

HYDROCARBON EXPLORATION AND OCCURRENCES IN OREGON

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STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
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OIL AND GAS INVESTIGATION 15

HYDROCARBON EXPLORATION AND OCCURRENCES IN OREGON

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PREFACE

After nearly 90 years of exploration, Oregon has over 350 wells and a producing gas field. This report recounts the history of exploration and gives an overview of the sedimentary basins of the state. It builds upon earlier work by Stewart and Newton (1965), listing all known wells drilled for the discovery of oil and gas as well as hydrocarbon occurrences in water wells, outcrops, and ground water.

As a supplement to this report, the Oregon Department of Geology and Mineral Industries (DOGAMI) has published a comprehensive *Bibliography of Oil and Gas Exploration and Development in Oregon, 1900-1988*, compiled by this author and released as DOGAMI Open-File Report O-89-10.

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HISTORY OF EXPLORATION

Exploration for oil and gas in Oregon began in 1902 when A.C. Churchill and Associates drilled two wells near the town of Newberg in the Willamette Valley. A small flow of nonflammable gas was the only reward for this drilling venture.

Since then, several minor shows of oil and numerous gas occurrences have been reported by operators of wells. In addition, natural gas from shallow water wells has been used for domestic purposes in several instances. Such use of natural gas probably caused the U.S. Geological Survey to list production for Oregon in 1907, 1908, and 1909 (Hill, 1908, 1909, 1910).

During the first two decades of the century, over 40 holes were drilled in Oregon by small independent operators. The wells were divided among the main sedimentary basins (Figure 1). Wells drilled east of the Cascade Range encountered mainly volcanic rocks and lacustrine sediments. Many of the wells listed in this publication as having hydrocarbon occurrences were actually drilled as shallow water wells but discovered minor amounts of oil or gas (Newton and Corcoran, 1963).

The Ontario Cooperative Oil and Gas Company well near the town of Ontario in eastern Oregon was one of the most significant tests during the early part of the century. The well blew out when a gas sand was encountered at 2,200 feet (ft), blowing mud and sand over the derrick crown (Washburne, 1911). The large flow was short lived, however, and after a few days only a small amount of gas remained.

After World War I, the increase in demand for oil brought on by the concern for national defense and by the automobile resulted in the drilling of about 45 more wells between 1920 and 1940. Western Oregon received the greatest attention during this period, because the geology of the Coast Range and Willamette Valley was believed to be the most favorable for oil and gas prospecting. No commercial discoveries were made as a result of the holes, but gas shows were common. The lack of marketing facilities for gas, however, meant there was little incentive to develop these discoveries. Two small gas wells were reported to have been completed by the Coast Oil Company near Coquille in Coos County, but gas was never delivered to customers (McCusker, 1937-1957). A number of holes were drilled in Klamath, Lake, Harney, and Wheeler Counties during this period, but only minor shows of gas were found.

After World War II, further increase in the demand for petroleum products resulted in renewed exploration activity in Oregon. Between 1940 and 1960, for the first time, several major companies, including Phillips, Richfield, and Texaco, joined the search by drilling in western Oregon. Five deep wells were drilled, mainly to test Oligocene and Eocene marine sediments of western Oregon. While fluorescence was noted in a few of the wells, geologic information obtained during this period was largely stratigraphic, since not more than one hole was drilled on any structure. Several independents, however, discovered interesting but noncommercial occurrences of petroleum. Extensive geologic studies

were conducted by General Petroleum Corporation, Humble Oil and Refining Company, and Sunray Mid-Continent Oil Company, culminating in the drilling of several exploratory wells. Oil was obtained in cores from the Community Oil and Gas Company well Scott 1 and the Uranium Oil and Gas Company well Ziedrich 1 near Roseburg in Douglas County, but the formations were not permeable enough to yield commercial amounts of oil or gas. During this postwar period, western Oregon was most often drilled, but construction of a gas pipeline through the eastern part of the state in 1954 shifted attention to eastern Oregon. Soon, six wells were drilled in the Western Snake River Basin. In 1958, Sunray Mid-Continent Oil Company, operator with Standard Oil of California, drilled a well southeast of Prineville in which gas was found in Cretaceous marine sediments. Since the gas occurred in a section that was predominantly shale, no tests were made. Linn County Oil Development Company drilled the Barr 1 well near Lebanon in 1958 and reported good shows of oil. Attempts to complete the well failed, however, and only a small flow of gas was recovered in tests.

During the 1960's and 1970's, exploration continued onshore and extended offshore for the first time. Shell, Standard, Union, and Gulf Oil Companies began seismic studies off the Northwest coast in 1961 and followed this with core drilling and extensive leasing of Federal Outer Continental Shelf lands in the mid-1960's. The seismic work by over a dozen major oil companies indicated a thick section of Tertiary marine sediments, ranging in age from Pleistocene through Eocene, off the coast of Oregon. In 1964, a lease sale netted \$27.8 million in cash bonus offers for 425,000 acres of Federal property off the coast of Oregon. Additional acreage was leased in a State offshore sale the same year. From 1965 to 1967, eight wells were drilled offshore, many of them discovering noncommercial quantities of oil and gas. The drilling revealed over 15,000 ft of siltstones, mudstones, and occasional sands. After several years' efforts and \$75 million were spent offshore, the leases were dropped in favor of onshore leases in 1967.

During the increase in offshore activity, onshore seismic work and occasional drilling also occurred. Humble leased extensive acreage and drilled two deep wells in southern Lake County in the early 1960's. In 1962, the Reserve Oil and Gas Company well Esmond 1, drilled near the town of Lebanon in the Willamette Valley, encountered a high-pressure gas zone and flowed gassy salt water at the rate of 2,000 barrels (bbl) per day. The zone was in Eocene volcanic rocks and marine sediments. Gulf Oil Corporation encountered a high-pressure zone in sediments of the same age while drilling Porter 1 near Halsey in 1964.

Leasing and drilling activity onshore increased further in the late 1970's, mainly in western Oregon, and culminated with a commercial gas discovery in 1979. Reichhold Energy Corporation, with partners Oregon Natural Gas Development and Diamond Shamrock, made the discovery and drilled four additional producers that year near the town of Mist in Columbia County. Subsequent drilling in the field

has resulted in the discovery of several additional pools of gas. A pipeline connecting the field to the regional natural-gas distribution network was completed by Northwest Natural Gas Company, and the field was producing gas by the beginning of 1980. After almost eighty years of exploration in the state of Oregon and 220 dry holes, gas production was finally a reality.

In 1981, American Quasar Petroleum Company completed a gas well in the Eocene Spencer Formation near the town of Lebanon in Linn County, but the well produced for only a few months. This gas well was the most encouraging indication in recent years that the Willamette Valley could be Oregon's next gas-producing province.

By the end of 1988, the Mist Gas Field had produced almost 36 billion cubic feet (Bcf) of gas and was undergoing

active exploration by ARCO Oil and Gas Company. Expansion of the field consisted of the discovery of several new pools each year, with reserves of about 1 Bcf of gas per pool. In addition, two depleted pools have been converted to a gas storage project by Oregon Natural Gas Development Company.

Exploration continues for additional fields in many parts of the state. For example, several wells have been drilled since 1980 in the Coos and Tyee Basins of southwestern Oregon, and major oil companies have shown recent interest by drilling the Cretaceous marine rocks of central Oregon.

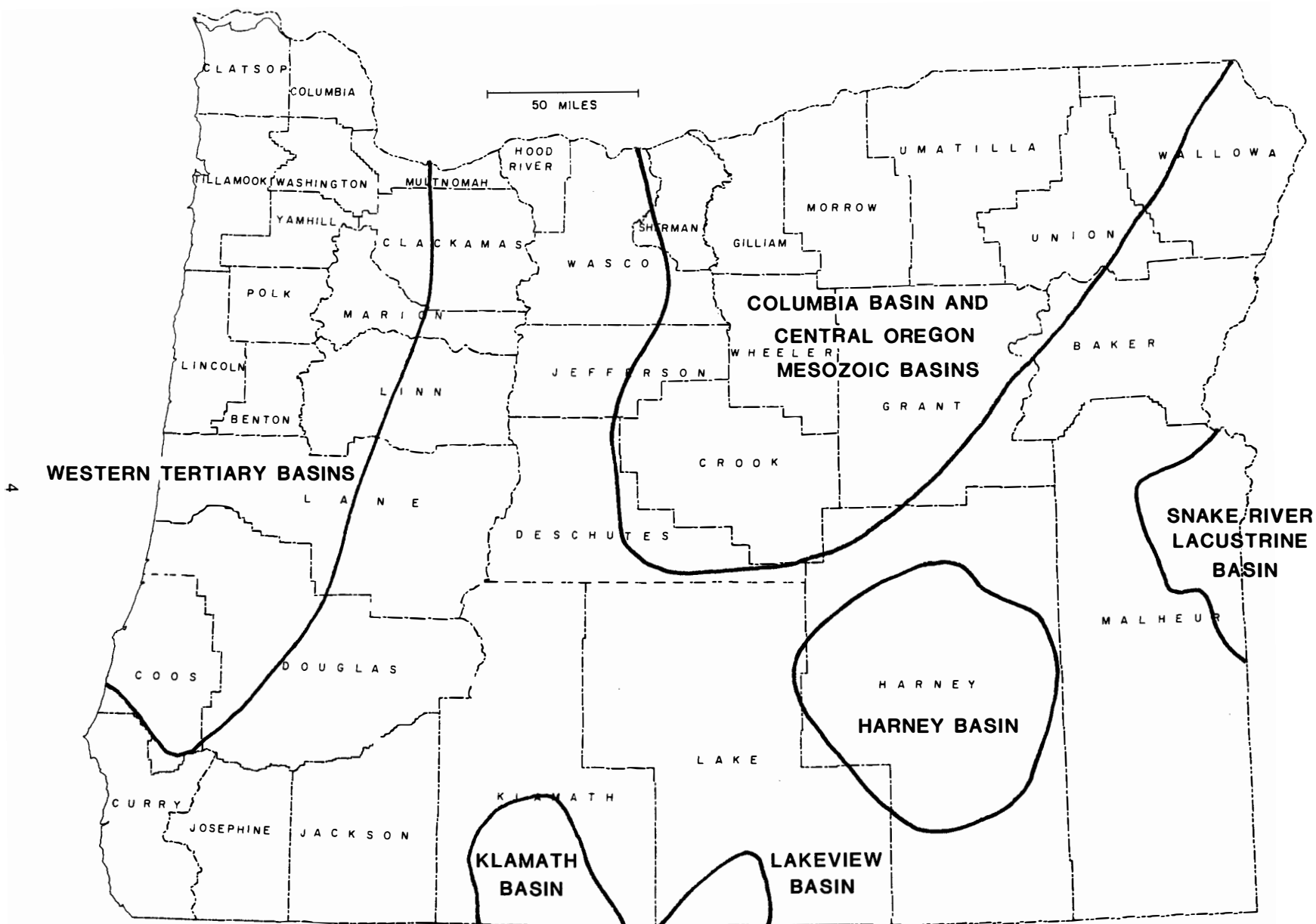


Figure 1. Approximate boundaries of major sedimentary basins in Oregon.

SEDIMENTARY BASINS

Oregon contains several provinces with hydrocarbon potential (Figure 1). The most explored is the Western Tertiary Basins province, which encompasses several marine basins in the western quarter of the state. The eastern portion of the state is more difficult to divide into basins, and the subdivision presented here will not conform to all other published discussions of the region. The centrally located Columbia Basin and the central Oregon Mesozoic Basins province are the major regions of marine sedimentary rocks, while the remaining basins, the Western Snake River, Harney, Klamath, and Lakeview Basins, are filled with lacustrine sediments.

Although Oregon has not experienced a high density of drilled wells, there is a lot to recommend it in terms of size and quantity of basins. Figure 1 shows the main basin areas in the state that have hydrocarbon potential.

During the Precambrian and most of the Paleozoic, the oceanic shoreline was east of the present location of Oregon. During the late Paleozoic and the Mesozoic, allochthonous terranes accreted onto the western coast of North America due to plate convergence and subduction of the intervening oceanic crust. The Blue and Klamath Mountains consist of these Paleozoic and Mesozoic subduction and arc complex rocks. Through time, due to the accretion of these terranes, the location of the coast has migrated westward toward its present location, with the present configuration developing during Oligocene time.

The erosional products from these terranes became principally marine sediments in adjacent fore-arc basins during the Tertiary. Oceanic sediments from the subducting Juan de Fuca Plate also contributed an accretionary wedge of sediments. The basins comprise the marine sedimentary basins of Oregon. Also present among the basins are oceanic basalts, the remnants of accreted seamounts. The eastern and southern Oregon basins differ from this pattern by having primarily lacustrine sediments, the result of sedimentation into basins formed by Basin and Range extension in a back-arc setting. Tertiary volcanic rocks cover much of these basin sediments, forming an impediment to exploration. The eastern part of the state cannot be easily subdivided into individual basins, but the names and locations shown are the ones most commonly used.

The Western Tertiary Basins province encompasses about 20,000 square miles of predominantly marine sedimentary rocks and includes such major basins as the Willamette, Tualatin, Astoria, Nehalem, Tillamook, Newport, Coos, and Tyee Basins (Figure 1). Up to 20,000 ft of sediments are found in these basins. The Coast Range anticlinorium, with a core of lower Eocene lavas in the north, occupies a large portion of the province. It is surrounded by several sedimentary basins. The sediments are mainly marine of Eocene age, formed in a littoral to deep-marine depositional environment.

The thick marine section of the Western Tertiary Basins is bounded on the east by the volcanic-arc rocks of the Western Cascades and on the south by the pre-Tertiary

Klamath Mountains. This series of basins resulted from a westward shift of the subduction zone during the middle Eocene from the location of today's High Cascades to the zone's present approximate position at the continental shelf. The resulting basins accumulated a composite thickness of 25,000 ft of sediments during the remainder of the Cenozoic. The uplift of the Coast Range started in the late Eocene. Volcanic centers possibly representing accreting seamounts subdivided the province, with volcanic highlands consisting of the Tillamook Volcanics in the north and Siletz River Volcanics farther south.

During the Paleogene, west- to northwest-flowing streams carried volcanoclastic sediments across a coastal plain at the site of the present Coast Range. The accumulation of woody debris formed carbonaceous shales and coals in many areas. During the mid-Eocene, the source of sediments changed from the Klamath Mountains (lithic petrofacies) to the area of the Idaho batholith (arkosic petrofacies). These sands were then buried by a younger, volcanolithic petrofacies due to the emergence of Western Cascade volcanism.

In the northern part of the province, the Nehalem Basin was a near-shore, wave-dominated, high-energy environment giving rise to the clean sands of the Cowlitz Formation. The 1979 discovery of the Mist Gas Field was made in these sands.

The western side of the province consists of several coastal basins: the Astoria, Tillamook, Newport, and Coos Basins. These depocenters of the Eocene have significant thicknesses (to 15,000 ft) of marine sediments. The basins have seen little exploration to date, with the exception of the Coos Basin, where drilling in the 1930's found gas shows and where drilling has continued on and off into the 1980's. Fewer than 15 wells have been drilled to depths of over 5,000 ft in the coastal basins onshore.

Several coastal basins, including the Astoria, Newport, and Coos Basins, have both onshore and offshore portions. The offshore portions were tested by wells drilled in the 1960's. Sediments of over 15,000 ft in thickness were penetrated, and, while siltstones and shales predominated, some sands were also seen. Oil and gas shows occurred in at least three of the wells off Oregon.

The southern Coast Range has several large structures in the Tyee Basin. Formations composed of turbidites could have clean-sand reservoir rocks.

The Willamette Basin is the most prominent of the Western Tertiary Basins. A part of the Willamette-Puget Trough, it may represent a relict fore-arc basin of early to mid-Cenozoic age. Seamounts and other marine volcanic rocks accreting to and forming along the continental margin isolated the basin, which filled with marine and some non-marine sediments. These sediments are derived from sources to the east and to some extent the south. The eastern boundary of the basin is vague due to the presence of the Western Cascade rocks.

A 1981 discovery in the central Willamette Valley produced a total of 10 million cubic feet (MMcf) of gas from Eocene rocks. Although this discovery was a very positive sign for the potential of the basin, it has not been followed by much further drilling. About 40 wells have been drilled in this basin, but well density is still very low. On the whole, despite the discoveries in the Mist Gas Field and the Willamette Valley, the Western Tertiary Basins province has not been extensively drilled.

The north-central part of the state has large Paleozoic/Mesozoic basins (Figure 1) consisting of unmetamorphosed Paleozoic to Mesozoic marine sediments. Thousands of feet of marine sandstones, shales, and limestones of Mississippian to Cretaceous age are hidden by tuffs and basalts, with the exception of several inliers where these rocks are exposed.

The Columbia Basin is a structural basin with greater than 20,000 ft of clastic sediment fill, covered by the Columbia River Basalt Group of Miocene age (Dickinson and Vigrass, 1965). Sediments are arc-derived marginal and nonmarine deposits of Cretaceous to late Tertiary age. Several Mesozoic fore-arc basins existed along a north-northwest-trending subduction zone (Kleinbans, Balcells-Baldwin, and Jones, 1984).

The Cretaceous inliers showing through the Columbia River Basalt Group have mudstones of neritic to bathyal depth that may be a mature, oil-prone source rock. These Cretaceous inliers are flysch-dominated fore-arc basin sediments representing a complex array of island arcs and basins along the continental margin in the Cretaceous. Isolated exposures of Cretaceous sediments occur in 13 inliers and are composed of fluvial-deltaic and clastic shelf sequences.

These basins result from allochthonous terranes of Paleozoic and Mesozoic age and subduction-complex and arc-basin sediments. The Oregon part of the basins is often called the southern Columbia Basin. Although this basin extends into Washington and Idaho, the area of thinnest basalt cover exists in Oregon. The largest of the inliers is in the Mitchell area. The sediments are surrounded at the surface mainly by Tertiary volcanic tuffs, basalts, and volcanoclastic sediments. Up to 9,000 ft of Cretaceous marine sediments crop out in the Mitchell inlier and in smaller inliers near the John Day uplift (Dickinson and Vigrass, 1965; Wilkinson and Oles, 1968). Marine sediments of Late Cretaceous age were penetrated by wells to the west of the John Day uplift in a part of the basin referred to as the Ochoco Basin, where there are over 15,000 ft of Cretaceous and Jurassic sediments (Thompson and others, 1984). Wells in Crook County

revealed more Cretaceous rocks than were known from outcrops of that age in the area. Black shales and coals of Paleocene age are found in the Heppner and Pilot Rock inliers, Morrow and Umatilla Counties.

