NEVADA BUREAU OF MINES

Vernon E. Scheid, Director

BULLETIN 52

(Formerly University of Nevada Bulletin, Geology and Mining Series)

NEVADA OIL AND GAS DRILLING DATA, 1906-1953

By

JOSEPH LINTZ, JR.

Price $1.00

UNIVERSITY OF NEVADA

RENO, NEVADA

1957

135

STATE OF NEVADA

CHARLES H. RUSSELL, *Governor*

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UNIVERSITY OF NEVADA

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NEVADA BUREAU OF MINES

VERNON E. SCHEID, *Director*

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NOTICE

CHANGE IN TITLE OF BULLETIN SERIES

Since 1939, the reports of the Nevada Bureau of Mines and associated organizations (see list of publications in back) have been published as the Geology and Mining Series of the University of Nevada Bulletin. Although the Bureau's reports were separately numbered as issues of the Geology and Mining Series, this arrangement has not proved satisfactory; for, they were a sub-series in a periodical that published predominantly administrative pamphlets; such as, the University of Nevada Catalogue and similar material.

To eliminate bibliographic confusion resulting from this unnatural arrangement the Bureau will publish its reports in a series entitled NEVADA BUREAU OF MINES BULLETIN. The University of Nevada Bulletin, vol. XLVII, No. 1 (Geology and Mining Series No. 51), January 1953, is the last Bureau report that will be published as part of the University of Nevada Bulletin.

The NEVADA BUREAU OF MINES BULLETIN will be numbered in numerical sequence with the issues of the discontinued Geology and Mining Series, and starts with this issue—Bulletin 52. The NEVADA BUREAU OF MINES BULLETIN will conform in general format and size with the issues of the discontinued Geology and Mining Series, and thus, may be bound conveniently with these earlier published reports.

CONTENTS

LLUSTRATIONS

FOREWORD

During the past half-century many attempts have been made to find petroleum in Nevada. The geologic knowledge obtained while searching and drilling for oil is of great value, but it is quickly lost forever to the mineral industry unless it is assembled and preserved for future use. For this reason, although there was no oil production in Nevada at the time, in 1952 the State Bureau of Mines decided to collect and publish all available facts concerning wells drilled for oil and gas in the State. Mr. Joseph Lintz, Jr., Professor of Petroleum Geology, Mackay School of Mines, and Geologist for the Bureau of Mines, was assigned to this project.

Mr. Lintz' report, "Nevada Oil and Gas Drilling Data, 1906–1953" is the first bulletin published by the State Bureau of Mines on petroleum and natural gas—a very important segment of the mineral industry. During the preparation of the report, great effort was made to obtain information on every well drilled in the State. This information was widely scattered and its collection has in some instances been difficult. In spite of every effort and care, some holes drilled before 1953 may not be reported. If any are known to the reader, the Nevada Bureau of Mines will welcome receiving information concerning them.

Experience indicates that petroleum geology is susceptible to many popular misconceptions. Although man has not obtained the final answers to many of the questions bearing on the occurrence of petroleum, the trend of the answers found in research studies differs widely from popular ideas. In order to acquaint the citizens of the State with progress in this important geologic research; the bulletin contains a very brief account of the generally accepted ideas of petroleum origin, migration, and accumulation.

Since the creation of the State Oil and Gas Conservation Commission in 1953, oil operators are required to file with the Commission full and complete records of all wells drilled. These public records are maintained by the Commission and the Bureau. They

will be of great value for future exploration for oil and gas, and may serve as the basis of additional publications on petroleum in Nevada.

VERNON E. SCHEID, *Director*
Nevada Bureau of Mines

July 1956
Mackay School of Mines
University of Nevada

NEVADA OIL AND GAS DRILLING DATA 1906–1953

By JOSEPH LINTZ, JR.

ABSTRACT

All factual data obtainable are presented for 67 wells drilled, prior to March 24, 1953, in attempts to discover commercial quantities of oil and gas in the State of Nevada.

After a review of the theories of petroleum origin, migration, and accumulation, the petroleum possibilities of Nevada are believed to be marginal; fractured reservoirs and a general lack of porosity throughout the geologic column offset the advantages offered by favorable Paleozoic sedimentation. Fresh water lake deposits of the Tertiary are believed to offer possibilities, but are not well enough known at present. Permian salts indicating an evaporite facies were discovered in the drilling of a deep well in White Pine County in 1952.

INTRODUCTION

Since World War II the demand for petroleum in the United States has risen continuously. Production has been expanded at a rate to accommodate the demands, so that the 1952 crude oil production was 2.372 billion barrels. Although this is a considerable achievement in itself, more remarkable is the record of the petroleum industry for discovering reserves of petroleum at an even greater rate than that of the withdrawals. Thus, in 1938 the United States produced 1.214 billion barrels of oil, and our proven reserves—oil we had located in the ground, but had yet to bring to the surface—stood at 15.5 billion barrels. At the rate of production at that time, we had reserves for 13 years of operations. Since that date over 25 billion barrels of petroleum have been produced in the United States and yet our proven reserves of petroleum within the continental United States now stands in excess of 27 billion barrels—or 12 years' supply at the 1952 production rate of 2.4 billion barrels. (U. S. Bur. Mines, 1942, 1945, 1949; Ingalls, 1953 a, b.)

Despite the many technological advances that have occurred in the petroleum industry, and the development of finer and more precise tools upon which the geologist can draw, there is still a major drawback to our exploration techniques. No method of exploration other than drilling is capable of locating commercial sources of petroleum directly. All of the complex scientific work preceding the drilling of an exploratory well; such as geologic

mapping, seismic exploration, and other types of surveys, are for the sole purpose of selecting a location which may be more favorable than one chosen at random. Even with the best geologic information, the drilling of exploratory wells is a hazardous and expensive venture. In recent years, about 1 wildcat well in 44 has discovered pools of oil large enough to supply the American demand for 4 hours; only 1 wildcat well in 967 finds pools large enough to supply the American demand for more than 3 months, a minimum of 50 trillion barrels, which is regarded as a major field (Lahee, 1951).

In the search for new oil reserves, Nevada has received attention from both major petroleum producers and individual operators. Under a drilling program initiated in 1950 by a partnership of the Standard Oil Company of California and the Continental Oil Company, 3 wells were drilled; and all other companies observed the results as closely as permitted by the operators. These 3 wells constitute a revival of drilling for oil and gas in Nevada. They have been the subject of many questions received by the Nevada Bureau of Mines from all parts of the United States, as well as the subject of much misinformation and rumor on the part of the general public.

The Nevada State Legislature of 1953 adopted a modern, comprehensive petroleum conservation law; which was signed by Governor Charles H. Russell on March 24, 1953. This Act created the Nevada Oil and Gas Conservation Commission, giving it broad powers including the authority to issue well drilling permits and to require the making and filing of various well logs with the Commission. Records of wells commenced subsequent to March 24, 1953 are being maintained by the Commission, and it is anticipated that in the future additional bulletins will be prepared from the Commission's files when it is desirable to present factual data concerning drilling for petroleum in Nevada.

The scope of this paper is to present factual information about drilling for petroleum in Nevada prior to the adoption of the Oil and Gas Conservation Law. Information about wells being drilled at that time is included, but the data of wells spudded after March 24, 1953 are not presented in this report.

The initial survey of drilling activity showed that about one dozen wells had been drilled in the State. Additional investigation raised this number substantially, and information on 67 wells is included in this bulletin. Prior to the 3 deep wells drilled between 1950–1952, there was only spasmodic activity back to the early 1920's. During the 1920's there was a boom of oil well

drilling across the State, with concentrations of wells in Churchill and White Pine Counties. Much time has been devoted in an attempt to obtain fuller records of these early activities. Unfortunately, the records of these wells are widely scattered today and the active participants have moved away, or in many instances, passed away. Occasionally a stockholder could be found, who, after an hour of searching through old records, could uncover a brittle certificate issued by a long defunct syndicate. Probably in these early days, few records were kept, especially of the various formations encountered.

Nevadans have been conscious of oil for a long time; for in the early days of the Comstock, shortly after Col. Drake had discovered oil in Pennsylvania, the Mt. Davidson Oil Company was formed to tunnel into Mt. Davidson on the west side of Virginia City. Word had gotten around that this mountain was a tremendous tank of oil waiting to be tapped to provide power for the mines of the Comstock and to bring light and gentility to Virginia City. Apparently the fear that tapping the tank of petroleum could be dangerous, and if things got out of hand Virginia City might be washed down Six Mile Canyon, plus the lack of money to defray the expense of the adit nipped in the bud Nevada's early admittance to the ranks of the petroleum producing states (DeQuille, 1947)!

Stratigraphic terminology in Nevada has recently been clarified by the publication of the report of the Eastern Nevada Geological Association Stratigraphic Committee (1953). The report is based upon a correlation chart of stratigraphic terms from 21 localities between eastern California (Inyo Range), central Utah, and Idaho. The Nevada stratigraphic units given in the correlation chart are reproduced as fig. 1. Necessarily the compilation of a chart of this nature requires considerable compromise among the various members of the committee. Many of the stratigraphic units were originally proposed in such vague language that most modern stratigraphers are unable to determine the precise boundaries of the units. Some misunderstandings have thus arisen. It is also apparent that the earlier workers did not recognize the structural complexes with which they dealt. The present report follows nomenclature and correlations given in the above work.

The compiling of a mass of information can be accomplished only through the means of cooperation of many individuals who release information at their disposal, or who give generously of their time and hospitality. Letters have been written across the

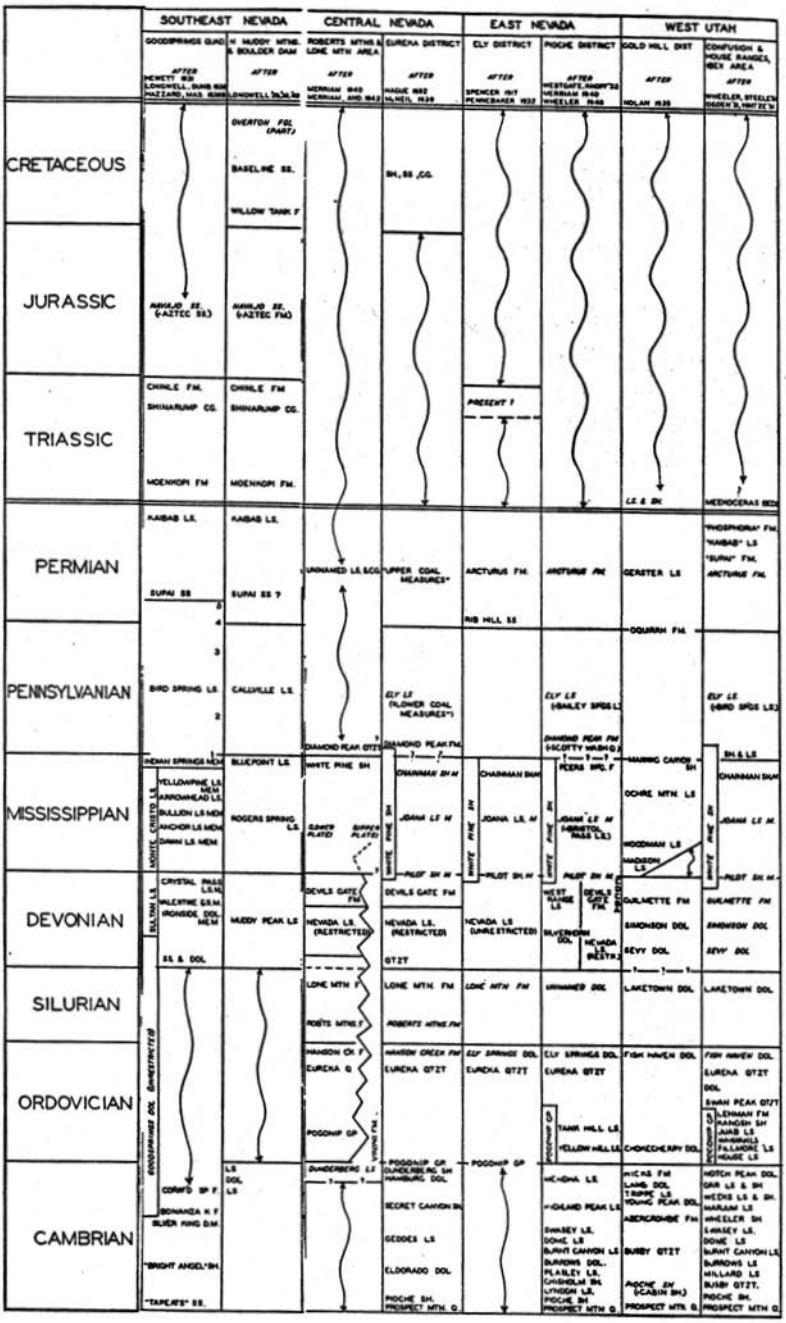


Figure 1. Table of Stratigraphic Units for Nevada. From E. Nev. Geol. Assoc. Strat. Comm., Bull., A.A.P.G., v. 37, pp. 1467, 1953.

146-1

country in an attempt to contact persons who have been active in some of the older drilling campaigns. In most instances they were kind enough to respond. Special thanks are due Mr. Charles Hauptman, former District Engineer of the U. S. Geological Survey Conservation Branch office in Salt Lake City who placed the files under his care at the writer's disposal. Mr. Fred Smith generously conducted the writer to the majority of the holes drilled in Clark County. It is a pleasure to extend thanks to the many others who assisted at one time or another in the preparation of this paper.

THE SCIENCE OF PETROLEUM

THE ORIGIN, MIGRATION, AND ACCUMULATION OF PETROLEUM

This being the first bulletin of the Nevada Bureau of Mines dealing with petroleum, and as some misconceptions about this natural resource are apparent in the letters received by the Bureau from the public throughout the State, is is desirable to review very briefly the current scientific concepts dealing with petroleum.

Petroleum is believed to be created by a two-fold process; (1) the accumulation of organic remains, and (2) transformation of these remains into petroleum. The overwhelming number of researchers in the genesis of petroleum believe that it has formed from organic matter buried in shallow ocean or fresh water lake deposits. The most likely organics material consists of one-celled animals and plants. These type of life, particularly that group of animals known as the foraminifera, and that group of plants, the diatoms, are especially numerous in both ocean and lake waters of today. Multicellular plant and invertebrate animal remains probably contribute to the formation of petroleum to a lesser extent. Although the numbers and species of living forms are tremendous, the remains of a great majority of these organisms are destroyed in dying or after death. Research leads us to believe, however, that if the burial muds contain as little as 3 to 5 percent of the remains of plants and animals, enough organic material is present to account for commercial quantities of petroleum (Trask, 1934).

The first step in the transformation of the organic material to petroleum is probably the work of certain bacteria which are capable of altering the chemical constituents of the mass of buried remains, removing principally the oxygen and nitrogen atoms. When the work of these minute forms is completed, the remaining constituents are predominately carbon and hydrogen atoms

present in the approximate ratio as they occur in crude oils (ZoBell, 1945).

The second step in the transformation is the rearrangement of the atoms of hydrogen and carbon to form petroleum, which is the work of copious time and certain geochemical processes. The temperatures under which these reactions occur are probably similar to the refinery temperatures at which man breaks down and remixes the molecular fractions of petroleum; temperatures of the order of 250 to 300° F. The pressure caused by the weight of the overlying layers of rock must affect the formation of petroleum; however, laboratory experiments using up to 100,000 pounds per square inch have failed to yield petroleum from the oil shale of Elko County (Van Tuyl and Blackburn, 1925). A combination of pressure and temperature would appear to be more successful in causing the formation of petroleum. It is not known whether the presence of a catalyst may cause the change from decomposed organic matter to petroleum under certain conditions of pressure and temperature. Suspected of acting as catalysts are vanadium oxide, nickel oxide, and sulfur; which are nearly always found in the analysis of petroleum ash. The role that geologic time plays in the formation of petroleum cannot be underestimated.

Studies of the deposition of modern organic remains show that the greatest concentrations occur in the finest grained sediments such as clays, muds, and shales. These deposits are believed to be the site of petroleum origin or the "source beds" of petroleum (Trask, 1934). The tremendous loss of volume suffered by these sediments in the process of their burial by overlying beds is a result of the squeezing out of water between the minute mineral grains and flakes. Carried away with this water are the individual droplets of newly formed crude oil. The oil and water then migrate laterally or vertically along the line of least resistance to a more porous type of rock which is capable of withstanding the compaction. A sandstone or siltstone which is strong enough to resist being crushed by the weight of overlying deposits and which still contains small openings between the various mineral grains will serve this purpose. This type of rock is known as a reservoir rock and is the objective of modern petroleum exploration.

Great divergence of scientific opinion is found regarding the distance oil can migrate between the source bed and the reservoir rock. "Authorities" can be cited to support any claim ranging from no migration to migration on the order of 150 to 200 miles.

The majority of workers believes that migration does occur and that all oil has undergone some movement to a reservoir rock or within a reservoir rock. Once in a permeable reservoir rock, petroleum should be capable of percolating or oozing along, like coffee moving into a lump of sugar, under any one or combination of several factors. Capillary action, water pressure, specific gravity differentials, secondary cementing, differential gas pressure, and earth movements are frequently mentioned factors, but several others should not be overlooked in a detailed consideration of the problem. Movement will occur until a trap is encountered which precludes further migration. Petroleum can accumulate in several types of traps, and the recognition of the presence of these traps leads to the selection of a drilling site. Those that are cheapest and easiest to find are the traps dependent upon the position or attitude of the reservoir rocks; this includes faults and folds and combinations thereof. In many instances these can be delineated from the surface rocks. A much greater challenge is presented by traps caused by porosity differences which have no surficial expression and are also difficult to detect by geophysical exploration methods.

In many places in the world petroleum is obtained from limestone reservoirs. Most of the new production from the Middle East and Alberta, Canada, comes from this type of reservoir. Limestone reservoirs have long been important in West Texas. Limestone commonly contains large numbers of minute fossils and some limestones are composed entirely of fossil remains. It seems certain that tissues of the dead animals could furnish the raw material for the generation of petroleum. It also appears that the petroleum in many limestone reservoirs is found almost *in situ;* that the reservoir beds are, for all practical purposes, the source beds as well.

The major oil companies base their exploration programs on the following two points: (1) locate a promising "structure" which will serve as a possible trap, and (2) determine from outcrops in the region the possible source beds and reservoir beds occuring in the stratigraphic section at the trap. It is then necessary to drill the various strata and test the formations for the presence of petroleum.

PETROLEUM POSSIBILITIES IN NEVADA

If the foregoing concepts are applied to the rocks of Nevada, prospects for eventual commercial production of petroleum and natural gas within the State are encouraging. Throughout most

of the Paleozoic era, the land that is now Nevada was submerged beneath the ocean waters. As the deposits of clay, sand, and lime were being laid down on the floor of this ocean throughout the long reaches of geologic time, the remains of countless generations of animal and plant life were added to these great thicknesses of sediments. Because these Paleozoic sediments possess a greater than average thickness we can conclude that the ocean was present throughout this great length of time with only minor, temporary withdrawals. The rock sequences consist of sandstones, shales, and limestones. Where the organic content is rich enough, the latter two types of lithology could serve as source beds for petroleum. Some of the upper Paleozoic formations, particularly those having a very dark gray to black color, emit a petroliferous odor from a fresh surface. Presence of fossils indicate depositional sites probably meeting minimum requirements for organic content as determined by Trask (1934). Paleozoic rocks of this nature are found in outcrops extending over the eastern and southern portion of the State. They are presumed to occur in the western region of the State under thick deposits of the younger overlying rocks and are, therefore, not exposed. Rocks of late Paleozoic age are found in restricted areas in California which would suggest that the deposition in eastern Nevada and California was from a common sea. Porous rocks of Paleozoic age are also found nearly everywhere in southern and eastern Nevada. Their thickness, however, is greatly reduced. Such beds could serve as reservoir rocks for any available petroleum. Because these are ancient rocks, it seems reasonable to expect that they will not possess the superabundance of oil that the much younger, more porous reservoir rocks of California have contained, but should contain quantities of petroleum or natural gas similar to those of the reservoir rocks of equivalent age and similar porosity of the Mid-Continent Region.

Conditions continued with little change from the Paleozoic into the Mesozoic era in Nevada. The marine sediments are interstratified with pyroclastic material ejected from volcanoes not far removed, and as the Mesozoic era progressed, the quantity of volcanic material deposited exceeded the normal marine deposits, especially in western Nevada. In the eastern part of the State, Mesozoic sediments are known, but they are not widespread and are today thin erosional remnants. Where marine beds are found they contain fossils, frequently in great abundance. During the middle of the Mesozoic era the oceans retreated, the land was elevated, and, to the west, the Sierra Nevada Mountains were

formed. Never again did the ocean blanket the State. As the land was elevated volcanic activity accelerated; the last marine deposits are interbedded with thick layers of volcanic ash and flow materials.

More than half of Nevada is covered with deposits of Tertiary and Quaternary Age. Although deposits of Tertiary Age are the principal petroliferous strata in California, little hope had been held for petroleum production from these rocks in Nevada before the discovery of oil in these rocks in the spring of 1954 by the Shell Oil Company No. 1 Eagle Springs Unit Well in Railroad Valley, Nye County. In California, sediments of this age were deposited on the ocean floor together with ample organic remains. The contemporaneous sediments of Nevada are deposits of volcanic debris, streams and rivers, or fresh water lakes. Only in the latter type of deposit is it believed possible to have sufficient quantities of organic remains to form petroleum. In Nevada these Tertiary and Quaternary sediments occur in all valleys and basins of the State masking the older potentially petroliferous beds. Few indications of subsurface structures are visible on the surface where the Tertiary sediments occur. In order to select the most likely drilling locations it will be necessary to investigate large areas with expensive geophysical surveys.

The deformation of the rocks necessary to form traps for the collection of petroleum in commercial quantities is widespread in the State. In but few places in the State are the sediments in a flat lying position; indeed, the normal attitude is an obvious tilt that dramatically attracts the eye. Structures or traps may be expected in great abundance. Deformation is required to create a structural trap, but too much deformation will destroy or shatter the trap once created, and render it useless. By means of the faults and fractures cracking the impervious overlying layer, the petroleum or natural gas can escape from the trap and be dissipated. As our knowledge of Nevada geology accumulates, we are beginning to realize that in Nevada perhaps it will be necessary to search for the structures of a gentle nature, which are not shattered and destroyed, as potential oil traps. In many parts of the State the deformation may be too intense. This is particularly true of the older rocks, where the traps may have been in existence through more than one period of deformation. The Tertiary traps, being younger, are less likely to have suffered deformation to the point where they are useless for oil accumulation.

Our present knowledge of the geology of Nevada is pitifully

small. Previous work has been concentrated in the mining districts that have produced the mineral wealth of the past. These areas are of little interest to the petroleum geologist, for the geologic processes by which the metallic ores were emplaced would have destroyed any petroleum possibilities the mining district might have offered. It has been necessary for the petroleum geologist to strike out on his own and to start from scratch to build up his own store of knowledge. The fact that several dry holes have been drilled, despite costly exploration projects preceding them, is not surprising, for the total geologic knowledge is still meager.

Exploration experience in important oil fields has shown that many dry holes often precede the discovery of petroleum. The largest area of petroleum reserves known today occurs in the Middle East, in the lands surrounding the Persian Gulf and probably underlying much of that body of water. Iraq and Iran have produced oil for many years; yet when American companies obtained concessions to operate in Saudi Arabia they were obliged to underwrite a very costly exploration program. Moving seas of desert sand forced the companies to resort to geophysical prospecting. With the best structural information possible from this geologic tool, they still drilled seven dry holes before discovering significant quantities of petroleum.

