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COVER PHOTO

Reichhold Energy Corporation testing Columbia County
13-34 at the Mist Gas Field. Flame is flared gas released during
the test to determine the potential of the well, the fourth well
completed to production by the operator during the year. Article
beginning on next page summarizes oil and gas activity in
Oregon during 1982.

OIL AND GAS NEWS

Clatsop County:

Diamond Shamrock Corporation has applied for the
following permits:

Permit no.	Operator, well name, API no.	Location	Status, depth (ft)
226	Diamond Shamrock Corp. Watzek 22-19 007-00012	NW ¼ sec. 19 T. 6 N., R. 6 W. 1,945 ft S. of N. line 2,151 ft E. of W. line	Location, 5,000.
227	Diamond Shamrock Corp. State of Oregon 23-33 007-00013	NE ¼ sec. 33 T. 6 N., R. 7 W. 1,753 ft N. of S. line 1,636 ft E. of W. line	Location, 7,000.

Diamond Shamrock Watzek 22-19 is located 1 mi north of
Quintana Watzek 30-1, which was dry and abandoned in 1981
at a total depth of 7,068 ft. The State of Oregon 23-33, the first
well to be permitted on state lands in the State of Oregon, is
located 4 mi southwest of Quintana Watzek 30-1.

Oregon Natural Gas Development Corporation Patton
32-9, located in sec. 9, T. 7 N., R. 8 W., 4 mi east of Olney,
was suspended November 4, 1982. The company plans to re-
enter the well and redrill to a proposed total depth of 4,000 ft.

Columbia County—Mist Gas Field

Reichhold Energy Corporation Columbia County 13-34,
located 1 mi north and east of producing wells at the northern
end of the field, was completed as a gas well flowing at the rate
of 473,000 cubic feet of gas per day. This brings the total of
producing wells in the field to 11. Currently, nine wells are on
line, of which six are producing and three are shut-in. Two
wells, Reichhold Paul 34-32 and Reichhold Columbia County
13-34, are awaiting pipeline connection. □

Department publishes thesis bibliography

The Oregon Department of Geology and Mineral Indus-
tries (DOGAMI) has made available a comprehensive list of
theses and dissertations on the geology of Oregon. The new
publication, DOGAMI Special Paper 11, is entitled *Theses and
Dissertations on the Geology of Oregon: Bibliography and
Index, 1899-1982*. It was designed to provide valuable biblio-
graphic information to anyone doing research on geology in
the state of Oregon.

Special Paper 11 contains a compilation of over 660 titles
of master's theses and doctoral dissertations. Accompanying
the text is a 25- by 36-inch black-and-white map of Oregon
(scale 1:1,000,000) showing the locations of study areas of the
theses and dissertations.

The bibliography is available now by mail or over the
counter from the Oregon Department of Geology and Mineral
Industries, 1005 State Office Building, 1400 S.W. Fifth
Avenue, Portland, OR 97201. The purchase price is \$6. Orders
under \$50 require prepayment. □

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Oil and gas exploration and development in Oregon, 1982

by Dennis L. Olmstead, Petroleum Engineer, Oregon Department of Geology and Mineral Industries

ABSTRACT

During 1982, the oil and gas industry in Oregon experienced the same slump that was occurring nationwide. Leasing was up due to issuance of leases applied for in 1981, but drilling footage was down 31 percent from the previous year.

There were five active operators in the state, including three new ones, drilling a total of 13 wells and five redrills. The bright spot for the year was the completion of four new gas producers in the Mist Gas Field by Reichhold Energy Corporation. Field production for the year was 3.4 billion cubic feet.