The Mesozoic rocks appear to be a mature gas- and oil-prone source. In addition, there are early Tertiary arkosic sands and organic-rich shales forming deltaic deposits in southern Morrow County on the Blue Mountain anticline as well as in Crook County south of Mitchell (Fritts and Fisk, 1985a,b).

The southern and eastern parts of Oregon contain several intermontane, nonmarine, Tertiary basins. These basins formed primarily as graben or pull-apart basins after the onset of extensional tectonism in the Basin and Range about 40 m.y. B.P. Lacustrine fluvial silts and volcanic deposits exist in the Western Snake River, Harney, Klamath, and Lakeview Basins. Despite a low level of drilling activity for decades, there have been several gas shows in the basins.

The Snake River Basin covers a large portion of southwestern Idaho and eastern Oregon. The basin is bounded on the north and northwest by the pre-Tertiary Blue Mountains, on the east by the Idaho batholith, and on the south and west by a cover of Tertiary lavas. The sediments of the basin consist of tuffaceous lacustrine shales, siltstones and sandstones, alluvium, coal, and lavas. These Miocene to Pliocene rocks have a total stratigraphic thickness of 15,000 ft (Dole and Corcoran, 1954). Underlying rocks are Mesozoic and older tuffs, lavas, and pyroclastic rocks, and the sediments are covered in places by Miocene basalts and rhyolites. Drilling has occurred in both states sporadically since the early 1900's, with oil and gas shows in several wells (Table 1) (Newton and Corcoran, 1963). Water wells commonly have minor gas production as well.

The Harney Basin is located in the northernmost area of the Basin and Range structural province. The lithology is similar to that of the Western Snake River Basin, consisting of thick continental sediments and lavas (Corcoran, 1956). Several wells have been drilled in the basin, some with minor shows.

The Lakeview and Klamath Basins contain interbedded volcanics and lavas with lacustrine sediments. The lithology is similar to that of the other lacustrine basins but older (Eocene to Miocene). The Basin and Range block faulting has also caused a more complex structure than seen in other basins. Some gas shows have occurred in wells dating back to the 1940's. Humble Oil drilled the deepest wells, going to 9,500 ft and 12,000 ft with minor shows.

MIST GAS FIELD

The Mist Gas Field was discovered in 1979 in the Nehalem Basin in northwest Oregon. Exploration in the area dated back to the mid-1940's, when the Texas Company drilled two wells in the basin, one of them only 3 mi (miles) from the eventual discovery well. Permeable sandstones of the upper Eocene Cowlitz Formation were encountered, as well as a deeper sand at 7,900 ft.

Further exploration in Columbia and Clatsop Counties was conducted in the 1950's and 1960's by Shell, Standard, and Mobil Oil Companies. In the 1970's, Northwest Natural Gas Company and Reichhold Energy Company drilled several wells in Columbia County to look for a gas resource as well as a storage site for pipeline gas. Finally, after four dry holes, a redrill of Columbia County 1 resulted in the discovery.

After nine years of development drilling, the success ratio is about one in four, with nearly 30 pools discovered by the end of 1988. Production is from depths of 1,500-2,500 ft, with a total field production of almost 36 Bcf. The gas sand is about 600 ft thick, with 20 ft to 150 ft of gas.

The first two pools to be discovered have been converted to gas storage. Oregon Natural Gas Development Company has drilled several injection wells and monitor wells in the pools and will use the facility to store up to 7 Bcf for peak demand periods. The field has therefore evolved to fulfill both intentions of its early explorers, production and gas storage.

A map of the Mist Gas Field at a scale of 1:24,000, showing well locations, status, total depths, and years drilled, is available from DOGAMI.

USE OF TABLES AND BIBLIOGRAPHY

The remainder of this report consists of four data tables and a list of the references cited.

Table 1 lists oil and gas exploratory and development wells as well as known occurrences of hydrocarbons. Wells are grouped alphabetically by county and, within each county, are listed alphabetically by current operator or landowner. Previous operators or well names are added in parentheses. Notes for an entry may include information on the method of drilling, the geology, hydrocarbon shows encountered, references in the literature, or other information. Data for wells or hydrocarbon occurrences with no reference listed have come from DOGAMI files. Records and logs from oil and gas wells are held confidential for two years; therefore, some data from recent wells may not appear in the table. Data from most wells since 1950 may be seen at the DOGAMI Portland office.

Table 2 lists wells drilled in Federal waters off Oregon during the 1960's.

Table 3 contains gas analyses from exploratory wells, water wells, and other occurrences.

Table 4 lists water analyses made on samples from exploratory wells.

The reference list includes only the citations in the text and the data tables. To supplement this report, a comprehensive bibliography of references relevant to oil and gas exploration in Oregon has been compiled by this author and is available as DOGAMI Open-File Report O-89-10. This bibliography is not intended to be exhaustive but includes most of the relevant works known to this author. It also contains a county index, listing citations that are specific to a region or county, to aid in locating a report for a localized area.

ABBREVIATIONS USED IN TABLES

bbl	:	barrel(s)
Btu/cf	:	British thermal units per cubic foot
FEL	:	from east line of section
FNL	:	from north line of section
FSL	:	from south line of section
FWL	:	from west line of section
Gr	:	ground elevation
KB	:	Kelly bushing
Mcf	:	thousand cubic feet per day
ppm	:	parts per million
psi	:	pounds per square inch
RD1	:	first redrill
RD2	:	second redrill
TDS	:	total dissolved solids

McCusker	=	McCusker (1937-1957)
Oregon DOGAMI	=	Oregon Department of Geology and Mineral Industries

Table 1. Onshore wells and hydrocarbon occurrences

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
B A K E R C O U N T Y					
Baker Group	Brooks-Hawley 1	NW $\frac{1}{4}$ sec. 11/T10S/R37E 1,300' FNL; 1,220' FWL Elev. 4,400' Gr	1952	600	Cable tools. Lacustrine sediments.
Baker Group	Williams 1	SW $\frac{1}{4}$ sec. 2/T8S/R40E 1,320' FSL; 1,340' FWL Elev. 3,448' Gr	1952	257	Cable tools.
Eastern Oregon Light & Power Co.	Unity well	Sec. 15/T13S/R37E — — Elev. 4,500'	1941	1,700	Cable tools.
B E N T O N C O U N T Y					
Carter's Prod. & Refining. Synd. (Willamette Petroleum Synd.)	Unnamed	NW $\frac{1}{4}$ sec. 11/T12S/R5W 300' FNL; 2,100' FWL Elev. 230'	1932-34	2,150	Show of gas reported in saltwater sand at 120 feet (Weaver, 1945).
Lakin, Dick	Well 1	NW $\frac{1}{4}$ sec. 31/T10S/R7W 775' FNL; 450' FWL Elev. 245'	1931	400	Cable tools. Small amount of gas encountered. See gas analysis Table 3. (McCusker).
Lakin, Dick	Well 2	NW $\frac{1}{4}$ sec. 31/T10S/R7W 250' FNL; 250' FWL Elev. 275'	1931	700	Cable tools. Derrick was reportedly destroyed by a gas blow-out (McCusker).

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
C L A C K A M A S C O U N T Y					
City of Canby	Water well	SW $\frac{1}{4}$ sec. 33/T3S/R1E — —	1912	652	Reported a 9 foot bed of asphalt at 519 feet. (Piper, 1942).
Home Oil & Gas Co.	Unnamed	Elev. 160' Gr Near town of Clackamas/T2S/R2E — —	1910	1,200	Cable tools, no shows, Washburne, 1914).
RH Exploration	Anderson 1	SW $\frac{1}{4}$ sec. 29/T5S/R1E 580' FSL; 682' FWL Elev. 248' KB	1983	3,406	Mostly volcanics. Converted to water well.
10 RH Exploration	Rose 1	NE $\frac{1}{4}$ sec. 20/T5S/R1E 1,217' FSL; 1,407' FEL Elev. 204' KB	1983	3,479	Mostly volcanics. Converted to water well.
C L A T S O P C O U N T Y					
Astoria Shale	Unnamed	Astoria area	1914	— —	The Astoria Shale yields minute traces of oil by distillation at many locations. (Oil is found in concretionary limestone 11 miles northwest of Astoria at Beaver River, Wash) (Washburne, 1914).
Brown's Dairy Farm	Slough	Sec. 26/T8N/R10W — — — —	— —	— —	Gas present. See gas analysis Table 3. (Stewart and Newton, 1965 Washburne, 1914).

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
C L A T S O P C O U N T Y - C o n t i n u e d					
Diamond Shamrock Corp.	Boise Cascade 11-14	NW $\frac{1}{4}$ sec. 14/T7N/R7W 722' FNL; 1,370' FWL Elev. 583' KB	1981	7,864	No shows reported.
Diamond Shamrock Corp.	Clatsop County 33-11	SE $\frac{1}{4}$ sec. 11/T6N/R6W 1,858' FSL; 1,845' FEL Elev. 940' KB	1983	4,223	No shows reported.
Diamond Shamrock Corp.	Crown Zellerbach 11-28	NW $\frac{1}{4}$ sec. 26/T5N/R9W 1,150' FNL; 1,143' FWL Elev. 618' KB	1981	5,700	No shows reported.
11 Diamond Shamrock Corp.	Crown Zellerbach 31-17	NE $\frac{1}{4}$ sec. 17/T6N/R8W 1,300' FNL; 2,350' FEL Elev. 524' KB	1981	6,095	Top of Cowlitz at 4,790 feet.
Diamond Shamrock Corp.	Watzek 22-19	NW $\frac{1}{4}$ sec. 19/T6N/R6W 1,945' FNL; 2,151' FWL Elev. 645' KB	1983	5,190	Top of Cowlitz at 3,915 feet, Clark & Wilson sand at 4,387 feet.
Harrison, H. C.	Water well 1	Sec. 21/T8N/R10W — — Elev. 25'	1910	280	Gas blew water 10 or 15 feet above the top of the casing and sustained a good flame (Washburne, 1914).
Harrison, H. C.	Water well 2	Sec. 29/T8N/R9W — — — —	1910	650	— —
Herrick Mineral Spring	gas seep	SE $\frac{1}{4}$ sec. 23/T8N/R7W — — — —	— —	— —	Odorless inflammable gas from a spring near the Nehalem River (Washburne, 1914). See gas analysis, Table 3.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
CLATSOP COUNTY - Continued					
Lower Columbia Oil & Gas Co.	Brown 1	NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 25/T8N/R10W — — Elev. 20'±	1921-22	4,808	Gas shows and a trace of oil reported (Weaver, 1945).
Nahama & Weagant Energy Co.	Jewell 1-23	SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 23/T5N/R7W From S $\frac{1}{4}$ corner 686' N; 945' E Elev. 462'	1985	3,190	No shows.
Nehalem River bed	Unnamed	SW $\frac{1}{4}$ sec. 7/T4N/R7W — — — —	— —	— —	Bubbles issued from the gravel bottom of the Nehalem River (Washburne, 1914). See gas analysis, Table 3).
12 Olney seep	Oil seep	NW $\frac{1}{4}$ sec. 14/T7N/R9W 750' FNL; 2,450' FWL — —	— —	— —	Also called Watson oil seep. May be relict oil spill from early logging operations. Resembles California crude oil.
Oregon Natural Gas Dev.	Johnson 33-33	SE $\frac{1}{4}$ sec. 33/T8N/R8W 2,050' FSL; 1,900' FEL Elev. 521' KB	1981	10,006	Gas shows. Cased to 6,995 feet and tested zones.
Oregon Natural Gas Dev.	Patton 32-9 and Patton 32-9, Redrill 1	NE $\frac{1}{4}$ sec. 9/T7N/R8W 1,500' FNL; 2,000' FEL Elev. 752' KB	1982-83 RD1:1982-83	10,159 3,917	Ran long string of casing and tested zones. Recovered gassy mud. Redrill to the south to test shallow sand.
Quintana Petroleum Corp.	Watzek 30-1	NW $\frac{1}{4}$ sec. 30/T6N/R6W 1,769' FNL; 3,935' FEL Elev. 882' KB	1980	7,068	Gas shows. Cased to 7,060 feet and tested zones.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
C L A T S O P C O U N T Y - C o n t i n u e d					
Standard Oil Co. of California	Hoagland Unit 1	SE $\frac{1}{4}$ sec. 11/T7N/R10W From S $\frac{1}{4}$ corner 311' N; 499' E Elev. 72' Gr	1955	7,101	Rotary. Several fluorescent spots on fracture surfaces of core at 5,470-5,465 feet.
C O L U M B I A C O U N T Y					
American Quasar Petroleum Co.	Benson Timber 8-14	SW $\frac{1}{4}$ sec. 8/T6N/R4W 300' FSL; 1,046' FWL Elev. 1,017' KB	1981	2,196	Directional well, to the north. Top of Clark & Wilson sand at 1,464 feet.
13 American Quasar Petroleum Co.	Crown Zellerbach 14-21	NW $\frac{1}{4}$ sec. 14/T5N/R5W 952' FNL; 2,501' FWL Elev. 779' KB	1980	1,832	Refugian-Narizian boundary at 510 feet. Top of Clark & Wilson sand at 1,080 feet.
American Quasar Petroleum Co.	Crown Zellerbach 15-14	SW $\frac{1}{4}$ sec. 15/T6N/R4W 462' FNL; 948' FWL Elev. 1,364' KB	1979	3,219	Top of Clark & Wilson sand at 1,940 feet.
American Quasar Petroleum Co.	Crown Zellerbach 29-14	SW $\frac{1}{4}$ sec. 29/T6N/R4W 251' FSL; 819' FWL Elev. 578' KB	1979	2,880	Top of Clark & Wilson sand at 2,090 feet.
American Quasar Petroleum Co.	Crown Zellerbach 30-33	SE $\frac{1}{4}$ sec. 30/T6N/R4W 1,493' FSL; 2,179' FEL Elev. 853' KB	1980	2,350	Top of Clark & Wilson sand at 1,743 feet.
American Quasar Petroleum Co.	Investment Management 20-21 and Investment Management 20-21, Redrill 1	NW $\frac{1}{4}$ sec. 20/T6N/R4W 4,143' FSL; 1,600' FWL Elev. 639' KB	1980 RD1:1980	2,281 2,145	Top of Clark & Wilson sand at 1,464 feet in original hole.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
C O L U M B I A C O U N T Y - C o n t i n u e d					
American Quasar Petroleum Co.	Investment Management 34-21	NW $\frac{1}{4}$ sec. 34/T6N/R4W 1,184' FNL; 1,344' FWL Elev. 584' KB	1980	4,080	Top of Clark & Wilson sand at 1,655 feet.
American Quasar Petroleum Co.	Larkins 23-33	SE $\frac{1}{4}$ sec. 23/T6N/R5W 2,348' FSL; 1,948' FEL Elev. 709' KB	1980	2,940	Top of Clark & Wilson sand at 1,780 feet.
American Quasar Petroleum Co.	Longview Fibre 25-32 and Longview Fibre 25-32, Redrill 1	NE $\frac{1}{4}$ sec. 25/T6N/R5W 1,680' FNL; 1,640' FEL Elev. 888' KB	1980 RD1:1980	2,902 3,261	Top of Clark & Wilson sand at 2,140 feet in original hole. Redrill to the northeast.
14 American Quasar Petroleum Co.	Longview Fibre 25-33	SE $\frac{1}{4}$ sec. 25/T6N/R5W 1,686' FSL; 1,464' FEL Elev. 790' KB	1979	7,000	Refugian-Narizian boundary at 590 to 620 feet (McKeel, 1983). Top of Clark & Wilson sand at 1,130 feet.
American Quasar Petroleum Co.	Rau 18-14 and Rau 18-14, Redrill 1	SW $\frac{1}{4}$ sec. 18/T6N/R4W 900' FSL; 1,099' FWL Elev. 595' KB	1980 RD1:1980	2,434 2,440	Top of Clark & Wilson sand at 1,685 feet in original hole. Redrill to the north.
American Quasar Petroleum Co.	Wall 24-13	SW $\frac{1}{4}$ sec. 24/T6N/R5W 2,260' FSL; 680' FWL Elev. 546' KB	1980	2,810	Top of Clark & Wilson sand at 1,756 feet. Drill stem test was run.
American Quasar Petroleum Co.	Wilna 5-23	SW $\frac{1}{4}$ sec. 5/T6N/R4W 1,941' FSL; 1,964' FWL Elev. 1,510' KB	1981	4,503	Top of Clark & Wilson sand at 1,940 feet.
ARCO Oil and Gas Co.	Banzer 34-16	SE $\frac{1}{4}$ sec. 16/T6N/R5W 90' FSL; 1,992' FEL Elev. 578' KB	1985	4,902	Top of Clark & Wilson sand at 1,808 feet. Directional to the north.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
C O L U M B I A C O U N T Y - C o n t i n u e d					
ARCO Oil and Gas Co. (Reichhold Energy Corp.)	Busch 14-15	SW $\frac{1}{4}$ sec. 15/T6N/R5W 317' FSL; 1,187' FWL Elev. 542' KB	1984	2,258	Top of Clark & Wilson sand at 1,525 feet. Completed gas well.
ARCO Oil and Gas Co.	Cavenham Forest Industries 12-1 (Crown Zellerbach 12-1)	NW $\frac{1}{4}$ sec. 1/T5N/R5W 1,902' FNL; 1,001' FWL Elev. 803' KB	1985	1,721	Top of Clark & Wilson sand at 986 feet. Completed gas well.
ARCO Oil and Gas Co.	Cavenham Forest Industries 12-12	NW $\frac{1}{4}$ sec. 12/T5N/R5W 1,536' FNL; 386' FWL Elev. 970' Gr	1986	1,892	No shows.
5 ARCO Oil and Gas Co. (Reichhold Energy Corp.)	Cavenham Forest Industries 23-15 (Crown Zellerbach 23-15)	SW $\frac{1}{4}$ sec. 15/T5N/R4W From W $\frac{1}{4}$ corner 841' S; 1,800' E Elev. 721' Gr	1985	2,770	Top of Clark & Wilson sand at 2,312 feet. Completed gas well. Shut in. Nitrogen with methane.
ARCO Oil and Gas Co. (Reichhold Energy Corp.)	Cavenham Forest Industries 31-16 (Crown Zellerbach 31-16)	NE $\frac{1}{4}$ sec. 16/T5N/R4W 949' FNL; 2,479' FEL Elev. 838' Gr	1985	2,867	Top of Clark & Wilson sand at 2,158 feet. Completed gas well. Shut in. Nitrogen with methane.
ARCO Oil and Gas Co.	Cavenham Forest Industries 33-9	SE $\frac{1}{4}$ sec. 9/T5N/R4W 1,695' FSL; 2,525' FEL Elev. 1,122' KB	1986	3,242	Directional to the south.
ARCO Oil and Gas Co.	Cavenham Forest Industries 41-4 and Cavenham Forest Industries 41-4, Redrill 1	NE $\frac{1}{4}$ sec. 4/T5N/R4W 1,095' FNL; 865' FEL Elev. 887' Gr	1986 RD1:1986	2,584 1,935	Redrill to the northeast.
ARCO Oil and Gas Co.	Cavenham Forest Industries 41-9 and Cavenham Forest Industries 41-9, Redrill 1	NE $\frac{1}{4}$ sec. 9/T5N/R4W 1,244' FNL; 336' FEL Elev. 836'	1986 RD1:1986	2,500 2,501	Redrill to the northwest.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
C O L U M B I A C O U N T Y - C o n t i n u e d					
ARCO Oil and Gas Co. (Reichhold Energy Corp.)	Columbia County 4 and Columbia County 4, Redrill 1	NE $\frac{1}{4}$ sec. 15/T6N/R5W 1,000' FNL; 1,150' FEL Elev. 765' KB	1979 RD1:1982	2,936 2,894	Top of Clark & Wilson sand at 2,316 feet. Completed gas well. Redrill to the west.
ARCO Oil and Gas Co.	Columbia County 11-34-65	NW $\frac{1}{4}$ sec. 34/T6N/R5W 807' FNL; 1,031' FWL Elev. 1,030' KB	1987	1,950	Completed gas well.
ARCO Oil and Gas Co. (Reichhold Energy Corp.)	Columbia County 13-1 and Columbia County 13-1, Redrill 1	SW $\frac{1}{4}$ sec. 1/T6N/R5W 1,393' FSL; 1,236' FWL Elev. 1,175' KB	1981 RD1:1982	3,076 3,027	Top of Clark & Wilson sand in original hole at 2,410 feet. Redrill to the north. Converted to water disposal.
ARCO Oil and Gas Co. (Reichhold Energy Corp.)	Columbia County 13-34	SW $\frac{1}{4}$ sec. 34/T7N/R5W 2,386' FSL; 503' FWL Elev. 1,266' KB	1982	2,822	Top of Clark & Wilson sand at 2,640 feet. Completed gas well.
ARCO Oil and Gas Co. (Reichhold Energy Corp.)	Columbia County 14-23	NW $\frac{1}{4}$ sec. 26/T6N/R5W 103' FNL; 1,100' FWL Elev. 664' KB	1986	2,180	Top of Clark & Wilson sand at 1,355 feet measured depth. Directional to the north. Completed gas well in section 23.
ARCO Oil and Gas Co.	Columbia County 21-35-65	NW $\frac{1}{4}$ sec. 35/T6N/R5W 1,344' FNL; 1,570' FWL Elev. 682' KB	1987	1,924	Completed gas well.
ARCO Oil and Gas Co. (Reichhold Energy Corp.)	Columbia County 22-27	NW $\frac{1}{4}$ sec. 27/T6N/R5W 1,180' FNL; 2,339' FWL Elev. 861' KB	1985	2,500	Abandoned.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
C O L U M B I A C O U N T Y - C o n t i n u e d					
ARCO Oil and Gas Co.	Columbia County 23-19	SW $\frac{1}{4}$ sec. 19/T6N/R5W 2,558' FSL; 2,096' FWL Elev. 756' Gr	1985	3,440	Abandoned.
ARCO Oil and Gas Co. (Reichhold Energy Corp.)	Columbia County 23-22	SW $\frac{1}{4}$ sec. 22/T6N/R5W 2,341' FSL; 1,769' FWL Elev. 566' KB	1983	2,028	Top of Clark & Wilson sand at 1,330 feet. Completed gas well.
ARCO Oil and Gas Co.	Columbia County 31-8	NE $\frac{1}{4}$ sec. 8/T6N/R5W 660' FNL; 1,605' FEL Elev. 715' Gr	1986	4,054	Directional to the southwest. Abandoned.
17 ARCO Oil and Gas Co.	Columbia County 31-27-65	NE $\frac{1}{4}$ sec. 27/T6N/R5W 762' FNL; 1,842' FEL Elev. 758' KB	1987	6,700	Completed gas well.
ARCO Oil and Gas Co.	Columbia County 31-34-65	NE $\frac{1}{4}$ sec. 34/T6N/R5W 886' FNL; 1,780' FEL Elev. 912' KB	1987	2,344	Completed gas well.
ARCO Oil and Gas Co. (Reichhold Energy Corp.)	Columbia County 32-32	NE $\frac{1}{4}$ sec. 32/T6N/R5W 1,840' FNL; 1,237' FEL Elev. 839' KB	1985	2,711	Completed gas well.
ARCO Oil and Gas Co.	Columbia County 34-4-65	SE $\frac{1}{4}$ sec. 4/T6N/R5W From S $\frac{1}{4}$ corner 1,194' N; 629' E Elev. 881' KB	1987	3,382	Completed gas well.
ARCO Oil and Gas Co. (Reichhold Energy Corp.)	Columbia County 41-6	NE $\frac{1}{4}$ sec. 6/T5N/R5W 49' FNL; 306' FEL Elev. 826' KB	1986	2,750	Directional to the southwest. Abandoned.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
C O L U M B I A C O U N T Y - C o n t i n u e d					
ARCO Oil and Gas Co.	Columbia County 42-9-65 and Columbia County 42-9-65, Redrill 1	NW $\frac{1}{4}$ sec. 10/T6N/R5W 2,298' FNL; 103' FWL Elev. 777' KB	1987 RD1:1987	2,850 2,840	Original hole and redrill directional to the northwest. Abandoned.
ARCO Oil and Gas Co.	Columbia County 43-22	SE $\frac{1}{4}$ sec. 22/T6N/R5W From E $\frac{1}{4}$ corner 392' S; 879' W Elev. 709' KB	1984	2,252	Top of Clark & Wilson sand at 1,444 feet. Completed gas well.
ARCO Oil and Gas Co.	Columbia County 43-27	SE $\frac{1}{4}$ sec. 27/T6N/R5W 478' FNL; 741' FEL Elev. 911' KB	1984	2,441	Top of Clark & Wilson sand at 1,660 feet. Completed gas well.
ARCO Oil and Gas Co.	Columbia County 44-21	SE $\frac{1}{4}$ sec. 21/T6N/R5W 252' FSL; 483' FEL Elev. 880' KB	1985	4,500	Top of Clark & Wilson sand at 1,888 feet. Completed gas well.
ARCO Oil and Gas Co. (Reichhold Energy Corp.)	Crown Zellerbach 41-2	NE $\frac{1}{4}$ sec. 2/T5N/R5W 582' FNL; 772' FEL Elev. 951' KB	1985	2,109	Abandoned.
ARCO Oil and Gas Co.	Foster 42-30-65	NE $\frac{1}{4}$ sec. 30/T6N/R5W 2,303' FNL; 621' FEL Elev. 528' KB	1987	2,658	Completed gas well.
ARCO Oil and Gas Co.	Longview Fibre 11-31-64	NW $\frac{1}{4}$ sec. 31/T6N/R4W 633' FNL; 519' FWL Elev. 963' KB	1987	1,745	Completed gas well.
ARCO Oil and Gas Co. (Reichhold Energy Corp.)	Longview Fibre 12-33 and Longview Fibre 12-33, Redrill 1	NW $\frac{1}{4}$ sec. 33/T7N/R5W 1,750' FNL; 750' FWL Elev. 899' KB	1981 RD1:1981	2,407 2,475	Top of Clark & Wilson sand at 2,270 feet in redrill. Redrill to the north. Completed gas well.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
C O L U M B I A C O U N T Y - C o n t i n u e d					
ARCO Oil and Gas Co.	Longview Fibre 13-6	SW $\frac{1}{4}$ sec. 6/T5N/R4W From W $\frac{1}{4}$ corner 81' S; 592' E Elev. 794' KB	1986	1,473	Abandoned.
ARCO Oil and Gas Co. (Reichhold Energy Corp.)	Longview Fibre 23-25	SW $\frac{1}{4}$ sec. 25/T6N/R5W From W $\frac{1}{4}$ corner 578' S; 2,187' E Elev. 703' KB	1985	1,979	Completed gas well.
ARCO Oil and Gas Co. (Reichhold Energy Corp.)	Longview Fibre 23-36	SW $\frac{1}{4}$ sec. 36/T6N/R5W From S $\frac{1}{4}$ corner 2,583' N; 470' W Elev. 663' KB	1985	1,879	Top of Clark & Wilson sand at 1,028 feet. Completed gas well.
6 ARCO Oil and Gas Co.	Longview Fibre 41-35	NE $\frac{1}{4}$ sec. 35/T6N/R5W 636' FNL; 364' FEL Elev. 753' KB	1986	1,585	Completed gas well.
Champlin Petroleum Co.	Puckett 13-36	SW $\frac{1}{4}$ sec. 36/T8N/R5W 1,325' FSL; 800' FWL Elev. 13' KB	1984	5,720	Volcanics. Abandoned.
Exxon Corp.	GPE Federal Com. 1	SE $\frac{1}{4}$ sec. 3/T4N/R3W 816' FSL; 1,960' FEL Elev. 1,760' KB	1985	11,287	Abandoned.
Leadco, Inc.	CC-Jackson 22-17	NW $\frac{1}{4}$ sec. 17/T5N/R4W From center of sec. 447' N; 959' W Elev. 1,051' KB	1987	2,318	No shows.
Leaseholding Syndicate	Dutch Canyon	NW $\frac{1}{4}$ sec. 17/T3N/R2W 1,600' FNL; 2,400' FWL Elev. 250' Gr	1925-27	4,426	Cable tools. Gas at 1,850 feet blew water and mud 20 feet above the top of the casing. See gas analysis Table 3 (Weaver, 1945).