Drilling in Nevada cannot hope to discover such a vast store of petroleum as underlies the shores of the Persian Gulf. Nevada petroleum will be found in lesser quantities due to the thinner porous strata or reservoir rocks in which it might accumulate. The deformation of rocks in the Persian Gulf area has been so gentle as to yield optimum conditions for petroleum traps and the resultant traps are very large. In Nevada the deformation, being more intense, probably has squeezed the structures and destroyed many of them as petroleum traps. Petroleum traps in Nevada can be expected to possess a relatively narrow north-south lineation. The petroliferous areas can be expected between the nonpetroliferous mountain ranges.

SUMMARY OF DRILLING RESULTS

CHURCHILL COUNTY—The wells drilled in the 1920's in and about Fallon, the county seat, were all dry holes. Although no logs are available for these wells, it would appear that they never drilled through the Tertiary beds. It is noted that Churchill County has had production of natural gas for more than 25 years.

Several ranches produce marsh gas (CH_4) for their own consumption from very shallow wells.

CLARK COUNTY—The drilling of wells in Clark County has been accomplished in a haphazard manner. The tests for the most part must be considered quite inconclusive. In several instances the wells have been contaminated by the addition of oil down the hole to loosen jammed tools.

Clark County must be considered as a possible source of petroleum production. It has two geologic factors which may be considered favorable to the occurrence of petroleum: (1) A relatively complete and thick sequence of sedimentary formations ranging from the Devonian through the Jurassic systems, and (2) the upper Paleozoic sediments are principally marine limestones which could serve as source beds. Beds capable of serving as reservoir rocks are present in the stratigraphic sections, but are not of notable thickness. The sedimentary rocks have been deformed and it is possible that favorable structures exist for the accumulation of petroleum if an area can be located where the deformation is not so excessive as to destroy the traps once formed. The deeper wells drilled into the Pennsylvanian system, and one well at Sloan, stopped in the Mississippian strata. To date the Tertiary strata have consisted of "valley fill" and no fresh water lake sediments have been found.

ELKO COUNTY—Drilling results in Elko County to date are most inconclusive. The deepest well stops in the upper Mississippian strata. No other well is known to penetrate completely the Tertiary formations. The Dolly Varden Unit No. 1 well drilled by the Gulf Refining Company did not reach the anticipated possible petroliferous horizons because of unfavorable subsurface geologic conditions.

WHITE PINE COUNTY—The over-all drilling results to date in White Pine County are considered encouraging. The wells have been drilled with care and tested conclusively. Thick sequences of black shales and dark limestones are present and could serve as source rocks. Porous rocks capable of serving as reservoirs are present, although not very thick. In many places the limestones are vuggy or cavernous and would make suitable reservoirs for petroleum or natural gas.

The drilling of the Summit Springs Unit well by the Standard Oil Company of California and the Continental Oil Company brought forth many geologic data that had not been suspected from studies of the regional outcrops. The Permian system is

8855 feet thick. The interval between 1380 feet and 6639 feet within this Permian zone contains alternating evaporites, limestones, dolomites, and siltstones. The many thin gypsum and anhydrite beds amount to 25 percent of this interval, and these rock types are not known in outcrop. The evaporite beds are significant because they indicate a possible reef zone in Nevada, and elsewhere reefs are important petroleum reservoirs. The majority of the oil and gas shows in this well was from this possible reef zone.

Similar lithologic types are found in the west Texas-southeastern New Mexico petroliferous area and on the Colorado Plateau in the Four Corners region. In these districts it has been established that the evaporite beds were deposited in shallow lagoons separated from the open sea by barrier reefs. A reef of this type, the Great Barrier Reef, exists today off the eastern and northeastern shores of Australia, extending well over a thousand miles and effectively preventing the free and open exchange of Pacific Ocean waters with the lagoonal waters enclosed by the reef. This modern reef, and apparently the ancient reefs of Texas and the Four Corners region, swarms with a host of living animals of all types. Popularly called coral reefs, coral is not always the most important form of life contributing skeletal remains to build the reef, although it is always present. The ancient reefs of Texas and New Mexico are the sites of much of the tremendous petroleum production of that area. The reef of the Colorado Plateau is not as well known geologically, but undoubtedly is contributing to the natural gas and petroleum production of that area.

It appears probable, therefore, that the evaporite deposits found in the Summit Springs well originated in a lagoonal environment during the Permian period and that somewhere about their margin lies a reef which hampered the free exchange of water between the open ocean and the lagoon. This reef, if it can be located, should be drilled for petroleum.

Geologic relationships of the evaporite beds are shown in fig. 2. Generalized stratigraphic columns encountered in the drilling of the Continental-Standard Oil Companies' Hayden Creek Unit, Meridian Unit, Summit Springs Unit wells together with Gulf Refining Company's Dolly Varden Unit well provide the factual basis of this illustration. All complexities resulting from tectonic activities have been eliminated to permit clear presentation of the stratigraphic information. The time lines represent systematic boundaries. No attempt was made to portray unconformities or the position of the formations within the systems. The Permian evaporite facies is interfingered with the Permian calcareous

facies which crop out on the surface. No attempt is made to show the position of a reef or barrier since its existence is inferred. At the sites of the Hayden Creek Unit and Meridian Unit wells, rocks of the Permian system have been completely eroded, and these wells have older rocks at their tops.

The fence diagram graphically illustrates the relationships of

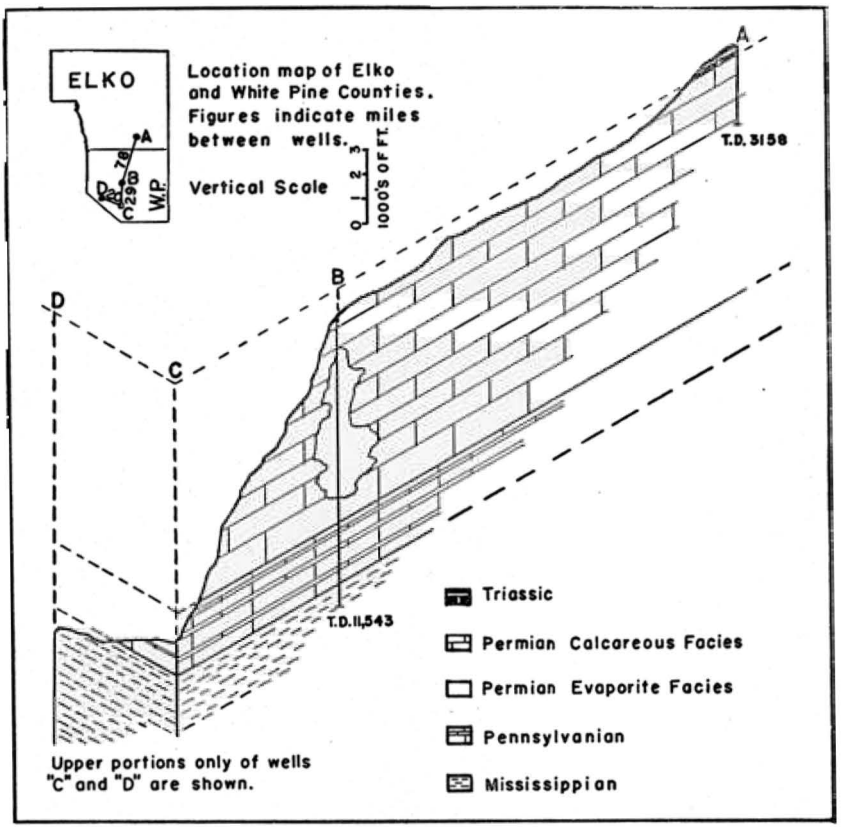


Figure 2. Permian Evaporites in Eastern Nevada.

the various stratigraphic units penetrated by these wells in eastern Nevada. None of the geological systems have been completely penetrated by all three deep wells in White Pine County. The lower portions of the Meridian Unit well, including the Devonian, Silurian, and upper portion of the Ordovician systems, have been omitted. The Devonian system was omitted in the Hayden Creek Unit well.

OTHER COUNTIES—Wells drilled in other counties of Nevada are of little scientific significance. They have been drilled with little or no geologic advice and add nothing to the geologic knowledge of the State from the petroleum point of view.

DATA OF HOLES DRILLED IN NEVADA FOR OIL AND GAS, 1906–1953

(Drill Hole Reference Numbers refer to Fig. 3 and Table I)

CHURCHILL COUNTY

Ref. No. 29

Syndicate Oil Company No. 1 well — Fallon District, Churchill County
N½SW¼ sec. 18, T. 17 N., R. 29 E. — Spudded: August 21, 1922
Total Depth: 3200′ — Elev.: 3918′

SOURCE OF INFORMATION: Mr. Jones, Jones and Jewell Ranch, South of Fallon.

REMARKS: This is the deepest well in Churchill County. The Bottom is in valley fill and the well was drilled through a sequence of clays and sands. Drilling was with rotary tools to about 2200 feet and then cable tools to total depth. The hole was completely cased, but except for the surficial 100 feet of 12-inch casing, it has been recovered. The well, located on the Jones and Jewell Ranch, was plugged and is now buried to a depth of 2 to 3 feet. Several shows of gas were encountered, and one oil show was reported.

LOG: None available.

Ref. No. 21

Fallon Oil and Gas Company No. 1 well — Fallon District, Churchill County
NW¼NW¼NW¼ sec. 5, T. 18 N., R. 31 E. — Spudded: July 1919
Total Depth: 1327′ — Elev.: 3940′

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City.

REMARKS: Location is 200 feet south and 150 feet east of the northwest corner of section 5. Six-inch casing stands 2 feet above ground level; depth of casing unknown.

LOG: None available.

Ref. No. 23

Fallon Oil and Gas Company No. 2 well — Fallon District, Churchill County
NW¼NW¼NW¼ sec. 5, T. 18 N., R. 31 E. — Spudded: 1920 (?)
Total Depth: 705′ — Elev.: 3940′

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City.

REMARKS: Hole located 250 feet south and 200 feet east of northwest corner of section 5.

LOG: None available.

Ref. No. 22

Fallon Oil and Gas Company No. 1a well — Fallon District, Churchill County
E½NE¼NE¼ sec. 6, T. 18 N., R. 31 E. — Spudded: 1921
Total Depth: 400′ — Elev.: 3937′

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City.
REMARKS: Hole located 450 feet south and 290 feet west of the northeast corner of section 6.
LOG: None available.

Ref. No. 24

Fallon Oil and Gas Company No. 2a well — Fallon District, Churchill County
NE¼NE¼NE¼ sec. 6, T. 18 N., R. 31 E. — Spudded: 1921
Total Depth: 1300′ — Elev.: 3937′

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City.
REMARKS: Hole is 175 feet south and 50 feet west of NE corner section 6. Six-inch casing stands 5 feet above ground level. No oil, gas, or water showing. No cellar. Hole is open.
LOG: None available.

Ref. No. 28

Lahontan Oil Syndicate No. 1 well — Fallon District, Churchill County
NE¼NE¼SW¼ sec. 20, T. 18 N., R. 31 E. — Spudded: December 18, 1922
Total Depth: 2015′ — Elev.: 4193′

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City.
REMARKS: None.
LOG: None available.

Ref. No. 19

Diamond Oil Company No. 1 well — Fallon District, Churchill County
NE¼NE¼NW¼ sec. 34, T. 18 N., R. 31 E. — Spudded: 1921
Total Depth: 1700′ — Elev.: 3937′

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City.
REMARKS: None.
LOG: None available.

Ref. No. 27

Fallon Pioneer Oil Company No. 1 well — Fallon District, Churchill County
S½SE¼NE¼ sec. 8, T. 19 N., R. 32 E. — Spudded: (?)
Total Depth: 1540′ — Elev.: (?)

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City. Mr. Tony Caselton, Fallon.
REMARKS: Hole is 2435 feet south and 625 feet west of NE corner of section 8. Tony Caselton of Fallon was a driller on this well. Mr. Caselton stated that the well did not penetrate below the valley fill.
LOG: None available.

Ref. No. 16

Fallon Union Oil Company No. 1 well — Fallon District, Churchill County
SE¼NW¼ sec. 24, T. 19 N., R. 26 E. — Spudded: (?)
Total Depth: 650′ — Elev.: 4100′

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City.
REMARKS: Claimed show of oil and gas at 585 feet.
LOG: None available.

Ref. No. 17

Fallon Extension Oil and Gas Company No. 1 well — Fallon District, Churchill County
C NE¼SE¼ sec. 22, T. 19 N., R. 28 E. — Spudded: 1921
Total Depth: 1076′ — Elev.: 3937′

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City.
REMARKS: Water stands 16 feet below the top of the casing.
LOG: None available.

Ref. No. 18

E. W. Hart No. 1 well — Fallon District, Churchill County
C NW¼SW¼ sec. 20, T. 19 N., R. 31 E. — Spudded: 1922
Total Depth: 200′ — Elev.: 3910′

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City.
REMARKS: None.
LOG: None available.

Ref. No. 20

Calneva Oil Company—Way Brothers No. 1 well — Fallon District, Churchill County
SW¼SW¼SW¼ sec. 32, T. 19 N., R. 31 E. — Spudded: 1922
Total Depth: 1560′ — Elev.: 3937′

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City.
REMARKS: Hole is 200 feet north and 350 feet east of SW corne of section 32.
LOG: None available.

Ref. No. 25

Council Oil Company No. 1 well — Fallon District, Churchill Count
NW¼NW¼SE¼ sec. 3, T. 20 N., R. 32 E. — Spudded: 1921
Total Depth: 300′ — Elev.: 4000′

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City.
REMARKS: None.
LOG: None available.

Ref. No. 26

Fallon Nevada Oil Company No. 1 well — Fallon District, Churchill County
SW¼SW¼NE¼ sec. 16, T. 20 N., R. 32 E. — Spudded: June 1921
Total Depth: 250′ — Elev.: (?)

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City.
REMARKS: None.
LOG: None available.

In addition to the above wells approximately 20 shallow wells are located on ranches south of Fallon which produce gas in sufficient quantities for domestic use. Typical of such wells are those on the Jones and Jewell Ranch, one of which is located about 250 feet north of the ranchhouse in the field along U. S. Highway 95. The well is 160 feet deep and is cased with 4-inch pipe. This well was drilled for irrigation water and is still used. However, as the gas content was discovered to amount to 500 to 600 cubic feet per day a collecting tank was installed. The gas was piped to the ranchhouse and used 17 years for cooking, heating, and with Welshbach mantles, for lighting. A sample of gas submitted to the Department of Chemistry, University of Colorado, Boulder, Colorado, yielded the following analysis:

	Percent
Carbon dioxide	1.30
Heavy hydrocarbons	0.00
Oxygen	0.79
Carbon monoxide	0.49
Methane	85.50
Nitrogen	11.92 by difference
	100.00

A second gas-producing well on the Jones and Jewell Ranch is located about one quarter of a mile east of the ranchhouse. This well, of 180-foot depth, produces gas and water. The water is used for stock watering purposes; the gas has never been collected.

Both of these wells are producing from the Quaternary lake beds of Lake Lahontan. The gas has probably been formed by the action of bacteria upon organic remains entombed in the muds of the lake.

The other gas-producing wells in this district extend easterly from the west end of T. 17 N., R. 28 E. to the Fallon Naval Air Base in T. 18 N., R. 30 E. They are all shallow wells similar to the two described on the Jones and Jewell Ranch.

CLARK COUNTY

Ref. No. 46

Last Chance Oil Company No. 1 Crystal well — Crystal District, Clark County
NW¼ sec. 11, T. 17 S., R. 64 E. — Spudded: 1950 (?)
Total Depth: 1002′ (?) — Elev.: 2120′

SOURCE OF INFORMATION: Mr. Fred Smith, Las Vegas.

REMARKS: This well is located 200 to 300 feet southeast of U. S. Highways 91 and 93 and is about one quarter of a mile east of the Dry Lake railroad underpass. Mr. Burley Jones, a Las Vegas real estate broker, was in charge of drilling this well, and Mr. Fred Smith was the driller. They drilled to 1002 feet and abandoned the well because of lost circulation. In July 1952 the well was being reopened in preparation for deepening by cable tools with Mr. Joe Irwin as the driller.

LOG: None available.

Ref. No. 47

United Petroleum Corporation No. 1 Apex well	Apex—Dry Lake District, Clark County
SW¼SW¼NE¼ sec. 6, T. 18 S., R. 64 E.	Spudded: October 1, 1948
Total Depth: 1247′	Elev.: 2380′

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City. Mr. James Sayre, Las Vegas. Mr. Fred Smith, Las Vegas.

REMARKS: The well was drilled by "Blacky" Martin for Martin Wald of Phoenix, Arizona. The location is 250 feet from the south line and 250 feet from the west line of the NE quarter-section. The well was spudded in the Quaternary alluvium near Dry Lake and probably did not drill out of the Tertiary valley fill. A show of gas coming from a brecciated limestone was reported at 920 feet. Casing was set to a depth of 1240 feet.

LOG: No lithologic log is available for this well. The Nevada Bureau of Mines has in its open files a Gamma Ray log between the 50- and 1240-foot horizons. An electric log for the bottom 100 feet of the well is also available in the open files.

Ref. No. 48

Pozil, Johnson, & Krug No. 1 Apex well	Apex—Dry Lake District, Clark County
NE¼NE¼NW¼ sec. 7, T. 18 S., R. 64 E.	Spudded: June 2, 1950
Total Depth: 1455′	Elev.: 2041′

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City. Mr. Blaine Johnson, Las Vegas.

REMARKS: The cement foundations for the derrick still stand within 100 feet of U. S. Highways 91 and 93 and are clearly visible. The surface formation consists of valley fill. The location of the well is 260 feet from the north line and 2275 feet from the west line of the section.

LOG: None available.

Ref. No. 54

Commonwealth Oil Company No. 1 well	Arden Dome District, Clark County
NE¼NE¼SW¼ sec. 31, T. 21 S., R. 60 E.	Spudded: November 25, 1933
Total Depth: 1897′	Elev.: 2750′

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City.

REMARKS: This is one of the deepest tests on Arden Dome and good records were maintained. The location is 2380 feet from the south line and 2380 feet from the west line of section 31. Miller[1] has recognized the following tops:

Alluvium, Surface
Supai formation, 300–500′ (Permian)
Bird Springs limestone, 975′ (Pennsylvanian)

Miller also reports the following shows in this well:

800– 805′ Show of gas
1560–1575′ Show of oil

The following casing is reported to be in this hole:

15½″ casing cemented at 120′.

LOG: (Driller's)

(Samples not corrected for lag)

Top	Bottom	Thickness	Description
0	195	195	No record.
195	205	10	Clay, yellow.
205	235	30	Limestone.
235	245	10	Clay, yellow with thin streaks of lime.
245	250	5	Limestone.
250	270	20	Limestone, hard.
270	275	5	Clay with thin limestone beds.
275	295	20	Clay, sticky.
295	310	15	Limestone.
310	335	25	Limestone, hard.
335	342	7	Limestone, broken.
342	346	4	Shale with thin beds of limestone.
346	356	10	Shale, blue-gray, a few thin beds of limestone.
356	365	9	Limestone with cherty pebbles.
365	380	15	Shale, with thin streaks of limestone.
380	390	10	Limestone, hard, with white pebbles. (Chert?)
390	412	22	Limestone, gray.
412	430	18	Limestone, blue and gray.
430	452	22	Shale, blue; and limestone, gray.
452	454	2	Soft formation, water seepage. (Sands?)
454	460	6	Shale, blue.
460	470	10	Limestone, brown.
470	475	5	Limestone, hard.
475	478	3	Sandstone, hard.
478	485	7	Conglomerate.
485	497	12	Shale.
497	503	6	Shale, blue.
503	510	7	Sandstone, gray and brown.
510	520	10	Limestone, gray; with streaks of shale, blue.
520	530	10	Limestone, gray.
530	540	10	Shale, blue, with limestone.
540	552	12	Shale, black, sandy.

[1]Miller, J. C., 1944, Geologic reconnaissance of Arden Area, Clark County, Nevada: U. S. Geol. Survey unpublished report.

Top	Bottom	Thickness	Description
552	558	6	Shale, black, sandy, with thin limestone beds.
558	575	17	Shale, red, with thin limestone beds.
575	600	25	Shale, red.
600	620	20	Shale, red, sticky.
620	660	40	Shale, red, sandy.
660	675	15	Shale, red, sticky.
675	695	20	Shale, red, sticky, with thin hard limestone beds.
695	730	35	Shale, red.
730	760	30	Shale, red, sticky.
760	770	10	Limestone, thin bedded.
770	780	10	Limestone, sandy.
780	790	10	Sandstone, hard.
790	794	4	Sandstone, soft, moist.
794	800	6	Sandstone, hard, sharp grained.
800	805	5	Sandstone, yellow. SHOW OF GAS.
805	825	20	Limestone, white, sandy.
825	860	35	Limestone, gray, sandy, medium hard.
860	870	10	Limestone, pink, hard.
870	935	65	Sandstone, hard.
935	975	40	Sandstone, with occasional thin beds of limestone.
975	1030	55	Limestone, sandy.
1030	1070	40	Sandstone and sandy limestone.
1070	1080	10	Limestone, thin bedded.
1080	1085	5	Gravel.
1085	1095	10	Limestone with occasional thin beds of sandstone.
1095	1110	15	Limestone, pink.
1110	1120	10	Shale, blue, sticky.
1120	1130	10	Shale, blue, hard.
1130	1135	5	Limestone, white.
1135	1150	15	Limestone, white, with thin streaks of red and blue shale.
1150	1180	30	Limestone, gray.
1180	1190	10	Limestone, brown, sandy.
1190	1220	30	Limestone, gray, sandy.
1220	1225	5	Limestone, brown, sandy, hard.
1225	1262	37	Limestone, gray, medium hard.
1262	1290	28	Limestone, gray, hard.
1290	1307	17	Limestone, brown, sandy.
1307	1337	30	Limestone, gray.
1337	1345	8	Sandstone, brown.
1345	1360	15	Limestone, gray and white, sandy.
1360	1400	40	Limestone, brownish gray, sandy, hard.
1400	1430	30	Limestone, brown, sandy.
1430	1440	10	Limestone, brown, sandy, hard.
1440	1481	41	Limestone, gray-reddish.
1481	1488	7	Limestone, brown.
1488	1511	23	Limestone, brown, sandy, hard.

Top	Bottom	Thickness	Description
1511	1520	9	Sandstone, brown.
1520	1535	15	Limestone, brown, sandy.
1535	1560	25	Limestone, gray, sandy.
1560	1575	15	Limestone, dark gray. SHOW OF GAS.
1575	1585	10	Limestone, white, sandy.
1585	1590	5	Limestone, gray, sandy, hard.
1590	1600	10	Sandstone, gray, hard, fine grained.
1600	1620	20	Sandstone, brown.
1620	1629	9	Sandstone, gray.
1629			End of available log.
1897			T. D.

Ref. No. 53

E. W. Bannister No. 1 well — Arden Dome District, Clark County

SW¼SE¼SW¼ sec. 34, T. 21 S., R. 60 E. — Spudded: April 8, 1929

Total Depth: 522′ — Elev.: 2750′

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City.

REMARKS: A shallow test on the Arden Dome. Location is 500 feet from the south line and 1800 feet from the west line of section 34.

LOG: None available.