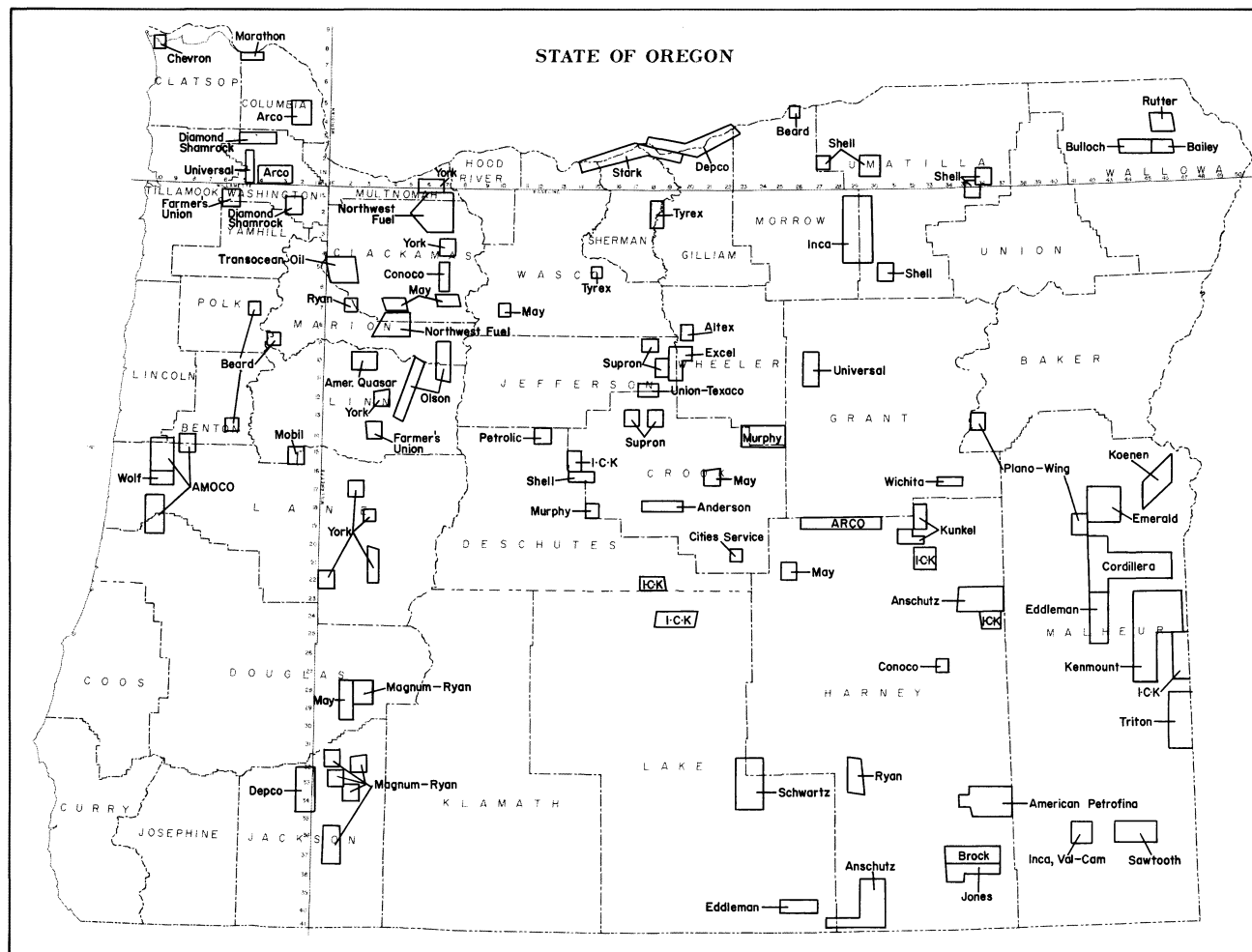
LEASING ACTIVITY

The leasing of oil and gas rights in 1982 was influenced most heavily by federal lands leased through the Bureau of Land Management (BLM). This has been the case for the past several years due to the boom in the oil industry and the subsequent rush to lease available land by industry, land brokers, and speculators. During 1981, a large backlog of lease applications accumulated with the BLM, which led to a directive late in the year to reduce the backlog by issuing these leases. This resulted in an increase in leases issued during 1982, while new applications decreased.

The BLM received lease applications for 433 parcels of land during 1982, totaling over 1.5 million acres. Interest again centered in central and eastern Oregon where most of the federal land is located. The Bureau issued leases on 2,249 parcels covering a total of 6.9 million acres during the year, bringing the total for federal leased lands to nearly 9.2 million acres in the state by year's end. This again tripled the federal acreage under lease, just as the 1981 activity had done.

Counties with the largest federal acreages leased included Harney with over 2 million acres, Malheur with about 1.6 million, and Crook and Lake Counties with about 950,000 acres each. Other counties in eastern Oregon with high lease totals were Grant, Jefferson, and Wasco. West of the Cascades, large amounts of federal acreage were leased in Clackamas, Coos, Douglas, Jackson, Lane, and Lincoln Counties, with over 100,000 acres each.

While this surge of leasing occurred, partially as a result of 1981 applications, a softening of oil prices and the inability of some speculators to sell their leases resulted in the withdrawal or termination of over two million acres of leased land. The leasing of federal land is a good indicator of industry interest in a state. Drilling usually lags by several years, however,

