°

27.2 B.t.u. acid

20.15 ✓ wire

14.57 ✓ Sulphur = 0.632%

14.02% H₂O

moisture "as Rec'd" 20.2%

ash . . . 27.2%

Water Equivalent 2.413

1.05 = 60% Rise

10:53 - - - - 73.73

54 - - - - 73.73

55 - - - - 73.735

56 - - - - 73.74

57 - - - - 73.745

(a) 58 - - - - 73.745

Corrected Temperature

Initial 73.745 Final 76.60

Computations for Radiation

$$r_1 = \frac{.015}{5} = 0.003^\circ \text{ per minute}$$

$$(b-a) = 1.05 \text{ min}$$

Corrected initial = 73.745

$$+ (0.003 \times 1.05) = 73.748$$

(b) 59:05 - - - - 75.458

:03 - - - - 76.60

:04 - - - - 76.60

:05 - - - - 76.60

:06 - - - - 76.60

:07 - - - - 76.585

:08 - - - - 76.58

$$r_2 = \frac{.02}{5} = 0.004^\circ \text{ per minute}$$

$$\text{Corrected final} = 76.6 + (0.004 \times 3.95) \\ = 76.6158$$

$$\text{Corrected total rise} = 76.6158 - 73.748 \\ = 2.868$$

$$\text{Total B.t.u.} = 2413 \times 2.868 = 6,920.4$$

Acidity titration - - - - 27.20

Correction for wire - - - - 20.15

Correction for Sulphur - - - - 14.57

61.92

B.t.u. for .8598 lb Coal - - 6,858.

B.t.u. per pound Coal - - 7,976.

B.t.u. per pound Coal "as Rec'd" - 6,365.

P-1841-2

.8739^g coal 8 cm wire = 40.3 B.t.u.

12.67 H₂O

Acid = 65.2 B.t.u.

Moisture as Rec'd = 21.81%

Sulphur = 35.8 B.t.u. = 1.55%

Ash ✓ ✓ = 12.23%

Water Equivalent 24.13

1.05' = 60% Base

2:01-----73.50

2:02-----73.505

2:03-----73.515

2:04-----73.52

2:05-----73.52

2:06-----73.52

2:07-----73.54

Corrected Temperature

Initial 73.54 Final 77.30

Computations for Radiation

$$r_1 = \frac{.04}{6} = .008^\circ \text{ per minute}$$

$$(b-a) = 1.05 \text{ minute}$$

$$\text{Corrected initial} = 73.54$$

$$+(0.008 \times 1.05) = 73.548$$

2:0805-----75.796

2:12-----77.30

13-----77.31

14-----77.31

15-----77.305

16-----77.305

17-----77.300

$$r_2 = 0.0$$

$$\text{Corrected final} = 77.30$$

$$\text{Corrected total rise} = 77.30 - 73.548 = 3.752^\circ$$

$$\text{Total B.t.u.} = 24.13 \times 3.752 =$$

$$= 9,053.5$$

Acidity titration ----- 65.2

Correction for wire ----- 40.3

✓ Sulphur ----- 35.8

141.4

B.t.u. for .8723 lb coal ----- 9,053.5

B.t.u. per pound coal ----- 10,216. B.t.u.

B.t.u. per pound coal as Rec'd ----- 7,988. ✓

Room Temp 70°

8cm wire = 40.3 B.t.u.

10.62% H₂O = .89389 Coal

acid 32.0 B.t.u.

Sulphur 20.12 B.t.u. = .86%

moisture 23.15% "as Rec'd"

ash 5.72% "as Rec'd"

3.10 - 71.85

1.1 - 71.85

1.2 - 71.85

1.3 - 71.85

1.4 - 71.85

(a) 1.5 - 71.85

Corrected temperature

Initial 71.85 Final 75.905

Computation for Radiation

r₁ = 0

(b) 1.607 - 74.298

(b.a) = 1.07 minutes

Corrected initial = 71.85°

(c) 1.20 - 75.93

r₂ = $\frac{0.25}{5} = 0.05^\circ \text{ per minute}$

1.25 - 75.905

Corrected final = 75.93 + (0.05 × 3.93)

= 75.948°

Corrected total rise = 75.948 - 71.85

= 4.098

Total B.t.u. = 2413 × 4.098 = 9,888.

Acidity titration - 32.0

Correction for wire - 40.3

Correction for Sulphur - 20.1

92.4

B.t.u. for .8938 lb coal - 9,796

B.t.u. per pound coal - 10,960.

B.t.u. per pound coal "as Rec'd" - 8,423

P-2057

Room Temp 70.2° H₂O = 10.95%

Coal --- .8905 gr. moisture "as Rec'd" 27.7%

8 cm wire --- 40.3 B.t.u. Ash --- 7.32%

Acid --- 53.0 B.t.u.

Sulphur --- 54.4 B.t.u. = 2.326%

Corrected Temperature

4:02 --- 70.285

.03 --- 70.29

.04 --- 70.295

.05 --- 70.30

.06 --- 70.30

(a) .07 --- 70.305

Initial 70.305 Final 74.465

Computation for Radiation:

$$r_1 = \frac{0.2}{5} = .004^\circ \text{ per minute}$$

$$(b-a) = 1.05 \text{ minutes}$$

(b) :08.05 --- 72.794

Corrected initial = 70.305

$$+ (.004 \times 1.05) = 70.309$$

(c) :12 --- 74.465

$$r_2 = \frac{0.3}{6} = .005^\circ \text{ per minute}$$

$$\text{Corrected final} = 74.465 + (.005 \times 3.95)$$

:18 --- 74.435

$$= 74.485$$

$$\text{Corrected total rise} = 74.485 - 70.309$$

$$= 4.176$$

$$\text{Total B.t.u.} = 2413 \times 4.176 = 10,076$$

Acidity titration --- 53.0

Correction for Wire --- 40.3

Correction for Sulphur --- 54.4

147.7

B.t.u. for .8905 lb Coal 9,928.

B.t.u. per pound dry coal. 11,148

B.t.u. per pound coal "as Rec'd" 8,060.

P-2058

QANSEL' TASSOC' KADLSAENUTSPTAS

Room Temp. 73.5; H₂O = 12.30%

100
12.3
87.7

8cm wire

40.3 B.L.U.

coal .8770 gms.

acid

47.5 B.L.U.

moisture "as Rec'd" = 23.64

Sulphur

= 2.12%

ash

= 7.12

Corrected Temperature

21.53 - - - - 71.505

1.54 - - - - 71.51

1.55 - - - - 71.52

1.56 - - - - 71.53

1.57 - - - - 71.535

(a) 1.58 - - - - 71.535

Initial 71.535 Final 75.59

Computation for Radiation

$$r_1 = \frac{.03}{5} = .006^\circ \text{ per minute}$$

$$(b.a) = 1.05 \text{ minutes}$$

(b) 590.3 - - - - 73.968

Corrected initial = 71.535

(c) 31.03 - - - - 75.59

$$+ (.005 \times 1.05) = 71.54^\circ$$

$$r_2 = \frac{.015}{6} = .0025^\circ \text{ per minute}$$

3.09 - - - - 75.575

6 min

$$\text{Corrected final} = 75.59 + (.0025 \times 3.97) = 75.60^\circ$$

$$\text{Corrected total rise} = 75.60 - 71.54 = 4.06^\circ$$

$$\text{Total B.L.U.} = 24.3 \times 4.06 = 9.796.0$$

Acidity titration - - - - 47.5

Correction for wire - - - - 40.3

Correction for Sulphur - - - - 49.6

137

B.L.U. for .8770 lb Coal

9.659

B.L.U. per pound Coal

11.013

B.L.U. per pound Coal "as Rec'd"

8.409

State of Oregon
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
702 Woodlark Building
Portland, Oregon

Marshfield Office
Feb. 8, 1944

Mr. L. L. Hoagland
Portland Office
Dear Mr. Hoagland,

Here is the tabulation on the samples sent recently

Jar# 81	Empire Basin	1/2 mi. E. of 1st Creek	29" bed	29" sample
Jar# 82	Beaver Slough	Cut # 2	84 "	35 "
Jar# 83	Empire Basin	Camman Rd. & 1st Cr	57 "	51 "
Jar# 84	Beaver Slough	Cut # 5		
Jar# 85	" "	Cut # 4	Lower Bench	
Jar# 86	" "	Cut # 4	Upper "	
Jar# 87	" "	Cut # 3		
Jar# 88	Noble Creek			
Jar# 89	Remote	Dump of Dick Mine	84" bed	60" sample
Jar# 90	Lillian	Cave in Lillian Mine	84 "	80 "
Jar# 91	"	Black Diamond Portal	96 "	72 "
Jar# 92	"	Tunnel 500' NW of B.D.	96 "	72 "

Sincerely,

J. F. Cleary

Coos Coal Survey
18 October 1943

Dear Harold:

Earl is bringing a box of samples as follows:

Jars	Project or prospect	Location	Cut #	Thickness	Thickness
				Coal	bed
24	Huntley	26S-12W-N $\frac{1}{2}$ 17		3'1"	4'5"
23	Englewood	5050N-4250E	56	5'7"	9'9"
25	xxxx	4700N-4095E	52	1'10"	
26	"	" "	"	1'11"	
27	"	4600N-4043E	51	5'0"	8'2"
28	"	4700N-4095E	52	5'0"	7'1"
28zz	"				
30	xxxx	5050N-4250E	56	2'6"	
31	"	" "	"	1'11"	
32	"	4600N-4043E	51	1'11"	
33	"	" "	"	1'9"	

Separates of all of these for complete analysis should be saved.

John

Portland, Oregon, Dec. 12, 1910.

The following is our report on samples of Flournoy Coke received from The Camas Coal Co., Roseburg, Oregon.

On Analysis Contained	Per Cent
Moisture	.25
Volatile & Combultile Matter	2.65
Fixed Carbon	73.70
Sulphur	2.40
Ash	21.00
Total	<u>100.00%</u>

Remarks: The B T U heat units of this coke is 12,060.

Charges:

Respectfully yours,

A S Wells.

- - - - -

Portland, Oregon, June 28, 1910

The following is our report on samples of Coal #2 received from The Camas Coal Co., Roseburg, Oregon.

On Analysis Contained	Per Cent
Moisture	4.00
Volatile & Combustile Matter	33.12
Fixed Carbon	52.30
Sulphur	2.77
Phosphorus Trace	
Ash	7.81
Total	<u>100.00%</u>

Portland, Oregon, December 9, 1910.

The following is our report on samples of Coal received from The Camas Coal Company, Roseburg, Oregon.

On Analysis Contained	Per Cent
Moisture	3.50
Volatile & Combustible Matter	36.30
Fixed Carbon	51.30
Ash	8.90

Considering the B T U of this coal and the coking quality, I think it would make a good steam coal.

Total 100.00%

Remarks: The above is Camas Coal and gives a B T U per pound of 13,603, with a 60.20% of coke. As to the quality of the coke the sample sent speaks for itself. In retorting this coke a large quantity of rich gas was produced which burned readily.

Respectfully yours,

A S Wells.

Portland, Oregon, Dec. 12, 1910.

The following is our report on samples of Camas Coke received from The Camas Coal Co., Roseburg, Oregon.

On Analysis Contained	Per cent.
Moisture	.40
Volatile & Combustible Matter	2.19
Fixed Carbon	87.40
Sulphur	2.01

Ash

8.00

Total

^m
100.00%

Remarks: The B T U of this Coke is 14.225 units per lb.

Respectfully yours,

A S Wells.

Portland, Oregon, Dec. 10, 1910.

The following is our report on samples of Camas Coke,
received from The Camas Coal Co., Roseburg, Oregon.

On Analysis Contained	Per Cent
Moisture	.40
Volatile & Combustible Matter	2.40
Fixed Carbon	87.40
Ash	9.80
Total	<u>100.00%</u>

Remarks;

Respectfully yours,

A S Wells.

A S S A Y C E R T I F I C A T E

WELLS & PROEBSTEL
Phone Main 7508

ANALYTICAL CHEMISTS AND ASSAYERS
204 $\frac{1}{2}$ Washington Street

Portland, Oregon, June 3, 1910.

The following is our report on samples of Coking Coal
received from Douglas Developpment Co.

Sample #1. No. 2 hole.

On Analysis Contained		Per Cent
Moisture		2.67%
Volatile & Combustile Matter		41.12
Fixed Carbon		39.32
Ash		11.95
Sulphur		4.94
B T U	12809	
Total		100.00

Remarks:

Charges, \$

Respectfully yours,

A S Wells.

Portland Oregon, June 3, 1910.

The following is our report on samples of Coal received
from Douglas Development Co.

Sample #2. No. 2 hole.

On Analysis Contained		Per Cent
Moisture		2.14

Volatile & Combustible Matter	42.51
Fixed Carbon	38.01
Ash	10.40
Sulphur	6.94
B T U	12902

Total	<u>100.00%</u>
-------	----------------

Remarks: The Coal is a coking article.

Charges: \$

Respectfully yours,

A S Wells.

- - - - -

Portland, Oregon, June 3, 1910.

The following is our report on samples of Coal received from Douglas Development Co.

Sample #3. No. 2 hole.

	On Analysis Contained	Per Cent
Moisture		2.78
Volatile & Combustible Matter		37.22
Fixed Carbon		46.56
Ash		11.15
Sulphur		2.29
B T U	13225	
	Total	<u>100.00%</u>

Remarks: Coal is coking.

Charges: \$

Respectfully yours,

A S Wells.

Appendix

MANDRONES COAL MINE

Section of Coal Bed

Tunnel No. 1

Section taken at face on left or north side,

325 feet from portal.

	Ft.	in.
Shale, carbonaceous		
Bone and coal in thin seams	3	0
Clay		1
Coal		4
Clay		2 $\frac{1}{2}$
Coal		8
Clay, hard, yellow		2
Bone		2
Coal, bright	1	1
Clay		3
Coal, bright		4
Clay		5
Coal		6
Clay (bottom not seen)		
Total thickness of coal	2 Ft.	11 in.
Total thickness of bed	7 Ft.	2 $\frac{1}{2}$ in.

Sampled August 1944.

Tunnel No. 2

Section taken 60 feet from portal at turn, on

right or south side

	Ft.	in.
Shale, carbonaceous		
Tuff, yellow, with plants		3
Shale, carbonaceous, with thin coal seams up to 40%	1	5
Shale		4
Shale, carbonaceous, as above	2	0
Coal		4
Shale, carbonaceous		5
Coal, bony		3
Tuff, yellow, hard		3
Coal, in part bony		9
Shale, gray		3
Coal, bright	1	0
Coal, bony		8
Shale		4
Coal, bony		5
Shale, or tuff, yellow		
Total thickness of bed	8 Ft.	8 in.

Sampled August 1944.

*2 extra
2 copies*

RIKER-MANDRONES COAL MINE
Clackamas County, Oregon

Bulk Sample

#1 (north) slope 28' inby Δ 26 right hand wall.

	<u>Ft.</u>	<u>In.</u>
Roof, sandstone	1	
Bone with coal seams ✓		4
Coal, bright ✓		2½
Bone and coal ✓		5
Coal, bright ✓		3/4
Bone and coal ✓	1	5
Clay parting ✓		1
Bone and coal ✓		8½
Coal, bright ✓		3
Bone and coal ✓		3
Coal, bright	1	2½
Clay parting ✓		4
Coal, bright	1	0
Floor		
Thickness of bed	6	3¼
Thickness of sample	6	3¼
Sample placed in (2) large carbide cans.		

Sampled by F. W. Libbey
R. S. Mason
April 23, 1948

#2 (south) slope 7' inby Δ 19 left hand wall.

Roof, sandstone		
Bone and coal, mostly coal	1	2
Bone with thin coal seams ✓		10 *
Bone and coal, mostly coal	1	11
Bone		2 *
Coal some bone		7
Bone		5 *
Coal and bone	2	
Floor, not stated		
Thickness of bed	7	1
Thickness of sample	4 5	8
Sample placed in USBM sample can #2358.		

Sampled by F. W. Libbey
R. S. Mason
April 23, 1948

* Not included in sample.

Bulk Sample
 Wilhoit Coal Survey
 #1 (north) slope 28' in by Δ 26

<u>Roof</u>	<u>W</u>
Bone w/coal seams	4"
Coal	2 $\frac{1}{2}$ "
Bone & coal	5"
Coal	3/4"
Bone & coal	1'5"
Clay parting	1"
Bone & coal	8 $\frac{1}{2}$ "
Coal	3"
Bone & coal	3"
Coal	1-2 $\frac{1}{2}$ "
Clay parting	4"
Coal	1-0"

Floor April 23, 1948
 F.W.L.
 R.S.M.

Sample Record
 Wilhoit Coal Survey
 #2 (south) slope
 7' in by Δ 19 L. H. Wall

<u>Roof</u>	<u>Sampled</u> (x)
Bone & coal, mostly coal	1'2" x
Bone w/thin coal seams	-10"
Bone & coal mostly coal	1'11" x
Bone	2"
Coal some bone	7" x
Bone	5"
Coal & bone	2' - x
Floor	4'37" = 7'1"

Placed in USBM Sample Can #2358
 April 23, 1948
 F.W.L.
 R.S.M.

Tunnel No. 2

Section taken about 150 feet in on right or south side.

	Ft.	in.
Top of bed not exposed		
Shale, carbonaceous, with thin coal seams	1	0
Coal		1 $\frac{1}{2}$
Bone		1 $\frac{1}{2}$
Shale, carbonaceous, as above		8
Coal		1 $\frac{1}{2}$
Shale		1 $\frac{1}{2}$
Coal		1 $\frac{1}{2}$
Shale, carbonaceous, as above		8
Coal, bony		3
Shale, bony		3
Bone		3
Coal		5
Tuff, coarse, hard, yellow		3
Coal		1 $\frac{1}{2}$
Shale, carbonaceous, as above	1	0
Coal, bony	1	0
Bone		6
Floor not exposed		
Total thickness of bed	6 Ft.	9 in.

Sampled August 1944.

Tunnel No. 2

Section measured 67 feet from portal.

	Ft.	in.
Roof, sandstone		
Bone and coal, mostly coal	1	2
Bone with thin coal seams		10*
Bone and coal, mostly coal	1	11
Bone		2*
Coal some bone		7
Bone		5*
Coal and bone	2	
Floor, not stated		
Thickness of bed	7 Ft.	1 in.
Thickness of sample	5 Ft.	8 in.
Sample placed in USBM sample can #2358.		

* Not included in sample.

Sampled April 23, 1948.

ANALYSIS OF GOOS COAL SURVEY SAMPLES

Submitted by J. E. Allen

April 13, 1944

Lab. No.	Jar Number	Project or Prospect	Cut	Thickness		Percent Moisture		Ash Percent		B.t.u.	
				Sample	Bed	Total "As Rec'd"	Air Dried	"As Rec'd"	Air Dried	"As Rec'd"	Dry Coal
P-2079	66	Englewood	Hole A	18"		29.83	21.4	32.51	41.37	4,473	6,375
P-2080	67	South Slough	No. 2	64 1/2"	88"	20.93	5.80	7.11	7.55	9,078	11,481
P-2080B	68	"	No. 10	39 1/2"	53 1/2"	25.84	16.55	6.01	7.20	8,183	11,034
P-2201	90	Lillian	Cave in	80"	84"	18.16	4.15	13.32	13.90	8,469	10,349
P-2202	91	Lillian	B.D. Portal	72"	96"	21.22	9.04	12.80	14.07	8,321	10,563
P-2203	92	Lillian	Tunnel 500'	72"	96"	20.80	8.30	11.83	12.90	8,119	10,252
			N.W. of B.D.								
P-2192	81	Empire Basin	- - - -	29"	29"	24.29	8.50	7.94	8.68	8,460	11,175
P-2193	82	Beaver Slough	No. 2	35"	84"	18.89	8.30	9.60	10.48	8,847	10,907
P-2194	83	Empire Basin	- - - -	51"	57"	24.75	13.50	14.76	17.07	7,224	8,342
P-2195	84	Beaver Slough	No. 5	--	--	18.03	9.70	15.14	16.77	8,127	9,915
P-2196	85	"	No. 4	Lower	Bench	15.05	7.70	25.58	27.72	7,157	8,425
P-2197	86	"	No. 4	Upper	Bench	16.64	8.40	11.72	12.80	8,701	10,438
P-2198	87	"	No. 3	--	--	16.16	7.50	9.48	10.25	9,132	10,892
P-2199	88	Noble Creek	- - - -	--	--	23.15	13.50	24.62	28.46	5,939	7,728
P-2200	89	Remote	Dick Mine	60"	84"	5.15	2.80	29.19	30.03	8,744	9,219
			dump								
P-2216	96	Ingersoll	Upper Tunnel	48"	57"	20.69	11.20	15.09	17.08	7,716	9,730
P-2217	97	Belfast	Belfast Mine	55"	57"	20.22	10.05	8.94	9.94	8,734	10,948
P-2218	98	Coaledo	Prospect Tunnel	40 1/2"	59 1/2"	24.27	16.20	15.86	18.93	6,833	9,023
P-2219	99	Seven Mile	No. 2	8 1/2"	47'	18.17	9.95	5.90	6.56	9,086	11,104

L. L. Hoagland
L. L. Hoagland, Assayer

ANALYSIS OF COAL SURVEY SAMPLES

Submitted October 1, 1943 by J. E. Allen

Lab. No.	Date Sample	Jar Number	Project or Prospect	Location	Thickness		Moisture Percent Total as Received	Moisture Percent Air-Dried	Ash Percent As Received		Ash Percent Air-Dried
					Sample	Bed					
P-1839	9/20	17	Old lands	26-13-8	7' 2"	8' 5"	23.88	12.3	7.86	8.99	8.99
P-1840	8/30	18	Panther	28-13-17	2' 9"	5' plus	16.82	5.6	13.73	14.65	14.65
P-1841	8/17	15 and 16	Riverton	28-13-17	2' 3 1/2"	4' 5"	21.81	10.9	12.23	13.73	13.73
P-1842	9/18	36	Englewood	5325 N-4650 E	1' 7"	0	19.20	7.7	7.40	8.10	8.10
P-1843	9/18	37	"	"	2' 2"	L	19.10	8.8	9.7	10.65	10.65
P-1844	9/18	38	"	4500 N-4275 E	2' 1"	0	25.20	16.3	7.7	9.20	9.20
P-1845	9/18	39	"	5300 N-4750 E	1' 11"	0	20.40	7.8	8.4	9.10	9.10
P-1846	9/18	40	"	"	2' 2"	L	22.30	11.1	10.8	12.10	12.10
P-1847	9/18	41	"	4500 N-4825 E	1' 11"	0	16.50	6.0	10.0	10.7	10.7
P-1848	9/18	42	"	"	2' 5"	L	18.40	9.2	10.9	12.0	12.0

L. L. Hoagland, Assayer

ANALYSIS OF COOS COAL SURVEY SAMPLES

Submitted October 20, 1943 by J. E. Allen

Lab No.	Jar Number	Project or Prospect	Location	Thickness		Moisture Percent Total as Received	Air-Dried		Ash Percent As Received	
				Sample	Bed		Received	Dried	Received	Dried
P-1897	24	Huntley	26S-12W-N $\frac{1}{2}$ E	3'1"	4'5"	18.7	9.2	15.8	17.4	
P-1898	23	Englewood	5050N-4250E	5'7"	9'9"	22.5	12.5	11.8	13.6	
P-1899	25	"	4700N-4095E	1'10"	Lower	20.2	10.8	11.3	12.7	
P-1900	26	"	"	1'11"	Upper	23.6	14.1	7.7	9.0	
P-1901	27	"	4600N-4043E	5'0"	8'2"	23.5	12.9	11.4	13.0	
P-1902	28	"	4700N-4095E	5'0"	7'1"	24.3	14.8	8.6	10.0	
P-1903	30	"	5050N-4250E	2'6"	Lower	19.4	9.5	9.9	11.0	
P-1904	31	"	"	1'11"	Upper	21.3	11.8	13.0	14.8	
P-1905	32	"	4600N-4043E	1'11"	Lower	20.3	10.9	10.3	11.6	
P-1906	33	"	"	1'9"	Upper	26.73	17.4	6.6	7.9	

L. L. Hongland, Assayer

ANALYSIS OF COAL SURVEY SAMPLES
Submitted by J. E. Allen

Lab. No.	Date Sampled	Jar Number	Project or Prospect	Location	Thickness Sample	Bed	Moisture percent Total as received	Air dried	Percent Ash *
1601	7/14	1 & 2	Riverton	1380'N.-170 E.	10"	10"	22.95	15.8	14.31
1602	7/14	3 & 4	"	1380'N.-270 E.	18"	38"	20.1	7.9	20.83
1603	7/14	5 & 6	"	760 N.-500 E.	11"	11"	10.89	6.2	19.94
1604	8/2	7 & 13	Rookard	Edge sec. 5-6 T29S, R10W	9'6"	13"4½"	8.40	4.1	39.85
1605	7/21	8, 9 & 11	Riverton	1815 ^N W, -120E	4'2"	4'2"	20.20	8.4	27.2
1606	8/2	10	Annis	NE¼ NW¼ sec. 3 T27S, R13W	Drill hole		32.8	23.2	24.8
1607	8/4	14	Ostling	Edge E. sec. 18 T25S, R12W	2'	3"	22.0	10.0	13.05

* As received

ANALYSIS OF COOS COAL SURVEY SAMPLES
SUBMITTED JANUARY 3, 1944, BY J. E. ALLEN

Lab.No.	Jar Number	Project or Prospect	Cut	Thickness		Moisture		Ash Percent			Dry Coal
				Sample	Bed	Total as Received	Air Dried	As Received	Air Dried		
P-2069	53	South Slu.	No. 9	94 "	109 "	22.59	10.32	7.20	7.92	9.17	8.704 11,243
P-2070	54	South Slu.	No. 1	66 "	84 "	20.05	7.00	8.98	9.66	11.22	8.747 10,941
P-2071	56	South Slu.	No. 1	66 "	94 "	21.74	8.38	9.12	9.96	11.65	8.611 11,003
P-2072	57	South Slu.	No. 7	52 "	64 "	21.80*	9.60	7.70	8.53	9.86	8.743 11,181
P-2073	58	Ferberish	No. 1	24 "	79 "	26.00	10.27	23.76	26.51	32.13	4.499 6,122
P-2074	59	Lyons	No. 1	33 "	54 "	32.64	13.00	10.03	11.53	14.87	6.360 9,443
P-2075	60	Gibbs	Fat Elk	64 "	64 "	20.27	8.82	29.36	32.20	36.80	5,803 7,278
P-2076	61	Gibbs	" "	34 1/2 "	64 "	19.95	8.70	16.94	18.56	21.16	7.579 9,469
P-2077	63	Woomer	Hatchet	24 "	48 "	15.76*	6.22	32.91	35.10	38.90	5,938 7,050
P-2078	64	Sell	No. 1	24 "	65 1/2 "	19.90	8.42	19.17	20.93	23.86	7,054 8,807
P-2070B	55					25.57	10.00	14.31	15.90	19.23	6,951 9,340
P-2076B	62					19.79	7.47	11.59	12.53	14.41	8,493 10,589

B.L.V.

* Sample bottle not sealed, no gasket.

L. L. Hoagland, Assayer

ANALYSIS OF COOS COAL SURVEY SAMPLES

Submitted January 3 and February 10, 1944, by J. E. Allen

Lab No.	Jar Number	Project or Prospect	Cut	Thickness		Percent Moisture		Ash Percent	
				Sample	Bed	Total as Received	Air Dried	As Received	Air Dried
P-2079	66	Englewood	Hele A	18 "		29.83	21.4	32.51	41.37
P-2080	67	South Slu	No. 2	64½"	88"	20.93	5.80	7.11	7.55
P-2080B	68	South Slu	#10	39½"	53½"	25.84	16.55	6.01	7.20
P-2201	90	Lillian	Cave in	80 "	84"	18.16	4.15	13.32	13.90
P-2202	91	Lillian	B.D. Portal	72 "	96"	21.22	9.04	12.80	14.07
P-2203	92	Lillian	Tunnel 500' N.W. of B.D.	72 "	96"	20.80	8.30	11.83	12.90
									14.96

L. L. Hoegland, Assayer

ANALYSIS OF COOS COAL SURVEY SAMPLES

Submitted January 3, 1944, by J. E. Allen.

Lab. No.	Jar Number	Project or Prospect	Cut	Thickness Sample	Bed	Moisture Percent Total as Received	Air Dried	Ash Percent As Received	Dried	As Received	B.t.u. As Received	Dry Coal
P-2056	0	South Slu.	# 8	54"	62"	23.15	12.8	5.72	7.44	8,423	10,960	
P-2057	29	Englewood	#58	67"	103"	27.70	17.4	7.32	10.13	8,060	11,148	
P-2058	34	Englewood	#72	60"	103"	23.64	10.7	7.12	9.41	8,409	11,013	
P-2059	35	Englewood	#70	53"	94"	31.07	14.6	10.57	15.42			
P-2060	43	Englewood	#64	65"	142"	24.85	13.6	7.34	9.77			
P-2061	44	Englewood	#65	36"	108"	29.49	16.8	9.03	12.81			
P-2062	45	Englewood	H-#73	46"	64"	28.13	15.4	11.92	16.58			
P-2063	46	Englewood	#55	40"	84"	26.24	15.03	13.71	18.59			
P-2064	47	Water Co.	N.Portals	30"	---	23.59	9.10	11.45	14.98			
P-2065	48	Water Co.	S.Portals	38 1/2"	52 1/2"	25.65	10.87	10.62	14.28			
P-2066	49	Water Co.	W.Portals	35 1/2"	49 1/2"	26.79	11.76	8.21	11.22			
P-2067	50	Gibbs	Fat Elk	---	---	17.05	6.7	25.89	31.21			
P-2068	51	Gibbs	Fat Elk	---	---	15.20	5.7	18.77	22.14			

L. L. Hoagland, Assayer

ANALYSIS OF COOS COAL SURVEY SAMPLES

Submitted January 3, 1944, by J. E. Allen.