Ref. No. 56

Red Star Oil Company—J. B. Nelson No. 1 well — Arden Dome District, Clark County

SE¼NW¼SE¼ sec. 20, T. 22 S., R. 60 E. — Spudded: June 1, 1943

Total Depth: 2210′ — Elev.: 2631′

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City. Mr. Fred Smith, Las Vegas.

REMARKS: This well is located 920 feet from the north line and 920 feet from the west line of the SE¼ of section 20. The cement foundations for the derrick can be seen about 100 feet from the left side of the road going to the Blue Diamond Gypsum Plant. Mr. J. B. Nelson formed the Red Star Oil Company and drilled this well, which was abandoned when the tools twisted off near the bottom. The following tops have been recognized by Miller[2]:

Supai formation, Surface (Permian)

Bird Springs limestone, 1524′ (Permian and Pennsylvanian)

LOG: (Driller's)

Top	Bottom	Thickness	Description
0	280	280	Sand, gravel, and thin limestones.
280	320	40	Limestones, thin bedded.
320	450	130	Sands and thin limestones.
450	600	150	Limestone with thin sandstones.
600	700	100	Limestone, hard; with thin hard sandstones.
700	850	150	Limestone; with thin sandstone beds.

[2]Op. Cit.

Top	Bottom	Thickness	Description
850	862	12	Limestone.
862	952	90	Gypsum and sandy gravel.
952	973	21	Limestones, thin bedded.
973	1059	86	Limestone, gray, hard.
1059	1080	21	Clay, red.
1080	1166	86	Limestone, hard.
1166	1200	34	Clay and sand, hard.
1200	1221	21	Limestone, hard.
1221	1245	24	Limestone, hard; with streaks of red sandy clay.
1245	1265	20	Limestone, hard.
1265	1284	19	Limestone and red clay.
1284	1300	16	Limestone conglomerate.
1300	1311	11	Red rock, hard.
1311	1337	26	Limestone conglomerate.
1337	1470	133	Shale and red clay.
1470	1497	27	Limestone, hard.
1497	1555	58	Clay, sandy.
1555	1560	5	Shale, limey.
1560	1574	14	Limestone, hard.
1574	1597	23	Conglomerate.
1597	1626	29	Conglomerate; with thin beds of hard limestone.
1626	1636	10	Conglomerate.
1636	1651	15	Limestone conglomerate.
1651	1860	209	Conglomerate; with streaks of sticky brown shale.
1860	1885	25	Conglomerate; with limestone streaks and sticky shale.
1885	1915	30	Conglomerate; with streaks of sticky shale.
1915	1925	10	Hard shale.
1925	1935	10	Shale, reddish, hard, tough.
1935	1959	24	Shale, hard.
1959	1972	13	Shale, tough, sticky.
1972	1982	10	Shale, sticky; with streaks of hard, gray limestone.
1982	1985	3	Shale, hard; with thin limestone beds.
1985	2005	20	Shale, hard.
2005	2020	15	Clay with hard streaks.
2020	2032	12	Shale.
2032	2042	10	Shale, tough.
2042	2055	13	Shale, tough; with streaks of red fine sand.
2055	2085	30	Shale, tough.
2085	2147	62	Shale, sandy; with streaks of tough shale.
2147	2157	10	Shale, sandy.
2157	2201	44	Shale, sandy; with streaks of tough shale.
2201	2206	5	Limestone.
2206	2210	4	Limestone, hard.
2210			Drill Pipe Stuck.
2210			T. D.

Ref. No. 57

J. B. Nelson No. 2 well — Arden Dome District, Clark County

SE¼NW¼SE¼ sec. 20, T. 22 S., R. 60 E. — Spudded: January 26, 1944

Total Depth: 3767′ — Elev.: 2631′

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City. Mr. Fred Smith, Las Vegas.

REMARKS: After the Red Star No. 1 well was abandoned because of lost tools, the drilling rig was skidded 20 feet east and a new hole spudded. The location is 920 feet from the north line and 940 feet from the west line of the SE¼ of section 20. Mr. Don McGarvey of Las Vegas, the driller on this well, stated that there is a "dog leg" at about 800 feet. The formation tops for this well are the same as for the well above:

Supai formation, Surface (Permian)

Bird Springs limestone, 1524′ (Permian and Pennsylvanian)

Core from 3204 feet is reputed to have yielded hydrocarbons when cut with CCl_4. The hole was cased as follows:

10¾″ casing cemented at 924′.

6⅝″ casing cemented at 3350′. 300′ of perforated 100 mesh pipe at the bottom.

Whether the casing still remains in the hole or has been pulled is not definitely known.

LOG: No lithologic log is available; however, it would be the same as for the preceding well. The Nevada Bureau of Mines has in its open files an electric log of this well between 924 feet (bottom of 10¾″ casing) and 3342 feet.

Ref. No. 55

L. M. Hatfield No. 1 well — Arden Dome District, Clark County

SW¼SW¼NW¼ sec. 20, T. 22 S., R. 60 E. — Spudded: July 31, 1935

Total Depth: 707′ — Elev.: 2800′

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City.

REMARKS: The location of the well is cited as 200 feet from the south line and 200 feet from the west line of the SW¼NW¼ section 20. It appears that this well is drilled on the right-of-way of the Union Pacific Railroad.

LOG: (Driller's)

Top	Bottom	Thickness	Description
0	300	300	Lime, sand, gravel, clay.
300	361	61	Clay, boulders, gravel, and lime.
361	410	49	Clay, red; and gravel.
410	429	19	Lime and gravel.
429	498	69	Red rock.
498	502	4	Limestone, hard.
502	540	38	Red rock.

Top	Bottom	Thickness	Description
540	544	4	Sandstone, quartzitic, hard.
544	572	28	Limestone; with streaks of quartzite.
572	593	21	Red rock.
593	595	2	Sand, white.
595	648	53	Clay, gray; and gravel.
648	657	9	Shale, gray; and gravel.
657	663	6	Clay and gravel.
663	682	19	Limestone and quartz.
682	707	25	Lime, hard; and quartz.
707			T. D.

Ref. No. 49

McAuley Associates No. 1 well — Whitney District, Clark County
SE¼NE¼ sec. 2, T. 21 S., R. 62 E. — Spudded: January 3, 1952
Total Depth: 1970′ — Elev.: 1650′

SOURCE OF INFORMATION: Mr. Fred Smith, Las Vegas.
REMARKS: Well penetrated hot water-bearing beds which could not be cased off. Well located on west side of Frenchman Mt., which is an outcrop of Devonian rocks.
LOG: None available.

Ref. No. 50

McAuley Associates No. 2 well — Whitney District, Clark County
SE¼SE¼NE¼ sec. 2, T. 21 S., R. 62 E. — Spudded: January 3, 1953
Total Depth: 2268′ (?) — Elev.: 1650′

SOURCE OF INFORMATION: Utah Oil Report, Salt Lake City.
REMARKS: None.
LOG: None available.

Ref. No. 51

Leonard R. Wilson No. 1 Government well — Henderson District, Clark County
NW¼NW¼NE¼ sec. 32, T. 22 S., R. 63 E. — Spudded: February 3, 1953
Total Depth: 810′ — Elev.: 2100′

SOURCE OF INFORMATION: Utah Oil Report, Salt Lake City.
REMARKS: The hole is 465 feet from north line and 2315 feet from east line of section 32. The tools twisted off and hole was abandoned.
LOG: None available.

Ref. No. 52

Leonard R. Wilson No. 1a Government well — Henderson District, Clark County
NW¼NW¼NE¼ sec. 32, T. 22 S., R. 63 E. — Spudded: March 2, 1953
Total Depth: 1465′ — Elev.: 2100′

SOURCE OF INFORMATION: Utah Oil Report, Salt Lake City.
REMARKS: The rig was skidded 50 feet east from the above hole and located for a second try. This well was abandoned at 1465 feet after failure to obtain water shut off near that depth, although 6-inch casing was set to total depth.
LOG: None available.

Ref. No. 58

Black Gold Oil and Gas Exploration Company No. 1 Golden Spike well; also known as: Intermountain Association well	Arden Dome District, Clark County
S½SW¼SW¼ sec. 23, T. 23 S., R. 59 E.	Spudded: November 1950
Total Depth: (?)	Elev.: 2800′ (?)

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City. Mr. Fred Smith, Las Vegas.
REMARKS: This well was drilled by the Black Gold Oil and Gas Exploration Company with Mr. Joe Irwin as the driller. Black Gold was a company formed by Dr. John C. Roberts, Jr., of Boulder City. The well is located 405 feet from the south line and 555 feet from the west line of section 23.
In July 1952, Intermountain Associates took over this hole and their driller, Mr. W. H. "Blackie" Martin, removed Mr. Irwin's rig, erected his own cable tool rig, and proceeded to drill.
LOG: None available.

Ref. No. 59

Big Basin Oil Company No. 1 well	Sloan District, Clark County
SE¼ sec. 17, T. 23 S., R. 61 E.	Spudded: February 15, 1953
Total Depth: 1180′	Elev.: 2000′ (?)

SOURCE OF INFORMATION: Mr. Oscar Rudd, Sloan. Mr. Fred Smith, Las Vegas.
REMARKS: This hole was drilled by Mr. Oscar Rudd who picked his drilling site on the basis of topographic conformations. Cable tools were employed. A ditch sample from near the bottom of the hole was submitted to the Nevada Mining Analytical Laboratory for identification and appeared to be a white crystalline limestone, probably of Mississippian age.
LOG: None available.

Ref. No. 60

Nevada Exploration Company No. 1 well	Sloan District, Clark County
S½NE¼SW¼ sec. 13, T. 23 S., R. 60 E.	Spudded: November 1947
Total Depth: 2002′	Elev.: 2860′

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City. Mr. Fred Smith, Las Vegas.

REMARKS: The location is 1650 feet from the south line and 1980 feet from the west line of section 13, about 300 feet from Sloan Station of the Union Pacific Railroad. Concrete apron and well cuttings are easily visible. The steel tower was still standing in July 1952. The Nevada Exploration Company was formed by O. F. Darling and R. H. Wiley. Mr. Fred Smith was the driller on this well. According to Mr. Smith, the formation tops for this well are as follows:

Alluvium, surface.
Bird Spring formation, 10–15′ (Pennsylvanian)
Mississippian-Devonian dolomites, 350′.

This is in agreement with the sections presented by Deiss (Deiss, 1952, pp. 119–127) as measured on Sloan Hill half a mile to the northeast:

Bird Spring formation	350′	(Pennsylvanian)
Monte Cristo dolomite		(Mississippian)
Bullion member	445′	
Anchor member	75′	
Dawn member	175′	
Sultan limestone		(Devonian)
Crystal Pass member	190′	
Valentine member	325′	
	1560′	

In the Goodsprings Quadrangle 20 miles west of Sloan, the basal member of the Sultan limestone, the Ironside dolomite, is exposed. Presumably the well was bottomed in the Ironside dolomite.

The following casing is reported: 17-inch casing cemented solidly at 1700′.

LOG: None available; however, Deiss' paper gives a detailed stratigraphic description.

Ref. No. 61

New Haven Oil Company No. 1 well — Goodsprings District, Clark County
SE¼SW¼NE¼ sec. 26, T. 24 S., R. 58 E. — Spudded: 1947
Total Depth: 716′ — Elev.: 3695′

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City.

REMARKS: This and the following 5 wells were drilled after an oil seep was found in a well or sump by a discharged serviceman upon his return home. Mr. Edward T. Schenk, formerly of the U. S. Bureau of Mines Station at Boulder City, informed the writer[3] that his station had collected samples of the oil which were sent to the U. S. Bureau of Mines Station at Bartlesville, Oklahoma, where the oil was analyzed and found to be diesel fuel, and that subsequently the refiner had been identified. There is no question but that the oil found in the various wells in the Goodsprings District is diesel fuel that leaked from storage tanks of a local mining company. The leakage apparently amounted to several hundred gallons of fuel.

[3]Edward T. Schenk, Oral Communication, June 11, 1953.

A total of 6 wells were drilled and they all encountered the diesel fuel at about 40-foot depth. The wells are spudded in the alluvium and the deeper holes probably enter the Permian Kaibab formation.

Casing in this well was set as follows:

10″ casing set at 242′
8″ casing set at 437′
6″ casing set at 668′

It is not known whether the casing remains in the hole.

LOG: (Driller's)

Top	Bottom	Thickness	Description
0	5	5	Soil and rock.
5	10	5	Caliche.
10	20	10	Clay and gravel.
20	23	3	Gravel, hard.
23	30	7	Gravel.
30	44	14	Clay.
44	48	4	Limestone, water.
48	64	16	Limestone.
64	68	4	Clay.
68	74	6	Limestone.
74	89	15	Shale, brown
89	121	32	Limestone.
121	148	27	Shale, brown.
148	150	2	Limestone.
150	154	4	Shale, brown.
154	157	3	Limestone.
157	167	10	Shale, red.
167	179	12	Shale, brown.
179	185	6	Limestone.
185	190	5	Shale, brownish red.
190	200	10	Limestone.
200	203	3	Shale, red.
203	222	19	Limestone.
222	225	3	Clay.
225	250	25	Clay with limy streaks.
250	269	19	Clay.
269	313	44	Limestone.
313	339	26	Shale, red.
339	352	13	Shale and sand.
352	355	3	Chert, hard, sharp.
355	357	2	Sand.
357	365	8	Chert.
365	376	9	Lime and chert.
376	407	31	Lime.
407	437	30	No samples. Drilled like lime.
437	489	52	Limestone.
489	496	7	Limestone, sandy.
496	502	6	Limestone, hard.
502	514	12	Limestone.
514	535	21	Limestone, sandy.
535	625	90	Limestone.

Top	Bottom	Thickness	Description
625	635	10	Sand, brown, siliceous.
635	640	5	Sand, brown, and clay.
640	644	4	Shale, white, sandy.
644	645	1	Limestone.
645	651	6	Clay, sandy.
651	665	14	Sand.
665	670	5	Limestone.
670	695	25	Limestone, white.
695	717	22	Limestone, brown.
717			T. D.

Ref. No. 62–66

New Haven Oil Company Nos. 2–6 wells — Goodsprings District, Clark County
SE¼SW¼NE¼ sec. 26, T. 24 S., R. 58 E. — Spudded: 1947–1948
Total Depth: See below. — Elev.: 3695′

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City.

REMARKS: These wells and the No. 1 well are within 10 or 20 feet of one another. The depths of the wells are:

No. 2	405′
No. 3	200′
No. 4	226′
No. 5	40′
No. 6	130′

LOGS: None available. Should be the same as for well No. 1 above.

Ref. No. 67

Goodsprings Oil Company No. 1 well — Goodsprings District, Clark County
SE¼NW¼NE¼ sec. 26, T. 24 S., R. 58 E. — Spudded: (?)
Total Depth: 370′ (?) — Elev.: 3700′ (?)

SOURCE OF INFORMATION: Mr. Hammonds, Goodsprings.

REMARKS: The concrete footings for the derrick of this well are visible approximately 1000 feet north of the Goodsprings post office. The well was spudded with cable tools and preparations were made to bring in a large rotary rig to drill deeper, but lack of money precluded the use of the rotary rig.

LOG: None available. Should be the same as for the New Haven Company wells which are approximately 700 feet to the south.

ELKO COUNTY

Ref. No. 11

Gulf Refining Co. No. 1 Dolly Varden Unit well — Nelson Creek District, Elko County
E½NE¼SE¼ sec. 36 T. 30 N., R. 64 E. — Spudded: January 7, 1953
Total Depth: 3158′ — Elev.: 5850′ to kelly bushing

SOURCE OF INFORMATION: Gulf Oil Corp., Salt Lake City.
REMARKS: The location for this hole is 1980 feet from the south line and 40 feet from the east line of section 36. The well was drilled on a farm-out from the Phillips Petroleum Company. The following formation tops are reported:

Thaynes formation, surface (Triassic)
Gerster limestone, 295′ (Permian)
Oquirrh formation, 675′ (Permian)

The portion of the Oquirrh formation containing Pennsylvanian fossils was not encountered as the well was abandoned when the bit allegedly encountered nearly vertical beds below a thrust fault occurring between 3100 and 3150 feet. No shows of oil or gas were encountered. Drill stem tests were made between 2392 and 2417 feet, and 2395 and 2417 feet. Five hundred feet of 13⅜ inch casing was cemented in the hole.

LOGS: Lithologic, electrical, microlog, and radioactivity logs have been filed with the Nevada Oil and Gas Conservation Commission in Reno. The abstracted lithologic log follows:

(Tops corrected with electric log)

Top	Bottom	Thickness	Description
0	30	30	No samples.
30	60	30	Shale, yellowish green, very slightly calcareous, dense; with trace of limestone, silty, finely crystalline.
60	70	10	Shale, red and green, very silty, limy, phosphatic nodules.
70	90	20	Limestone, dark gray, very phosphatic, finely to medium crystalline; trace pink calcareous shale.
90	100	10	Shale, red and green, as above, silty to sandy.
100	110	10	Shale, black, slightly calcareous, silty, dense.
110	140	30	Limestone, gray, shaly, silty, sucrose.
140	190	50	Shale, black, calcareous, phosphatic, dense, brittle.
190	210	20	Limestone, gray, phosphatic, coarsely crystalline; and shale, black to yellow, calcareous.
210	220	10	Shale, black, very calcareous, pyritic, silty, hard.
220	230	10	Limestone, black, very phosphatic, coarsely crystalline, and silty.
230	295	65	Shale, black, as above.
295			TOP GERSTER FORMATION (Permian)
295	330	35	Limestone, light and dark gray, cherty and siliceous, crystalline, very hard.
330	366	36	Limestone, red-gray-pink, sandy, cherty, finely crystalline.

Top	Bottom	Thickness	Description
366	391	25	Core No. 1, Rec. 25′. 6′ shale, yellow-brown, very calcareous, silty, soft; occasional high angle calcite-filled fractures. 1′ limestone, light brown, cryptocrystalline, fossiliferous, abundant chert nodules. 2′ shale, as above, iron stainings, fossiliferous. 1′ limestone, yellow-brown, silty, fossiliferous. 2′ limestone, pink and yellow-brown, as above, increasingly cherty. 7′ limestone, yellow-brown with iron stainings, coquinoid of *Spirifer* and crinoid stems near top, increasingly cherty towards bottom. 3′ limestone, yellow-brown, very argillaceous, slightly silty, dense, abundant chert nodules and calcite crystals, very fossiliferous. 3′ limestone, brown-gray, medium crystallinity, abundant calcite crystals, very fossiliferous. 3′ limestone, light gray, very cherty, coarsely crystalline, badly fractured, very fossiliferous.
391	410	20	Limestone, light gray, coarsely crystalline to cryptocrystalline, trace of chert.
410	440	30	Siltstone, red, pink, yellow, very calcareous, micaceous, very fine grained, fossiliferous.
440	470	30	Shale, black, tan, red, silty and calcareous.
470	493	23	Limestone, pink and gray, very siliceous and cherty.
493	502	9	Core No. 2, Rec. 9′. 9′ limestone, mottled olive brown, red, pink, yellow, very siliceous, iron stained, medium crystallinity, abundant large calcite crystals, abundant silicified fossils; abundant high angle calcite-filled fractures.
502	560	58	Limestone, light brown-gray, cherty to very cherty, fine to medium crystallinity.
560	600	40	Limestone, white, cherty to very cherty, finely crystalline.
600	675	75	Limestone, light smoky brown to gray, cherty, cryptocrystalline to medium crystallity, locally fossiliferous.
675			TOP OF OQUIRRH FORMATION (Permian)

Top	Bottom	Thickness	Description
675	731	56	Dolomite, light cream to brown, cryptocrystalline to medium crystallinity; limestone streaks, much chert.
731	759	28	Core No. 3, Rec. 9′. 8′ dolomite, light gray and brown, abundant limonite and hematite, cryptocrystalline to medium crystallinity, hard, brittle; locally heavily fractured. 1′ quartzite, light tannish-brown, fine grained, dense, hard.
759	780	21	Dolomite, white, light gray, very cherty, very hard.
780	795	15	Siltstone, buff, calcareous, micaceous, hard.
795	800	5	Quartzite.
800	820	20	Limestone, dark gray, very finely to coarsely crystalline, sucrose.
820	830	10	Dolomite, gray, sandy, abundant chert.
830	840	10	Chert and quartzite.
840	860	20	Limestone and dolomite, light gray, cherty, quartzitic.
	890	30	Sandstone, buff, calcareous and dolomitic, very fine grain.
890	895	5	Siltstone, buff, soft, friable.
895	920	25	Dolomite, smokey gray, sandy, cherty, cryptocrystalline.
	925	5	Siltstone and sandstone, buff, dolomitic, hard.
	940	15	Limestone, light gray, silty-sandy, dolomitic, finely sucrose.
940	945	5	Dolomite, as above.
945	970	25	Sandstone, buff, dolomitic and cherty, very fine grained.
	990	20	Limestone, gray, very sandy, cherty, hard, brittle.
	995	5	Limestone, cream to gray, sandy, abundant chert, nodular.
	1010	15	Sandstone, as above, with dolomite and limestone, cherty.
	1020	10	Dolomite and limestone, gray, brown, cherty, finely crystalline.
	1038	18	Sandstone, brown to buff, dolomitic, fine grained, hard; some quartzite.
	1052	14	Core No. 4, Rec. 8′. 8′ sandstone, brown, slightly quartzitic, dolomitic, very fine grained, hard, tight; very heavily fractured, calcite filling.
	1090	38	Sandstone, as above; with quartzitic streaks.

Top	Bottom	Thickness	Description
1090	1095	5	Dolomite, mottled yellow and gray, medium to coarsely crystalline, very nodular.
1095	1150	55	Sandstone, red, brown, cream, gray, dolomitic and cherty.
	1260	110	Dolomite, gray, black, brown, cryptocrystalline to finely crystalline; streaks of siltstone and sandstone. A few porous zones.
	1270	10	Dolomite, as above, with siltstone, brown, very dolomitic, dense.
	1290	20	Dolomite, dark gray, very heavily stained with hematite, cherty and siliceous.
	1300	10	Sandstone, red and buff, dolomitic, very fine grained; with quartzite, cream colored.
1300	1307		Dolomite, gray, brecciated, nodular.
1307	1314		Core No. 5, Rec. 7′. 1′ chert, cream-brown, pure, in 1–2″ strata; interbedded with quartzite, light brown, dolomitic; and dolomite, mottled cream-brown and gray with yellow stains, very sandy, cryptocrystalline. 6′ dolomite, mottled gray, finely crystalline, brecciated, nodular; cemented with silt, calcite, and silica. Entire core very heavily fractured and completely shattered and crushed in the lower part. Probably an interformational fault breccia. Very faint fetid odor throughout. Very faint spotty fluorescence in fractures.
1314	1325	10	Quartzite, cream, dolomitic, well silicified.
1325	1340	15	Dolomite, mottled gray, moderately cherty, finely crystalline, hard, probably brecciated like core above.
	1345	5	Sandstone, cream, very quartzitic, very ferruginous.
	1370	25	Dolomite, mottled gray, cherty and quartzitic, finely crystalline.
	1375½	5½	Core No. 6, Rec. 4′. 4′ dolomite, gray, moderately cherty, cryptocrystalline to finely crystalline, brecciated; breccia fragments cemented with yellowish green silt and calcite.
	1420	44½	Dolomite, gray, cryptocrystalline to finely crystalline; interbedded with quartzite, brown to gray, fine grained, hard.
1420	1425	5	Chert.
1425	1435	10	Quartzite, white, fine grained.
1435	1440	5	Chert.