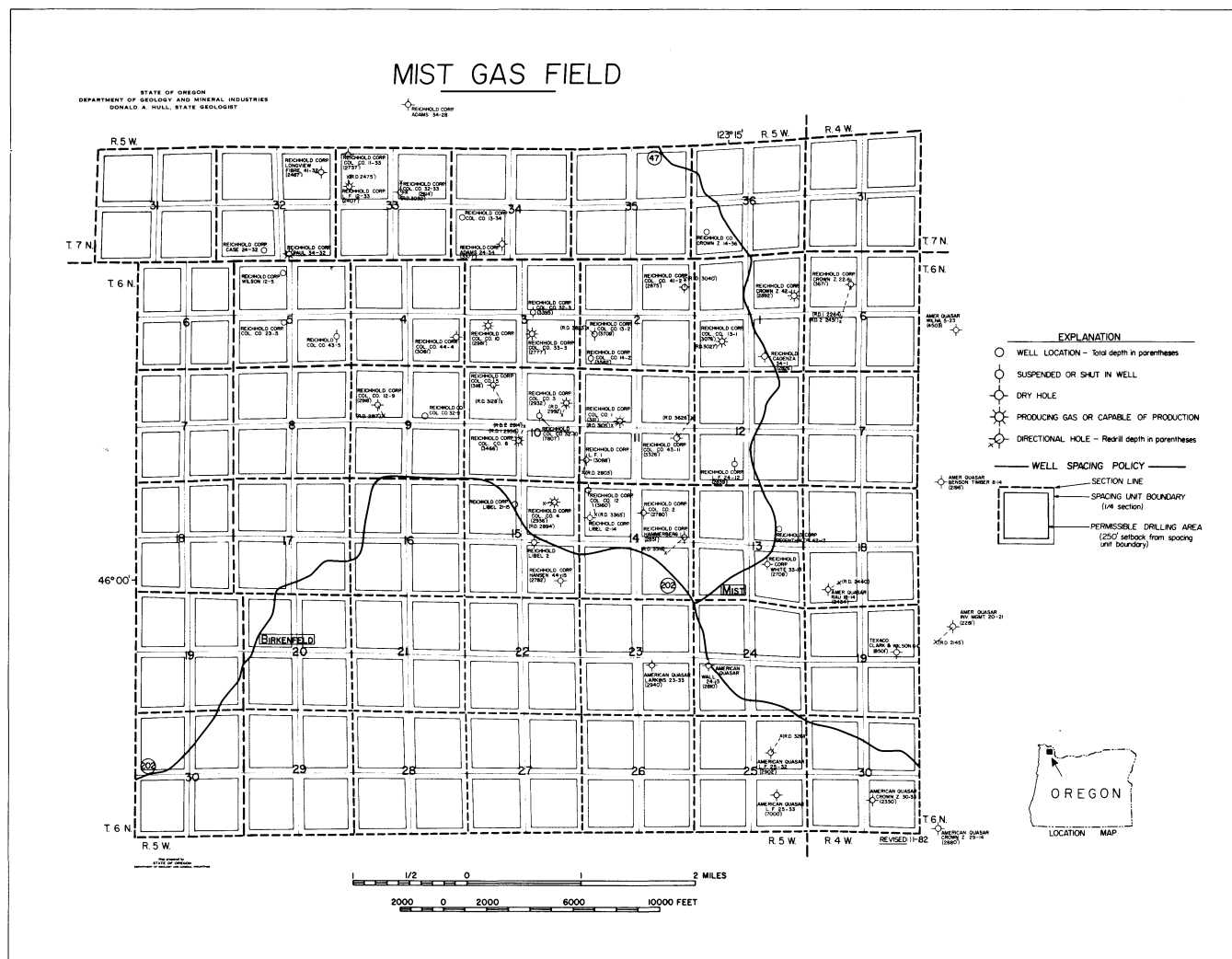


Major areas of oil and gas lease activity in Oregon, 1982. Map shows acreage applied for, issued, and assigned. Withdrawals not shown. Lease data courtesy Dolores Yates, LANDATA Reporting and Services.

Reichhold Energy Corporation of St. Helens, Oregon, was again the most active operator. All but two of the com-

The other two completions occurred at year's end on two new wells: Paul 34-32 in sec. 32, T. 7 N., R. 5 W., and Columbia County 13-34 in sec. 34, T. 7 N., R. 5 W. These wells had initial flow tests of 1.4 and 0.5 MMcfd, respectively.

During 1982, the number of completed gas wells at the Mist Gas Field increased from eight to 11, while the number of wells actually on production fluctuated between seven and nine. This is accounted for by two wells that were shut in during the year due to water production. The producers at the Mist Gas Field, which comprise all of Oregon's production, are operated by Reichhold Energy. In partnership with Reichhold are Northwest Natural Gas and Diamond Shamrock. From January to December, production rate increased from eight to ten million cfd. This will likely increase in early 1983 when Paul 34-32 and Columbia County 13-34 are put on line. The number of known pools at Mist now stands at eight, and several of these are one-well pools at present.



Mist Gas Field, Columbia County.

The federally controlled price of gas from the Mist Field has increased from \$3 per million Btu in January 1982, to \$3.27 per million Btu in December, according to the Federal Energy Regulatory Commission price schedule. At the average heating value of about 920 Btu per cubic foot, the gas value ranged from \$2.76 per Mcf to \$3 per Mcf during the year. The value of the 3.4 billion cubic feet of gas recovered during the year was \$10 million.