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
C O L U M B I A C O U N T Y - C o n t i n u e d					
Mitchell Petroleum Engineering Corp.	Draper 1	SW $\frac{1}{4}$ sec. 4/T3N/R4W — — Elev. 1,080' Gr	1946	— —	Venture given up shortly after it started (McCusker).
Oregon Natural Gas Dev. (Reichhold Energy Corp.)	Columbia County 1 and Columbia County 1, Redrill 1	NW $\frac{1}{4}$ sec. 11/T6N/R5W From center of sec. 310' N; 812' W Elev. 1,031' KB	1977 RD1:1979	3,111 3,105	Top of Clark & Wilson sand at 2,440 feet in original hole. Redrill to the southwest. Redrill in 1979 was Mist Gas Field discovery well. Converted to storage monitor well.
Oregon Natural Gas Dev. (Reichhold Energy Corp.)	Columbia County 6 and Columbia County 6, Redrills 1 and 2	SW $\frac{1}{4}$ sec. 10/T6N/R5W From center of sec. 689' S; 66' W Elev. 784' KB	1979 RD1:1979 RD2:1979	3,465 2,956 2,614	Top of Clark & Wilson sand at 2,740 feet in original hole. Redrill 1 to the northeast; redrill 2 to the northeast. Completed gas well. Converted to storage monitor well.
Oregon Natural Gas Dev. (Reichhold Energy Corp.)	Columbia County 10	SW $\frac{1}{4}$ sec. 3/T6N/R5W 1,976' FSL; 1,065' FWL Elev. 1,100' KB	1979	2,981	Top of Clark & Wilson sand at 2,667 feet. Completed gas well. Converted to storage monitor well.
Oregon Natural Gas Dev. (Reichhold Energy Corp.)	Columbia County 32-3	NE $\frac{1}{4}$ sec. 3/T6N/R5W From S $\frac{1}{4}$ corner 2,488' N; 478' E Elev. 1,308' KB	1980	3,395	Top of Clark & Wilson sand at 3,100 feet. Abandoned. Converted to storage monitor well.
Oregon Natural Gas Dev. (Reichhold Energy Corp.)	Columbia County 33-3	SE $\frac{1}{4}$ sec. 3/T6N/R5W From S $\frac{1}{4}$ corner 1,669' N; 380' E Elev. 1,039' KB	1980	2,777	Top of Clark & Wilson sand at 2,465 feet. Completed gas well. Converted to storage monitor well.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
C O L U M B I A C O U N T Y - C o n t i n u e d					
Oregon Natural Gas Dev. (Reichhold Energy Corp.)	IW 32D-10 (Columbia County 32-10)	NE $\frac{1}{4}$ sec. 10/T6N/R5W 2,181' FNL; 1,745' FEL Elev. 817' KB	1981	7,807	Top of Clark & Wilson sand at 2,128 feet. Converted to gas storage well.
Oregon Natural Gas Dev.	IW 33C-3	SE $\frac{1}{4}$ sec. 3/T6N/R5W 1,603' FSL; 2,377' FEL Elev. 1,041' KB	1987	2,772	Gas injection-withdrawal well.
Oregon Natural Gas Dev. (Reichhold Energy Corp.)	OM 11D-10 and OM 11D-10, Redrill 1 (Columbia County 5 and Columbia County 5, Redrill 1)	NW $\frac{1}{4}$ sec. 10/T6N/R5W 863' FNL; 1,318' FWL Elev. 958' KB	1979 RD1:1979	3,116 3,128	Top of Clark & Wilson sand at 2,568 feet in original hole. Redrill to the southeast. Converted to storage monitor well.
Oregon Natural Gas Dev.	OM 12C-3	NW $\frac{1}{4}$ sec. 3/T6N/R5W From W $\frac{1}{4}$ corner 456' N; 114' E Elev. 1,024' KB	1987	3,156	Gas storage monitor well.
Oregon Natural Gas Development	OM 12D-10	NW $\frac{1}{4}$ sec. 10/T6N/R5W From W $\frac{1}{4}$ corner 234' N; 975' E Elev. 816' KB	1986	2,805	Gas storage monitor well.
Oregon Natural Gas Dev.	OM 14A-3	SW $\frac{1}{4}$ sec. 3/T6N/R5W 894' FSL; 111' FWL Elev. 1,044' KB	1987	3,200	Gas storage monitor well.
Oregon Natural Gas Dev.	OM 32B-11	NE $\frac{1}{4}$ sec. 11/T6N/R5W 1,871' FNL; 1,946' FEL Elev. 703' KB	1987	3,205	Gas storage monitor well.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
C O L U M B I A C O U N T Y - C o n t i n u e d					
Oregon Natural Gas Development	OM 41A-10	NE $\frac{1}{4}$ sec. 10/T6N/R5W 1,069' FNL; 355' FEL Elev. 911' KB	1986	3,067	Gas storage monitor well.
Oregon Natural Gas Development	OM 44A-3	SE $\frac{1}{4}$ sec. 3/T6N/R5W 1,239' FSL; 267' FEL Elev. 1,183' KB	1986	3,655	Gas storage monitor well.
Oregon Natural Gas Dev. (Reichhold Energy Corp.)	ONGD 3 and ONGD 3, Redrill 1 (Columbia County 3 and Columbia County 3, Redrill 1)	NE $\frac{1}{4}$ sec. 10/T6N/R5W 1,561' FNL; 630' FEL Elev. 869' KB	1979 RD1:1979	2,932 2,992	Top of Clark & Wilson sand at 2,283 feet in original hole. Redrill to the southwest. Completed gas well. Converted to gas storage.
Reichhold Energy Corp.	Adams 24-34	SW $\frac{1}{4}$ sec. 34/T7N/R5W From S $\frac{1}{4}$ corner 634' N; 382' W Elev. 1,139' KB	1980	3,377	Top Clark & Wilson sand at 3,110 feet. Abandoned.
Reichhold Energy Corp.	Adams 32-34 and Adams 32-34, Redrill 1	NE $\frac{1}{4}$ sec. 34/T7N/R5W From N $\frac{1}{4}$ corner 1,550' S; 26' E Elev. 1,536' KB	1984 RD1:1984	3,284 3,109	Top of Clark & Wilson sand at 3,030 feet in original hole. Redrill to the north. Abandoned.
Reichhold Energy Corp.	Adams 34-28	SE $\frac{1}{4}$ sec. 28/T7N/R5W From S $\frac{1}{4}$ corner 1,087' N; 1,258' E Elev. 1,218' KB	1982	2,572	No Clark & Wilson sand encountered. Abandoned.
Reichhold Energy Corp.	Cadenza 34-1	SE $\frac{1}{4}$ sec. 1/T6N/R5W From S $\frac{1}{4}$ corner 652' N; 788' E Elev. 1,178' KB	1981	2,826	Top of Clark & Wilson sand at 2,195 feet. Abandoned.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
C O L U M B I A C O U N T Y - C o n t i n u e d					
Reichhold Energy Corp.	Columbia County 2	NE $\frac{1}{4}$ sec. 14/T6N/R5W From N $\frac{1}{4}$ corner 1,225' S; 326' E Elev. 550' KB	1978	2,780	Top of Clark & Wilson sand at 2,048 feet. Abandoned.
Reichhold Energy Corp.	Columbia County 11-10	NW $\frac{1}{4}$ sec. 10/T6N/R5W 427' FNL; 497' FWL Elev. 948' KB	1984	3,215	Top of Clark & Wilson sand at 2,912 feet. Abandoned.
Reichhold Energy Corp.	Columbia County 11-33	NW $\frac{1}{4}$ sec. 33/T7N/R5W 293' FNL; 524' FWL Elev. 967' KB	1981	2,737	Top of Clark & Wilson sand at 2,560 feet. Abandoned.
23 Reichhold Energy Corp.	Columbia County 12 and Columbia County 12, Redrill 1	NW $\frac{1}{4}$ sec. 14/T6N/R5W 39' FNL; 209' FWL Elev. 808' KB	1979	3,159	Top of Clark & Wilson sand at 2,456 feet in original hole. Redrill to the southeast. Abandoned.
			RD1:1980	3,365	
Reichhold Energy Corp.	Columbia County 12-9 and Columbia County 12-9, Redrill 1	NW $\frac{1}{4}$ sec. 9/T6N/R5W From W $\frac{1}{4}$ corner 795' N; 1,267' E Elev. 745' KB	1980	2,916	Top of Clark & Wilson sand at 2,335 feet in original hole. Redrill to the southeast. Abandoned.
			RD1:1982	2,917	
Reichhold Energy Corp.	Columbia County 13-2 and Columbia County 13-2, Redrill 1	SW $\frac{1}{4}$ sec. 2/T6N/R5W 1,626' FSL; 629' FWL Elev. 1,031' KB	1980	3,709	Top of Clark & Wilson sand at 3,326 feet in original hole. Redrill to the northwest. Abandoned.
			RD1:1980	3,823	
Reichhold Energy Corp.	Columbia County 14-2	SW $\frac{1}{4}$ sec. 2/T6N/R5W 330' FSL; 546' FWL Elev. 1,193' KB	1980	3,582	Top of Clark & Wilson sand at 3,090 feet. Abandoned.
Reichhold Energy Corp.	Columbia County 14-33	SW $\frac{1}{4}$ sec. 33/T7N/R5W 417' FSL; 626' FWL Elev. 772' KB	1983	3,105	Top of Clark & Wilson sand at 2,855 feet. Abandoned.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
C O L U M B I A C O U N T Y - C o n t i n u e d					
Reichhold Energy Corp.	Columbia County 23-4	SW $\frac{1}{4}$ sec. 4/T6N/R5W From S $\frac{1}{4}$ corner 1,666' N; 436' W Elev. 756' KB	1984	3,024	Top of Clark & Wilson sand at 2,648 feet. Abandoned.
Reichhold Energy Corp.	Columbia County 23-35	SW $\frac{1}{4}$ sec. 35/T7N/R5W From W $\frac{1}{4}$ corner 135' N; 897' E Elev. 1,371' KB	1985	3,593	Directional to the northwest. Abandoned.
Reichhold Energy Corp.	Columbia County 32-33 and Columbia County 32-33, Redrill 1	NW $\frac{1}{4}$ sec. 33/T7N/R5W From center of sec. 245' N; 7' W Elev. 1,116' KB	1982 RD1:1982	2,614 3,030	Original hole directional to the east. Redrill directional to the north. Clark & Wilson sand not encountered in original hole, top at 2,810 feet in redrill. Abandoned.
Reichhold Energy Corp.	Columbia County 33-8	SE $\frac{1}{4}$ sec. 8/T6N/R5W From E $\frac{1}{4}$ corner 470' S; 2,176' W Elev. 745' KB	1985	3,612	Top of Clark & Wilson sand at 3,432 feet. Abandoned.
Reichhold Energy Corp.	Columbia County 41-2 and Columbia County 41-2, Redrill 1	NE $\frac{1}{4}$ sec. 2/T6N/R5W 1,218' FNL; 482' FEL Elev. 1,194' KB	1982 RD1:1982	2,875 3,040	Top of Clark & Wilson sand at 2,555 feet in original hole. Redrill to the north. Abandoned.
Reichhold Energy Corp.	Columbia County 43-5	SE $\frac{1}{4}$ sec. 5/T6N/R5W 1,366' FSL; 301' FEL Elev. 627' KB	1982	3,099	Top of Clark & Wilson sand at 2,675 feet. Abandoned.
Reichhold Energy Corp.	Columbia County 43-11 and Columbia County 43-11, Redrill 1	SE $\frac{1}{4}$ sec. 11/T6N/R5W From E $\frac{1}{4}$ corner 460' S; 835' W Elev. 798' KB	1980 RD1:1980	3,326 3,626	Top of Clark & Wilson sand at 2,626 feet in original hole. Redrill to the northeast.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
C O L U M B I A C O U N T Y - C o n t i n u e d					
Reichhold Energy Corp.	Columbia County 43-34 and Columbia County 43-34, Redrill 1	SE $\frac{1}{4}$ sec. 34/T6N/R5W 2,116' FSL; 1,079' FEL Elev. 830' KB	1985 RD1:1985	2,100 2,225	Top of Clark & Wilson sand at 1,350 feet in original hole. Redrill to the north. Abandoned.
Reichhold Energy Corp.	Columbia County 44-4	SE $\frac{1}{4}$ sec. 4/T6N/R5W 1,304' FSL; 313' FEL Elev. 1,074' KB	1980	3,061	Top of Clark & Wilson sand at 2,980 feet. Abandoned.
Reichhold Energy Corp.	Crown Zellerbach 2	NW $\frac{1}{4}$ sec. 8/T4N/R3W From W $\frac{1}{4}$ corner 159' S; 427' E Elev. 689' KB	1975	5,805	Abandoned.
Reichhold Energy Corp.	Crown Zellerbach 4	NW $\frac{1}{4}$ sec. 36/T5N/R4W 1,692' FNL; 2,209' FWL Elev. 628' KB	1979	6,063	Abandoned.
Reichhold Energy Corp.	Crown Zellerbach 22-6 and Crown Zellerbach 22-6, Redrills 1 and 2	NW $\frac{1}{4}$ sec. 6/T6N/R4W From N $\frac{1}{4}$ corner 1,584' S; 468' W Elev. 1,435' KB	1980 RD1:1980 RD2:1980	3,671 2,264 2,431	Original hole directional to the southwest. Redrill 1 straight. Redrill 2 directional to the north. Top of Clark & Wilson sand in redrill 1 at 2,210 feet. Abandoned.
Reichhold Energy Corp.	Crown Zellerbach 23-26	SW $\frac{1}{4}$ sec. 26/T6N/R4W From W $\frac{1}{4}$ corner 357' S; 2,093' E Elev. 1,142' KB	1984	4,382	Top of Clark & Wilson sand at 2,075 feet. Abandoned.
Reichhold Energy Corp.	Crown Zellerbach 32-26	NE $\frac{1}{4}$ sec. 26/T5N/R4W 1,429' FNL; 1,886' FEL Elev. 898' KB	1982	6,501	Top of Clark & Wilson sand at 3,740 feet. Abandoned.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
C O L U M B I A C O U N T Y - C o n t i n u e d					
Reichhold Energy Corp.	Crown Zellerbach 34-26	SE $\frac{1}{4}$ sec. 26/T5N/R4W From center of sec. 1,255' S; 632' E Elev. 620' KB	1985	5,838	Abandoned.
Reichhold Energy Corp.	Crown Zellerbach 34-28	SE $\frac{1}{4}$ sec. 28/T6N/R4W From S $\frac{1}{4}$ corner 311' N; 391' E Elev. 561' KB	1984	3,654	Abandoned.
Reichhold Energy Corp.	Crown Zellerbach 42-1	NE $\frac{1}{4}$ sec. 1/T6N/R5W From E $\frac{1}{4}$ corner 850' N; 438' W Elev. 1,303' KB	1980	2,892	Top of Clark & Wilson sand at 2,220 feet. Completed gas well, later abandoned. Completed in Crown sand at 1,750 feet.
26 Reichhold Energy Corp.	Hammerberg 1 and Hammerberg 1, Redrill 1	NE $\frac{1}{4}$ sec. 14/T6N/R5W From E $\frac{1}{4}$ corner 209' N; 612' W Elev. 564' KB	1979 RD1:1979	2,851 3,318	Top of Clark & Wilson sand at 2,220 feet in original hole. Redrill to the southwest. Abandoned.
Reichhold Energy Corp.	Hansen 44-15	SE $\frac{1}{4}$ sec. 15/T6N/R5W 1,305' FSL; 857' FEL Elev. 541' KB	1981	2,782	Top of Clark & Wilson sand at 2,145 feet. Abandoned.
Reichhold Energy Corp.	Investment Management 21-20	NW $\frac{1}{4}$ sec. 20/T6N/R4W 4,380' FSL; 2,038' FWL Elev. 659' KB	1983	2,505	Top of Clark & Wilson sand at 1,290 feet. Abandoned.
Reichhold Energy Corp.	Libel 2	SE $\frac{1}{4}$ sec. 15/T6N/R5W From center of sec. 287' S; 1,095' E Elev. 531' KB	1979	2,857	Top of Clark & Wilson sand at 2,306 feet. Abandoned.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
C O L U M B I A C O U N T Y - C o n t i n u e d					
Reichhold Energy Corp.	Libel 12-14	NW $\frac{1}{4}$ sec. 14/T6N/R5W 1,819' FNL; 424' FWL Elev. 548' KB	1982	2,681	Top of Clark & Wilson sand at 2,004 feet. Abandoned.
Reichhold Energy Corp.	Longview Fibre 1 and Longview Fibre 1, Redrill 1	SW $\frac{1}{4}$ sec. 11/T6N/R5W 1,070' FSL; 304' FWL Elev. 844' KB	1977 RD1:1980	3,088 2,803	Top of Clark & Wilson sand at 2,340 feet in original hole. Redrill to the southwest. Noncommercial gas shows. 'See gas analysis Table 3.
Reichhold Energy Corp.	Longview Fibre 24-12	SW $\frac{1}{4}$ sec. 12/T6N/R5W From S $\frac{1}{4}$ corner 987' N; 759' W Elev. 640' KB	1980	2,839	Top of Clark & Wilson sand at 2,240 feet. Abandoned.
Reichhold Energy Corp.	Longview Fibre 41-32	NE $\frac{1}{4}$ sec. 32/T7N/R5W 1,178' FNL; 630' FEL Elev. 881' KB	1981	2,487	Top of Clark & Wilson sand at 2,292 feet. Abandoned.
Reichhold Energy Corp.	Longview Fibre 42-22	NE $\frac{1}{4}$ sec. 22/T6N/R5W From E $\frac{1}{4}$ corner 261' N; 563' W Elev. 766' KB	1985	2,278	Top of Clark & Wilson sand at 1,594 feet. Abandoned.
Reichhold Energy Corp.	Paul 34-32 and Paul 34-32, Redrills 1 and 2	SE $\frac{1}{4}$ sec. 32/T7N/R5W 300' FSL; 2,125' FEL Elev. 626' KB	1982 RD1:1984 RD2:1984	2,698 2,915 2,719	Top of Clark & Wilson sand at 2,522 feet in original hole. Completed gas well. Redrill 1 to the south. Redrill 2 to the north. Abandoned.
Reichhold Energy Corp.	Polak 31-12	NE $\frac{1}{4}$ sec. 12/T6N/R5W From N $\frac{1}{4}$ corner 424' S; 1,161' E Elev. 1,152' KB	1984	2,750	Top of Clark & Wilson sand at 1,962 feet. Abandoned.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
C O L U M B I A C O U N T Y - C o n t i n u e d					
Reichhold Energy Corp.	White 33-13	SE $\frac{1}{4}$ sec. 13/T6N/R5W From E $\frac{1}{4}$ corner 785' S; 1,630' W Elev. 566' KB	1980	2,708	Top of Clark & Wilson sand at 1,900 feet. Abandoned.
Reichhold Energy Corp.	Wilson 11-5	NW $\frac{1}{4}$ sec. 5/T6N/R5W 691' FNL; 1,317' FWL Elev. 610' KB	1983	2,827	Abandoned.
Tenneco Oil Co.	Columbia County 24-28	SW $\frac{1}{4}$ sec. 28/T6N/R5W 983' FSL; 2,395' FWL Elev. 744' KB	1986	1,928	Abandoned.
28 Tenneco Oil Co.	Columbia County 41-28	NE $\frac{1}{4}$ sec. 28/T6N/R5W 370' FNL; 307' FEL Elev. 943' KB	1985	2,178	Top of Clark & Wilson sand at 1,933 feet. Completed gas well.
The Texas Co.	Benson-Clatskanie 1	NE $\frac{1}{4}$ sec. 36/T7N/R4W From E $\frac{1}{4}$ corner 617' N; 1,274' W Elev. 286' KB	1945	5,660	Trace of oil and gas in core at 1,391-1,401 feet. Abandoned.
The Texas Co.	Clark & Wilson 6-1	NE $\frac{1}{4}$ sec. 19/T6N/R4W 3,042' FSL; 1,032' FEL Elev. 857' KB	1947	8,501	Top of Clark & Wilson sand at 3,012 feet. Gas shows at 3,060-3,300 feet and at 7,880-7,937 feet. Tests showed zones were wet. See gas analysis Table 3. Abandoned.
The Texas Co.	Potter 1 (core hole)	SE $\frac{1}{4}$ sec. 8/T4N/R3W — — — —	— —	— —	Show of gas. See gas analysis Table 3. (Oregon DOGAMI, 1962).