Top	Bottom	Thickness	Description
1440	1447	7	Siltstone, buff, friable, noncalcareous, trace of gypsum.
	1515	68	Limestone, light cream to brown, dolomitic, cryptocrystalline.
	1520	5	Dolomite, very sandy; interbedded with quartzite and chert.
	1600	80	Siltstone, cream to brown, dolomitic, much chert, very fine grained.
1600	1650	50	Chert, cream to buff, some silt.
1650	1655	5	Siltstone, variegated, noncalcareous.
1655	1660	5	Sandstone, cream, calcareous, coarse grained.
	1677	17	Limestone, cream to gray, medium crystallinity, soft, slight porosity.
	1681	4	Core No. 7, Rec. 4′. 4′ dolomite, very light smokey gray, medium crystallinity, brittle; irregular chert nodules to 3″ diameter. Entire core heavily fractured, fractures are high angle to vertical, calcite filled. Moderately vuggy, fair porosity, no permeability. Suggestive dips of 25–30°.
1681	1710	29	Dolomite, as above.
1710	1915	205	Limestone, white, cream, gray, finely to coarsely crystalline; traces of chert and dolomite.
1915	1920	5	Chert, cream.
1920	1930	10	Siltstone, brown to gray, calcareous, cherty.
1930	1960	30	Limestone, cream to gray, siliceous and dolomitic, finely crystalline; interbedded with chert.
	1983	23	Limestone, white to light gray, silty to quartzitic, cryptocrystalline to medium crystallinity.
	1990	7	Core No. 8, Rec. 7′. 7′ limestone, white to light gray, siliceous, medium to coarsely crystalline. Fusulinids (?) replaced by silica at 1987′. Entire core heavily fractured. High angle fractures filled with calcite and stained with limonite, occasionally slickensided.
	2000	10	Limestone, as above; and siltstone, red and brown, dolomitic.
	2010	10	Sandstone, brown and buff, iron stained, very fine grained.
	2035	25	Siltstone, pink, light cream, brown, dolomitic.
	2045	10	Siltstone, as above; with dolomite, cream-brown, sandy.

Top	Bottom	Thickness	Description
2045	2090	45	Siltstone, cream to gray, dolomitic, cherty, and sandy.
2090	2100	10	Dolomite, smokey gray, siliceous, finely crystalline, fractured.
2100	2110	10	Dolomite, dolomitic siltstone, sandstone, and chert, interbedded.
2110	2120	10	Limestone, cream to gray, iron stained, finely crystalline.
2120	2145	25	Sandstone, pink, light cream, brown, dolomitic, quartzitic, very fine grained.
2145	2150	5	Dolomite; limestone; siltstone; and shale, black, carbonaceous.
2150	2155	5	Siltstone, black, dolomitic, fine grained.
2155	2190	35	Sandstone, cream to gray, abundant iron stain, dolomitic, pyritic, fine grained.
2190	2203	13	Siltstone, dark gray-brown, very dolomitic, very hard.
2203	2208	5	Core No. 9, Rec. 5′. 5′ sandstone, smokey gray, dolomitic, pyritic, fine grained, thin bedded. Bedding planes with shale, medium gray, soft, noncalcareous, pyritic, very carbonaceous, slickensided. Extreme fracturing nearly normal to bedding plane, fractures filled with calcite, siliceous dolomite, and quartzite. Lower 2′ are completely crushed, pulverized, darker; probably fault gouge.
2208	2240	32	Sandstone, as above.
2240	2280	40	Sandstone and shale, as above.
2280	2290	10	Sandstone, red, slightly dolomitic, abundant hematite staining, very fine grained, hard.
2290	2295	5	Siltstone, red-brown, argillaceous.
2295	2305	10	Sandstone, green-gray, calcareous, iron stained, very fine grained.
2305	2320	15	Limestone, smokey gray, silty and sandy, cryptocrystalline to finely crystalline.
2320	2340	20	Chert, cream-brown and gray; with dolomite, gray, finely crystalline; and abundant siltstone, cream, brown, gray, calcareous.
2340	2360	20	Dolomite and siltstone interbedded. Dolomite creamy brown, sandy, cryptocrystalline to finely crystalline; siltstone, brown, gray, very dolomitic.
2360	2370	10	Dolomite, cream to brown, silty, cryptocrystalline, hard.
2370	2376	6	Siltstone, brown to cream, dolomitic.

Top	Bottom	Thickness	Description
2376	2380	4	Core No. 10, Rec. 4′. 4′ siltstone, light to medium brown, dolomitic, slightly quartzitic. Heavily fractured, fractures coated with calcite.
2380	2410	30	Siltstone, as above.
2410	2416	6	No samples.
2416	2423	7	Core No. 11, Rec. 1′. 1′ limestone, smokey gray, siliceous, cherty, disseminated coarse calcite crystals throughout, fine to medium crystallinity, vitreous, porcellaneous, frosty, brittle. Entire recovered portion heavily fractured, possibly a fault breccia. Fractures filled with calcite. Abundant secondary, white, coarsely crystalline calcite to 2″. Estimated 50 percent of core by volume is calcite. Abundant chert nodules up to 2″ in diameter. Abundant calcite lined vugs.
	2430	7	Core No. 12, Rec. 7′. 7′ limestone, smokey gray, slightly siliceous, cryptocrystalline to very finely crystalline, vitreous, porcellaneous. Entire core completely crushed, heavily fractured. Fractures partly filled with calcite.
2430	2460	30	Limestone, as above.
2460	2470	10	Limestone, as above; with abundant chert, cream.
	2487	17	Sandstone, yellow-gray, blue-gray, very dolomitic, fine grained.
	2488	1	Core No. 13, Rec. 1′. 1′ limestone, light brownish cream, very sandy, finely crystalline, brittle; sandstone, extremely calcareous, limonite staining with thin (¼ to 1″ thick) beds; and quartzite. Entire core is heavily fractured and filled with calcite, top 4″ brecciated.
	2493	5	Core No. 14, Rec. 5′. 5′ limestone, light brownish-cream, very sandy, considerable limonite staining, finely crystalline; interbedded with quartzite, gray, slightly calcareous, dense, very hard. Entire core heavily fractured.
	2520	27	Limestone and quartzite interbedded, as above.

Top	Bottom	Thickness	Description
2520	2549	29	Limestone and siltstone interbedded; limestone, white, slightly sandy, very finely crystalline, frosty, vitreous; siltstone, white, calcareous, quartzitic.
	2564½	15½	Core No. 15, Rec. 15½′.
			2′ siltstone, cream-brown, quartzitic, calcareous, vitreous, hard; contact with underlying limestone dips at 84°.
			13½′ limestone, cream, slightly siliceous, finely crystalline, vitreous, brittle; calcite filled fractures common.
	2590	31½	Limestone, as above.
	2614	24	Quartzite, gray, slightly calcareous, fine grained; and siltstone, buff, calcareous.
	2622½	8½	Core No. 16, Rec. 8½′.
			1′ quartzite, gray, calcareous, very fine grained, hard; contact with underlying limestone dips at 65°.
			7½′ limestone, white, siliceous, finely crystalline, vitreous, moderately fractured; fractures filled with calcite.
	2640	17½	Limestone, as above.
	2661½	21½	Quartzites, siltstones, sandstones, limestones, interbedded; heavily iron stained.
	2664	2½	Core No. 17, Rec. 2½′.
			2½′ shale, limestone, quartzite, interbedded. Shales, yellowish-brown with primary limonite, micaceous, silty, abundant coarse quartz crystals, very soft. Limestone, pink, mottled with hematite stain, cryptocrystalline, brittle, 1″ to 2″ thick beds. Quartzite, dark gray, and white, with some buff and gray mottlings, abundant dispersed calcite crystals, beds ¼″ to 1″ thick. Abundant calcite lined vugs up to 1″ diameter. Entire core heavily fractured.
2664	2669½	5½	Core No. 18, Rec. 5½′.
			5½′ chert, quartzite, limestone interbedded. Chert, chocolate-brown, very hard. Quartzite, white, vuggy, possibly brecciated. Limestone, white to light gray, sandy, upper beds of medium crystallinity, lower beds finely crystalline, vitreous; entire core heavily fractured, fractures calcite coated. Dip 70 to 80°. Beds average 4″ in thickness.

Top	Bottom	Thickness	Description
2669½	2674½	5	Core No. 19, Rec. 5′. 4½′ limestone, cream, sandy, finely crystalline, vitreous; with irregular cream, pink, and gray chert nodules to 4″ diameter. Abundantly iron stained, heavily fractured, fractures calcite coated. ½′ quartzite and quartzitic siltstone, cream, brown, gray, cherty and calcareous, very fine grained. Dip 75 to 78°.
	2715	40½	Limestone, white, gray, brown, finely crystalline; with thin beds of quartzite and chert.
	2745	30	Siltstone, yellow-green, gray, very dolomitic, cherty, hard.
2745	2750	5	Dolomite and limestone, gray arenaceous and cherty, very finely crystalline, hard.
2750	2759½	9½	Core No. 20, Rec. 9½′. 9½′ limestone, light brownish-gray with mottlings of pink, red, purple, brown and yellow, very sandy, locally quartzitic, very finely crystalline, extremely heavily fractured, silicified fossils. Some vugs; dip 80°.
2759½	2795	35½	Limestone, as above.
2795	2838	43	Siltstone, white, buff, red, calcareous.
2838	2843	5	Core No. 21, Rec. 4′. 4′ siltstone, cream, dolomitic and quartzitic, heavy iron staining, fine grained. Heavily fractured, fractures open although some secondary calcite; dip 60 to 65°.
2843	2895	52	Siltstone, as above.
2895	2905	10	Shale, dark gray-black, silty, fissile.
2905	2913	8	Dolomite, light gray, fine to medium crystallinity.
2913	2931½	18½	Core No. 22, Rec. ½′. ½′ dolomite, light gray to white, slight pinkish cast, finely crystalline, vitreous, compact, flecked with limonite, heavily fractured; partings of shale, dark gray, calcareous, silty, fissile.
	2990	58½	Siltstone, light gray, dolomitic and quartzitic.
2990	2995	5	Limestone, white, finely crystalline.
2995	3100	105	Siltstone, gray with some pink, dolomitic and slightly quartzitic.

Top	Bottom	Thickness	Description
3100	3125	25	Dolomite, gray, pyritic, sandy, finely crystalline, soft, some pin point porosity; interbedded with quartzite, gray, dolomitic, fine grained.
3125	3158	33	Quartzite, smokey gray, slightly dolomitic, very pyritic, fine grained; trace of shale, black, carbonaceous.
3158			T. D.

Ref. No. 13

Western Osage Oil Company No. 1 Government well — Osage District, Elko County
SW¼ sec. 14, T. 31 N., R. 69 E. — Spudded: Fall of 1951
Total Depth: 785′ (?) — Elev.: (?)

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City.

REMARKS: According to newspaper releases, this well encountered a pocket of gas at 60 feet, probably in the Lake Bonneville deposits. The exact depth of this well is not known; the figures above seem to be the best available. The well probably penetrated the Tertiary deposits and stopped at or near the top of the underlying upper Paleozoic formations which are exceptionally hard in this region.

LOG: None available.

Ref. No. 12

Last Frontier Oil Company No. 1 Government well — Osage District, Elko County
NE¼NW¼ sec. 23, T. 31 N., R. 69 E. — Spudded: February 20, 1953
Total Depth: 1327′ — Elev.: (?)

SOURCE OF INFORMATION: Utah Oil Report, Salt Lake City. Last Frontier Oil Company, Reno.

REMARKS: This well is located 320 feet from the north line and 554 feet from the east line of the northwest quarter-section. A slight show of oil was reported at 805 to 813 feet. Sixteen-inch casing was set at 102 feet and remains in the hole. The following formation tops have been recognized:

Bonneville Lake beds, surface (Quaternary)
Humboldt beds, 370′ (Tertiary)
Permian system, 590′ (?)
Pennsylvanian system, 1000′ (?)

LOG: None available.

Ref. No. 8

Elko Oil Development and Improvement Company No. 1 well — Elko District, Elko County
SE¼SE¼SE¼ sec. 4, T. 34 N., R. 55 E. — Spudded: 1924
Total Depth: 3337′ — Elev. ?)

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City. Mr. Oscar J. Streeter, Elko.

REMARKS: This well is locally known in Elko as the John Brown Well.

LOG: None available.

Ref. No. 7

Dr. Eby's well — Elko District, Elko County
T. 35 N., R. 56 E. — Spudded: (?)
Total Depth: (?) — Elev.: (?)

SOURCE OF INFORMATION: Mr. Oscar J. Streeter, Elko.

REMARKS: No further information is available concerning this well which was reported to be very shallow. The well is reported here as a matter of record only.

LOG: None available.

Ref. No. 6

Merritt Armstrong well — Elko District, Elko County
T. 35 N., R. 55 E. — Spudded: (?)
Total Depth: (?) — Elev.: (?)

SOURCE OF INFORMATION: Mr. Oscar J. Streeter, Elko.

REMARKS: No further information is available concerning this well which was reported to be quite shallow. Well is reported here as a matter of record only.

LOG: None available.

Ref. No. 9

McCarthy Oil and Gas Company No. 1 Rahas well — Halleck District, Elko County
NE¼NE¼ sec. 9, T. 35 N., R. 58 E. — Spudded: August 16, 1950
Total Depth: 4125′ — Elev.: 5250′

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City. Mr. Oscar J. Streeter, Elko. American Stratigraphic Company, Denver.

REMARKS: This well is situated close to Lamoille Creek near its junction with the Humboldt River. The following formation tops have been recognized:

Tertiary, surface.
Ely (?) limestone, 3150′ (Pennsylvanian)
White Pine shale, 3650′ (Mississippian)

The following casing has been left in the hole: 10¾″ cemented at 400′.

LOG: (Abstracted)

Top	Bottom	Thickness	Description
0	1850	1850	No record.
1850	2040	190	Clay, green-white, with highly weathered chert and quartz grains.
2040	2060	20	Limestone, buff to brown, marly, dense.
2060	2110	50	Marl, detrital chert, fossil fragments.

Top	Bottom	Thickness	Description
2110	2120	10	Limestone, buff to brown, very marly, cherty, dense, fossiliferous.
2120	2180	60	No record.
2180	2230	50	Clay, with weathered chert and other detrital material.
2230	2330	100	No record.
2330	2775	445	Clay, marl, chert, detrital material.
2775	2790	15	Limestone, gray-brown, marly, dense.
2790	2930	140	Clay, chert, marl, detrital material.
2930	2980	50	Igneous rock, basic, rich in olivine, weathered.
2980	3020	40	Clay, green, yellow, white, cherty, and marly.
3020	3035	15	Limestone, buff-tan, marly, finely crystalline, dense, fossiliferous.
3035	3150	115	Clay, greenish-buff, cherty, with detrital material.
3150			TOP OF ELY (?) LIMESTONE (Pennsylvanian)
3150	3270	120	Limestone, gray-brown, very finely crystalline, dense.
3270	3360	90	Limestone, reddish brown, very finely crystalline, silty, soft, dense.
3360	3450	90	Limestone, gray to buff, dense.
3450	3550	100	No record.
3550	3585	35	Limestone, gray-buff, shaly, very finely crystalline.
3585	3590	5	Shale, black, very limy, hard.
3590	3605	15	Limestone, gray to light red, very finely crystalline, dense.
3605	3625	20	Shale, black, very limy, hard.
3625	3630	5	Limestone, gray to buff, very finely crystalline, dense.
3630			TOP OF WHITE PINE SHALE (Mississippian)
3630	4100	470	Shale, black, very limy, hard.
4100			T. D.

Ref. No. 1

Bull Run Oil and Gas Company No. 1 well — Bull Run Basin District, Elko County
SE¼ sec. 21, T. 43 N., R. 52 E. — Spudded: 1922
Total Depth: 800′ — Elev.: (?)

SOURCE OF INFORMATION: Mr. George Gilmore, Tuscarora.

REMARKS: This well is located on a dome in the Humboldt formation of Tertiary age. The 8-inch cable tool hole penetrated alternating sandstones and shales. At 625 feet a pocket of inflammable gas blew water out of the hole. The gas flow ceased after several hours. Mr. George Gilmore of Tuscarora was the driller of this hole.

LOG: None available.

ESMERALDA COUNTY

Ref. No. 45

California Excelsior Oil Company
No. 1 McNett Ranch well
Sec. 27, T. 1 S., R. 36 E.
Total Depth: 488′

Fish Lake Valley District, Esmeralda County
Spudded: 1920
Elev.: 4900′

SOURCE OF INFORMATION: Lincoln (1923, p. 66). Messrs. Ivan and Ira McNett, Fish Lake Valley.

REMARKS: This well is located on the McNett's lower ranch and is currently producing water at the rate of 500 gallons per minute. The well is in the valley flat and is probably bottomed within the Tertiary sediments.

LOG: None available.

Ref. No. 44

Fish Lake Merger Oil Company
No. 1 well
C sec. 34, T. 1 S., R. 36 E.
Total Depth: 1447′

Fish Lake Valley District, Esmeralda County
Spudded: May 29, 1921
Elev.: 4900′ (?)

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City. Mr. Ira McNett, Fish Lake Valley. Mr. C. W. Taylor, Hawthorne.

REMARKS: This well was drilled by Mr. C. W. Taylor, now of Hawthorne, Nevada. Although its location is mentioned by Lincoln (1923, p. 66) as being in the mouth of Icehouse Canyon, the well is in fact located between Icehouse Canyon and Silver Peak Canyon. The cellar and rig foundations still remain, and the litter of refuse indicates that activity continued over a period of years at this well. The well location is slightly above the floor of Fish Lake Valley, and the well was spudded into a series of volcanic and metamorphosed sediments. Mr. Ira McNett is of the opinion that the well has a total depth of approximately 2800 feet. The figure of 1447 feet mentioned above is from the files of the U. S. Geological Survey.

LOG: None available.

Ref. No. 43

Coaldale well

Coaldale District, Esmeralda County

SOURCE OF INFORMATION: Mr. C. W. Taylor, Hawthorne.

REMARKS: In discussing the wells in Fish Lake Valley, Esmeralda County, Mr. C. W. Taylor mentioned that around 1925 he drilled a well for petroleum in Coaldale Flat (Columbia Marsh), four miles south of Coaldale. This well was financially supported by the Tonopah and Goldfield Railroad and was abandoned at a total depth of 5280 feet. Mr. Taylor remembers that several pockets of gas were encountered and that the rig was destroyed by a fire when a large pocket of gas was accidently ignited. The well bottomed in volcanic ash and decomposed granite. Mrs. Jewel Turner of Coaldale states that this well is capable of producing small quantities of gas.

LOG: None available.

EUREKA COUNTY

Ref. No. 10

In the spring of 1951, the Eureka Oil Company spudded its first well in sec. 11, T. 27 N., R. 52 E. or the east side of Pine Valley. Mr. George Hadley directed the company operations until his death in March 1953. In these 2 years 7 wells were drilled and the eighth started. Information concerning these wells has been retained by the operators and has never been released. The majority of the wells are believed to be less than 600 feet deep, but one is thought to be about 1500 feet deep.

The site of this drilling is close to Nevada's best known oil seep, which occurs within the section on the Bruffy Brothers Ranch. At the seep, petroleum-bearing waters ooze from contorted beds of the Ordovician Vinini shale. Nearby fossils confirm the age of these beds. A large north-south fault occurs west of the spring. While the fault has not been mapped or studied in detail, it can be traced for many miles and its displacement is measurable in thousands of feet. Hot springs occur along the fault zone in the immediate area where the Eureka Oil Company has drilled.

Seven of the holes have been drilled on the east side of the fault and are spudded in Ordovician strata. One well is west of the fault and was spudded in Tertiary and Quaternary valley fill.

HUMBOLDT COUNTY

Ref. No. 2

Black Rock Oil, Gas, Refining and Development Company No. 1 well — Sulphur District, Humboldt County

NW¼NW¼NE¼ sec. 13, T. 35 N., R. 29 E. — Spudded: December 1921

Total Depth: 800′ — Elev.: (?)

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City.

REMARKS: This well is near the town of Sulphur on the Western Pacific Railroad.

LOG: None available.

LANDER COUNTY

Ref. No. 30

Carl Newman No. 1 Austin well — Austin District, Lander County

C SW¼SE¼ sec. 17, T. 19 N., R. 43 E. — Spudded: May 1921

Total Depth: 365′ — Elev.: (?)

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City.

REMARKS: None.

LOG: None available.

Ref. No. 3

Jess H. Voorhees No. 1 Fee well — Battle Mountain District, Lander County

SE¼SE¼SW¼ sec. 27, T. 32 N., R. 45 E. — Spudded: June 1946

Total Depth: 912′ — Elev. 4537′

SOURCE OF INFORMATION: Mr. Jess H. Voorhees, Carlin.

REMARKS: This is the first well drilled by Mr. Voorhees after a series of shallow stratigraphic tests in the Battle Mountain Area. The well appears to bottom in Tertiary lake deposits.

LOG: Although there is no accurate log, Mr. Voorhees reports that the well penetrated Humboldt clay and sandy gravelly clay. Several blue shales were encountered. Mr. Voorhees refers to the blue shales as Carboniferous in age.

According to R. J. Roberts (Roberts, 1951) the Carboniferous outcrops nearest to the well lie in sec. 22, T. 32 N., R. 44 E. and consist of medium to dark gray limestones and shaly limestones. The well is centrally situated in the Humboldt River valley and a considerable thickness of fluviatile and perhaps lacustrine deposits are to be expected.

Ref. No. 4

Jess H. Voorhees No. 2 Fee well — Battle Mountain District, Lander County

C S½SW¼ sec. 27, T. 32 N., R. 45 E. — Spudded: August 1947

Total Depth: 540′ — Elev.: 4537′

SOURCE OF INFORMATION: Mr. Jess H. Voorhees, Carlin.

REMARKS: The second well drilled by Mr. Voorhees after a series of shallow stratigraphic tests in the Battle Mountain Area, this well is located 1000 feet west of well No. 1.

LOG: None available.

The following holes were drilled for stratigraphic information prior to drilling other holes for oil and gas, and therefore these holes are beyond the scope of this report. They are listed here, however, as a matter of record. Mr. Voorhees drilled these holes in 1946.

Hole number	Location	Total depth
1	SW¼SW¼ sec. 30, T. 32 N., R. 46 E.	326′
2	SW¼NE¼ sec. 31, T. 32 N., R. 46 E.	412′
3	NE¼SW¼ sec. 2, T. 31 N., R. 46 E.	639′
4	NE¼SW¼ sec. 32, T. 32 N., R. 45 E.	329′
5	NW¼NW¼ sec. 27, T. 32 N., R. 45 E.	143′
6	SE¼SE¼ sec. 3, T. 32 N., R. 45 E.	448′

Ref. No. 5

Nevada Oil and Gas Company No. 1 Government well — Battle Mountain District, Lander County

NE¼NW¼ sec. 34, T. 32 N., R. 45 E. — Spudded: November 1952

Total Depth: (?) — Elev.: 4537′

SOURCE OF INFORMATION: Mr. James D. Finch, Reno. Utah Oil Report, Salt Lake City.

REMARKS: This well is temporarily shut-in, with operators planning to drill to 2500 feet with cable tools.

LOG: None available.

LYON COUNTY

Ref. No. 40

Yerington Oil and Gas Company — Wabuska District, Lyon County
T. 15 N., R. 26 E. — Spudded: 1907
Total Depth: 262′ (?) — Elev.: (?)

SOURCE OF INFORMATION: Anderson (1909b).