Lab. No.	Jar Number	Project or Prospect	Cut	Thickness Sample	Bed	Moisture Percent Total as Received	Air Dried	Ash Percent As Received	Dried	As Received	B.t.u. As Received	Dry Coal
P-2056	0	South Slu.	# 8	54"	62"	23.15	12.8	5.72	7.44	8,423	10,960	
P-2057	29	Englewood	#58	67"	103"	27.70	17.4	7.32	10.13	8,060	11,148	
P-2058	34	Englewood	#72	60"	103"	23.64	10.7	7.12	9.41	8,409	11,013	
P-2059	35	Englewood	#70	53"	94"	31.07	14.6	10.57	15.42	6,862	9,956	
P-2060	43	Englewood	#64	65"	142"	24.85	13.6	7.34	9.77	8,643	11,501	
P-2061	44	Englewood	#65	36"	108"	29.49	16.8	9.03	12.81	7,226	10,250	
P-2062	45	Englewood	H-#73	46"	64"	28.13	15.4	11.92	16.58	7,175	9,984	
P-2063	46	Englewood	#55	40"	84"	26.24	15.03	13.71	18.59	7,199	9,761	
P-2064	47	Water Co.	N.Portal	30"	---	23.59	9.10	11.45	14.98	7,981	10,446	
P-2065	48	Water Co.	S.Portal	38 1/2"	52 1/2"	25.65	10.87	10.62	14.28	7,389	9,938	
P-2066	49	Water Co.	W.Portal	35 1/2"	49 1/2"	26.79	11.76	8.21	11.22	7,596	10,376	
P-2067	50	Gibbs	Fat Elk	---	---	17.05	6.7	25.89	31.21	6,598	7,955	
P-2068	51	Gibbs	Fat Elk	---	---	15.20	5.7	18.77	22.14	7,747	9,136	

L. L. Hoagland, Assayer

ANALYSIS OF COOS COAL SURVEY SAMPLES

Submitted by J. E. Allen

March 27, 1944

Lab No.	Jar Number	Project or Prospect	Ash	B.t.u.	
			"As Received"	"As Received"	Dry Coal
P-2059	35	Englewood	10.57	6,862	9,956
P-2060	43	"	7.34	8,643	11,501
P-2061	44	"	9.03	7,226	10,250
P-2062	45	"	11.92	7,175	9,984
P-2063	46	"	13.71	7,199	9,761
P-2064	47	Water Co	11.45	7,981	10,446
P-2065	48	" "	10.62	7,389	9,938
P-2066	49	" "	8.21	7,596	10,376
P-2067	50	Gibbs	25.89	6,598	7,955
P-2068	51	"	18.77	7,747	9,136
P-2069	53	South Slu	7.20	8,704	11,243
P-2070	54	" "	8.98	8,747	10,941
P-2071	56	" "	9.12	8,611	11,003
P-2072	57	" "	7.70	8,743	11,181
P-2073	58	Ferberish	23.76	4,499	6,122
P-2074	59	Lyons	10.03	6,360	9,443
P-2075	60	Gibbs	29.36	5,803	7,278
P-2076	61	"	16.94	7,579	9,469
P-2077	63	Woomer	32.91	5,938	7,050
P-2078	64	Sell	19.17	7,054	8,807
P-2070B	55	Water Co.	14.31	6,951	9,340
P-2076B	62	South Slu.	11.59	8,493	10,589

L. L. Hoagland, Assayer

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STATE DEPARTMENT OF GEOLOGY
AND MINERAL INDUSTRIES

702 WOODLARK BUILDING
PORTLAND 5, OREGON
April 1, 1944

FIELD OFFICES:

2101 COURT STREET, BAKER
NORMAN S. WAGNER
FIELD GEOLOGIST

714 EAST "H" STREET, GRANTS PASS
RAY C. TREASHER
FIELD GEOLOGIST

RECEIVED
APR 3 1944

STATE DEPT OF GEOLOGY
& MINERAL INDS.

Marshfield Office

Mr. L. L. Hoagland
Portland Office

Dear Mr. Hoagland:

Thank you for your report on the coal analyses.
In regard to the jars in which the descriptions were
missing here is the dope:

Jar #55 was from the Water Company project, cut
#1, from a 49 $\frac{1}{2}$ " bed, the sample was 35 $\frac{1}{2}$ ". Jar #68
was from South Slough, cut #10, bed 53 $\frac{1}{2}$ ", sample 39 $\frac{1}{2}$ ".
The jars I left with you the other day are as follows:

Jar #96, Ingersoll project, T. 24 R. 13, section 36,
upper tunnel, bed 57", sample 48", Steeervalvein.

Jar #97, Belfast project, T. 26 R. 13, section 2, Bel-
fast Mine, bed 57", sample 55", vein unknown.

Jar #98, Coaledo project, T. 27 R. 13, section 23, Pros-
pect Tunnel, bed 59 $\frac{1}{2}$ " plus, sample 40 $\frac{1}{2}$ ", vein unknown.

Jar #99, Seven Mile project, T. 26 R. 14, section 23,
Cut #2, bed 47', sample 8'2", Seven Mile vein.

I hope this will complete your record.

Sincerely,

A handwritten signature in blue ink, reading "J. F. Cleaver".
J. F. Cleaver

JFC:mes

State of Oregon
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
702 Woodlark Building
Portland, Oregon

Marshfield Office

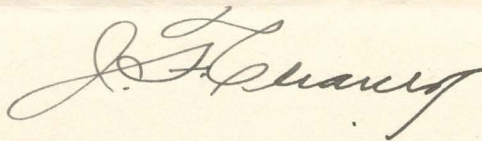
1-8-44

To: L.L.Hoagland

From: J.F.Cleaver

Enclosed is the tabulation of the coal samples tanken up to the Portland Office by Lowrey. This is copied from our sample book but if this office should burn up it is a good thing to have a copy of the dope in Portland.

Sincerely,



RECEIVED
JAN 10 1944

STATE DEPT OF GEOLOG
& MINERAL INDS.

COAL SAMPLES

<u>Jar#</u>	<u>Date</u>	<u>Project or Mine</u>	<u>Location</u>	<u>Twp.</u>	<u>Rng.</u>	<u>Sec.</u>	<u>1/4</u>	<u>Sample</u>	<u>Bed</u>	<u>Vein</u>
0	12-18	South Slu.	Cut # 8	26	14	35		54"	62"	Libby
29	10-19	Englewood	Cut # 58	25	13	34		67"	103"	"
34	10-20	"	" 72	"	"	"		60"	103"	"
✓35	10-19	"	" 70	"	"	"		53"	94"	"
43	"	"	" 64	"	"	"		65"	142"	"
✓44	"	"	" 65	"	"	"		36"	108"	"
✓45	10-20	"	Hole #73	"	"	"		✓46"	64"	" ✓
✓46	"	"	Cut # 55	"	"	"		40"	84"	"
47	10-26	Water Co.	No. Portal					30"		?
✓48	10-25	"	So. Portal					38½"	52½"	?
✓49	10-26	"	W. Portal					35½"	49½"	?
✓50	10-25	Gibbs	Fat Elk	c28	13	3	SW			Gibbs
✓51	10-25	"	" "	"	"	"	"			"
53	12-17	South Slu.	Cut # 9	26	14	35		94"	109 "	Libby
2070 54	10-29	"	" " 1	"	"	"		66"	84"	"
55	"	"	" " 1	"	"	"		66	94	"
56	"	"	" " 1	"	"	"		66	94	"
57	12-17	"	" 7	"	"	"		52	64	"
58	11-18	Ferberish	" 1	27	12	18	SE	24	79	7-Mile
59	10-22	Lyons	" 1	28	13	19	E½	33	54	B.H.
60	10-24	Gibbs	Fat Elk	28	13	3	SW	64	64	Gibbs
61	10-24	"	"	"	"	"	"	34½"	64	"
✓62	10-16	Woomer	Hatchet S.	27	14	36	S½	24	48	7-Mile
64	10-23	Sell	Cut # 1	28	23	13		24	65½"	Sell
66	12-7	Englewood	Hole # A	25	13	34		18		Libby
67	11-12	South Slu.	Cut # 2	26	14	35	SE	64½"	88	"

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A

C O P Y

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON

OFFICE OF THE DIRECTOR

July 1, 1942.

Mr. George Watkins Evans
Consulting Mining Engineer
Smith Tower
Seattle, Washington

Dear Mr. Evans:

The Bureau of Mines has been requested to make quick investigation and report on the possibilities of production of 150,000 tons of coal annually for army cantonment use from the Coos Bay Field in Oregon. In this investigation the examining engineer should cover the following:

- a. The present condition of the old properties with respect to their possible production.
- b. The possible opening of new properties.
- c. Opportunities that exist in the field for strip mining of coal in open areas.

In other words, you should determine what needs to be done to prepare and open such mines as could supply fuel for the army cantonments at Albany and Medford, Oregon. Each camp probably will require about 75,000 tons of coal. I am informed that probably 60,000 tons of subbituminous coal, crushed to go through 1-1/2" screen, might be used on spreader stokers, but that the rest of the coal, probably about 90,000 tons, might have to be imported from Utah as this is sized coal not used on stokers. You should determine whether new mine openings may be required and what mining procedure should be followed to place the mines in condition to produce within the time limitations required by occupation of the cantonments.

Also, can coal be produced at the mined for \$3.50 a ton? If not, what price do you estimate? Is it true that two of the mines in the Coos Bay area could be made to produce 100,000 to 125,000 tons annually? And is it true that these two mines, together with other mines in the district, would be able to produce 150,000 tons annually? Is it true that not more than \$60,000 would be required for investment in reaching this 150,000 tons per annum capacity?

Could equipment be secured, possibly second-hand, from other places in time to get this production going in time to supply this year's needs of the army cantonments? It might be well for you to estimate the number of days required to get production up to 100 tons a day, to 500 tons a day, and to 1000 tons a day.

A preliminary report is desired by August 1st and a final report by September 1st.

In your investigation you will have the assistance of Doctor Yancey and Mr. Geer as required.

Sincerely yours,

/s/ R. R. SAYERS,
Director.

C
O
P
Y

Director Sayers' letter to Mr. Evans dated July 1, 1942.

In the first paragraph it is requested that I make a quick investigation of the Coos Bay field to see if 150,000 tons of coal annually can be produced from the Coos Bay field for the Army camps of Oregon. Then there is listed the subdivisions.

a. "The present condition of the old properties with respect to their possible production." This feature is taken care of in the body of my report, but I will reiterate at this point that the 4 little mines in the field are not in a position to produce more than about 5,000 tons each per year, which would total 20,000 tons for the group.

b. "The possible opening of new properties." Coos Bay coal field covers an area of nearly 250 square miles, and according to the maps of the U. S. Geological Survey as published in their reports, there are nearly 160 outcrops of coal within the area. It is apparent to anyone who knows the unusually thickly wooded surfaces in the Coos Bay field that only such prospect or mine openings as are now in operation could be examined, the fast growth of devils-club, salmon-berry bushes and other fast-growing underbrush, will completely obliterate a prospect within a couple of seasons. It was practicable, therefore, to examine only a small portion of the known coal outcrops within the area. There might be numerous outcrops of coal more favorably situated than the outcrops we examined, but it is reasonable to suppose that coal-mining men who have been in this field for many years have selected, for their present operations, the coal beds with the thickest and best coal and which can be most readily mined.

D

c. "Opportunities that exist in the field for strip mining of coal in open areas." A study of the geological structures in this field as published by the U. S. Geological Survey in its reports indicate that there are several broad anticlines in which the coal measures come to the surface of the ground and in which the coal beds lie comparatively flat. I did not observe any area that has been exposed under the foregoing mentioned conditions in which power equipment of any kind could be used to remove the overburden and mine the coal. It would take a considerable period of time, much longer than was available for this study, to determine the best points at which the coal beds could be attacked for a strip operation.

The writer has spent several years studying the detailed operation of strip mining in the anthracite fields of Pennsylvania around Shamokin, Ashland, Shenandoah, Mahanoy City, Pottsville, Hazelton, Wilkes-Barre, and Scranton, and knows very definitely the advantages and limitations of strip mining, but in order to prepare an area for strip operations it is necessary to do at least one field season's work of bulldozing and drilling, and since we do not have the time to do such work in this emergency, the best we can do is to state that there might be several areas with ratios as low as 4 or 5 to 1. A greater ratio than 4 or 5 to 1 would not be economical in this field because of the small tonnage to be handled, which would necessitate the use of small-sized equipment and in the operation of which the costs would be rather high.

Q

In paragraph 5 of Doctor Sayers' letter he states that the cantonments at Albany and Medford would each probably require 75,000 tons of coal and that probably 60,000 tons of subbituminous coal crushed to go through a 1-1/2-inch screen might be used on spreader stokers.

We know from many years' experience in the State of Washington that coals such as the Coos Bay coals can be very satisfactorily used in industrial stokers and also in domestic stokers. It does become a question though, where large tonnages of coal are stored and if there is a high-moisture content in the coal, that fires start due to spontaneous combustion. This is not a part of my problem, but it is well to mention this subject at this point so as to make a record of the fact that it has not been overlooked. One of the coals that is now stored at Fort Lewis, Washington, is from Bear Creek, Montana. I find in referring to ^{T.P.} ~~Bulletin~~ 529 of the Bureau of Mines, which gives the analyses of Bear Creek coals on page 39, that the average moisture in the Bear Creek area is close to 10 percent, and the ash ranges from about 9 percent to 11 percent. The heat value of the Bear Creek coal, as received, will not average more than 500 B.t.u.'s greater than the Beaver Hill bed, and the percentage of moisture in the Beaver Hill bed is less than 10 percent greater than Bear Creek coal. I assume therefore that the question of storage of the Beaver Hill bed in quantities of 60,000 tons or more has been taken into account by those who contemplate storing this amount of coal. Personally, I believe that with proper regulation and supervision of storage piles and by keeping the vertical

height of the pile low enough, that the Coos Bay coal could be stored in piles large enough to insure a constant supply of fuel for the Army camps.

In paragraph 6 Doctor Sayers' letter asks if coal can be mined in the Coos Bay area for \$3.50 a ton, and in reply to this phase of the inquiry I will say that, with the present scale of wages paid United Mine Workers in the coal mines of Washington and the conditions under which they are working at the present time in the Coos Bay coal mines, they could not produce coal for \$3.50 a ton and continue in business.

I have covered this feature of the problem in the body of my report and state specifically that comparatively flat coal areas will have to be found with good roof conditions where undercutters and conveyors with ^d buckbills can be used to advantage. And under these conditions and with first-class supervision and management the coal should cost approximately \$3.00 a ton in the railroad car, and this comparatively low cost is brought about very largely by the fact that the coal beds are comparatively flat, with good walls, with short hauls, and a new mine.

In another part of paragraph 6 the question is asked if it is true that two of the mines in the Coos Bay area could be made to produce 100,000 to 125,000 tons annually. I have already covered this feature by stating that the present mines, all of them in the field, with the present equipment and management, cannot produce more than a total of 20,000 tons. I have already suggested that a certain area

tributary to one of the mines, and when opened up in a modern manner and properly equipped and managed, could produce almost any reasonable amount of coal if equipped with the right kind of haulage and mining equipment and given enough time to develop the mines and get into production.

In the last part of paragraph 6 the question is asked if \$60,000 would be a sufficient amount of money to place this mine or mines on a 150,000 ton annual capacity. If it were true that there were existing two mines in the area, that could be made to produce 100,000 to 125,000 tons of coal annually, and that these mines were at present equipped and developed for such tonnage, then it is reasonable to expect with an additional \$60,000 the production could be boosted to 150,000 tons per year.

In paragraph 7 the question is asked if equipment can be secured to supply this year's needs of the Army cantonments. As I understand it, coal is already contracted for these cantonments to take care of their needs until April 1 of 1943. Then the second portion of this paragraph wants an estimate as to the number of days required to get the tonnage up to 100 tons a day, 500 tons a day, and 1,000 tons a day. We do not know enough about the physical conditions of the walls and the probabilities of faults within the Southport area to estimate, at this time, with any degree of accuracy, how long it would take to develop the mine to produce 500 tons and 1,000 tons a day.

We have approximately 8 months between now and the first of April of 1943, and I believe if immediate steps were taken to open a modern mine on the Southport property that a 100-ton-a-day mine could be opened before the first of April, and it is probable that by very intensive work the mine might even produce 200 tons a day or approximately 50,000 tons a year. Then each succeeding 6 months, and assuming that undercutters and duckbills can be secured, and the necessary labor, there should be added at least an additional 100 tons a day and possibly 200 tons a day.

In view of the fact that there is no part of a mine existing at the present time that can be used as a basis to work on, and since we do not have much detailed information on the physical conditions of the coal bed within the Southport area, I would rather figure in terms of its taking \$100,000 to do a first-class job of opening this mine and getting it on a production basis of 200 tons a day or approximately 50,000 or 60,000 tons a year. This would open the mine, provide the necessary mining equipment as well as the haulage equipment, electric power, the necessary cleaning equipment, the building and the storage facilities, and also provide a reasonable amount for working capital, but it is presupposed that payment for this coal would be every 30 to 45 days.

Acknowledgments

I wish to acknowledge the assistance given the writer by the U. S. Bureau of Mines, office on the Campus of the University of Washington, of which office Dr. H. F. Yancey is supervising engineer and Mr. M. R. Geer is assistant mining engineer. Both of these gentlemen have been very helpful to the writer in the field work and in the preparation of his reports. Every assistance has been given him to facilitate his work. I wish especially to mention the work of Mr. Geer in the field in the examinations of the mines themselves and in the preparation of the excellent maps, photostats of which accompany this report.

The Coos Bay Coal Area

The coal field is about 30 miles in length north and south and from 12 to 14 miles in width at the widest portion of the field. There are about 250 square miles of coal area or a little more than one-half the area of the anthracite coal fields of Pennsylvania. The field is reported by Diller and Pishel to contain about one billion tons of coal.

The area at one time was covered with a dense growth of Port Orford cedar and also spruce and fir, but most of the district has been cut over and there is now a second growth of trees and brush so that the entire country-side is a veritable jungle and there are comparatively few rock outcrops to be seen.

It is most difficult therefore to trace the outcrops of the coal beds, so that as a rule, drilling has to be resorted to.

There are three major basins locally known as the South Slough, the Westport, and the Beaver Slough, and in addition there are four subordinate basins - the Newport, Flannagan, Empire, and North Bend. See Plat A for relative locations of Southport mine, Corvallis, and Medford.

The Glasgow Property

Plate 1 shows a coal area north of Marshfield at a distance of approximately 6 miles, known as the Glasgow coal property, partly in T. 24 S. and 25 S., Ranges 12 W. and 13 W., and in portions of Sees. 1, 35, and 36, as shown on the map.

A rock tunnel was driven many years ago from A to B to intersect the so-called Hardy bed, and a gangway was driven from B to C and an air-chute from C to D, and at D the chute reached the surface. Prospecting work was also done in Sees. 6 and 31, as indicated, on a lower bed known as the Steva bed. In addition to the work done on the eastern portion of the property, some work was also done along the western margin of the property on both the Steva and the Hardy beds, and at E a short drift was driven in on the Hardy coal bed. Time would not permit us to make a complete examination of this property, and since it was not practicable to examine the outcrop of the coal along the western limits of the property, and inasmuch as we could not secure representative cross-sections of either bed along the eastern part of

the property, we must for the time being content ourselves with these sketch maps, which are supposed to represent the outcrops of the two beds, and in figure 1 we have a section of the Steva bed, as shown in Bulletin 431 of the U. S. Geological Survey, and the Hardy bed in figure 2 from the same publication.

There is considerable similarity between the cross-section of the Hardy bed on this property and sections of the Beaver Hill bed, in the area lying between the Southport property and the old Beaver Hill mine.

These two beds appear to dip at angles ranging from 14 or 15° to nearly 30°. It is probable that portions of this property contain coal beds dipping at low enough angles to permit the use of undercutters, conveyors, and duckbills, but of this point I am not certain and, until the beds have been made accessible for examination and a study made of the walls of the beds and the details of the dips, we will not know.

There appears to be a considerable tonnage of coal above water level in this property. The coal is no doubt of about the same grade as the coal beds in the other portions of the Coos Bay field.

The fact that these outcrops are close to the main highway traversing this part of the Coos Bay field is an advantage, and the further fact that a mine opened at this point would be within three miles of the Southern Pacific Railroad that operates between Marshfield and the main line at Eugene is also an advantage. A further study should be made of this property after the owners or someone else opens it for proper examination.

The Southport Mine

This property, controlled by Mr. James Flannagan of Marshfield, is approximately five miles south of Marshfield and was opened on what appears to be the Beaver Hill Coal bed about 1876.

The mine was inactive for a number of years after a long period of operations but the exact data are not now available. It was reopened in 1920 and has produced a small amount of coal each year.

Plate 2 shows the general features connected with this property. There are at present two openings not far from the east quarter corner of Sec. 22, T. 26 S., E. 13 W. The main entry, as developed by the original coal company, started at A and was driven through the hill a distance of over 2200 feet. The entry was driven on a rather steep grade for there are places where the grade of the track is over 6 percent.

The greater part of the area west of the entry along A-B has been worked out within reasonable distances of the entry but toward the outcrop above the old workings there are doubtless large tonnages of coal. The area has not been prospected nor has it been drilled. The bed lies at an angle of about 8 degrees and the hill to the west rises much faster so that there is undoubtedly an area of virgin coal that should produce a large total tonnage.

At I on Plate 2, Fig. 2, there is an outcrop of the bed and there is reason to believe that the outcrop of the bed extends to the southwest a considerable distance.

The slope along the line A-C, Fig. 2, is at present filled with water and was not accessible at the time of our visit. The slope was driven a distance of about 280 feet on a dip of 8 degrees and the gangway was driven northerly from the bottom of the slope. The area A-D-E was developed and the greater portion of the then existing coal was removed.

In more recent months a gangway was started from the point F, Fig. 2, and driven along the coal but encountered a fault at point G and at the time of our visit, the early part of August, 1942, they had found a trace of coal along the fault line and were hopeful that they had crossed the troubled area.

The present plan is to explore the area along the line G-H and try and develop a tonnage of coal above that line, from which area ^{Mr. Flannagan} expects to secure his immediate coal.

The gangway and rock tunnel F-G is in need of enlarging and it will be necessary to "brush" the top to make sufficient headroom.

A new opening could be made at point I and no doubt a new mine could be developed within the area along an extension of the line through I-J and to the westward along the outcrop area in what is indicated as being virgin ground.

The character of coal in the Southport mine is quite similar to the Beaver Hill bed in this part of the Coos Bay coal area.

A cross-section of this bed as shown in Fig. 3, Plate 2, gives a total of 3 ft. 8 in. good coal with a parting of 8 inches of clay. The roof in most places is sandstone and good, but over in the area marked "heavy roof" there is a cap-rock that causes trouble from breaking loose from the main roof.

This property has possibilities and if owned by more aggressive men than those now controlling it, would no doubt be speeded up so as to produce 25,000 or 30,000 tons of coal during this emergency, but the present attitude of Mr. Flannagan is to try and develop the new body of coal along F-G-H and try to produce about 5,000 tons of coal during the next twelve months.

It is probable, however, that if plans were perfected to finance this coal program with government funds, an arrangement could be made with Mr. Flannagan and the owners of this property to take over the area west of the letter I and develop a real mine and probably mine a substantial tonnage of coal. However, before a program is started at this point the area will have to be prospected by some method that will prove the character of the coal with a minimum of time and expense.

Probable Production of tons per man per shift
at Flannagan Mine

The Beaver Hill bed at the Flannagan or Southport mine has conditions somewhat similar to the Harris coal bed at the Harris mine near Issaquah in King County, Washington. The two beds are of about the same thickness and, while the Harris bed does not have clay partings that have to be "gobbed," still the flat dip of the bed and the distance

the coal has to be "bucked" down the dip just about compensates for the labor expended in removing the clay parting at the Flannagan mine.

It is difficult to determine exactly the number of tons per man per day at the Flannagan mine with the present system of working, due to the inadequate method of accounting, but my guess is that it is not very far from 2 tons per man shift, and at the Harris mine above referred to the tons per man shift is 2.18.

It is my opinion that, with a change in the system of mining at the Flannagan mine and with the 8 degree pitch, and by using undercutters and shaking conveyors with duckbills at the front end, as high as 17 tons per man shift can be produced for each man on the undercutting and conveyor units.

Overland Coal Mine

The Overland coal mine has been opened by means of a slope on the full dip of a coal bed which has many of the characteristics of the Beaver Hill coal bed at the Beaver Hill mine; you will observe at Fig. 1, Plate 3, the location of the mine, roadway, and also the Southern Pacific Railroad. At Fig. 2 the extent of the mine is shown and it will be observed that a rock tunnel was driven from the surface at point A a short distance until the coal bed was intersected, and then a gangway was driven along the strike of the bed to the point D and also a slope was sunk from C to E and a gangway driven about 950 feet to the point F.

A Dodge automobile engine is used as a hoisting engine to hoist the coal up the slope from the lower level and then the cars are dropped

He says he has about 60 acres of coal in his property and on a basis of 5,000 tons to the acre on this pitch, he would have 300,000 tons on his property, but the strike to the southwest continues over into the Beaver Hill Property of the Southern Pacific Company. Probably arrangements could be made with Mr. Martin and others to continue toward the Beaver Hill Mine and in this manner develop a mine with considerable tonnage.

The Beaver Coal Company's Mine

Location

This mine is located in the south one-half of Section 9, Tp. 27 S. Rg. 13 W. and is on a coal bed that has many striking similarities to the Beaver Hill or Newport coal bed that was worked at the Beaver Hill Coal Mine in Section 17 of the same township and range at a point approximately a mile to the southwest and on the strike of the Beaver Hill coal bed.

There is a mile of road from the main highway near Coaledo to the coal mine. It is necessary to cross the Southern Pacific Railroad a short distance from Coaledo and there are other obstructions along this road that if not corrected will make the hauling of the coal from the mine to the main highway or the Southern Pacific track a slow and expensive one mile haul.

See section of coal bed on Plate 4.

Total thickness 6' 1" good coal 3' 5". The bed strikes northeasterly and dips to the southeast at angles varying from 30 to 36 degrees. The 8 inches of boney coal above the 6 inches of clay is held up as the roof and the 10 inches of boney coal at the bottom is lifted in the gangway in order to make head-room.

At the time of the examination the early part of August of 1942, the gangway was at a distance of about 900 feet from the portal and was driven in on the coal bed. It was estimated that they had about 800 feet further to drive until they reached the boundaries of the property, but they had permission to drive 200 feet further in order to mine some coal above the reach of the Overland Mine which was further to the northeast and on the continuity of the same coal bed.

The Lampa Coal Company's Mine

Some of the details of the Lampa Coal Company's Mine are shown on Plate 5. The mine is not far from U. S. Highway 101, which traverses the area lying between Coquille and Bandon. The mine is close to the south bank of the Coquille River, and during former years coal was mined in this neighborhood and transported down the Coquille River in boats.

The coal bed on this property appears to be some bed other than the Beaver Hill bed, for it does not have the characteristic clay partings of the Beaver Hill bed.

2

There is only about ² feet, 2 inches of really good coal in this bed, and even the best part of the bed has an ash content of nearly 13 percent. The moisture of the bed is lower than the moisture content of the Beaver Hill bed.

Because of the pitch of 18° in this bed, which might be a little too steep for undercutters and conveyors, and the thinness of the bed, I doubt if this bed will lend itself very well to the program we have under consideration in the Coos Bay field, and added to the awkward pitch of the bed, the thinness of the coal, and the relatively high ash, is a further handicap that this little mine is about 11 miles from the railroad at Coquille. I think this property can serve best in supplying coal for general use within the Coquille-Bandon coal-consuming zone.

Available Labor at Present

The question of where the local coal mine operators will secure competent mine labor is a real one; for the production of coal in the Coos Bay field has been reduced to a minimum within the past 10 years. This field at one time produced 111,000 tons of coal a year over 20 years ago, but in recent years the amount of coal mined is sometimes less than 5,000 tons.

It is very evident, therefore, that if 60,000 or 80,000 tons of coal are to be mined it will be necessary to import coal miners or the raw material from which competent coal miners can be evolved.

Three of the four coal mines now operating in the field have coal beds dipping 30° or more and it is a well-known fact among coal miners that it is much more difficult to train a man to work on pitch coal than on flat coal. This is a phase of this problem that can not be overcome in a short period of time, for I have known experienced coal miners who have worked in "flat" coal beds trying to work on 40° and immediately quitting and going elsewhere to find employment.

It will be a great advantage therefore to concentrate on a comparatively flat pitch like the Southport area where the coal is flat enough to permit a man to move around without danger and where undercutters and conveyors can be set up and used to advantage.

Future Wage Scale in the Coos Bay Field

At the present time the scale of wages paid to coal-mining employees is considerably lower than the wages paid coal-mine workers in the coal fields of Washington State. So far they have been able to work with a lower wage scale in Coos Bay, but I am of the opinion that if any considerable tonnage of coal is mined it will be necessary to adopt the Washington wage scale and also institute the safety methods of the U. S. Bureau of Mines and a safety code comparable to the code now in use in the State of Washington. I realize that at the present time the small mines of the Coos Bay area generate but little if any explosive mine gases, but it was my experience at the Beaver Hill mine that when depth was reached and a considerable area of coal exposed that the mine did produce considerable explosive gases. So that in

planning any work in the Coos Bay area on an extensive scale we must anticipate increasing the scale of wages and also raising the standard of mine inspection and safety.

At the present time they are paying men, who work as miners, 75 cents an hour, which amounts to \$6.00 a day for 8 hours.

The present scale of wages used in Washington State coal mines is included herein and it will be seen that the miners are paid \$7.40 a day for 7 hours' work at the working face. It will also be noted that duckbill operators are paid \$8.80 a shift and the scale ranges as high as \$9.20 a shift for machine runners.

It is very evident, therefore, that unless mechanization is applied to coal mining in the Coos Bay field, especially in view of a wage increase, the cost of mining will be relatively high.