Table 1. *Oil and gas permits and drilling activity in Oregon, 1982*

Permit no.	Operator, well name, API no.	Location	Status and depth TD = total depth (ft) RD = redrill (ft)
86	Reichhold Energy Corp. Columbia County 4 009-00011-01	NE¼ sec. 15 T. 6 N., R. 5 W. Columbia County	Completed, gas; RD: 2,894.
147	Reichhold Energy Corp. Columbia County 12-9 009-00063-01	NW¼ sec. 9 T. 6 N., R. 5 W. Columbia County	Abandoned, dry hole; RD: 2,917.
182	Reichhold Energy Corp. Columbia County 13-1 009-00084-01	SW¼ sec. 1 T. 6 N., R. 5 W. Columbia County	Completed, gas; RD: 3,027.
191	Reichhold Energy Corp. Paul 34-32 009-00089	SE¼ sec. 32 T. 7 N., R. 5 W. Columbia County	Completed, gas; TD: 2,698.
199	Oregon Natural Gas Development Patton 32-9 007-00011	NE¼ sec. 9 T. 7 N., R. 8 W. Clatsop County	Suspended; TD: 10,159.
202	Florida Exploration Co. Florida Exploration 1-4 019-00014	NE¼ sec. 4 T. 21 S., R. 6 W. Douglas County	Abandoned, dry hole; TD: confidential.
203	Reichhold Energy Corp. Columbia County 41-2 009-00095	NE¼ sec. 2 T. 6 N., R. 5 W. Columbia County	Abandoned, dry hole; TD: 2,875 RD: 3,040.
205	Reichhold Energy Corp. Columbia County 32-33 009-00097	NE¼ sec. 33 T. 7 N., R. 5 W. Columbia County	Abandoned, dry hole; TD: 2,614 RD: 3,030.
206	Reichhold Energy Corp. Adams 34-28 009-00098	SE¼ sec. 28 T. 7 N., R. 5 W. Columbia County	Abandoned, dry hole; TD: 2,572.
209	Reichhold Energy Corp. Columbia County 43-5 009-00100	SE¼ sec. 5 T. 6 N., R. 5 W. Columbia County	Suspended; TD: 3,099.
210	Reichhold Energy Corp. Crown Zellerbach 34-26 009-00101	SE¼ sec. 26 T. 5 N., R. 4 W. Columbia County	Permit issued.
211	Reichhold Energy Corp. Crown Zellerbach 32-26 009-00102	NE¼ sec. 26 T. 5 N., R. 4 W. Columbia County	Abandoned, dry hole; TD: 6,501.
212	Z and S Construction Co. Recla 1 045-00023	SE¼ sec. 9 T. 19 S., R. 44 E. Malheur County	Abandoned, dry hole; TD: 4,745.
213	Florida Exploration Co. USA 1-25 019-00015	NW¼ sec. 25 T. 24 S., R. 8 W. Douglas County	Permit issued.
214	Florida Exploration Co. USA 1-22 019-00016	SE¼ sec. 22 T. 26 S., R. 8 W. Douglas County	Permit issued.
215	Florida Exploration Co. Eagle's View Mgmt. 1-26 019-00017	NW¼ sec. 26 T. 20 S., R. 6 W. Douglas County	Permit issued.
216	Nahama and Weagant Energy Co. Klohs 1 071-00003	NE¼ sec. 6 T. 3 S., R. 2 W. Yamhill County	Abandoned, dry hole; TD: 5,870.
217	Reichhold Energy Corp. Libel 21-15 009-00103	NW¼ sec. 15 T. 6 N., R. 5 W. Columbia County	Permit issued.
218	Reichhold Energy Corp. Columbia County 32-9 009-00104	NE¼ sec. 9 T. 6 N., R. 5 W. Columbia County	Permit issued.

Permit no.	Operator, well name, API no.	Location	Status and depth TD = total depth (ft) RD = redrill (ft)
219	Reichhold Energy Corp. Werner 14-21 047-00013	SW¼ sec. 21 T. 5 S., R. 2 W. Marion County	Abandoned, dry hole; TD: 3,354.
220	Reichhold Energy Corp. Crown Zellerbach 31-33 009-00105	NE¼ sec. 33 T. 6 N., R. 4 W. Columbia County	Permit issued.
221	Reichhold Energy Corp. Crown Zellerbach 44-23 009-00106	SE¼ sec. 23 T. 5 N., R. 4 W. Columbia County	Permit issued.
222	Reichhold Energy Corp. Siegenthaler 42-13 009-00107	NE¼ sec. 13 T. 6 N., R. 5 W. Columbia County	Permit issued.
223	Reichhold Energy Corp. Crown Zellerbach 14-36 009-00108	SW¼ sec. 36 T. 7 N., R. 5 W. Columbia County	Permit issued.
224	Reichhold Energy Corp. Libel 12-14 009-00109	NW¼ sec. 14 T. 6 N., R. 5 W. Columbia County	Abandoned, dry hole; TD: 2,681.
225	Reichhold Energy Corp. Columbia County 13-34 009-00110	SW¼ sec. 34 T. 7 N., R. 5 W. Columbia County	Completed; gas; TD: 2,822.



CXC Company of Houston developing seismic data by vibroseis method in Columbia County during June 1982. Truck generates energy that vibrates the earth for reflection seismology.

OTHER DEVELOPMENTS

During the year, a new trade organization, the Northwest Association of Petroleum Landmen, was founded in the Pacific Northwest. An organizational meeting and two business meetings were held, and membership numbered over 100 by year's end. The purpose of the group is to provide public relations for the profession in the Northwest and to present educational opportunities for members. The need for such an organization is a sign of expansion of the industry in the state.

The 1981 session of the Oregon legislature passed two bills dealing with oil and gas exploration and production. As a result, in 1982 the DOGAMI staff revised the Oregon Administrative Rules dealing with these activities. After accepting comments through the hearing process, rule changes became effective June 25 and August 16, 1982. Rules that generated the most discussion and controversy were (1) a rule opening up the possibility of a longer period of confidentiality for well data than the standard two years and (2) a compulsory integration rule to compensate operators for the risk of wildcat drilling by allowing the integration of the mineral rights owners in a drilling unit where there is unleased acreage. Other rule changes regarded definition changes, inclination surveys on wells, notification of mineral owners adjacent to deviated wells, and wording changes for better clarity. □

Surface mined land reclamation in Oregon, 1982

by Paul F. Lawson, Supervisor, Mined Land Reclamation Program, Albany Field Office,
Oregon Department of Geology and Mineral Industries

Mined land reclamation in Oregon made good progress in 1982, although indications are that the year was worse than any of the recent past for Oregon's mining industry. Although the staff level fluctuated and administration had increased responsibilities, the program completed 682 field inspections in 1982, compared to 912 in 1981 and 681 in 1980.