REMARKS: This well is located "7 to 10 miles east of Wabuska and north of the bend of Walker River." The geology of this region consists of basins filled with late Tertiary-Quaternary lacustrine and fluvial deposits surrounded by low ranges of andesite and volcanic-agglomerate.

LOG: (Driller's)

Top	Bottom	Thickness	Description
0	40	40	Sand and water.
40	60	20	Clay, blue.
60	65	5	Sand.
65	130	65	Sand and clay.
130	140	10	Sand, white, and water.
140	150	10	Clay.
150	240	90	Sand, caving.
240	248	8	"Porphyry white" (?)
248	262	14	Black rock. Porphyritic igneous rock.
262			T. D. (?)

Ref. No. 41

Nevada Coal and Oil Company well — Washington District, Lyon County
Sec. 36, T. 8 N., R. 27 E. or sec. 1, T. 7 N., R. 27 E. — Spudded: 1920
Total Depth: (?) — Elev.: (?)

SOURCE OF INFORMATION: Stoddard and Carpenter (1950), Lincoln (1923, p. 157), Engineering and Mining Journal (1920).

REMARKS: This well is located along the East Fork of the Walker River near Washington and Wichman, approximately 30 miles south of Yerington.

LOG: None available.

NYE COUNTY

Ref. No. 42

It is uncertain that a well was ever drilled in Nye County for petroleum. However, serious planning was given to the drilling of a well near the town of Currant in northeastern Nye County in 1920. The Engineering and Mining Journal (1920) notes that the drilling had not yet begun, but preparations for drilling were under way. Lincoln (1923, p. 166) reports an extensive deposit of oil shale 10 miles east of Currant.

NOTE: As this publication only includes those wells drilled prior to March 24, 1953, the Shell Oil Company's No. 1 Eagle Spring Unit well is not discussed here but will be in a future publication.

WASHOE COUNTY
Ref. No. 15

Washoe Oil and Development Company No. 1 well — Reno District, Washoe County
SE¼ sec. 21, T. 19 N., R. 19 E. — Spudded: August 1907
Total Depth: 1890′ — Elev.: 4900′

SOURCE OF INFORMATION: Anderson (1909a).

REMARKS: This is reputed to be the first well drilled in Nevada for petroleum. The location is on a terrace overlooking the Truckee River. A Dr. Tibbetts who had had previous mining experience in Utah was the principal operator of this company. The well is spudded in fluviatile deposits of Plio-Pleistocene Age. Shows of oil and gas were reported in this well, and may have come from some lacustrine beds.

LOG: (Driller's)

Top	Bottom	Thickness	Description
0	10	10	Alluvium.
10	105	95	Sand.
105	140	35	Shale, blue, chalky.
140	205	65	Shale, chalky.
205	230	25	Shale, blue, chalky. Water at 225′ depth.
230	250	20	Shale, blue.
250	340	90	Shale, blue, caving.
340	370	30	Shale.
370	540	170	Shale, blue.
540	570	30	Shale, blue, sticky.
570	660	90	Shale, blue.
660	730	70	Shale, blue, (a little lighter blue).
730	790	60	Shale, blue.
790	810	20	Shale, blue, (a little lighter).
810	830	20	Shale, blue.
830	840	10	Shale, hard.
840	945	105	Shale, blue.
945	970	25	Shale, light blue.
970	980	10	Shale, blue, caving.
980	1135	155	Shale, blue.
1135	1173	38	Shale, brown.
1173	1200	27	Sand and hot water. (Rises to within 200′ of surface.)
1200	1208	8	Shale, brown, sticky.
1208	1230	22	Shale, brown.
1230	1250	20	Shale, blue, and a little sand. Water bearing.
1250	1270	20	Shale, blue. SHOW OF OIL.
1270	1300	30	Sand, water.
1300	1325	25	Sand, brown, and shale.
1325	1350	25	Shale and conglomerate, some very hard.
1350	1365	15	Shale, blue, sticky.
1365	1370	5	Shale, brown, with a little sand.
1370	1375	5	Shale, brown, with hard layers.
1375	1385	10	Shale, blue.

Top	Bottom	Thickness	Description
1385	1407	22	Shale, brown.
1407	1410	3	Shale, blue.
1410	1447	37	Shale, brown; with a little shale, blue, sticky.
1447	1460	13	Shale, blue.
1460	1470	10	Sand, dry.
1470	1475	5	Shale, blue.
1475	1515	40	Shale, brown.
1515	1520	5	Sand, water.
1520	1530	10	Shale, blue.
1530	1540	10	Shale, brown.
1540	1545	5	Shale with coal.
1545	1600	55	Shale, brown with streaks of sand and blue shale, caves.
1600	1695	95	Shale, brown.
1695	1710	25	Shale, blue, and a little sand, with water and a little oil.
1710	1890	180	Shale, blue.
1890			T. D.

Ref. No. 14

Peavine Mountain well — Peavine District, Washoe County

SOURCE OF INFORMATION: Lincoln (1923, p. 237).

REMARKS: A well was reportedly drilled on Peavine Mountain immediately northwest of Reno. There is no indication of where the hole was located on the mountain. Peavine Mountain consists of pre-Tertiary schists, Cretaceous intrusions, Tertiary andesite flows, and in a few places, fluviatile deposits of Plio-Pleistocene Age.

LOG: None available.

WHITE PINE COUNTY

Ref. No. 39

Standard Oil Company of California—Continental Oil Company No. 1 Hayden Creek Unit well — Hayden Creek District, White Pine County

C NE¼NE¼ sec. 17, T. 15 N., R. 59 E. — Spudded: December 8, 1950

Total Depth: 5117′ — Elev.: 7361′ (Ground)

SOURCE OF INFORMATION: Standard Oil Company of California. American Stratigraphic Company, Denver.

REMARKS: This is the second well drilled in Nevada by the Standard Oil Company of California—Continental Oil Company partnership. The following formation tops have been identified:

Ely limestone, surface (Pennsylvanian)
Lower Diamond Peak formation, 1586′ (Mississippian)
Chainman shale, 2558′ (Mississippian)
Joana limestone, 3895′ (Mississippian)
Pilot shale, 4145′ (Mississippian)
Nevada limestone, 4428′ (Devonian)

The following casing has been left in the hole:
475′ 13⅜″ cemented at 490′. Cover plate welded on.
3085′ 7″ cemented at 3750′.

The operators have placed the top of the Joana limestone at 4085 feet. Examination of the well log shows more than 160 feet of limestone above this point which could be Joana. The next 119 feet up the hole is a sequence of alternating gray-black hard shale and gray crystalline limestone. No such transition zone occurs in the Standard-Continental No. 1 Meridian Unit well approximately 20 miles west. In the No. 1 Meridian Unit well the Joana is 81 feet thick, and a sharp break occurs between it and the overlying Chainman shale. It seems desirable to place the top of the Joana limestone at the lithologic change, and it here is placed at 3895 feet. The 119 feet of transition beds are thus assigned to the Chainman shale. The Joana limestone in this well then becomes 250 feet thick; this greater thickness could be due either to faulting or depositional increase in the thickness of the bed.

Shows of oil were found at the following horizons:

1550–1554′
2221–2226′
2400–2404′
3790–3795′
4038–4039′

This well was drilled with considerable difficulty principally because maintenance of circulation of the drilling fluid was nearly impossible. At a depth of 4050 feet the attempt to maintain circulation was abandoned and the balance of the hole was drilled and cored with no fluid return.

LOG: (Abstracted)

(Samples corrected for lag)

Top	Bottom	Thickness	Description
0	40	40	No samples.
40	50	10	Limestone, brownish tan, crystalline, dense.
50	260	210	No samples.
260	430	170	Limestone, brownish tan, usually crystalline. dense. a few irregular traces of chert.
430	440	10	No samples.
440	548	108	Limestone, as above, with fossil fragments.
548	557	9	Core No. 1, Rec. 9′. 9′ limestone, gray-tan, slightly shaly, with some shale partings, dense, hard, high angle fractures. Dip: 70°; calcite veinlets; 6″ fractured sandy limestone at 555′; some fossil fragments.
557	645	88	Limestone, as above.
645	700	55	Shale, dark gray, limy, hard; with thin interbedded limestones.
700	706	6	No samples.
706	716	10	Core No. 2, Rec. 10′. 10′ shale, black, firm and brittle. Dip: 7°.

Top	Bottom	Thickness	Description
716	730	14	Shale, as above.
730	740	10	No samples.
740	780	40	Limestone, buff-brown, with minor amount of fine sand grains.
	805	25	Limestone, gray-tan, finely crystalline, dense.
805	810	5	Limestone, dark gray; with interbedded shale, dark gray, micaceous, limy.
	830	20	Limestone, tan-buff, with very fine sand grains.
	840	10	Shale, gray, limy; interbedded with limestone, thin, crinoidal.
	890	50	Limestone, gray-brown, slightly sandy near the top, becoming shalier with depth, fossiliferous.
890	905	15	Shale, gray, limy, with crinoid fragments.
905	957	52	Limestone, gray-brown, occasional traces of chert, brachiopod and crinoid remains.
957	963	6	Core No. 3, Rec. 5′. 5′ shale, dark gray, limy, very hard.
963	1030	67	Limestone, as above, increasingly sandy at base.
1030	1045	15	Shale, green-gray, limy.
1045	1050	5	Limestone, yellow-tan, silty.
1050	1080	30	Limestone, yellow-tan, with streaks of shale, quite fossiliferous.
1080	1090	10	No samples.
1090	1120	30	Limestone, buff-brown, finely to coarsely crystalline, dense, fossils.
	1207	87	Shale, green-gray, limy, soft; with interbedded thin limestones. Limestones conspicuous at 1135–1140′, 1165– 1170′, 1185–1195′.
	1217	10	Core No. 4, Rec. 10′. 8″ limestone, dark gray, shaly with shale partings, hard, dense. 9′ 4″ shale, dark gray-black, locally blue tinge, firm, brittle, thin bedded; two 1″ streaks of tan shale.
1217	1290	73	Shale and limestone, as above.
1290	1294	4	Sandstone, gray, fine to medium grain, friable.
	1308	14	Core No. 5, Rec. 1½′. 1½′ sandstone, white, well sorted, angular quartz grains, moderately hard, massive; apparent cross bedding.
	1314	6	Core No. 6, Rec. 5′. 5′ shale, black, firm to brittle.
1314	1363	49	Shale, gray-green-brown, with traces of fine sands and traces of lime, a few fossils.

Top	Bottom	Thickness	Description
1363	1376	13	Core No. 7, Rec. 12½′. 12½′ shale, black, firm to brittle. Some thin, sandy, and slightly calcareous streaks near the bottom.
1376	1490	114	Shale, as above.
1490	1495	5	Sandstone, gray, fine grained, friable.
1495	1500	5	Limestone, gray-brown, crystalline, dense.
1500	1530	30	Shale, gray-green, with trace of thin limestone beds.
1530	1535	5	No samples.
1535	1552	17	Core No. 8, Rec. 17′. 9½′ shale, dark gray, silty, hard; with irregular laminae of light gray siltstone. 5′ shale, black, otherwise as above. 2½′ sandstone, light gray, very fine grained, very hard, calcite cement. Poor porosity and permeability. Irregular small zones have LIGHT TAN OIL STAINS which yield faint straw color when cut with CCl_4.
	1558	6	Core No. 9, Rec. 1½′. 1½′ sandstone, light gray, very fine to fine grained. Poor porosity and permeability. LIGHT TAN OIL STAIN, straw yellow CCl_4 cut. Faint odor.
1558	1569	11	Core No. 10, Rec. 10½′. 10½′ shale, black, firm, brittle.
1569	1593	24	No samples.
1586			TOP OF LOWER (?) DIAMOND PEAK FORMATION (ILLIPAH) (Mississippian)
	1605	12	Core No. 11, Rec. 6′. 6′ sandstone, white, mostly quartz, fine to medium grain, moderately hard. Good porosity and permeability.
	1619	14	Core No. 12, Rec. 7½′. 7½′ sandstone, as above, with some brown sandstone.
	1634	15	Core No. 13, Rec. 4½′. 4½′ sandstone, as above, with black shale partings common.
1634	1660	26	Sandstone, gray-tan, iron stained, soft.
1660	1680	20	No samples.
1680	1684	4	Shale, dark gray-brown; interbedded with thin sandstones.
1684	1694	10	Core No. 14, Rec. 10′. 2′ shale, light greenish-gray, silty, hard; silt occurs in nodules and laminae. 3′ shale, as above, less silt. 5′ shale, light green-gray, silty, hard.

Top	Bottom	Thickness	Description
1694	1785	91	Shale, as above.
1785	1800	15	Shale, dark gray.
1800	1810	10	No samples.
1810	1940	130	Shale, gray to brown, fossiliferous.
1940	1951	11	Core No. 15, Rec. 11′. 11′ shale, dark gray to black.
1951	2005	54	Shale, as above.
2005	2014	9	Sandstone, gray, fine to medium grain, tight.
	2020	6	Core No. 16, Rec. 1′. 1′ shale, black, carbonaceous; with laminations of sand, gray, fine grained, tight.
	2025	5	Core No. 17, Rec. 3′. 3′ sandstone, light gray, fine grained, hard, tight.
	2031	6	Core No. 18, Rec. 1′. 1′ sandstone, as above.
	2033	2	Core No. 19, Rec. 1½′. 1½′ sandstone, as above, very hard.
2033	2043	10	Sandstone, gray-brown.
2043	2053	10	Core No. 20, Rec. 4′. 4′ sandstone, as above.
2053	2061	8	Core No. 21, Rec. 4′. 4′ sandstone, as above.
	2070	9	Core No. 22, Rec. 9′. 5½′ sandstone, as above; with black shale partings toward bottom. 1½′ shale, black, with silty laminae. 2′ shale, black, firm, brittle.
2070	2085	15	Shale, dark green to black, waxy.
2085	2130	45	Sandstone, gray-brown, fine to medium grain, very tight.
2130	2221	91	Shale, gray to dark gray, occasionally slightly pyritic, nodular, a few fossil fragments.
	2229	8	Core No. 23, Rec. 5′. 5′ siltstone, dirty gray, fine quartz grains, hard, tight. Black shale partings common; bottom foot is shale with silty laminae. FAIR CCl_4 CUT.
2229	2385	156	Shale, gray to dark gray, silty, nodular.
2385	2400	15	Sandstone, gray-tan, very fine to fine grained, tight.
2400	2410	10	Core No. 24, Rec. 4′. 4′ sandstone, brown to dirty gray, silty, fine grained quartz, very hard; shale partings increase in thickness and number towards bottom. Poor porosity and permeability, badly fractured. FAINT RESIDUAL OIL IN SANDS AND SILTS.

Top	Bottom	Thickness	Description
2410	2420	10	Sandstone, as above.
2420	2558	138	Shale, dark gray-black, slightly sandy, nodular, a few fossils.
			TOP OF CHAINMAN SHALE (Mississippian)
	2677	119	Shale, gray to green-gray, slightly pyritic, nodular, few fossils, chiefly plant remains.
2677	2680	3	Core No. 25, no recovery.
2680	2690	10	Core No. 26, Rec. 8′.
			8′ shale, black, soft, crumbly, fractured.
2690	2977	287	Shale, gray-green-black, nodular.
2977	2982	5	Core No. 27, Rec. 2′.
			2′ shale, black, soft, crumbly, some calcite veinlets.
2982	3120	138	Shale, as above.
3120	3124	4	Core No. 28, Rec. 3′.
			3′ shale, black, very hard, vertical fractures; some thin beds of dark lignitic shale. Strong crude oil odor.
	3132	8	Core No. 29, Rec. 6′.
			6′ shale, black, carbonaceous, moderately hard and brittle, fossils.
3132	3645	513	Shale, as above.
3645	3654	9	Core No. 30, Rec. 7′.
			7′ shale, black, slightly limy, hard, brittle, vertical fractures.
3654	3776	122	Shale, as above.
3776	3790	14	Limestone, gray-buff, finely crystalline, dense.
3790	3804	14	Core No. 31, Rec. 5′.
			5′ limestone, gray, locally varies from dense and shaly to finely to medium to coarsely crystalline, hard, fossils (Crinoid stems and shell molds); irregular shale partings. Very tight, no apparent porosity or permeability. Coarsely crystalline portions have FAINT LIGHT BROWN OIL STAINS AND FAIR GAS ODOR.
	3814	10	Core No. 32, Rec. 5′.
			1′ shale and limy shale, black, hard, brittle.
			4′ limestone, dark gray-black, shaly, hard, dense, partings of limy shale. Bottom foot fine to medium crystallinity.
	3824	10	Core No. 33, Rec. 5½′.
			5½′ fault breccia, limestone, shales, and limy shales. The unbroken sections are a matrix of either limy shale, or shale with large angular pieces of limestone and irregular patches of

Top	Bottom	Thickness	Description
			large crystalline calcite. Limestone dark brownish-gray to black. Slight gasoline odor.
	3834	10	Core No. 34, Rec. 6′. 1′ limestone, dark gray, shaly, dense, hard; few ¼″ to ½″ thick beds of limy shale. 2′ shale, black, soft, crumpled and crushed, crinoid stems. 3′ limestone, black, finely crystalline, hard, dense.
	3844	10	Core No. 35, Rec. 4′. 1′ shale, black, soft, crumpled and crushed. 3′ limestone, dark gray, shaly, very finely crystalline, very hard; a few ½″ limy shale partings.
	3854	10	Core No. 36, Rec. 4′. 4′ limestones and shales, thin, alternating; limestones dark gray, shaly, hard, dense.
3854	3864	10	Core No. 37, Rec. 5′. 9″ shale, slightly limy, hard, brittle. 4′ 3″ limestone, dark brown-gray, very finely crystalline, very hard; with 9 to 11 thin shale partings.
3864	3872	8	Core No. 38, Rec. 8′. 3″ shale, black, slightly limy, hard. 7′ 9″ limestone, gray to dark gray, shaly, hard, dense; partings of limy shale; shell fragments.
3872	3882	10	Core No. 39, Rec. 5′. 1½′ limestone, dark gray, shaly, hard; with 2″ beds of limy shale every 6″ interval. 3½′ shale, almost black, slightly limy to quite limy, soft; large subangular pieces of limestone.
3882	3897	15	Core No. 40, Rec. 13′. 13′ limestone, dark gray to tan, shaly, very finely crystalline, very hard; beds of limy shale up to 1½″ thick; a few high angle fractures.
3895			TOP OF JOANA LIMESTONE (Mississippian)
3897	3912	15	Core No. 41, Rec. 15′. 15′ limestone, shaly, as above; high angle fractures filled with calcite.
3912	3936	24	Core No. 42, Rec. 8½′. 8½′ limestone, as above. Towards bottom, a zone of medium to coarsely crystalline limestone.

Top	Bottom	Thickness	Description
3936	4050	114	Limestone, gray to buff, finely to coarsely crystalline.
	NOTE		Well drilled beyond 4050′ with no circulation returns. No ditch samples available.
	4083	33	Drilled, no samples. 4075–4077′; 4080–4083′ cavities?
	4097	14	Core No. 43, Rec. 1′. 1′ limestone, light gray-tan-brown, light pieces finely crystalline, darker pieces coarser crystallinity, hard, crinoid stems, one good horn coral. Good oil irridescence on outer surfaces, several STAINS OF DARK BROWN OIL. PALE YELLOW CCl_4 cut. 4084–4093′ believed to be a cavern.
	4098	1	Core No. 44, Rec. 2″. 2″ limestone, dark gray, microcrystalline, hard, dense. Light oil irridescence.
	4100	2	Core No. 45, Rec. 1′. 1′ limestone, as above; one thin layer sooty black shale, very carbonaceous. Some oil irridescence on outer surfaces.
	4101	1	Core No. 46, Rec. 2″. 2″ limestone, as above.
	4105	4	Core No. 47, Rec. 2½′. 2½′ limestone, as above, locally brownish tinged and crystalline; thin nearly vertical calcite veinlets. Petroliferous odor on fresh surface.
4105	4108	3	Core No. 48, no recovery.
4108	4113	5	Drilled, no samples.
4113	4119	6	Core No. 49, Rec. 1′. 1′ limestones, as above. Faint petroliferous odor on fresh surfaces.
	4127	8	Core No. 50, Rec. 8″. 8″ limestone, as above.
	4130	3	Core No. 51, Rec. 4″. 4″ limestone, as above.
4130	4169	39	Drilled, no samples.
4145			TOP PILOT SHALE (Mississippian)
4169	4174	5	Core No. 52, Rec. 1′. 1′ shale, black, moderately hard.
4174	4215	41	Drilled, no samples.
4215	4220	5	Core No. 53, no recovery. Cored like shale.
4220	4244	24	Drilled, no samples.
4244	4247	3	Core No. 54, no recovery. Cored like shale.
4247	4277	30	Drilled, no samples.
4277	4282	5	Core No. 55, no recovery. Cored like shale.

Top	Bottom	Thickness	Description
4282	4288	6	Core No. 56, Rec. 1½′. 1½′ shale, dark gray, very slightly limy, moderately hard, calcite filled fractures.
4288	4800	512	Drilled, no samples.
4428			TOP OF NEVADA LIMESTONE (Devonian)
4800	4805	5	Core No. 57, Rec. 1½′. 1½′ limestone, gray, shot through with calcite, medium crystallinity. 60 percent of the core is calcite, white, soft, occurring in large crystalline veins and veinlets. No visible CCl_4 cut, but faint petroliferous odor on fresh surfaces.
4805	4810	5	Core No. 58, Rec. 1½′. 1½′ limestone and calcite, as above.
4810	4845	35	Drilled, no samples.
4845	4865	20	Core No. 59, Rec. 3′. 3′ limestone and calcite, as above. Top foot nearly 100 percent calcite.
4865	4915	50	Drilled, no samples.
4915	4917	2	Core No. 60, Rec. 2″. 2″ limestone, very dark gray with slight brownish tinge, microcrystalline, very hard, dense.
4917	4957	40	Drilled, no samples.
4957	4961	4	Core No. 61, Rec. 1½′. 1½′ limestone, as above. Some calcite veinlets.
4961	5020	59	Drilled, no samples. Records possibly incomplete here.
5020	5025	5	Core No. 62, Rec. 1′. 1′ limestone, dark brownish gray, shaly, microcrystalline, hard. A few thin calcite veinlets.
5025	5091	66	Drilled, no samples.
5091	5092	1	Core No. 63, Rec. 4″. 4″ limestone, as above, with abundant fossil shells.
5092	5112	20	Drilled, no samples.
5112	5117	5	Core No. 64, Rec. 2′. 2′ limestone, dark gray with slightly brownish tinge, shaly, microcrystalline, hard, dense. Occasional calcite filled vertical fractures.
5117			T. D.

Ref. No. 31

Standard Oil Company of California—Continental Oil Company No. 1 Meridian Unit well — Newark Valley District, White Pine County

SW¼NE¼SE¼ sec. 31, T. 16 N., R., 56 E. — Spudded: May 28, 1950

Total Depth: 10,314′ — Elev.: 6401′ (Derrick Floor)

SOURCE OF INFORMATION: Standard Oil Company of California. U. S. G. S., Salt Lake City. American Stratigraphic Company, Denver.

REMARKS: This is the first well drilled by the Standard Oil Company of California-Continental Oil Company partnership. Continental Oil Company was in charge of the drilling. The following formation tops have been identified in this well:

White Pine shale, surface (Mississippian)
Joana limestone, 3597′ (Mississippian)
Pilot shale, 3675′ (Mississippian)
Nevada limestone, 3963′ (Devonian)
Lone Mountain formation, 8953′ (Silurian)
Hanson Creek formation, 10,153′ (Ordovician)

The following casing has been left in the hole:

466′ 13⅜″ cemented at 475′, cover plate welded on.

