N. W. Winter, 1928

THE NATURAL GAS INDUSTRY IN WYOMING

The history of the natural gas industry in Wyoming is a history of less than twenty years. Some idea of its growth may be had from the fact that the present daily fuel consumption of natural gas by the residents and industries of Casper alone, represents the annual gas consumption in Wyoming fifteen years ago. It has become one of the most important of our industries, and the value of this natural resource to the people of Wyoming and to the future of the State cannot be over estimated.

While natural gas was known to exist in Wyoming in the early territorial days, it could not be utilized and accordingly had no value. Wyoming was sparcely settled. There was no market of any consequence to the individual producer. Practically all early development was on Government owned lands. Distance to thickly settled communities, the question of title to the properties and the enormous investments required for gas transportation prohibited its utilization. It was not until the oil industry had developed to the point of establishing refineries in Wyoming, thus building up the communities and establishing a potential market for gas as fuel, that any impetus was given to gas development. The oil industry has been the chief consumer of natural gas in Wyoming and is the mainstay of the gas industry.

The real development of the gas industry in Wyoming, and by that is meant the utilization of natural gas as fuel, has occurred in the past seven years, although all of the development is worthy of note. Unlike oil with its many by-products, varied uses, wide spread market and universal demand, gas has but one chief value - that of use as fuel. While it has a secondary value, that of the manufacture of carbon black by burning, such use is uneconomic unless use is also made of the heat value. It must be considered however, that carbon black is an important commodity and that its manufacture from natural gas in regions far remote from markets for fuel gas or where transportation of fuel gas is prohibitive, does not meet with the disfavor that it would in localities where the gas could be put to other use.

It should also be noted that the extraction of natural gas gasoline has become an important industry, and that the dry gas remaining after such extraction is an even better fuel for domestic use.

Natural gas is produced and utilized from some eighteen to twenty structures in Wyoming. There are a number of other proven gas fields in the State that have no market at the present time. The production as here mentioned has been confined to the fields from which gas is utilized.

With the exception of the use of gas for field and drilling purposes, the gas industry in Wyoming may be said to have commenced with the discovery of commercial gas in a well drilled by Philip Miner near Greybull and Basin in 1908, and a well drilled in the Byron field in 1909 by John D. Loscamp. The well at Basin was partially plugged and abandoned, but in some way was set on fire and burned for about three years.

The Alvord Brothers, and Homer T. Lamb of Sistersville, West Va., attracted by a railroad folder report of the burning gas well, went to Basin, put out the fire, secured acreage in the vicinity and drilled several wells. Their Company, the Big Horn Oil and Gas Company, piped gas to Greybull and Basin.

Natural gas has been used continuously for domestic consumption in Greybull and Basin since 1911. It is now distributed by the Wyoming Gas Co. through eighteen miles of gas mains.

In 1912, according to the records of the Geological Survey, gas was piped from the Byron Field to the town of Byron for domestic consumption, the town owning the distribution system. This project resulted from the gas well drilled by Loscamp in 1909. In 1916 gas service was extended from the Byron Field to Lovell by the Lovell Gas and Electric Company. At the present time this company ~~is~~ and the Occidental Oil and Gas Company are distributing gas for domestic and industrial consumption in the towns of Lovell, Byron and Cowley. It has A distributing system of eight miles of mains ~~—~~ supplies some 500 domestic and small industrial consumers. The production from the Byron Field utilized by this market approximates some 600 million cubic feet per year.

In 1913 Greybull Refinery was constructed at Greybull. Gas for fuel was first supplied to the refinery in 1914 through a 41 mile 6" pipeline of the Illinois Pipeline Company from the Byron Field, but in 1920 the Midwest Wyoming Company constructed a 34 mile pipeline to the refinery and the towns from the Ohio Oil Company wells at Hidden Dome.

Gas for domestic, field and camp purposes has been used in the Salt

Creek camp, now Midwest, and in the Salt Creek Field since 1913.

