

REPORT ON MINES OF

SUPERIOR COAL COMPANY,
SUPERIOR, Wyoming.

PORTER FUEL COMPANY,
DURANGO, Colorado.

WASHINGTON-UNION COAL COMPANY,
T O N O, Washington.

M A D E B Y

E. I. Foster, M.E.
300 Ellsworth Building,
Chicago, Illinois.

February 17th, 1910:

INSPECTION OF MINE "A" SUPERIOR.

Superior, Wyo., Feb'y. 22, 1910.

This mine as well as all others in the group is electrically equipped and is in first class condition in every way.

With your Superintendent Mr. W. D. Brennan, I entered the mine through an escape way in No. 8, room.

One hundred fifty-five men were employed on this date.

There was an intake of air of 53560 cubic feet per minute, well distributed and in excess of the requirement for a non gassy mine.

We went to the face of the main entry taking air measurements sufficiently to demonstrate proper distribution. The most important being the following.

First north entry with 34 men.	4080 cu.ft.per.min.
Second " " " 15 "	3780 " " " "
Third south " " 36 "	4150 " " " "

Second south entry condition good and air current sufficient, but not measured at this point. We than went to No.2, entry face. This travel practically covered the entire works of the upper vein. The mine is very dry, and if animal haulage was used would be very dusty, sprinkling is found necessary, two working days of each week and especially on Sunday. Every effort should be exercised in this particular, and entries kept as clean as possible.

I am advised that a water line is to be installed in the near future, which is much needed. Man-way is being built 60-feet from the man-way in the rock, which will be an improvement.

No gob fires encountered, and I am advised that this coal does not fire in the mine under any condition, but fires very readily on the out-side. The roof is very faulty at many points in the mine and should be carefully watched and well timbered, particularly at the face of the slope, where there should be extra heavy timber.

Powder is being handled in a safe and proper manner, but think the size of shot could be reduced somewhat. They are now using 1-1/4 x 24 & 30" cartridges, I did not make any powder test, but would like to see it reduced if possible to avoid the danger of blow-

out shots. Drilling ahead of the cuttings should be guarded against as it is apt to cause blow-out shots.

Would suggest placing water barrels in various parts of the mine to take care of incipient fires which are liable to occur in any mine. That men be cautioned and not allowed to congregate at any point in the mine, especially in the vicinity of stoppings, which always gather dust, and are liable to take fire from a lamp. Would like to see these conditions noted in all other mines in this group. My attention was called to the danger of fire in stoppings by an accident which occurred at one of the other camps while on this inspection trip. I do not want to be considered technical, but my experience with dust explosions and fires has made me very cautious.

The lower part of this mine is soon to be closed and pillars are now being drawn. It is in good condition, and ventilation is excellent. The man-ways and air-ways are clear and the slope in good condition. Telephones are being installed where needed for safety.

Went through the first dip entry, and find that this part of the mine has its troubles. The roof is poor in many places and rock in the coal measure, which is getting thicker and discouraging. I think conditions will improve and suggest keeping the slope well protected, and drilling ahead where covering is not very heavy.

The stable is near opening on separate split, it is not in as good condition as it should be, if workings are to be continued indefinitely. It is electric lighted and open lamps are not allowed.

This mine is especially well planned and a credit to the originator, but adverse conditions have made diversions necessary.

I congratulate your Superintendent upon the success of his efforts both as to out-put and condition of the mine, which is first class. Map when completed up to date should be attached to and made a part of this report.

Respectfully submitted.

E. J. Foster M. E.

INSPECTION "B" MINE SUPERIOR

Superior, Wyo., Feb. 22nd, 1910.

With Mr. W. D. Brennan your superintendent, I examined this mine on above date.

Entered through the main drift which is in first class condition.

Went to No.1, room through No.2, No.3, and No.4, rooms and to No.2, main entry face.

Total intake of air was 49000 cubic feet per minute.

Number of men employed one hundred and forty-two.