Washington Wage Scale

Inside Mine

Miners	\$7.40
Timbermen	7.40
Timbermen Helpers	6.70
Trackmen	7.40
Drillers	7.80
Trackmen Helpers	6.70
Motormen	7.00
Switchers	7.00
Drivers	7.00
Parting Boys (18 to 21 years old)	5.13
Trappers (18 to 21 years old)	5.13
Rope Riders	7.00
Main Hoist Engineers	7.30
Other Hoistmen, Slope, Development, etc.	6.80
Cagers	7.00
Cagers Helpers	6.70
Pumpmen	6.70

Washington Wage Scale -- Continued

Pipemen, 1st Class	\$7.40
Pipemen, 2nd Class	6.90
Pipemen Helpers	6.70
Chute Starter	6.70
Spotter	6.70
Chute Leader	6.70
Timberpackers	6.70
Inside Labor not classified	6.70

Machine Rates

Machine Runners	9.20
Machine Runners Helpers	8.40
Conveyor Operator	8.40
Loaders on Conveyors	8.40
Duckbill Operators	8.80
Facemen and Duckbill	8.40
Drillers, following Conveyors of Mechanical Loading Devices	9.20
Mechanical Slope Sinking Facemen	8.40
Mechanical Mucker Facemen	8.40

Except as specified regular scale to apply.

Outside Mine

Main Hoisting Engineer	7.30
Power Plant and Compressor Engineers	6.90
Development Engineer	6.70
Electrician, 1st Class, in and around mines	7.40
Electrician, 2nd Class, in and around mines	6.90
Machinist, 1st Class, in and around mines	7.40
Millwright	7.40
Motorman	7.00
Machinist, 2nd Class, in and around mines	6.90
Electrician and Machinist Helpers in and around mine	6.50
Firemen	6.70
Cagers	6.70
Cagers Helpers	6.50
Teamsters	6.50
Truck Drivers, local and 2-ton capacity	6.50
Truck Drivers, 2-1/2-ton to 4-ton capacity	6.54
Truck Drivers, over 4-ton to 8-ton capacity	6.86
Greasers and Couplers (Men)	5.05
Greasers and Couplers (Boys)	4.80
Dumpers	6.50
Railway Car Dropper Loaded	6.50
Tugger Operator	6.10
Railway Car Loaders	6.10

Washington Wage Scale - Continued

Outside Mine - Continued

Blacksmith, 1st Class	\$6.90
Blacksmith, 2nd Class	6.50
Blacksmith Helpers	6.50
Carpenter, 1st Class	7.60
Carpenter, 2nd Class	6.80
Carpenter Helpers	6.10
Car Repairers	6.60
Choppers	6.50
Picking Table Men	6.10
Picking Table Boys	5.00
Lampmen, 1st Class	6.70
Lampmen, 2nd Class	6.30
Outside Labor not classified	6.10
Bunker Machinery Tenders	6.70
Washeryman, 1st Class	6.70
Washeryman, 2nd Class	6.50
Jig and Table Tenders	6.30
Head Picking Table Man	6.50
Coke Machine Operator	6.50

Strip Mining Operations

Bulldozer Operator	208.00
for 20 7-hour days per month	
Shovel Operator	8.80
Driller	8.60
Truck Drivers	7.60

Suggested Conveyor Mine at Southport

By referring to Plate 2 the reader will observe the outlines of some of the workings of the old Southport mine in Secs. 22 and 23, T. 26 S., R. 13 W. I have been through the accessible portions of this old mine and have decided that it would require too great an investment in money and involve a great risk in not being able to block out any substantial tonnage of coal, if efforts were made to mine coal from the old workings of this mine.

A prospect has been found about as indicated in the S. 1/2 of the NE 1/4 of Sec. 22, but further prospecting will have to be done in order to determine the true attitude of this coal bed in this portion of the Southport property.

One of the first things that should be done, if the Coos Bay coal field is to be called upon to produce any appreciable portion of 150,000 tons of coal annually, would be to do some prospecting at a very early date somewhere within the area on the map, Plate 2, in the vicinity of the two words "virgin ground." The object would be to prove the nature of the coal bed at this point and try to locate a strategic place at which a gangway could be driven into the area farther up the pitch of the coal bed than the old workings of this mine.

The main haulageway from A to B was driven through the hill 50 or 60 years ago and did not encounter any faults within that area, and it is reasonable to suppose that an opening driven in the area up the pitch from this old opening might be driven for a considerable distance without encountering troubled ground.

If it is the decision of these in authority to open any portion of the Coos Bay field for the purpose of supplying the Army camps of Medford and Corvallis, and if proper arrangements can be made with the owners of this property, I would recommend opening the first mine within the area above outlined.

Possible Costs of Opening Southport Mine

To any mining man who has been over the Southport property, which is covered with a very dense growth of timber and tanglewood of all kinds, it would be very evident that only an approximation can be made at this time of the probable cost of opening a mine and the probable cost of mining the coal. At the present moment we are confronted with two unknown factors, the most important of which is a lack of knowledge of the attitude of the coal bed within the area under consideration. The other important point is the difficulty of securing competent, efficient labor,

Following is an estimate, and perhaps the best one that can be made at this time, of opening a 100-ton-a-day mine:

Prospecting along the outcrop	\$ 2,000.00
Improvement of road	3,000.00
Power line to property	1,500.00
Undercutter, conveyor, drive, duckbill, etc.	15,000.00
Overstrom table for cleaning small sizes, including bins	5,000.00
Water system for cleaning plant	3,000.00
20 mine cars at \$150.00 each	3,000.00
2 mules	400.00
Machine shop and blacksmith shop combined	2,000.00
Ramp at railroad loading plant	1,000.00
Buildings at mine	2,000.00
Storage bins for 500 tons of coal	10,000.00
Driving gangway 1,000 feet, including ditches, rails, ties, and some gravel between ties	10,000.00
Incidentals not included above and factor of safety to compensate for faults, reduced labor efficiency, etc.	12,000.00
	<u>\$69,900.00</u>

This plant should produce 25,000 tons of coal a year operating one shift and, with the expenditure of an additional \$10,000 and operating two shifts, the mine and equipment should produce 50,000 tons of coal a year.

With additional cleaning equipment and more haulage facilities the production could readily be brought up to 75,000 tons a year.

Probable Cost of Mining

One must temper an estimate of mining such as we have under consideration with the knowledge that we do not have a complete understanding of the character of the walls nor the regularity of the coal bed within the area in which it is proposed to open the coal mine. We also have the further handicap in not knowing just what type of labor can be secured for the operations. So that what I am now going to set forth as an estimate is really not much better than an intelligent guess.

Men Needed Inside

Mechanical Unit

	Per shift	
1 Machine Runner	\$ 9.20	
1 Machine Runner helper	8.40	
1 Conveyor Operator	8.40	
2 Loaders onto conveyor	16.80	
1 Duckbill Operator	8.80	
1 Face Man	8.40	
1 Driller	8.60	
<u>8</u>		\$68.60

General Inside

2 Miners	\$14.80	
1 Timberman	7.40	
1 Timberman helper	6.70	
1 Car Spotter	6.70	
3 Pickers on conveyor line (Boys)	15.39	
1 Driver	7.00	
1 Track Man	7.40	
<u>10</u>		65.39

Outside Men

1 Blacksmith first-class	\$ 7.60	
1 Dumper	6.50	
1 Washery Man first-class	6.70	
2 Picking Table Boys	10.00	
1 Table Tender	6.30	
<u>6</u>		37.10
 1 Foreman		10.00
<u>23</u>		\$181.09

General Expenses

	Per Day	
Explosives, ties, rails, mine timber, repairs, lubricants,	\$40.00	
Power for machines, conveyors, underground lighting, surface lighting, cleaning plant, etc.	20.00	
Insurance - industrial, compensation, fire, etc., etc.	30.00	
Depreciation on \$70,000 at 10%	29.00	
		\$119.00
		181.09
		<u>\$300.09</u>

On a basis of 100 tons a day, the cost of mining coal according to the figures indicated would, in round numbers, be \$3.00 a ton. I believe that during the early history of mining of this property and until such time as the haulageways and mine workings become extensive, and after the men have become accustomed to the operations of the mechanical equipment, the cost of mining on a basis of 100 tons a day should be reasonably close to \$3.00 a ton. And by doubling this production the cost of mining should be reduced; and with a still further increase in production a further reduction should be made. Such items as insurance, depreciation, power, supervision, haulage, cleaning, and other items will stand their relative proportion of cost reductions.

Freight Rates from the Coos Bay Coal Field

Enclosed is a tabulation that appears on page 10, Bulletin No. 2 of the Oregon State Department of Geology and Mineral Industries, in which the distances in miles, rates per ton, and the rates per ton-mile, are shown as applied to coals moved from points in the Coos Bay area to several cities in western Oregon, and there are also some freight rates shown, from three points in the State of Washington, to Portland, Oregon.

The figures given in this tabulation show that the freight rates from the Coos Bay field are not properly balanced, and there should be a readjustment of these rates so as to make them more equitable, in which case the Coos Bay coals will have a better opportunity to move into the marketing area that is logically the Coos Bay coal-distributing area.

An impartial study should be made of the freight rates now applying to points in western Oregon from the coal fields of Montana, Wyoming, and Utah; as I recall, the rates per ton-mile from the three states mentioned into Oregon and Washington are approximately 1/2 cent per ton-mile. I fully realize that this low rate is based on the much longer rail haul than would be true of the coals moving from Coos Bay into points in western Oregon.

I have also been informed that Army camps, as such, secure a special rating from land-grant railroads. I do not know whether this ruling would apply to Coos Bay coals traveling over Southern Pacific rails, but if such ruling does apply, then the Coos Bay field should be given full advantage of every feature in connection with a readjustment of rates.

With a proper readjustment of rates to govern the Coos Bay coals moving into all points in western Oregon, I believe the over-all cost of delivery to Army camps and industrial centers will favor Coos Bay coals more than the present freight rates do.

From	To	Distance, miles	Rate per ton	Rate per ton-mile
Marshfield	Portland	245	\$2.50	\$0.0101
"	Salem	192	3.00	.0156
"	Eugene	121	2.50	.0207
"	Roseberg	196	3.10	.0158
"	Grants Pass	295	3.75	.0127
"	Medford	327	3.85	.0118
"	Klamath Falls	315	5.00	.0159
Seattle	Portland	183	2.00	.0109
Tacoma	Portland	143	1.71	.0120
Centralia	Portland	94	1.22	.0130

Conclusion

The reason the State of Oregon and the State of Washington are not in a position at this time to supply the coal needs of the Pacific Northwest is not because enough money has not been spent in developing and equipping coal mines, nor is it caused by a lack of coal in either or both of these States, for the State of Washington has about sixty billions of tons of coal, enough to last for many thousands of years, and the State of Oregon has about one billion tons of coal, enough to last many hundreds of years with a reasonable rate of production. There have been enough coal mines developed in each State to properly take care of the coal needs of each State, but the destructive overproduction of oil in California has definitely destroyed the investments in the coal mines and has thrown several thousand coal miners out of work. I fully realize that this is very plain speaking, but I know Doctor Sayers and also Doctor Fieldner well enough to know that they would not expect me to pull my punches if I have anything of a constructive nature to present.

The States of Oregon and Washington have also been victims to a certain extent of excellent salesmanship on the parts of the railroads that are connected with coal mine operations in Montana, Wyoming, and Utah. I know for I had the experience about 20 years ago of having to recommend closing a mine on which a million and a half dollars had been spent in opening and developing the mine, but the coal salesmen interested in giving the railroads the long freight haul had systematically built up a prejudice against Coos Bay coal in favor of the coals

they handled. This statement is not a theory, it is a well-established fact. Furthermore, the inspector who appears to have a great deal to do with the selection of coal for the Northwest Army camps at present made the very definite statement to the writer that he would take the necessary steps to see that the Coos Bay field would not be developed so as to supply the Army camps of Oregon. This gentleman, Mr. Dan O'Leary, was for many years on the payroll of the Continental Coal Company, which distributes coal in the Pacific Northwest and which coal originated on the lines of the Northern Pacific in Montana, the Union Pacific Railroad in Wyoming and Utah. It would appear therefore that the influence of the three railroads is no less a factor at this time than it was many years ago.

I have had very direct contact with every coal field and with practically every coal mine of importance in Montana, Wyoming, Utah, Colorado, California, Oregon, Washington, Idaho, British Columbia, Alberta, and Alaska and therefore know the relative market value of each of the coals, the type and cost of mining, and the freight rates, and I am prepared to make the very definite statement that there is a needless waste of railroad tonnage in moving coal a thousand miles into an area where coal already exists.

Between the terrific waste of California petroleum, with its overproduction and the burning of a nationally scarce product under the boilers of the industries of the Pacific Northwest, we

are confronted with the spectacle of having, in our front yards, an unlimited tonnage of coal suitable for practically every need, a scarcity of men trained for mining coal, and a scarcity of equipment with which to mine the coal.

This subject is so far-reaching and national in character and I have been in intimate contact with the problem for over 20 years, that I have very definite ideas on the subject. I maintain that no California fuel oil should be used throughout the Pacific Northwest where coal can be used economically. We have developed within the past 20 years coal-burning equipment that is almost as automatic as oil-burning. Instead of closing our mines during the past 18 or 20 years and throwing thousands of coal-mine workers out of work and putting them on relief, we should have continued operating our coal mines and added to them in order to take care of the increased industrial development of the Pacific Northwest. This applies to the State of Oregon as well as to the State of Washington. If this very sane and thoroughly practical program had been followed, we would today have a sufficient number of coal mines and coal-mine workers to take care of our needs in both Oregon and Washington, and there would be a great many millions of barrels of oil in storage in the ground in the oil fields of California, where the oil really should be, and not dumped into areas where coal could be used just as efficiently.

I shall therefore recommend that the necessary steps be taken to develop a coal mine or coal mines at the most strategic location in the Coos Bay coal field to take care of the Army camps as far as it can be done, and supply the general public of western Oregon with coal mined in their own State, and in this manner make the State of Oregon at least self-supporting in a mineral of which they have a great abundance.

I fully realize that this conclusion will not sound well to the ears of the railroads entering the Pacific Northwest nor to the oil producers of California, but I am writing this report for a Government agency which is very fortunate in having at its head a man who has a full grasp of the facts that I have just presented.

Respectfully submitted,

George Watkin Evans
George Watkin Evans,
Consulting Mining Engineer.

Seattle, Washington,
August 24, 1942.

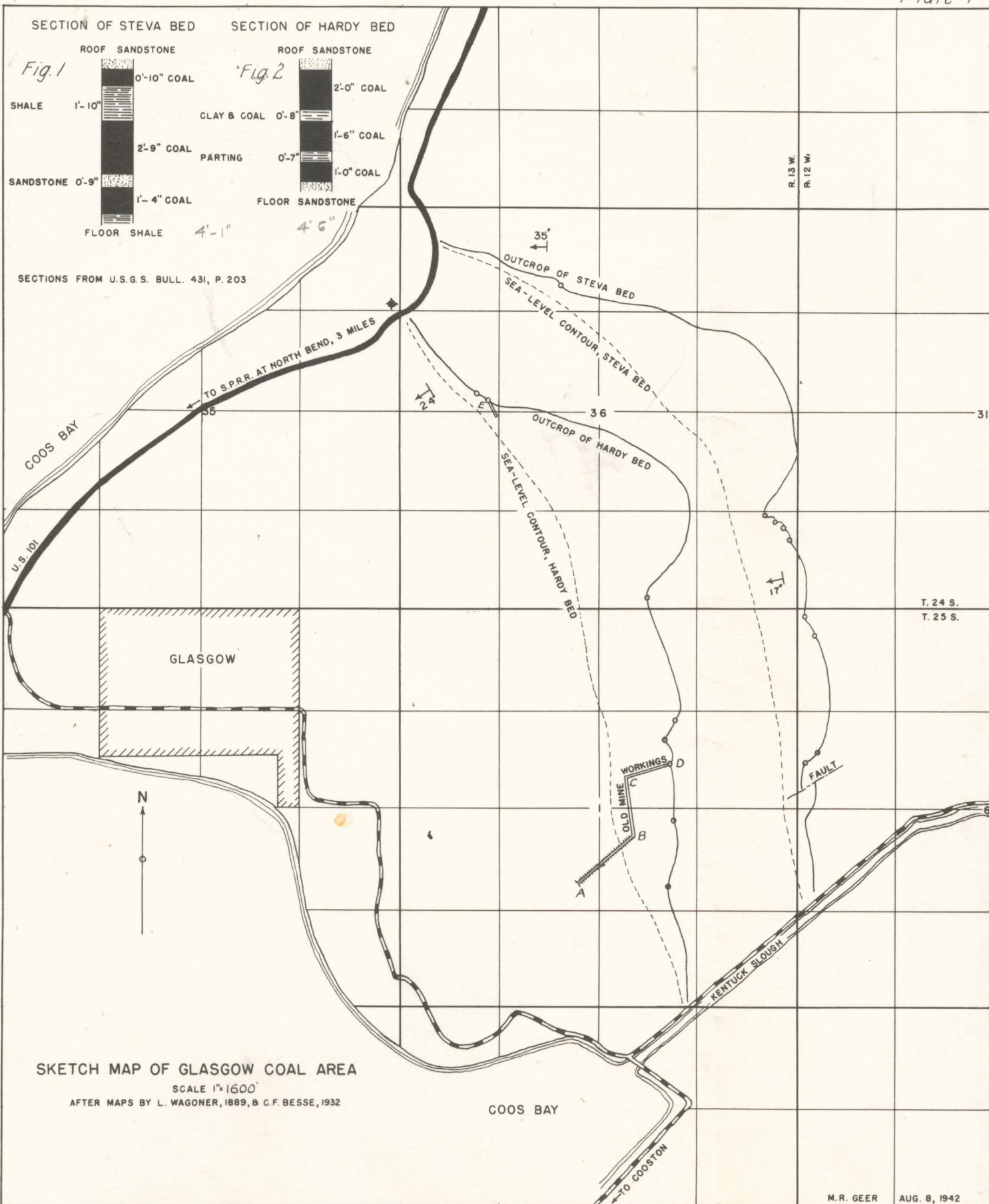
OREGON 1940 U. S. CENSUS 1,000,000 AREA 95,647 SQUARE MILES

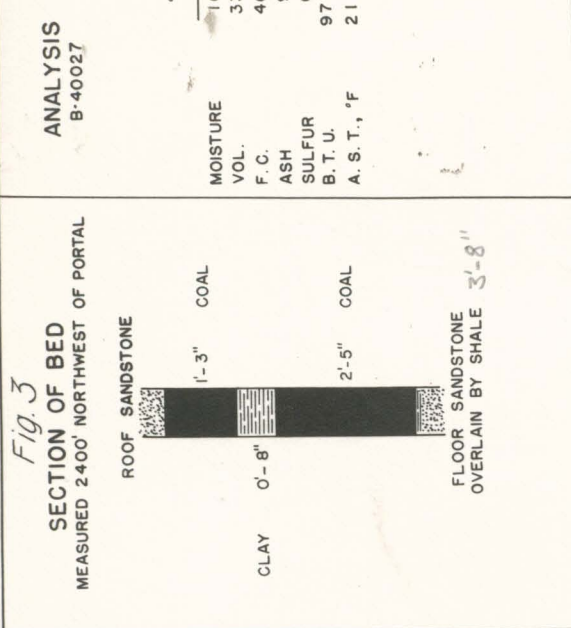
CITIES AND TOWNS
1940 U. S. CENSUS

UNINCORPORATED— POPULATION ESTIMATED	
Adams, 169	I-2
Artia, 100	C-3
Albany, 5,554	C-3
Amity, 545	C-3
Antelope, 90	F-3
Arlington, 609	C-3
Ashland, 4,744	D-8
Astoria, 10,389	B-1
Athens, 513	I-2
Aumsville, 174	D-3
Aurora, 728	I-2
Austin, 98	I-4
Azalea, 115	C-7
Baker, 9,342	J-3
Bandon, 1,004	B-6
Banks, 247	C-3
Bay City, 379	B-2
Beatty, 485	F-7
Beaverton, 1,052	F-2
Beed, 10,021	E-5
Beeg, 12	C-4
Blackby, 12	C-4
Blacklock, 15	G-2
Black, 10	F-8
Bly, 712	F-8
Boardman, 110	E-8
Bonanza, 233	E-8
Brightwood, 100	E-2
Broadhead, 10	E-2
Brookings, 450	B-8
Brooks, 120	C-4
Brothers, 11	C-4
Brownsville, 784	C-4
Bullard, 10	C-4
Burns, 2,566	H-5
Butte Falls, 239	D-7
Buxton, 125	C-2
Camas Valley, 300	C-6
Candy, 988	C-6
Canyon City, 312	A-4
Canyonsville, 255	C-7
Carleton, 184	C-2
Cascade Locks, 703	E-2
Cave Junction, 150	C-6
Central Point, 906	B-8
Charleston, 285	B-8
Chemawa, 100	B-8
Cherryville, 1	D-2
Cheshire, 95	C-4
Chiloquas, 74	C-4
Cleatsville, 708	C-1
Cloverdale, 200	C-4
Cohart, 456	C-4
Condon, 824	G-3
Copple, 1,327	C-6
Cornelius, 637	C-2
Corvallis, 255	K-3
Corvallis, 8,292	C-5
Cottage Grove, 2,626	C-5
Cove, 221	C-5
Crabtree, 250	C-4
Crane, 145	I-4
Crocker Lake, 250	E-6
Crescent, 300	E-6
Croswell, 497	B-5
Cushman, 125	B-5
Dallas, 3,579	C-3
Dayton, 505	H-4
Dayville, 136	H-4
Deer Island, 10	D-3
Depue Bay, 300	D-3
Detroit, 110	D-3
Dixie, 100	D-3
Donald, 164	D-3
Drain, 597	I-3
Drewsey, 58	I-3
Dufur, 352	F-2
Dundore, 209	F-2
Durkee, 150	J-4
Eagle Point, 243	D-7
Eastside, 638	H-2
Echo, 280	H-2
Edyville, 23	J-2
Elgin, 997	J-2
Elkton, 150	C-5
Elmira, 125	C-5
Elsie, 150	C-1
Empire, 1,709	K-2
Enterprise, 1,709	K-2
Estacada, 526	D-2
Estacada, 26,818	C-5
Falls City, 715	C-3
Flora, 45	C-3
Florence, 43	C-2
Forest Grove, 2,449	C-2
Fort Klamath, 115	B-1
Fort Stevens, 500	B-1
Fossil, 537	B-1
Freewater, 625	C-2
Gardiner, 300	B-1
Gardiner, 400	C-2
Gaston, 333	D-3
Gates, 100	D-3
Gatun, 319	B-1
Gervais, 332	D-2
Gladstone, 1,629	D-2
Glendale, 557	C-1
Goble, 90	C-1
Gold Beach, 850	B-8
Gold Hill, 536	C-5
Goshaw, 90	C-5
Government Camp, 150	E-2
Granite, 86	I-3
Grants Pass, 6,028	F-2
Grass Valley, 204	F-2
Gresham, 1,951	D-2
Grosvonts, 10	B-2
Haines, 377	J-3
Halfway, 416	C-4
Halsey, 305	C-4
Hamilton, 40	H-3
Hamil, 20	B-1
Hardman, 83	H-3
Harney, 3	I-5
Harper, 165	C-4
Harrisburg, 622	C-4
Helm, 150	B-3
Helix, 121	I-1
Hepner, 1,140	H-2
Hesperia, 10	H-2
Hereford, 42	J-4
Hermiston, 803	H-1
Hilgard, 50	I-2
Hillsboro, 3,747	E-2
Hines, 527	E-2
Hood River, 2,280	E-2
Hubbard, 387	C-7
Hugo, 125	K-4
Huntington, 741	K-4
Imbler, 182	C-2
Independence, 1,372	C-3
Ione, 262	G-2
Innes, 38	J-4
Irrigon, 125	H-1
Island City, 177	C-8
Jacksonville, 761	C-8
Jefferson, 479	C-1
John Day, 708	H-6
Jordan Valley, 274	H-6
Joseph, 593	C-4
Junction City, 1,187	C-4
Juniper, 167	C-5
Kamela, 25	E-7
Kirk, 48	E-7
Klamath Agency, 80	E-7
Klamath Falls, 16,497	E-8
Knappton, 150	C-1
Lafayette, 409	J-2
La Grande, 7,747	J-2
Lakeside, 134	G-8
Lakewood, 2,466	G-8
Langlois, 200	B-7
Lapine, 100	C-4
Lebanon, 2,729	C-4
Leona, 11	H-2
Lexington, 223	H-2
Lima, 100	K-4
Linn, 46	H-2
Long Creek, 238	H-3
Loring, 204	J-3
Lynnton, 710	F-4
Madras, 412	F-4
Malheur, 250	B-5
Marcola, 405	D-4
Marion, 180	C-4
Marshfield, 5,759	B-6
Maupin, 267	C-1
Mayer, 100	C-1
Mayville, 25	C-1
McCrone Springs, 45	D-5
McKenzie, 74	C-1
McMinnville, 3,706	C-3
Medford, 11,281	D-8

Plate, A.: A map of a portion of western Oregon showing the locations of the Coos Bay Coal Field, in outline, the position of the Southport Coal Mine at No. 1, Army camp near Corvallis at 2 and another Army camp near Medford.







SOUTHPORT COAL CO.
MARSHFIELD, ORE.
OPERATED BY J. H. FLANAGAN

NOTES

AMOUNT OF COAL IN PILLARS NOT KNOWN. LOWER DRIFT NOW BEING DRIVEN WOULD DEVELOP 50000 TONS OF COAL IF DRIVEN 2000' WITH AVERAGE LIFT OF 200'. EQUIPMENT:- 8 MINE CARS, 10000' RAIL, POST DRILLS, ANVIL, FORGE, VISE, AND HAND TOOLS.

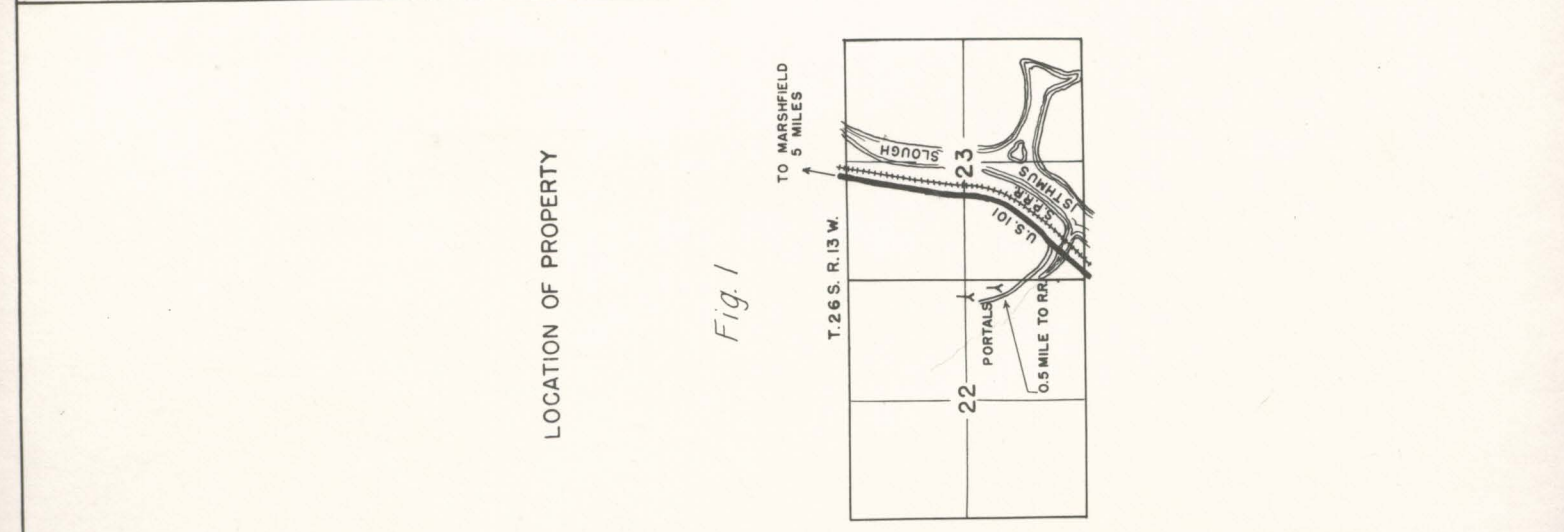
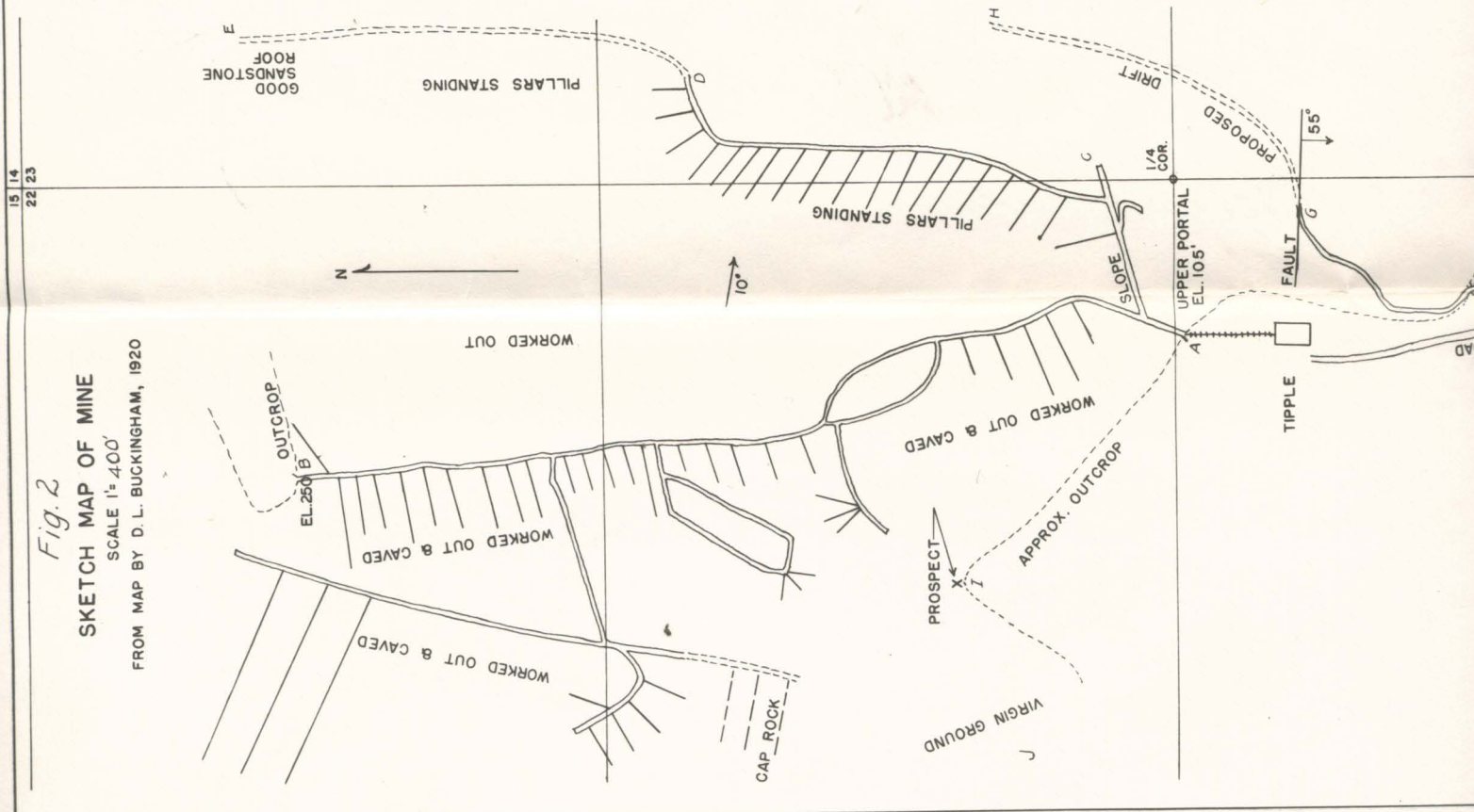