In 1917 the consumption in Wyoming for all purposes, field uses, well drilling, domestic consumption and industrial reached the billion cubic foot mark. By 1918 this had increased to 6 billion, by 1920 to 10 billion and by 1921 to 15 billion. Gas consumption in Wyoming is now estimated to be in excess of 30 billion cubic feet per annum. The increase in 1920 and 1921 was due principally to the refinery industrial and domestic consumption at Casper.

In 1917 New York Oil Company developed commercial gas at Iron Creek and in 1918 the Ohio Oil Company brought in gas wells in the Poison Spider and South Casper Creek structures, the three gas fields from 20 to 25 miles west of Casper. In 1920 New York Oil Company from its wells and those of the Fargo Oil Company brought gas to Casper and the refineries through a 28-1/2 mile pipeline, constructed a 60 mile distributing system in Casper and vicinity and for more than three years supplied the market with some 5-1/2 billion cubic feet per annum. In 1923 it extended its main pipeline 16 miles to Boone Dome and in 1924 it extended its transmission system to Evansville and the Texas Refinery

In 1921 the Rocky Mountain Gas Company constructed a 12 mile pipeline from the Byron Field to Powell, Wyoming, supplying about 65 million cubic feet per annum to between 300 and 400 consumers through an 8 mile distributing system.

In 1922 it constructed a 28 mile pipeline from the Ohio Oil Company wells at Mahoney Dome to Rawlins, Wyoming distributing through some 11 miles of gas mains to more than 1,000 domestic and small industrial consumers. The annual consumption by this market is approximately 600 million cubic feet.

In 1921 the Producers and Refiners Corporation and the Midwest Refining Company constructed a 90 mile 10, 12 and 14" pipeline from Wertz, Ferris and Mahoney Domes to Casper, the largest natural gas pipeline in Wyoming. From the Producers and Refiners wells in these fields ~~and Ferris Field~~ and from the Ohio Oil Company wells in Mahoney Dome, about 11 to 12 billion cubic feet per annum are delivered to the Midwest and Standard Refineries

In 1921 the Producers and Refiners Corporation constructed a 23 mile 6" line from its wells in the Sand Draw structure to Riverton. The following year, 1922, it extended this pipeline to Lander, a distance of 22 miles.

In 1922 the Gallatin Gas Company constructed a 66 mile pipeline from

the Elk Basin Field where the Ohio Oil Company had developed a large supply of gas to Billings, Laurel, Fromberg, and Bridger, Montana. This company converted the manufactured gas distributing system of Billings into a natural gas system and is supplying these 4 towns and some 4,000 domestic and industrial consumers with approximately one billion cubic feet per annum through a 58 mile distributing system.

In 1922 the Thermopolis Gas Company constructed a ~~30~~ 20 mile pipeline from the Golden Eagle Dome to Thermopolis. In 1924 this line was extended to the Little (Grass Creek) Dome, a distance of 14 miles.

In 1923 the Midwest Refining Company constructed a ~~42~~ mile ~~8"~~ 10" gas pipeline from the Salt Creek Field, Wyoming, to Casper where residue gas saved from casing head gas in Salt Creek is utilized for fuel by the Midwest and Standard Refineries. The gas utilized in Casper from this source amounts to more than one billion cubic feet per annum.

During 1924 the Producers and Refiners Corporation constructed a 20 mile 6" pipeline from its wells in Baxter Basin to Rock Springs distributing gas to domestic and industrial consumers through a 26 mile distributing system.

During 1924 it also constructed a 15 mile 8" pipeline from the wells of the Hatfield Oil and Gas Company on 8 Mile Lake structure to its refinery at Parco and to the town of Parco. The distributing system is several miles in length and the consumption is approximately 2 to 3 billion cubic feet per annum.