The first annual award honoring the most outstanding reclamation project and its operator was given this year. The unanimous choice of the selection committee was Cascade Pumice Company of Bend, managed by Charles (Chuck) Clark. Deserving runners-up included North Santiam Sand and Gravel Company of Stayton and the Coos County Highway Department at Coquille. Details were published in the December 1982 issue of *Oregon Geology*.

The Oregon Department of Geology and Mineral Industries had to initiate court proceedings in one case, alleging a violation of law in that an operator continued mining operations after a closure order had been issued for mining without the required security. After delays were exhausted, an out-of-court settlement was reached and a plea-bargained fine accepted.

One mining site in southwest Oregon was reclaimed by the Department, after the operation was found abandoned and the operator had declared bankruptcy. Reclamation was successfully completed by a local contractor; however, the incident further emphasized the need for a realistic bonding (security) ceiling. The Department will continue to seek legislation authorizing a bonding ceiling which will enable it, as charged by law, to complete reclamation of mined lands (of "aggregate minerals") in instances of operator default. Acreage not otherwise exempted and affected by surface mining after July 1, 1972, or, under another provision, January 1, 1981, is required to be reclaimed. Security to guarantee reclamation or to provide funds for the State to reclaim, in the event of operator default, is required for already affected acreage plus that acreage forecast to be affected during the 12 months following the permit anniversary. To achieve the goals of the program and to minimize costs to operators, the Department strongly encourages concurrent reclamation and reduces bonding levels in proportion to the reclamation completed. A recently completed study of 119 "aggregate" sites for which the Department has figures indicates an average of slightly less than 18 percent of their permitted land bonded, or 1,666 acres of 9,483 acres.

In July 1982, the Department presented testimony at a public hearing conducted by the Office of Surface Mining, U.S. Department of the Interior, on proposed permanent rules for Oregon concerning the regulation of surface coal mining. These rules are now in effect.

The Oregon Administrative Rules for Surface Mining (OAR 632) were amended in support of the 1981 revisions of the Oregon Revised Statutes (ORS 715.750 ff.). In line with the legislature's designation of "non-aggregate" mining operations, i.e. for coal and metal-bearing ores, OAR 632 was amended to contain two divisions, OAR 632, Div. 30, for aggregate mining and OAR 632, Div. 35, for non-aggregate mining. These amendments became effective in October 1982. Each new operator will now receive a copy of only those rules which actually pertain to his operation. This is intended to minimize confusion and has worked well.

ORS 715.780 authorizes county or city administration of all or parts of the Mined Land Reclamation Program under certain (various) provisions. A program for systematic review of the performance of local governments in exercising this authority has been initiated and will be continued.

Status of the Mined Land Reclamation Program

Total acreage reclaimed

1972 through Dec. 1980: 443
1972 through Dec. 1981: 805.75*
1972 through Dec. 1982: 961.65
(1982: 155.9)

* Includes voluntary reclamation not previously reported.

Total acreage under security to guarantee reclamation

December 31, 1980: 2,173
December 31, 1981: 2,606
December 31, 1982: 3,105

Uses to which acreage was reclaimed

	Agriculture	Forestry	Housing	Other**
1972 through 1980	251	6.5	37	148
During 1981	168	7	21	167.5
During 1982	105	14.5	0	36
Total	524	28	58	351.5

** "Other" includes a wide variety of uses but contains a high percentage of various kinds of water impoundments, sites for wildlife management, industrial-commercial construction, and permanent stockpiles.

Changes: New and closed sites, 1980-1982

(Permits issued for new sites, records closed, sites reclaimed, or activity legally terminated)

Year	Surface mining permit ¹		Limited exemption ²		Total exemption ³	
	New	Closed	New	Closed	New	Closed
1980	46	19	34	4	46	3
1981	84	32	50	7	51	26
1982 ⁴	35	34	24	14	106	28

¹ Sites requiring a fee, reclamation, and security.

² Sites requiring a fee, but legally exempt from reclamation and security until horizontal expansion occurs—after July 1, 1972, or January 1, 1981 (different provisions). Expansion requires conversion to surface mining permit; expansion area **only** is then subject to reclamation and bonding.

³ Sites legally exempt from fee, reclamation, and bonding—for various specific reasons, most commonly "access roads," size, and inactivity. (Surface mining permit sites **cannot** go to total exemption status if the surface mining permit has been utilized.)

⁴ During 1982 there were 87 other changes in status from one category to another.

Total number of sites under permit

As of	Surface mining permit	Limited exemption	Total exemption
December 31, 1980	348	333	571
December 31, 1981	399	338	587
December 31, 1982	400	287	648 □

BOOK REVIEW

by Ralph S. Mason, former State Geologist

Oregon Divided, by Samuel N. and Emily F. Dicken. Oregon Historical Society, 1982, 176 p., paperback \$10.95, cloth \$17.95.

This is not only a continuation of the author-team's earlier book, *The Making of Oregon: A Study in Historical Geography*, but a sincere and serviceable documentation of two centuries of Oregon history as it developed within the strictures imposed by the unique geographic features which form part of the western margin of the North American continent.

The authors have mercifully sidestepped the many maudlin mudholes of historical sentimentality and have crafted a clean-cut, no-nonsense analysis of the culture, economy, and politics that have been shaped by the geography which the pioneers discovered and with which their descendants have coped ever since.

