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The original intent of the law creating the office of State Geologist was that that official should make reports on mining property, to collect official information relating to the various mines and mining projects of the State, and to publish and circulate such information as he may deem advisable for advertising the mineral wealth of the State, and also to take any steps which would be likely to advance the development of the mining industry.

The duties of the State Geologist were increased by the enactment of a law in 1903 making the State Geologist ex officio Inspector of Mines, with power to examine into the condition of any mine, mill, or part thereof, and all matters or things connected with or relating to the safety of the persons employed in or about the same; to examine into and make inquiry respecting the condition of machinery or mechanical devices, and, if necessary, to have same tested; to appear at all coroner's inquests respecting accidents and, if necessary, to examine and cross-examine witnesses. These duties do not apply to coal mines, as they are under the supervision of the Coal Mine Inspectors who are not connected with the office of the State Geologist, but do apply to quarries, metal mines and other mining operations.

The requirements of the State Geologist were still further enlarged by the action of the Legislature in 1919 making it the duty of the State Geologist to make examinations and reports on any State or school lands when so requested by the State Land Board or the State School Land Board, and to make written report concerning the geology of any lands in which the State of Wyoming is or may hereafter become interested, and on such other matters as the respective State Boards have to do with State lands or State school lands may desire information upon. He is further charged with the duty of enforcing the laws of the State of Wyoming relating to the oil industry.

The laws of 1921 provide for conservation of the natural resources of the State under the supervision of the State Geologist relating to the oil and gas wells and have caused a further increase in the activities of the office. Under this law has been formed a Department for the conservation of oil and gas as part of the State Geologist Department. At the present time this consists of two oil and gas inspectors, one of them located at Casper and the other at Lander, their duties being to make inspections of wells

throughout the State, to supervise repair work, together with other duties along the same general lines, including production tests of both oil and gas and reporting on their activities.

The work of the State Geologist Department under the four lines of activity mentioned above will be described more fully in the succeeding pages of this report.

MINING INDUSTRY.

As the result of the industrial depression following the Late War, the mining industry has been suffering from inactivity, not only in Wyoming but throughout the entire Nation, as the result of over-supply in iron, copper and other metallic minerals as well as a number of non-metallic minerals. On account of high cost of operation, the mining of gold and silver was less profitable than before, and not attractive from an investment point of view. The surplus stock of metals has been gradually absorbed by the industries but the process was slow, as mining operators found it more unprofitable to shut down entirely than to continue operations even at a slight loss. It was the logical result of these operations that new mining enterprises were not being developed: capital was not seeking investment in mining ventures and the mining industry in Wyoming has made little progress during the last few years. Although Wyoming probably has the greatest undeveloped mineral resources of any state in the Union, the development has been backward, mainly because these resources include a smaller proportion of precious metals, which are the first to attract mining development, and which bring in lines of transportation which later result in the development of the less precious metals, which often are really resources of greater extent and value in the end. Wyoming's principal resources include coal, oil, phosphates, potash and a number of other minerals in immense quantities but of comparatively small value per ton, which with high freight rates and long distances to points of consumption bring them into competition with similar products having advantages of low freight rates and short hauls, so that the development of these resources, with the exception of oil, has been comparatively slow. It seems to be the problem in the development of the mining resources of this State to secure low freight

rates and to find and build up large markets.

The State Geologist's Office is endeavoring to be of every possible assistance to the mining industry in finding markets for its products, and in future years can be of still greater assistance. Manufacturing has become the greatest industry of the United States and its development is being aided by research work of engineers and chemists who are continually seeking new products for accomplishing certain definite objects in manufacturing processes. In these investigations it is frequently found that some mineral hitherto considered of interest only as a mineralogical specimen is of actual commercial value for some manufacturing process.* As an example of this, it has been found that cyanite and sillimanite, silicates of aluminum, are very valuable in manufacturing porcelains for spark plugs, and the United States is being combed by representatives of spark plug manufacturers for deposit of these minerals. Wyoming is known to contain one of these minerals but whether it occurs in commercial quantity and purity has not yet been determined.

Through the newspapers and other agencies the State Geologist is endeavoring to keep mining operators informed as to the market and demand for these and other mineral products, with the hope that commercial deposits may be brought to light, resulting in their development. Owing to the fact that new uses are being found continually for minerals previously considered to be of ^{no} value, it is important that the State Geologist should keep informed on this subject and be prepared to identify all minerals sent in for examination, and to learn of deposits of such minerals, their extent and location with respect to transportation, even though the minerals at this time may not be considered of commercial value. In order to keep informed on these subjects and also to be in a position to inform the public, the State Geologist has commenced to assemble specimens of the various minerals of the State, and is also securing from outside of the State specimens of minerals which have not previously been known in Wyoming but which should occur in this State, and which may be brought to light at any time. Many of these materials are of very ordinary appearance. Some of them resemble each other closely and it is almost impossible for the average prospector to make tests in the field by which he could determine one from another.

*Silliman
Cyanite
Radio*

In view of the ever increasing value and demand for these minerals, it is very important that the State should have an agency capable of making these determinations and of identifying such minerals when they are sent in for inspection. This office at the present time has but very little equipment for determination of minerals, its equipment being limited to a small blow-pipe outfit. This outfit is useful only for determining the ordinary minerals but is inadequate for the identification of rare and unusual minerals. In order to be in a position to keep the public fully informed regarding the identification of all minerals, the office should either be equipped with a good laboratory or else funds should be made available by which the State Geologist can send the specimens to well equipped laboratories for full determination. Determinations of rare and unusual minerals are expensive but valuable. The present intent of the laws regarding the identification of minerals by the State Geologist is that he should not make an assay but merely make an inspection of the specimen and give the operator the result of that inspection. Methods of this kind were satisfactory a few years ago when the presence and importance of rare and unusual minerals in Wyoming were not known and probably not even suspected. With the new minerals which are coming to light, it is impossible for any one to make a reliable identification without having access to a complete laboratory, and as there does not seem to be space available for the State Geologist to have such a laboratory in the Capitol Building, it is recommended that for the next two years the State Geologist be allowed a small additional amount annually to be used according to his own judgment for having assays, tests and determinations made on any minerals on which he considers these tests to be justified.

The State Geologist's Office is occupying the same quarters that it has occupied for the past fifteen or twenty years and it is now doing about four times as much business as it formerly did, and as a considerable volume of records have accumulated, and the library has grown, larger quarters should be provided for this Department. Although the State has had a Geologist for a great many years, there has been no collection of rocks and minerals in this Office by which to display to callers and visitors the variety, quality and extent of the mineral resources of this State. Feeling that the

preparation of such an exhibit is a vital part of the duties of the State Geologist, it has been the policy of this administration to commence the assembling of such an exhibit. Some good results have been accomplished in the past two years but a great deal is still to be desired. Before it is possible to have a comprehensive exhibit of the specimens of the minerals considered in representing Wyoming's principal resources, it is necessary to have more space in which to display these minerals and this makes another reason for more room in the Capitol for this Department.