Fig 2

SKETCH MAP OF MINE
SCALE 1"=200'

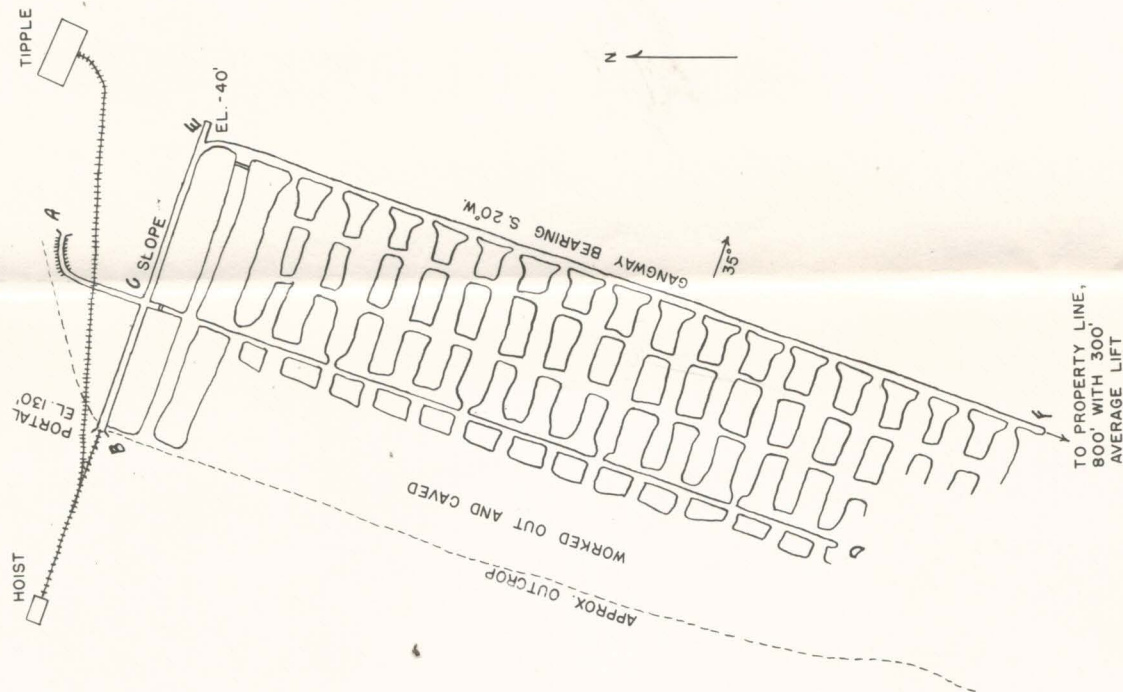
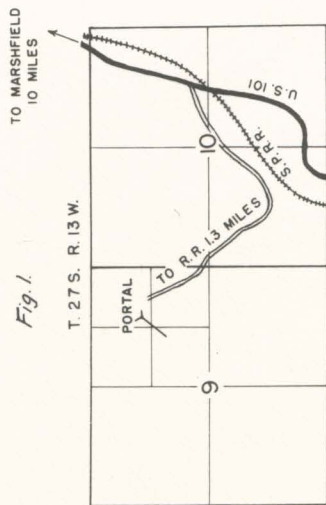


Fig. 1.

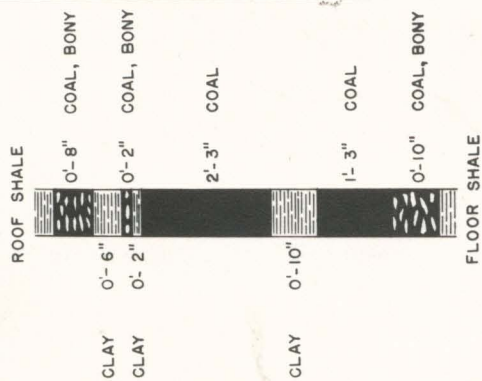


LOCATION OF PROPERTY

Fig. 3.

SECTION OF BED

MEASURED 250' SOUTH OF SLOPE

ANALYSIS
B-40065

MOISTURE	1.79	%
VOL.	34.4	
F. C.	4.15	
ASH	6.2	
SULFUR	0.6	
B. T. U.	9960	
A. S. T., °F	2160	

OVERLAND COAL CO.

MARSHFIELD, ORE.
OPERATED BY EVOR & ADOLPH RUDBERG,
GEORGE CHARD, & JOHN ANDERSON

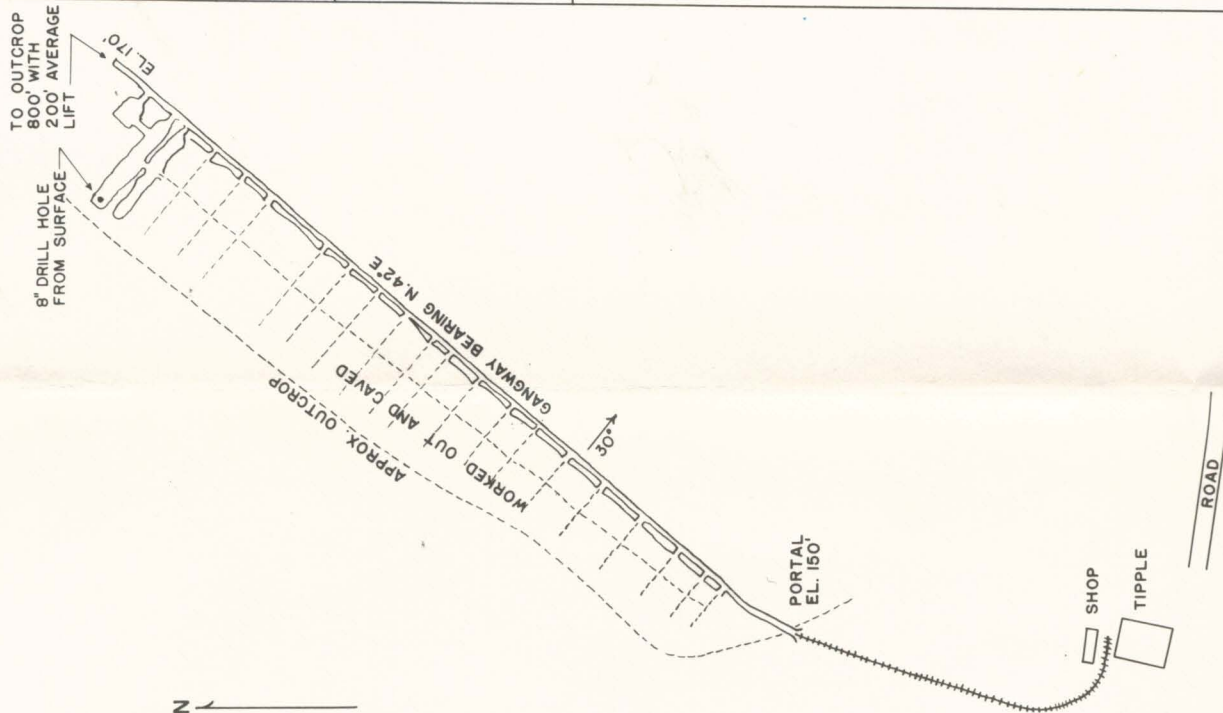
NOTES

PRODUCTION IN 1941, 2300 TONS.
COAL IN PILLARS, 12000 TONS. COAL THAT WOULD BE DEVELOPED BY DRIVING PRESENT GANGWAY 800' TO PROPERTY LINE WITH
EQUIPMENT:- 6 MINE CARS, 3000' RAIL, 3 RECIPROCATING PUMPS
OF 3', 2-1/2", 8 1-1/2" SIZE WITH MOTORS, 500' OF 3" PIPE, 6 POST
DRILLS, 20" DOUBLE-ROLL CRUSHER, 12-TON TRUCK SCALES,
FORGE, ANVIL, DRILL PRESS, AND HAND TOOLS.
HOIST IS POWERED BY AUTOMOBILE ENGINE.
POWER LINE 600' FROM PORTAL; PRESENT POWER DEVELOPED BY
DIESEL-ELECTRIC GENERATOR.

SKETCH MAP OF MINE

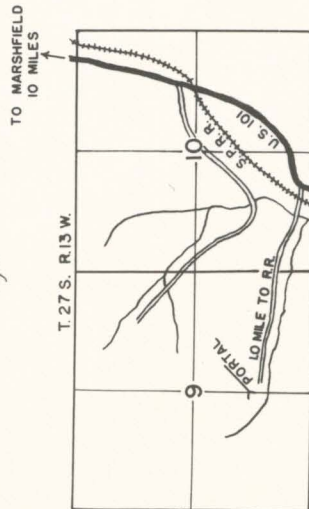
SCALE 1"=200'

Fig. 2



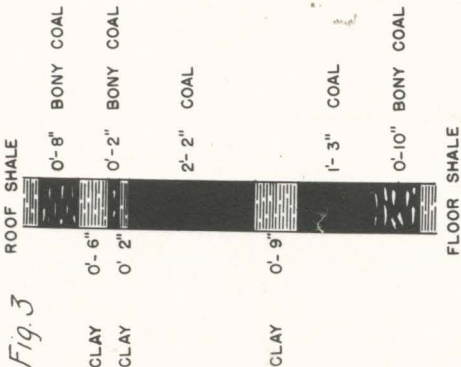
LOCATION OF PROPERTY

Fig. 1



SECTION OF BED MEASURED 600' NORTHEAST OF PORTAL

Fig. 3



ANALYSIS

	9/0
MOISTURE	16.9
VOL.	34.6
F. C.	42.8
ASH	5.7
SULFUR	0.5
B. T. U.	10080
A. S. T., °F	2340

BEAVER COAL CO.

MARSHFIELD, ORE.
OPERATED BY G. W. MARTIN

NOTES

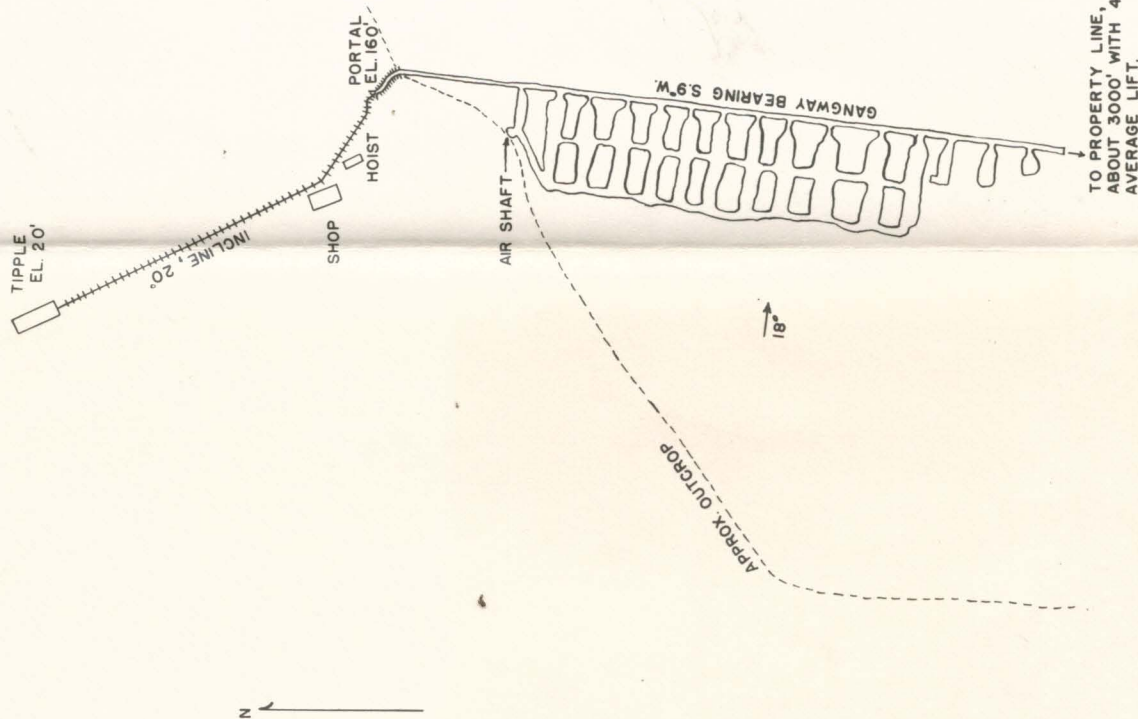
COAL MINED FROM LAND OF ESTHER HAYNES; ROYALTY 15¢ PER TON.
COAL IN CHAIN PILLARS, 2000 TONS. COAL THAT WOULD BE DEVELOPED BY DRIVING PRESENT DRIFT 800' TO OUTCROP WITH AN AVERAGE LIFT OF 200', 18000 TONS.
EQUIPMENT:- 5 MINE CARS, 100' RAIL, 5 POST DRILLS, FORGE, ANVIL, VISE, AND HAND TOOLS.

SKETCH MAP OF MINE

SCALE 1"=200'

Fig. 2

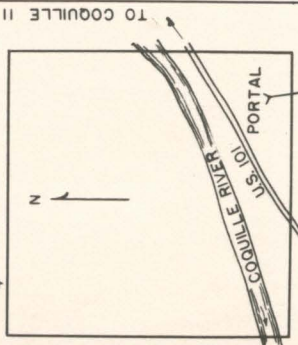
HIGHWAY



LOCATION OF PROPERTY

Fig. 1

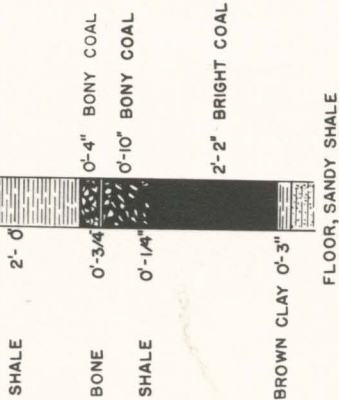
SE 1/4 SEC. 25 T. 28 S. R. 14 W.



SECTION OF BED
MEASURED 700' SOUTH OF PORTAL

ROOF, SANDSTONE

Fig. 3



LAMPA COAL CO.

RIVERTON, ORE.
OPERATED BY L. B. GIBBS

ANALYSIS

B-81998

	%
MOISTURE	11.2
VOL.	37.1
F. C.	39.0
ASH,	12.7
SULFUR	1.7
B. T. U.	10190
A. S. T., °F	2180

NOTES

COAL MINED FROM LAND OF WELCH ESTATE IN NE. 1/4 SEC. 36;
ROYALTY 15¢ PER TON.
PRODUCTION IN 1941 665 NET TONS.
COAL IN PILLARS, 2000 TONS. COAL THAT WOULD BE DEVEL-
OPED BY DRIVING PRESENT DRIFT 3000' TO PROPERTY LINE
WITH AN AVERAGE LIFT OF 400', 86000 TONS.
EQUIPMENT:- 6 MINE CARS, 5' FAN, AUTOMOBILE-ENGINE HOIST,
100' OF RAIL, POST-AUGER DRILL, FORGE, ANVIL, VISE, AND
HAND TOOLS.
POWER LINE ON NORTH BANK OF RIVER.

CLASS OF SERVICE DESIRED	
DOMESTIC	CABLE
TELEGRAM	☒ ORDINARY
DAY LETTER	URGENT RATE
SERIAL	DEFERRED
OVERNIGHT TELEGRAM	NIGHT LETTER
SPECIAL SERVICE	SHIP RADIOGRAM

Patrons should check class of service desired; otherwise the message will be transmitted as a telegram or ordinary cablegram.

WESTERN UNION

1207

A. N. WILLIAMS
PRESIDENT

NEWCOMB CARLTON
CHAIRMAN OF THE BOARD

J. C. WILLEVER
FIRST VICE-PRESIDENT

\$	CHECK
S	ACCOUNTING INFORMATION
F	TIME FILED

Send the following telegram, subject to the terms on back hereof, which are hereby agreed to

To Dr. A. C. Fieldner 19

Care of or Apt. No.

Street and No. U. S. Bureau of Mines

Place

Washington D. C.

Retel my convictions honestly recorded in my conclusion however I have no desire to embarrass your department you may therefor omit as suggested your wire

George Watkin Evans

(Send Govt Collect)

WANT A REPLY?

"Answer by WESTERN UNION"
or similar phrases may be
included without charge.

Sender's address
for reference

Sender's telephone
number

CLASS OF SERVICE

This is a full-rate Telegram or Cablegram unless its deferred character is indicated by a suitable symbol above or preceding the address.

WESTERN UNION (19) 01

35600734

A. N. WILLIAMS
PRESIDENTNEWCOMB CARLTON
CHAIRMAN OF THE BOARDJ. C. WILLEVER
FIRST VICE-PRESIDENT

SYMBOLS

DL = Day Letter

NT = Overnight Telegram

LC = Deferred Cable

NLT = Cable Night Letter

Ship Radiogram

The filing time shown in the date line on telegrams and day letters is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

CA86 ~~32 GOVT~~ ID WASHINGTON DC 3 901A

GEORGE WATKINS EVANS = COOS BAY COTTAGES 1942 SEP 3 AM 6 21
~~501 THIRD AVE SEATTLE WASH =~~ MARSHFIELD OREGON

via Seattle Wash

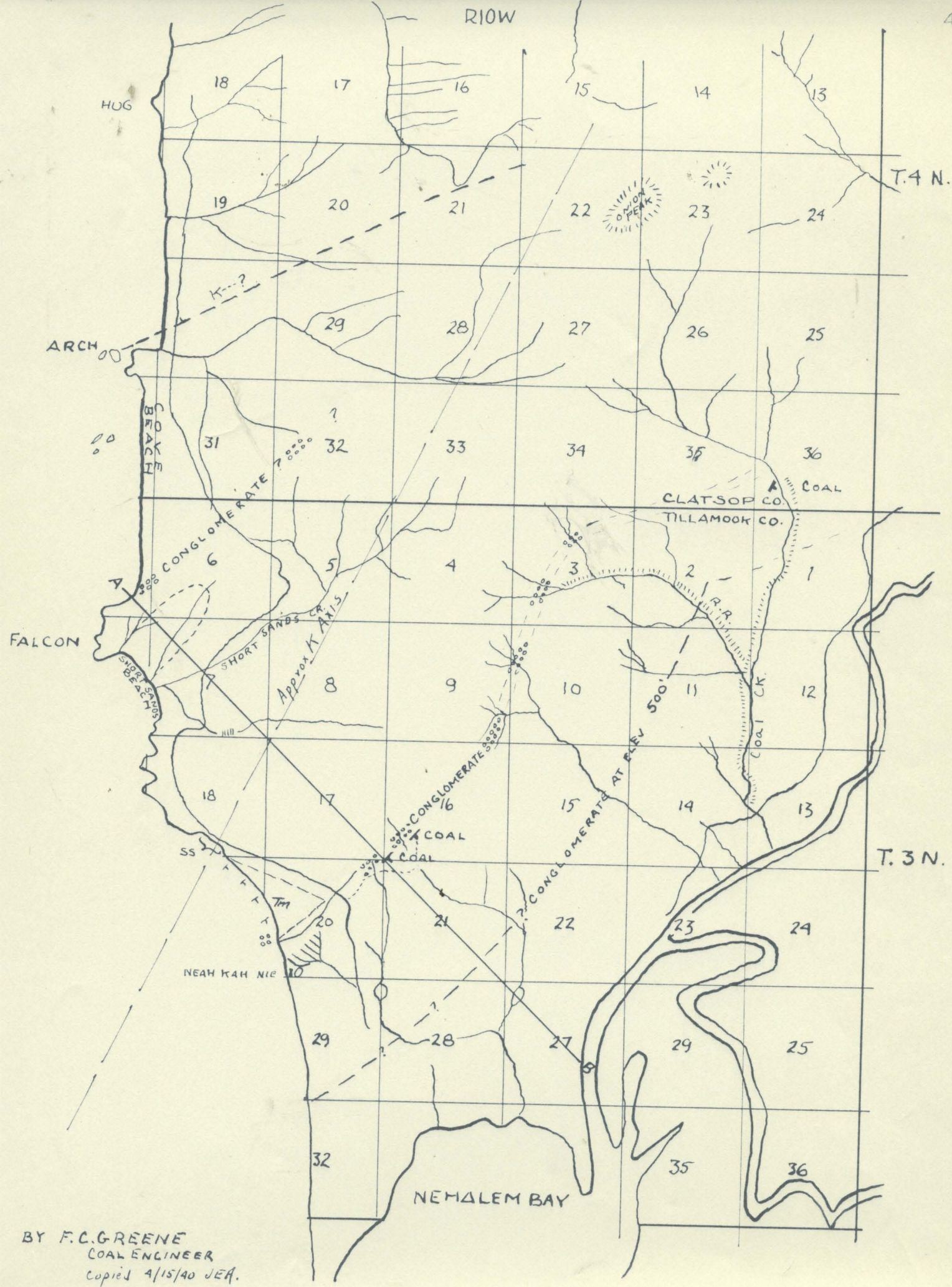
OWING TO BUREAU OF MINES POLICY IT IS DESIRABLE TO
 TRANSMIT YOUR REPORT WITH THE OMISSION OF THE CONCLUSION ON
 PAGES 22 TO 25 INCLUSIVE. IS THIS SATISFACTORY TO YOU?
 WIRE REPLY=

A C FIELDNER.

22 25.

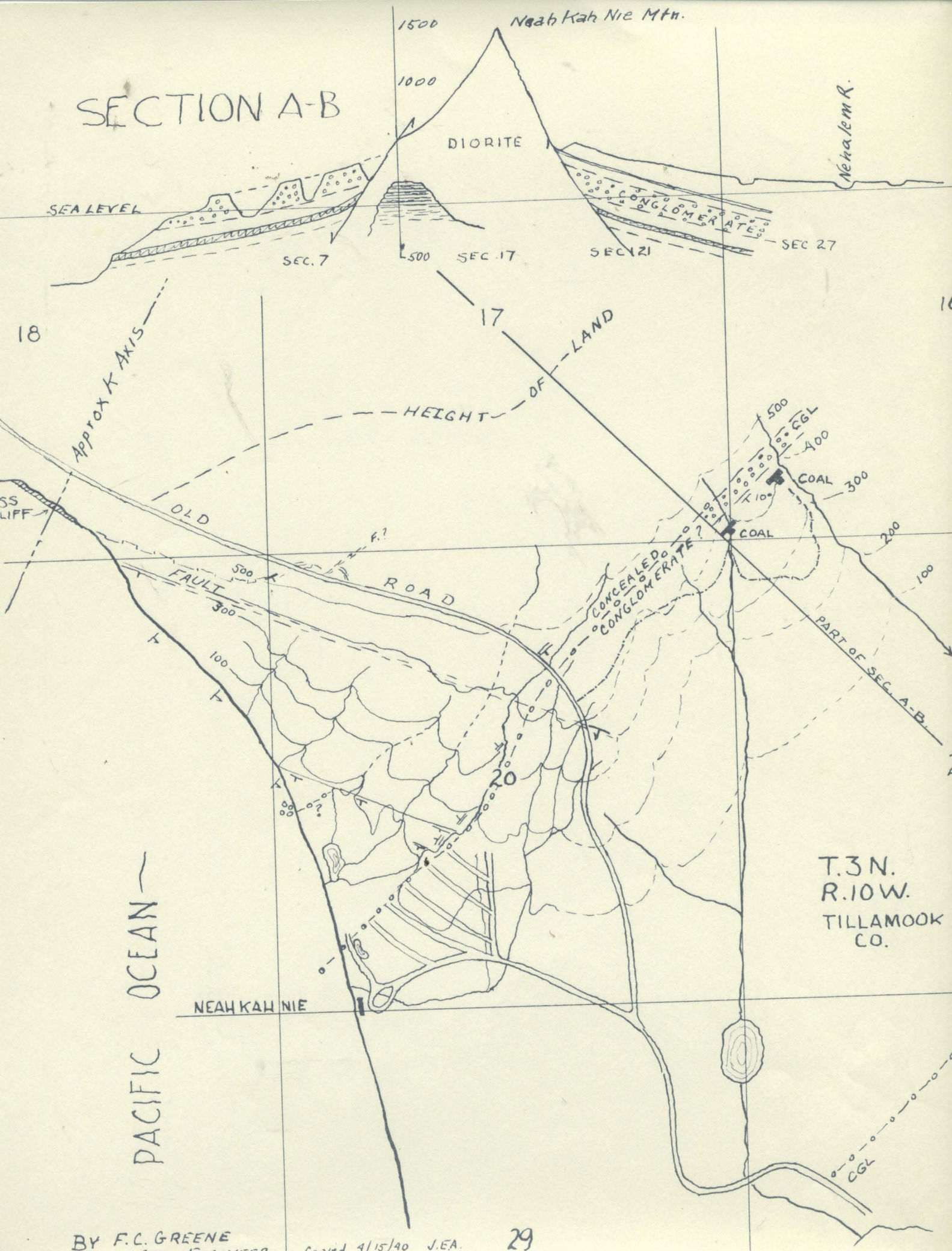
Forwarded to
 George Watkin Evans
 Coos Bay Cottages
 Marshfield, Oregon

MAILED 100
 TELETYPE UNIT
 SERVICE DEPARTMENT
 100



BY F.C. GREENE
COAL ENGINEER
Copied 4/15/40 JEA.

SECTION A-B



BY F.C. GREENE
COAL ENGINEER

Copied 4/15/40 J.E.A.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Test No. _____

G-COAL-ANALYSIS REPORT

Lab. No. _____

Sample of Coal No. 1 (air dried)

Can No. _____

Operator NoneMine North Fork Coal Ck.State OregonCounty TillamookBed UnnamedTown North of Nehalem; from dumpLocation in mine Sec. 36, T. 4 N., R. 10 W.Method of sampling Grab; in sack Gross weight, lbs. 5 Net weight, grams _____Date of sampling 4/13/40 Date of Lab. sampling _____ Date of analysis 5/7/40B. of M. or U. S. G. S. section Oregon Geol. Dept. Collector John Eliot Allen

AIR-DRY LOSS		COAL (Air dried)	COAL (As received)	COAL (Moisture free)	COAL (Moisture and ash free)
Proximate Analysis	Moisture	10.7		---	---
	Volatile matter	38.0		42.5	44.0
	Fixed carbon	48.3		54.1	56.0
	Ash	3.0		3.4	---
		100.0		100.0	100.0
Ultimate Analysis	Hydrogen				
	Carbon				
	Nitrogen				
	Oxygen				
	Sulphur	0.7		0.8	0.8
Calorific value	Calories				
	British thermal units	11,290		12,640	13,080

Softening temperature of ash _____ ° C. _____ ° F.

Date 5/13/40(Signed) K. A. Johnson

Chemist.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Test No. _____

G-COAL-ANALYSIS REPORT

Lab. No. _____

Sample of Coal No. 2 (air dried)

Can No. _____

Operator NoneMine Neah Kah NieState OregonCounty TillamookBed UnnamedTown North of Nehalem; from dumpLocation in mine S.W. 1/4 Sec. 16, T. 3 N., R. 10 W.Method of sampling Grab; in sackGross weight, lbs. 5 Net weight, grams _____Date of sampling 4/13/40Date of Lab. sampling _____ Date of analysis 5/7/40B. of M. or U. S. G. S. section Ore. Geol. Dept.Collector John Eliot Allen

AIR-DRY LOSS		COAL (Air dried)	COAL (As received)	COAL (Moisture free)	COAL (Moisture and ash free)
Proximate Analysis	Moisture	11.8		---	---
	Volatile matter	38.5		43.7	46.0
	Fixed carbon	45.2		51.2	54.0
	Ash	4.5		5.1	---
		100.0		100.0	100.0
Ultimate Analysis	Hydrogen				
	Carbon				
	Nitrogen				
	Oxygen				
	Sulphur	0.7		0.8	
Calorific value	Calories				
	British thermal units	10,680		12,110	12,760

Softening temperature of ash _____ ° C. _____ ° F.

Date 5/13/40.(Signed) K. A. Johnson

Chemist.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Test No. _____ G-COAL-ANALYSIS REPORT Lab. No. _____

Sample of Coal No. 3 (air dried) Can No. _____

Operator None Mine Neah Kah Nie Beach

State Oregon County Tillamook Bed Unnamed

Town North of Nehalem; picked up on beach

Location in mine W. 1/2, Sec. 20, T. 3 N.