Geography is often best appreciated from high in the sky, and the text is liberally sprinkled with aerial photos of views typical of the locale being discussed. Augmenting these pictures are nearly sixty maps and photos of plastic relief models which further impress the reader with man's response to his geographic surroundings. Each major geographic region is discussed from a variety of standpoints, including a running commentary of an airplane flight over each of the countrysides. In every region, the geographical imprint on the history of the area is carefully described.

Geography, as presented by the authors, is a far cry from the usual textbook offerings. Here a very much alive geography provides the scene for the unfolding of history, the settling of a wilderness, the harnessing of rivers, and the growth of industry and agriculture. All of the seven geographic divisions of the state have some hills, a few of them have little else. "Mountain men are always free," but their mountainous fortresses impose an inflexibility of opportunity. This is clearly revealed in the discussion of the southwestern Oregon basically one-crop economy, where logging and wood processing are the dominant factors. In the Deschutes-Umatilla plateau, where dry-land wheat is the only significant cash crop, the region is hemmed in by steep-sided canyons, the Cascade and Blue Mountains, and the Columbia River.

The philosopher Will Durant once said, "Civilization exists by geological consent, subject to change without notice." Fortunately geography, even though it is the end product of geologic forces, is considerably more stable. Apparently the authors have an unshaken faith in the stability of natural things and in their last chapter have ventured to make some predictions about Oregon for the rest of the century. If there are any shortcomings in this otherwise excellent book, they are to be found here. The authors see increasingly severe problems as the population grows: Transportation poses some questions as the need for mass transit looms, and timber production faces difficult times with annual cut exceeding growth. On the other hand, the outlook for agriculture is excellent, with improving markets and a good supply of water. Population growth has been accelerating (it took nearly 100 years to reach one million, but only fifteen to get to two million), but the overall density is still very low, and the populace is tending to gravitate to urban and away from rural areas. If the state reaches a projected population of 3,228,000 by the year 2000, it will, even then, have a density of only thirty-three people per square mile.

Unfortunately, projections of future population and tomorrow's economic levels often stumble on the ubiquitous unknowns of fads, federal policies, and foreign and domestic economic developments. The authors correctly assess the strengths and weaknesses of the present Oregon scene, but their predictions for the year 2000 are flawed by the rapidly shifting currents of social and economic change. The art of prediction is something like trying to write your name on a waterfall. The Swedes say it better: "It's difficult to prophesy, especially about the future."

The book closes with a plea for better education of the public in its awareness of the potentials and problems facing a population- and energy-shy state which, due to the quirks of geography, is divided into often widely disparate economic, political, and social enclaves. □

New Landsat mosaic map of Oregon available

The Environmental Remote Sensing Applications Laboratory (ERSAL) of Oregon State University announces the completion of a two-year project—a satellite map of the state of Oregon produced with 40-m resolution data at a scale of 1:500,000, the same scale as the data-acquisition scale.

The latest satellite mosaic represents the state-of-the-art in that it is composited from the most detailed satellite imagery of Oregon available through 1982, Landsat-3 RBV (return beam vidicon). The original imagery from which the mosaic was made is similar to black-and-white panchromatic photographs; however, it was acquired from 570 mi above Oregon with a resolution (detail) of better than 40 m. The exceptional resolution, cartographic qualities, and timeliness of the satellite photographs used in the construction of the Oregon Landsat Mosaic make it the most detailed up-to-date view of the state available today. The mosaic is also unique in that it is the first of its kind produced of any state in the United States.

From the launch of the first of the Landsat series in 1972, ERSAL has realized the importance of a satellite mosaic of the entire state of Oregon and has taken the responsibility of producing satellite mosaics of the state. The first satellite map was generated utilizing black and white satellite imagery from Landsat-1 (originally ERTS) in 1973. This was followed by the production of a false-color mosaic made from both Landsat-1 and -2 data in 1974.

As in the past, ERSAL is making the new satellite mosaic available to interested parties, both public and private. The mosaic has been published in two versions—a three-color and a one-color printing (ERSAL Publications 82-1 and 82-2, respectively). In the three-color printing, the satellite imagery is printed in brown, and overlying data from the 1:500,000 U.S. Geological Survey state map of Oregon are printed in blue (hydrology) and black (cultural features, such as roads, cities, and county boundaries). On the single-color printing, the satellite imagery is printed in black with lines of latitude and longitude at one-degree increments printed over the satellite imagery. Both versions come with a 1,000-word text on the side margin that briefly describes the mosaic and identifies some characteristic features on the mosaic (satellite map). On the side margin, two small insert maps of Oregon identify (a) county names and (b) the satellite images used in the mosaic.

The three-color mosaic is available from the Portland office of the Oregon Department of Geology and Mineral Industries, 1005 State Office Building, Portland, OR 97201, for a cost of \$8 over the counter or \$11 by mail. Orders under \$50 must be prepaid. □

Meteors sighted

On November 24, 1982, between 2:15 and 2:30 a.m., a fireball was sighted by Bill Crews and Randy Williams in the vicinity of Walker Rim, Klamath County. The fireball came down out of the northwest going to the southeast at an angle of about 45 degrees. The fireball, which was visible for about 3 seconds, was blue-green in color, with a yellow-green tail that was about four times the size of the fireball. The fireball was between a half or full moon in size. The fireball, which was very bright, lit up the area like daylight. It left a glowing ionization trail for a few seconds after it had passed across the sky. As it went below the horizon, it appeared to have flames behind it. After it disappeared, there was a bright flash from below the horizon.