It will be well to mention here some of the discoveries during the past few years and also some of the minerals which have been known for a number of years but which may become important in the near future.

Probably the most spectacular event was the discovery of platinum and palladium in vein form near Centennial. This discovery was made in the fall of 1923, newspaper accounts crediting the unofficial assays with values of \$422.00 per ton in platinum and palladium. The State Geologist visited the locality in November, 1923, and took samples from the discovery tunnel, taking the usual precautions against salting. These samples were submitted to the Mining Department of the University of Wyoming for assay and a report was submitted to the effect that one of the samples carried \$445.00 per ton, another \$590.00 per ton, the values being mainly platinum, while the other samples were barren. A sample taken at a later date and sent to the United States Bureau of Mines, Precious Metal Station, Reno, Nevada, was reported to contain the equivalent of 11 ounces of palladium per ton, which would give it a value of between \$600.00 and \$700.00 per ton, in addition to considerable nickel.

At the present time it is impossible to predict the commercial outcome of this discovery but it is certainly interesting from a scientific point of view, as it is the first known discovery in the world of rich platinum in vein form. The principal source of platinum in the world is the placer operations in which the platinum is mainly associated with gold. Few localities are known in which platinum occurs in vein form associated with other minerals but in which the platinum content is not high enough to justify mining for platinum alone, platinum being merely saved as a by-product. This discovery of rich platinum in vein form is therefore very interesting. Platinum is not unknown, however, in Wyoming, as both platinum and palladium have been

known to occur in the Rambler Mine, which is about eight miles southwest of the Centennial discovery.

Geologically, the Centennial district is a metamorphic complex of schists and gneisses, with both acid and basic intrusions. The planes of schistosity are nearly vertical and have a northeast southwest trend. As the Rambler Mine is in a southwestern direction from the Centennial discovery, approximately the direction of the strike of the schist, the possibility is suggested that there may be a belt ^{of fracturing} in the schist in which platinum may be found. The platinum in the Rambler Mine is associated with copper, the ore being a covellite. In the Centennial discovery tunnel the platinum is in small cross fractures, which cross the schist nearly at right angles. Although the tunnel was driven for the purpose of prospecting a small occurrence of copper, there appears to be but little copper associated with the platinum in this small vein. The owners of this discovery tunnel believed that the proper way to prospect their tunnel was to run a tunnel at the foot of the mountain in the hope of getting a vein at depth, as the discovery tunnel was situated at a point rather high on the mountain side and was not only inaccessible through the winter months but could not gain any considerable depth with length. This lower tunnel was, therefore, worked on for a number of months until the operators ran short of money, without encountering the platinum vein. A sample taken by the State Geologist at the face of this tunnel in May, 1924 was reported by the United States Bureau of Mines, Precious Metal Station, to contain traces of gold and platinum, but it was evident that the discovery vein had not been reached. The State Geologist has urged these operators to work in their discovery tunnel and follow their rich platinum ore to determine its extent and character, and has been assured only recently that this would be the next operation undertaken.

As the result of the attention attracted by the high assays obtained from specimens taken from this tunnel, the district was the scene of a considerable rush during the winter months and more than 1000 claims were recorded with the County Clerk of Albany County. Owners of a number of these claims have reported platinum assays of value from their properties and the State Geologist has made every effort to examine these properties and check up on the claims. Several trips have been made into the district and the most promising of the prospects have been visited and

sampled. The result of the assays that have been made by the United States Bureau of Mines, Precious Metal Station, shows that high grade platinum had not yet been uncovered in any of these claims, although some few of the assays showed traces. This does not necessarily condemn the whole district, however, but suggests the idea that prospecting for platinum will be an expensive operation and that the platinum, even if present, will be hard to find. In connection with the discovery tunnel it is very doubtful if any one could detect the presence of platinum from surface operations, the platinum veins having been encountered by accident underground while prospecting for copper.

The latest trip made by the State Geologist into the region was in October, 1924 and a number of samples were taken from claims not previously visited. Of these samples, one showed a trace of platinum, according to the assays, while others contained none. Samples were all run for gold, however, and the results may prove to be interesting as all of the samples showed gold in small quantities but rich enough for commercial operation if the same values hold out during further development. Practically all of the samples were taken not far from the surface, usually in ten foot holes, though it is impossible to make any predictions as to the commercial possibilities, on two claims, which are located upon large hornblend ledges, assays ran from \$4.00 to \$6.80 per ton. Should these values continue in depth, the discovery would be of considerable importance.

Some placer operations were attempted during the year 1924 in the Middle Fork Canon, a pipeline about two miles long having been constructed during the winter months. Operations were discontinued in the summer on account of being unsuccessful but the operators expect to make changes in their methods and resume operations next summer. The placer ground was not thoroughly sampled by pits and the operators believe that they commenced work on a portion of their ground which was unfavorable for profitable operations. Before work is resumed they plan to thoroughly sample the ground and also to make certain changes necessary in their methods. Until the ground is sampled and the amount and character of the gravel determined, it is impossible to state whether the operations will be profitable.

The Medicine Bow Range, which includes the Centennial district and the Rambler Mine, consists of something like 1000 square miles of pre-Cambrian

rocks, which justify prospecting for gold and possibly other metals. There are a number of promising gold prospects in the range at the present time and it is not unreasonable to believe that one or more paying gold mines will eventually be developed. This area is one of the few parts of the United States not covered by survey of the United States Geological Survey and the State Geologist has been urging that Department to make a complete geological survey of the region at the earliest possible date.

Within the past two years discoveries of vanadium and chromium on the Casper Mountain have been announced. Vanadium assays obtained by the discoverer run as high as 18% vanadium pentoxide, although samples submitted to the State Geologist and sent out for assay have run only 1.55% to 2.55%. The discovery has not yet been fully enough investigated to warrant any announcements at this time, except that there is no question as to the occurrence of the vanadium, the question being as to the grade and amount of ore. The discovery of chromium on Casper Mountain was reported to the Office so recently that we have been unable to investigate. According to a letter received from the operators, their developments have not progressed sufficiently to demonstrate the occurrence of commercial ore bodies, but, from what small development work has already been done, they feel that the chances for the developing of large tonnages of commercial ore are very good. The State Geologist plans to make a careful examination of the chromium and vanadium discoveries during 1925, as they have possibilities of developing into something important. Casper Mountain is a location of considerable mineralization and, in addition to the discoveries already mentioned, contains one of the largest bodies of asbestos in the world. Distance from markets has prevented the development of this asbestos in the past, but it will not be surprising to see this deposit opened up within the next few years with operations on a large scale.