Method of sampling Grab; in sack Gross weight, lbs. 5 Net weight, grams _____

Date of sampling 4/13/40 Date of Lab. sampling _____ Date of analysis 5/7/40

B. of M. or U. S. G. S. section Oregon Geol. Dept. Collector John Eliot Allen

AIR-DRY LOSS		COAL (Air dried)	COAL (As received)	COAL (Moisture free)	COAL (Moisture and ash free)
Proximate Analysis	Moisture	2.2			
	Volatile matter	44.4		45.4	47.1
	Fixed carbon	49.8		50.9	52.9
	Ash	3.6		3.7	
		100.0		100.0	100.0
Ultimate Analysis	Hydrogen				
	Carbon				
	Nitrogen				
	Oxygen				
	Sulphur	1.4		1.4	1.5
Calorific value	Calories				
	British thermal units	14,230		14,550	15,110

Softening temperature of ash _____ ° C. _____ ° F.

Date 5/13/40. (Signed) K. A. Johnson Chemist.

p. 494

Lower Nehalem Coal Field: North of Nehalem, near the county line. In sec. 16m T 3 N, R 10 W, 18", at south foot of Neahkahnle Mt, 30° SW. Short distance down another exposed for 50 feet, 5-14" thick, dips 30° NW. Lower probably a slide. Anal. 11.

On another branch of Hodge Ck., 250 yds east of last place, two tunnels. 2 foot pocket of coal. Anal. 12

Coal ck. sec. 2, T 3 N, R 10 W, 18", dips 50° NW. Also sec. 16, 22" thick, sec. 36, 10". Anal. 13.

Coal field NE-SW through secs. 16, 10, 2, 36, about 5 miles. Nowhere exceeds 22 inches. Very soft strata.

11	8.08	41.26	46.81	3.85	1.30
12	8.86	40.06	46.79	4.29	1.31
13	8.91	41.54	47.23	2.32	0.38
	Moisture	Volatiles	Fixed C.	Ash	Sulfur

LOWER NEHALEM COAL FIELD

The Lower Nehalem coal field is situated north of the Nehalem, near the county line between Clatsop and Tillamook.

In sec. 16, T. 3 N., R. 10 W., occurs an 18-inch bed of coal lying between beds of clay. It is near the south foot of Ne ah kah nie Mountain, and is inclined at an angle of 30° southwestward. A short distance farther down the slope is another exposure of coal. It can be traced for 50 feet along the strike and ranges from 5 inches to 14 inches in thickness. It dips at an angle of 30° to the northwest, nearly at right angles to that in the other exposure. There may be two beds of coal here, but considering the softness of the associated strata and the difference in position of the coal outcrops, it is not improbable that the lower exposure is only a slide from the upper. The analysis of coal from this locality is No. 11 in the list.

On another branch of Hodge Creek, about 250 yards to the eastward from the locality just noted, two tunnels have been driven by Mr. J. G. Gerritze for Mr. S. F. Pearson. In one of them a 2-foot pocket of brilliant, homogenous, fine-looking coal was found, which yielded the analysis No. 12 in the table.

On Coal Creek, in sec. 2 T. 3 N., R. 10 W., is an 18 inch bed of coal which lies between shales and strikes northeast and southwest, dipping to the northwest at an angle of 50° . The coal resembles that from Section 16, of which it may be a continuation, for a coal of the same character, 22 inches in thickness, is reported by Mr. Frank Steinhauer from Section 10, which lies between, and a similar if not identical lustrous, black 10-inch coal occurs in section 36 of the next township to the north. It lies between sandstone (above) and shale. Analysis No. 13 shows its composition.

No fossils were found in immediate connection with the coal, so that its age is not definitely known, but it appears to be beneath the Tertiary shales exposed near Crawford on the North Fork of the Nehalem.

Sections 16, 10, 2 and 36 are all in a line extending northeast and southwest, and the coal exposed in them may all belong to the same bed. The coal field, so far as known, has a length of about 5 miles. The quality of the coal is good, but its thickness, so far as yet known, nowhere exceeds 22 inches. It occurs in strata so soft as to render timbering generally necessary, and is inclined at a considerable angle. In view of these facts, notwithstanding its good quality and nearness to tide water, above which it rises only a few hundred feet, it can not be regarded as promising commercial importance.

SAMPLE OF: COAL

CAN NO:

#1

#2

#3

Operator:	Not Operated. Owned by	Not Operated. Owned by	S. G. Reed
Mine:	Lumber Co.	Lumber Co.	Neah Kah Nie Mine
State:	North Fork Coal Ck.	Neah Kah Nie Mine	Oregon
County:	Oregon	Oregon	Tillamook
Bed:	Tillamook	Tillamook	Not Known
	Not Known	Not Known	
Town:	North of Nehalem	North of Nehalem	North of Nehalem
Location in Mine	Sec. 36 T 4N., R. 10 W. W. M.	SW $\frac{1}{4}$ Sec. 16, T 3N. R 10 W.	W $\frac{1}{2}$ Sec. 29, T. 3N.
Method of Sampling	Grab Sample	Grab Sample	Grab Sample
Gross Wt., Lbs.			
Net Wt., grams			
Date of Sampling	April 13, 1940	April 13, 1940	April 13, 1940

From: Oregon Dept of G.M.I.

Collector: John Eliot Allen.

C
O
P
Y

Hotel Oregon
McMinnville,
Oregon,
November 3, 1934.

Mr. S. G. Reed,
Nehalem, Oregon

Dear Mr. Reed:

I stopped at Neahkahnie yesterday afternoon to discuss further with you the matter of possible Cretaceous coal on your golf course per my delineations sent to you several days ago.

I am so possessed with the evidence to date that I have prepared also some sketches of a light drill rig which can be made very inexpensively and penetrate at least a hundred feet or more at a location I think I can select where initially at least very pertinent information can be had about what I think is the near approach of this coal bed to surface at the beach.

I have done lots of boring with such a rig to depths of two hundred feet with two men. Perhaps you could get the loan of such men from your "transient camp" proposed for nearby location, eh?

I will try to deliver such data in person shortly and discuss the whole project with you.

Cordially yours,

F. C. Greene

FCG-ip

532 16th St.
Oakland, Cal.

Old Ben Coal Corp.
Chicago, Ill.

C
O
P
Y

Offices of
Ladd Estate Company
Portland Oregon
November 15 1934

Mr. Samuel G. Reed
Nehalem Oregon

Dear Mr. Reed: re NEAH KAH NIE POSSIBLE COAL BEDS

Sequent to our wet reconnaissance yesterday and your affording me precise topography on section 20 T3N R10W I have put the latter on my map 341111 when with the further aid of the skyphoto I feel that I have approximately delineated the trend of the outcrop of the Cretaceous-Tertiary conglomerate beneath which it is possible the Cretaceous coal bed occurs from which float coal has been washed up on the beach of Neah Kah Nie in times past.

It is probable that to the northwest of the delineated outcrop of conglomerate a down throw fault has dropped a large block of the Tertiaries of triangular shape bounded on the north by the very evident major fault faced by the sandstone cliff engulfed by the late igneous mass of Neah Kah Nie Mountain (see Section A-B).

In the dragbelt of the fault northwest of the conglomerate there might well be "horses" of the strong Cretaceous coal bed, or seaward outstanding ledges of the bed to result in "float".

Predicated upon the mentioned date it would seem next in order to sink with the spring-pole drill a test hole about one thousand feet north of the Neah Kah Nie Inn and northwest of what we may consider the fault-scarp of the conglomerate and so as to avoid penetrating the conglomerate which is much too resistant for the light springpole rig to tackle.

Precedent to such boring it may be well to prospect with pick and shovel, or with soil-auger, in the ravine of creek that flows near center of Section 20. Several topographic features cause me to think that about 200 to 300 yards down the creek from center of 20 to be the point or region for quickest finding of the conglomerate. I think the smooth slope of the hill between say elevation 50 and elevation 200 indicative of the back of the resistant conglomerate lying on its normal pitch to the southeast.

Once we can "feel" the broken edge of the conglomerate and trace it shoreward we can with greater confidence locate the best place to escape this hard material with the light drill of my 341103.

Expecting to hand you these data before I leave for California shortly, and with good wishes and many thanks for your cheer afforded, I remain

Cordially,

F. C. Greene

FCG-hs-enc

Ladd Estate Offices
Public Service Building
Portland, Oregon
November 1, 1934

Dear Mr. Reed: re Coal at Neahkahnie Vicinity

Mr. Samuel G. Reed
Nehalem, Oregon

Sequent to our field reconnaissance months ago along coast and of October 28 and 29 adjacent Neahkahnie Mountain eastern slope I am trying despite paucity of more precise data to construct a rational explanation of several observations of apparently related facts, to wit:

**THE MASS OF OLD SANDSTONE
UNDER NEAHKAHNIE IGNEOUS:**

The small sketch map 341101 herewith shows approximate locality of this sandstone mass near south line of section 18 T 3N R 10 W along the beach beneath Neahkahnie cliffs. Here we find old (in my view Cretaceous) and slightly metamorphosed thick massive beds of silicified sediments disposed nearly horizontal and engulfed by the massive dioritic igneous mass of Neahkahnie Mountain. To my mind this sandstone mass represents Cretaceous (although it may even be of Jurassic) Age rocks probably underlying any coal horizon of Cretaceous Age. There must be a fault south of this sandstone mass to the southeast to downthrow this horizon sufficiently to expose the prominent conglomerate strata at the heads of streams rising on Neahkahnie east slope.

THE PERSISTENT CONGLOMERATE

Strata mentioned in my view is the ancient beach marking prior Cretaceous change to Tertiary for no matter where we find this conglomerate the rocks above it are immature and recent and the thin coal beds closely above the conglomerate are also Tertiary although matured locally by post-Tertiary-Eocene (earliest Tertiary) igneous sills and dikes as witness the sample of "burnt" coal from the Coal Creek mine.

THE COAL-BORING ROCK-OYSTER

This chap certainly says plenty. Here he is in a block of hard mature clean coal the size of a half-brick washed up on the Neahkahnie beach signifying that the block of coal came from a ledge at extreme low tide where rock-oysters are found attached to and bored into strata IN PLACE. Your rock-oyster does not bore in loose rock. Furthermore this rock-oyster piece of coal suggests the very large piece of excellent coal (best I ever saw in the west) washed up on the beach recently. If I can "smell" coal at all I should say this beach coal truly Cretaceous.

SIGNIFICANCE OF THE NEHALEM

In general trend this stream with its bay parallels the northeasterly mountain mass from Neahkahnie and Onion Peak and beyond. This mountain mass of basic igneous material must be younger than the "mass of old sandstone" mentioned above and older than the "persistent conglomerate" for it engulfs the former and has tilted the latter beside locally intruding the Tertiary coals and leaving burn marks on them. Thus the trend of the Nehalem and of Neahkahnie is the trend also of the coal measures and further in my view this trend continues southwest beneath the sea.

CONSTRUCTING FROM PREMISES

above one might be permitted to show Cretaceous Horizon between the overlying Conglomerate and the older Mass of Sandstone within which the beach-float-coal would be found. Further reconnaissance and subsequent boring are suggested as worth while now.

Attach Map 341101

Cordially yours, F. G. Greene

Coal mining

5045
In all the discussions about coal mining in the Flora section of Wallowa County it's about time that earnest consideration is given to the enactment of stringent legislation which would, so far as possible, protect the environment from the kind of devastating effects which have accompanied most strip mining operations in the past. We don't think anyone wants to see the kind of "no-man's-land" left behind by rapacious coal mining companies in Illinois, Kentucky, West Virginia and elsewhere only a few years ago.

Probably a large part of the opposition to strip mining for coal in Wallowa County would evaporate if everyone could be assured that the damage, both aesthetic and material, from the mining would be negligible; that the area would not be gouged up by roads, scarred by unsightly mounds of over-burden removed, churned up into miles of abandoned pits, underground and surface waters blocked and polluted, and the whole area turned into an abandoned and forelorn mess.

Most of the horrors of strip mining can probably be avoided by the enactment of tough laws which spell

out in detail the steps which must be taken by miners to protect the environment, and which assess the stiffest penalties for non-compliance. Such laws need to provide for constant monitoring and inspection by public representatives to see that operations from day to day are maintained on a basis strictly compatible with legislative requirements. Furthermore, there should be severance taxes sufficiently high to guarantee that public funds would be available to offset any damage which did occur, and to compensate the landowners and the public for the loss of a valuable resource. Montana and some other states have such legislation.

Until there is protective legislation of this stringent kind on the books, it is unwise, and probably futile, to indulge in skirmishes about possible strip mining operations. If governing laws are tough enough, and protective enough, probably most of the opposition to such mining will disappear. But the legislation needs to come first.

The Oregonian

IN THE PACIFIC NORTHWEST

NE Oregon group seeks delay in strip mining plan

By DICK COCKLE

Correspondent, The Oregonian

ENTERPRISE — An alliance of Northeast Oregon landowners has asked a Utah corporation to delay opening a test strip mining operation here for at least another year.

The 100-member Grande Ronde River Alliance, formed last winter to oppose plans to surface-mine coal from this scenic mountain region, made the

request to Utah International Incorporated, a subsidiary of General Electric Co., which has leased lands on both sides of the Oregon-Washington border and hopes to excavate for lignite (soft coal) next summer.

The plea was made to give local officials a chance to revise Wallowa County's land-use plans and zoning ordinances, which are under review, according to David Jackman, an executive

committee member of the Alliance.

Utah International has proposed mining 20-foot-thick seams of lignite where the coal outcrops on benchland. Estimates have been made that soft coal underlies a wide region of Northeast Oregon, Southeast Washington and Idaho, and some areas around Flora and Troy contain 24,000 tons per acre that could be worth \$250,000 per acre.

The Grande Ronde River Alliance has charged that because of the terrain, surface mining could have a devastating impact on ground water aquifers lying near the coal beds, and might affect farming and grazing.

The Alliance also claims that reclamation might be impossible here after the strip mining is completed.

Jackman said large-scale surface mining for coal was never considered in Wallowa County's original land-use plan, and as a result the plan is undergoing review and revision.

The request for a delay was made so necessary revisions of the land-use plan and zoning ordinance can be made in a "thorough and unhurried fashion," he said.

In a letter to the company, the Alliance said Utah International "previously chose to ignore our local laws by failing to obtain the required use permits before test drilling within areas zoned for exclusive farm use."

Earlier, Wallowa County officials put Utah International on notice that it violated the law by digging those test holes without obtaining the necessary permits, according to Dan Stark, Wallowa County planner.

Members of the alliance have conceded that strip mining can be conducted in many areas of the nation without substantial, long-term harm to the land. But unlike Wallowa County, in those areas the terrain is level or gently rolling and water resources are not in danger of being directly affected, said Jackman.

But the Alliance said Wallowa County's unique characteristics — a rugged landscape with coal layers lying very close to subterranean water — makes the region vulnerable to the long-term effects of mining.

"So far as we know and can determine, lands similar to those we have here have never been strip-mined and successfully reclaimed before," the letter said.

"You are asking to proceed without any actual proof that the land can be restored. . . . No matter what the special requirements, or how large the performance bonds, if reclamation fails, it fails, and no company or government agency can bring the land back the way it once was."

Residents, too, are worried that lignite mining may eventually require the construction of an on-site power plant here, or special transportation development, the letter said.

"Therefore, as a community, we can only assume that if we allow strip mining to gain a foothold here, even on a relatively small scale, that we must be prepared to accept any and all eventual consequences, even though many of these may be unknown at the present time," the letter said.

J.J. Reiff, manager of Utah International's western coal division, said the corporation's plans for next summer only involve drilling another test hole, not actual mining.

He said the proposed drilling would be somewhat larger than other holes already excavated. "And somehow that got blasted up into a test mine," he said.

Reiff said actual mining still remains four to five years in the future.

"It just simply takes that long to get our whole act together and get our permits and get the equipment," he said.

He added that the company believes Wallowa County's steep benchlands can successfully be reclaimed after the mining is finished.

"We're reclaiming some almost this steep in Colorado now," Reiff said.

Coal company answered

Utah International Inc.
attn: Mr. J.J. Reiff
Manager - Western Coal
P.O. Box 15479
Salt Lake City, Utah 84115
Gentlemen:

We have reviewed with some care your letter of January 31st to the Wallowa County Planning Commission taking issue with the various reasons for this organization's strong opposition to the strip mining of coal in this area of Wallowa County, Oregon and Asotin County, Washington. We do not believe that your letter represents even the adequate beginning of a response to the serious land and resources conservation issues that your exploration and leasing activities have brought upon the citizens of this area.

You have characterized certain statements opposing strip mining here as "groundless" and "without foundation", and closed your letter by saying that "none of the citizen concerns expressed are serious because they are effectively regulated by federal and state agencies." Such statements do not constitute answers to the questions we have raised about possible destruction of ground water aquifers, the severe difficulties that reclamation attempts would face in this steep canyon country, or the industrial impact that would change this farming and ranching community forever. Any one familiar with the history of strip mining for coal in the eastern United States, and with the recent explosion of strip mining activity by major companies like yours throughout the northern plains and intermountain west, knows that concern for the continued life of the lands and waters, and for the survival of farm and ranch communities in the face of such developments, are very real concerns indeed.

We are not writing this letter to seek to change your opinions on strip mining. You are in the mining business and no doubt believe you must aggressively pursue profitable opportunities as they arise. What we are seeking with this letter is a response from your company on two basic issues raised by your proposals.

First, we would ask that as a "large and reputable mining company" you acknowledge and respect local government processes, particularly the land use planning process as it enables citizens to analyze and make decisions about the long-term compatibility of strip mining with the farming, ranching, recreation and timber based economy that presently exists here. In Wallowa County, the land use plan is currently undergoing review and revision, particularly in light of your company's strip mining proposals. Large scale surface mining for coal was never considered as a possible land use in the original plan, and activities should not be undertaken during the next few months that would in any way prejudice or

conflict with this review and possible revision.

Accordingly, we would request that you delay your announced intention of opening a test mine in this area for at least another year, so that any necessary revisions of local land use plans and zoning ordinances can be made in a thorough and unhurried fashion. You previously chose to ignore our local laws by failing to obtain the required use permits before test drilling within areas zoned for exclusive farm use. In view of this, and of the intent stated in your letter to see that your company "meets or exceeds all governmental requirements concerning environmental matters", it would seem consistent that you agree to suspend any on-the-ground and potentially damaging activities until these local planning reviews are complete.

Indeed, the 1977 federal coal surface mining law, which you have stated that you intend to comply with fully, recognizes the importance of local planning by requiring the establishment of a process for designating certain land areas as unsuitable for surface coal mining. The Congressional Report which accompanied this law contains the following statement underscoring this principle:

"The process for designation of land areas as unsuitable for surface coal mining is also premised on the notion that successful management of surface mining depends, in large part, on the application of rational planning principles. While surface mining may be an important and productive use of land, it also involves many hazards and is but one of many alternative land uses. In some circumstances, therefore, coal surface mining should give way to competing uses of higher benefit."

The second major issue upon which we are seeking your company's response has to do with the rather unique characteristics of the lands and waters in this area. So far as we know and can determine, lands similar to those we have here have never been strip mined and successfully reclaimed before. Your letter contains repeated vague assurances expressing a faith that enough money, technology, and government regulation, can solve any reclamation problem. You have failed, however, to point to any truly comparable area, with similar terrain, rainfall patterns, soil and subsoil characteristics, plant communities, etc., where mined land reclamation has succeeded. Until you do this, you are asking to proceed without any actual proof that the land can be restored. You have answered that the federal and state governments will look after reclamation, but no matter what the special requirements, or how large the performance bonds, if reclamation fails, it fails, and no company or government agency can bring the land back the way it once was.

We recognize that strip mining may be conducted in many areas of this country without substantial long-term detriment to the land,

cannot "say with certainty what the ultimate use of the lignite might be", whether it will require an on-site power plant, or special transportation developments. Therefore, as a community, we can only assume that if we allow strip mining to gain a foothold here, even on a relatively small scale, that we must be prepared to accept any and all eventual consequences, even though many of these may be unknown at the present time.

The fact that after months of effort you have so few leases in hand, and that our organization presently numbers over one hundred landowners and residents within the immediately affected area, should give you some measure of the popularity of your proposals here. We know that we cannot expect a large company such as Utah International merely to take note of this adverse sentiment, and walk away from the money you have already spent here. However, we believe that we can expect a more open, candid, and thorough response to the issues raised, and also a greater deference and respect for the laws and processes of our local government.

Yours truly,
Grande Ronde River Alliance
David S. Jackman
Member, Executive Committee

letter represents even the inadequate beginning of a response to the serious land and resources conservation issues that your exploration and leasing activities have brought upon the citizens of this area.

You have characterized certain statements opposing strip mining here as "groundless" and "without foundation", and closed your letter by saying that "none of the citizen concerns expressed are serious" because they are effectively regulated by federal and state agencies." Such statements do not constitute answers to the questions we have raised about possible destruction of ground water aquifers, the severe difficulties that reclamation attempts would face in this steep canyon country, or the industrial impact that would change this farming and ranching community forever. Any one familiar with the history of strip mining for coal in the eastern United States, and with the recent explosion of strip mining activity by major companies like yours throughout the northern plains and intermountain west, knows that concern for the continued life of the lands and waters, and for the survival of farm and ranch communities in the face of such developments, are very real concerns indeed.

We are not writing this letter to seek to change your opinions on strip mining. You are in the mining business and no doubt believe you must aggressively pursue profitable opportunities as they arise. What we are seeking with this letter is a response from your company on two basic issues raised by your proposals.

First, we would ask that as a "large and reputable mining company" you acknowledge and respect local government processes, particularly the land use planning process as it enables citizens to analyze and make decisions about the long-term compatibility of strip mining with the farming, ranching, recreation and timber based economy that presently exists here. In Wallowa County, the land use plan is currently undergoing review and revision, particularly in light of your company's strip mining proposals. Large scale surface mining for coal was never considered as a possible land use in the original plan, and activities should not be undertaken during the next few months that would in any way prejudice or

requirements concerning environmental matters" it would seem consistent that you agree to suspend any on-the-ground and potentially damaging activities until these local planning reviews are complete.

Indeed, the 1977 federal coal surface mining law, which you have stated that you intend to comply with fully, recognizes the importance of local planning by requiring the establishment of a process for designating certain land areas as unsuitable for surface coal mining. The Congressional Report which accompanied this law contains the following statement underscoring this principle:

"The process for designation of land areas as unsuitable for surface coal mining is also premised on the notion that successful management of surface mining depends, in large part, on the application of rational planning principles. While surface mining may be an important and productive use of land, it also involves many hazards and is but one of many alternative land uses. In some circumstances, therefore, coal surface mining should give way to competing uses of higher benefit."

The second major issue upon which we are seeking your company's response has to do with the rather unique characteristics of the lands and waters in this area. So far as we know and can determine, lands similar to those we have here have never been strip mined and successfully reclaimed before. Your letter contains repeated vague assurances expressing a faith that enough money, technology, and government regulation, can solve any reclamation problem. You have failed, however, to point to any truly comparable area, with similar terrain, rainfall patterns, soil and subsoil characteristics, plant communities, etc., where mined land reclamation has succeeded. Until you do this, you are asking to proceed without any actual proof that the land can be restored. You have answered that the federal and state governments will look after reclamation, but no matter what the special requirements, or how large the performance bonds, if reclamation fails, it fails, and no company or government agency can bring the land back the way it once was.

We recognize that strip mining may be conducted in many areas of this country without substantial long-term detriment to the land. There are other areas in the West where the terrain is level or gently rolling, where past grazing abuses may already have largely replaced the perennial grasses with sagebrush and cheat, and where water resources are not so directly affected. In such areas, the expenditure of thousands of dollars per acre may result in successful reclamation, or at least in the restoration of as much productivity as the land had before mining. We submit that this is not the case, however, with the lands you have proposed for strip mining along the benches lying above the Grande Ronde River.

In your letter you state that you

immediately affected area, should give you some measure of the popularity of your proposals here. We know that we cannot expect a large company such as Utah International merely to take note of this adverse sentiment, and walk away from the money you have already spent here. However, we believe that we can expect a more open, candid, and thorough response to the issues raised, and also a greater deference and respect for the laws and processes of our local government.

Yours truly,
Grande Ronde River Alliance
David S. Jackman
Member, Executive Committee

Coal exploration 5018 program finished

WALLOWA — Boise Cascade Corporation announced recently that exploration of lignite deposits on its lands in this area has concluded for the year.

The exploration program consisted of drilling approximately 35 small-diameter core holes to obtain samples from known lignite deposits on Boise Cascade properties about 15 miles north of Wallowa. The samples are now undergoing laboratory analysis for heat, moisture, sulphur and ash content properties.

Jerry Gerrow, Boise Cascade's lignite project coordinator, said the deposits undergoing analysis are approximately 15 million years of age, resulting from plant debris accumulated in an ancient swamp. Gerrow said the plant materials were gradually trans-

formed into peat and eventually into lignite, a low-grade coal. The upgrading from peat to lignite resulted from compaction and time. Two lignite seams, approximately 15 feet and 27 feet in thickness, are known to underlie parts of the areas north of Wallowa.

This year's studies were conducted by Norlig Mining Company, a wholly owned subsidiary of Boise Cascade, and Knife River Mining Company, which is headquartered in Bismarck, North Dakota.

Gerrow said Boise Cascade's current interest is in determining additional information about the extent of the deposits and their economic and environmental feasibility. The company's interest in future studies, Gerrow said, has not yet been determined.

Federal reps visit Flora 'coal field'

Two representatives of the United States Office of Surface Mining in Denver paid a visit to the North End of Wallowa County last Tuesday to see for themselves the small corner of Oregon where contour strip mining for lignite coal has been proposed by Utah International, Inc.

Wallowa County Planning Director Dan Stark escorted Eileen Doherty, enforcement officer of OSM, and Jerry Cuezella, staff technician, on a general tour of the North End focusing on the site of Utah International's proposed test mine on the Robert Young ranch and the neighboring Bob Hawkins property. The pair took photographs and samples of lignite from outcroppings while conducting their on-site visit.

Stark said the OSM representatives were impressed by the beauty of the North End, but comments made to him regarding the feasibility and possible problems of a strip mining operation there were made "off the record."

The 'reconnaissance' visit by the federal employees was made in connection with the Office of Surface Mining's current work on a set of coal exploration standards for the state of Oregon.

As far as is known, Wallowa County's North End is the only area in Oregon owned by private landowners where a major coal company is actively pursuing coal exploration.

In Coos County, however, several Texas-based companies have shown interest in coal-bearing land owned by the county itself. At present the Coos County Planning Commission and Board of Commissioners are working on a local ordinance to govern the extraction of coal from county land, and also to set discovery right and royalty fees. Coos County has a history of coal development and exploitation, according to Kess Cannon of the Association of Oregon Counties. Sizeable amounts of low-grade coal was shipped to San Francisco from that coastal county around the turn of the century. Cannon said some privately-owned land may also be involved in the renewed interest in Coos County's resource.

Utah International conducted test core drillings in the Flora area for two summers and began offering 40-year leases in both Wallowa County and neighboring Asotin (Wash.) county. Only one lease, from the Robert Young ranch, has so far been obtained by the coal company in this county.

Despite opposition from an or-

ganization of Flora-area landowners -- the Grande Ronde River Alliance -- and a zoning ordinance amendment banning large scale strip mining in the exclusive farm use zone, currently under consideration by the county court, Utah International is seeking a conditional use permit to excavate a large lignite sample from the Young property. The hearing on that permit will be continued at the Feb. 24 planning commission meeting.

Planning Director Stark said the OSM representatives plan to write a report on observations made during their North End visit which might be completed by the time of the February hearing.

There have been no applications or official communication regarding a possible Wallowa County coal operation made by Utah International to the Federal Office of Surface Mining thus far.

Enterprise, OR
Wallowa Co. Chieftain
(Cir. W. 3,692)

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On coal issue

County states position

[Editor's Note — The following letter, written by Wallowa County Planning Director Dan Stark to a representative of Utah International, is being printed with permission. The coal company had called his office, asking what information it would need to submit a conditional use application in the near future for coal exploration in the exclusive farm use zone in the Flora area. This is the director's response.]

Utah International, Inc.
20 West 2950
P.O. Box 15479
Salt Lake City, UT 84115
Attn. Stephen Jazdzewski

Dear Sirs:

After deliberations with the Planning Commission and the County Court, it is the advised opinion that any deliberations on the issue of allowing surface mining activity in Wallowa County must be addressed in the following areas:

1. The Land Use Plan for Wallowa County (1977) is not considered adequate in addressing Goal 5, mineral and aggregate resources, State of Oregon Land Use Goals.

2. The Zoning Ordinance (1977) allows as conditional use exploration, mining, and processing of aggregate and other mineral resources or other subsurface resources. (Section 3.030 (2)).

3. ORS 215.416 (5) reads as follows:

Approval or denial of a permit application shall be based on standards and criteria which shall be set forth in the zoning ordinance or other appropriate ordinance or regulation of the county and which shall relate approval or denial of a permit application to the zoning ordinance and comprehensive plan... (Emphasis Mine)

4. ORS 215.416 (6) reads as follows:

Approval or denial of a permit

shall be based upon and accompanied by a brief statement that explains the criteria and standards considered relevant to the decision, states the facts relied upon in rendering the decision, and explains the justification for the decision based on the criteria, standards, and facts set forth. (Emphasis mine)

At this time Wallowa County lacks sufficient and adequate criteria and standards upon which to judge a conditional use permit application for mining of subsurface resources.

Therefore, please be advised that any conditional use permit application we receive in the next twelve months will not be given consideration until such time as the Planning Commission, the County Court, and the citizens of Wallowa County have developed and implemented standards and criteria upon which to judge the permit application. This is not intended to present barriers or undue delay in your desire to work in Wallowa County. The concern expressed is that of assuring the people of the county and your company that any deliberation will be thorough, fair, and based upon recognized standards and criteria. Such caution will forego undue delays or challenges at a later date.

Please feel free to contact me at my office as I am available to assist you in conforming to the processes and procedures of our land use ordinances.

Respectfully,
A. Daniel Stark
Planning Director

Enterprise, OR
Wallowa Co. Chieftain
(Cir. W. 3,692)

Paul L.

APR 23 1981

Allen's P. C. B. Est. 1888

Not ready

Editor:

Stripmining is coming to Oregon!
And we are not ready to deal with it.