Went to room No.25, on plane and to room No.15, on No.2, entry,

Air at room No.7, off dip entry was 36000 cubic feet per minute and at the face shows 24000 cubic feet per minute.

The method of ventilation in this mine is so simple, as shown by the map, that intermediate air readings were not necessary to demonstrate that the mine was abundantly provided with air at all working places.

The mine is dusty, but well sprinkled, except in places where ice had formed, and where the pitch is too steep to hold the trip when rails are wet, necessitating a choice between two evils as judgment prompts.

Stoppings are in good condition and are examined daily.

Every effort should be, and I think is being made to keep the entries and working places as free from dust and refuse as possible, which is very important.

Experience shows that fires do not occur in this mine but refuse fires very quickly on the outside.

Powder is carefully handled, 2 x 24" cartridges generally used. No test was made of the powder, but it seems in excess of requirements, and would suggest that the quantity be reduced if proper results can be obtained. I have no desire to pit a guess against a demonstration.

Drilling ahead of the cuttings should be carefully avoided, to avoid the possibility of blow out shots.

In my report of Mine "A", suggestions were made regarding barrels of water, also not allowing men to congregate in the mine and thus avoid danger from lamps near stoppings etc, and I refer you to that report for details.

We went to the bottom of the shaft known as "B" mine, which is not yet completed. Rooms are being extended and entries widened for the new development.

The mine is well planned and the same have been as well executed as the many obstacles encountered would permit, and it has certainly required a fertile brain to figure out the present good results.

This mine is in good condition. Man-ways and air-ways clear and well managed. I consider no further comment necessary.

Map when up to date should be attached to, and made a part of this report.

Respectfully submitted.

E. J. Foster
M. E.

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Respectfully submitted.

R. J. Post
M. E.

INSPECTION MINE "C" SUPERIOR

Superior, Wyo., Feb. 21st, 1910.

With Mr. W. D. Brennan your Superintendent, I made an examination of this mine on above date.

Number of men employed one hundred ninety-nine.

Air intake	58000-Cu.Ft. Per Min.
Air outlet.	64000- " " " "

Went to the face of the slope, which is in excellent condition.

Workings on the south side of the mine practically abandoned owing to restricted working area.

Went to the face of the 6th south entry, where only six men were working and air abundant, thence entering the 5th south entry to various working places.

The roof is not first class in the rooms, but standing well in the entries. Timbering is good and safe. The roof is poor to room No. 18, in 4th south entry, but is good beyond that point nearly to the face. Fifty-two men are employed, and a surplus of air was noted.

Went through No.3, entry south, find conditions first class, and air sufficient for fifty-three men employed.

Pillars are being drawn in south entry.

By referring to the map it will be noted that workings are largely confined to the 3rd and 4th south entries, where the ventilation is good, and the volume of air sufficient.

The tonnage is kept up from the south side on entries Nos. 3, 4 and 5 south. There is a panel being worked through to the main slope off of No.6, south entry, 100-ft. pillars left along the air courses and working entries, No.6, and No.8, south are being worked to limit owned, then working back, which reduces the cost, and this plan is the proper one.

The stable is not in first class condition, but is soon to be abandoned. Telephones are installed on the 3rd and 4th entries connecting with the dump.

This mine is in first class condition in every way and is similar to "D" mine.

I offer the same suggestions regarding the placing of water barrels etc, as mentioned in "A" report. Sprinkling should be carefully watched, and the quantity of powder used in shots kept as low as possible. But in this case will state, that the total amount of powder used is so small in comparison to the yield of coal, that the element of danger in use and handling is reduced to a minimum.

Stoppings are in good condition. Man-ways and over-casts are in good condition, these made of concrete being especially noted.

Map when completed up to date, should be attached to and made a part of this report.

Respectfully submitted.

E. J. Foster
U.S.

INSPECTION OF "D" MINE SUPERIOR

Superior, Wyo., Feb. 22nd, 1910.