Extending along the western part of Platte County is a wide belt of metamorphic rocks in which a number of non-metallic minerals have already been discovered and in which additional discoveries can be expected. These minerals include cyanite, garnet, talc, kaolinite, graphite, mica, feldspar, and, in addition to these non-metallic minerals, molybdenum. Small shipments of garnet and talc are reported to have been made from deposits near Wheatland for testing purposes and, if freight rates are not excessive, it is probable

that these deposits will be placed on a shipping basis. The market for graphite is rather unfavorable at the present time, owing to competition from foreign supplies and large accumulation of stocks following the War, but conditions are likely to improve and, as this graphite is of high grade and in large quantities, it should eventually find a market. There is a good demand for cyanite but, up to the present time, no discoveries of commercial importance have been made, although a number of small high grade samples have been secured. The discoverers of cyanite have been urged to do sufficient stripping and other development work on these ledges to make it possible to get a reliable idea as to the extent and character of the minerals present and, as soon as this is done, the State Geologist will visit the localities and report on the discoveries. Up to the present time the State Geologist has not been advised that this development work has been undertaken. Mica occurs in a number of places in this belt of metamorphic rocks and in one locality a very good deposit is being developed. This mica occurs in a pegmatite dyke, from which it is to be separated from feldspar, after which it will make a high grade ground product. Eventually the feldspar can be marketed, as there is a great demand for this mineral and a steady market for it in the Eastern United States. Freight rates, however, to points of consumption at the present time will not permit Wyoming feldspar to compete with the Eastern product.

The South Pass Atlantic City gold district is one of the oldest gold camps in the United States and, therefore, cannot be called a discovery at this time, but it is worth while to note that, although this camp has been comparatively inactive for the last twenty years or more, it is showing evidence of a revival of activity which is hoped will result in the opening of some of the most important gold mines in the West. Several million dollars were taken from the principal mines of this district in the early days from the high grade enriched surface workings, subsequent developments showing that with depth the ore is of low grade but in large quantities. Properties of this kind require large amounts of capital for the necessary development of the ore bodies and for the construction of mills necessary to extract the values and, as fuel and transportation conditions have been unfavorable, the camp has remained undeveloped. The recent discovery of a gas field and improvement of roads and trucking conditions have changed the situation and capitalists have been investigating the district.

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("Its own and be listed among the country's most important gold producers")

Another resource upon which development has recently been resumed is the sulphur found in the vicinity of Thermopolis. This sulphur occurs associated with gypsum from which it is separated by a steaming process producing nearly pure sulphur, the residue, consisting of gypsum and sulphur, is ground up and marketed as a fertilizer, which is very valuable. Sulphur is a necessary factor in plant growth and where soils are deficient in this element as, for instance, in some parts of the State of Oregon, it has been found that crops are greatly increased by the use of gypsum or sulphur as a fertilizer. Some of the Oregon experiments showed an increase of 100% in the production of alfalfa as the result of the use of gypsum or sulphur fertilizer.

As the result of these investigations and a more promising outlook for the gold mining industry, it is hoped that this district will at last come into its own and be listed among the country's most important gold producers.

* This Office has received and answered a large number of inquiries regarding gypsum and bentonite, minerals which occur in many parts of the State which are important resources and which will eventually be produced on a large scale. There are several plants producing gypsum in Wyoming at the present time, the most important being at Laramie and in the Big Horn Basin. Building blocks made from gypsum are very desirable for construction of buildings of all kinds and are proving very popular in the regions near the gypsum plants. Bentonite is being shipped from a quarry near Medicine Bow and is treated in a plant in Cheyenne. Shipments are also being made from other points in Wyoming. There is a growing market for this product which will eventually result in the erection of plants in various parts of the State. Inquiries have been received at this office for zircon minerals also minerals of the zeolite group. None of these minerals have as yet been reported in Wyoming and are mentioned here so that if prospectors know of these minerals they will report to this office and we will put them in touch with the parties who made the inquiries.

* The State Geologist's office in 1920 issued Press Bulletin Number 10 on the mineral resources of Wyoming. These bulletins have been in great demand, not only in Wyoming but throughout the entire United States and the supply has just recently been exhausted. Since 1920 a number of new discoveries have added to these estimated resources and considerable new information has been acquired regarding the resources already described in the Bulletin. Owing to the importance of the mineral resources of Wyoming, it will be the policy of this Office, if funds are available, to re-write this Bulletin and publish it in pamphlet form with illustrations. In the long run, this method will probably prove more economic^{al} than the present method of issuing a mimeograph bulletin on account of the saving in paper, labor and postage, and in the increased value of the Bulletin to those receiving it.

The Office is receiving an ever increasing number of letters of inquiry relative to the mineral resources of this State and is frequently called upon to furnish special articles for the use of newspapers, encyclopedias, technical papers and libraries, in the various parts of the United States.

It is plainly evident that the mineral resources of Wyoming are becoming more important than ever before to mining men of this country. With the expected revival in business conditions there will be large markets for a great variety of metallic and non-metallic minerals, and the time is not far distant when the State Geologist's office should have an addition to its working force in the form of an expert mineralogist who can be kept in the field during the entire year whenever weather conditions permit, making examinations and investigations of the mineral resources of the entire State. As the State Geologist has to take care of an increasing number of letters of inquiry, office calls, conferences and reports, it is becoming more difficult every year for him to spend any great amount of time in the field, especially in the more distant parts of the State.

Attention should be called to the fact that the development and activity of the oil industry in Wyoming during the recent years of depression have been a great boon to the people of Wyoming and have lessened the hardships caused by the agricultural depression. The development of the oil industry has furnished a market for all kinds of agricultural products at better prices than could be secured outside of the State, and has also been a source of profitable labor for those who found it necessary to leave the farms a portion of the year. Eventually the oil resources will become depleted and the importance of the industry will slacken. Since Wyoming has other and greater resources capable of furnishing industry and prosperity to the State of Wyoming, every effort should be made to promote the development of these resources, so that the State can be kept continuously prosperous and, while the oil industry is of far greater importance than all the other mineral industries of Wyoming at the present time, these other industries should not be lost sight of, and advantage should be taken of the prosperity caused by the oil industry to create interest in the development of the other mineral resources.

Exhibits of the minerals comprising Wyoming's resources are important in advertising them to the public and should be displayed whenever possible. At the State Fair, 1923, the State Geologist was made Superintendent of the mineral exhibit and, although he was not advised of this fact early enough to permit the assembling of a comprehensive exhibit, it was possible to make a good display.