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
C O O S C O U N T Y					
AMOCO Production Co.	Weyerhaeuser F-1	NE $\frac{1}{4}$ sec. 10/T25S/R10W 1,673' FNL; 1,906' FEL Elev. 840' KB	1985	4,428	No shows reported. Abandoned.
Bear Creek Well	Flam 1	W $\frac{1}{4}$ corner sec. 35/T28S/R14W — — — —	1910	2,300	Cable tools. Encountered gas show at 800 feet.
Chandler, W. S.	George Vernon property (coal prospect hole)	Approx. sec. 4/T26S/R13W — — Elev. 350'	Before 1914	600	A quart of oil was reported obtained from the 1 7/8 inch coal prospect hole (Washburne, 1914).
29 Coast Oil Co. (Fat Elk Oil Co.)	Well 1 (deepened by Coast Oil Co.)	NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 11/T28S/R13W — — Elev. 137'	1929-34	2,526	Cable tools. A thin oil-bearing sand reported at 1,585 feet and gassy saltwater at 1,745 feet (McCusker). Gas blow at 1000'-1200'. Gas sand 1680' (Newton, 1980). See gas analysis Table 3.
Coast Oil Co. (Majestic Oil Co.)	Rhoades-Menasha 1	NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 32/T26S/R13W — — Elev. 80'	1938	1,365	Cable tools. Reported shows of gas and numerous coal layers (McCusker).
Coast Oil Co.	Well 2	NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 10/T28S/R13W — — Elev. 140'	1932-39	2,255	Cable tools. A good gas flow reported at 1,170 feet, unverified (McCusker).
Coast Oil Co.	Well 3	SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 10/T28S/R13W — — Elev. 140'	1939	1,640	Cable tools. Reported to be a small gas well (McCusker).

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
C O O S C O U N T Y - C o n t i n u e d					
Coast Oil Co.	Well 4	NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 11/T28S/R13W — — Elev. 140'	1939	1,640	Cable tools. Hit flowing saltwater (McCusker).
Ewell, John	Morrison 1	SE $\frac{1}{4}$ sec. 28/T28S/R14W — — — —	1936	1,200	Rotary. Converted to a water well.
Grant, Leone	Water well	SW $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 21/T28S/R14W — — — —	1971	100	Gas was observed during the drilling of the well (J.P. Drolet, personal communication, 1984).
30 Libby Mine area	Pitch coal occurrence	Approx. sec. 3 or 4/T26S/R13W — — Elev. 300'	— —	800	Pitch coal found in fractures of coal. It is a form of asphalt (Diller, 1901).
Northwest Exploration Co.	Coos County 1	SW $\frac{1}{4}$ sec. 14/T27S/R13W 1,717' FSL; 1,902' FWL Elev. 333' KB	1980	6,821	Spudded in Coaledo. Top of Lookingglass Formation reported at 3,115 feet; top of Roseburg Formation reported at 3,520 feet.
Northwest Exploration Co.	Fat Elk 1	SW $\frac{1}{4}$ sec. 15/T28S/R13W 2,586' FSL; 882' FWL Elev. 700' KB	1980	3,110	Gas shows in coal beds. Spudded in Coaledo. Top of Lookingglass Formation reported at 840 feet; top of Roseburg Formation reported at 1,260 feet.
Northwest Exploration Co.	Westport 1	SE $\frac{1}{4}$ sec. 16/T26S/R13W 732' FSL; 2,217' FEL Elev. 564' KB	1980	3,700	No shows reported. Spudded in Coaledo. Top of Roseburg volcanics reported at 3,116 feet.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
C O O S C O U N T Y - C o n t i n u e d					
Oregon Coastal Corp.	J. Coy 1	NW $\frac{1}{4}$ sec. 4/T29S/R14W 330' FNL; 330' FWL Elev. 200'	1953	1,894	No oil or gas shows reported (McCusker).
Pacific Petroleum Co. (Ewell, J. B.)	Morrison 1	SE $\frac{1}{4}$ sec. 28/T28S/R14W — — Elev. 210'	1941	2,282	Several oil and gas shows reported. See gas analysis Table 3 (Oregon DOGAMI, 1940, 1962).
Phillips Petroleum Co.	Dobbyns 1	SW $\frac{1}{4}$ sec. 28/T26S/R13W From W $\frac{1}{4}$ corner 330' S; 330' E Elev. 70'	1943-44	6,941	No oil or gas shows reported.
31 Sunset Oil Co. (Ewell, J. B.)	Bandon	Sec. 4/T29S/R14W — — Elev. 300'	1944	1,089	(McCusker).
Warren, E. M.	Coos County 1-7	SE $\frac{1}{4}$ sec. 7/T27S/R13W 450' FSL; 2,200' FEL Elev. 530' Gr	1963	6,337	Traces of gas and oil.
West Shore Oil Co.	Billy Button Well	NW $\frac{1}{4}$ sec. 23/T30S/R14W — — Elev. 570'	1913-19	2,600	— —
C R O O K C O U N T Y					
Barnard Ranch	Oil occurrence	NW $\frac{1}{4}$ sec. 23/T17S/R25E — — — —	1950	— —	Light gravity oil found inside ammonites.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
C R O O K C O U N T Y - C o n t i n u e d					
Gray, Lona	Berna 1	NE $\frac{1}{4}$ sec. 32/T19S/R18E 720' FNL; 300' FEL Elev. 4,380' Gr	1951-52	1,950	Cable tools. Encountered small flow of gas. See gas analysis Table 3 (Oregon DOGAMI, 1962).
Great Northern Oil & Gas Co.	Unnamed	— —	1937	— —	(McCusker).
Houston, Wayne	Kittridge 1	NE $\frac{1}{4}$ sec. 25/T19S/R19E — — Elev. 4,500' Gr	1951-52	679	Cable tools. Same rig that drilled the Lona Gray well. No shows reported (McCusker).
Maury Mt. Mine	Asphalt occurrence	Sec. 10/T17S/R19E 4 miles SE of Post	1940	— —	Cinnabar mine. Calcite and gilsonite accompanies ore in vein deposits (Wilkinson, 1940).
Standard Oil of California	Pexco-State 1	NE $\frac{1}{4}$ sec. 36/T20S/R20E 3,535' FSL; 3,006' FWL Elev. 5,704' Gr	1955	7,594	Traces of oil in cores at 6,900-7,400 feet.
Sunray Mid-Continent & Standard Oil of California	Bear Creek Unit 1	SE $\frac{1}{4}$ sec. 30/T17S/R19E 1,525' FSL; 1,038' FEL Elev. 4,238' Gr	1958	7,919	Gas shows at 3,980-4,020 feet. Not tested.
Suplee Post Office	Oil occurrence	E $\frac{1}{2}$ sec. 26/T17S/R25E — — — —	1965	— —	Brownish, sticky oil in Triassic(?) limestone. Contained in small, quartz-lined vugs.
Texaco, Inc.	Federal 1	SW $\frac{1}{4}$ sec. 31/T17S/R23E 1,605' FSL; 1,036' FWL Elev. 4,026' KB	1971	7,998	Gas shows.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
C R O O K C O U N T Y - C o n t i n u e d					
Texaco, Inc.	Logan Butte 17-1	NE $\frac{1}{4}$ sec. 17/T19S/R20E From N $\frac{1}{4}$ corner 1,670' S; 251' E Elev. 5,100' Gr	1981	6,525	Cores taken. No shows reported.
D E S C H U T E S C O U N T Y					
Seevers, E. W.	Water well	W $\frac{1}{2}$ SW $\frac{1}{4}$ sec. 24/T20S/R10E — — — —	1969	390	Sparks ignited the gas during pump installation (R. Main, personal communication, 1984).
D O U G L A S C O U N T Y					
Clark, Sheldon C.	"Oakland Well"	SE $\frac{1}{4}$ sec. 8/T25S/R5W — — Elev. 640'	1926	2,235	Reported considerable amount of gas with a trace of oil (Smith, 1924 and McCusker).
Community Oil & Gas Co. (Oil Developers, Inc.)	Scott 1	SW $\frac{1}{4}$ sec. 5/T27S/R6W 570' FSL; 485' FWL Elev. 400'	1954	3,693	Oil shows in cores 1,500-3,520 feet.
Diamond Drill Contract Co.	Coal prospect hole	Approx. sec. 21/T27S/R7W — — Elev. 800'	1910	1,109	Gas encountered at 605 feet.
Dillard, F. W.	Unnamed	Sec. 36/T27S/R7W — — Elev. 580'	1910	700	Cable tools. Some oil in shale reported (Washburne, 1914).