Examination was made this date accompanied by Mr. W. D. Brennan Superintendent.

Total intake of air was 70000 cubic feet per minute.

Went to the face of No. 1, Plane then to the furnace on No. 3, entry, then to electric hoist at slope of plane. To reach these points, it was necessary to traverse the working parts of the mine thus securing data necessary to make this report.

Volume of air was large, and the circulation being so direct that intermediate air readings were unnecessary, and all working places were well supplied in excess of absolute requirement. The mine is not gassy, and the coal does not fire in the mine, but does fire quite readily on the out-side.

The entries are dry and quite dusty, requiring frequent sprinkling and close attention.

Powder is carefully handled, but as mentioned in mine "A" report, the quantity should if possible be reduced, and I suggest an effort being made in that direction.

Care should be taken to guard against drilling ahead of the cuts, for it is liable to cause blow out shots and be a dangerous companion for dust. Would again call attention to mine "A" report as to water barrels, and men congregating near stoppings etc, the same advise would apply here.

The mine is well planned, well managed and in good safe condition above and below ground.

Stoppings are in good shape, man-ways and air-ways clear, and there are short and convenient exits.

Stable is not in as good a shape as I would like, on account of hay and grain not being properly protected against fire.

Open lights should be, and are strictly forbidden in this stable.

Map when completed should be attached to and made a part of this report.

Respectfully submitted.

E. D. Foster

INSPECTION OF THE HESPERUS MINE

NEAR DURANGO, COLORADO.

March 21st, 1910.

With Superintendent Mr. W. I. Gifford and Mine Superintendent Mr. Mason, mine was examined.

Fifty men are employed.

The vein of coal is of excellent quality, about five feet in thickness.

The Roof is slate or sand rock, and is very poor from the opening to the foot of the plane, requiring heavy timbering for a distance of about three thousand feet, much better as you go west.

For this reason, as will be seen by referring to the map, which is to be attached to and made a part of this report. That the workings were limited east of the plane, and are now abandoned only the main drift and airway being maintained. The latter was examined carefully all the way.

Would report that its being open at all is a mystery, and it is liable to cave at any time, which would practically stop the ventilation of the mine.

In the event of its closing, the small air shaft near the plane would be the only inlet for air, and it would be expensive to make the changes necessary to utilize it.

The mine is in a safe condition for a limited number of men, but if continued must be changed and greatly improved. Had not the state laws been loose and the inspector either careless or inefficient, it would have been closed long ago.

There has been but one escape way, which is near the main opening nearly a mile from the workings, as the air shaft near the foot of the plane is practically useless for that purpose, but it could be used in an emergency, if a good ladder was put in.

The plan is to drift to the surface from a point near the end of the main entry about 350 feet, and I have urged Mr. Gifford to have the survey made at once, so the work can be rushed at both ends of the drift by double shift providing both for escape and air.

Gas was found in the mine years ago, but Mr. Mason informs me that none has been encountered for the past five years.

I went to the face at No.2, Right to fault. (Not Working.)

Coal worked out between No.1, right and main entry.

" " " " No.2, " " " "

" " " " No.2, & No.3, left.

" " " " No.3, & No.4, left.

All pillars left in on levels.

No.1, left of slope shows best coal in the pit.

Working rooms and drawing pillars between No.1, right and main entry.

No.5, left is driven through the fault about one hundred and fifty feet.

No.11, plane to slope has about 13-degrees pitch, with electric hoist at the head. Electric motor haulage from plane to opening.

Went through rooms and air entries to every face from No.2, right to No.5, left, down No.11 plane to air split at No.4, right. The balance of the air passes through No.3, return.

There is natural drainage from all workings except on the slope, and so far, the water has not given any trouble at that point.

In passing through the main drift, the heat is very noticeable coming over an old stopping south of worked out area. Cant see why it dont fire. Mr. Mason says no fire has ever been known, and no heat noticed except during wet seasons.