The opportunity for making a display at the 1924 State Fair was much more favorable and a number of very good exhibits were secured. These included asbestos, sulphur, soda, Epsom salts, gold, copper, lead, iron, coal, mica, zinc, aluminum, bentonite, phosphates, graphite, gypsum, manganese, mica, platinum, limestone, brick clay, agates, garnets and other economic minerals, including cyanite, kaolinite and glass sand. A number of representative fossils were also on display.

The attention of prospectors and owners of mining property and mining operators is especially invited to these exhibits at the State Fair. The State Fair attracts a great many people and it is a wonderful opportunity to advertise our mineral resources. The State Geologist is making arrangements with the State Fair management to make this mineral exhibit a permanent affair, so that when minerals are once sent they will not be lost or thrown away, but will be held over for the succeeding years. What we desire to do is to have these minerals arranged in cases where they can be protected from dust and where they can be visited and examined any time during the year. For the purpose of this exhibit the displays of each mineral product should be of fairly good size, not less than one hundred pounds to each sample, which makes the display a great deal more impressive than a few small pieces would do. With each individual display assays and analyses should be furnished, together with any other interesting or important information regarding the deposits. The State that has the most important mineral resources of any state in the Union is certainly overlooking its opportunities when it fails to have large and comprehensive displays of its minerals.

Subsequent to the 1924 State Fair the Casper Chamber of Commerce requested small specimens from a number of the representative displays at the Fair for use in its thirty day exhibit at Casper. The State Geologist was pleased to be able to comply with this request and to note the interest taken by the Casper Chamber of Commerce in its display of Wyoming resources. As previously mentioned in this report, it is also the desire of this Office to have small specimens representing all of Wyoming's mineral resources, as well as of other rocks and minerals and important metals from outside of the State which may ultimately be discovered in Wyoming, on display at the State Capitol in Cheyenne. Prospectors and mining operators are urged to supply the State Geologist with specimens of their mineral products and to prepare

good sized exhibits for the State Fair. It is not necessary to wait for the State Fair, as these exhibits can be sent to the Secretary of the State Fair at Douglas any time during the year and they will be taken care of.

While on the subject of the State Fair it is appropriate to mention the splendid oil exhibit of the Standard Oil Company and Midwest Refining Company at Casper. This exhibit was not a part of the mineral exhibit but was displayed in the Wyoming Products Building where Wyoming products of various kinds were shown. This oil exhibit included crude oil from the various Wyoming fields and the various refined products, including a number of grades of lubricating oils, fuel oils, gasoline, paraffin, asphalt and roofing. The exhibit also included a miniature oil field in actual operation, with wells, derricks, pipe lines, tanks, etc., and was one of the most interesting exhibits of the entire Fair. It included also a miniature refinery. These exhibits are of great educational value in showing the people what can be done with our mineral resources and in illustrating the manner in which the operations are carried on.

MINERAL INSPECTIONS.

Owing to the fact that the mining industry in Wyoming has been comparatively inactive during the past biennium, the number of inspections of mines has not been large. Only one accident occurred during the period, this being a case of carbon monoxide gas poisoning at a copper prospect near Tie Siding. The State Geologist was notified of this accident and was on the ground promptly. A careful investigation was made and testimony was heard from all of those present. No loss of life resulted from the accident but if it had not been for the rendering of prompt assistance by others at the mine, it might have resulted fatally for two men who were gassed and were unable to get out without assistance. The shaft was only 44 feet deep and a case of gas poisoning from the fumes of blasting powder with such a shaft is something very unusual. It appears that a round of shots was fired at 5:00 in the afternoon and men entered the shaft at 8 the next morning without taking any precautions to drive out the powder smoke, not believing that any precautions were necessary. They were immediately overcome and only with great difficulty brought to the surface and revived. It appears that the weather during the night had been very foggy and still and, as carbon monoxide gas has almost the same specific gravity as

air, it is evident that there had not been sufficient air movement during the night to remove this gas. The operators were ordered to install a ventilating pipe and to drop lighted papers down the shaft after firing. No further difficulties have been reported.

The Colorado Fuel and Iron Company's iron mine at Sunrise is the most important metal mine in Wyoming and has been included in the mine inspections, also the various limestone quarries in the southeastern part of the State. Other inspections include the Esterbrook Mine, which was in operation during the summer of 1923 and quite a number of inspections of gold and platinum mining operations in the Centennial District.

REPORTS ON STATE LANDS.

The Commissioner of Public Lands and State Land Boards have availed themselves to a greater extent of the services of the State Geologist during this biennium than during the preceding two years. The increasing development of the oil and mining industries in Wyoming is continually bringing to light evidences of deposits of value on State lands, on which reports are necessary for the guidance of the Department having these lands in charge. These reports include a geological report on the occurrences of minerals, coal, oil and gas, and include inspection of operations and developments and reports as to the character and value of improvements on the State lands. The State Geologist is frequently called upon to give advice as to terms of leases and agreements. The number of reports on State lands relating to oil and gas during the preceding biennium numbered 38. There were 4 reports on coal, 4 reports on minerals: total 46. During the biennium covered by this report the number of reports on oil and gas were 231, coal 7, minerals 11: total 249. These figures show a very heavy increase in the services rendered to the office of the Commissioner of Public Lands and State Land Boards.

INSPECTION OF OIL AND GAS WELLS.

The Legislature in 1921 enacted the laws which are now in force providing for a Department of Oil and Gas Conservation and placing the operation for oil and gas on State and patented lands under the supervision of the State Geologist, the intent of this law being to have this Department to cooperate with the United States Bureau of Mines in preventing waste of the oil

and gas resources through negligent methods of operation, prescribing and enforcing rules and regulations governing the drilling, casing and abandonment of oil and gas wells in the State of Wyoming, excepting public lands subject to the Act of Congress approved February 25, 1920. The rules and regulations shall be those from time to time adopted by the Bureau of Mines governing methods of operations of operators upon lands embraced within permits or leases issued under said provisions, and it shall be the duty of all persons and corporations drilling or operating oil or gas wells upon patented or state land to comply with said rules and regulations, and to file with the State Geologist all logs of wells and other reports required thereby, and to case, control and plug all wells therein prescribed.

As this law was passed only in 1921, a great majority of the wells in Wyoming had previously been drilled or were being drilled at that time and during the first two years it was necessary for the State Geologist to organize this Department and endeavor to find and inspect all of the wells in the State coming under its supervision. A great many of the operators were not aware of the new law and it was necessary to find them and notify them. The work was well organized and in successful running condition at the beginning of the biennial period covered by this report, there were still however some operators who were drilling on patented or State lands who had not yet been made familiar with the provisions of the law and were not filing the necessary reports. Even at the present time, when practically all of the operating companies in the State are familiar with this law, there are occasionally new concerns coming in and commencing drilling operations without communicating with the State Geologist, or without making any effort to determine whether there are any laws regulating the oil and gas operations. It is very important that these operators be found immediately, as soon as their operations commence, in order that they may be given the proper advice and supervision. They are usually smaller concerns and are often not familiar with the best practices in drilling operations and the supervision and advice of our oil and gas inspectors are often of great value to them.