Shows of residual oil were found at the following horizon: 6419–6433′.

LOG: (Abstracted)

(Tops corrected to electric log)

Top	Bottom	Thickness	Description
17	35	18	Shale, yellow, micaceous, limy, sandy.
35	45	10	Dolomite, gray-brown, very finely crystalline, dense.
45	60	15	Sandstone, yellow-brown, very tightly cemented.
60	110	50	Shale, black, hard.
110	120	10	Dolomite, dark gray-brown, very fine grain, dense.
120	210	90	Shale, black, hard.
210	220	10	Dolomite, brown-black, very finely crystalline, dense.
220	349	129	Shale, black, hard.
349	359	10	Core No. 1, Rec. 2′. 2′ shale, black, massive, hard.
359	370	11	Dolomite, brown-black, very finely crystalline, dense.
370	486	116	Shale, black, very hard.
486	496	10	Core No. 2, Rec. 2½′. 2½′ shale, black, massive, hard, with thin zone of rather contorted laminae.
496	777	281	Shale, black, hard.

Top	Bottom	Thickness	Description
777	789	12	Core No. 3, Rec. 2′. 2′ shale, black, hard. Fracture surfaces coated with calcite.
789	927	138	Shale, black, very hard.
927	945	18	Dolomite, brown-black, very finely crystalline, dense.
945	1028	83	Shale, black, hard.
1028	1038	10	Core No. 4, Rec. 8′ 2″. 8′ 2″ shale, dark gray-black, slightly micaceous and dolomitic, massive, hard.
1038	1317	279	Shale, black, hard.
1317	1322	5	Core No. 5, Rec. 4′ 4′ shale, black, massive, hard. Badly fractured with calcite coating on fracture surfaces.
1322	1582	260	Shale, black, hard.
1582	1589	7	Core No. 6, Rec. 4′. 4′ shale, black, slightly micaceous, massive, hard. High angle fractures coated with dense white to tan dolomite.
1589	1811	222	Shale, black, hard; with dolomite streaks.
1811	1818	7	Core No. 7, Rec. 6′ 8″. 6′ 8″ shale, black, pyritic, massive, hard. Numerous high angle fractures filled with white dense dolomite.
1818	2052	234	Shale, black, medium hard.
2052	2057	5	Core No. 8, Rec. 2′. 2′ shale, black, massive, medium hard. Numerous high angle fractures filled with white dense dolomite.
2057	2235	178	Shale, black, limy, hard.
2235	2245	10	Limestone, gray to brown, finely crystalline, dense; ostracod.
2245	2267	22	Limestone, as above; interbedded with shale, black, hard.
2267	2272	5	Core No. 9, Rec. 3′ 6″. 3′ 6″ shale, dark gray, very limy, massive, medium hard. Calcite veins up to ½″ thick.
2272	2278	6	Core No. 10, Rec. 3′ 8″. 3′ 8″ shale, dark gray, very limy, massive, hard. Calcite veins up to ½″ thick.
2278	2286	8	Shale, gray, limy.
2286	2292	6	Core No. 11, Rec. 6′. 6′ shale, dark gray, limy, massive.
2292	2310	18	Limestone, gray to brown, finely crystalline, dense; interbedded with shale, black, pyritic, hard.
2310	2345	35	Limestone, dark gray to brown, shaly, finely crystalline.

Top	Bottom	Thickness	Description
2345	2356	11	Core No. 12, Rec. 7′. 7′ shale, dark gray, very limy, massive, hard.
2356	2441	85	Limestone, as above; and shale, as above.
2441	2459	18	Core No. 13, Rec. 5′. 5′ shale, dark gray-black, very limy, massive, hard, calcite veins.
2459	2472	13	Core No. 14, Rec. 5′ 6″. 5′ 6″ shale, as above.
2472	2486	14	Core No. 15, Rec. 10′. 10′ shale, black, laminated; with thin beds of limestone.
2486	2491	5	Core No. 16, Rec. 4′ 6″. 4′ 6″ shale, as above.
2491	2777	286	Shale, black, soft, to hard.
2777	2782	5	Core No. 17, Rec. 4′. 4′ shale, black, massive, hard.
2782	2885	103	Shale, black, medium hard.
2885	2910	25	Dolomite, gray-brown, slightly limy, finely crystalline, dense.
2910	3057	147	Shale, black, medium hard.
3057	3062	5	Core No. 18, Rec. 5′. 3′ shale, black, massive, hard. 1′ shale, dark gray-black, dolomitic, massive. 1′ shale, black, soft.
3062	3339	277	Shale, black, medium hard.
3339	3344	5	Core No. 19, Rec. 4′. 4′ shale, black, massive, hard.
3344	3597	253	Shale, black, medium hard.
3597			TOP OF JOANA LIMESTONE (Mississippian)
3597	3608	11	Limestone, gray to tan, finely to coarsely crystalline.
3608	3612	4	Core No. 20, Rec. 8″. 8″ limestone, tan to dark gray, hard. Calcite veins.
3612	3617	5	Core No. 21, Rec. 3′. 3′ limestone, dark gray, compact, hard; some shaly areas; crinoidal. Many calcite veins. Several vuggy areas.
3617	3670	53	Limestone, as above; with chert.
3670	3672	2	Limestone and chert as above; traces of quartzite.
3672			TOP OF PILOT SHALE (Mississippian)
3672	3675	3	Limestone, as above; and quartzite.
3675	3680	5	Limestone, quartzite, and shale.
3680	3700	20	Shale, black.
3700	3701	1	Core No. 22, Rec. 8″. 8″ shale, black, dolomitic, hard. Calcite veinlets and high angle fractures.

Top	Bottom	Thickness	Description
3701	3751	50	Shale, black, limy.
3751	3762	11	Core No. 23, Rec. 1′. 1′ shale, gray, limy, hard. Calcite veinlets, high angle fractures.
3762	3784	22	Shale, black, limy, ostracod fossil at 3775′.
3784	3788	4	Core No. 24, Rec. 1½′. 1½′ shale, black, limy, hard.
3788	3852	64	Shale, black, limy, hard.
3852	3853½	1½	Core No. 25, no recovery.
3853½	3963	109½	Shale, black, limy, hard.
3963			TOP OF NEVADA LIMESTONE (Devonian)
	3990	27	Limestone, buff to brown, finely to coarsely crystalline, dense; interbedded with dolomite.
3990	4028	38	Limestone, buff to white, shaly, crystalline, dense.
4028	4034	6	Core No. 26, Rec. 3½′. 3½′ limestone, white, hard; with scattered shale streaks.
	4055	21	Core No. 27, Rec. unknown. Limestone and shale, as above.
4055	4090	35	Limestone, as above.
4090	4098	8	Limestone, pale gray-green, limy.
4098	4170	72	Limestone, gray, buff, tan, slightly dolomitic, finely to very coarsely crystalline.
	4259	89	Dolomite, gray, buff, tan, coarsely crystalline, dense; interbedded with limestone, as above.
	4265	6	Core No. 28, Rec. 1½′. 1½′ limestone, gray, hard, dense. Calcite veinlets.
	4290	25	Dolomite, gray, buff, tan, finely to coarsely crystalline; interbedded with limestone, as above.
	4508	218	Limestone, white to buff, finely crystalline, dense.
	4511	3	Core No. 29, Rec. 3′. 3′ limestone, dark gray with tan mottling, fine-medium crystallinity, hard. Calcite veinlets.
	4650	139	Limestone, white to buff, finely crystalline, dense.
	4710	60	Dolomite, dark gray to dark brown, limy, finely to coarsely crystalline, dense.
4710	4885	175	Limestone, gray to buff, crystalline, dense.
4885	4894	9	Core No. 30, Rec. 5′. 5′ limestone, gray-brown, some dolomitic areas, dense, hard. Calcite filled fractures common.
4894	5209	315	Limestone, gray-brown, dolomitic, crystalline, dense.

Top	Bottom	Thickness	Description
5209	5216	7	Core No. 31, Rec. 2′. 2′ limestone, gray, finely crystalline, hard. Calcite veinlets.
	5380	164	Limestone, gray-brown, dolomitic, crystalline, dense.
	5410	30	Dolomite, gray-black-brown, limy, crystalline, dense.
5410	5450	40	Limestone, white to buff, finely to coarsely crystalline, dense.
5450	5682	232	Dolomite, gray to buff, slightly limy, coarsely crystalline, dense.
	5702	20	Core No. 32, Rec. 19′. 5′ limestone. 1½′ dolomite. 4½′ limestone. ½′ calcite. 2½′ limestone. 1′ limestone breccia. 1′ calcite. 1½′ limestone. 1′ limestone breccia.
	5750	48	Dolomite, gray to buff, slightly limy, coarsely crystalline, dense.
	5935	185	Limestone, gray to brown, crystalline, dense.
5935	6100	165	Limestone, as above, dolomitic.
6100	6120	20	Core No. 33, Rec. 20′. 20′ limestone, gray, dense, medium hard.
6120	6413	293	Limestone, as above.
6413	6433	20	Core No. 34, Rec. 20′. 6′ dolomite, green-gray, limy, finely crystalline. 14′ limestone, brown, finely crystalline, dense, fetid odor; streaks of shale. One small vuggy calcite area with TRACE OF RESIDUAL OIL.
	6688	255	Limestone, gray to brown, dolomitic, crystalline, dense.
	6704	16	Core No. 35, Rec. 15½′. 6½′ limestone breccia. 1′ limestone. 3′ limestone breccia. 5′ limestone.
6704	6725	21	Limestone, as above.
6725	6790	65	Dolomite, buff to brown, crystalline.
6790	6947	157	Dolomite, as above; interbedded with limestone, gray to brown, crystalline, dense.
	6954	7	Core No. 36, Rec. 7′. 7′ dolomite, brown to black, finely crystalline, hard.
6954	7065	111	Dolomite, as above; interbedded with limestone, gray to brown, crystalline, dense.

Top	Bottom	Thickness	Description
7065	7225	160	Dolomite, buff to brown, crystalline, dense.
7225	7236	11	Core No. 37, Rec. 11′. 11′ dolomite, dark gray, hard. Porous areas, but no apparent permeability.
7236	7350	114	Dolomite, as above, fossil fragments at 7340′.
7350	7430	80	Limestone, buff to dark brown, slightly dolomitic, crystalline, dense; traces of black shale.
7430	7528	98	Limestone, dark gray to brown, quite shaly, dense.
7528	7529	1	Core No. 38, Rec. 1′. 1′ limestone, black, hard.
7529	7610	81	Limestone, as above.
7610	7611	1	Core No. 39, no recovery.
7611	7695	84	Limestone, as above.
7695	7729	34	Limestone, buff to brown, very finely crystalline, dense; interbedded with dolomite.
7729	7739	10	Core No. 40, Rec. 2′. ½′ dolomite. 1½′ limestone, as above.
7739	7943	204	Limestone, buff to brown, very finely crystalline, dense; interbedded with dolomite.
7943	7949	6	Core No. 41, Rec. 6′. 2½′ limestone, as above. 3½′ dolomite, limy.
7949	7955	6	Limestone, as above; interbedded with dolomite.
7955	8120	165	Dolomite, gray-buff-brown, shaly, crystalline, dense.
8120	8131	11	Core No. 42, Rec. 11′. 7′ dolomite, tan-gray. 4′ dolomite, gray.
8131	8324	193	Dolomite, gray-buff-brown, shaly, crystalline, dense.
8324	8327	3	Core No. 43, Rec. 3′. 3′ dolomite, gray, hard, shattered.
8327	8342	15	Dolomite, as above.
8342	8344	2	Core No. 44, Rec. 1′. 1′ dolomite, as above.
8344	8515	171	Dolomite, as above.
8515	8535	20	Sandstone, gray to buff, fine to medium grain, tightly cemented.
8535	8586	51	Dolomite, gray-buff-brown, sandy, crystalline, dense.
8586	8596	10	Core No. 45, Rec. 10′. 10′ dolomite, as above, highly shattered.
8596	8834	238	Dolomite, as above.
8834	8842	8	Core No. 46, Rec. 8′. 8′ dolomite, gray, hard, fractured.

Top	Bottom	Thickness	Description
8842	8953	111	Dolomite, gray-buff-brown, sandy, crystalline, dense.
			TOP OF LONE MOUNTAIN FORMATION (Silurian)
8953	9034	82	Dolomite, gray to tan, crystalline, dense.
9034	9041	7	Core No. 47, Rec. 2′.
			2′ dolomite, gray, fine to medium crystallinity, hard, fractured.
9041	9160	119	Dolomite, as above.
9160	9170	10	Dolomite, as above. Considerable intercrystalline porosity.
9170	9173	3	Dolomite, as above.
9173	9188	15	Core No. 48, Rec. 15′.
			15′ dolomite, gray, medium crystallinity, hard, fractured.
9188	9250	62	Dolomite, as above.
9250	9280	30	Dolomite, gray-tan, crystalline. Intercrystalline and vuggy porosity.
9280	9400	120	Dolomite, gray-tan, crystalline, dense.
9400	9412	12	Core No. 49, Rec. 11′.
			11′ dolomite, gray, hard, fractured.
9412	9520	108	Dolomite, as above.
9520	9600	80	Dolomite, gray to brown, crystalline. Fine vuggy porosity.
9600	9609	9	Core No. 50, Rec. 9′.
			9′ dolomite, brown, finely crystalline, hard, fractured.
9609	9844	235	Dolomite, gray-brown, crystalline, dense to vuggy.
	9852	8	Core No. 51, Rec. 8′.
			8′ dolomite, white, medium crystallinity. Vuggy.
9852	10,073	221	Dolomite, gray-brown, crystalline, vuggy.
10,073	10,082	9	Core No. 52, Rec. 9′.
			9′ dolomite, gray, hard, medium crystallinity. Vuggy porosity.
10,082	10,300	218	Dolomite, as above.
10,153			TOP OF HANSON CREEK FORMATION (Ordovician)
10,300	10,314	14	Core No. 53, Rec. 9′.
			9′ dolomite, brown, medium hard, fractured. Vuggy.
			T. D.

Ref. No. 33

Illipah Petroleum Syndicate No. 1 Illipah Anticline well
NE¼SE¼SW¼ sec. 11, T. 17 N., R. 58 E.
Total Depth: 929′

Illipah Creek District, White Pine County
Spudded: September 1920
Elev.: 6920′

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City.

REMARKS: This is the first of a series of wells drilled during an early Nevada oil boom in White Pine County. The Illipah Anticline is in the valley occupying the southeast part of T. 18 N., R. 58 E. and the northeast part of T. 17 N., R. 58 E. The surface formation is the Chainman shale of the upper Mississippian system.

The well is located 250 feet west and 1100 feet north of the south quarter-corner of section 11.

Mr. R. R. Kerr, who allegedly drilled this well, reported the following shows to the U. S. Geological Survey:

94– 95′ estimated 20,000 cu. ft. of gas
395–445′ show of oil
895′ show of oil

LOG: (Driller's)

Top	Bottom	Thickness	Description
0	60	60	Gravel and dirt.
60	94	34	Lime, blue.
94	95	1	Sand. SHOW OF GAS.
95	395	300	Lime, blue.
395	445	50	Asphalt, black and gummy.
445	495	50	Limestone and shale, alternating.
495	500	5	Sandstone, with water.
500	850	350	Limestone and shale, alternating.
850	855	5	Artesian water flow.
855	895	40	Limestone, blue; alternating with shale.
895	?	?	Sand with OIL BUBBLES.
895	934	34	No record.
929			T. D.

Ref. No. 34

Illipah Petroleum Syndicate No. 2 Illipah Anticline well
E½SE¼SE¼ sec. 11, T. 17 N., R. 58 E.
Total Depth: 1572′

Illipah Creek District, White Pine County
Spudded: December 5, 1920
Elev.: 6920′

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City.

REMARKS: The well is located 560 feet from the south line and 360 feet from the east line of section 11. The surface formation is Chainman shale of the upper Mississippian system. The following shows were reported to the U. S. Geological Survey for this well:

250– 252′ show of gas
401– 402′ show of oil and gas
684– 688′ good show of oil
1151–1160′ show of oil

LOG: (Driller's)

Top	Bottom	Thickness	Description
0	15	15	Clay.
15	225	210	Shale, black.
225	242	17	Asphaltum, black.

Top	Bottom	Thickness	Description
242	250	8	Limestone.
250	252	2	Sandstone. SHOW OF GAS.
252	345	93	Limestone, blue.
345	355	10	Shale, gray.
355	401	45	Shale, black, sticky.
401	402	1	Sandstone. SHOW OF OIL AND GAS.
402	415	13	Limestone.
415	510	95	Sandstone, brown.
510	520	10	Oil shale, black.
520	535	15	Limestone, black.
535	575	40	Limestone, fossiliferous.
575	625	50	Shale, sticky.
625	678	53	Limestone, gray.
678	680	2	Sand, water.
680	684	4	Limestone.
684	688	4	Oil sand. GOOD SHOWING OF OIL.
688	820	132	Shale, gray.
820	1019	199	Limestone, gray.
1019	1079	60	Shale, black.
1079	1151	82	Shale, dark brown.
1151	1560	409	Lime, blue, containing bug holes. SHOW OF OIL.
1560	1564	4	Sandstone, brown.
1564	1570	6	Shale, dark brown.
1570	1572	2	No record.
1572			T. D.

Ref. No. 35

Illipah Petroleum Syndicate No. 3 Illipah Anticline well — Illipah Creek District, White Pine County
E½SE¼SE¼ sec. 11, T. 17 N., R. 58 E. — Spudded: October 15, 1926
Total Depth: 678′ — Elev.: 6200′

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City.

REMARKS: The well is located 560 feet from the south line and 360 feet from the east line of section 11, 28 feet west of the Syndicate's No. 2 well. The surface formation is Chainman shale of the upper Mississippian system. The following shows were reported for this well to the U. S. Geological Survey:

400–403′ show of gas and oil
507–527′ show of gas and oil
664–678′ show of oil

LOG: None available. Presumably same as for well No. 2.

Ref. No. 36

Illipah Petroleum Syndicate No. 4 Illipah Anticline well — Illipah Creek District, White Pine County
E½SE¼SE¼ sec. 11, T. 17 N., R. 58 E. — Spudded: September 19, 1927
Total Depth: 1302′ — Elev.: 6200′

Top Bottom Thickness Description

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City.

REMARKS: The well is located 560 feet from the south line and 400 feet from the east line of section 11, 40 feet west of the Syndicate's No. 3 well. The surface formation is Chainman shale of the upper Mississippian system. The following shows for this well were reported to the U. S. Geological Survey:

527–530′ show of oil and gas

LOG: None available. Presumably the same as for well No. 2.

Ref. No. 38

White Pine Oil and Gas Syndicate No. 1 Illipah Anticline well — Illipah Creek District, White Pine County

SE¼SE¼SW¼ sec. 12, T. 17 N., R. 58 E. — Spudded: (?)

Total Depth: (?) — Elev.: 6800′

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City.

REMARKS: The location is 250 feet from the south line and 25 feet from the east line of the SE¼ of the SW¼ of section 12. It is doubtful if any hole was drilled at this location.

LOG: None available.

Ref. No. 37

Illipah Petroleum Syndicate No. 4a Illipah Anticline well — Illipah Creek District, White Pine County

E½NE¼NE¼ sec. 14, T. 17 N., R. 58 E. — Spudded: (?)

Total Depth: 0 — Elev.: 6820′

SOURCE OF INFORMATION: U. S. G. S., Salt Lake City.

REMARKS: This is a location only. No well was drilled, although permission to drill was granted by the U. S. Geological Survey on October 2, 1931. The location is 660 feet from the north line and 350 feet from the east line of section 14.

Ref. No. 32

Standard Oil Company of California—Continental Oil Company No. 1 Summit Springs Unit well — Summit Springs District, White Pine County

NE¼NW¼NW¼ sec. 32, T. 20 N., R. 60 E. — Spudded: May 30, 1951

Total Depth: 11,543′ — Elev.: 7260′ (Derrick Floor)

SOURCE OF INFORMATION: Standard Oil Company of California. Continental Oil Company. American Stratigraphic Company, Denver.

REMARKS: The third and last well to be drilled by the Standard Oil Company of California-Continental Oil Company partnership is the deepest hole drilled in the State. The following formation tops have been identified:

Arcturus formation, surface (Permian)
Wolfcamp series, 8372′ (Permian)
Ely limestone, 8540′ (Pennsylvanian)
Lower Diamond Peak formation, 10,985′ (Mississippian)

The great thickness of Permian sediments had not been anticipated in the drilling of this well. Within the Permian section the well penetrated more than 5200 feet of anhydrite and gypsum interbedded with limestone, siltstone, and dolomite. These beds of anhydrite and gypsum are not known to crop out and their presence was unsuspected. The well was drilled for the partnership by the Coastal Drilling Company with Continental Oil Company acting as the operator. On May 26, 1952, when the well was 11,447 feet deep, Standard Oil took over the operation from Continental.

The following casing has been left in the hole:

622′ of 13⅜″ cemented at 622′. Cover plate welded on.

Shows of oil and/or gas were found at the following horizons: (Shows are of oil unless otherwise stated.)

1354–1367′		5396–5411′	
2512–2520′	gas	5636–5640′	
2589–2625′		5905–5915′	
2700–2704′		6162–6172′	
3212–3218′		6224–6232′	oil and gas
3224–3227′		6365–6373′	
4101–4107′		6649–6700′	
4866–4876′	oil and gas	7008–7033′	gas
4876–4896′		7156–7160′	
5296–5302′			

LOG: (Abstracted)

(Tops not corrected with electric log)

Top	Bottom	Thickness	Description
0	108	108	Limestone.
108	396	288	Limestone, hard.
396	572	176	Limestone, light tan to cream.
572	627	55	Limestone, light tan to cream, with chert.
627	632	5	Limestone, light tan to cream.
632	644	12	Core No. 1, Rec. 10″. 10″ limestone, light tan to cream, finely to medium crystalline, sugary texture, badly fractured.
644	732	88	Limestone, cream, hard.
732	798	66	Limestone, cream, dolomitic, hard.
798	812	14	Core No. 2, Rec. 2′ 6″. 2′ 6″ limestone, gray to cream, cherty, sugary to massive, badly fractured. No oil or gas shows or determinable dips.
812	947	135	Limestone, cream, with chert, hard.
947	1006	59	Dolomite, white, finely crystalline.
1006	1017	11	Core No. 3, Rec. 7′. 7′ siltstone, yellow, very friable, brecciated. Good porosity.