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
D O U G L A S C O U N T Y - C o n t i n u e d					
Florida Exploration Co.	F.E.C. 1-4	NE $\frac{1}{4}$ sec. 4/T21S/R6W 140' FNL; 445' FEL Elev. 798' KB	1982	5,962	Top of Tyee reported at 1,165 feet. Top of Fluornoy reported at 1,520 feet. Top of Roseburg reported at 2,095 feet. Overpressured saltwater at 2,275 feet. Gas shows.
General Petroleum Corp.	Long Bell 1	SW $\frac{1}{4}$ sec. 27/T20S/R10W 1,244' FSL; 1,640' FWL Elev. 48'	1957	9,004	Slight gas show at 5,345 feet. Faint amber cut in cores at 5,590 feet. Faint yellow fluorescence in core 5600-5630, 6,040-6,060 feet.
Graves, John	Water well	S $\frac{1}{4}$ corner sec. 26/T26S/R7W — — — —	1976±	270	Strong flow of petroleum gas. See gas analysis Table 3.
Hutchins & Marrs	Glory Hole 1	NW $\frac{1}{4}$ sec. 10/T27S/R7W 756' FNL; 922' FWL Elev. 715'	1983	2,987	Abandoned.
Hutchins & Marrs	Great Discovery 2	NW $\frac{1}{4}$ sec. 20/T30S/R9W 1,929' FNL; 1,459' FWL Elev. 810' KB	1984	3,510	Abandoned.
Kernin, W. F.	D. Coon 1	SE $\frac{1}{4}$ sec. 30/T28S/R6W 900' FNL; 900' FEL Elev. 940' Gr	1954-58	400	Cable tools.
Kernin, W. F.	Well 1	Sec. 16/T27S/R6W — — Elev. 800'	1931-48	3,900	Cable tools. Shows of gas and oil reported (McCusker).

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
D O U G L A S C O U N T Y - C o n t i n u e d					
Melrose Seep	Oil seep	Approx. sec. 21/T26S/R6W — — — —	1958	— —	Light oil reported seen rising on gas bubbles in South Umpqua River near bank. Near confluence of North and South Umpqua Rivers.
Mobil Oil Corp.	Sutherlin Unit 1	SW $\frac{1}{4}$ sec. 36/T24S/R5W 2,580' FSL; 2,480' FWL Elev. 511' KB	1979	13,177	Deepest well drilled in Oregon. Geo-pressured formation fluids. Tested 28 mcf/d at 3,000 feet. Top of Roseburg Formation reported at 5,235 feet. Mostly volcanics below 4,300 feet. Abandoned.
35 Northwest Exploration Co.	Sawyer Rapids 1	NE $\frac{1}{4}$ sec. 3/T23S/R9W 2,099' FNL; 250' FEL Elev. 412' KB	1980	5,563	No shows reported. Reported spudded in Elkton Formation; top of Tyee reported at 946 feet; top of Fluornoy reported at 2,350 feet. Abandoned.
Riddle Gas & Oil Prod., Ltd.	Aikins 1	SE $\frac{1}{4}$ sec. 27/T30S/R6W 1,647' FSL; 555' FEL Elev. 800'	1958	480	Cable tools. No shows reported.
Riddle Gas & Oil Prod., Ltd.	Dayton 1	SW $\frac{1}{4}$ sec. 34/T30S/R6W 960' FSL; 1,040' FWL Elev. 910' Gr	1955-58	1,370	Cable tools. A small flow of gas was found below 1,000 feet.
Riddle Gas & Oil Prod., Ltd.	Wollenberg 1	NE $\frac{1}{4}$ sec. 28/T30S/R6W 601' FNL; 35' FEL Elev. 830' Gr	1956-65	1,100	Cable tools. Gas shows below 700 feet; saltwater encountered at 755 feet.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
D O U G L A S C O U N T Y - C o n t i n u e d					
Union Oil Co.	Liles 1	SW $\frac{1}{4}$ sec. 27/T25S/R7W From E $\frac{1}{4}$ corner 173' S; 1,144' W Elev. 725'	1951	7,002	No shows reported except for one faint hydrocarbon cut.
Uranium Oil & Gas Co.	Ziedrich 1	NW $\frac{1}{4}$ sec. 16/T29S/R8W From N $\frac{1}{4}$ corner 1,570' S; 238' W Elev. 1,305'	1955	4,368	Bright yellow fluorescence in cores 4,020-4,050 feet. Some gas found at 1,900 feet.
Wilson Farm	Water well	Sec. 3/T28S/R7W — — Elev. 640'	1950	60+	Small amount of light oil and gas in well water. (Oregon DOGAMI, 1962). See gas analysis, Table 3.
G I L L I A M C O U N T Y					
Standard Oil of California	Kirkpatrick 1	SW $\frac{1}{4}$ sec. 6/T4S/R21E 2,909' FNL; 4,319' FEL Elev. 2,747' Gr	1956	8,726	Fluorescence in core at 8,268-8,278 feet. Bottomed in Pre-Tertiary marine sediments(?).
G R A N T C O U N T Y					
Griffith, William	Unnamed	Sec. 34/T9S/R28E — — Elev. 3,100'	1947	400±	(Napper, 1958).
Matuna, Joe	Water well	SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 30/T13S/R31E — — — —	1979	360	Gas could be collected enough to be ignited (J. Rogers, personal communication, 1984).

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
G R A N T C O U N T Y - C o n t i n u e d					
Seneca Oil & Gas Co.	Leimons 1	NE $\frac{1}{4}$ sec. 18/T17S/R29E — — Elev. 4,800'	1957	246	Cable tools. No shows.
Sunnyvale Oil & Gas Co.	Mitchell 1	SE $\frac{1}{4}$ sec. 14/T16S/R29E — — Elev. 5,200'	1957	1,168	No shows.
H A R N E Y C O U N T Y					
37 Central Oregon Oil & Gas Co.	"Dog Mt. Well"	SE $\frac{1}{4}$ sec. 24/T25S/R30E — — Elev. 4,240'	1912-20	3,807	Cable tools. Gas reported and a trace of oil (Buwalda, 1921; Piper and others, 1939).
Fidelity Oil & Gas Co.	Unnamed	Sec. 5/T26S/R32E — — Elev. 4,100'	1917-19	1,430	Small amount of gas reported (Buwalda, 1921).
Halbouty, Michael T.	Federal 1-10	NE $\frac{1}{4}$ sec. 10/T23S/R29E 2,299' FNL; 334' FEL Elev. 4,761'	1977	7,684	Volcanics.
Harney Valley Devel. Co.	11 prospect holes 1/2 mile apart.	Secs. 20, 21, 27, 28, 29, 30/T26S/R30E — — — —	1909	74 to 252	Holes reported to have found small amounts of gas (Washburne, 1911).
Harney Valley Devel. Co. (Great Western Oil Co.)	Fay 1	NE $\frac{1}{4}$ sec. 8/T24S/R32E — — Elev. 4,120'	1937	2,812	Cable tools. Hit a strong flow of hot (140 degrees Fahrenheit) sulfur water (McCusker).

Table 1: Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
H A R N E Y C O U N T Y - C o n t i n u e d					
Harney Valley Devel. Co. (Great Western Oil Co.)	Well 1	SE $\frac{1}{4}$ sec. 9/T24S/R33E — —	1937	3,838	Cable tools. Hit a strong flow of hot (140 degrees Fahrenheit) sulfur water (McCusker).
Harney Valley Devel. Co. (Great Western Oil Co.)	Well 2	SW $\frac{1}{4}$ sec. 9/T23S/R31E — —	— —	2,770	— —
Lawen store	Water well	T24S/R32 $\frac{1}{2}$ E — —	— —	— —	Water well near the store at Lawen. See gas analysis, Table 3, DOGAMI, 1962).
Leake, J.	Water well	SW $\frac{1}{4}$ sec. 28/T25S/R32E — —	1909	357	Reported to have encountered a strong gas flow with a trace of oil (Washburne, 1911).
Love Drilling Co.	Vogler 1	Elev. 4,105' SE $\frac{1}{4}$ sec. 25/T24S/R31E 660' FSL; 1,980' FEL Elev. 4,113'	1949-50	4,550	Rotary. No shows. (Piper and others, 1939).
Miller & Lux	Pacific Land and Livestock Co.	Sec. 16/T25S/R32E — —	1912	750	Oil shows.
Oregon Oil Co.	Unnamed 1	NW $\frac{1}{4}$ sec. 18/T25S/R32E — —	1928±	1,000	(Piper and others, 1939).
Oregon Oil Co.	Unnamed 2	Elev. 4,106' NW $\frac{1}{4}$ sec. 19/T25S/R32 $\frac{1}{2}$ E — — Elev. 4,097'	1928±	600	(Piper and others, 1939).

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
H A R N E Y C O U N T Y - C o n t i n u e d					
Oregon Western Coloniz. Co. (Davis Ranch)	Water well	SW $\frac{1}{4}$ sec. 1/T23S/R30E — — Elev. 4,240'	1930±	400	Paraffin reported in black sand at 175 feet (Piper and others, 1939).
Oroco Oil & Gas Co.	Portland Co. 1	NW $\frac{1}{4}$ sec. 18/T24S/R33E 1,287' FNL; 1,254' FWL Elev. 4,110'	1956	2,247	No shows.
State Drilling Co. (George Mefford)	Jones & Sullivan 1	SE $\frac{1}{4}$ sec. 6/T24S/R33E — — Elev. 4,115'	1939-59	1,513	Cable tools.
39 United Co. of Oregon	Fay 1	SE $\frac{1}{4}$ sec. 9/T24S/R33E — — Elev. 4,130' Gr	1945-48	3,826	No shows.
United Co. of Oregon	Weed & Poteet 1	NW $\frac{1}{4}$ sec. 9/T23S/R31E 2,848' FSL; 217' FWL Elev. 4,141' Gr	1949	6,480	No shows. In 1981 a temperature log showed 58 degrees Celsius at 2,624 feet.
Unknown operator	Howell well	NW $\frac{1}{4}$ sec. 26/T26S/R30E — — — —	— —	1,450	North shore of Harney Lake (Smith and Young, 1926).
J A C K S O N C O U N T Y					
Antelope Creek	Asphalt occurrence	Sec. 4/T38S/R2E — — — —	1956	— —	Small seams of asphalt in tuffaceous shale (Harrison and Eaton, 1920).

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
J A C K S O N C O U N T Y - C o n t i n u e d					
Hartman Oil Shale Co.	Oil shale occurrence	East side of Grizzly Peak, 16 miles northeast of Ashland	1924	— —	Oil was reported from bituminous shale, but failed to be economic (Smith, 1924).
Mundy, J. F.	"Roxy Ann"	NE $\frac{1}{4}$ sec. 26/T37S/R1W — — Elev. 1,900'	1919-21	1,000±	(Kellogg, 1920).
Trigonia Oil Co.	Unnamed	Sec. 14/T38S/R1W — — Elev. 1,700'	1920-24	2,257	Oil and gas shows reported (Kellogg, 1920, 1921).
4 Unknown operator	Unnamed 1	Sec. 25/T37S/R2W — — — —	1920±	1,240	— —
Unknown operator	Unnamed 2	SW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 20/T36S/R1W — — — —	1920±	1,250	— —
Unknown operator	Unnamed 3	NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 12/T38S/R1W — — — —	1920±	628	— —
Vulcan Oil & Gas Co.	Unnamed	Sams Valley. Approx. 6 miles from Gold Hill.	1920-21	— —	(Kellogg, 1920, 1921).

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
J E F F E R S O N C O U N T Y					
Agoil of Oregon (Rex, J. M.)	Grizzly 1	SE $\frac{1}{4}$ sec. 33/T12S/R15E 1,408' FSL; 2,818' FEL Elev. 3,454' KB	1977	3,500	Drilled in volcanics, reported as Clarno. Gas shows. See gas analysis Table 3, water analysis Table 4.
Agoil of Oregon	Hay Creek Ranch 2	NW $\frac{1}{4}$ sec. 6/T11S/R15E 1,620' FSL; 700' FEL Elev. 3,120' Gr	1979	2,065	No shows. Spudded in John Day; top of Clarno reported at 1,660 feet.
Harrison, R. F. (Central Oils, Inc.) (Northwest Oils, Inc.)	Morrow 1	SW $\frac{1}{4}$ sec. 18/T12S/R15E 700' FSL; 900' FWL Elev. 3,600' Gr	1952-69	3,300	Gas and coal reported.
Love Drilling Co.	Wickman 1	NE $\frac{1}{4}$ sec. 27/T11S/R15E — — Elev. 2,700'	1950	2,718	No shows reported (McCusker).
Northwest Oils, Inc.	Fulton 1	Center of sec. 17/T9S/R15E — — Elev. 1,735' Gr	1952	400	(McCusker).
K L A M A T H C O U N T Y					
Klamath Oil Co.	Manning 1	SE $\frac{1}{4}$ sec. 1/T40S/R9E 2,540' FSL; 400' FEL Elev. 4,100'	1919-30	1,965	(Buwalda, 1921).
Langell Valley Oil Co.	"Bonanza Well"	NE $\frac{1}{4}$ sec. 19/T39S/R12E — — Elev. 4,150'	1926-41	4,365	Cable tools. Hit hot water (200 degrees Fahrenheit) at 3,850 feet (Van Orstrand, 1938).

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
K L A M A T H C O U N T Y - C o n t i n u e d					
Oakland Interests	Oakland 1	SW $\frac{1}{4}$ sec. 19/T38S/R11E — —	1931	500	Cable tools (Van Orstrand, 1938).
The Crater Oil & Gas Co.	Well 1	Elev. 4,160' Gr T41S/R10E — —	1930's	685	Cable tools (Van Orstrand, 1938).
Yonna Valley Oil & Gas Co.	Dairy 1	Elev. 4,060' Gr Sec. 14/T39S/R11 $\frac{1}{2}$ E — —	1930±	2,000+	Cable tools. Flowed warm water at 550, 935 and 1,300 feet (85 degrees Fahrenheit) (Van Orstrand, 1938).
L A K E C O U N T Y					
Carter Ranch	Water well	T40S/R19E — —	1915±	370	Small flow of inflammable shallow gas with water. See gas analysis Table 3 (Buwalda, 1921).
Humble Oil & Refining Co.	Leavitt 1	NE $\frac{1}{4}$ sec. 2/T40S/R20E 421' FNL; 991' FEL Elev. 4,784'	1960-61	9,579	No shows reported by operator. Shows reported between 7300 and 7500 feet.
Humble Oil & Refining Co.	Thomas Creek Unit 1	NE $\frac{1}{4}$ sec. 18/T36S/R18E 2,240' FSL; 925' FEL Elev. 5,260'	1960	12,093	No shows. Drilled entirely in Tertiary volcanics and continental sediments.
Lakeview Oil Co.	Well 1	SE $\frac{1}{4}$ sec. 16/T39S/R19E — —	1940	2,870	Small amount of gas reported.
		Elev. 4,800' Gr			

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
L A K E C O U N T Y - C o n t i n u e d					
Lakeview Oil Co.	Well 2	Sec. 22/T39S/R19E — — Elev. 4,800'	1940-41	1,680	— —
Oregon Land & Development Co.	Tom 1	NE $\frac{1}{4}$ sec. 21/T27S/R18E 400' FNL; 400' FEL Elev. 4,300'	1953	635	— —
Stark, Lyell W.	Stockburger 1	NW $\frac{1}{4}$ sec. 15/T40S/R19E — — Elev. 4,700'	1953	1,730	Hit flow of warm, gassy water (80 degrees Fahrenheit).
43 Stark, Ralph W. (Tri-State Petroleum)	Fisher 1	SW $\frac{1}{4}$ sec. 22/T40S/R19E — — Elev. 4,750'	1950-51	3	Strong flow of gassy water. See gas analysis Table 3, water analysis, Table 4 (Oregon DOGAMI, 1962).
Stone, Charles A.	Shelley 3	SW $\frac{1}{4}$ sec. 20/T39S/R19E 2,290' FSL; 20' FWL Elev. 4,800'	1955	730	Oil show reported at 716 feet.
Tri-State Petroleum	Lehman 1	NE $\frac{1}{4}$ sec. 5/T38S/R20E — — — —	1949	1,200	No report on file.
L A N E C O U N T Y					
Guarantee Oil Co.	Unnamed 1	SE $\frac{1}{4}$ sec. 5/T18S/R3W — — Elev. 405'	1926-27	3,000	Cable tools. No shows (Piper, 1942).