The general public has a very vague idea of the difficulties to be encountered in drilling for oil or gas. They do not appreciate the fact that

before drilling operations are commenced an extensive and complete geological examination is necessary, in order not only to determine the depth of the oil sands and whether they should be oil bearing at any particular location, but also the presence and extent of water sands that have caving forms. For drilling a well in new territory it is very essential to know in what sands water is likely to be encountered and to start with a hole of sufficient size, so that water sands can be properly cemented and cased off and drilling continued with smaller sized tools. Some of the smaller concerns, not familiar with geological conditions in this State, will attempt drilling operations without proper understanding of the conditions to be encountered. Such operations are often doomed to failure before they commence. It is the endeavor of this Department to assist these operators with these problems and to insist upon their starting their holes of sufficient size to permit them to be drilled to a depth sufficient to test the formations in which production is to be expected and, in this manner, our services are not only of value to the operating companies but also to the entire State, as it is very important, when an oil structure is being tested, to see that it is fully and properly tested and not abandoned until all of the prospective oil producing formations have been drilled into, if within reach of the drill. The structure which is partially drilled often receives a black eye as the result of abandonment and it may be many years before another company will go back to it and make the necessary expenditure to drill deeper and fully test the structure.

As contemplated by the Wyoming Laws of 1921, this Department has adopted the rules and regulations of the United States Bureau of Mines and has consulted the local members of the Bureau of Mines force very freely and co-operated with them at every opportunity. We wish to take this opportunity to express our sincere appreciation of the splendid co-operation and assistance rendered us by the members of the United States Bureau of Mines. The operations on government lands are under the supervision of the Bureau of Mines and it very frequently happens that an oil structure will contain lands which are under the supervision of the Bureau of Mines and also under the supervision of the State Geologist. In making a study of underground conditions for the purpose of prescribing regulations tending to prevent the waste of oil or gas, either at the surface or by escaping somewhere in the wells into porous formations, or by entrance of water from water bearing

formations into the oil formations through defective casing or other causes, it is very necessary that the State and Bureau of Mines co-operate to the greatest possible extent in studies of these conditions. It has been very gratifying to our Department to have been able to co-operate with the Bureau of Mines successfully in every case.

This Department wishes to acknowledge also the co-operation we have received from practically all of the principal operating companies in Wyoming. In the beginning some of these companies were inclined to resent supervision of their operations by a State Department, but they have now come to realize that our supervision is not inimical to their best interests but, on the other hand, is of a great benefit to them. In the early stages of the oil and gas development of Wyoming there was not apparent the same regard for the conservation of these valuable resources that is now apparent. This change has come as the result of two things: First, a realization on the part of operating companies that oil and gas are exhaustible and limited and when once extracted from the ground they are gone and can never be replaced.

The supervisory operation of the Bureau of Mines has also had a great influence in reducing the waste. A recent bulletin issued by the Bureau of Mines calls attention to the fact that while all of the supervisory work done cannot be directly translated into dollars and cents, some of the work can be. For example, four of the jobs conducted by the Bureau of Mines men amounted to over \$307,000 gained to the industry due to a return for the oil recovered, the drilling expense saved, and the preventable losses demonstrated. This amount of money was part of the earning on an appropriation of \$47,000 in a two year period and did not include fifty or more other jobs where companies were benefitted in various ways. When such savings as these are demonstrated to the operating companies it is only natural that they should be greatly in favor of proper supervision of their operations, and should co-operate fully with the Bureau of Mines and with the State Department, as they have done during our administration, with very few exceptions.

Our State Conservation Department has not been in operation long enough to have undertaken repair jobs of the magnitude of those of the Bureau of Mines just referred to, but during the summer of 1924, in addition to other activities, the oil and gas inspectors have had supervision over repair work in

four fields where it was felt necessary to have personal supervision most of the time that the repair work was in progress. These fields are Warm Springs, Hudson, Bolton Creek and Osage. At the time this report is written it is impossible to make any estimate of the saving made to the oil industry as the result of these supervising operations, but there is no doubt that a large saving will be effected, and it could easily exceed the expense of this entire Department during the biennial period.

During the past two years there has been a great deal less preventable waste of oil and gas than in the former biennial periods, due largely to the fact that the oil and gas operations are under State and Federal supervision, and also to the growing recognition on the part of the operating companies to the fact that prevention of waste is their best policy. If the history of the waste of oil and gas in prior years were fully known, the figures would be something staggering. For example, there is one gas well in the Big Horn Basin which is reported to have burned for a period of three years something like 50 million cubic feet of gas per day, having a fuel value of at least \$5000.00 per day, in a community where gas could be utilized or, at current prices for gas in some of our larger cities, a value of possibly \$25,000.00 per day. At \$5000.00 per day, the loss in one year is estimated at \$1,825,000.00, and in three years amounts to nearly 5½ million dollars, while, at the prices obtaining in some of the larger cities, this waste could have had a value of possibly 25 million dollars.

Another well in Big Horn Basin caught fire and burned for a year and a half and the estimated loss was anywhere from three million to fifteen million dollars, depending on what estimate is put on the value of this gas. The value of a Conservation Department in preventing such losses is at once apparent.

A few years ago, when a gas field was discovered a great many miles from the nearest town, it was a cause of great disappointment to the operators who had been drilling in the expectation of finding oil. At such a distance from consuming centers the gas was not considered to have any value and the operator did not look far enough in the future to realize that Wyoming is a growing State and that before a great many years this gas could be used in the building up of prosperous communities and would yield the operators a pretty profitable return.

Not having sufficient foresight to realize the opportunity of their discovery, they made no effort to control their gas. The well getting out of control it was allowed to blow into the air and, if it caught fire, little effort was made to extinguish it. This, of course, was not true in every case but that it did happen in several cases is a well known fact. In some cases gas wells were allowed to blow in the hope that they would turn to oil. This policy is not permitted by the present administration.

While there is still considerable waste of natural gas in Wyoming, practically all of this is a waste which cannot be prevented under present operating conditions and every effort is being made to reduce these wastes to an absolute minimum. The fact that the State has an Oil and Gas Conservation Department with inspectors continuing to make examinations of oil and gas wells in all parts of the State is a very favorable safeguard against such wastes. As an example of improvement in such conditions will be cited a gas well which accidentally caught fire in the Lance Creek field in 1923 and which was extinguished by prompt methods after burning only about two weeks, which is quite different from the way gas wells were allowed to burn or blow several months at a time several years ago.