Top	Bottom	Thickness	Description
1017	1080	63	Limestone and dolomite, sandy.
1080	1205	125	Limestone, cream, sandy; and dolomite, white.
1205	1209	4	Limestone, white, dolomitic.
1209	1220	11	Core No. 4, Rec. 1′ 6″. 1′ 6″ limestone, greenish-gray to cream, dolomitic, massive, veins of calcite.
1220	1354	134	Limestone, white to cream, dolomitic.
1354	1367	13	Limestone, gray, sandy, with LIGHT OIL SHOWS.
1367	1380	13	Core No. 5, Rec. 12′. Top 4′ siltstone, gray, limy, somewhat clayey, massive. Basal 8′ siltstone, brown to mottled light gray, limy, sandy, with scattered bits of chert. Apparent dip 25° to 30°. High angle fractures, 56°.
1380	1501	121	Limestone, cream to white; anhydrite; and clay, gray.
1501	1613	112	Anhydrite, white; siltstone, gray; and limestone, gray.
1613	1623	10	Core No. 6, Rec. 10′. 1′ gypsum interbedded with siltstone, gray, limy, massive. 3′ gypsum, gray, massive. 3′ siltstone, gray, limy, with streaks of gypsum. 3′ siltstone, reddish-brown to gray, massive veins of white gypsum.
1623	1700	77	Siltstone, gray; anhydrite, white.
1700	1785	85	Anhydrite, white, siltstone, red and gray.
1785	1810	25	Siltstone, gray, limy; anhydrite, white.
1810	1819	9	Core No. 7, Rec. 9′. 2′ siltstone, gray, slightly limy, gray, massive, veins of gypsum. 1′ gypsum, dark gray, crystalline, massive. 3′ siltstone, as above. 1′ gypsum, as above. 2′ siltstone, as above.
1819	1858	39	Siltstone, gray, limy.
1858	2010	152	Anhydrite, white; siltstone, gray, limy; and limestone, gray, silty.
2010	2026	16	Siltstone, gray, limy.
2026	2037	11	Core No. 8, Rec. 11′. 2′ gypsum, dark gray, crystalline, massive. 7′ siltstone, gray, sandy, limy, siltier toward the bottom, massive, gypsum veins. 2′ gypsum, as above.
2037	2076	39	Siltstone, brownish red; anhydrite, white.

Top	Bottom	Thickness	Description
2076	2250	174	Siltstone, brownish red; anhydrite, white; and gypsum, gray.
	2260	10	Core No. 9, Rec. 10′. 2½′ siltstone, chocolate brown, limy, massive, very dense, veins of gypsum, dip 13°. No permeability but slightly vuggy. 1½′ dolomite, dark gray, massive, dense. 1′ siltstone, gray, as above. 5′ siltstone, mottled chocolate brown and gray, massive, dense, slightly vuggy.
	2350	90	Siltstone, gray-red; anhydrite, white; gypsum, gray.
2350	2364	14	Limestone, gray, crystalline.
2364	2415	51	Siltstone, gray-red; anhydrite, white; gypsum, gray.
	2455	40	Dolomite, gray; anhydrite, white; siltstone, gray.
	2470	15	Core No. 10, Rec. 15′. 8′ gypsum, dark gray, crystalline, dense; interbedded with siltstone, gray, massive, very dense, no porosity. 3′ dolomite, dark gray, massive, very dense, many gypsum veins. 1′ gypsum, as above. 3′ dolomite, black to gray, massive, very dense.
2470	2512	42	Siltstone, gray, limy; anhydrite, white; gypsum, gray; limestone, gray, sandy.
2512	2520	8	Limestone, gray, sandy; siltstone, gray. LIGHT SHOW OF GAS.
	2589	69	Siltstone, gray, limy; some anhydrite, white. SHOW OF GAS from 2524′ to 2528′; 2555′ to 2562′.
	2625	36	Siltstone, gray-brown, limy; anhydrite, white. SLIGHT CCl_4 CUT FROM CUTTINGS, 2620′ to 2625′.
	2635	10	Core No. 11, Rec. 10′. 6′ limestone, dark gray, slightly silty, massive, very dense, dip 25°; several beds 3″ to 4″ thick of limestone, brownish gray, crystalline. Strong petroliferous odor. Poor porosity. 4′ dolomite, medium gray, slightly silty, massive, very dense, many veins of gray gypsum.
2635	2688	53	Limestone, gray, silty.
2688	2731	43	Limestone, gray, silty; and siltstone, gray, limy; trace anhydrite, white. SLIGHT CCl_4 CUT FROM CUTTINGS, 2700′ to 2704′.

Top	Bottom	Thickness	Description
2731	2850	119	Siltstone, gray to brown, limy; limestone, gray, silty, crystalline.
	2860	10	Core No. 12, Rec. 10′ 1′ siltstone, medium gray, massive, very dense; with gypsum. 2′ gypsum, dark gray, crystalline, massive, very dense, 30° dip on contact with siltstone. 7′ siltstone, medium gray, slightly limy, massive, very dense. Slight petroliferous odor.
	2928	68	Limestone, gray, silty, crystalline; siltstone, gray to brown, limy; anhydrite, white.
	2946	18	Siltstone, gray to brown, limy, with trace of anhydrite, white.
	3051	105	Siltstone, gray to brown, limy; anhydrite, white.
3051	3061	10	Core No. 13, Rec. 10′. 6′ gypsum, dark gray, crystalline, massive, very dense; beds 1″ to 2″ thick of siltstone, gray. 1′ siltstone, medium gray, massive, very dense, numerous veins of gypsum. 1′ gypsum, as above. 2′ siltstone, as above.
	3152	91	Siltstone, gray to brown; and anhydrite, white.
	3218	66	Limestone, gray-black, crystalline; and siltstone, gray to brown. GOOD CCl_4 CUT OF SAMPLES, 3212′ to 3218′.
	3227	9	Core No. 14, Rec. 9′. 6′ limestone, dark gray, dolomitic, silty, massive, veinlets of calcite, and gypsum. 3′ limestone, black to gray, silty, massive, veinlets of gypsum and calcite. SLIGHT STAINING in core, lower limestone has BROWNISH YELLOW CUT WITH CCl_4.
	3433	206	Limestone, gray-black, silty; siltstone, gray-brown, limy.
	3442	9	Core No. 15, Rec. 9′. 9′ limestone, gray to dark gray, silty massive, dense, fractured, calcite and gypsum veinlets. Some petroliferous odor.
3442	3658	216	Limestone, gray-black, silty, crystalline; siltstone, gray to brown; some anhydrite, white.

Top	Bottom	Thickness	Description
3658	3666	8	Core No. 16, Rec. 8′. 8′ limestone, medium gray, very silty, massive; top 5′ has veins of dark gray gypsum; bottom 3′ has veinlets of white calcite.
	3735	69	Limestone, gray to black, silty, crystalline; siltstone, gray to brown; anhydrite, white.
	3748	13	Siltstone, gray to brown; limestone, gray-black, silty, crystalline.
3748	3828	80	Limestone, gray to black, silty, crystalline.
3828	3895	67	Limestone, gray to black, silty, crystalline, small amount of chert.
3895	3905	10	Core No. 17, Rec. 10′. 10′ limestone, medium gray, very silty, massive, very dense; gypsum, dark gray, in veins and masses.
	3960	55	Siltstone, gray to brown, limy; limestone, gray-black to tan, silty, crystalline; anhydrite, white.
	4095	135	Dolomite, gray to tan, crystalline; limestone, gray-black, silty, crystalline; small amounts of siltstone, gray-brown, limy.
4095	4098	3	Limestone, gray-black to tan, silty.
4098	4107	9	Core No. 18, Rec. 9′. 3′ limestone, medium gray, very silty, massive; several 6″ beds of dark gray gypsum near the bottom. No porosity. 6′ limestone, light gray, massive, very dense, thin veins calcite, BROWN OIL STAINING, fair petroliferous odor. No porosity. Dip 18° between limestone beds.
4107	4228	121	Limestone, gray to black, crystalline.
4228	4230	2	Core No. 19, Rec. 1′. 1′ limestone, dark gray, massive, very dense, several veins of calcite. No dips, no porosity, no odor.
4230	4245	15	Core No. 20, Rec. 15′. 15′ limestone, dark gray, massive, very dense, finely crystalline. Bottom 7′ darker gray color. Many white crystalline, vuggy, calcite veins. Limestone has no porosity, strong fetid odor.
4245	4308	63	Limestone, gray-black to tan, crystalline.
4308	4392	84	Siltstone, gray, limy; anhydrite; gypsum, gray; limestone gray-black to gray, crystalline.

Top	Bottom	Thickness	Description
4392	4402	10	Core No. 21, Rec. 10′. 1′ gypsum, dark gray, crystalline, massive. 1′ siltstone, medium gray, massive, dense, veins of gypsum. 5′ gypsum, as above. 3′ siltstone, medium gray, limy, brecciated appearance, veins and masses of gypsum.
4402	4434	32	Siltstone, gray, limy; anhydrite, white; gypsum, gray; limestone, gray to black, dolomitic, crystalline.
4434	4468	34	Dolomite, gray to tan, crystalline; limestone, dark gray, crystalline; siltstone, gray to brown.
4468	4478	10	Gypsum, g r a y, crystalline; anhydrite, white.
4478	4482	4	Dolomite, gray to tan, crystalline; gypsum, gray, crystalline.
4482	4499	17	Gypsum, g r a y, crystalline; anhydrite, white; siltstone, gray, limy.
4499	4518	19	Gypsum, g r a y, crystalline; anhydrite, white.
4518	4522	4	Siltstone, gray, limy; gypsum, gray, crystalline.
4522	4536	14	Gypsum, g r a y, crystalline; anhydrite, white.
4536	4543	7	Siltstone, gray, limy; gypsum, gray, crystalline.
4543	4564	21	Siltstone, gray, limy; gypsum, gray, crystalline; anhydrite, white.
4564	4583	19	Dolomite, gray-black to gray, silty.
4583	4592	9	Dolomite, gray-black to gray, silty; trace gypsum, gray, crystalline.
4592	4600	8	Core No. 22, Rec. 8′. 2′ dolomite, medium gray, silty, massive, dense, veins of gypsum. 3′ gypsum, dark gray, silty, crystalline, massive, very dense. 2′ dolomite, as above, with veins of calcite. 1′ gypsum, as above.
4600	4602	2	Dolomite, gray-black to gray, silty; gypsum, gray, crystalline.
4602	4650	48	Gypsum, g r a y, crystalline; anhydrite, white; siltstone, gray, limy.
4650	4686	36	Gypsum, g r a y, crystalline; anhydrite, white; some limestone, gray-black to gray, silty.
4686	4701	15	Limestone, gray-black to gray, silty.
4701	4716	15	Limestone, as above; gypsum, gray, crystalline.

Top	Bottom	Thickness	Description
4716	4810	94	Limestone, and gypsum, as above; anhydrite, white; siltstone, gray, limy.
	4820	10	Core No. 23, Rec. 10′. 10′ siltstone, medium gray, very limy, massive, dense, many veins gypsum, dark gray. No porosity.
	4876	56	Siltstone, gray, limy; gypsum, gray, crystalline; anhydrite, white; limestone, gray. OIL AND GAS IN CUTTINGS 4866′ to 4876′; four units of gas in the mud.
	4886	10	Core No. 24, Rec. 10′. 10′ limestone, dark gray, massive, very dense, highly fractured, recemented with calcite. SLIGHT OIL STAIN, yellow oil cut in CCl_4.
	4896	10	Core No. 25, Rec. 10′. 10′ limestone, as above. SLIGHT OIL STAIN, and gives CCl_4 cut. Apparent dip 25°.
	4952	56	Limestone, gray-black to gray; siltstone, gray, limy; gypsum, gray, crystalline.
4952	5004	52	Limestone, gray-black to gray.
5004	5011	7	Limestone, gray-black to gray, silty; siltstone, gray, limy; gypsum, gray, crystalline.
	5095	84	Limestone, siltstone, gypsum, as above; with anhydrite.
	5111	16	Limestone, as above; gypsum, gray, crystalline; anhydrite, white.
	5121	10	Core No. 26, Rec. 10′. 3′ gypsum, dark gray, crystalline, massive, dense, with silty streaks. 2′ siltstone, medium to dark gray, slightly limy, massive, dense, many veins and masses of gray gypsum. 2′ gypsum, as above. 3′ siltstone, as above.
5121	5140	19	Limestone, gray-black to gray, silty; siltstone, gray, limy; gypsum, gray, crystalline.
	5181	41	Limestone, as above; gypsum, gray, crystalline.
	5218	37	Limestone, as above; gypsum, gray, crystalline; siltstone, gray, limy.
	5250	32	Siltstone, gray, limy; gypsum, gray to cream.
	5309	59	Limestone, gray-black to gray, silty; gypsum, gray to tan, crystalline; anhydrite, white; siltstone, gray, limy. SLIGHT OIL FLUORESCENCE after CCl_4 application 5296′ to 5302′.

Top	Bottom	Thickness	Description
5309	5330	21	Gypsum, gray, crystalline; limestone, gray-black to gray, silty; siltstone, gray, limy.
	5340	10	Core No. 27, Rec. 10′. 10′ siltstone, medium to dark gray, limy, massive, very dense, veins of crystalline gypsum, apparent dip 26°.
5340	5394	54	Siltstone, gray, limy; gypsum, gray to tan, crystalline; limestone, gray-black to gray, silty.
5394	5411	17	Limestone, gray-black to gray, silty, some crystalline gypsum. CCl_4 OIL CUT ON SAMPLES from 5396′ to 5411′. No gas.
	5434	23	Siltstone, gray, limy; gypsum, gray to tan, crystalline; limestone, gray-black to gray, silty.
5434	5511	77	Limestone, gray-black to tan, crystalline.
5511	5523	12	Limestone, gray-black to tan, silty; siltstone, gray, limy.
5523	5534	11	Core No. 28, Rec. 11′. 6″ gypsum, light to dark gray, slightly silty, massive, dense, crystalline. 2′ siltstone, medium gray, slightly limy, very dense, massive. 1½′ gypsum, as above; contact with siltstone has dip of 31°. 7′ siltstone, as above, with gypsum veins.
	5544	10	Siltstone, gray, limy; gypsum, gray, crystalline.
	5570	26	Limestone, gray-black to tan, silty, crystalline.
	5593	23	Limestone, gray-black to gray; siltstone, gray, limy.
	5628	35	Siltstone, gray, limy; gypsum, gray, crystalline; limestone, gray-black to tan, crystalline.
5628	5641	13	Limestone, gray-black to gray, crystalline. CCl_4 CUT OF SAMPLES 5636′ to 5640′.
5641	5672	31	Limestone, gray-black to tan, crystalline; gypsum, gray, crystalline; siltstone, gray to brown, limy.
5672	5710	38	Limestone, as above.
5710	5732	22	Limestone, as above; gypsum, gray, crystalline; siltstone, gray, limy.
5732	5742	10	Core No. 29, Rec. 10′. 1′ gypsum, dark gray, silty, massive, very dense. 9′ siltstone, dark gray, slightly limy, massive, very dense, several veins of gypsum. Dip on contact with gypsum 22°.

Top	Bottom	Thickness	Description
5742	5760	18	Limestone, gray-black to gray, crystalline; gypsum, gray, crystalline; siltstone, gray, limy.
5760	5778	18	Limestone, gray-black to gray, crystalline.
5778	5788	10	Siltstone, gray, limy.
5788	5844	56	Siltstone, gray, hard; limestone, gray.
5844	5862	18	Siltstone, as above.
5862	5890	28	Siltstone, gray, limy; limestone, gray.
5890	5905	15	Limestone, light gray to tan, medium crystallinity.
	5915	10	Core No. 30, Rec. 10′. 4′ limestone, medium gray, thin partings, some sand filling, pin-point porosity. LIGHT BROWN CUT, with CCl_4. 6′ limestone, dark gray, dense, buff parting, calcite veins in fractures. LIGHT BROWN CUT.
	5954	39	Limestone, gray-black to gray, crystalline; siltstone, gray to brown, limy.
5954	5964	10	Siltstone, gray, limy; limestone, gray-black to brown.
	6002	38	Limestone, gray-black to tan, silty, crystalline.
	6047	45	Limestone, as above; siltstone, gray, limy; gypsum, gray to tan, crystalline.
	6101	54	Limestone, as above; gypsum, gray to tan, crystalline.
	6158	57	Limestone, gray-black to tan, silty, crystalline.
	6162	4	Limestone, as above; gypsum, gray to tan, crystalline.
	6172	10	Core No. 31, Rec. 10′. 10′ limestone, medium to dark gray, silty, massive, hard, slightly fractured, calcite and gypsum in fractures, lower 5′ slightly vuggy, strong fetid odor. SLIGHT CUT WITH CCl_4.
6172	6181	9	Limestone, gray-black to gray, silty.
6181	6216	35	Limestone, as above; gypsum, gray.
6216	6365	149	Limestone, gray-black to gray, silty; siltstone, gray, limy. GOOD CCl_4 CUT in samples from 6224′ to 6232′. SHOW OF GAS.
	6373	8	Core No. 32, Rec. 8′. 8′ limestone, medium to dark gray, silty, massive, very dense, black shaly streaks, veins of gray gypsum and white calcite. No porosity. Fair petroliferous odor. DARK BROWN CUT WITH CCl_4.

Top	Bottom	Thickness	Description
6373	6426	53	Limestone, gray-black to gray, silty; dolomite, gray to tan; siltstone, gray, limy.
6426	6440	14	Dolomite, gray to tan, crystalline.
6440	6472	32	Dolomite, as above; limestone, gray-black to gray; siltstone, gray, limy.
6472	6494	22	Limestone, gray-black to gray, silty; dolomite, gray to tan.
6494	6562	68	Limestone, gray-black to gray; dolomite, gray to tan; siltstone, gray, limy.
6562	6601	39	Limestone, as above; dolomite, gray to tan; gypsum, gray; siltstone, gray to brown, limy.
6601	6639	38	Limestone, gray-black to gray; siltstone, gray to brown; gypsum, gray.
6639	6649	10	Core No. 33, Rec. 10′. 10′ limestone, medium to dark gray, massive, very dense; veins of calcite, white, 5′ vuggy zone starting at 6642′. Slight petroliferous odor.
6649	6700	51	Limestone, gray-black to tan, silty. CCl_4 CUT OF SAMPLES, 6678′ to 6682′.
6700	6750	50	Limestone, as above; siltstone, gray, limy.
6750	6973	223	Limestone, as above.
6973	6983	10	Core No. 34, Rec. 10′. 10′ limestone, medium to dark gray, massive, very hard, dense, no porosity, veins of white to gray calcite. Very slight petroliferous odor.
6983	7008	25	Limestone, gray-black to tan, slightly silty.
7008	7033	25	Limestone, as above, with calcite veins. SLIGHT SHOW OF GAS.
7033	7155	122	Limestone, gray-black to tan.
7155	7166	11	Core No. 35, Rec. 5′. 5′ dolomite, medium gray, slightly limy and silty, massive, hard, no porosity, brecciated zone 1′ thick 1′ from the top, tightly recemented. Top foot and bottom foot have masses of limestone, gray, crystalline. DOLOMITE YIELDS SLIGHT CUT WITH CCl_4.
7166	7181	15	Limestone, gray-black to gray; dolomite, gray to tan, with trace of gypsum, gray.
7181	7212	31	Limestone, as above; siltstone, gray to tan; trace of gypsum, gray.
7212	7391	79	Limestone, gray-black to tan.
7391	7402	11	Core No. 36, Rec. 11′. 11′ limestone, medium gray, massive, hard, dense, highly fractured with calcite in fractures.
7402	7595	193	Limestone, gray-black to tan.

Top	Bottom	Thickness	Description
7595	7598	3	Limestone, gray-black to gray.
7598	7603	5	Core No. 37, Rec. 3′. 3′ limestone, medium to dark gray, massive, hard, dense, badly fractured.
7603	7697	94	Limestone, gray-black to tan.
7697	7703	6	Core No. 38, Rec. 6′. 6′ limestone, gray-black to dark gray, massive, hard, dense, badly fractured. Fair petroliferous odor.
7703	7752	49	Limestone, gray-black to gray.
7752	7772	20	No record.
7772	7808	36	Limestone, gray-black to gray, with calcite.
7808	7846	38	Limestone, gray-black to tan, silty.
7846	7854	8	Limestone, as above, with traces of chert.
7854	7889	35	Limestone, as above, with traces of dolomite, gray to tan; traces of siltstone, gray.
7889	7921	32	Limestone, gray-black to gray.
7921	7930	9	Core No. 39, Rec. 9′. 7′ limestone, medium gray, massive, hard, scattered calcite veins, fusulinids 4′ from the top. No porosity. 2′ limestone, dark gray to gray, massive, very hard, abundant calcite, few gray chert nodules.
7930	7993	63	Limestone, gray-black to tan.
7993	8032	39	Limestone, gray-black to tan, with traces of chert.
8032	8121	89	Limestone, gray-black to tan.
8121	8152	31	Limestone, gray-black to tan; dolomite, gray to tan.
	8162	10	Core No. 40, Rec. 6′. 6′ limestone, dark gray, massive, very hard, dense, no porosity, badly fractured with calcite in the fractures. Slight petroliferous odor.
8162	8286	124	Limestone, gray-black to tan, with calcite veins.
8286	8312	26	Limestone, gray-black to gray; limestone, black, silty.
	8329	17	Limestone, gray-black to tan, traces of chert, gray.
8329	8371	42	Limestone, as above.
8371	8375	4	Core No. 41, Rec. 4′. 4′ limestone, medium to dark gray, massive, hard, dense, small masses of gray chert, fairly well fractured, fusulinids 1′ from top. Slight petroliferous odor.
8372			TOP OF WOLFCAMPIAN SERIES.
8375	8467	92	Limestone, brownish gray to tan, slightly silty.

