

ANNUAL REPORT OF THE STATE NATURAL GAS SUPERVISOR.

OFFICE OF STATE GAS SUPERVISOR,
MARION, INDIANA, Feb. 5, 1905.

Prof. W. S. Blatchley, State Geologist:

DEAR SIR—I have the honor to submit to you my third annual report as State Natural Gas Supervisor, that for the year 1905. This is the fourteenth annual report from this department. In my last report I brought to your attention a few suggestions that would in a great manner have protected the field. Many of these suggestions, approved by you, have been acted upon by this office, and I am pleased to report a better condition in the gas field from both producers' and consumers' standpoint. In this report I shall dwell upon those things which I consider to be of most importance to those interested in the natural gas industry.

I trust the report will receive your approval and that the same will be found worthy of consideration by those interested in the natural gas field of Indiana.

BRYCE A. KINNEY,
State Natural Gas Supervisor.



ANNUAL REPORT OF THE STATE NATURAL GAS SUPERVISOR.

The laws governing the production of natural gas have not been changed during the last year. They remain the same and the duties of the State Natural Gas Supervisor are set out in these enactments.

As stated in my last report of 1904 the gas laws were made to conform to and govern existing conditions. The State Legislature from time to time changed these laws so that the attention of this office could be directed in different channels. My purpose in this report is to dwell upon those things which are necessary to the preservation of gas fields, also the dangers that confront the producers of gas in the Indiana fields.

This office is required to incorporate in this annual report to the State Geologist complete and tabulated statistics of the number of gas wells, with the location and record of geological strata passed through in drilling them, the volume of gas produced, the rock pressure, increase or decrease in rock pressure and volume of flow; the number of miles, capacity and cost of mains laid; the cost of gas as a fuel and number of persons employed in the production of gas. It is impossible for this office to give all of the foregoing information, for the reason that the field has developed to such an extent that it is impossible, for the number of persons employed, to collect the correct information. In each and every instance a sufficient number of wells have been visited to gain correct ideas on these points, but it is impossible for me to give the record of each and every well drilled in this locality. The inspection of pipe lines has ceased to be a necessity today on the part of this office, for the reason that all of the larger gas companies employ men to inspect their lines regularly and gas at this time is of such value as to cause gas producers to husband it very carefully. I make a close inspection of all gas lines running in and through cities where escaping gas is liable to cause explosions resulting in great injury and oftentimes loss of life to persons and their property. Gas companies, however, give rather close at-

tion to the lines entering and running through the cities, for the reason that they do not court actions for damages for injury and damages caused by escaping gas.

As stated in my last report, the most important duties required of this office are to see that the laws of the State in regard to the drilling and plugging of wells and the consumption of gas be enforced. During the last six months it has been necessary for me to employ assistants in order to make sure that operators comply with this law. The main trouble has been in the plugging of wells, since, as the field develops and the territory extends, it is impossible for us to be present at every well when it is plugged. It would be more possible to be present at the plugging of wells if the law was such that it would require operators to give notice of the time and place of plugging such wells. There are operators who have drilled wells that were paying producers, who have spent their money and wish to get out of it as cheaply as possible, and these are the men or operators who are causing the trouble in the Indiana field, as they do not properly plug the wells when they are abandoned. For instance, they will try and pull the pipe and casing from such wells, and this pipe or casing will pull apart half way down the well and it is impossible to get the remaining pipe out unless by means of hydraulic jacks, that are used for that business. In the event that they do not draw all of the pipe they can not comply with the law governing the plugging of wells, for the reason that they can not use the iron balls therein provided, and it would take a deputy in every county where gas and oil is found in Indiana to supervise the plugging of such wells. Owing to the experience of this office in such matters, I think we can with propriety suggest such measures as we think necessary in regard to these matters. Before plugging such wells the office of the Natural Gas Supervisor should be notified and he be present or send a deputy to be there. Unless measures of this kind are adopted the gas industry will be abandoned throughout the State of Indiana where the Trenton rock exists.