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
LANE COUNTY - Continued					
Guarantee Oil Co.	Unnamed 2	NW $\frac{1}{4}$ sec. 28/T20S/R3W — — Elev. 875'	1920's	1,403	Cable tools (Piper, 1942).
Johnson Ranch	Oil occurrence	Approx. sec. 31/T17S/R11W North Fork Siuslaw River, 6 miles NE of Florence	1901	— —	Small amount of oil seen in basalt cavities, less common in joints. Found in a dike cutting Eocene marine seds. Oil was analyzed and two types of oils described (Harrison and Eaton, 1920).
Pleasant Hill District	Gas occurrence	Sec. 21/T18S/R2W — — — —	1944	— —	Gas seep reported in a spring on the west side of the ridge, $\frac{1}{2}$ to $\frac{1}{4}$ mile from road bounding section 21.
Sinclair Oil & Gas Co.	Federal-Mapleton 1	SE $\frac{1}{4}$ sec. 12/T16S/R10W 1,629' FSL; 246' FEL Elev. 483'	1955	12,880	Positive hydrocarbon cut in shale at 5,310-5,320 feet, also some black, tarry oil. Top of Siletz River volcanics at 6,600 feet \pm .
Unknown operator	"Eugene Well"	NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 8/T18S/R3W — — Elev. 440'	1920?	2,500	(Piper, 1942).
Unknown operator	Water well	T17S/R5W — — — —	— —	— —	Gas present. See gas analysis Table 3. (Stewart and Newton, 1965).

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
L I N C O L N C O U N T Y					
Damon Petroleum Corp. Inc. (Ehrens Petroleum and Development Inc.	Longview Fibre 1	NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 20/T9S/R11W 1,060' FNL; 1,584' FWL Elev. 190'	1984	1,889	Deepening of Ehrens Petroleum Longview Fibre 1. No shows, plugged and abandoned.
Damon Petroleum Corp. Inc. (Ehrens Petroleum and Development Inc.	Longview Fibre 2	SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 28/T9S/R11W 1,900' FNL; 1,100' FWL Elev. 350'	1980	2,004	Oil show reported at 315 and 865 feet. Taken over by Damon Petroleum for plugging.
Damon Petroleum Corp. Inc. (Ehrens Petroleum and Development Inc.	Longview Fibre 3	SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 21/T9S/R11W 1,915' FNL; 1,190' FWL Elev. 240'	1985	3,040	Yellow fluorescence at several intervals, gas bubbles in ditch. Abandoned.
5 Ehrens Petroleum and Development, Inc.	Longview Fibre 1	Sec. 20/T9S/R11W 1,060' FNL; 1,584' FEL Elev. 190' KB	1981	800	No shows reported.
Johnson Lumber Co.	Water well	Approx. NE $\frac{1}{4}$ sec. 18/T11S/R10W — — Elev. 250'	1948	1,900	Reported gas show at 335 feet and a strong gas zone at 1,330 feet.
Newport	Oil shale	Approx. sec. 10/T11S/R11W — — — —	1924	— —	Petroliferous "Acila shale." Good odor on fresh fracture (Smith and Young, 1926).
Oregon Oil & Gas Co.	Roberts 1	NE $\frac{1}{4}$ sec. 25/T10S/R8W — — Elev. 910'	1958	2,630	Gassy saltwater encountered below 1,200 feet. See gas analysis Table 3, (Oregon DOGAMI, 1962).
Pacific Coast Oil Development Co.	Unnamed	Approx. SE $\frac{1}{4}$ sec. 25/T13S/R12W — — Elev. 160'	1919±	1,175±	Reported a small amount of gas at 900 feet, which gave a 6 foot flame (Smith, 1924).

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
L I N C O L N C O U N T Y - C o n t i n u e d					
Unknown operator	Unnamed 1	In sand dunes north of Waldport	Before 1926	— —	(Smith and Young, 1926).
L I N N C O U N T Y					
American Quasar Petroleum Co.	Herschel 17-34	SE $\frac{1}{4}$ sec. 17/T10S/R3W 990' FSL; 1,570' FEL Elev. 211' KB	1980	2,856	Overpressured saltwater at 2,852 feet. Spencer formation reported from 794 to 2,160 feet.
46 American Quasar Petroleum Co.	Hickey 9-12	NW $\frac{1}{4}$ sec. 9/T12S/R2W 1,980' FNL; 990' FWL Elev. 340' KB	1981	4,692	Completed gas well. Produced for five months. Abandoned 1981. See gas analysis Table 3.
American Quasar Petroleum Co.	M & P Farms 33-24	SW $\frac{1}{4}$ sec. 33/T11S/R4W 660' FSL; 1,980' FWL Elev. 241' KB	1981	4,275	Reported tops: Eugene at 170 feet, Spencer at 525 feet, Fisher at 1,500 feet, Yamhill at 2,625 feet.
American Quasar Petroleum Co.	Wetgen 26-32	NE $\frac{1}{4}$ sec. 26/T13S/R4W 1,980' FNL; 1,980' FEL Elev. 287' KB	1981	2,620	Top of Spencer Formation reported at 1,500 feet. Saltwater kicks at 2,030 and 2,560 feet.
Gulf Oil Corp.	Porter 1	NE $\frac{1}{4}$ sec. 27/T13S/R4W From center of sec. 660' N; 660' E Elev. 266' Gr	1963-64	8,470	Test at 3,811 feet yielded a very gassy flow of saltwater. Gas contained 98% nitrogen. Hit very high pressure salt water at 5,182 feet.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
L I N N C O U N T Y - C o n t i n u e d					
Humble Oil & Refining Co.	Miller 1	SE $\frac{1}{4}$ sec. 10/T10S/R3W — — Elev. 215'	1962	4,951	Hit saltwater sand at 2,425 feet.
Mobil Oil Corp.	Ira Baker 1	Sec. 28/T15S/R3W 1,087' FNL; 2,537' FEL Elev. 363' KB	1979	10,412	Mostly volcanics below 1,100 feet.
Reserve Oil & Gas Co.	Esmond 1	SW $\frac{1}{4}$ sec. 7/T12S/R1W From S $\frac{1}{4}$ corner 1,194' N; 575' W Elev. 475' Gr	1962	8,603	Encountered very high pressure gassy saltwater at 7,055 feet. Flowed 2,000 bbl/day very gassy saltwater on test. See gas analysis Table 3.
47 Vojvoda, Ivan (Linn County Oil Development Co.)	Barr 1	NW $\frac{1}{4}$ sec. 32/T11S/R1W 262' FNL; 790' FWL Elev. 355' Gr	1958-66	4,529	Oil and gas shows reported. Attempt to complete the well failed. See gas analysis Table 3. Redrill attempt in 1966.
M A L H E U R C O U N T Y					
Adrian School	Water well	T21S/R46E — — — —	— —	— —	Gas present. See gas analysis Table 3. (Stewart and Newton, 1965).
Baker & Malheur Oil Co.	Well 1	SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 4/T19S/R45E — — Elev. 2,500'	1909	340	Cable tools. Oil show reported at 250 feet (Washburne, 1911).

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
MALHEUR COUNTY - Continued					
Baker & Malheur Oil Co.	Well 2	NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 10/T19S/R45E — — Elev. 2,600'	1909	320	Cable tools. Some gas reported (Washburne, 1911).
Baker & Malheur Oil Co.	Well 3	SE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 29/T19S/R45E — — Elev. 2,500'	1909	163	Cable tools. Few pieces of salt reported (Washburne, 1911).
Boswell & Johnson	Water well	T18S/R45E — — Elev. 2,240'	1909	300	Films of oil on sulfur water reported (Washburne, 1911).
$\frac{A}{\infty}$ Boyer, A. F.	Water well	SE $\frac{1}{4}$ sec. 9/T18S/R47E — — Elev. 2,159'	1902	215	Gas in water, used to supply lighting jets and cooking range for more than 7 years (Russell, 1903; Washburne, 1911).
Columbia Oil & Gas Developing Co.	Well 1	SW $\frac{1}{4}$ sec. 4/T20S/R44E — — Elev. 2,650'	1909-10	975	Cable tools. Hit a strong flow of gas in basalt at 580 feet. Gas had a hydrogen sulfide odor. Oil films noted in water (Eng. & Mining Jour., 1909; Washburne, 1911).
County	Water well	Sec. 4/T18S/R45E — — Elev. 2,650'	1909	1,100±	Found a trace of oil at 1,100 feet (Washburne, 1911).
Eastern Oregon Oil Co.	Well 1	Sec. 12/T20S/R45E — — — —	1909-10	815	Cable tools. Reported oil shows (Eng. & Mining Jour., 1909; Washburne, 1911).

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
MALHEUR COUNTY - Continued					
El Paso Natural Gas Co.	Federal-Spurrier 1	NE $\frac{1}{4}$ sec. 5/T20S/R44E 360' FNL; 550' FEL Elev. 2,519'	1954-55	7,470	Some gas shows reported. Zones tested wet.
Freel, Frank	Water well	SW $\frac{1}{4}$ sec. 14/T21S/R46E — — Elev. 2,200'	1942	508	Cable tools. Gas in water used for cooking and heating, 1942-1960. Gas had hydrogen sulfide odor. See gas analysis Table 3, (Oregon DOGAMI, 1962).
49 Halledy, T. W.	Water well	T18S/R45E — — Elev. 2,240'	Before 1909	1,000±	Gas encountered in water sand at 900 feet (Washburne, 1911).
Hirsch Ranch	Water well	Dry Gulch, approx. 18 miles north of Vale	Before 1909	1,700	Gas reported (Washburne, 1911).
Idaho-Oregon Production Co.	Elvera-Recla 1	SE $\frac{1}{4}$ sec. 9/T19S/R44E — — Elev. 2,332'	1950	4,611	No shows reported.
Ishida, Tom	Barn water well	SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 23/T21S/R46E — — — —	1950's	300±	Produced gas and water. See gas analysis Table 3.
Ishida, Tom	House water well	NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 23/T21S/R46E — — — —	1950's	300±	Produced gas and water. See gas analysis Table 3.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
MALHEUR COUNTY - Continued					
Jensen	Water well	Sec. 29/T20S/R45E — — Elev. 3,000'	Before 1909	— —	Gas reported at 100 feet (Washburne, 1911).
Malheur Oil Co.	Unnamed	Sec. 31/T19S/R44E — — Elev. 2,450'	1909	1,680+	Cable tools. Small amount of gas with hydrogen sulfide odor (Washburne, 1911).
Mammoth Oil & Gas Co.	Unnamed	Sec. 6/T20S/R45E — — Elev. 2,700'	1909	1,280+	Cable tools. Small amounts of gas and oil reported. Gas had hydrogen sulfide odor (Washburne, 1911).
8 Mud Spring	Gas occurrence	Sec. 29/T20S/R45E — — Elev. 3,000'	1909	— —	Cold spring from which a "copious quantity" of odorless, inflammable gas issued (Washburne, 1911).
Northwestern Pacific Oil & Gas Co.	Well 1	Sec. 19/T19S/R44E — — Elev. 2,500'	1919	1,260	Cable tools. Hit hot water (115 degrees Fahrenheit) (Buwalda, 1921).
Ontario Cooperative Gas & Oil Co.	Unnamed	T18S/R47E — — Elev. 2,180'	1909-13	4	Cable tools, deepened with rotary. Well blew out while drilling at 1,070 and 2,200 feet. Blew mud and water over the derrick crown. See gas analysis Table 3 (Washburne, 1911; Buwalda, 1921, 1923).
Ore-Ida Foods, Inc.	Well 1	NW $\frac{1}{4}$ sec. 3/T18S/R47E 1' FNL; 2' FWL Elev. 2,170'	1979	10,050	Geothermal exploratory well. Gas shows at 1,100'.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
M A L H E U R C O U N T Y - C o n t i n u e d					
Oroco Oil & Gas Co.	Bolles 1	NW $\frac{1}{4}$ sec. 15/T17S/R47E From N $\frac{1}{4}$ corner 650' S; 150' E Elev. 2,147' Gr	1955	1,966	Gassy, brackish water below 1,080 feet.
Oroco Oil & Gas Co.	McBride 1	SE $\frac{1}{4}$ sec. 19/T16S/R46E 1,566' FSL; 1,419' FEL Elev. 2,900'	1956	4,506	No significant shows.
Riddle, H. K.	Kiesel Estate 1	SW $\frac{1}{4}$ sec. 8/T19S/R47E 1,250' FSL; 1,370' FWL Elev. 2,177' Gr	1954	5,137	Gassy, freshwater at 900-5,042 feet. See gas analysis Table 3.
51 Sand Hollow	Oil occurrence	Sec. 29/T19S/R44E — — Elev. 2,390'	1909	— —	Dark gray bed of hard petroliferous freshwater sandstone. Good odor on fresh fracture. Yielded an amber-colored oil by ether extraction (Washburne, 1911).
Sinclair Oil & Gas Co.	Eastern Oregon Land Co. 1	SW $\frac{1}{4}$ sec. 15/T16S/R44E 660' FSL; 1,980' FWL Elev. 2,640'	1955	4,888	No shows reported.
Small Creek	Oil occurrence	NW $\frac{1}{4}$ sec. 2/T20S/R44E — — Elev. 2,600'	1909	— —	Dark gray sandstone, as found in Sand Hollow (Washburne, 1911).
Sta-Tex Oil Co. (R. A. Stamey)	Russell 1	NW $\frac{1}{4}$ sec. 14/T19S/R44E 330' FNL; 330' FWL Elev. 2,290' Gr	1954	4,336	Some small gas shows.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
M A L H E U R C O U N T Y - C o n t i n u e d					
Standard Oil Co.	Blue Mountain 1	SW $\frac{1}{4}$ sec. 34/T37S/R41E 2,630' FSL; 200' FWL Elev. 5,608' KB	1973	8,414	Volcanics. No shows reported.
Sunset Oil Co.	Unnamed	About 12 miles north northwest of Vale	1919	500	(Buwalda, 1921).
Two State Oil & Gas Co.	Vale City 1	SW $\frac{1}{4}$ sec. 21/T18S/R45E 3,310' FNL; 660' FWL Elev. 2,250'	1961-62	1,185	Cable tools. No shows. Good flow of warm water at 560 feet.
United Development Corp.	Dorman 1	Sec. 25/T18S/R46E — — Elev. 2,250'	1932	625	Cable tools. Gas show reported at 540 feet (McCusker).
Unknown operator	Water well	Approx. sec. 19/T15S/R46E — — Elev. 2,150'	Before 1909	1,400	Good flow of gas reported at 1,400 feet (Washburne, 1911).
Weiser Well	Unnamed	Northwest of Payette, Idaho	1907	1,050	Gas blew mud and water 80 feet into the air (Washburne, 1911).
Western Pacific Oil & Gas Co.	Well 1	Sec. 19/T19S/R44E — — Elev. 2,500'	Before 1938	1,260+	(Van Orstrand, 1938).
Z & S Construction Co.	Recla 1	SE $\frac{1}{4}$ sec. 9/T19S/R44E 660' FSL; 660' FEL Elev. 2,334' Gr	1982	4,745	No shows reported.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
M A R I O N C O U N T Y					
American Quasar Petroleum Co.	Wolverton 13-31	Sec. 13/T10S/R3W 1,100' FNL; 1,800' FEL Elev. 244' KB	1981	4,555	Ran casing and tested. Trace of gas at 2,050 feet. Top of Eugene reported at 1,900 feet; top of Spencer reported at 3,438 feet.
Craig, William	Gilmour 1	Sec. 24/T9S/R4W 2,957' FSL; 792' FWL Elev. 160' Gr	1967	1,560	No shows. Freshwater encountered.
Craig, William	Gilmour 2	Sec. 24/T9S/R4W 2,006' FNL; 2,561' FWL Elev. 175' Gr	1971	1,565	Flowed gassy saltwater. Minor gas and oil shows.
53 Damon Petroleum Corp.	Stauffer Farms 35-1	NW $\frac{1}{4}$ sec. 35/T4S/R1W 1,070' FNL; 625' FWL Elev. 170' Gr	1986-87	2,752	No shows.
Erntson, V. V.	Schermacher 1	NE $\frac{1}{4}$ sec. 27/T9S/R2W 264' FNL; 345' FEL Elev. 322'	1958	2,426	No shows.
Humble Oil & Refining Co.	Wicks 1	NE $\frac{1}{4}$ sec. 11/T7S/R1E 1,633' FNL; 1,681' FEL Elev. 702'	1962	7,797	No shows.
Jackson-Dahl	N. Gilmour 1	NE $\frac{1}{4}$ sec. 24/T9S/R4W 1,108' FNL; 528' FEL Elev. 175'	1971	1,603	Gas shows.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
M A R I O N C O U N T Y - C o n t i n u e d					
Oregon Natural Gas Devel. Corp.	Independence 12-25	NW $\frac{1}{4}$ sec. 25/T8S/R4W From W $\frac{1}{4}$ corner 373' N; 506' E Elev. 690' KB	1980	4,826	First Spencer sand reported at 3,098 feet; second Spencer sand reported at 4,022 feet.
Portland Gas & Coke Co.	Steiwier 1	NW $\frac{1}{4}$ sec. 14/T9S/R3W 1,580' FNL; 400' FWL Elev. 250'	1935-36	2,845	Cable tools. Several gas shows, some in saltwater sands.
Portland Gas & Coke Co.	Wiedehker 1	NW $\frac{1}{4}$ sec. 24/T9S/R4W 1,980' FNL; 780' FWL Elev. 350'	1933-35	3,617	Cable tools. Gas and oil reported in saltwater sands.
Quintana Petroleum Corp.	Gath 1	SE $\frac{1}{4}$ sec. 16/T8S/R2W 720' FSL; 836' FEL Elev. 402' KB	1981	6,002	No shows. Abandoned.
Reichhold Energy Corp.	Bagdanoff 23-28	SW $\frac{1}{4}$ sec. 28/T5S/R2W 1,490' FSL; 1,980' FWL Elev. 194' KB	1981	6,010	No shows. Abandoned.
Reichhold Energy Corp.	Merrill 1	SW $\frac{1}{4}$ sec. 24/T8S/R4W 2,200' FSL; 2,900' FEL Elev. 906' KB	1975	5,282	No shows. Eocene sand at 3,400 feet (Spencer ?).
Reichhold Energy Corp.	Werner 14-21	SW $\frac{1}{4}$ sec. 21/T5S/R2W 550' FSL; 550' FWL Elev. 201' KB	1982	3,354	No shows. Abandoned.
Willamette Valley Oil & Gas	Unnamed	SW $\frac{1}{4}$ sec. 31/T4S/R2W — — Elev. 170'	1922	1,040	(Piper, 1942).