In 1925 New York Oil Company constructed a 75 mile 10 and 12" pipeline from the Sand Draw Gas field to the Poison Spider Field connecting with its main line to Casper. It also extended its transmission system 25 miles to Parkerton and the Big Muddy field and to Glenrock and the Continental Refinery, constructing a distributing system ~~to Casper~~ in Glenrock. During the same year it purchased the Central pipeline from Salt Creek to Casper, erected a compression plant in the Teapot field and utilized the casinghead gas from Teapot transporting the residue gas through the Central pipeline to Casper

During 1925 it purchased the Fremont Natural Gas Company's 45 mile line from Sand Draw Field to Riverton, Hudson and Lander with the distributing systems in the towns and the same company's main pipeline from Baxter Basin to Rock Springs and the distributing system in Rock Springs.

At the end of 1927 this Company was supplying 9 cities and towns through 22 miles of field gathering lines ~~and~~ 241 miles of main pipelines with gas from 6 fields serving some 6100 consumers through 99 miles of distributing systems, this domestic and industrial market requiring about five billion cubic feet of gas per annum.

In 1926 the Rocky Mountain Gas Company constructed a 13 mile pipeline from Oregon Basin to Cody, Wyoming with distribution system in Cody.

In the same year the Cities Service Corporation brought gas to Cheyenne through a 40 mile pipeline from Fort Collins, Colorado distributing to the residents and industries of Cheyenne through the former manufactured gas distributing system.

In 1927 Midwest Refining Company and Wyoming Gas Company joined with Ohio Oil Company in the construction of a 57 mile 12 and 14" pipeline, in the name of the Big Horn Gas Company, from the Little Buffalo Basin field to a junction with Nowood Greybull 17 mile line to Greybull assuring the Greybull Refinery and the towns of Greybull and Basin of an ample gas supply for many years to come. A 6 mile branch line was constructed to Grass Creek and a 7 mile main line to Worland The distributing system in Worland, was installed by the Wyoming Gas Co.

Wyoming's natural gas is supplied to 26 cities and towns in Wyoming and 4 in Montana. These, together with the Refinerie's fields, camps and drilling wells constitute the present fuel market for natural gas.

The pipelines transporting this gas aggregate more than 755 miles in length and the distributing systems more ~~than a total of~~ 200 miles of gas mains ~~in Wyoming~~ in addition to ~~approximately~~ more than 100 miles of field gathering lines, a total of more than 1000 miles of gas lines in Wyoming.

No attempt has been made to present in detail the present available gas production in Wyoming or the apparent probable supply for the future. While the present available production is more than sufficient for Wyoming needs for many years to come, a large proportion must necessarily await the time when new industries or increasing demands of the residents and industries of Wyoming justify the expenditures necessary for transportation to market.

While the economic use of oil with its varied constituents has been developed by the utilization of many byproducts, the only progressive steps toward economic and efficient utilization of gas has been the extraction of the gasoline content and refinement of appliances for efficient burning of gas for fuel.

Gasoline extraction is an important phase of the industry. It permits the utilization of a commodity otherwise practically wasted. Removal of gasoline content slightly decreases the heat value and volume of the gas treated but in turn diminishes the losses due to condensation in the gas mains and pipelines. This industry is generally confined to the utilization of casinghead gas.

There are ten gasoline extraction plants in operation in Wyoming, and this is but the beginning of this phase of the industry. In almost every instance the residue gas is utilized for field, domestic and industrial purposes.

The Midwest Refining Company in 1917 constructed the first gasoline extraction plant in Wyoming, extracting gasoline from casing head gas in the Salt Creek Field. Additions have been made until at the present time its gas plants in Salt Creek have a capacity to handle 40 million cubic feet of gas per day. The gasoline recovery amounts to approximately twenty million gallons per annum.

In 1918 the Ohio Oil Company erected a 5 unit compression plant in the Grass Creek Field with a capacity sufficient to handle 4 million cubic feet of casing head gas per day. The gasoline recovered by this plant amounts to some 3,000 gallons per day.

Its absorption plant in Salt Creek has a capacity sufficient to handle 8 million cubic feet of gas daily, and with present gas supply approximately 8,000 gallons of gasoline being recovered daily. The residue gas is returned to the field lines for camp and field purposes.