Another fireball was sighted in southwest Oregon at 9:24 p.m., January 29, 1983. Three of the reports were from the Coos Bay-Bandon area, Coos County. There the fireball came from the zenith, going to the east and descending at almost 90 degrees for from one to three seconds. The fireball was reported to be from a quarter to a full moon in size. Its color varied with the reports, but most observers said it was blue white. It had a long tail, ranging from yellow to orange and red to blue. It lit up the area as in broad daylight, left a glowing trail, and exploded at the end of its path. An additional report of the same fireball came from a Grants Pass, Josephine County, observer who said the fireball came down at 35 degrees, had a very long tail, and disrupted below the horizon. There the sighting was accompanied and followed by a low rumbling sound.

An unusually large fireball was seen the morning of February 4, 1983, from several locations along the Pacific coast from British Columbia to Newport, Oregon. South of Astoria, Clatsop County, it was seen by the tender of the Youngs Bay Bridge at 7:02 a.m. The fireball traveled in a horizontal path over the Pacific from north to south. It was about the size of a full moon, red and green in color, and had a red tail that was 15 to 20 times the size of a full moon. The fireball was visible for from 2 to 4 seconds, made no sounds, and did not break up. The same fireball was observed at the same time in Seaside, also in Clatsop County, starting at 45 degrees above the horizon in the west-northwest and traveling to the west-southwest, where it was last seen about 10 degrees above the horizon. The Seaside observer reported that the fireball was three-fourths the size of a full moon, blue white in color, and had a very long blue-white tail that was ten times the size of the fireball. Again there were no sounds and no breakup.

These sightings have been reported to the Scientific Event Alert Network, Smithsonian Institution. Anyone with any additional information about these or other meteorite sightings should contact Dick Pugh, Cleveland High School, 3400 SE 26th Ave., Portland, OR 97202, phone (503) 233-6441. □

GSOC luncheon meetings announced

The Geological Society of the Oregon Country (GSOC) holds noon meetings in the Standard Plaza Building, 1100 SW Sixth Avenue, Portland, in Room A adjacent to the third floor cafeteria. Topics of upcoming meetings and speakers include:

March 18—*Roadside Geology of Oregon*, by Donald Barr, naturalist and GSOC President, 1968.

April 1—*History of DOGAMI and All Those Rocks*, by Ralph Mason, State Geologist, retired.

April 15—*England—Geology and Architecture*, by Hugh Owen, retired architect.

For additional information, contact Viola L. Oberson, Luncheon Program Chairwoman, phone (503) 282-3685. □

DOGAMI and BLM announce release of preliminary data from eastern Oregon geochemical survey

During the 1982 field season, the Oregon Department of Geology and Mineral Industries (DOGAMI) collected 1,491 geochemical samples (stream sediment, rock chips, and soil) from Bureau of Land Management (BLM)-managed lands in southeastern Oregon. Data from this survey are currently being evaluated, and the final report from this study will be released later this spring as DOGAMI Open-File Report 0-83-2, *Geology, Mineral Resources, and Mineral Potential of 18 BLM Wilderness Study Areas in Harney and Malheur Counties, Oregon*. Since several anomalous zones for gold and other metals were identified, on February 22, 1983, DOGAMI and the BLM released raw data on microfiche in a report entitled *Preliminary Geochemical Data, Mineral Assessment of Bureau of Land Management Wilderness Study Areas, Southeastern Oregon*. The report may be purchased for \$3 from the Portland office of the Oregon Department of Geology and Mineral Industries. Orders under \$50 must be prepaid. The release of Open-File Report 0-83-2 will be announced in a later issue of *Oregon Geology*. □

New release lists landslide studies for Oregon

A special bibliography on landslides, landslide deposits, and landslide hazards in Oregon has been made available by the Oregon Department of Geology and Mineral Industries (DOGAMI).

The new report is entitled *Bibliography of Landslide Deposits for the State of Oregon* and has been released as DOGAMI Open-File Report 0-82-6. It was produced by DOGAMI for the U.S. Geological Survey (USGS) and will be included in the USGS computerized data base on landslides in Oregon.

Approximately 300 titles were compiled from thorough searches of numerous bibliographies and published and unpublished articles, reports, and theses dealing with the geologic, engineering, and forestry-related aspects of landslides in Oregon. A separate listing identifies those studies that were published by DOGAMI. The bibliography will serve as a research tool for later work in this field.

The report is now available at the Oregon Department of Geology and Mineral Industries, 1005 State Office Building, 1400 S.W. Fifth Avenue, Portland, OR 97201, and may be purchased for \$6. Orders under \$50 require prepayment. □

SOSC gets \$1,000 grant

Southern Oregon State College's (SOSC) geology department recently received \$1,000 from the Freeport Exploration Co., a division of Freeport Minerals Company.

Chuck Verro, a senior geologist with Freeport, said the gift was made to SOSC because Freeport hires many of the college's graduates and finds them to be "well-trained, conscientious and diligent workers."

Verro said it was company policy to offer support to college and university geology departments. SOSC is the first college without a graduate program to receive a gift from Freeport.

Bill Purdom, a professor of geology, is chairman of the department.