SB 505 has been introduced in the Oregon Senate to require that all surface mines that start to operate be reclaimed. It would not outlaw mining, but it would allow public access to the decision making process through public hearings and the release of information on the proposed mine. The mining corporation would release information on who they are and what surface mines they have worked in the past, information on whether there are any toxic or radioactive substances involved in the mine and how they will be dealt with, and information on what the subsequent beneficial use of the affected land will be.

When it is clear that a surface mine could not be reclaimed the state does not have the authority to deny the mining corporation approval to mine, under Oregon's current mining law. In addition the bond a mining corporation places to insure that they do reclaim land they have dug up is limited to \$500 per acre. The actual cost of reclamation can easily run to \$6000 per acre. Right now a mining corporation is supposed to estab-

lish vegetation on mined lands, but revegetation is defined as 75% survival for only one growing season. To give the present law even less clout, the maximum penalty for not reclaiming mined land and leaving it ruined is the same as stealing towels from a hotel. SB 505 would correct this situation.

Mining could bring a measure of economic stability to Oregon's timber economy, IF it is done in a sound manner without hurting our other industries, including fishing, tourism, and agriculture. Without controls the proposed nickel, cobalt, coal, copper, and uranium mines could ruin our land and its natural resources and provide little in return.

SB 505 has been referred to the Senate Committee on Trade and Economic development. They are looking for public comment and holding public hearings on it. It is important that the committee members hear from you about this vital issue.

Mary Nowakowski
Enterprise

PRESS RELEASE

Coal has been found in northeastern Oregon. It is Oregon's third major deposit of an energy mineral to have been discovered during the last couple of years. The first major energy mineral deposit to be found was the Malheur County uranium find in the southwest corner of the state. Then came the Columbia County natural gas field in the northwest corner of the state. Now a major coal field has been found in the northeast corner of the state in Wallowa County. This is shocking news to many geologists.

When geologists think about this part of the state only one rock comes to mind, basalt. The rocks in this part of the state are of the miocene epoch age (¹⁴⁻¹⁸12-15 million years old) and are in the heart of the most outstanding event that took place during this time period. During the middle of the miocene basaltic lavas poured out flow upon flow over an extensive area to form the famous Columbia River basalt plateau. In all more than 35,000 cubic miles of lava erupted to cover 100,000 square miles in Oregon, Washington, and Idaho.

Geologists for Utah International, Inc., San Francisco, Calif., did not think basalt, but coal. They were responsible for finding a thick (40 feet or less) lignite coal bed, along with other sedimentary rock, lying inbetween two of the lava flows.

During the time of coal formation the land surface was a swampy, ponded area where a low rank (5-6,000 btu/lb) lignite coal could form. The coal bed is quite extensive, can be surface mined, and is located near the Oregon-Washington line north of Enterprise, Wallowa County.

Wallowa County controversy

Mining combatants dig in

First in a series

By SANDRA McDONOUGH
of The Oregonian staff

FLORA — Picture Wallowa County — that pristine corner of northeastern Oregon dominated by rugged slopes, lush canyons and old farm homesteads.

Now picture a strip-mining operation for coal — the kind that dots the landscapes of Montana, Wyoming and Colorado — dropped into the heart of that alpine Oregon landscape. It's hard to imagine.

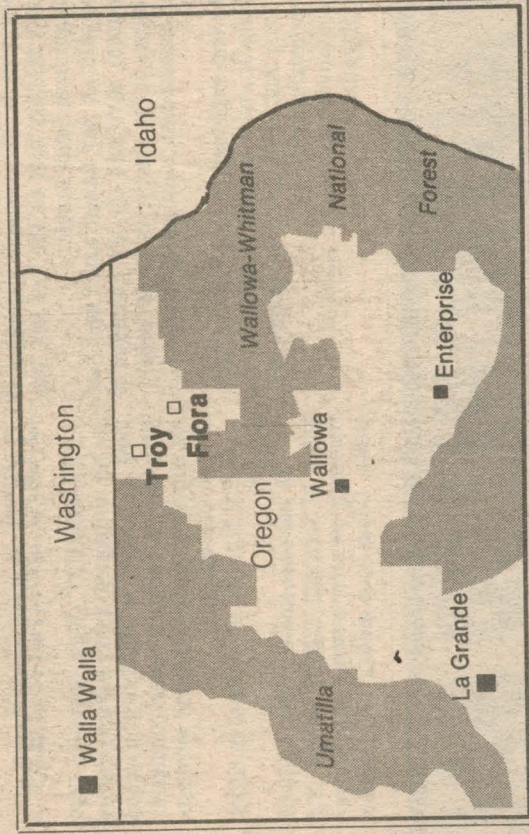
But during the last couple of years, residents of north Wallowa County have been forced to consider the possibility of strip mining near their homes.

Prospecting by some out-of-state mining companies has given rise to a cry of "There's coal in them thar hills" in the Flora-Troy areas. And company officials are working toward the possibility of someday digging that coal out for sale to an energy-hungry population.

The coal-mining talk has inspired the hottest controversy lifelong residents of Wallowa County say they have ever run across. It is an emotional issue that has pitted neighbor against neighbor as they argue about land preservation, quality of life, water supplies, economic development and an individual's right to do whatever he wants with his land.

So far in the battle, the opposition to strip mining is ahead. But the fight is far from over.

"I don't go for coal mining here," said 73-year-old Spencer Bacon, son of



MINING PROSPECTS — Map shows location of Troy and Flora communities near Wallowa Mountains in northeastern Oregon where mining company wants to test for coal. Some ranchers oppose mining in the area.

the first family to homestead the north Wallowa County area. "Until now, we've been more or less isolated out here. But if we let that (mining) outfit in here, it will never be the same."

Bacon has coal on his farm, but he has steadfastly refused sign a lease with a mining company interested in exploration. It just wouldn't be right, he said, and he argued that the county should refuse to permit the mining.

But that's not how Bob Young, one of Bacon's neighbors, sees things.

"I don't believe that somebody else should be able to tell me what to do with my own land," said Young, a

wheat farmer who, so far, is the only landowner in the Flora area to lease land to a mining company.

Persons who have blocked coal exploration efforts on his land are "obstructionists," in Young's mind. And the chief obstructionist is Dave Jackman, a lawyer-turned-farmer who, according to Young, is the "ringleader" of the Grand Ronde River Alliance, a group of about 50 Flora-area landowners opposed to mining.

"There's not a chance to keep this a farming and ranching area if that kind of operation comes in here," said Jackman, a former Alaska assistant attorney

general and land-use official. "We know it would change the countryside and the life out here forever."

However, Stan Farris, spokesman for the Wallowa County Development Corporation, has a different view. At the very least, he said, the mining company should be allowed to dig an experimental "test hole" to see if there is enough good coal to warrant development of a new industry — and a new economic base for Wallowa County.

"The development corporation wants to know if there really is something there — and the test hole might be the way to do it," Farris said, adding that the corporation was formed by private citizens interested in bringing new industries to the county.

Caught in the middle of the community cross fire is Utah International Inc., a General Electric Co. subsidiary that wants to explore the coal beds in the Flora-Troy area.

About half a dozen mining companies have shown interest in the northeastern Oregon coal, but Utah International is by far the furthest along in prospecting efforts. However, the local fight over coal mining has hindered the company's efforts to move beyond the most initial stages.

"They (mining opponents) probably are scared of an unknown," said John Reiff, Utah International's exploration manager for coal mine operations in Western states. "They don't realize that under modern mining and reclamation techniques, it wouldn't be a disaster."

Additional details on Page C4.

THE SUNDAY OREGONIAN
PORTLAND, APRIL 26, 1981
COMMODITY SECTION: (GENERAL)
STATE ARTICLE FROM: (OREGON)

Lexington Morning Tribune
8/13/81

Coal

Company abandons Oregon exploration plan

ENTERPRISE, Ore. — A Utah company has ended its two-year efforts to explore the Flora area of Wallowa County for coal.

Utah International, Inc., a subsidiary of General Electric Corp. of Salt Lake City and San Francisco, this week withdrew its appeal to the Wallowa County Commission of a county planning commission denial of its application for exploratory drilling.

The planning body turned down the application early this year saying the company had submitted no evidence to show that its work would have no adverse impact on neighboring springs of water.

A group of ranchers and farmers

of the Flora-Paradise area, organized as the Grand Ronde River Alliance, opposed the company's application.

Dan Stark, planner for the county, said the company wanted to excavate about 250 tons of coal from one acre of land in 60 to 90 days, then repair the disturbed land.

John Reiff, a geologist for the company, said Utah International is interested in returning later with a new application and in cooperating with the county in exploring for coal.

Coal deposits are known to exist in the Flora area, but the question is whether they can be extracted economically and with the approval

of area residents.

Spokesmen for the Grand Ronde River Alliance and their supporters contended at a hearing last year that strip-mining of the lignite coal could eventually convert the county from "Little Switzerland to Little Appalachia."

The Wallowa County economy is based on three industries — wood products, farming and recreation. The owners of some 77,000 acres in the Flora-Paradise area said that strip mining would conflict with all three of those industries.

David Jackman of the Flora area told the planners last year that lignite is a low-grade coal that cannot be hauled economically more than

two miles. So coal mining would be followed by coal-fired generation of electricity, he said.

Reiff, of Salt Lake City, western coal explorations manager for Utah International, assured the planners the land could be restored to its original condition. He said it's economical to haul lignite up to 200 miles.

He said coal is needed to meet the Pacific Northwest's power demands.

He said coal mining, if determined to be economically sound, could bolster the economy of Wallowa County with an increase in payrolls, taxes and other revenues.

Strip-mining test rejected

ENTERPRISE — A Utah mining company's request to dig a test hole to determine if strip mining is feasible in this scenic mountainous region has been denied by the Wallowa County Planning Commission.

However, County Planner Dan Stark said Utah International Inc. of Salt Lake City may appeal the ruling to the Wallowa County Court (Commission). "And certainly they have the right to bring in any further proposals they want," he said.

Utah International had been seeking

permission to dig a 40-foot deep pit near Flora to examine lignite (soft) coal deposits. The company has proposed strip mining wedged-shaped slices of coal from a 20-foot thick seam that underlies a wide region on the boundaries of Oregon, Washington and Idaho.

Stark said the planners denied the request because the company failed to provide information that adequately demonstrated the test pit would have no detrimental impact on ground water springs there.

THE (PORTLAND) OREGONIAN
APRIL 9, 1981
COMMODITY SECTION:
(GENERAL)
STATE ARTICLE FROM:
(OREGON)

Appeal filed on mine ban

ENTERPRISE — Utah International Inc. has appealed a local planning commission ruling forbidding the excavation of a test hole to determine if strip mining for coal is feasible in scenic Wallowa County.

"They filed an appeal of the decision with the county clerk," Wallowa County Planner Dan Stark said last week.

Earlier this month, the planners denied the Salt Lake City-based company's controversial request to dig a 40-foot-deep pit near Flora to examine lignite (soft coal) deposits. The planners ruled that the company had failed to provide information that adequately demonstrated the test pit would have no detrimental impact on ground water springs there.

Utah International has proposed strip mining wedge-shaped slices of coal from a seam of lignite that underlies much of the mountainous range and farm country on the boundaries of Oregon, Washington and Idaho.

The company probably will be granted a hearing by the Wallowa County Court (commission) on its appeal, Stark said.

"They (the county court) will have to determine what type of hearing and when it will be held," he said.

Last summer, the county planners recommended approval of an ordinance to ban surface mines of more than five acres within exclusive-farm-use zones where most of the land with surface mining potential is located.

Stark said the county court has yet to act on that recommendation.

THE (PORTLAND) OREGONIAN
APRIL 21, 1981
STATE ARTICLE CONCERNS:
(OREGON)



Jerry

STATE OF OREGON

INTEROFFICE MEMO

TO: File

DATE: September 27, 1983

FROM: Don H.

SUBJECT: Lignite Exploration - Wallowa County

On September 14, 1983 Howard Brooks, Sid Johnson and I visited Richard J. Winder and Brent Barnett of Utah International to review recent lignite exploration in northern Wallowa County. This company has just completed a drilling program in the Maxville-Promise area on lands owned by Boise Cascade in Townships 3 & 4 north, Ranges 41 & 42 east.

The drilling done by Utah International in northern Wallowa County in recent years has confirmed the existence of a laterally extensive sequence of lignite beds over an area of approximately 200 square miles. The thickness of and depth to the lignite horizons is variable. The thickest seam is the uppermost lignite bed which varies from about 15 to 20 feet. This upper seam is underlain by a series of interlayered lignite and poorly consolidated sandstone and claystone horizons. The sandstone and claystone readily disintegrate in outcrop and their stability during a mining operation is not known. Verbal information from Utah International geologists indicates that the lignite horizon in the Maxville-Promise area generally occurs in the lower portion of the overall sedimentary-lignite sequence. There are exceptions as some drill holes reveal basalt immediately above and below the lignite. This season's drilling has also revealed the existence of invasive basalt flows which burrow into the lignite and reduce reserves..

The lignite in the Maxville-Promise area is nowhere exposed in true outcrop. At several sites in this area spontaneous combustion of the lignite has formed a reddish weathering clinker which at first glance is similar to the oxidized outcrop of the basalt flows. The clinker has been used on a small scale as road metal on logging roads in the area. Close examination shows that it consists of quartz grains cemented by a red colored matrix. In the area drilled in 1983 the sedimentary sequence containing lignite is bounded above by the Wenaha Basalt and below by the Umatilla Basalt. Drilling has revealed an existence of minor faulting which offsets the lignite. This season's drilling on the Boise Cascade lands has been on one mile centers and is not sufficiently closely spaced to provide details of structures in the area.

A sample of the lignite was collected for identification of the wood species. The sample will be sent to Irene Gregory for identification.

DAH:ab



Raise fines for mining violations

Encouraging development of energy resources in Oregon — a worthwhile objective — should not inspire mining companies to ignore restoration of the land in strip mining operations. Senate Bill 505 addresses this problem, but it may not go far enough.

Proposals to mine coal in Wallowa and Coos counties have prompted an examination of Oregon's mining regulations. As detailed in articles by Sandra McDonough of The Oregonian staff, current law provides less than adequate safeguards for routine sand and gravel operations and woefully inadequate oversight of large-scale

mining activities. Moreover, Oregon largely has ignored strict federal laws that regulate deep pit and strip mining for coal and uranium because those resources, historically, have not been aggressively sought here.

SB505, being considered by a subcommittee of the Senate Trade and Economic Development Committee, recognizes the new interest in coal development in Oregon with a stronger law to protect the land and ground water supplies, particularly those in arid parts of the state.

The bill, spearheaded by Sen. John Kitzhaber, D-Roseburg, adds several important land protection provisions to Oregon's mining regulations, but it fails to set fines high enough for surface mining violations. SB505 sets a maximum fine of \$10,000 for violating state mining and reclamation laws, replacing the prior fine of not less than \$25 or more than \$250. But the old fine, while ridiculously low in dollars, also included a possible 60-day term in a county jail for violators. The prison term for violations has been deleted in SB505.

Kitzhaber's Senate subcommittee ought to re-examine the penalty language in light of today's realities. For a \$10,000 penalty, plus forfeiture of a \$10,000-per-acre bond backed by relatively cheap insurance premiums, big mining companies may find it uneconomical to pay \$8,000 to \$9,000 an acre to restore the land. Fines for devastating the state's natural resources should exceed a company's cost-benefit formula. If the fine were high enough — perhaps \$50,000, plus a possible jail sentence for company officers — a company would not be encouraged to walk away from its reclamation responsibility on grounds that a flat \$10,000 fine is well within a cost-of-business schedule.

The fine issue raised in the mining and reclamation law can be applied to prescribed penalties that appear throughout the Oregon statutes. Many of these penalties were proposed by lawmakers at various times in the century, and few have been revised to reflect inflation and today's economics. A worthwhile assignment for a legislative interim committee would be a thorough examination of all penalties and fines in Oregon law, with an eye toward upgrading their value in terms of dollars and sense.

THE (PORTLAND) OREGONIAN
APRIL 29, 1981
COMMODITY SECTION: (GENERAL)
STATE ARTICLE FROM: (OREGON)
516

Large-scale mining plans expose impotent controls

By SANDRA McDONOUGH
of The Oregonian staff

SALEM — Proposals to develop large-scale mining operations in Wallowa County and elsewhere appear to have caught Oregon laws unprepared.

State statutes include provisions addressing mining and reclamation practices, but they were written to regulate sand-and-gravel operations, which are relatively small efforts compared to large-scale mining that could develop in Oregon.

The existing laws would prove sorely inadequate if they were applied to major coal mining efforts, state officials report.

In light of pending proposals to mine coal in Wallowa and Coos counties, as well as prospects for mining other minerals elsewhere in Oregon, legislators, state officials, lobbyists and geologists agree that it is time to take another look at Oregon's mining laws. And legislation is pending.

"The current law is weak in terms of sand-and-gravel (operations) and very weak in terms of coal," said John Beaulieu, deputy state geologist. "We need more muscle in that law to address a big mine (like the Wallowa County proposal)."

Local officials in communities where mining has been proposed agree that current law is inadequate. And they are hoping the state will give them

more guidance than it has in the past.

"If the state had something for us to go by, it would sure help," said Norm Werst, chairman of the Wallowa County Planning Commission. "But the only way we have to protect ourselves now is our own zoning ordinances."

Pending in a subcommittee of the Oregon Senate's Trade and Economic Development Committee is Senate Bill 505, which would strengthen existing law.

Sen. John Kitzhaber, a Roseburg Democrat who chairs the subcommittee, said SB505 addresses issues raised in the wake of the Wallowa County mining proposal and attempts to ensure that Oregon will have strong laws in place before mining companies start digging.

"The current law is grossly inadequate," said Kitzhaber, who has been working closely with industry representatives and environmentalists to develop a law that all sides can live with.

Also pending in the Legislature is House Joint Resolution 8, which calls for a study of state mining laws during the 1981-83 legislative interim. The study eventually would be used as a jumping-off point for a rewriting of state mining laws during the 1983 legislative session.

Some industry lobbyists have advocated delaying any major changes of existing statutes until that study is completed. However, Kitzhaber said since companies are currently considering

mining in Oregon, the Legislature should change state laws immediately.

"If you wait until 1983, somebody is going to come to Oregon and get their foot in the door," Kitzhaber said, adding that it would be difficult to draft a state law to deal with such operations after the fact.

As originally introduced by the trade committee, SB505 called for major changes in state law that to require mining companies to disclose extensive information about their mining operations, put up large bonds to insure their reclamation activities and submit to public hearings before a state mining permit could be issued.

However, the measure caught the attention of sand-and-gravel operators who were worried about the effect the statute changes would have on existing operations.

Dick Angstrom, lobbyist for Associated Oregon Industries, a group that represents some sand-and-gravel companies, said SB505 included provisions that would prove "onerous" for some of his clients.

Angstrom's organization proposed a number of amendments to the bill to ensure that a statute change would not apply to existing sand-and-gravel operations.

The version of SB505 the trade subcommittee is studying would require mining companies to submit detailed reclamation plans to the state before

THE (PORTLAND) OREGONIAN
APRIL 27, 1981
COMMODITY SECTION:
(GENERAL)
STATE ARTICLE FROM:
(OREGON)

(MORE) 576

IMPOTENT CONTROLS ON MINING PLANS

they could be issued mining permits. If state officials determine that reclamation is not possible, the permit would not be issued.

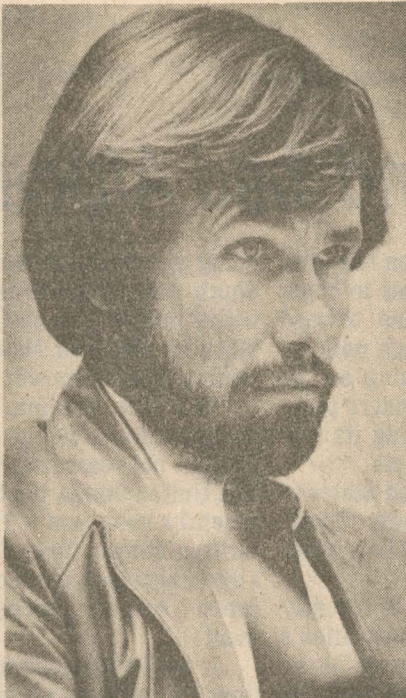
Addressing a problem Wallowa County has faced, the measure specifically directs the state to study the effect mining would have on groundwater supplies "of economic significance" as part of its reclamation feasibility study. According to Beaulieu, state geologists have long felt they had authority to consider water problems when issuing mining permits, but existing law is vague on that point.

In another controversial provision, SB505 would dramatically increase the maximum bonding requirement for mining companies at work in Oregon. The bonds are designed to assure that adequate reclamation work is completed.

Current law allows a maximum bond of \$500 per acre. That, some state official say, is inadequate even for sand-and-gravel work. "Five hundred dollars isn't even enough to fly a helicopter across with a bag of grass seed," Beaulieu said.

SB505 would raise the maximum bond to \$10,000 an acre, although the state would determine the exact bond needed for each operation.

The \$10,000 maximum would give the state more leeway to determine how much reclamation actually would



SEN. JOHN KITZHABER

cost for each operation. According to John Reiff, an explorations manager for Utah International Inc., the company looking at mining possibilities in Wallowa County, reclamation actually costs anywhere from \$1,000 to \$6,000 an acre.

SB505 would stiffen penalties for violating the state mining and reclama-

tion laws, setting a maximum fine of \$10,000.

Finally, SB505 would require a mining company to disclose certain information about its proposed mining activities to the state.

The subcommittee is scheduled to work on SB505 and its proposed amendments this week. Under the measure, a company wishing to mine in Oregon will be required to obtain permission from a variety of government agencies.

Land-use permits must be issued by the counties where the mining would take place. The state Department of Geology would issue a mining permit. Other state agencies, including the Department of Environmental Quality and the Department of Water Resources, would be called upon to determine how the mining would affect water and environmental concerns under their jurisdiction.

There are extensive federal laws regulating mining. In the late 1970s, federal geologists developed extensive rules to govern mining in Oregon. However, those rules have never been implemented.

Pat Amedeo, Gov. Vic Atiyeh's assistant for natural resource matters, said the state declined to participate in the federal mining rules, because they are too complicated. The state, she said, would prefer to develop its own laws.

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APRIL 27, 1981

(END)

In Northeastern Oregon

Coal mining possibilities fire emotions

Story on Page One also

By SANDRA McDONOUGH

of The Oregonian staff

FLORA — The fact that there is coal in this far northeastern corner of Oregon surprises few longtime residents of the area.

Years ago, said Spencer Bacon, a 73-year-old farmer who has spent his life on a farm near Flora, old-time settlers in northern Wallowa County dug up small amounts of the mineral for use on their farms.

But nobody ever really thought seriously about large-scale mining of the coal. The area was considered too remote, the roads too winding and the terrain too rugged.

However, at a time when energy resources are becoming scarce and Americans are looking for alternatives to imported petroleum, Utah International Inc., a Salt Lake City-based company, decided to investigate the Northwest coal possibilities. According to John Reiff, an explorations manager for the company, Utah International learned there were coal deposits in Northeastern Oregon and Southeastern Washington from some old geological surveys of the area.

The unanswered question was whether the coal was of a quality that is worth mining.

To explore the possibility, Utah International sent crews to the area about three years ago to check out the coal beds. Company representatives offered Flora-area residents \$50 per hole to drill small test holes on private farms.

Reiff declined to say exactly how many holes have been drilled in how many different sites, but area residents say there are at least 79 drill holes, although many of them are "twins" — sites where two holes were drilled side-by-side to test different drilling methods.

Reiff also declined to discuss the exact nature of the coal company's findings. That, he said, is "proprietary" information which Utah International would prefer not to share with the public — and competing companies.

According to state geologists, the coal around the Flora area is lignite, a relatively low-quality soft coal that is best used in gasification processes, although it can be used in coal-fired plants and other coal processes.

The state Geology Department has not had the money nor manpower to study the area, but it has received information from Washington state geologists who are conducting surveys of the coal beds on their side of the state border.

The coal beds probably run 20 to 40 feet deep, a measurement that promises a sizable amount of mineable coal. The Washington studies have determined that the coal could generate a fair amount of energy from lignite.

However, before it is possible to determine whether mining the area is economically practical, a company also would have to do more extensive studies of the chemical makeup of the lignite, as well as its moisture quality.

In addition, the depth and nature of the coal's overburden — material covering the coal — will be important factors for determining whether strip-mining is economically and physically possible in the area.

Reiff said the company must do extensive work to determine whether coal mining is feasible in the area. Actual mining, he said, is at least two or three years down the road — if it materializes at all.

Utah International has proposed digging a test pit on the land it has leased from wheat farmer Bob Young. The pit, Reiff said, would disturb less than half an acre and call for removal of a little more than 200 tons of earth. The proposed site currently is covered with grasses and a few bushes and is used for grazing.

However, Utah International's plans to dig that pit have been blocked by the Wallowa County Planning Commission, which heeded the outcries of area residents concerned about the effects of strip-mining.

The county entered the controversy after planning officials more than a year ago discovered that Utah International was digging test holes without having obtained permits from the county. The company applied for the necessary permission and, last summer, hearings began.

Finally, last month, after extensive and emotional public hearings, the Wallowa County Planning Commission voted to deny Utah International's application for a permit to test dig on Young's land. The company is appealing that decision to the county commission.

Also pending before the county commission is a proposed amendment to the county land-use plan that would prohibit issuance of permits for mining operations that would disturb more than five acres in areas zoned for exclusive farm use. The proposed area for Utah International's test pit is zoned for farm use.

The planning commission based its decision to deny the conditional-use permit on concerns about how the mining operation would affect water supplies in the area.

Wheat farmers Bob and Marge Hawkins, who have no coal on their land, argued against the permit on the grounds that the test pit would be dug close to underground springs supplying their farm. The mining activity could disturb the springs and cut off their water supply, they said.

Utah International supplied the commission with in-house hydrological studies that claimed the test pit could be dug without having an adverse impact on

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(GENERAL)
STATE ARTICLE FROM:
(OREGON)
(MORE)

OREGON COAL MINING

local groundwater. To support those studies, the company also contracted with CH2M Hill, a Portland consulting firm, to conduct another hydrological study of the area proposed for drilling.

That study was completed after the planning commission stopped taking public testimony on the conditional-use permit issue, so it has not been made part of public record.

Reiff refused to disclose the exact findings of the study, but he said it did show that mining could be done in the area without disturbing water supplies if certain precautions were taken. He did not say what the precautions would be.

However, despite Utah International's claim, the planning commission determined that the potential water supply problems, especially those concerning the Hawkins family, were serious enough to warrant denial of the conditional-use permit.

"We felt we should know more. The farms were at stake," said Norm Werst, chairman of the commission.

However, while the water problem is clearly a genuine concern, opponents of the strip-mining proposals have other worries about mining. In many cases, they appear generally opposed to allowing such a mining operation into the county.

In many cases, persons against the strip-mining proposal have mineable coal on their land — which could produce an income for them. But they don't want the income because of its expense.

"A lot of people who live up here are isolationists," said one area farmer who asked not to be named. "They came here because they like the area and the remoteness — and they don't want anything to disturb it."

These mining opponents saw the conditional-use permit issue as Utah International's opportunity to put its "foot in the door" and they were determined to stop it.

"It's the old foot-in-the-door argument," said Dave Jackman, leading spokesman for the group of area landowners opposed to mining. He recently planted a grove of apple trees over the portion of his farm that contains coal. "If mining comes now, it's going to come for the long-term and they (the mining companies) are going to get everything they want."

Arguments over the merits of strip-mining have been loud and emotional. In many cases, area residents, particularly those not entirely opposed to Utah International's efforts, are afraid to publicly state their views out of fear that they will be ostracized by their neighbors.

Young, the farmer who signed the lease with Utah International, is attempting to sell his land, although he plans to keep the mineral rights. He chose not to discuss his reasons for deciding to leave the area. Other area residents also have talked about selling their farms — but keeping the mineral rights.

Mining opponents have distributed literature saying crime and social problems increased in Montana, Colorado and Wyoming communities where mining has been conducted as soon as the strip mines were brought in. Residents were told that that kind of operation often attracts undesirable, transient workers — and many apparently believed it.

"The people who follow this kind of business are not necessarily the kind of people you would want living in your community," Werst said. Utah International countered that argument by saying it quite often hires people from within the community to work on its mining operations.

Other concerns included worry about what exactly would be done with the coal once it was mined. Reiff said it is too early for his company to think about coal sales, but that hasn't stopped Flora-area residents from thinking about it.

Many speculate that mining the coal could pave the way for construction of a gasification plant or a coal-fired power plant in their area. That would mean added population, new housing and a major change in the community, they say.

Utah International flew four Flora-area families with coal deposits on their land to Craig, Colo., last July to see one of the company's working strip-mining operations firsthand. They also toured a coal-fired plant.

None of those families has signed a lease with the company since the trip, but some said they were impressed with what they saw. Max and Sandra Roberts, area wheat farmers, said the trip illustrated that full reclamation of a mine site is possible. In Craig, they said, wheat was growing on fields that once had been dug up for mining. And the fields were producing more wheat than they had before the mining, the couple said.

The Robertses came back from their trip thinking Utah International should be able to dig a test pit to find out exactly what kind of coal is in the area. They are undecided whether a full-scale strip-mining operation should be allowed.

"We haven't signed a lease and we're not figuring to," Roberts said.

One matter many area residents avoid discussing is the money they all stand to make off the coal-mining prospect. Depending on how much coal is on their land, many Flora-area residents could get rich if the mining proceeds, Jackman said.

Utah International is offering land owners leases that would guarantee them 2.5 percent royalties on the subsurface earnings of the land and 2.5 percent on the surface. In addition, he said, they have been offered cash bonuses of several thousand dollars in return for signing the lease.

But, despite the promise of riches, Jackman said most area residents have resisted signing a lease because of fear for what coal mining will do to their community. In fact, he claims the vast majority of the people in north Wallowa County oppose the mining proposal. Utah International, he said, should realize that and withdraw its plans.

THE SUNDAY OREGONIAN
PORTLAND, APRIL 26, 1981

(END)

Planners close public testimony at test pit hearing

5018

All testimony is in, and the Wallowa County Planning Commission will decide whether or not to grant Utah International a conditional use permit to excavate approximately 240 tons of North End lignite from a Lost Prairie ranch at a special meeting on Feb. 16.