Owing to the increase in the activities required of the State Oil and Gas Inspectors, there has been tremendous increase during this biennium in the reports and inspections made by them. The activities of inspectors are briefly and partially set out in the following capitulations:

(Copy report of Val B. Maghee - Sheets A-1 through A-7).

(Copy report of Phil S. Hoyt - Sheets 1-2-3).

During the biennium ending September 30, 1922 the number of inspections by the two inspectors was.....	96
during the two years ending September 30, 1924.....	266
inspections were made, an increase of	170
inspections, or.....	177%

of the inspections made during the preceding biennium.

The above tabulation does not include a large number of inspections made by the State Geologist, either alone or in company with one of the inspectors, and does not include other activities of the inspectors, such as conferences with operators, office and telephone calls, letters received and

sent, well logs secured and filed, sundry notices passed on and other similar activities. It is evident from the tremendous increase in the work required of the oil and gas inspectors, that certain changes should be made in the arrangements. In the first place, the Legislature of 1923 appropriated enough money to provide the salary of one inspector during the entire year and the salary of the other inspector during only six months of the year. Owing to the great increase in the amount of work, it is very essential that the Legislature should provide sufficient salary to employ both inspectors during the entire year and also to provide a greater contingent expense to take care of the additional travelling expenses resulting from the increased activities.

Another essential which is also coming to our attention is that of providing a suitable office for the oil and gas inspectors. Owing to the fact that most of the activities of these inspectors are either in the central part of the State or the northeastern, northwestern or southwestern parts, headquarters in Casper would be preferable to any other location. During the recent biennium one of the inspectors had his headquarters in Casper, another in Lander. After a careful inspection of the situation it is believed to be to the best interests of the State to locate both inspectors in Casper and rent office space for them. During the recent biennium Mr. Maghee had no office but through the courtesy of the United States Bureau of Mines received his mail in their care. A majority of the oil companies operating in Wyoming have Casper offices and if the two inspectors were both located in Casper and have a Casper office, it will greatly facilitate their work and furnish them with files where they can accumulate data necessary to their successful endeavors. The officials of the operating companies will also know where they can find the inspectors if necessary to call upon them. In view of the great importance of this work to the prosperity of the State and its rapid growth, we believe that the Legislature will recognize the importance of providing additional funds to allow us to carry out the activities in this manner.

The number of wells, drilling and producing on which the State Geologist receives monthly reports, is shown in the following tabulation, and a steady increase will be noted:

Wells on Which Monthly Reports are Received for Dates Given:

SUMMARY.

	April 1st. 1923		April 1, 1924		September 30, 1924	
	Drilling	Producing	Drilling	Producing	Drilling	Producing
Baxter Basin	5		5	1	2	
Billy Creek	1	1	3		2	1
Big Muddy	3	2	4		4	
Bolton Creek		6		6	6	6
Byron		1		1		1
Bell Springs	1	1	2		1	
Black Mtn	1		1		1	
Elk Basin	5	6		51		52
Ferris	1	12				
Grass Creek	23	6	4	62		63
Greybull					1	
Hidden Dome					1	
Hudson						2
Lost Soldier	1	35	2	3		5
Lance Creek	1	5		2		2
Mahoney Dome				1		
North Casper						
Osage		2		4		2
Salt Creek	9	57	15	133	15	129
Simpson Ridge			4	1		
Rex					2	
Rock Creek	3	4				5
Total	52	148	40	267	35	268

IN GENERAL

Beginning July 1, 1923 a daily record has been kept of the work and activities of the State Geologist's Office, the endeavor being to include as nearly as possible all of the activities. This record has been kept continuously and a comparison between the activities during the first three months during which the records were kept and the same three months during the year 1924 is given in the following tabulation:

<u>July, August and September</u>	<u>1923</u>	<u>1924</u>
Letters received	466	673
Letters sent out.....	620	639
Bulletins sent.....	210	224
Bulletins requested but not available	38	14
Telephone calls.....	33	141
Office calls.....	62	126
Field inspections	12	7
Reports to Commissioner.....	14	129
Approved intention to drill.....	19	43
Other sundry notices approved.....	7	100
Well logs filed.....	16	30
Monthly reports filed.....	123	85
Maps wanted but not available.....	30	15
Maps sent out	48	31

It will be observed from this tabulation that there is a considerable increase in the amount of work handled by the Office, and it is to be expected that further increases will occur during the next two years.

This Department desires to be of service to the people of the State of Wyoming in every possible way along geological lines and, in addition to other activities, is commencing to assemble data on the subject of water wells, with the hope of issuing a bulletin on this subject whenever the available information is complete enough to justify it.

Wells drilled in testing prospective oil structures very often fail to encounter oil or gas in commercial quantities but usually encounter more or less water. In some cases this water is alkaline and not desirable for any purpose. Some wells encounter pure water in heavy artesian flows. Other wells encounter warm water which may or may not have value. An attempt will be made to collect data regarding these wells showing the location of the wells, the sands productive of water, their depth, quantity of water, and the character of the same. As many of these wells are drilled in localities where the water could be used for irrigation or for stock water, it is believed that the information when collected will be of considerable value.

Wyoming's most important mineral product at the present time is petroleum, the production now being largely the light oil which has a paraffine base and which is refined mainly into gasoline and kerosene with some lubricating oil and a number of by-products. It is believed that a majority of the light oil structures of Wyoming have been discovered and that, while the discovery of a few new fields will keep production for the next few years at somewhere near the present level, the production of light oil is sure to decline and other resources must be developed to keep production at its present value or increase it. One of these resources capable of production is the black oil which has an asphaltic base producing small amounts of gasoline and other products but having asphaltum for its principal constituent. Black oil in the past has not been profitable to the operators, except in rare cases, owing to its low market price and to the expense of producing it. It can be made profitable, however, if refined in this State and made into asphaltum and a number of other important by-products, it being essential to find a market for these products before their manufacture is undertaken. Asphaltum is far superior to any other product for paving purposes and every city in Wyoming intending to do paving should specify that same is to be done with Wyoming asphaltum. This will not only be a business-like policy ^{for} the city but will give business and encouragement to an industry which will help to make Wyoming a prosperous State.