In different parts of the State where the law has been rigidly enforced during the last five years the gas pressure increased one-third in the past year, which goes to illustrate what could be done if the law could be enforced. Fresh water in the Trenton rock fields not only affects the gas, but it has ruined parts of the oil

fields in Grant, Madison and Delaware counties. If it were not for the fresh water now in the Delaware County fields they would be getting a large production of oil where they are at present pumping water. Different oil men have consulted me frequently in regard to this matter and asked me to suggest some way by which they could be protected from persons improperly plugging these wells. My hands have been tied so far as to being at every well, as I have no way of knowing when these wells are plugged, and it is utterly impossible after a well has been plugged for me to try and replug it, as the iron ball that is seated at the lower end of the former casing prevents the drill from going deeper in the well. One well that has been improperly plugged can do more damage and let more fresh water into the gas-bearing rock than two wells can pump out. In fact, one well being open in a field with twenty other wells in the immediate vicinity will in five years' time ruin the twenty wells. If a well is reported that has been improperly plugged and I have evidence to the fact that would warrant a conviction, I have no means of remedy for the evil already done. As there has been no appropriation made for that purpose, we may convict a criminal, but we can not repair the damage. We have no opportunity to enforce the law, for the reason that the parties are irresponsible or that the wells were left open years ago. The production of natural gas and oil is still a great industry in the State of Indiana, though those that have no knowledge of the industry think that it will soon be a thing of the past. If properly husbanded, oil, and perhaps gas, will be produced throughout the State for years to come. We think a law could be framed in such a manner that the State would not be put to the expense of plugging these wells, but that the same could be provided for in another manner except in cases where the producer is financially irresponsible, or when he has left the State and we are unable to ascertain his whereabouts.

As stated in my report of 1904, the introduction of fresh water into gas localities is a serious evil that threatens both the gas and the oil industry. The existing laws offer no protection against this evil except from wells that are now abandoned. We have no protection for wells that were abandoned years ago. While the opinion oftentimes prevails that an abandoned well will plug itself, this is a mistaken idea, as wells that were abandoned five years

ago and left open remain open today. Those who have producing properties know this to be a fact, for the reason that in operating their properties they can tell that there was a supply of fresh water which could come from no other source except old wells in the vicinity of their property. I have earnestly sought to remedy this evil as far as possible, but I am forced to use only such power as is given me by the State.

CONDITION OF THE GAS FIELD.

The condition of the gas field at the present time is better than a year ago. There is less complaint from the users of natural gas than there was at that time. This I think has been brought about in a measure by the law which was made in regard to the plugging of these wells. Three years ago in the Noblesville (Hamilton County) field various gas companies had given up the piping of gas, but have recently renewed their efforts in drilling new wells and cleaning out the old ones that had practically been abandoned. They have found a rock pressure of 90 pounds and think seriously of repiping this gas to the towns of Noblesville, Cicero and Atlanta.

The Montpelier field, where the pressure was 40 pounds two years ago, has gradually gained, until it has reached a point of 180 pounds. Where Kerlin Brothers were using pumping stations as a means of transporting their gas, they have taken their pumping station out and the natural rock pressure is sufficient to force the gas through the mains to the consumers without the use of pumps.

The Marion Gas Company has its pipes located in the vicinity of Marion, Indiana, and has experienced a similar result. The Citizens' Gas Company of Gas City has had the same experience. In the two plants above mentioned the pressure and supply has increased fully 30 per cent. as compared with what it was one year ago. There has been less drilling done in the past year for gas in the different gas fields than in any previous year from the time gas was first discovered.

Anderson, Indiana, has the best service this year that it has had for the past five years. They are getting the gas from Perkinsville, a point ten miles west of Anderson. The Hazelwood

Gas Company controls this station. They are very well satisfied with the wells they drilled in the past year. They are running one pumping station, as the rock pressure at different points is not sufficient to force the gas through such a long main, and it was necessary to put in this station in order to give a good pressure at the point of consumption.

The Chicago Gas Company are just completing the drilling of one hundred wells between Greentown and Sycamore, Indiana, in the eastern part of Howard County, and the western part of Grant County for the purpose of supplying Chicago and the towns of Kokomo and Greentown, Indiana, with natural gas. This field was practically abandoned six years ago, as the Chicago company were getting their gas at that time from Fairmount, Indiana, but the Fairmount fields have been affected to such an extent by the use of pumping stations that they had to abandon the territory one year ago, and they have gone back to the old field, known as the Greentown field, to get their gas for the coming year. They have drilled one hundred wells with the average capacity of two hundred thousand cubic feet per well. It is my opinion that they can go back to the old gas territory and get producers for years to come, as they are drilling test wells now in different parts of the State, and as at Converse, are finding very good wells that have renewed activity. At Kokomo, Indiana, several wells have been drilled that are fair producers.