— Grants Pass Courier

Geothermal Resources Council schedules symposium for May 1983

The Geothermal Resources Council is sponsoring a symposium on the role of heat in the development of energy and mineral resources in the northern Basin and Range province. The symposium, which will be held May 16-18, 1983, at the Pioneer Theatre, Reno, Nevada, is designed to provide discussion on a range of topics pertinent to geothermal energy, hydrocarbon resources, and ore deposits. It will include papers on regional tectonics, magmatism, structure and stratigraphy, active and fossil hydrothermal systems, and the geological, geophysical, and hydrological expressions of energy and ore resources of this important area of the western United States.

The presentations by leading researchers and explorationists from government, academia, and industry will attempt to promote a comprehensive approach to the problems of metallogenesis, petroleum formation and accumulation, and geothermal energy in the context of the continuing evolution of this portion of the western Cordillera.

To provide a look at some of the situations and locations discussed in the symposium, optional field trips have been scheduled before and after the meeting to Ely-Railroad Valley-Tonopah, Dixie Valley, Steamboat Springs, Virginia City, Brady/Desert Peak-Humboldt House-Golconda-Getchell, and Candelaria-Tonopah-Round Mountain.

For additional information, contact the Geothermal Resources Council, P.O. Box 1350, Davis, CA 95617, phone (916) 758-2360. □

Nature hides her secret because of her essential loftiness, but not by means of ruse.

—Albert Einstein

User guide to AGI bibliography and index published

Earth science students, researchers, and librarians can simplify literature searching by using the new *User Guide to the Bibliography and Index of Geology*, which is published by the American Geological Institute (AGI).

The guide tells users how to scan monthly issues of the *Bibliography and Index of Geology* for current research, how to plan systematic searches, and how to use the index.

The *User Guide to the Bibliography and Index of Geology*, edited by John Mulvihill, is 160 pages long and is available for \$8.95 from AGI's Customer Service Department, One Skyline Place, 5205 Leesburg Pike, Falls Church, VA 22041. For information on a discount available for bulk orders, call toll-free 1-800-336-4764. One copy of the *User Guide* will be mailed free of charge to each 1983 subscriber to the *Bibliography and Index of Geology*. □

DOGAMI updates list of open-file reports

The Oregon Department of Geology and Mineral Industries (DOGAMI) frequently releases information in open-file reports, which may be purchased by mail or over the counter from the Portland office. Names of available DOGAMI open-file reports and their prices are included on a recently updated open-file report list which is available free of charge from the Oregon Department of Geology and Mineral Industries, 1005 State Office Building, Portland, OR 97201, phone (503) 229-5580. □

New Code of Stratigraphic Nomenclature to become effective in August

At its 37th Annual Meeting held in New Orleans on October 19, 1982, the North American Commission on Stratigraphic Nomenclature (NACSN) formally adopted a new stratigraphic code. The new rules of procedure will be known as the *1983 North American Code of Stratigraphic Nomenclature*.

The *1983 Code* is substantially revised from the 1961 and 1970 American Stratigraphic Codes presently in general use. New classifications are provided for lithodemic (crystalline rock), magnetopolarity, allostratigraphic (discontinuity-bounded), polarity-chrono-stratigraphic, polarity-chronologic, diachronic, and geochronometric units. Geologic-climate units are deleted.

The *1983 Code* will be published in the American Association of Petroleum Geologists (AAPG) *Bulletin* and will become effective on the date of its publication, which is expected to be August 1983. Upon publication of the *1983 Code*, all previous NACSN codes will be vacated.

All geologic entities active in North America will be urged to formally adopt the *1983 Code* when it becomes effective. NACSN will wish to be advised of any such adoptions. □

New USGS publication correlates Tertiary rocks off southern Oregon coast

The U.S. Geological Survey (USGS) announces the publication of Miscellaneous Field Studies Map MF-1482, *Sections Showing Correlation of Tertiary Rocks Penetrated in Wells Drilled on the Southern Oregon Continental Margin*, by P.D. Snavely, Jr., H.C. Wagner, and W.W. Rau. The publication, which costs \$1.25, is available by mail from the Western Distribution Branch, USGS, Box 25286, Federal Center, Denver, CO 80225. □

What is a "geoligust"?

"A geoligust is something that grubs around in the woods looking for little rocks and stones. When he finds them he smiles as he beats them brutally with a little hammer. Sometimes if he is really mad he uses a great big hammer. When he don't find the rock he wants he walks around all day like he is lost. A geoligust has one big eye and one little eye like popeye. He usually looks through a magnifying glas, which incidently always hangs around his nek, with his little eye so he can tell if he has found a for sure rock or stone. He usually walks bent over all the time which is why he always looks so stooped. What you can see of his face looks like old leather, the rest is usually covered with snarled and bushy hair. He cusses tribul. He always has a back ake from carrying around bags of rocks to beat on. He hasn't figured out yet that there are rocks everywhere he goes. He keeps saying he is going back to school at the end of the summer, maybe they will teach him about that if he gets there. Every time he picks up a rock he wrights about it in a little book like it was a important thing to remembur, and if he ever luzes his little book he looks like nobody fed him for a week. His pants are always tore from rocks and sticks, and his shoes look like they was made of mud. People stare at him, forest kritters chase him, and he always looks wore out. I don't know why anyone wants to be a geoligust."

—Rex Orgill, *hellecopter pilot*
Timberline Aviation
Pinedale, Wyoming

Available publications

BULLETINS

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