Another important product in which asphaltum is used is in prepared

roofing. Wyoming contains all of the raw material necessary for the manufacture of prepared roofing and this industry should be encouraged in every possible way. In addition to the asphalt, roofing requires the use of such mineral products as crushed slate, sandstone, limestone, waste from asbestos mills, etc., and the development of this industry would result in the development of more than one of our natural mineral resources. Our State Highways should eventually be paved with asphalt. The gravel surfacing now being used is a great improvement over the former surfaces but there is no question that careful tests would demonstrate the fact that the excessive wear on tires from the sharp gravel and deterioration of mechanical parts of automobiles and trucks from bumps and inequalities cost the people of Wyoming more money per annum than would the interest and depreciation on asphalt surfaced highways. In addition, an asphalt highway can be travelled any day of the year in contrast to present conditions, when a number of our best highways are impassable after heavy storms. The greatest possible use of Wyoming asphalt is, therefore, highly recommended.

During the past season the State Geologist has been collecting data for the preparation of a bulletin and the oil and gas possibilities of Platte, Laramie and Goshen Counties. This has been in response to a large number of inquiries, not only from residents of the three counties who wish to know the possibilities of their own localities, but also from oil operators of Wyoming and from other states contemplating drilling operations. The discoveries of oil and gas in Northern Colorado, a short distance from the Wyoming line, have made it evident that oil bearing formations exist in the three counties mentioned, and there is considerable inquiry as to whether geological conditions indicate the possibility of commercial oil pools. This bulletin will be finished in the near future and will be distributed free of charge.

In this biennial report we are attempting to make a tabulation of all of the oil structures in Wyoming showing approximately the depth of the minor and main producing horizons, geological formations from which production is obtained, the productive areas, and naming the deepest horizons tested. Tabulation will include not only the productive fields but also those which have been tested and found to be unproductive, those which have been partially

tested by wells not reaching the deepest sands or not situated on the most favorable part of the structure, also those structures which have not been tested at all, giving wherever possible information as to whether the geological conditions are favorable or unfavorable. A big majority of the structures so tested were drilled before the laws required the filing of logs in this Office and in many cases the wells were drilled a number of years ago and it is impossible to get fully reliable information concerning them all, and there is no doubt that this tabulation will contain errors. It is to be hoped that oil producers, geologists and others discovering errors or omissions in this tabulation will advise the State Geologist to that effect, in order that this tabulation may be made fully and completely accurate as soon as possible, and co-operation of this nature will be greatly appreciated.

This Office has for free distribution a copy of the United States Geological Survey Map of 1921 showing the location of the oil and gas structures of Wyoming, including practically all of the structures mentioned in this tabulation. This map is on a reduced scale and is more convenient to carry than the Geological Survey Map and can be used in conjunction with this tabulation.

During the two year period covered by this report there have been additions to the productive areas of Wyoming, both oil and gas discoveries having been made. Discoveries of oil were made on the Medicine Bow structure, Simpson Ridge, Rex Lake and Black Mountain. At this time drilling has not progressed sufficiently to make any estimate of the importance of these four discoveries but it is safe to say that the Rex Lake discovery will result in a commercial field, while the status of the other three will have to be determined from the drilling now in progress. Discoveries of gas were made in the Billy Creek structure, Enos Lake, Allen Lake, Eight Mile structure, Teapot Dome and Buffalo Basin. With the possible exception of one, all of these discoveries of gas are believed to be of considerable commercial importance and will constitute a very substantial addition to the industrial development of Wyoming. Gas is by far the most economical of fuels and the discovery of these fields is certain to attract industrial development.

In this report will be found a number of tables and tabulations relative to the mineral and oil industries of the State, including the following:

List of publications of the State Geologist's Office.
List of oil refineries and natural gasoline plants in Wyoming.
List of pipe lines.
Tabulation of the mineral resources of Wyoming.
Mineral production of Wyoming for 1923.
Correlation table showing geological formations.
Tables relating to oil well casing, tanks, etc.

CONCLUSION.

In conclusion we wish to call attention to the increase in the activities and accomplishments of this Department during the biennium period covered in this report. The mining industry, which has been going through a period of depression similar to that affecting agricultural and livestock interests, is beginning to revive and the mineral possibilities of Wyoming are attracting the attention of investors. It is important that this Department be prepared to furnish complete and reliable information regarding the undeveloped resources of this State, which are probably not exceeded by those of any other state in the Union. Information collected by this Office shows that the Geological Department of the State of Wyoming receives smaller appropriations for geological work and for the dissemination of information regarding minerals than almost any of the other states which are important producers of mineral products.

Wyoming is now the fourth state in the Union in the production of petroleum. It ranks sixth in the production of natural gas. The development of these resources in Wyoming during a period when financial conditions were unfavorable to almost every other line of endeavor has helped to keep the people of Wyoming in a fairly prosperous condition. The oil fields and cities at which refineries are located have furnished an excellent market for all sorts of livestock and agricultural products, which has been favorable to those who are able to market such products, and the immense amount of drilling and construction work in connection with the oil and gas development has furnished a market for labor, which has greatly reduced unemployment. As shown elsewhere in this report, the mineral production for Wyoming for the year 1923 amounts to the immense sum of \$76,347,502.00, making

it by far the most important industry of the State and the chief source of revenue during the past two years.

It is realized, of course, that the livestock and agricultural industries of this State have been going through a very serious period of depression and that land owners have had great difficulty in endeavoring to pay their taxes, and that it is the desire of the Governor and the Legislature to keep expenses of the State Departments as low as possible. This Department has made every effort to accomplish the greatest amount of work for the least expenditure of money and will continue to follow this policy. To secure the maximum development of Wyoming resources would bring an immense amount of money into this State, which would be of great assistance to the agricultural interests, not only in contributing to the taxes and thus lowering taxes on agricultural property, but also in furnishing a good market for agricultural products and labor. It would, therefore, seem to be the truest economy to give adequate support to the Geological Department in its efforts to reduce preventable waste of oil and gas and to secure the development of Wyoming oil and mineral lands.