In the Princeton field the pressure has decreased to 90 pounds, as compared with 315 pounds three years ago. This result, however, has been anticipated in this particular field, as will be shown by an examination of the reports of Professor Blatchley, and is due to the fact that the gas is found in a different and much thinner formation than that of the other fields. We do not think that the Princeton field possesses the longevity of those fields developed in the Trenton formation. They have done some drilling for gas about Princeton in the last year, and out of seven wells drilled there have been four failures and three producers.

We have had some trouble about plugging old wells at Petersburg, Indiana, also at Princeton, and this may be a factor to be taken into account in considering the decrease of production in that locality. Out of one thousand gas wells drilled in the State in the last eight months, over seven hundred of them have proven

to be producers, but the output is very small when compared with the wells of 1890.

The outlook for next year is bright, as the fields are dismantling their pumping stations and the rock pressure is steadily increasing and giving the consumers of Indiana a better service than we have had in the last three years. We think this is a good omen, for the reason that we do not believe pumping stations are conducive to the welfare and longevity of a gas field. Where pumping stations are not in use the gas pressure offers a certain amount of resistance to the water, and will protect the gas-bearing rock to quite an extent. The use of the pumping station has a tendency to create a vacuum in the gas-bearing rock and encourages the entrance of the water therein. We think pumps can be used without perceptible damage to force gas through the mains to consumers a considerable distance away, but we do not think they should be used to create a vacuum in the well. While gas companies understand this, they attempt to supply the consumer as long as they can with the drilling of additional wells. They then believe that by establishing pumping stations they can increase the supply of gas. This in a measure is true, but it results in a quick death to the territory on which the pumps have been used. The pumps do not increase the supply, but exhaust the stored supply. It would be much better and perhaps more economical to have a greater number of wells and to discontinue the use of pumps altogether except to give a pressure to the gas after it comes to the service. A number of fields are being opened that have been considered dead for the last five years.

ABANDONED TERRITORY.

During the past year many individual wells have been abandoned. At the time of making our last report it seemed that much of the territory had been abandoned, but the redrilling of this territory has proven that it will still produce quite an amount of gas when operated in the proper manner. It is true that some of the gas companies have discontinued operating, but it is also true that others have extended the field of their operation. The increase of the rock pressure in different localities is thought to be an indication of a revival of much of the territory that was thought

to be worthless, and we feel that if proper attention is paid to the preservation of the field in the way of preventing the passing of fresh water into the gas-bearing rock by means of abandoned wells that the gas field will continue to produce gas much longer than was expected one year ago.

NEW TERRITORY.

In the southeastern part of Jay County, the Allen Oil Company drilled a well that had a rock pressure of three hundred forty pounds and a volume of three and a half million feet. This well was drilled in July, 1905, and sold to the Union City Gas Company.

At the present writing they are piping this gas to Union City, and since July several wells have been drilled in this immediate vicinity that are good producers. This is an extension of the Delaware County field, and perhaps does not come under the head of new territory, but it is the only instance of any marked extension beyond what was known to be the confines of the gas field in 1904.

THE CONSUMPTION OF GAS.

The consumption of natural gas has increased during the past year, and while it is true that a number of gas companies have abandoned portions of their properties, they have done considerable drilling on other portions, and instead of their production decreasing as it did during the year 1903, it has increased to a considerable extent. This is due to the fact that the field is in better condition than it was formerly. While it is true that a number of factories in Marion, Gas City, Anderson, Elwood, Matthews, Fowlerton, Converse and others are using gas, the principal consumption is the use of natural gas for domestic purposes and operating in the oil field. All of the cities that are using gas during the year 1904 have continued the use of same, and from the apparent increase in the gas supply it is safe to say that they will continue for a number of years, as the people long ago appreciated the fact that gas as a fuel for domestic purposes is far superior to any other. While it is true that the consumers do not rely wholly upon gas as a fuel during periods of extreme cold, they prefer its use in connection with other fuel on account of its great convenience.

WASTE OF GAS.

This subject has been thoroughly gone over in almost every report from this office. Conditions have changed somewhat during the year 1905, especially in regard to gas mains. We have discovered that the condition of the main laid through a certain section of the country depends to some extent upon the character of the earth in which it is imbedded, and while in certain parts the main is in almost perfect condition, other parts of it will be perforated on account of the effect that the earth has upon it. This being true, it is impossible to ascertain the condition of a main by examining only a part of it. It is necessary to cover the whole line to get the exact condition.