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
M O R R O W C O U N T Y					
Dougherty, J. E.	Gas seep	Sec. 28/T1N/R27E — — — —	— —	— —	Spring with sulfurous gas (Hogenson, 1964).
Earth Carpet Company	Water Well #2	Sec. 33/T2N/R24E — — — —	1977	1	Pumps flammable gas mixed with water. See gas analysis, Table 3, (J. Meyer, personal communication, 1988).
Sulfur Spring	Gas seep	Sec. 20/T4S/R29E — — — —	— —	— —	Combustible gas from old coal drill hole (L. Fisk, personal communication, 1988).
5 Vey, Antone	Water well	NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 28/T1N/R28E 300' FNL; 2' FWL — —	1953	500	Gas produced with the water (L.H. Nunn, personal communication, 1984).
Vey, Antone	Water well	SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 24/T1N/R27E 200' FSL; 100' FEL Elev. 2,100'	1958	777	Cable tools. Found flammable gas in porous basalt at 562, 648, and 699 feet. Shut-in pressure 39 psi. See gas analysis Table 3, (Oregon DOGAMI, 1962).
Wells Spring Oil & Gas Co.	Wells Spring No. 1	NW $\frac{1}{4}$ sec. 28/T2N/R25E — — — —	1931	423	Hot water, 80 degrees Fahrenheit, flowing 25 gpm. Gas piped 600 ft for home use. Drilled into Wells Spring gas seep, (L. Fisk, personal communication, 1988).

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
M O R R O W C O U N T Y - C o n t i n u e d					
Wells Spring	Gas seep	Sec. 28/T2N/R25E — — — —	— —	— —	See gas analysis Table 3.
M U L T N O M A H C O U N T Y					
Holloway, Ross	Water well	SW $\frac{1}{4}$ sec. 24/T1S/R2E — — Elev. 680'	1949	823	Hit gas at 799 feet, which had a strong odor of oil.
96 Richfield Oil Corp.	Barber 1	SE $\frac{1}{4}$ sec. 23/T1N/R1W 2,095' FSL; 1,700' FEL Elev. 1,046'	1946	7,885	No significant oil or gas shows. Bottomed in Tillamook volcanics.
Sunray Mid-Continent Oil Co.	Kappler 1	NW $\frac{1}{4}$ sec. 12/T2N/R2W 1,901' FNL; 431' FWL Elev. 229'	1957	1,666	No shows.
P O L K C O U N T Y					
Alexander, Sam	Unnamed	Sec. 14/T7S/R5W — — Elev. 175' Gr	1931	1,440	Cable tools. Some gas with saltwater. See gas analysis Table 3, (Oregon DOGAMI, 1962; Baldwin, 1964).
Brophy, H. B.	Asphalt occurrence	Eola area, 4.5 miles west of Salem	1914	— —	Gilsonite veinlets in Miocene sandstone (Washburne, 1914).

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
P O L K C O U N T Y - C o n t i n u e d					
Hirschberg, H.	Unnamed	Approx. sec. 11/T8S/R5W — — Elev. 350'	1903	1,050	Some gas and a trace of oil reported. A strong flow of saltwater was also obtained (Stafford, 1904).
Lewis, Marvin	Crossley-Jennings 1	NE $\frac{1}{4}$ sec. 31/T6S/R4W 2,334' FNL; 1,855' FEL Elev. 346'	1963-65	5,549	Plugged back and retested Reserve Oil, Roy well at Holmes Gap.
Lewis, Marvin	Crossley-Jennings 2	NE $\frac{1}{4}$ sec. 31/T6S/R4W 2,337' FNL; 1,835' FEL Elev. 345' Gr	1966-68	2,200	Gassy saltwater reported below 500 feet. Near Reserve, Roy - L&G Bruer well.
57 Miller, J. T.	Adams 1	SW $\frac{1}{4}$ sec. 11/T8S/R5W 530' FSL; 900' FWL Elev. 265'	1962	410	Cable tools. No shows.
Miller, J. T.	Adams 2	SW $\frac{1}{4}$ sec. 11/T8S/R5W — — Elev. 270'	1964	622	Gas shows. See gas analysis Table 3.
Miller, J. T.	Bork 1	SE $\frac{1}{4}$ sec. 26/T8S/R5W 500' FSL; 650' FEL Elev. 235' Gr	1981	1,030	Cable tools. Gassy saltwater. Abandoned. See gas analysis, Table 3 (May, 1988).
Miller, J. T.	Bursell 1	NW $\frac{1}{4}$ sec. 14/T8S/R5W 1,860' FNL; 471' FWL Elev. 404' KB	1979	1,108	No shows.
Miller, J. T.	John Stump 1	NW $\frac{1}{4}$ sec. 26/T8S/R5W 2,000' FNL; 1,000' FWL Elev. 420'±	1980	1,502	Gas show. Converted to water well.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
P O L K C O U N T Y - C o n t i n u e d					
Miller, J. T.	Sullenger 1	NE $\frac{1}{4}$ sec. 18/T8S/R5W — — Elev. 400'	1960	710	Encountered some thin coal seams.
Miller, Mitchell & Assoc.	Bliven 1	SW $\frac{1}{4}$ sec. 11/T8S/R5W 670' FSL; 860' FWL Elev. 250'	1962	389	Cable tools. No shows.
Miriam Oil Co.	Bliven 1	SW $\frac{1}{4}$ sec. 11/T8S/R5W From W $\frac{1}{4}$ corner 1,300' S; 937' E Elev. 250'	1957	1,300	Cable tools. No significant shows reported.
58 Miriam Oil Co.	Bliven 2	SE $\frac{1}{4}$ sec. 10/T8S/R5W 1,155' FSL; 297' FEL Elev. 300'	1957	506	Cable tools. Hole caved. Moved over 70 feet and started "Bliven 3".
Miriam Oil Co.	Bliven 3	SE $\frac{1}{4}$ sec. 10/T8S/R5W 1,089' FSL; 270' FEL Elev. 300'	1957	1,801	Rotary. Traces of oil reported.
Miriam Oil Co.	Elliott 1	SW $\frac{1}{4}$ sec. 9/T8S/R5W 2,245' FSL; 1,390' FWL Elev. 525'	1955-58	1,822	Cable tools to 1,080 feet, rotary to 1,822 feet. Small amount of gas at 630 feet.
Mitchell, Ross & Assoc.	Adams 1	NW $\frac{1}{4}$ sec. 15/T8S/R5W — — Elev. 200'	1960	340	Cable tools. No shows.
Mitchell, Ross & Assoc.	Bliven 1	NW $\frac{1}{4}$ sec. 15/T8S/R5W 492' FNL; 3,110' FEL Elev. 550'	1959	1,347	Cable tools. Small amount of gas encountered. See gas analysis Table 3, (Oregon DOGAMI, 1962; Baldwin, 1964).

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
P O L K C O U N T Y - C o n t i n u e d					
Mitchell, Ross & Assoc.	Bliven 2	SE $\frac{1}{4}$ sec. 10/T8S/R5W — — Elev. 260'	1960	430	Cable tools. No shows.
Mitchell, Ross & Assoc.	Bliven 3	SE $\frac{1}{4}$ sec. 10/T8S/R5W — — Elev. 300'	1960	580	Cable tools. Trace of gas and oil colors in saltwater.
Mitchell, Ross & Assoc.	Paige 1	SW $\frac{1}{4}$ sec. 11/T8S/R5W — — Elev. 250'	1959	600	Cable tools. No shows.
59 Oregon Oil & Pipe Line Co.	Unnamed	Approx. 3 miles southwest of Dallas	1917	2,600	Gas shows reported at 1,400-1,500 feet. Gas burned with a 2 foot flame from the end of the 10 inch casing (Washburne, 1914).
Reichhold Energy Corp.	Finn 1	SW $\frac{1}{4}$ sec. 17/T6S/R4W 1,431' FSL; 1,218' FWL Elev. 212'	1975	7,252	Gas shows. Sidewall samples taken, drill stem test run.
Reserve Oil & Gas Co.	Roy - L&G Bruer 1	NE $\frac{1}{4}$ sec. 31/T6S/R4W 2,334' FNL; 1,855' FEL Elev. 346'	1960	5,549	Gas in saltwater at 1,540 feet. Bottomed in Siletz River volcanics.
Riggs, Cass	Water well	SE $\frac{1}{4}$ sec. 6/T7S/R4W — — Elev. 200'	Before 1917	— —	Supplied gas for domestic use for several years. See gas analysis Table 3 (Baldwin, 1964; Smith, 1925).

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
P O L K C O U N T Y - C o n t i n u e d					
Taylor, Hubert	Oil seep	NE $\frac{1}{4}$ sec. 3/T8S/R6W — — — —	— —	— —	High gravity oil rising to surface of shallow lake.
Unknown operator	"McBee Well"	NW $\frac{1}{4}$ sec. 7/T8S/R5W — — Elev. 320'	Before 1910	1,450	Some gas shows reported (Baldwin, 1964). May be same as Oregon Oil & Pipe Line Co. well.
Unknown operator	"Whiteaker Well"	Sec. 11/T8S/R5W — — Elev. 350'	1910	2,250±	Cable tools. Oil and gas shows reported (Baldwin, 1964).
8 Unknown operator	Newman well	W $\frac{1}{2}$ sec. 7/T6S/R4W — — — —	1917	2,600	Shows of gas reported (Baldwin, 1955).
T I L L A M O O K C O U N T Y					
Jannsen Drilling Co.	Water well	NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 16/T1S/R9W — — Elev. 240'	1959	200+	Drilled through 1 foot of oil sand at 147 feet. Cutting samples fluoresced a dull, pale yellow. Sand had a strong kerosene odor.
Mohler Sand & Gravel Co.	Oil occurrence	NW $\frac{1}{4}$ sec. 5/T3N/R9W — — — —	1958	— —	Kerosene-like oil found in gravel bordering the Nehalem River.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
T I L L A M O O K C O U N T Y - C o n t i n u e d					
Necarney Hydrocarbon Oil Co.	Unnamed	Sec. 32/T3N/R10W — — Elev. 35'	1910	1,535	Traces of gas reported (Warren and others, 1945).
Oregon Department of Corrections	Water well	NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 8/T1N/R6W — — — —	1984	350	Gas at 350 feet. Plugged and abandoned (C.J. Gardner, personal communication, 1984).
Oregon Natural Gas Development Co.	Crown Zellerbach 1	NW $\frac{1}{4}$ sec. 13/T2S/R10W 1,900' FNL; 2,450' FWL Elev. 418' KB	1980	6,158	No shows. Top of Pittsburg Bluff sand reported at 3,965 feet.
19 Portland Coal & Development Co.	Unnamed	SE $\frac{1}{4}$ sec. 10/T2S/R9W — — Elev. 90'	1910	2,532	Small amount of gas. See gas analysis Table 3 (Washburne, 1914).
Reichhold Energy Corp.	Crown Zellerbach 1	NW $\frac{1}{4}$ sec. 22/T2S/R10W 1,000' FNL; 1,000' FEL Elev. 210' KB	1975	5,557	No shows. Volcanics below 3,900 feet.
Skukum Lake	Asphalt occurrence	Approx. 6 miles SW of lake/T1N/R6W — — — —	1914	— —	Veinlets of asphalt found in rocks of Nestucca age (Washburne, 1914).
Staysa, Robert	Water well	N $\frac{1}{2}$ sec. 30/T4S/R10W — — — —	1946	174	Marsh gas (?) produced with water. See gas analysis, Table 3.
Unknown operator	Unnamed 1	Near Portland Coal & Development Co. well	Before 1910	700	Small amount of gas reported (Washburne, 1914).

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
U M A T I L L A C O U N T Y					
Big Red Uranium	Richartz 1	NW $\frac{1}{4}$ sec. 24/T6N/R34E — —	1957	340	Cable tools. Recent alluvium.
Cernes, Steve	Water well	Elev. 640' Gr SW $\frac{1}{4}$ sec. 7/T2S/R33E — —	1980	420	See gas analysis, Table 3, (L. Fisk, personal communication, 1988).
Hermiston seep	Oil seep11	Sec. 14 — —	— —	— —	— —
Rockwell, Guy	Unnamed	Sec. 26/T1N/R32E — —	1940?	2,000±	(Hogenson, 1957).
Wells, Leonard	Water well	Elev. 1,430' SW $\frac{1}{4}$ sec. 7/T2S/R33E — — — —	1976	810	See gas analysis, Table 3, (L. Fisk, personal communication, 1988).
U N I O N C O U N T Y					
Grande Ronde Oil & Gas Co.	Davis 1	SW $\frac{1}{4}$ sec. 36/T3N/R39E — — Elev. 2,750'	1944-45	300±	(McCusker).

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
W A S C O C O U N T Y					
Beavis May Oil Co.	Unnamed 1	10 miles west of Dufur on Ramsey Creek	1907	1,710	(Buwalda, 1921).
Beavis May Oil Co.	Unnamed 2	Approx. 200 feet from 1907 well	1919	1,125+	(Buwalda, 1921).
Dufur Oil Co.	(5 holes)	5 miles west of Dufur on Fifteen-Mile Creek	Before 1907	500±	(Buwalda, 1921).
Kastle Oil & Gas Co.	Lambert 1	SE $\frac{1}{4}$ sec. 20/T2S/R12E — — Elev. 2,400'	1951-52	220	Cable tools.
W A S H I N G T O N C O U N T Y					
Allied Oil Co.	"Buxton Well"	$\frac{1}{2}$ mile east of Buxton/T3N/R4W — — — —	1925	1,600	No records.
Anderson, John	Water well	SE $\frac{1}{4}$ sec. 29/T3N/R4W — — — —	— —	— —	Gas present. See gas analysis Table 3 and water analysis Table 4. (Stewart and Newton, 1965).
Butte Oil of Oregon, Inc.	Cowan 1	NW $\frac{1}{4}$ sec. 8/T1S/R3W — — Elev. 160' Gr	1967	960	No shows. Basalt 400 feet to total depth.
Kaszmarck, John	Water Well	20/T3N/R4W — — — —	1979	180	Well produces gas with water. See gas analysis, Table 3, (J. Meyer, personal communication, 1988).

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
W A S H I N G T O N C O U N T Y - C o n t i n u e d					
Oregon Explorations	Wohler 1	NE $\frac{1}{4}$ sec. 11/T1S/R3W 771' FNL; 1,650' FEL Elev. 210'	1955	727	Quaternary alluvium. No shows.
Petroliferous Radiolarian shale	Oil shale occurrence	Sec. 32/T3N/R4W — — — —	1896	— —	A radiolarian Miocene shale which gives a petroleum odor on fresh fracture (Diller, 1896).
The Texas Co.	Redding-Gasnor 1 (Cooper Mountain 1)	SE $\frac{1}{4}$ sec. 25/T1S/R2W From E $\frac{1}{4}$ corner 583' S; 844' W Elev. 783'	1945-46	9,263	Small gas shows at 8,694 and 8,830 feet. Flowed saltwater at 700 bbl/day rate on test from interval 7,862-9,263 feet. Bottomed in Tillamook volcanics.
W H E E L E R C O U N T Y					
Clarno area	Asphalt occurrence 1	Approx. sec. 26/T7S/R19E — — — —	1914	— —	Geodes found containing asphalt (Buwalda, 1921; Collier, 1914).
Clarno area	Asphalt occurrence 2	Sec. 34/T7S/R19E — — — —	1952	— —	Asphalt in geodes (The ORE BIN, 1952).
Clarno area	Asphalt Occurrence 3	NE $\frac{1}{4}$ sec. 2/T8S/R20E — — — —	1987	— —	(L. Fisk, personal communication, 1988).

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
W H E E L E R C O U N T Y - C o n t i n u e d					
Clarno area	Asphalt Occurrence 4	Sec. 20/T8S/R19E — — — —	1927	— —	Asphalt in tuff (Hodge, 1927; Taylor, 1960).
Clarno area	Asphalt Occurrence 5	NW $\frac{1}{4}$ sec. 36/T7S/R19E — — — —	1987	— —	Asphalt in veins and geodes (Fisk and Fritts, 1987).
Clarno area	Asphalt Occurrence 6	SE $\frac{1}{4}$ sec. 12/T8S/R20E — — — —	1985	— —	Asphalt in veins (L. Fisk, personal communication, 1988).
9 Clarno Basin Oil Co.	Burgess 2	SE $\frac{1}{4}$ sec. 34/T7S/R19E 1,320' FSL; 1,320' FEL Elev. 1,650'	1929-30	4,565	Cable tools. Deepened with rotary. Some pre-clarno gas and oil encountered. Bottomed in metasediments. See gas analysis Table 3, (Oregon DOGAMI, 1962).
Cooksie, J. Orbin	Schmitt-Berneece 1	NW $\frac{1}{4}$ sec. 13/T11S/R22E 3,340' FSL; 380' FWL Elev. 3,100'	1950-51	1,507	Metasediments below 820 feet.
Huntley Ranch	Asphalt occurrence	Sec. 31/T7S/R20E — — — —	1914	— —	Asphalt lens in tuff (Buwalda, 1921; Collier, 1914; Hodge, 1927).
John Day Valley Coal & Oil Co.	Miller 1	NW $\frac{1}{4}$ sec. 33/T6S/R21E — — Elev. 3,500'	1928-30	2,582	Cable tools.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
W H E E L E R C O U N T Y - C o n t i n u e d					
Mitchell area	Asphalt Occurrence	Approx. sec. 12/T22N/R11E — — — —	1984	— —	Oil-filled geode (Sidle and Richers, 1985).
Northwest Petroleum Co.	Well 1	NE $\frac{1}{4}$ sec. 23/T11S/R21E — — Elev. 3,000'	1934-35	2,100	Spudded in Cretaceous. Oil and gas shows.
Oregon Petroleum Corp.	Clarno 1	SE $\frac{1}{4}$ sec. 27/T7S/R19E 711' FSL; 73' FEL Elev. 2,300'	1957	4,250	Bottomed in pre-tertiary.
99 Steele Energy Corp.	Keys 1	NW $\frac{1}{4}$ sec. 28/T9S/R23E 275' FNL; 335' FWL Elev. 2,810' KB	1984-85	6,539	Gas shows, 1016 Btu/cf.
Unknown operator	"Fossil Well"	Sec. 8/T7S/R21E — — Elev. 3,520'	1927-28	1,600±	Core rig.
Wilder, S. A.	Unnamed	SE $\frac{1}{4}$ sec. 25/T7S/R19E — — Elev. 2,360'	1941	810	Cable tools (McCusker).
Y A M H I L L C O U N T Y					
Amity Road	Water well	N $\frac{1}{2}$ 1 $\frac{1}{2}$ sec. 27/T5S/R4W — — — —	— —	585	Gas analysis, Table 3, (J. Meyer, personal communication, 1988).