PIPE LINES IN WYOMING

<u>Company</u>	<u>Length</u>	<u>Size</u>	<u>From</u>	<u>To</u>
Anglo United Oil Fields, Ltd.	5. mi.	4 in.	Derby Dome	Dallas
	11. mi.	6 in.	Dallas	Wyo. pt.
Allen Oil Co.	9. mi.	3 in.	Byron	Lovell
Alliance Oil & Ref. Co.	6. mi.	6 in.	Warm Springs	Thermopolis
Bolton Oil Co.	32. mi.	6 in.	Bolton Creek	Casper
Central Pipe Line	36.5 mi.	8 in.	Salt Creek	Casper
Fremont Gas Co.	(12. mi.	6 in.)	Riverton	Lander
	(10. mi.	4 in.)		
Fremont Gas Co.	23. mi.	6 in.	Sand Draw	Riverton
Fargo Oil Co.	22.5 mi.	6 in.	So. Casper Creek	Casper
Gallatin Natural Gas (Gas Line)	(3.72 mi.	8 in.)	Elk Basin	Billings, Mont.
	(29.2 mi.	10 in.)		
General Petroleum	9. mi.	3 in.	Byron	Lovell
Illinois Pipe Line	21.43 mi.	8 in.	Big Muddy	Casper
Illinois Pipe Line	3. mi.	6 in.	Big Muddy	Glenrock
Illinois Pipe Line	49.35 mi.	8 in.	Grass Creek	Greybull
Illinois Pipe Line	29.16 mi.	6 in.	Grass Creek	Greybull
Illinois Pipe Line	63.39 mi.	6 in.	Elk Basin	Greybull
Illinois Pipe Line	7.58 mi.	6 in.	Rock Creek	Rock River
Illinois Pipe Line	25.55 mi.	6 in.	Lance Creek	Lusk
Illinois Pipe Line	14. mi.	3 in.	Mule Creek	Dakoming
Illinois Pipe Line	38.11 mi.	6 in.	Rock Creek	Laramie
Illinois Pipe Line	29. mi.	3 in.	Pilot Butte	Riverton
Illinois Pipe Line	13.9 mi.	6 in.	Hamilton Dome	Grass Creek
Illinois Pipe Line	6.2 mi.	3 in.	Osage	Clay Spur
Illinois Pipe Line	9.7 mi.	6 in.	Cowley Jct.	Cowley
Illinois Pipe Line	30. mi.	8 in.	Salt Creek	Illco.
Illinois Pipe Line	14. mi.	8 in.	Illco	Casper
New York Oil (Gas Line)	28.5 mi.	8 in.) 10 in.) 12 in.)	Poison Spider	Casper
Lovell G. & E. (Gas Line)	8 mi.	5-5/8 in.	Byron	Cowley
Midwest Refining	45 mi.	6 in.	Salt Creek	Casper
Midwest Refining	(26 mi.	8 in.)	Salt Creek	Casper
	(16 mi.	6 in.)		

<u>Company</u>	<u>Length</u>	<u>Size</u>	<u>From</u>	<u>To</u>
Midwest Refining	(26 mi. 16 mi.)	8 in.) 6 in.)	Salt Creek	Casper
Midwest Refining	45 mi.	6 in.	Salt Creek	Casper
Midwest Refining	8 mi.	3 in.	Torchlight	Greybull
Midwest Refining	7 mi.	2 in.	Notches	Lox
Midwest-Wyoming Gas (Gas Line)	35 mi.	8 in.	Hidden Dome	Greybull
Natrona Pipe Line	45 mi.	6 in.	Salt Creek	Casper
Ohio Oil Co.	28. mi.	4 in.	Grass Creek	Chatham
Occidental O. & G. Co. (Gas Line)	6. mi.	10 in.	Byron	Cowley
Producers & Ref. Corp.	52.42 mi.	6 in.	Lost Soldier-Ferris-Parco	
Producers & Ref. Corp.	104.66 mi.	6 & 8 in.	Salt Creek-Casper-Ferris	
Producers & Ref. Corp. (Gas Line)	14.93 mi.	6 in.	Baxter Basin	Rock Springs
Producers & Ref. Corp. (Gas Line)	22.78 mi.	6 in.	Big Sand Draw	Riverton
Producers & Ref. Corp. (Gas Line)	22.2 mi.	4 & 6 in.	Riverton	Lander
Producers & Ref. Corp. (Gas Line)	14.42 mi.	6 in.	Hatfield	Parco
Producers & Refiners Corp and Midwest Refining (Gas Line)	(18. mi. 23 mi. 48 mi.)	10 in.) 12 in.) 14 in.)	Lost Soldier	Casper
Rocky Mt. Nat. Gas.	3½ mi. 9 mi.	6 in. 4 in.	Byron	Powell
Sinclair Pipe Line	49.6 mi.	8 in.	Teapot	Nebr.State line
Sinclair Pipe Line	37.6 mi.	10 in.	Teapot	Nebr.State line
Sinclair Pipe Line	75.6 mi.	12 in.	Teapot	Nebr.State line
U. S. Oil & Refining	3. mi.	3 in.	Osage Field	Osage
Western Pipe Line Co.	(29 mi. 14.8 mi.)	8 in.) 6 in.)	Salt Creek	Casper

Oil 1,179.55
Gas 273.75

OIL REFINERIES IN WYOMING

<u>Name of Company</u>	<u>Location</u>	<u>Capacity per day</u>
Midwest Refining (Std. Oil Co. of Ind.)	Casper	50,000 bbls.
Midwest Refining (Std. Oil Co. of Ind.)	Greybull	12,000 bbls.
Midwest Refining (Std. Oil Co. of Ind.)	Laramie	4,000 bbls.
Mutual Oil	Glenrock	3,000 bbls.
Alliance Oil & Ref.	Thermopolis	1,500 bbls.
Riverton-Wyoming Ref.	Riverton	2,000 bbls.
Wind River Refining	Lander	1,000 bbls.
Northwestern Oil Ref.	Cowley	750 bbls.
General Pet. Corp.	Lovell	500 bbls.
Wyatt Oil & Ref.	Fetterman	500 bbls.
U. S. Oil & Ref.	Osage	200 bbls.
McWhorter Oil & Ref.	Lusk	200 bbls.
Osage-Upton Oil	Osage	100 bbls.
Clay Spur Refinery	Osage	100 bbls.
McAully Prod. & Ref.	Upton	100 bbls.
Southwestern Oil	Thornton	50 bbls.
White Eagle	Casper	6,000 bbls.
The Texas Co.	Casper	6,000 bbls.
Producers & Refiners Corp.	Grenville	6,000 bbls.
	Total	94,000 bbls.

GASOLINE PLANTS IN WYOMING

<u>Company</u>	<u>Location</u>	<u>Method</u>	<u>Gas Capacity Cu.ft.</u>	<u>Approximate yield per day- Gallons</u>
Midwest Ref.	Salt Creek	Comp. 6 plants	43,000,000	60,000
Midwest Ref.	Elk Basin	Comp.	1,500,000	6,000
Carter	Salt Creek	Comp. & abs.	10,000,000	10,000
Ohio Oil	Grass Creek	Comp.	750,000	2,000
E. T. Williams	Salt Creek	Comp.	750,000	1,500
Wyo. Kans. Oil	Salt Creek	Abs.	500,000	1,000
Lovell Gasoline	Byron	Refrig.	3,000,000	1,500
Armstrong Co.	Rock Creek	Pressure Abs.	3,000,000	3,000
Producers & Ref.	Wertz	Natural Conden.		4,000
Producers & Ref.	Casper	Abs.	30,000,000	50,000
Producers & Ref.	Riverton	Abs.	6,000,000	3,000