Approximately 90 interested

persons crowded into the courtroom Tuesday night for a hearing continuation that lasted until 2 a.m. Most testimony offered was in opposition to the application, with 31 letters read into the record and 14 persons speaking against the request; others decided not to speak because of repetitious testimony. A signature of over 200

county residents was also submitted on a petition citing lack of adequate information and exploration standards as reasons the test pit request should be denied.

Witnesses supporting the application spoke at the hearing in December.

Utah International representatives also had a chance to offer

extensive rebuttal information, focusing on information about Lost Prairie hydrology and answering points raised about why the bulk sample is needed and what testing of the sample will reveal. It was noted the results could discourage the coal company from proceeding further. The touchy issue of information disclosure was also discussed

ed under questioning by the commission.

While the question of whether or not the test pit will put the water supply of any neighboring ranchers in danger appears to be the crux of the issue, opposition witnesses also questioned the

Continued on page 2

Test pit hearing

legality of deciding mining issues without specific criteria upon which to base a decision and also the compatibility of mining explorations in an Exclusive Farm Use zone.

While Utah International's application is for a test pit of under one acre, many letters and witnesses also tied their opposition to the broader issue of possible large-scale strip mining in the future. Environmental and lifestyle considerations underlined these arguments.

Two hydrologists, Jeff Randall of CH2M and Dr. N. Krishnamurthi of Utah International testified that the test pit would not impact any springs in the area. Randall explained that the source of area springs is rainfall, collected over a range of 1.2 miles. He said that "disrupting one small area couldn't possibly effect the springs" measurably. He added that the ground water velocity is so slow (50 ft. per year) that even if there was

an effect it wouldn't be felt at the Bacon ranch spring 900 yards away for over 50 years. Krishnamurthi agreed, saying the effect would be like taking "a cup of water from a whole lake."

Earlier Larry and Spencer Bacon had testified on fears for their water supply if the test pit is allowed. Spencer, who disagrees with the hydrologists' explanation

of the source of the spring water, commented, "I'd stake my knowledge of these springs against Utah International any day of the week.... Up to this, they've proved nothing, not one cotton-picking thing."

A more detailed account of Tuesday's hearing continuation will be published in next week's Chief.

Continued from Page 1

Forum kicks off week of coal mining talks

5018

By Rick Swart
of the Chieftain

Coal mining in the northern portion of Wallowa County, for better or for worse, was the thing everybody came to hear about. Opponents and proponents versed in the issue would both be there to field questions.

Sponsored by the Wallowa County Chamber of Commerce, the forum conducted at the VFW hall in Enterprise Monday evening attracted 100-plus persons.

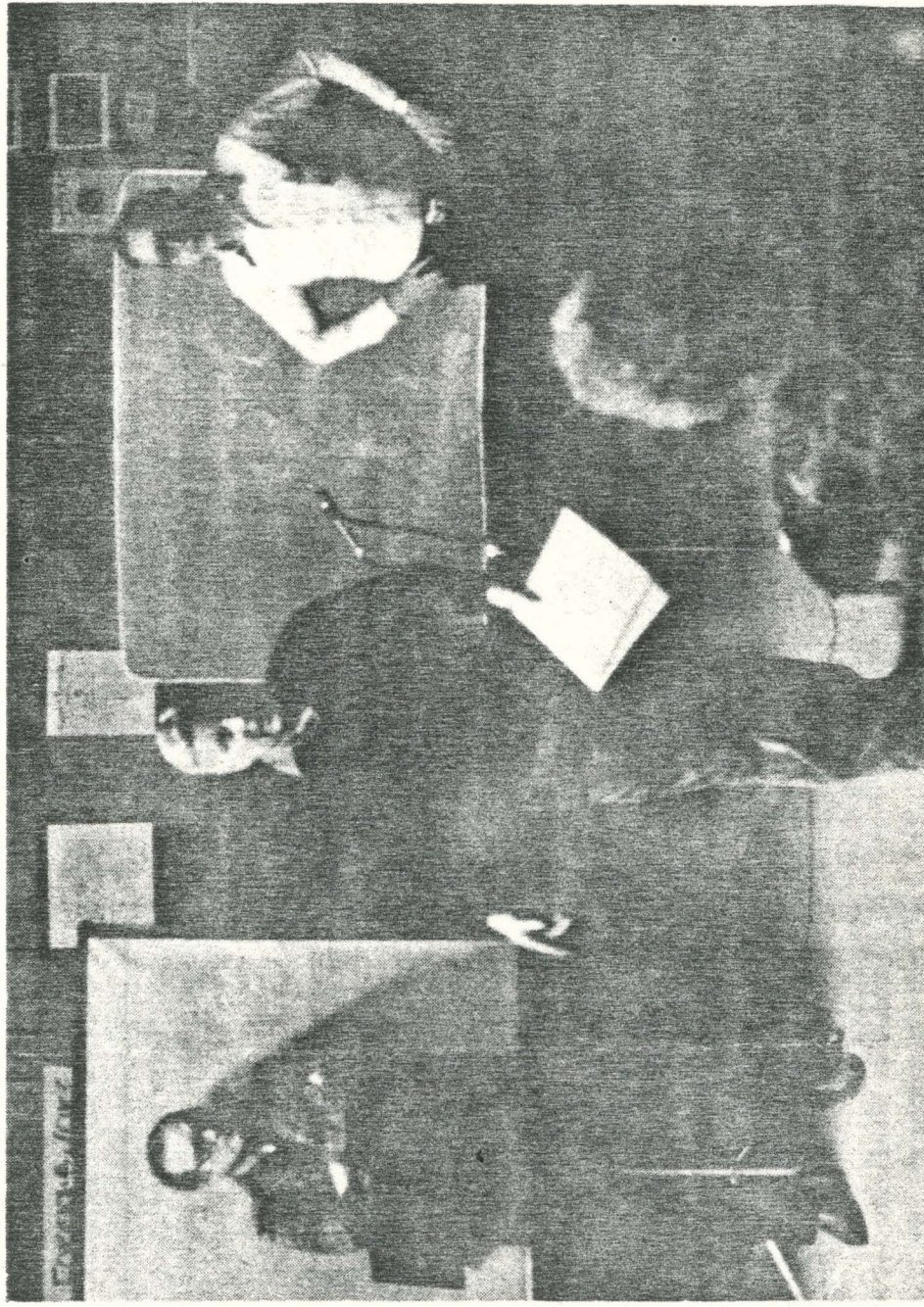
Featured speakers for the opposition were Lori Aschenbrenner, representing the Northeast Oregon Resource Council, and Bob Hawkins, a Flora area farmer.

"Become better informed so the county has some input here," Hawkins asserted in his closing remarks, "We don't have to make the same mistakes as people in other communities."

Community Dynamics, a Portland based public relations firm, did the talking for coal mining proponent Utah International Inc. Howard Steward, principal of Community Dynamics, confirmed that there are many possible uses for the north end coal.

"A generating plant near the mouth of the mine is a possibility, trucking is a possibility, rail is a possibility, and slurring to a barge on the Snake River is a possibility," said Steward, who then pointed out the site characteristics the mining company must consider. Until those things are known he continued, no one can say what the final use is.

Following slide shows by both sides and a film clip of the issue by KOIN television of Portland, the speakers fielded a broad range of questions ranging from types of fertilizer used in reclamation to



COAL TALK — on behalf of Utah International Howard Steward (center) fielded questions about coal mining plans in the northern portion of Wallowa County. Over 100 persons attended the forum

sponsored by the Wallowa County Chamber of Commerce Monday. Bob Hawkins (left) gave a presentation against coal mining in the north end and Gerald Perren (right) served as moderator.

Chieftain staff photo

release at the next planning commission meeting.

Tom Derry of Enterprise asked if the performance bond required of mining companies to insure that the disturbed land is reclaimed is in fact an incentive to put the land back.

Utah International loses its performance bond?" Derry quizzed.

Steward responded that loss of a performance bond means the mining company would never receive another license to mine.

"That's the issue," said Steward. There were also comments dis-

of Enterprise followed the questioning.

"What about the 79 test holes they dug without permission?" said Penniman.

Bob Jackson questioned the truthfulness of a recent ad in the Wallowa County Chieftain purchas-

possibility," said Steward, who then pointed out the site characteristics the mining company must consider. Until those things are known he continued, no one can say what the final use is.

Following slide shows by both sides and a film clip of the issue by KOIN television of Portland, the speakers fielded a broad range of questions ranging from types of fertilizer used in reclamation to the willingness of Utah International to release exploration data.

In her presentation Lori Aschenbrenner charged that if Utah International is permitted to do more sampling in the north end, "we won't know about the resource." And later, Ronne Sands asked, "What about release of exploration data?"

Steward replied that with at least six coal mining competitors to think about, it would be poor business practice to "go out and pay for information that will aid your competitor." He added that John Reiff, western region exploration manager for Utah International, would explain what information the company would be willing to

County. Over 100 persons attended the forum

Gerald Perren (right) served as moderator.

Chieftain staff photo

release at the next planning commission meeting.

Tom Derry of Enterprise asked if the performance bond required of mining companies to insure that the disturbed land is reclaimed is in fact an incentive to put the land back.

"Isn't the performance bond figured into the cost of doing business? Does it really matter if

Utah International loses its performance bond?" Derry quizzed.

Steward responded that loss of a performance bond means the mining company would never receive another license to mine.

"That's the issue," said Steward. There were also comments disguised as questions.

"What about integrity?" said an unidentified person. Jay Penniman

of Enterprise followed the questioning.

"What about the 79 test holes they dug without permission?" said Penniman.

Bob Jackson questioned the truthfulness of a recent ad in the Wallowa County Chieftain purchased by Utah International.

"Somehow your figures don't add up," said Jackson.

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Commissioners stall 5018 Wallowa coal plans

ENTERPRISE — The Wallowa County Planning Commission voted Tuesday night to "tentatively deny" a conditional use permit application from a Utah-based coal mining company.

Utah International Inc., a Salt Lake City subsidiary of General Electric Co., had applied for the permit so it could test the feasibility of lignite coal mining in northern Wallowa County.

The company sought to drill test holes and remove up to a 233-cubic-yard sample of lignite deposits from property owned by Bob and Gail Gray in the Lost Prairie area, about 40 miles north of Enterprise.

The permit is needed for the test site because the Gray property is in an exclusive farm use zone, a classification that does not address mining activity.

In testimony before the commission in December, the Grays said they supported Utah International's plan.

Wallowa County Planning Director Dan Stark said this morning the commissioners directed the planning department staff to

draw up findings for a final decision to be made on March 9.

Stark said the primary reason for the group's tentative denial appeared to be that they were "not reasonably convinced" that the test site would "not interfere with spring (water) flow on adjacent ranches."

The impact of any mining-related activity on neighboring water supplies has been the primary objection of opponents of Utah International's proposals.

The Grande Ronde River Alliance, a group of approximately 100 residents of Wallowa and Asotin (Wash.) counties, has resisted the coal company's efforts in Wallowa County.

Utah International has been trying to secure local approval for the feasibility testing in northern Wallowa County for almost two years. An earlier attempt for a permit was withdrawn in early 1981 and another was filed in November.

Officials from Utah International and their attorney, Richard Crist of Lake Oswego, could not be reached this morning for comment.

Extensive opposition, rebuttal testimony

By Elane Dickenson
of the Chieftain

Wallowa County attention was once again riveted on the issue of North End coal last week.

Anti-mining forces mobilized at the continuation of a Wallowa County Planning Commission hearing on Tuesday, Jan. 28, to urge denial of a conditional use request from Utah International to excavate a bulk sample of approximately 240 tons of lignite from a Lost Prairie ranch site. In all 31 letters opposing the application were read into the record and 14 speakers testified against approval.

A decision on the CUP is expected to be made at a special planning commission meeting on Feb. 16.

In addition to concerns about the environment and life style changes which opponents fear would occur with large-scale mining operation in the future, similar to concerns expressed at other public hearings and meetings held over the past two years, several points were raised relevant to the specific test pit application.

These include the failure of the county to address mineral resources in its Land Use Plan, the lack of specific criteria in the county zoning ordinance on which to judge the CUP, and doubts about the adequacy and accuracy of information presented by Utah International experts to substantiate the company's position that the test pit excavation would have no impact on neighboring springs.

Because the Jan. 28 hearing was the continuation of one which began in December, no new local witnesses in favor of the application were heard. Several local persons had testified the previous month supporting the request, citing in particular the need for more information about Wallowa County's lignite resource.

After opposition witnesses testified, Utah International representatives, and owners of the test pit site, Bob and Gail Gray, were given the opportunity to respond to concerns expressed by the opposition, in accordance with the quasi-judicial hearings process.

Preceding the hearing, Ralph Swinehart of Enterprise was elected as new chairman of the planning commission; Howard Borgerding of Imnaha, 1st vice-chairman; and Roland Johnson of Wallowa, 2nd vice-chairman. Two new members, to replace Pat Powell and Wade Magden were expected to be appointed by the county court on Feb. 3.

In opposition

Opinions expressed 31 letters in

environmental impact and lifestyle change if future surface mining takes place, concerns about the impact of the test pit on water supply, objections to the lack of ordinance criteria and planning for surface mining, and doubts that the proposed lignite excavation would benefit the county informationwise.

Many letters expressed the feeling that approving the test pit CUP application would set a precedent for future requests from the coal company. ".....We ask the commission to take no action to encourage strip mining....." wrote Grace Bartlett of Joseph. The need for a resource study not connected with a private company was suggested by several writers. "We need an independent study we can trust," said Walt VanDyke of Enterprise. Jay Penniman, who testified personally later in the hearing, wrote that he felt approval of the CUP would be the first step in "the long-range loss of high quality of living" and that it would "leave the county's economic future in limbo." Many writers felt the mining proposal represented a temporary economic gain and that the risks, especially concerning the water table, involved in the test pit were too great.

In verbal testimony, Jay Penniman, representing the Wallowa Resource Council, outlined three areas of concern about the bulk sample CUP request: inadequate hydrologic information; the opinion the proposal is in consistent and incompatible with the county's Land Use Plan; and lack of planning on the county's part.

He said that since the CUP does not address the possibility of either coal exploration or large scale mining and that it includes "no specific implementation measures to protect our coal resource." Penniman read a list of land use planning goals and explained why he felt proposed exploration in the Exclusive Farm Use zone met none of these goals.

He urged the commission to view the test pit application from "holistic" viewpoint and stated that the planner's "can not be concerned with the long-term goals of the applicant" in making a decision. He stressed the importance of citizen involvement in the planning process: ".... We have the right to determine the kind of county we want to live in."

Penniman pointed out that a possible strip mining constitutes a major change in county land use, and said major changes should be based on long-range planning, not on a particular application. "A

Ranch owner Larry Bacon questioned that the test sample would be representative of the entire North End lignite resource since the Grays have stated they do not intend to sign a long-range mining lease.

Jack Prentice noted that if the "experts turn out to be wrong, it's not the corporation that will suffer." He felt protective measures should be in place prior to a decision.

Among points raised by opponent Lori Aschenbrenner were the vagueness of the test pit proposal and such questions as who would police the test pit operation.

In all, 14 persons verbally opposed the proposed excavation, and several others who had planned to testify decided their statements would only repeat points already made. A petition containing the names of over 200 county residents opposed to the CUP was also submitted.

UII Rebuttal

In introducing rebuttal testimony, Lake Oswego attorney Richard Crist told the planners that the matter needed to be placed back in prospective, that Utah International has asked for a permit to obtain a bulk sample, not for a mining operation. He said that mineral mining and exploration are listed as conditional uses in the EFU zone under state law and county ordinance, a fact which recognizes the public need and conformance of such uses. "We aren't proposing to mine, we don't know if we ever will," he commented.

Jeff Randall, a hydrologist with CH2M, testifying for UII for the first time at the Jan. 26 hearing, said, "In my professional opinion there will be no impact caused by the test pit operation, either during or after pit construction, on local springs, and in particular there will be no impact on the Bacon springs....." He testified that all water feeding the springs comes from direct precipitation on Lost Prairie itself.

He added average rainfall area of approximately 15 miles would per minute "more than spring discharge."

Randall stated excavation was miniscule area and no be felt on plies. He added water flow through aquifer was feet per year.

"Even if it would take be felt at a Bacon spring of time the noticed because of the t

In response commission hart concern springs in amount of the ed in the fu study did ne of that situat

Randall stated boring wells placed at the monitor the the ground the landown national, and also determine capacity of the

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Howard St

y offered at test pit hearing

that the 15 inch all falling on a surface approximately 1.2 square produce 200 gallons for the entire year, enough for reported ges."

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ere was a disturbance over 50 years to distance equal to the ... and in that length effect would not be se it would be attenu- ravel," he said.

e to a question from member Ralph Swine- ning the effect on the area if a large e lignite were remov- ture, Randall said his t include an analysis ion.

ated that three moni- he recommended to be e test pit site would quantity and quality of water to protect both ers and Utah Inter- l a proposed pump test ne the exact recharge he land.

ristimuthi, Utah Inter- rologist, agreed with ing that he was "total- that the water balance a would not be dis- also said that the Lost was the best site en such considerations ertainty of occurrence of unlikelyhood of adverse hydrologist said in the e determined a large eration would cause damage he would employer of that fact. my job.... We have a lot of projects like ted.

Steward of Community

Dynamics, a Portland-based public relations firm, testified again as to the need for a bulk sample of lignite to determine the quality of the resource. He pointed to the statements of the coal hydrolog- ists, regarding the non-effect of the test pit excavation on springs, commenting, "Truth is arrived at not by counting noses."

Steward said that there is still a lot of uncertainty about whether the North End lignite deposit is an economic resource, and the bulk sample would "provide one more piece in the puzzle" to determine its commercial value.

John Reiff, UII western division exploration manager, expanded on Steward's remarks. The lignite "is a marginal resource unless the quality improves with normal crushing, handling, storage," he said. According to Reiff the small core samples tested at about only 4,400 BTU's a pound, but did lose about 25% of its moisture within four hours, increasing the quality. Since BTU value varies inversely with moisture content, the manager said UII wants to determine how fast a bulk amount will lose its moisture as well as other characteristics.

Information Disclosure

Under close questioning by commission members, John Reiff admitted that much of the information obtained by Utah International would be considered "proprietary" and not released to the public in the immediate future, a situation which many opponents of the test pit have used as ammunition. He said that such things as exact amount of overburden and exact quality and scope of the lignite deposit would not be disclosed because the information would seriously jeopardize UII's competitive position.

Reiff told the planners the company would tell the county whether or not the coal was of a quality to warrant further investigation. He said if it remained in the vicinity of 4,400 BTU's "we might as well go home." Reiff add-

formation as hydrological data obtained from the proposed operation would be released to the county.

Commission member Roland Johnson pointed out that "planning starts with information" such as inventory of the resource, problems involved, etc., and asked if more information would be available in the future.

Reiff responded that if exploration continues "we will give you more information," and added, "Maybe at some point Utah International's competitive position may be different" and all data could be made public. He said this could occur after the company obtained necessary leases.

The question of legal liability if water damage resulted from the test pit was not resolved, but the exploration manager pointed to federal mining laws which requires the water to be replaced.

In response to the disclosure concern, UII's head administrator of state government affairs, Don Mull of San Francisco, said he didn't feel that the confidential information will be necessary to establish a good plan to govern mining and exploration. He offered the company's help in developing a plan by giving site specific information from mining operations in other areas. Mull said the company would be "tickled pink" to see the county with a comprehensive plan to cover the exploration/mining issue, saying it was difficult to "shoot at a moving target."

Test pit owner Gail Gray said that she feels it is important for the county to know "if we have a valuable resource.... if not we can just forget it." She added, speaking for herself and husband Bob, "We're not ignorant people and don't lay waste to any of our resources."

After closing the hearing to further testimony, the planning commission made plans to personally view the proposed test pit site, and added discussion of a decision on the CUP to the agenda

at 7:30 p.m.

Public hearing on coal is

754
The controversy surrounding the future possibility of strip mining for coal in Wallowa County took a new turn Wednesday night, May 28, when the Grande Ronde River Alliance formally requested that the Wallowa County Planning Commission consider a change in the county's zoning ordinance to effectively ban large scale surface mining in the Exclusive Farm Use (EFU) zone.

After listening to several members of the Alliance explain the reasons for the request, the commission agreed unanimously to consider an amendment to the ordinance after putting the proposal before the residents of the county in a public hearing. The hearing was later scheduled to be held on Thursday, June 26.

The motivation of the Alliance's position and request were outlined in a letter which was sent to the planning commission and published in the May 15 issue of the Chieftain.

The letter urged strong support for Planning Director Dan Stark's position that criteria and standards must be developed before the commission could consider a conditional use application for a test core drilling or test mine excavation. Uthl International, the subsidiary of General Electric which has been drilling for coal samples the last two summers (without required permits) and offering long-term leases to

owners in the Flora-Troy areas, had been hoping to obtain a conditional use permit to excavate 50 or more tons of the low-grade (lignite) coal this summer for the purpose of determining the economic feasibility of a large-scale strip mine operation in the county's North end.

The Alliance objects to test mine operations because members feel: 1) There are substantial dangers to adjacent ground waters and springs from even a relatively small excavation operation; 2) Granting a test mine permit tends to imply a willingness to consent to the eventual commercial mining activity; 3) Allowing an outside economic interest to increase its stake in the outcome could prejudice fair public debate within the county; and 4) Until the strip mining issue is thoroughly studied, there is no knowledge of what specific requirements for facts, information or performance might be requested even during excavation.

In their written request, the Alliance asked that Section 3.030 (2) of the zoning ordinance, listing conditional uses in the EFU zone, be amended as follows: **(2) Operations for the mining and processing of geothermal resources... or exploration, mining and processing of aggregate and other mineral resources or other subsurface resources, however, with the exception of surface mining for gravel or aggregate necessary for local road use, no surface, strip, or open-pit mining, which would disturb more than five (5) acres in a single mining operation shall be allowed. (The amended section is, printed in bold face type.)**

The letter including the above points was signed by the eight members of the Grande Ronde River Alliance executive committee, and a roster of 112 members of the organization supporting its stand, all landowners or residents of the Flora-Troy area, was attached.

In introducing the request for the ordinance amendment, one Alliance spokesman, Dave Jackman, told the planning commission, "You are presently our only line of defense." He explained that a letter from the understaffed federal Office of Surface Mining, which was scheduled to assume responsibility for administering the Surface Mining Control and Reclamation Act of 1977 for states (including Oregon) not developing their own program, by June 4, 1980, had been received stating that Oregon had been put "on a back burner" as far as the agency's implementing the program was concerned. The Alliance has requested clarification on the effects of that decision from the bureau, but Jackman said it meant there is no

machinery to regulate strip mining presently existing in Oregon.

Jackman also reported, to illustrate the seriousness of Utah International's intentions in the county, that the company has a lien on the approximately 2200 acres on which it has secured its only Wallowa County lease thus far (The Hainesworth-Young ranch). He explained that meant if the owners defaulted on their loan, the property would be owned outright by the coal company.

Jackman said that the Alliance is convinced strip mining is incompatible with the intent of the EFU zone, to preserve farming and ranching.

One commission member cited the

hearing on coal issue set

owners in the Flora-Troy areas, had been hoping to obtain a conditional use permit to excavate 50 or more tons of the low-grade (lignite) coal this summer for the purpose of determining the economic feasibility of a large-scale strip mine operation in the county's North end.

The Alliance objects to test mine operations because members feel: 1) There are substantial dangers to adjacent ground waters and springs from even a relatively small excavation operation; 2) Granting a test mine permit tends to imply a willingness to consent to the eventual commercial mining activity; 3) Allowing an outside economic interest to increase its stake in the outcome could prejudice fair public debate within the county; and 4) Until the strip mining issue is thoroughly studied, there is no knowledge of what specific requirements for facts, information or performance might be requested even during excavation.

In their written request, the Alliance asked that Section 3.030 (2) of the zoning ordinance, listing conditional uses in the EFU zone, be amended as follows: **(2) Operations for the mining and processing of geothermal resources... or exploration, mining and processing of aggregate and other mineral resources or other subsurface resources, however, with the exception of surface mining for gravel or aggregate necessary for local road use, no surface, strip, or open-pit mining, which would disturb more than five (5) acres in a single mining operation shall be allowed. (The amended section is printed in bold face type.)**

The letter including the above points was signed by the eight members of the Grande Ronde River Alliance executive committee, and a roster of 112 members of the organization supporting its stand, all landowners or residents of the Flora-Troy area, was attached.

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One commission member cited the

need for more information about the Northend coal deposits, and the need for getting the process of developing criteria on conditional use permits started.

Rich Wandschneider of Enterprise, present for the coal discussion, told the commission, "Let's assume all of the coal is there... The real issue is whether or not the people of Wallowa County want strip mining here."

The commission eventually decided to schedule the public hearing to consider the zoning ordinance amendment request by the Alliance, and to discover the answer to Wandschneider's question.

754
FLORA — The Grand Ronde River Alliance will hold a public meeting Friday at 7:30 p.m. in the Flora grange hall to discuss the proposed coal mining in Wallowa and Asotin counties.

Grand Ronde residents to meet on coal question

Speakers at the meeting include, Tom Ehmett, supervisory reclamation specialist with the federal Office of Surface Mining at Denver, and Wally McRae, a member of the Northern Plains Resource Council. The resource council is an organization of ranchers and farmers who have worked to ensure en-

vironmental protection for strip mining areas in Wyoming, Montana and Utah.

Two U.S. coal companies have discovered coal in the area. One firm, Utah International, plans to open a test pit this summer. The Grand Ronde River Alliance has formed in opposition to the coal mining plans and to work for protection of the ranch and farmlands.

Alliance member David Jackman said all are welcome to attend the meeting. Local governmental officials, both in Wallowa and Asotin counties, have been urged to attend.

High Lostine subdivision s

Approval of an alley vacation in Troy, a report of the hospital task force, discussion of a possible conditional use permit application by Utah International and discussion of the High Lostine subdivision were topics covered in the Wallowa County Court meeting of April 2.

High Lostine Subdivision

Lorin Ricker, attorney for the High Lostine Subdivision, appeared before the court to discuss the reservations expressed by the court concerning the proposed subdivision on the Lostine River. One of the possible problems which the court had discussed was the water situation, and Ricker explained that a spring provides .03 cubic feet per second, which, combined with .07 cubic feet from the Lostine River, would be the supply needed for the development. He stated that the spring will supply all needs for the 37 homes currently planned except in emergency situations. 100 home sites are provided, and Ricker added that the supply should be also ample for that many families. There will be a 60,000 gallon tank for fire protection. Judge McCrae questioned the ability of the spring to supply all needs and presented the possibility of there being a shortage of water to refill the storage tank if there were a fire in late summer when the river is low. The court finally stipulated that membership in the water association be a requirement for all home owners in the subdivision.

The court acknowledged that its reservations about frontage on the road through the subdivision was due to a misunderstanding of the term 'cul-de-sac'. Under the definition contained in the county's land use plan, the plat meets the requirements on frontage.

There were strong objections to the number of accesses needed on the county road because of snow clearing problems. Ricker agreed to have the engineer show the possibility of combining accesses to the parcels of property where feasible.

Alley Vacation Granted

The alley vacation, which had been requested in last month's meeting by Russel Gary, Troy landowner, was approved unanimously by the court after having viewed the site several days earlier.

Street Vacation Requested

A public hearing was held by the court on the application of Vergil Crane and Bob Friedman to vacate a 40-foot street in the River Park Addition of Enterprise. The grounds for the request were that the roadway serves no beneficial use and that construction of a road, which has never been built, would be

costly and maintenance of the street would be burdensome to the county. The land was deeded to the county in 1916 by F.A. Wagner and wife for the purpose of a county road, but there is no record that the county officially accepted it for that purpose, according to County Surveyor Verne Russell's report. There was no objection to the request, although Russell's report noted that three adjacent landowners, Tim Doss, Alvin Birkmaier, and Karim Din Muhammad need ingress and egress off a short portion of the road in question. The court adjourned the hearing and delayed making a decision until the members could view the property.

Hospital Task Force

Eric Walch, who, along with Tom Uchison, mental health officer, is co-chairman of the hospital task force, reported to the court that the administration has furnished the group with all information requested but that Alex McAlister, administrator of the hospital, has decided not to participate in the task force. It was emphasized in the discussion that the task force is not a court-appointed body, but that the members of the group are persons suggested by the County Sub-Committee of the Health Systems Agency, which is a body of health providers and consumers. The purpose of the task force is to determine public opinion on hospital matters and to make recommendations to the county court. Walch, who is also chairman of the county Health Systems Agency Sub-Area Council, stated that the task force will soon have recommendations ready for the court's consideration.

Mining CUR Delayed

Dan Stark, planning director, reported that Utah International intends to file for a conditional use permit to remove 50 tons of coal in the Flora area. The company is now taking core drillings, he added. Because the present land use plan does not address mining in any way he was directed by the court to advise Utah International that a conditional use permit will not be issued until standards concerning mining have been set. Stark is also to ask the state for assistance in setting these standards, and Stark commented that he needs to hear public sentiment on the issue. Methods for obtaining such sentiment might be public meetings or surveys. It was suggested by the court that it might be desirable for the court to observe operations by Utah International, in other areas. County Judge Marion McCrae stated, "The court is not opposed to

mining if it is developed right, but we don't want to blow the land away and see the soil all go down the river."

Appointments

The court appointed Dave Murrill, Enterprise, to replace Frank Millar, who has moved away, on the Wallowa County Fair Board. His term will expire December 31, 1981. Betty Morgan was appointed to the Board of Equalization as recommended by the county budget committee. Her term will expire August 1, 1980. She takes over the unexpired term of Harold Lay.

County Roads

Frank Olson, U.S. Forest Service representative, appeared before the court to discuss the reconstruction work on the Wallowa Mountain Loop Road. The Forest Service is working on the part of that road that it owns, but the county cannot do work on the lower part because of the fact that the county does not own the roadway. The Forest Service holds easement to the land, but the deeds are still in the various owners' names. The county cannot do major work on non-county-owned roads. It was emphasized that the county would not be able to do the work anyway, because of a shortage of funds. Dust control will be done on the road this summer.