We have had more or less trouble in the field in drilling new wells. This usually comes from oil operators who are more anxious to waste the gas in order that they may get a better production of oil, as the pressure of gas interferes with producing oil. The law requires that a well must be closed within forty-eight hours after gas has been struck, and it is a hard matter for this office to know when gas is first struck in all the wells drilled in Indiana. We have secured several convictions on this proposition, but we feel safe in saying that the law is frequently violated in this respect. We think perhaps that the same suggestion which we made in regard to the plugging of wells—i. e., that a notice be given this office of the time and place of such work—would be an appropriate one in the instance of drilling in gas and oil fields.

We have also had some difficulty in regard to the use of flambeau burners.

NEW WELLS.

Since 1904 there has been considerable change in the way of artificial means by which gas has been transported from one place to another. At some points pumping stations have been dismantled. For instance, the Lafayette Gas Company have dismantled their Summitville station in Madison county, also the one at Kempton and other points. The capacity of some of the pumping stations has been increased. For instance, the Hazelwood Gas Company, of Anderson, have put in a pumping station ten miles west of Anderson, near Perkinsville, that supplies the city of Anderson, which is having better service this winter than it

has had for several years previous. The different stations, however, are not creating vacuum on the oil and gas-bearing rock, but are used for the purpose of giving a sufficient pressure at the point of consumption.

Marion is also having better service this year than it has had for three years previous. This is owing to the fact that the Grant and Wabash county fields have been carefully watched and that an extra man has been kept in these fields for the purpose of enforcing a strict observance of the law. They have no pumping stations in those localities, but rely on the rock pressure, which runs from 80 to 100 pounds, and at some points as high as 280 pounds. This pressure was found at a point about eight miles north and east of Marion, in sections 8 and 9, Washington Township. The records of the wells, giving the highest pressure and greatest volume, are as follows:

Henry Bradford, No. 3, section 9, on the Henry Bradford farm, was drilled in August, 1905, by the Ohio Oil Company. It produced one million feet daily for thirty days, and is now producing nine millions per month. The record of this well is as follows:

	<i>Feet.</i>
Drive pipe	430
Casing	480
Trenton rock	937
Total depth	987

On the Eliza Bradford, section 9, Washington Township, Grant County, No. 2—

	<i>Feet.</i>
Drive pipe	430
Casing	485
Trenton rock	942
Total depth	990

Gas was first struck in this well at 973 feet. It produced 1,500,000 cubic feet per day for twenty days and is making 7,000,000 feet per month at the present time.

On the John Stribe farm the Ohio Company drilled No. 2 April, 1905, and it made 3,000,000 cubic feet the first twenty-four hours. This well is in section 8, Wabash Township. Its record is as follows:

	<i>Feet.</i>
Drive pipe	140
Casing	430
To the sand	930
Total depth	970

This gas is sold to the Marion Gas Company and used by the consumers at Marion, Indiana. Another good well was struck in July, 1905, in the southeastern part of Jay County on the Jacob Bausman farm, near Salamonie. This well was drilled by the Allen Oil Company for oil. It has a capacity of 3,500,000 feet.

	<i>Feet.</i>
Drive pipe	60
Casing	370
Trenton rock	987
Total depth	1,027

This was perhaps the largest well struck in Indiana in the year of 1905, and was closed in and afterward sold to the Union City Gas Company, and is to be used by the consumers of Union City as soon as the line can be completed that is now under construction. This has undoubtedly opened up a field. They are drilling across the State line in the State of Ohio and are getting good wells, but the exact area of this part of the field in Indiana has not as yet been discovered, for the reason that they are not at the present time in a position to take care of the gas. The Chicago Gas Company is pumping millions of cubic feet of natural gas to Chicago daily. This gas is being produced near Greentown and Sycamore, Indiana, in Grant and Howard counties.

In all probability more wells are being drilled in this section of the State than in any other. This territory had before practically been abandoned. One year ago a test well was drilled one mile east of Greentown and found to be a good producer, making nearly a million feet per day. At the present time there are twenty strings of tools running in this locality and the work of drilling new wells has been progressing rapidly.

They have drilled three new wells near Loogootee, Martin County. The average record of these wells is as follows:

	<i>Feet.</i>
Drive pipe	100
Casing	450
Total depth	490

This gas is found in the same formation as that of the Princeton gas field. The Loogootee gas plant has been giving excellent service this winter to its consumers, and there are also two glass factories at this point which are being supplied with natural gas for the purpose of operating their factories.