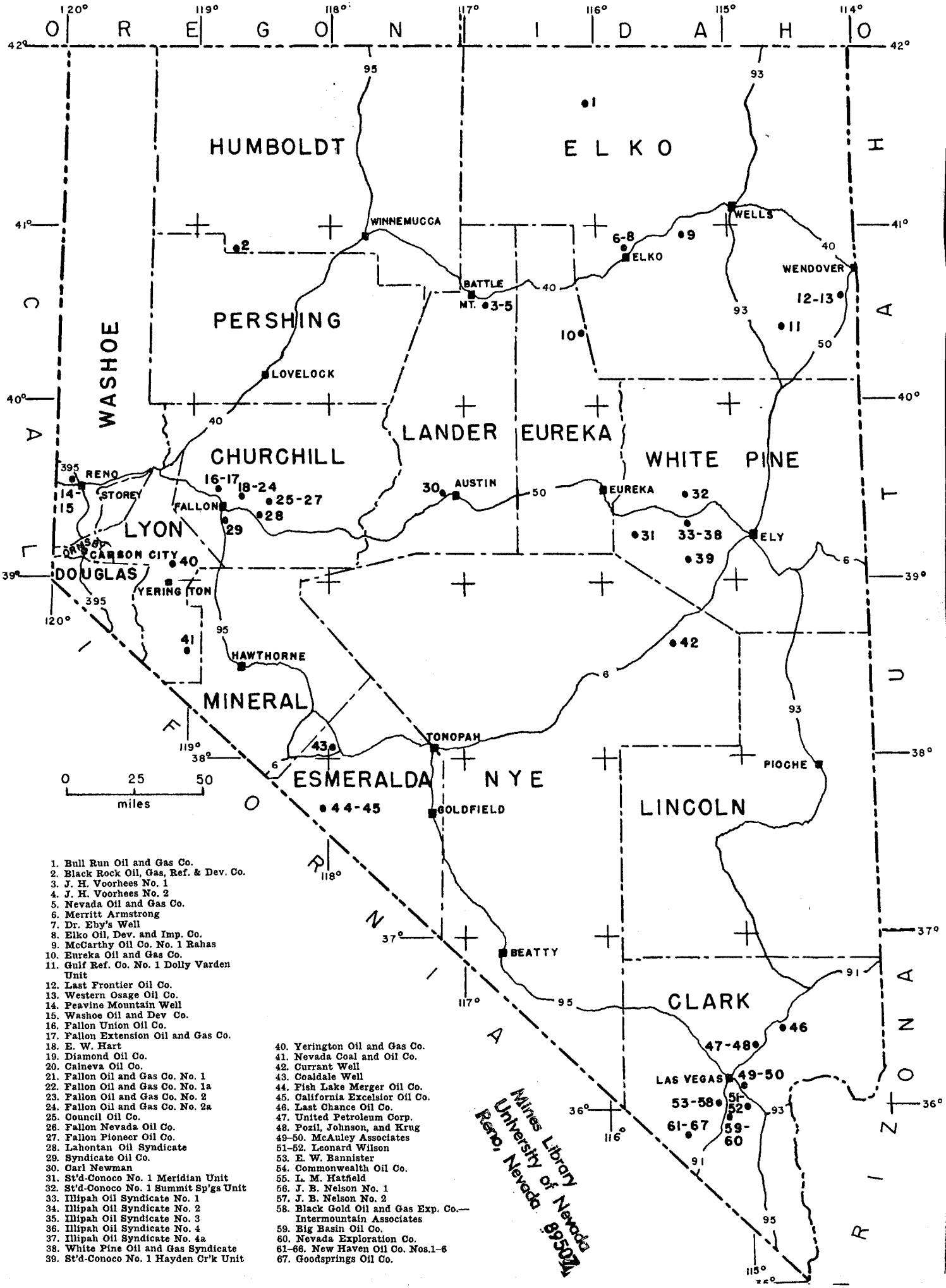
Top	Bottom	Thickness	Description
8467	8508	41	Limestone, brownish-gray; dolomite, gray to tan.
8508	8538	30	Limestone, gray-black to brown, silty, trace of gray chert and calcite.
8538	8578	40	Limestone, as above, with traces of dolomite, gray to tan.
8545			TOP OF PENNSYLVANIAN (Ely limestone?)
8578	8600	22	Limestone, as above, with calcite.
8600	8650	50	Limestone, as above, with dolomite, gray to tan.
8650	8659	9	Core No. 42, Rec. 4′. 4′ limestone, medium gray, massive, dense, very hard, few fractures, large amount of chert, dark to milky gray.
8659	8681	22	Limestone, gray-black to brown; chert, gray to milky.
8681	8858	177	Limestone, gray to brown to white; chert, gray, milky.
8858	8911	53	Limestone, gray to brown to white; dolomite, gray, siliceous.
8911	8915	4	Core No. 43, Rec. 1′ 6″. 1′ 6″ limestone fragments, medium to dark gray, massive, dense, very hard, highly fractured, occasional siliceous nodules.
8915	8941	26	Limestone, dark gray to white, with trace of siliceous dolomite.
8941	8991	50	Limestone as above, with trace of calcite and chert, gray to brown.
8991	9001	10	Core No. 44, Rec. 5′. 5′ limestone, medium to dark gray, massive, very hard, highly siliceous zones, badly fractured, thin calcite veins in fractures.
9001	9071	70	Limestone, gray to brown to white; chert, dark gray to brown.
9071	9091	20	Limestone, gray to brown to white; siltstone, gray to brown; chert, gray to brown.
9091	9236	145	Limestone and chert, as above.
9236	9241	5	Core No. 45, Rec. 4′. 4′ limestone, medium to dark gray, massive, dense, very hard, fractured, occasional silicified zones.
9241	9247	6	Limestone, gray to brown, to black, with trace of gray chert.
9247	9270	23	Limestone, as above, with trace of chert and gray sandstone.

Top	Bottom	Thickness	Description
9270	9303	33	Limestone, tan to pink to gray to black and occasionally white; trace of sandstone, red, fine grained.
	9327	24	Limestone, light tan to gray to white to black; traces of limestone, cherty, coarse grained.
	9389	62	Limestone, light gray to tan to black, with calcite.
	9439	50	Limestone, as above, with traces of gray chert.
	9447	8	Core No. 46, Rec. 8′. 8′ limestone, gray-black to black, shaly partings, very hard, thin vertical veins of calcite.
9447	9465	18	Limestone, tan to gray to black.
9465	9668	203	Limestone, as above, with traces of gray chert.
9668	9676	8	Core No. 47, Rec. 8′. 8′ limestone, gray-black to black, massive, very hard, irregular fractures filled with calcite, slight fetid odor.
	9863	187	Limestone, dark gray to brown to black; calcite, trace of chert.
	9872½	9½	Core No. 48, Rec. 9½′. 9½′ limestone, dark gray, massive, very hard, dense, badly fractured, fractures filled with calcite. Several granular calcite masses, slight fetid odor.
	9957	84½	Limestone, brownish-gray, dark gray to black, with calcite, and a trace of gray chert.
	9982	25	80% limestone, brown-gray, gray to black, calcite, slightly silty. 20% siltstone, light gray, slightly limy.
	10,040	58	90% limestone, as above. 10% siltstone, as above.
10,040	10,066	26	Limestone, brown-gray to gray-black to black; trace of siltstone, gray, limy; and trace of chert, gray to milky.
10,066	10,073	7	Core No. 49, Rec. 7′. 7′ limestone, medium to dark gray, very hard, dense, badly fractured, some calcite filled fractures. Several masses of white calcite.
	10,102	29	Limestone, brownish-gray to gray-black; trace of siltstone, gray, limy; trace of gray chert.
10,102	10,133	31	Limestone, as above, with trace of siltstone, gray, limy.

Top	Bottom	Thickness	Description
10,133	10,180	47	Limestone, and siltstone, as above, trace of gray chert.
	10,299	119	90% limestone, gray to brown-gray to black, silty. 10% siltstone, gray, limy, and trace of gray chert.
	10,311	12	Core No. 50, Rec. 12′. 10′ limestone, dark gray to black, silty, finely crystalline, fractured, with calcite in the fractures. 2′ shale, black, fair petroliferous odor. FAIR CUT WITH CCl_4.
10,311	10,314	3	70% limestone, brown-gray to gray-black, silty. 20% shale, black. 10% siltstone, gray, limy.
10,314	10,352	38	40% limestone, as above. 50% shale, black, as above. 10% sandstone, light gray, fine grained, with trace of gray chert.
10,352	10,360	8	Core No. 51, Rec. 8′. 8′ limestone, medium to dark gray, silty, massive, very hard, dense, badly fractured, with calcite in fractures. Fair petroliferous odor.
	10,378	18	90% limestone, brown-gray to gray-black, silty. 10% siltstone, gray, limy, trace of gray chert.
	10,436	58	Limestone, as above, with trace of gray chert.
10,436	10,489	53	40% limestone, brown-gray to gray-black, silty. 50% limestone, black, finely crystalline, shaly and siliceous. 10% siltstone, gray, limy, trace of gray chert.
10,489	10,550	61	60% limestone, brown-gray to gray-black, silty. 30% limestone, black, shaly and siliceous, finely crystalline. 10% siltstone, as above.
10,550	10,554	4	30% limestone, brown-gray to gray-black. 70% sandstone, white to medium gray, limy.
10,554	10,560	6	60% sandstone, as above. 30% limestone, black, shaly, finely crystalline. 10% limestone, brown-gray to gray-black silty, trace of gray chert.

Top	Bottom	Thickness	Description
10,560	10,571	11	Core No. 52, Rec. 11′. 9′ limestone, medium to dark gray, slightly sandy, massive, dense, vertical fractures with white calcite fillings. 2′ limestone, medium gray, slightly sandy, coarsely crystalline, massive, dense, slightly fractured.
10,571	10,582	11	70% limestone, brown-gray to gray-black. 20% shale, black. 10% sandstone, white to medium gray, limy, with trace of gray chert.
10,582	10,589	7	30% limestone, as above. 20% shale, as above. 50% sandstone, as above.
10,589	10,599	10	40% sandstone, as above. 40% shale, as above. 20% limestone, as above.
	10,679	80	80% limestone, as above. 10% sandstone, as above. 10% shale, as above.
10,679	10,962	283	100% limestone, as above; trace of siltstone, gray, limy; shale, black; chert, gray.
10,962	10,988	26	60% shale, gray to black. 40% limestone, brown-gray to gray-black, silty, calcite, trace of chert.
10,985			TOP OF LOWER (?) DIAMOND PEAK FORMATION (Illipah) (Mississippian)
	11,028	40	70% shale, gray to black. 30% limestone, as above, traces of calcite, pyrite, and white quartzite.
11,028	11,033	5	60% shale, gray to black. 30% limestone, brown-gray to gray-black, calcite. 10% sandstone, white, medium grained.
	11,038	5	30% shale, black, silty. 50% limestone, medium to light gray, silty. 20% sandstone, medium grained to silty, trace of pyrite.
	11,046	8	Core No. 53, Rec. 6′. 6′ limestone, medium to dark gray, massive, dense, hard, near vertical fractures with calcite fillings.
11,046	11,171	125	50% shale, gray-black, silty. 40% limestone, gray-tan, sandy. 10% sandstone, medium grained to silty, trace of pyrite.
	11,230	59	70% shale, as above. 20% limestone, as above. 10% sandstone, as above.

Top	Bottom	Thickness	Description
11,230	11,247	17	60% shale, gray-black, carbonaceous. 20% limestone, gray-tan, sandy. 20% sandstone, limy, fine grained.
11,247	1,300	53	60% shale, as above. 40% limestone, as above; trace of sand and pyrite.
11,300	11,316	16	Core No. 54, Rec. 16′. 3′ shale, dark-gray to black, limy, platy, dense, brittle, hard, slickensided, abundant carbonaceous material and plant imprints. 2′ limestone, light to medium gray, massive, hard, tight, dense, shale streaks of ¼″ and less, some vertical calcite filled fractures. 8′ shale, carbonaceous, and limestone, as above, interbedded. Shale varies from less than 1″ to 1′ in thickness. 3′ shales, as above. No odor, no stain, no cut. Dip 3° to 4°.
11,316	11,339	23	80% shale, dark gray-black, carbonaceous. 20% limestone, gray-tan, crystalline.
11,339	11,342	3	No record.
11,342	11,364	22	70% shale, as above. 30% limestone, as above.
11,364	11,373	9	No record.
11,373	11,405	32	70% shale, as above. 20% limestone, as above. 10% sandstone, light gray.
11,405	11,443	38	Shale and limestone.
11,443	11,457	14	70% shale, dark gray. 30% limestone, dark gray.
11,457	11,520	63	Shale and limestone, as above.
11,520	11,531	11	Shale.
11,531	11,536	5	Shale and limestone.
11,536	11,543	7	Core No. 55, Rec. 3′. 3′ shale, dark gray to black, firm, brittle platy, compact, homogeneous, good dips, 2° to 5°. No stain, no cut.
11,543			T. D.



1. Bull Run Oil and Gas Co.
2. Black Rock Oil, Gas, Ref. & Dev. Co.
3. J. H. Voorhees No. 1
4. J. H. Voorhees No. 2
5. Nevada Oil and Gas Co.
6. Merritt Armstrong
7. Dr. Eby's Well
8. Elko Oil, Dev. and Imp. Co.
9. McCarthy Oil Co. No. 1 Rahas
10. Eureka Oil and Gas Co.
11. Gulf Ref. Co. No. 1 Dolly Varden Unit
12. Last Frontier Oil Co.
13. Western Osage Oil Co.
14. Peavine Mountain Well
15. Washoe Oil and Dev Co.
16. Fallon Union Oil Co.
17. Fallon Extension Oil and Gas Co.
18. E. W. Hart
19. Diamond Oil Co.
20. Calneva Oil Co.
21. Fallon Oil and Gas Co. No. 1
22. Fallon Oil and Gas Co. No. 1a
23. Fallon Oil and Gas Co. No. 2
24. Fallon Oil and Gas Co. No. 2a
25. Council Oil Co.
26. Fallon Nevada Oil Co.
27. Fallon Pioneer Oil Co.
28. Lahontan Oil Syndicate
29. Syndicate Oil Co.
30. Carl Newman
31. St'd-Conoco No. 1 Meridian Unit
32. St'd-Conoco No. 1 Summit Sp'gs Unit
33. Illipah Oil Syndicate No. 1
34. Illipah Oil Syndicate No. 2
35. Illipah Oil Syndicate No. 3
36. Illipah Oil Syndicate No. 4
37. Illipah Oil Syndicate No. 4a
38. White Pine Oil and Gas Syndicate
39. St'd-Conoco No. 1 Hayden Cr'k Unit
40. Yerington Oil and Gas Co.
41. Nevada Coal and Oil Co.
42. Currant Well
43. Coaldale Well
44. Fish Lake Merger Oil Co.
45. California Excelsior Oil Co.
46. Last Chance Oil Co.
47. United Petroleum Corp.
48. Pozil, Johnson, and Krug
49–50. McAuley Associates
51–52. Leonard Wilson
53. E. W. Bannister
54. Commonwealth Oil Co.
55. L. M. Hatfield
56. J. B. Nelson No. 1
57. J. B. Nelson No. 2
58. Black Gold Oil and Gas Exp. Co.—Intermountain Associates
59. Big Basin Oil Co.
60. Nevada Exploration Co.
61–66. New Haven Oil Co. Nos.1–6
67. Goodsprings Oil Co.

TABLE I. SALIENT DATA ON NEVADA OIL AND GAS DRILL HOLES, 1906–1953

Number	Name	County	Location Sec., T. R.	Date drilled	Elevation, feet	Total depth, feet	Surface formation	Oldest formation drilled	Logs*	Reported sh
1.	Bull Run Oil and Gas Co.	Elko	21–43N–52E	1922	†	800	Quaternary	Tertiary	None	Oil and Ga
2.	Black Rock Oil, Gas, Ref. & Dev. Co.	Humboldt	13–35N–29E	1921	†	800	Quaternary	Tertiary	None	None
3.	J. H. Voorhees No. 1	Lander	27–32N–45E	1946	4537	912	Quaternary	Tertiary	None	None
4.	J. H. Voorhees No. 2	Lander	27–32N–45E	1947	4537	540	Quaternary	Tertiary	None	None
5.	Nevada Oil and Gas Co.	Lander	34–32N–45E	1952	4537	†	Quaternary	TEMPORARILY SHUT-IN		None
6.	Merritt Armstrong	Elko	35N–55E	†	†	†	†	†	†	†
7.	Dr. Eby's Well	Elko	35N–56E	†	†	†	†	†	†	†
8.	Elko Oil, Dev., Imp. Co.	Elko	4–34N–55E	1924	†	3337	†	†	None	None
9.	McCarthy Oil Co. No. 1 Rahas	Elko	9–35N–58E	1950	5250	4125	Quaternary	Mississippian	A	None
10.	Eureka Oil and Gas Co.‡	Eureka	11–27N–52E	1950–3	5863	†	Qal. & Ordo.	Qal. & Ordo.	None	None
11.	Gulf Ref. Co. No. 1 Dolly Varden Unit	Elko	36–30N–64E	1953	5850	3158	Triassic	Permian	ABCDE	None
12.	Last Frontier Oil Co.	Elko	23–31N–69E	1953	†	1327	Quaternary	Pennsylvanian	None	Oil
13.	Western Osage Oil Co.	Elko	14–31N–69E	1951	†	**785	Quaternary	†	None	Gas
14.	Peavine Mountain Well	Washoe	19N–19E	1908	†	†	Tertiary	†	None	None
15.	Washoe Oil and Development Co.	Washoe	21–19N–19E	1907	4900	1890	Tertiary	Tertiary	A	Gas
16.	Fallon Union Oil Co.	Churchill	24–19N–26E	†	3937	650	Quaternary	Quaternary	None	None
17.	Fallon Extension Oil and Gas Co.	Churchill	22–19N–28E	1921	3937	1076	Quaternary	Quaternary	None	None
18.	E. W. Hart	Churchill	20–19N–31E	1922	3910	200	Quaternary	Quaternary	None	None
19.	Diamond Oil Co.	Churchill	34–18N–31E	1921	3937	1700	Quaternary	Tertiary(?)	None	None
20.	Calneva Oil Co.	Churchill	32–19N–31E	1922	3937	1560	Quaternary	Tertiary(?)	None	None
21.	Fallon Oil and Gas Co. No. 1	Churchill	5–18N–31E	1919	3940	1327	Quaternary	Tertiary(?)	None	None
22.	Fallon Oil and Gas Co. No. 1a	Churchill	6–18N–31E	1921	3937	400	Quaternary	Quaternary	None	None
23.	Fallon Oil and Gas Co. No. 2	Churchill	5–18N–31E	1920	3940	705	Quaternary	Quaternary	None	None
24.	Fallon Oil and Gas Co. No. 2a	Churchill	6–18N–31E	1921	3937	1300	Quaternary	Tertiary(?)	None	None
25.	Council Oil Co.	Churchill	3–20N–32E	1921	4000	300	Quaternary	Quaternary	None	None
26.	Fallon Nevada Oil Co.	Churchill	16–20N–32E	1921	†	250	Quaternary	Quaternary	None	None
27.	Fallon Pioneer Oil Co.	Churchill	8–19N–32E	†	†	1540	Quaternary	Tertiary(?)	None	None
28.	Lahontan Oil Syndicate	Churchill	20–18N–31E	1922	4193	2015	Quaternary	Tertiary(?)	None	None
29.	Syndicate Oil Co.	Churchill	18–17N–29E	1922	3918	3200	Quaternary	Tertiary(?)	None	Oil and Gas
30.	Carl Newman	Lander	17–19N–43E	1921	†	365	Quaternary	Quaternary	None	None
31.	St'd-Conoco No. 1 Meridian Unit	White Pine	31–16N–56E	1950	6401	10,314	Mississippian	Ordovician	ABCEFG	Oil
32.	St'd-Conoco No. 1 Summit Springs Unit	White Pine	32–20N–60E	1951	7260	11,543	Permian	Mississippian	ABCEFG	Oil and Gas
33.	Illipah Oil Syndicate No. 1	White Pine	11–17N–58E	1920	6920	929	Mississippian	Mississippian	A	Oil and Gas
34.	Illipah Oil Syndicate No. 2	White Pine	11–17N–58E	1920	6920	1572	Mississippian	Mississippian	A	Oil and Gas
35.	Illipah Oil Syndicate No. 3	White Pine	11–17N–58E	1926	6200	678	Mississippian	Mississippian	None	Oil and Gas
36.	Illipah Oil Syndicate No. 4	White Pine	11–17N–58E	1927	6200	1302	Mississippian	Mississippian	None	Oil and Gas
37.	Illipah Oil Syndicate No. 4a	White Pine	14–17N–58E	WELL APPROVED BY USGS, BUT NOT DRILLED.						†
38.	White Pine Oil and Gas Syndicate	White Pine	12–17N–58E	†	6800	†	Mississippian	†	None	Oil and Gas
39.	St'd-Conoco No. 1 Hayden Creek Unit	White Pine	17–15N–59E	1950	7361	5117	Pennsylvanian	Devonian	ABEF	None
40.	Yerington Oil and Gas Co.	Lyon	15N–26E	1907	†	**262	Quaternary	†	A	None
41.	Nevada Coal and Oil Co.	Lyon	36–8N–27E	1920	†	†	†	†	None	None
42.	Currant Well	Nye	†	NOT DEFINITELY KNOWN THAT THE WELL WAS DRILLED.						
43.	Coaldale Well	Esmeralda	†	1925	†	5280	Quaternary	Tertiary	None	Gas
44.	Fish Lake Merger Oil Co.	Esmeralda	34–1S–36E	1921	**4900	1447	Quaternary	Tertiary	None	None
45.	California Excelsior Oil Co.	Esmeralda	27–1S–36E	1920	4900	488	Quaternary	Tertiary	None	None
46.	Last Chance Oil Co.	Clark	11–17S–64E	**1950	2120	**1002	Quaternary	Tertiary(?)	None	None
47.	United Petroleum Corp.	Clark	6–18S–64E	1948	2380	1247	Quaternary	Tertiary(?)	BE	Gas
48.	Pozil, Johnson, and Krug	Clark	7–18S–64E	1950	2041	1455	Quaternary	Tertiary(?)	None	None
49.	McAuley Associates No. 1	Clark	2–21S–62E	1952	1650	1970	Quaternary	†	None	None
50.	McAuley Associates No. 2	Clark	2–21S–62E	1953	1650	**2268	Quaternary	†	None	None
51.	Leonard Wilson No. 1	Clark	32–22S–63E	1953	2100	810	Tertiary(?)	†	None	None
52.	Leonard Wilson No. 1a	Clark	32–22S–63E	1953	2100	1465	Tertiary	†	None	None
53.	E. W. Bannister	Clark	34–21S–60E	1929	2750	522	Pennsylvanian(?)	Pennsylvanian(?)	None	None
54.	Commonwealth Oil Co.	Clark	31–21S–60E	1933	2750	1897	Pennsylvanian(?)	Pennsylvanian	A	None
55.	L. M. Hatfield	Clark	20–22S–60E	1935	2800	707	Quaternary(?)	†	None	None
56.	Red Star—J. B. Nelson No. 1	Clark	20–22S–60E	1943	2631	2210	Permian	Pennsylvanian	A	None
57.	J. B. Nelson No. 2	Clark	20–22S–60E	1944	2631	3767	Permian	Pennsylvanian	B	None
58.	Black Gold Oil and Gas Exploration Co. (Intermountain Associates No. 1)	Clark	23–23S–59E	1950	**2800	†	Pennsylvanian	TEMPORARILY SHUT-IN		
59.	Big Basin Oil Co.	Clark	17–23S–61E	1953	**2000	1180	Quaternary	Mississippian	None	None
60.	Nevada Exploration Co.	Clark	13–23S–60E	1947	2860	2002	Pennsylvanian	Devonian	None	None
61.	New Haven Oil Co. No. 1	Clark	26–24S–58E	1947	3695	716	Quaternary	Permian	A	None
62.	New Haven Oil Co. No. 2	Clark	26–24S–58E	1947	3695	405	Quaternary	Permian	None	None
63.	New Haven Oil Co. No. 3	Clark	26–24S–58E	1947	3695	200	Quaternary	Permian(?)	None	None
64.	New Haven Oil Co. No. 4	Clark	26–24S–58E	1947	3695	226	Quaternary	Permian(?)	None	None
65.	New Haven Oil Co. No. 5	Clark	26–24S–58E	1947	3695	40	Quaternary	Quaternary(?)	None	None
66.	New Haven Oil Co. No. 6	Clark	26–24S–58E	1948	3695	130	Quaternary	Permian(?)	None	None
67.	Goodsprings Oil Co.	Clark	26–24S–58E	†	**3700	**370	Quaternary	Permian(?)	None	None

A—Lithologic or Driller's Log B—Electric Log C—Micro Log D—Latero Log E—Radioactivity Log F—Dipmeter Log G—Barold Log

*All logs available for inspection in open files of the Nevada Bureau of Mines.
†Data not available.
‡Several core holes drilled here on both sides of a major fault.
**Data approximate.

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INDEX

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Publications listed with a price can be purchased from the Director, Nevada Bureau of Mines, University of Nevada, Reno, Nevada. With each order add $0.10 for each publication to cover postage and handling costs.

It will be noted that several different publication series have been started, owing to changes in administration and/or cooperating agencies. In order to facilitate cataloging and bibliographic listing, the numbers at the left in brackets [ ] have been assigned to all bulletins concerning geology, mining, or related material published prior to the establishment and separate numbering of the "Geology and Mining Series."

*An asterisk (*) indicates that the publication is out of print.

BULLETIN OF THE DEPARTMENT OF GEOLOGY AND MINING, UNIVERSITY OF NEVADA

[1]. Preliminary report on the building stones of Nevada, including a brief chapter on road metal, by J. A. Reid. 61 p. incl. illus. Geology and Mining Dept. Bull., vol. 1, no. 1. Univ. Nev. June 1904. 10¢.

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