In 1922 the Producers and Refiners constructed a gasoline absorption plant at Casper, Wyoming having a capacity to handle 50 million cubic feet of gas per day. This plant extracts the gasoline from the natural gas from Wertz, Ferris and Mahoney Domes, the entire residue gas being utilized by the Midwest and Standard Refineries for fuel. The gasoline recovery is understood to be in excess of 2½ ~~to 5~~ million gallons per annum.

In 1923 the Producers and Refiners Corporation constructed a gasoline absorption process plant at Riverton, Wyoming with capacity to handle 8 million cubic feet of gas per day. This plant extracts gasoline from the natural gas produced from Sand Draw. The entire residue gas is used by domestic and industrial consumers at Riverton and Lander for fuel. The gasoline recovery is understood to be in excess of 160 thousand gallons per annum.

The extraction plant of the Carter Oil Company in Salt Creek has a capacity to handle some 10 million cubic feet of gas per day and at present is recovering some 12,000 gallons of gasoline daily.

The Lovell Gasoline Company at Lovell and the Continental Oil Co., at Rock River are also operating extraction plants.

The Ohio Oil Company at Lance Creek has an absorption type extraction plant with capacity to handle 5 million cubic feet per day. The residue gas is purchased by the J. M. Huber Company operating a carbon black plant in that field.

The Teton Gas Products Company at Riverton and the J. M. Huber Co. plant at Lance Creek are the only two carbon black plants operating in Wyoming.

The yearly recovery of gasoline by extraction from gas in Wyoming is some 43 million gallons of gasoline.

The investment in the gas industry in Wyoming has, of course, been enormous. Pipeline investments alone aggregate some 11 millions of dollars. Field equipment and well drilling investments have been in proportion. As an example more than 70 wells have been drilled for gas in the territory tributary to the New York Oil Company pipeline to Casper.

Like all industries, the natural gas business has its peculiar problems. The chief trouble lies in the need for conservation of the enormous quantities of gas wasted in the production of oil. The estimates of the Bureau of Mines of 141 billion cubic feet of casing head gas lost in the United States in the year 1921 and a daily loss of 42 million cubic feet in Salt Creek in 1922 are astounding. Since that time the waste in Wyoming has been greatly eliminated. In the Salt Creek field residue gas is now used as fuel for the enormous power plant ~~now used in~~ providing electricity for pumping the Salt Creek Wells.

In Wyoming a peculiar condition confronts the gas industry in the matter of gas from Government owned lands. Royalties are not determined on a sliding scale dependent upon production as in the case of oil, but are based on two divisions of production, one percentage applying on all production when it does not exceed 3 million cubic feet per day per lease, and a higher royalty on all production of 3 million cubic feet per day or more. On the other hand the producer must sell on a decreasing scale depending on consumption. The more the consumer purchases the less he pays per unit, and the more the gas owner produces the higher government royalty he pays.

In addition no allowance is made for the increasing cost of gas production as the fields become depleted.

The time is coming when the gas industry in Wyoming must look to the Government for relief along these lines.

While the oil industry has been the chief mainstay of the gas industry in Wyoming, the gas industry has become the chief assistant of the oil industry. Our refineries in marketing their products must ship long distances to markets more easily accessible to mid-continent and eastern refineries. They are handicapped in the competition with these refineries by the higher cost of placing their products on the market. This can only be overcome by lower refining costs.

One of the most vital factors in permitting them to overcome this handicap has been cheap fuel, and that cheap fuel has been natural gas.

Wyoming's population has been largely increased by the oil and gas industry. Its future growth for some time at least is dependent on the growth of the industry. Natural gas is playing its part in Wyoming's development in the securing of new industries, assuring the permanence of the present industries, increasing its communities and in furnishing to its people what gas men without contradiction claim to be "the cleanest and best fuel known to man."

M. W. Winter,

Casper, Wyoming.

January 26, 1928