Have suggested repairing this stopping immediately. The imperative rule in all mines should be, that as soon as any section of a mine is finished, to stop it off entirely to improve ventilation, to guard against gases of all kinds, and on general principles.

The air in the mine either intake or local had not been measured for years. Have arranged with Mr. Gifford to have his foreman see that it is done regularly in the future and proper record kept.

I measured the air on the slope near the main entry and found 9000 cubic feet per minute.

Air return air course 13250 cubic feet per minute, which is ample at both points.

Powder is handled in kegs on regular motor trips, and it is not a safe way. Have suggested the more modern method of small jacks.

In this instance it does not make much difference, as the quantity used is small and yield of coal to the keg is large (about 75-tons). This coal is being under-cut by hand and no drills put in a head of the cutting.

Pillars will be left between the 2nd and 3rd, and the 3rd and 4th entries, until the workings go beyond the fault, which is a good plan.

Steel needles and tamping bars are being used, which are a relic of the dark ages. This practice should be stopped at once, and I have so suggested to Mr. Gifford. Also better material furnished for tamping.

There is only one dry or dusty entry in the pit, and that is to be cleaned at once. Several changes suggested to Mr. Gifford go beyond the present law requirements, but when the territory product becomes large (which seems probable) the more strict the rules will become, and I consider it good policy to be in the lead, and to keep the mines safe, regardless of law requirements.

It is easier to establish rules at the beginning, than when workings become extensive.

The mine can be made to produce 500-tons daily, which is more in my judgment than the narrow gauge territory requires.

This is a very promising and interesting coal territory, and I exceed my usual latitude for the kind of a report I am asked to make, by calling special attention to the measures known as the Porter veins, one of which was formerly worked at the old Porter mine near Durango now closed, and proved a fine coking coal.

I am advised that there are three and possibly four veins of coal. The Porter 20" to 40" thick with tough slate or sand rock roof.

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The Peacock vein 2-1/2 to 4-1/2 feet thick and another 36- inches thick with same roof conditions in all.

Now if these conditions do exist, the possibilities are great, in this field and extensive drilling is essential, the best investment you can make. This coal should certainly be worked on the long wall plan, a new departure in this field but a good one, and reached by shafts instead, of slopes or drifts, which can be located so they can be conveniently reached by railroad tracks.

Have talked this over with your Mr. Gifford, and offered several suggestions for his consideration as I do for yours.

Respectfully submitted.

E. E. Foster
M.E.

INSPECTION TONO MINE.

Tono, Washington, March 4, 1910.

On above date accompanied by your Superintendent, Mr. Jas. Needham, inspection of this mine was made.

Mine was not working.

This is a high grade Legnite, being low in moisture and ash a good percentage of carbon and should make a fair grade locomotive fuel. On account of water in the mine, could not get to the low places. This condition is not serious, would not interfere with the operation of the mine and caused by the excessive recent rain falls.

The vein runs about 17 feet on the average - working about 6½ feet of the bottom, leaving balance for roof. Experience has demonstrated that it is better and safer to work it in this way until finishing rooms when most of the top of the vein can be secured which will yield 75% to 80% lump and not interfere with other workings. The top coal will not stand without timbering and extra timbers are kept in each working place to protect the face while being worked. When a fall occurs, the top consisting of a sandy cled, will come down from 12 to 15 feet above the measure. The mine is well planned though ventilation will be something of a problem to be governed by future development. Several small faults have been encountered and some slips. This, with local rolls or dips, will, I think, be general through the field.

Back entry 1st South struck a down throw of about 14 feet drawing water probably to the slope.

No. 1 South entry in good condition and rooms opened for good output. Stoppings made of blocks, fully as good as rock, which the mining law of Washington does not require and which are very slack in every particular.

Room No. 9 is worked to the bone coal two feet from the roof for experiment, above this is purely gob. Dont think it a good plan to work over seven feet until finishing rooms.