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
Y A M H I L L C O U N T Y					
Churchill, A. C. & Associates	Unnamed 1	Approx. 6 miles west of Newberg on Helen Follett Farm.	1902	1,240	Possibly the first oil drilling in the state. Some non-inflammable gas reported. Smelled of sulfur (Washburne, 1914).
Churchill, A. C. & Associates	Unnamed 2	10 feet from above well	1902	1,287	Some gas reported at 1,100 feet which smelled strongly of sulfur. Saltwater hit at 600 feet (Washburne, 1914).
Hubbs, Gary	Lower water well	SW $\frac{1}{4}$ sec. 3/T2S/R4W — — Elev. 600'	— —	— —	Gas sample 1980. See gas analysis Table 3 (J. Meyer, personal communication, 1988).
Hubbs, Gary	Upper water well	SW $\frac{1}{4}$ sec. 3/T2S/R4W — — Elev. 625'	— —	— —	Gas sample 1980. See gas analysis Table 3 (J. Meyer, personal communication, 1988).
McKee, Robert	Water well	NW $\frac{1}{4}$ sec. 6(?) / T6S/R4W — — — —	1920	2,985	Flowed saltwater from lower part of the hole. Gas and oil shows. (Washburne, 1914).
Nahama & Weagant Energy Co.	Klohs 1	NE $\frac{1}{4}$ sec. 6/T3S/R2W 180' FNL; 1,115' FEL Elev. 923' KB	1982	5,870	Approx. reported tops: Columbia River basalt at 1,000 feet; Scappoose at 2,000 feet; Keasy at 3,000 feet; Cowlitz, Nestucca, and Gable volcanics starting at 4,000 feet.

Table 1. Onshore wells and hydrocarbon occurrences -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location (section/township/range) Footage location Elevation	Date(s)	Total depth (ft)	Notes and References
Y A M H I L L C O U N T Y - C o n t i n u e d					
Portland Coal & Development Co.	Unnamed 1	SE $\frac{1}{4}$ sec. 25/T2S/R4W 0' FSL; 1,320' FEL Elev. 300'	1914	500	(Washburne, 1914).
Resettlement Admininstration	Water well	SW $\frac{1}{4}$ sec. 32/T5S/R4W — — Elev. 230'	1937	125	Saltwater with a small amount of gas between 110 and 125 feet.
Whitney property	Water well	SW $\frac{1}{4}$ sec. 5/T4S/R3W — — Elev. 200'	— —	300	Producing gas bubbles for about five years. See gas analysis Table 3 (J. Meyer, personal communication, 1988).

Table 2. Offshore wells, Federal waters

Oregon Department of Geology and Mineral Industries

Well operator	Well name	Location latitude and longitude	Date(s)	Total depth (ft)	Water depth (ft)
O U T E R C O N T I N E N T A L S H E L F					
Pan American Petroleum Corp.	P-0112 1	43°14'45.6"N latitude 124°35'34.8"W longitude	1967	6,146	424
Shell Oil Co.	P-072 1 ET	46°2'49.2"N latitude 124°29'56.4"W longitude	1966	8,220	470
Shell Oil Co.	P-075 1 ET	46°9'8.2"N latitude 124°24'30.2"W longitude	1966	10,160	408
Shell Oil Co.	P-087 1 ET	44°13'12.0"N latitude 124°28'26.4"W longitude	1965	3,348	320
Shell Oil Co.	P-087 2 ET	44°13'15.6"N latitude 124°28'12.0"W longitude	1965	8,353	325
Standard Oil Co. of California - Union Oil Co.	P-103 Nautilus 1	44°51'28.9"N latitude 124°16'44.0"W longitude	1965	12,628	425
Union Oil - Standard Oil of California - Pan American Petroleum	P-093 Grebe 1	44°29'46.4"N latitude 124°24'52.6"W longitude	1966	10,010	195
Union Oil Co.	P-130 Fulmar 1	44°3'37.0"N latitude 124°38'47.0"W longitude	1966	12,285	404

Table 3. Gas analyses

Oregon Department of Geology and Mineral Industries

Well operator	Well name	County Location	Methane	Ethane	Analyses (per cent)				
					Heavy Fraction	N ₂	CO ₂	H	O ₂
Adrian School	Water well	Malheur County T21S/R46E	53.000	— —	— —	41.000	0.500	0.500	5.000
Agoil of Oregon (Rex, J. M.)	Grizzly 1	Jefferson County SE $\frac{1}{4}$ sec. 33/T12S/R15E	0.287	0.010	0.271	37.900	61.530	— —	— —
Alexander, Sam	Water well	Polk County Sec. 14/T7S/R5W	97.380	0.150	0.070	2.400	— —	— —	— —
American Quasar Petroleum Co.	Hickey 9-12	Linn County NE $\frac{1}{4}$ sec. 9/T12S/R2W	83.610	0.540	— —	15.82 *	0.002	— —	— —
Amity Road	Water well	Yamhill County N $\frac{1}{2}$ N $\frac{1}{2}$ sec.27/T5S/R4W	53.473	— —	— —	45.469	0.154	— —	2.710
Anderson, Glen	Water well	Deschutes County NE $\frac{1}{4}$ sec. 2/T22S/R10E	93.300	— —	— —	5.200	1.500	— —	— —
Anderson, John	Water well	Washington County SE $\frac{1}{4}$ sec. 29/T3N/R4W	85.500	— —	— —	12.800	0.300	— —	1.400
Boyer, A.F.	Water well	Malheur County SE $\frac{1}{4}$ sec. 9/T18S/R47E	99.100	0.000	— —	0.900	0.000	0.000	0.000
Brown's Dairy Farm	Slough	Clatsop County Sec. 26/T8N/R10W	95.500	— —	— —	1.000	3.500	— —	— —
Carter Ranch	Water well	Lake County T40S/R19E	73.500	— —	— —	26.000	0.500	— —	— —
Cernes, Steve	Water well	Umatilla County SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 7/T2S/R33E	85.360	0.000	0.780	12.940	0.800	— —	— —
Clarno Basin Oil Co.	Burgess 2	Wheeler County Sec. 34/T7S/R19E	64.300	4.700	— —	28.700	3.100	— —	0.200
Fat Elk Oil Co. (Coast Oil Co.)	Well 1	Coos County NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 11/T28S/R13W	16.290	0.030	— —	83.490	0.190	— —	— —
Freel, Frank	Water well	Malheur County SW $\frac{1}{4}$ sec. 14/T21S/R46E	88.600	— —	— —	10.800	0.400	— —	0.200

Notes: * N₂ plus O₂

** Determined from concentration in air equilibrated with the water.

*** Average ppm from more than one sample.

Table 3. Gas analyses -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	County Location	Methane	Ethane	Analyses (per cent)				
					Heavy Fraction	N ₂	CO ₂	H	O ₂
Graves, John	Water well	Douglas County Sec. 26/T26S/R7W	34.360	0.180	— —	65.170	0.240	— —	— —
Gray, Lona	Berna 1	Crook County NE $\frac{1}{4}$ sec. 32/T19S/R18E	98.500	1.500	— —	— —	— —	— —	— —
Groundwater	— —	Lake County NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 15/T35S/R23E	1,600 **	— —	— —	— —	— —	— —	— —
Groundwater	— —	Malheur County SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 7/T18S/R44E	3,600 **	— —	— —	— —	— —	— —	— —
Groundwater	— —	Malheur County NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 31/T18S/R47E	1,600 **	— —	— —	— —	— —	— —	— —
Groundwater	— —	Malheur County SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 7/T19S/R47E	1,400 **	— —	— —	— —	— —	— —	— —
Groundwater	— —	Malheur County SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 24/T19S/R46E	2,800 **	— —	— —	— —	— —	— —	— —
Groundwater	— —	Malheur County NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 23/T20S/R46E	3,000 **	— —	— —	— —	— —	— —	— —
Groundwater	— —	Malheur County NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 18/T20S/R47E	1,200 **	— —	— —	— —	— —	— —	— —
Groundwater	— —	Malheur County NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 23/T27S/R45E	1,700 **	— —	— —	— —	— —	— —	— —
Gulf Oil Corp.	Porter 1	Linn County NE $\frac{1}{4}$ sec. 27/T13S/R4W	1.400	— —	— —	98.300	0.100	— —	0.200
Herrick Mineral Spring	Unnamed	Clatsop County SE $\frac{1}{4}$ sec. 23/T8N/R7W	87.000	— —	— —	12.500	0.500	— —	— —
Hubbs, Gary	Lower water well	Yamhill County SW $\frac{1}{4}$ sec. 3/T2S/R4W	80.919	0.000	0.000	19.079	0.002	— —	— —
Hubbs, Gary	Upper water well	Yamhill County SW $\frac{1}{4}$ sec. 3/T2S/R4W	81.542	0.000	0.000	18.450	0.008	— —	— —

Notes: * N₂ plus O₂

** Determined from concentration in air equilibrated with the water.

*** Average ppm from more than one sample.

Table 3. Gas analyses -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	County Location	Methane	Ethane	Analyses (per cent)				
					Heavy Fraction	N ₂	CO ₂	H	O ₂
Ishida, Tom	Barn water well	Malheur County SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 23/T21S/R46E	85.380	— —	— —	13.440	1.180	— —	— —
Ishida, Tom	House water well	Malheur County SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 23/T21S/R46E	83.490	— —	— —	15.880	0.630	— —	— —
Kaszmarch, John S.	Water well	Washington County Sec. 20/T3N/R4W	82.190	— —	— —	17.420	0.380	— —	— —
Lakin, Dick	Well 1	Benton County NW $\frac{1}{4}$ sec. 31/T10S/R7W	97.870	1.130	— —	— —	— —	— —	— —
Lawen Store	Water well	Harney County T25S/R32 $\frac{1}{2}$ E	91.300	— —	— —	6.700	— —	1.500	0.500
Leaseholding Syndicate	Dutch Canyon	Columbia County NW $\frac{1}{4}$ sec. 17/T3N/R2W	7.870	— —	— —	91.750	0.500	— —	0.330
Lewis, Marvin	Crossley-Jennings 1	Polk County NE $\frac{1}{4}$ sec. 31/T6S/R4W	57.000	— —	— —	43.000	— —	— —	— —
Miller, J. T.	Adams 2	Polk County SW $\frac{1}{4}$ sec. 11/T8S/R5W	33.200	— —	— —	65.400	0.100	— —	1.300
Miller, J.T.	Bork 1	Polk County SE $\frac{1}{4}$	— —	— —	— —	— —	— —	— —	— —
Mitchell, Ross & Assoc.	Bliven 1	Polk County NW $\frac{1}{4}$ sec. 15/T8S/R5W	63.800	— —	— —	36.100	— —	— —	0.100
Moehnke, Walter	Water well	Clackamas County	— —	— —	— —	93.400	1.000	4.700	— —
Nehalem River Bed	Seep	Clatsop County SW $\frac{1}{4}$ sec. 7/T4N/R7W	86.200	— —	— —	13.100	0.700	— —	— —
Ontario Cooperative Gas & Oil Co.	Unnamed	Malheur County T18S/R47E	99.100	— —	— —	0.900	— —	— —	— —
Oregon Oil & Gas Co.	Roberts 1	Lincoln County NE $\frac{1}{4}$ sec. 25/T10S/R8W	56.500	— —	— —	42.990	0.080	— —	0.430

Notes: * N₂ plus O₂

** Determined from concentration in air equilibrated with the water.

*** Average ppm from more than one sample.

Table 3. Gas analyses -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	County Location	Methane	Ethane	Analyses (per cent)				
					Heavy Fraction	N ₂	CO ₂	H	O ₂
Pacific Petroleum Co. (Ewell, J. B.)	Morrison 1	Coos County SE $\frac{1}{4}$ sec. 28/T28S/R14W	94.910	0.410	0.150	— —	— —	— —	— —
Pacific Power & Light Co.	North Bend steam plant water well	Coos County SE $\frac{1}{4}$ sec. 15/T25S/R13W	97.200	0.200	0.200	2.400	— —	— —	0.04 argon
Portland Coal & Development Co.	Unnamed	Tillamook County SE $\frac{1}{4}$ sec. 10/T2S/R9W	97.850	— —	— —	2.000	0.150	— —	— —
Reichhold Energy Corp.	Longview Fibre 1	Columbia County SW $\frac{1}{4}$ sec. 11/T6N/R5W	86.330	9.300	3.830	— —	0.540	— —	— —
Reserve Oil & Gas Co.	Esmond 1	Linn County SW $\frac{1}{4}$ sec. 7/T12S/R1W	77.200	3.700	2.200	16.800	— —	— —	0.100
Riddle, H. K.	Kiesel Estate 1	Malheur County SW $\frac{1}{4}$ sec. 8/T19S/R47E	96.500	1.000	— —	2.500	— —	— —	— —
Riggs, Cass	Water well	Polk County SE $\frac{1}{4}$ sec. 6/T7S/R4W	67.000	6.400	— —	26.400	— —	— —	Trace
Silver Falls	Unnamed	Marion County T9S/R3E	88.300	— —	— —	2.500	7.600	0.400	0.800
Stark, Ralph W. (Tri-State Petroleum)	Fisher 1	Lake County SW $\frac{1}{4}$ sec. 22/T40S/R19E	90.330	0.960	— —	8.410	0.300	— —	— —
Staysa, Robert	Water well	Tillamook County N $\frac{1}{2}$ sec. 30/T4S/R10W	36.500	— —	— —	51.200	1.400	0.800	10.100
Texaco, Inc.	Potter 1 (core hole)	Columbia County NW $\frac{1}{4}$ sec. 8/T4N/R3W	51.800	0.000	— —	46.700	0.400	0.500	0.200
The Texas Co.	Clark & Wilson 6-1	Columbia County NE $\frac{1}{4}$ sec. 19/T6N/R4W	17.11 ***	— —	— —	79.340	— —	— —	3.550
Unknown operator	Water well	Lane County T17S/R5W	17.000	— —	— —	73.000	0.100	— —	— —
Vey, A. J.	Water well	Morrow County SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 24/T1N/R27E	87.100	— —	— —	11.900	0.100	— —	0.900

Notes: * N₂ plus O₂

** Determined from concentration in air equilibrated with the water.

*** Average ppm from more than one sample.

Table 3. Gas analyses -- Continued

Oregon Department of Geology and Mineral Industries

Well operator	Well name	County Location	Methane	Ethane	Analyses (per cent)				
					Heavy Fraction	N ₂	CO ₂	H	O ₂
Vojvoda, Ivan (Linn County Oil Development Co.)	Barr 1	Linn County NW $\frac{1}{4}$ sec. 32/T11S/R1W	48.000	0.800	0.300	50.400	0.500	— —	— —
Wells Spring	Unnamed	Morrow County NW $\frac{1}{4}$ sec. 28/T2N/R25E	91.000	— —	— —	7.800	— —	— —	2.000
Wells, Leonard	Water well	Umatilla County SW $\frac{1}{4}$ sec. 7/T2S/R33E	67.910	0.070	— —	32.010	— —	— —	— —
Whitney property	Water well	Yamhill County SW $\frac{1}{4}$ sec. 5/T4S/R3W	75.530	0.000	— —	24.450	0.020	— —	— —
Wilson Farm	Water well	Douglas County Sec. 3/T28S/R7W	73.700	— —	— —	24.700	0.400	— —	1.200

Notes: * N₂ plus O₂

** Determined from concentration in air equilibrated with the water.

*** Average ppm from more than one sample.

Table 4. Water analyses

Oregon Department of Geology and Mineral Industries

Operator	Well name	County	Analyses (ppm)												
			Ca	Mg	Na	K	CO ₃	HCO ₃	SO ₄	Cl	Li	I	Br	B	TDS
Agoil of Oregon (Rex, J. M.)	Grizzly 1	Jefferson	82	9.4	408	— —	— —	— —	163	135	— —	trace	— —	105	— —
Anderson, John	Water well	Washington	15	4.1	1,290	18	63	544	20	1,620	— —	5.6	— —	— —	— —
Fat Elk Oil Co. (Coast Oil Co.)	Well 1	Coos	2,100	55	4,000	17	— —	— —	0.1	11,452	— —	32	— —	4.1	17,660
Gulf Oil Corp.	Porter 1	Linn	4,794	— —	2,440	6	— —	98	— —	12,200	1	— —	— —	— —	— —
Humble Oil & Refining Co.	Miller 1	Linn	4,570	37	2,700	10	— —	16	31	11,870	— —	10	— —	— —	— —
Lakin, Dick	Well 1	Benton	— —	— —	— —	— —	— —	— —	— —	4,545	— —	— —	— —	— —	— —
Leaseholding Syndicate	Dutch Canyon	Columbia	1,610	24	8,340	28	— —	16	4.4	15,200	— —	— —	— —	— —	— —
Lewis, Marvin	Crossley-Jennings 1	Polk	1,370	309	9,800	33	4,690	52	7	18,800	— —	20	— —	— —	— —
Miriam Oil Co.	Elliott 1	Polk	— —	— —	— —	— —	— —	— —	— —	6,795	— —	— —	— —	— —	— —
Mitchell, Ross & Assoc.	Bliven 1	Polk	— —	— —	— —	— —	— —	— —	— —	11,118	— —	— —	— —	— —	— —
Mobil Oil Corp.	Sutherlin Unit 1	Douglas	12,340	3	8,350	56	24	— —	— —	33,750	— —	— —	— —	— —	— —
Oregon Oil & Gas Co.	Roberts 1	Lincoln	— —	— —	— —	— —	— —	— —	— —	13,100	— —	— —	— —	— —	— —
Reichhold Energy Corp.	Columbia County 2	Columbia	1,130	152	7,700	66	— —	— —	33.5	15,600	— —	39	— —	— —	— —
Reichhold Energy Corp.	Longview Fibre 1	Columbia	2,390	115	7,400	60	— —	— —	24	15,400	— —	63	45	— —	— —
Reserve Oil & Gas Co.	Esmond 1	Linn	8,430	305	4,400	40	— —	100	181	21,460	— —	5	— —	— —	— —

Table 4. Water analyses -- Continued

Oregon Department of Geology and Mineral Industries

Operator	Well name	County	Analyses (ppm)												
			Ca	Mg	Na	K	CO ₃	HCO ₃	SO ₄	Cl	Li	I	Br	B	TDS
Stark, R. W.	Fisher 1	Lake	5	12	546	36	— —	1,520	1.1	39	— —	— —	— —	6.6	1,450
Sunray	Kappler 1	Multnomah	— —	— —	— —	— —	— —	— —	— —	28,900	— —	— —	— —	— —	— —
Mid-Continent Oil Co.															
The Texas Co.	Clark & Wilson 6-1	Columbia	— —	— —	— —	— —	— —	— —	— —	17,400	— —	— —	— —	— —	— —
The Texas Co.	Redding-Gasnor 1 (Cooper Mountain 1)	Washington	15,900	10.5	4,180	75	— —	28.1	25.2	35,490	— —	— —	— —	— —	— —
Vojvoda, Ivan (Linn County Oil Devel. Co.)	Barr 1	Linn	— —	— —	— —	— —	— —	— —	— —	13,245	— —	— —	— —	— —	— —

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