Skip Lovell, county roadmaster, reported on the Paradise road where work was done this winter. He also

Still not approved

stated that the county has a rock crusher in operation. Permits have not been issued for the gravel project on the Wallowa River near Wallowa, but bids are to be called for contingent of receipt of permits.

It was unanimously decided to renew the lease on the road grader with Western Equipment Company.

Miscellaneous

In other business, it was noted that Rahn's Sanitary Service is increasing rates for the sanitary drop boxes in Wallowa, Lostine and Joseph. The cities will address the matter in their council meetings.

Stark reported that the trailer owned by the Forest Service has been moved to the Forest Service property in Enterprise. The trailer, was intended for use as office space at the Forest Service office on highway 82 between Enterprise and Joseph, but the court had refused to allow permission because it is a non-conformance of the land use plan.

The Xerox machine on the second floor of the courthouse is to be closed to public use. The decision was made by the court after being

told by a Xerox serviceman that the machine is not built for the kind of work being required of it.

WCPC approves partition near Joseph

2 754
For the second consecutive week, the Wallowa County Planning Commission grappled with complex decision-making issues at a long Tuesday night meeting.

Considered by the commission was a minor partition in the Exclusive Farm Use Zone near Joseph which had been denied by Planning Director Dan Stark, and appealed by owners Ed and Joydene Walunas; the legal difficulties of a request by the U.S. Forest Service to expand a

non-conforming use by replacing a mobile office unit in the EFU zone at the Joseph Forest Service compound; and an impending conditional use application to explore and test mine for coal in Flora's EFU zone, expected to be submitted by Utah International within the next two months.

After a lengthy discussion, a divided commission approved the minor partition request for 132 acres, located about three miles from

Joseph just off the Imnaha Highway, to be split into one parcel of 40-50 acres and another of 80-90 acres. A condition attached to the approval was that the smaller tract be purchased by Butch Tucker to be used in conjunction with his nearby cattle operation, and that the larger tract be added to the holdings of adjacent landowner Ben Johnson, as proposed in the applicant's request, presented by attorney Lorin Ricker.

The vote was five in favor, one against, with three members not voting, including chairman Norman Werst who votes only if a deciding ballot is necessary.

No decisions were made on the other two issues on the agenda.

A more complete account of the April Fool's Day meeting will be published in next week's Chieftain.

Coal mining issue outlined at hearing by Stark, Beach, Baldwin & Utah International

Wallowa County Planning Director Dan Stark was lead-off witness at a public legislative hearing last Thursday in La Grande, held by the Mining and Mineral Resource Subcommittee of the Joint Legislative Committee on Trade and Economic Development to evaluate the role of mining in Oregon's future. Rep. Bob Brogoitti was among the three sub-committee members present.

Stark outlined the development of the strip coal mining issue in Wallowa County, cited problems created by the failure of the 1977 county zoning ordinances to address large mining proposals, and explained his position refusing to consider conditional use permit applications for coal exploration until such time as county criteria are developed upon which such permits can be evaluated, as required by state law.

The director also invited the state legislators to the public hearing scheduled for tonight to consider an amendment banning large-scale surface mining in the agricultural zone of the county.

Don Baldwin, head of the Wallowa County office of the U.S. Soil Conservation Service, narrated a slide presentation consisting of aerial views of the Flora-Troy area pro-

posed for mining by Utah International. He summarized the resources of the area, and explained problems associated with soil stability and other factors peculiar to the county's Northend.

Joe Beach, representing the Grand Ronde River Alliance, described the reasons his organization opposes strip mining in the region. The sub-committee earlier had visited Dave Jackman, another spokesman of the Alliance, in the Grand Ronde Hospital where he had undergone surgery.

Two representatives of Utah In-

ternational presented a slide show depicting some of the company's on-going reclamation projects associated with its strip mining operations in various places. The men declined to answer any questions concerning the company's plans for Wallowa County, explaining that the proposal is in its early stages and it is the company policy to wait until after finding out whether coal is economical to mine before developing a detailed plan.

Among county residents attending the hearing was Wallowa County Judge Marion McCrae.

mailbag

A D-H

1/1/80

More dangerous

In reference to your editorial, "Coal Isn't the Best Alternative," I am enclosing a letter published in the Wallowa County Chieftain.

Coal is much more dangerous than nuclear power will ever be. But people fear the misunderstood. It was encouraging to see someone question the use of coal for once.

I am now a resident of Albany, but I was born and raised in the town of Flora, county of Wallowa. The area is a quiet rural area with an abundance of beauty, fresh air and wildlife. The energy problem is a threat to these values, though.

The powers that be, in this case Utah International, a subsidiary of General Electric, have been engaged in coal exploration and are attempting to purchase leases in order to stripmine the area. This would

benefit a few families (about a dozen) by making them millionaires while detrimentally affecting the rest of the families, most of whom have lived on the land for generations and plan on living there for many more generations. I myself would like eventually to move back to the farm to raise my family by the values mentioned previously.

I am sincerely concerned, but I recognize that as long as the people in the United States value their luxuries such as mobility and material goods more than the values of life in the area, the people in Flora (my family included) don't have a chance. Oh, they may be able to delay the destruction of these values, but sooner or later the greedy majority will get their energy, and to heck with those who feel differently.

I personally have little hope that a loosely organized group of citizens will be able

to fight big business and the government.

I want again to thank you for your editorial. I may have gotten a little indignant in this letter, but the situation really scares me. Dave Jackman is the author of the letter to the editor that I enclosed.

Steve Wulff
3814 Hill S.E.
Albany

Chieftain readers write

754

(Editor's Note: The following letter, dated May 19, has been submitted to the Wallowa County Planning Commission outlining the recommendations of the Grande Ronde River Alliance in regards to proposed strip coal mining in the county.)

Dear Commissioners:

We are writing to request your strong support for the position taken by Planning Director Stark in his letter of April 4th to Utah International Inc. We believe his letter correctly states the requirements of state law, and represents a good first step toward debating and resolving the issue of strip mining on exclusive farm use lands in Wallowa County. In line with this, we are also requesting that the commission take action to consider amendments that would close exclusive farm use lands to large scale surface mining activities.

Taking the view that the Wallowa County Land Use Plan and Zoning Ordinance represent the legislative expression of the community regarding acceptable and compatible land uses, we think the plan must speak specifically to large scale surface mining in order to provide an adequate legal basis for the adoption of administrative standards and

criteria. As Mr. Stark's letter states, such standards are necessary before a conditional use permit could be considered even for test mining or similar exploration activities.

In addition to the legal reasons set forth in Mr. Stark's letter, we believe there are at least four sound policy reasons for not considering the issuance of a permit to test mine so long as the appropriateness of full scale strip mining is under consideration:

1.) There are substantial dangers to adjacent ground waters and springs even from a relatively small test mine excavation.

2.) Granting a permit to test mine tends to imply a willingness to consent to the eventual commercial mining activity.

3.) Allowing an outside economic interest to increase their stake in the outcome, could prejudice the fair public debate within Wallowa County.

4.) Until the issue of strip mining is thoroughly studied, there is no knowledge of what specific requirements for facts, information, or performance might be requested even during exploration.

It is our position that strip mining for coal is fundamentally incompatible with the classification of lands for exclusive farm use. Our arguments against strip mining are outlined in our organizing statement titled "Opposition to Strip Mining". With this letter we are asking you to formally consider a recommendation to the County Court that the zoning ordinance be amended to close exclusive farm use lands to any large scale surface or strip mining activities.

Specifically, we would request that Section 3.030(2) of the zoning ordinance, dealing with conditional uses permitted within EFU zoned lands, be amended to read as follows:

(2) Operations conducted for the mining and processing of geothermal resources as defined by ORS 522.005 or exploration, mining and processing of aggregate and other mineral resources or other subsurface resources, however, with the exception of surface mining for gravel or aggregate necessary for local road use, no surface, strip, or open-pit

mining, which would disturb more than five (5) acres in a single mining operation, shall be permitted within an EFU zone.

To the extent that taking a position on strip mining within EFU zoned lands constitutes an extension or revision of the Wallowa Land Use Plan, you will no doubt wish to schedule public hearings and fact-finding sessions before making a decision. As a citizens organization we look forward to that public debate, since we think this is first and foremost an issue for local community decision. For this reason, we do not think that an out-of-state mining corporation has any legitimate basis for participation in such local political decision.

It is our belief that the land use law exists primarily to protect private land owners and local community residents from the damaging costs of disorderly development and incompatible land uses. Our organization includes one hundred and twelve landowners and residents, and therefore represents a substantial majority of those most directly affected. We want this area to remain a farm and ranch community, and do not want to see exclusive farm use land industrialized. We sincerely hope that you will give our position and request for action careful and serious consideration.

Very truly yours,

Grand Ronde River Alliance

By the Executive Committee:
Spencer Bacon, Joe Beach, Ivan Botts, Gail Gray, Orvis Moore, Robert Hawkins, David Jackman, and Evelyn Wilsey.

Portland, OR
Oregonian
(Cir. D. 247,811)

Paul
Gore

JAN 7 1983

Allen's P. C. B. Est. 1888

The Northwest ⁵⁰¹⁸

THE NEW chairman of Seafirst Corp. of Seattle has imported an executive from his old bank to serve as chief credit officer of a major subsidiary, Seattle-First National Bank. Chairman Richard P. Cooley picked Glenhall E. Taylor Jr. to head credit at the bank, which has suffered major loan losses. Page E2

A SPOT check with a handful of business executives in the Portland area shows most do not favor any public subsidy for Portland's Hyster Co. The mayor says reaction to the request has been mixed, and the governor's office reported the few letters received opposed the idea. Page E2

A UTAH mining company has appealed a decision to deny it a permit to drill for coal in Northeast Oregon's Wallowa County. According to the state Land Use Board of Appeal, Utah International Inc. has filed an appeal with the State Court of Appeals. The company has been denied a permit to remove a 233-cubic yard sample of lignite coal for testing.

TWO ATLANTIC Richfield Co. divisions announced cutbacks Thursday which will cost the jobs of about 1,000 Montana workers. The company is suspending mining and milling operations at Anaconda Minerals in Butte, due to slack demand for copper and molybdenum, effective June 30. That is expected to cost 700 jobs. Aluminum production in the Columbia Falls smelter of Arco Metals Co. is being cut back further, with an estimated job loss of about 350 workers, effective Feb. 5.

Planning decision paves way for UII exploration permit

5018
By Elane Dickenson
of the Chieftain

In its third go-round with the Wallowa County Planning Commission at a hearing on May 24, Utah International, Inc. had its first taste of success.

The company had applied for a conditional use permit (CUP) "to conduct exploration activities for mineral resources (lignite) by exploratory drilling" on approximately 44,000 acres owned by Boise Cascade Corp. in the Promise/Grossman area north of Wallowa.

After considering all testimony, the commission unanimously voted to ask Wallowa County Planning Director Dan Stark to draft findings of fact with the stated intention of approving the application at the special meeting scheduled for June 7.

In two earlier CUP hearings, each spanning several months, the commission denied permits to excavate large lignite samples from two separate sites in the North End, because of concern of possible disruption of springs serving neighboring Lost Prairie ranches.

UII appealed the second denial unsuccessfully to the state Land Use Board of Appeals, and the case is still in the second appeals process.

The application viewed favorably by the planners on May 23 asked that the coal company be allowed to drill a total of 47 exploration holes at 34 sites, including 34 rotary drill holes and 13 twin spot.

At the beginning of the hearing, director Stark noted that under Oregon law, the holes proposed by Utah International are considered 'wells', and must be constructed by a licensed, bonded driller in conformance with state well construction standards.

Stark said other state requirements, such as the keeping of well logs and abandonment procedures, also must be met.

According to the written operation plan submitted and verbal testimony from UII geologist Peter Mattson, a hole five to six inches in diameter will be plug drilled to a depth of about 300 feet at each of the 34 locations. At 13 of these spots a second twin hole will be drilled to do a predetermined core point and the remainder of the hole will be core drilled.

the application were Boise Cascade employee John Reed who read a letter from neighboring property owner Louise Jaussaud, Bob and Gail Gray and the Wallowa County Chamber of Commerce.

Speaking or writing in opposition were adjacent landowners Myra Banks, Rachel Walker, Walter and Nancy Coyle, Ruby Morgan, and Roberta Bird, and Jay Penniman, representing the Wallowa Resource Council.

Most of the testimony centered around fear of the effects of possible coal mining in the future, though a couple of letters mentioned concerns about springs. A total of 61 letters were mailed informing neighboring landowners about the hearing.

In rebuttal, Mattson said he felt following outlined procedures for sealing aquifers and wells would protect groundwater. Concerning future mining, he said only about one in 100 locations at this stage of exploration are ever actually mined.

Commission member Jack Prentice asked if UII will agree to the monitoring and surveying of the drilling, noting that county residents were "incensed by your prior action." Prentice was referring to the fact UII did not obtain permits for core drilling in the North End in 1979, and there has been no proof since that those holes were abandoned correctly. UII reps later said they had been ignorant about the need for a drilling permit, as they are not required in other states.

"We are very willing," said Mattson, answering Prentice's question. "We plan on living up to the requirements."

The desirability of finding out more about the lignite resource of the county was discussed by the commission. It was noted that while much information is considered proprietary, a great deal of disclosure would be required if UII ever reached the stage of asking for a CUP for mining. Planners also noted the well logs on the drill holes will be filed with the state.

"It's a substantial property right to know what you do or do not own," commented Dan Gile, adding the operation would be well monitored by the Water Resources

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Mattson said the company hoped to start work in mid-June and that the entire operation would probably take one or two months. He said all holes will be abandoned according to state law, except in some cases a slightly different procedure, used in other UII operations, is being requested by the state Water Resources Department.

Speaking or writing in favor of

letter from neighboring property owner Louise Jaussaud, Bob and Gail Gray and the Wallowa County Chamber of Commerce.

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"It's a substantial property right to know what you do or do not own," commented Dan Gile, adding the operation would be well monitored by the Water Resources Board.

Howard Borgerding said he felt all the opposition was based on the "mining philosophy". He stated, "If Boise Cascade wanted to drill 34 wells, I don't think anyone would say a word."

The vote to approve the CUP at the June 7 meeting was 8-0, with one member, Dave Jackman, absent.

Dec 3 3 47 PM '82

BEFORE THE LAND USE BOARD OF APPEALS
OF THE STATE OF OREGON

RECEIVED
DEC 22 1982
DEPT OF GEOLOG
& MINERAL

UTAH INTERNATIONAL, INC.,

Petitioner,

vs.

WALLOWA COUNTY,

Respondent.

LUBA No. 82-061

FINAL OPINION
AND ORDER

Appeal from Wallowa County.

Richard F. Crist, Lake Oswego, filed the Petition for
Review and argued the cause on behalf of Petitioner.

D. Rahn Hostetter, Enterprise, filed the brief and argued
the cause on behalf of Respondent.

COX, Board Member; BAGG, Board Member; participated in this
decision. REYNOLDS, Board Member; participated in oral
argument and pre-opinion discussions. REYNOLDS resigned from
LUBA effective 11/15/82.

AFFIRMED

12/03/82

You are entitled to judicial review of this Order.
Judicial review is governed by the provisions of Oregon Laws
1979, ch 772, sec 6(a).

1 COX, Board Member.

2 FACTS

3 Petitioner Utah International appeals from the county's
4 denial of its request for a conditional use permit. Petitioner
5 applied for the permit to allow removal of a bulk lignite
6 sample from an area not larger in size than two acres. The
7 property from which the sample was to have been taken is zoned
8 for exclusive farm use (EFU). The proposed sample removal
9 would involve several steps. The company first would drill
10 test holes to verify the existence of lignite. If the mineral
11 were found, the petitioner would remove and stockpile the
12 topsoil and overburden which lies above the lignite layer.
13 Petitioner would then remove 240 tons of lignite, replace the
14 overburden and otherwise restore the land to its original
15 condition.

16 Petitioner's application was first heard by the Wallowa
17 County Planning Commission. Local ranchers and landowners
18 expressed concern about the effect the excavation would have on
19 groundwater and their nearby springs. Petitioner presented
20 testimony of experts who concluded that the proposed activity
21 would not impact local springs and groundwater sources.

22 Petitioner appealed the planning commission's denial of its
23 application to the Wallowa County Court. The county court
24 allowed public testimony, but its content was limited to the
25 record made before the planning commission. The county adopted
26 in large measure the findings of its planning commission. The

1 county court's findings on the ground water issue are:

2 "24. There exists a pattern of spring outcrops in the
3 area with springs occurring at elevations of
3,650 feet, 3,400 feet, 3,200 feet and 3,000 feet.

4 "25. The best estimate of the groundwater movement is
5 that recharge occurs when precipitation falls on
6 the surface and approximately one-third of the
7 total precipitation enters the ground to a depth
8 below the range of plant withdrawal. This water
9 recharges the aquifer. The water moves rapidly
10 down through the sandy overburden and strikes the
11 upper lignite layer, the immediate layer of clay
12 and the lower lignite layer with clay stringers.
Some water does pass through those zones to reach
the basalt, however, when water reaches these
zones, it begins to move laterally at a greater
velocity than it moves downward. The lateral
movement causes the outcroppings of springs on
hillsides and such outcrops can occur from the
top of the upper lignite layer down to the upper
basalt.

13 "26. The lignite layers are major groundwater aquifers
14 throughout the area.

15 "27. Ranches in the area are solely dependent upon
16 springs both for livestock and domestic water.

17 "28. The applicant has performed no drilling activity
18 at the site of the proposed activity.

19 "29. The applicant is uncertain as to the quantity of
20 water in the upper lignite at the test site
21 without performing certain pump tests prior to
22 pit excavation.

23 "30. Testimony reveals substantial uncertainty as to
24 the relationship of spring outcrops and geologic
25 strata occurring on Buck Butte.

26 "31. Testimony reveals substantial uncertainty as to
the mechanism of groundwater movement through the
lignite particularly in regard to fractures and
general saturation seepage.

"32. The testimony by the applicant, particularly that
of the geologist and hydrologist, reveals no site

1 specific data demonstrating the hydraulic
2 relationship of the test site, the upper lignite
3 layer to be disturbed and the springs serving
4 ranches to the northwest."

5 The Wallowa County Court concluded:

6 "A. The proposed excavation activity is an
7 appropriate conditional use within EFU zoned
8 lands, but not all potential sites within the EFU
9 zone may be appropriate for such a use, given the
10 need to protect adjacent lands, and the general
11 welfare of the county.

12 "B. Applicant has not satisfactorily established that
13 there is no significant risk to the groundwater
14 springs serving adjacent landowners. There was
15 inconsistent and conflicting testimony on possible
16 hydrological impacts from the parties at interest.

17 "C. The proposed activity imposes a significant risk
18 of severe economic damage.

19 "D. The public need for the proposed us [sic] is not
20 reasonably met at the proposed site. The public
21 need would be better met at sites which are more
22 distant from springs which are essential to a
23 farming or ranching operation."

24 OPINION

25 First and Second Assignments of Error

26 Petitioner's first and second assignments of error are that
there was no substantial evidence to support the county's
denial of its conditional use permit. Petitioner contends it
presented substantial evidence showing compliance with each of
the relevant criteria and no substantial evidence was presented
to the contrary.¹ As petitioner argues:

"The only substantial evidence in the record requires
the finding by the County Court that the application
and proposal posed no threat to nearby springs and
water supplies.

1 "In contrast to the expert testimony presented by
2 petitioner, testimony in opposition is limited to
3 concerns over the springs and the belief by the Bacons
4 and others that the proposed test pit may impact those
5 springs. However, the testimony presented in
6 opposition cannot rise to a level of 'substantial
7 evidence' to justify a finding as made by the County
8 Court for Wallowa County. No one trained in
9 groundwater hydrology testified in opposition to this
10 request. No one other than Larry Bacon (page 72), and
11 Spencer Bacon (page 72) gave any basis for their
12 concerns for impact on their springs. The basis for
13 their concerns is limited to their beliefs that the
14 groundwater for their springs comes from some location
15 out of the area and might be cut off by the proposed
16 pit. The testimony of each of the experts called by
17 the applicants as witnesses establishes that the
18 groundwater for the spring comes from precipitation
19 falling directly onto the butte and not from any
20 outside source." Petition for Review 17-18.

11 The testimony in opposition referred to by petitioner is
12 that of nearby landowners who have operated farms and ranches
13 in the area for many years. They testified that it was not
14 possible for the springs on their property to be replenished
15 solely by precipitation on a neighboring butte. The basis for
16 their opinion was that the butte area which petitioner's
17 "experts" indicate acts as the collector of precipitation is
18 too small to provide all the water discharged by the springs.
19 The farmers and ranchers believe a good portion of the spring
20 water comes, not from the butte area, but from the Wallowa
21 Mountains. They believed the Wallowa Mountains' water flow
22 might be disrupted by Utah International's proposal. In
23 addition, a representative of petitioner acknowledged that two
24 general theories as to the origin of the groundwater existed.
25 One theory is that expressed by a United States Geological
26

1 Service (USGS) hydrologist who believes the groundwater comes
2 entirely from local precipitation. A second theory, she
3 acknowledged, was that held by a number of people in Wallowa
4 County and Don Baldwin, the United States Soil Conservation
5 Service, District Conservationist. They believe the
6 groundwater comes from the Wallowa Mountains.

7 A denial of a land use request is supported by substantial
8 evidence unless a reviewing body can say the applicant
9 sustained its burden as a matter of law. Jurgenson v. Union
10 County Court, 42 Or App 505, 600 P2d 1241 (1979). In this case
11 the applicant must prove, as a matter of law, that the
12 excavation authorized by the conditional use permit will not
13 adversely affect springs in the area. Whether the excavation
14 will adversely affect groundwater is not a matter entirely
15 within the knowledge or competence of lay persons. Proof of
16 this issue, therefore, necessarily is aided by testimony from
17 experts. But expert opinion testimony need not be accepted by
18 the trier of fact, in this case the county court, particularly
19 when the opinion is to the ultimate issue in the case. As was
20 recently expressed in W. R. Chamberlin and Co. v. Northwestern
21 Agencies, Inc., 289 Or 201, 611 P2d 652 (1980):

22 "The question to be decided is whether the jury should
23 have been bound to accept the expert's uncontradicted
24 opinion. We hold that the jury may reject this
25 conclusion because the weight of the opinion of an
26 expert witness is a matter particularly within the
province of the jury. * * *

"* * * Even if a jury accepts that an expert witness
has expressed an opinion which he believes to be

1 entirely truthful, the jury may not be persuaded on
2 the ultimate issue to be decided." 289 Or 201 at
3 207-208.

4 The "substantial" evidence upon which petitioner bases its
5 claim to permit entitlement is testimony of its experts who
6 opined that lignite removal would not adversely impact nearby
7 springs. Even if no contradictory testimony was introduced,
8 under the rule expressed in W. R. Chamberlin and Co. v.
9 Northwestern Agencies, Inc., supra, the Wallowa County Court,
10 acting as the trier of fact, was not required to accept the
11 expert testimony as establishing the ultimate fact in issue.

12 In Sims v. Tillamook County, 2 Or LUBA 83 (1980), we agreed
13 with petitioner that the county's decision denying a road
14 permit was not supported by substantial evidence in the whole
15 record. In Sims, the applicant for the road permit introduced
16 expert opinion that a proposed road would not materially affect
17 flood water discharge capacity or cause diversion of flood
18 water to areas not previously subject to such diversion. Safe
19 flood water discharge and diversion was a criterion which had
20 to be satisfied under the county's flood hazard zone
21 ordinance. The only testimony in the record directly related
22 to that criterion was that of petitioner's expert. In Sims, we
23 held:

24 " * * * There is no substantial evidence in this
25 record, as previously mentioned, that the proposed
26 road would materially affect flood water discharge
capacity or would cause diversion of flood water to
areas not previously subject to such diversion. The
county was not necessarily required to accept the
opinion of petitioner's expert, a professional

1 registered engineer, with respect to the effect of the
2 road on discharge capacity and diversion of flood
3 waters. However, it can not, without some explanation
4 for doing so, simply ignore that testimony when there
5 is no testimony in the record which specifically
6 refutes the expert's opinion." 2 Or LUBA 89..

7 It would have been more consistent with the Supreme Court's
8 decision in W. R. Chamberlin and Co. v. Northwestern Agencies,
9 Inc., supra, for us to have held in Sims, supra, that findings
10 are inadequate when they fail to explain why uncontradicted
11 expert testimony is not believed, rather than to have held, as
12 we did, that no substantial evidence existed to support the
13 county's decision. In relying on W. R. Chamberlin, supra, we
14 recognize that in quasi-judicial land use cases, unlike jury
15 cases, there must exist written findings which provide the
16 basis for subsequent review of the county's decision.
17 Sunnyside Neighborhood v. Clackamas Co. Comm., 280 Or 3, 569
18 P2d 1063 (1977). A jury does not have to set forth its reasons
19 for disregarding an expert's testimony. In review of a jury
20 decision, an appellate court does not require an explanation of
21 why an expert's opinion was not followed. In review of a land
22 use case, however, a reviewing body, whether it be this Board
23 or a court, must know why the county decided not to follow an
24 expert's uncontradicted opinion. That explanation, if
25 applicable, should exist in the local government's findings.

26 We believe the Wallowa County Court's findings in this case
adequately explain why the opinions of petitioner's expert
witnesses were not convincing. The county court found:

1 "The testimony by the applicant, particularly that of
2 the geologist and hydrologist, reveals no site
3 specific data demonstrating the hydraulic relationship
4 of the test pit, the upper lignite layer to be
5 disturbed and the springs serving ranches to the
6 northwest."

7 The county found the applicant had not performed any drilling
8 activity at the site of the proposed pit and was uncertain as
9 to the quantity of water in the upper lignite layer at the test
10 site. This uncertainty existed because no pump test at the
11 site had been performed. The county found there was
12 "substantial uncertainty as to the relationship of spring
13 outcrops and geological strata occurring on Buck Butte."
14 Finally, the county found there was "substantial uncertainty as
15 to the mechanism of groundwater movement through the lignite
16 particularly in relation to fractures and general saturation
17 seepage."

18 The foregoing findings of fact indicate that Wallowa County
19 was not adequately convinced petitioner's test pit would not
20 harm the groundwater and springs needed by area farmers and
21 ranchers. We believe the county's findings adequately explain
22 why it was not persuaded by petitioner's evidence and experts.

23 Third Assignment of Error

24 Petitioner's third assignment of error is as follows:

25 "The County Court for Wallowa County erred in basing
26 its decision of denial on findings not supported by
any substantial evidence within the record that the
public need for the proposed need [sic] is not
reasonably met at the proposed site and would be
better met at sites which are more distant from
springs, and in finding that the proposed activity
imposes a significant risk of severe economic damage."

1 The county court is alleged to have found that alternative
2 sites could better meet the need for the proposed use. It is
3 true that the county court made the following conclusion
4 concerning public need:

5 "The public need for the proposed us [sic] is not
6 reasonably met at the proposed site. The public need
7 would be better met at sites which are more distant
8 from springs which are essential to a farming or
ranching operation."

9 However, in the "Discussion" section of its findings document,
10 the Wallowa County Court made the following statement:

11 "Utah International also contends that the Planning
12 Commission's finding that other sites are available
13 which may satisfy the public need for mineral
14 exploration are not supported by substantial
15 evidence. The Court finds that although there very
16 well may be other available sites which would more
17 reasonably meet the public need without disrupting the
18 activities of adjacent landowners, consideration of
19 alternative available sites is applicable only in the
20 context of zoning change applications, and is not
21 appropriate to this decision on a conditional use
22 permit application. Kristensen v. Eugene Planning
23 Commission, supra. The Court therefore has not
24 considered any evidence presented with regard to
25 alternative sites."

26 Given the above quoted statement, we do not believe Wallowa
County based its decision to deny this conditional application
on the availability of alternative sites. Even if it had, we
would not view its action as grounds for reversal. Petitioner
does not contest that one of the criterion to be met was proof
that the test pit would not adversely impact groundwater. The
county concluded, as discussed above, that this standard had
not been complied with. Therefore, regardless of whether we

1 were to hold Wallowa County erred in applying the alternative
2 sites standard, basing its denial on petitioner's failure to
3 satisfy the groundwater damage standard is sufficient. Heilman
4 v. City of Roseburg, 39 Or App 71, 591 P2d 390 (1979); Bienz v.
5 City of Dayton, 29 Or App 761, 566 P2d 904 (1977).

6 Fourth Assignment of Error

7 Petitioner next alleges it was denied the right to a
8 hearing before a fair and impartial tribunal. According to
9 petitioner, two members of the planning commission should not
10 have participated in the planning commission's decision.
11 Apparently one planning commission member, before being
12 appointed to the commission, appeared, offered testimony, and
13 signed a petition in opposition to Utah International's
14 application. Another member of the commission allegedly
15 belongs to an organization opposing lignite mining in Wallowa
16 County in general and Utah International's application in
17 particular.

18 The contested decision arose out of the Wallowa County
19 Court's review of the Wallowa County Planning Commission denial
20 of applicant's request. Petitioner seeks review of the Wallowa
21 County Court decision, not the decision of the planning
22 commission. The county court's decision was de novo, with aid
23 of a record made before the planning commission to limit the
24 scope of testimony. The county court adopted its own order,
25 findings, conclusions, and reasons for its decision. Even if
26 we were to agree that the planning commission proceeding was

1 not fair to petitioner in some respect, we have been shown no
2 fatal link between the alleged lack of fairness at the planning
3 commission level and the county court decision before this
4 Board.²

5 For the foregoing reasons, the decision of the Wallowa
6 County Court is affirmed.

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FOOTNOTES

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Petitioner does not contest that the county was required by its plan and zoning ordinances to find the conditional use permit would have no adverse impact on surrounding springs.

2

Whether the planning commission members were active or had expressed views about a matter which later came before them would not necessarily preclude them from participating. The issue is whether the planning commission members who participated in the decision were biased. See Neuberger v. City of Portland, 288 Or 585, 607 P2d 722 (1980); Eastgate Theatre v. Bd. of County Comm'rs., 37 Or App 745, 588 P2d 640 (1978); Tierney v. Duris, Pay Less Properties, 21 Or App 613, 536 P2d 435 (1978).