Butte, Mont., Sept. 8, 1916.

Mr. R. F. Tyler,
Gen'l Signal Foreman,
Three Forks, Mont.

Dear Sir:

It has been necessary to omit rail bonding at insulated joints in track circuit at Garrison crossing. I [illegible] this covers the Bell Signal at that point.

We have had some correspondence about this, and had hoped that this signal would have been changed over before this time, as we now have a Bonding Crew again sent from Deer Lodge and cleaning up the negative return circuit.

Jobs of this nature will require sending a crew over the line again before we energize for operation. Please advise what your plans are in regard to this Bell Circuit, so that we can make our plans in regard to completion of our negative return.

Yours truly,

RFW-wls

Electrical Engineer.

cc--L.W.S.

Butte, Mont., Sept. 8, 1916.

Mr. J. J. Murphy, Supt.,
Three Forks, Mont.

Dear Sir:

Will you please advise me of all electric trains operating between Eustis and Morel from 6:00 PM to 8:00 PM August 25, 1916.

Yours truly,

ABV-wls

Electrical Engineer.

Butte, Mont., Sept. 7, 1916.

H. W. Roach,
Haugan, Mont.

E. F. Gilbert, Foreman Outfit #13 at Bryson has asked for six Car Inspectors Lanterns. We do not carry these in stock and it is difficult to obtain them. Will you see what use is to be made of these lights, and find out if Mr. Gilbert could use a Milburn light, as I presume Ferguson's outfit or one of the Trolley Crews has one of these Carbide lights available for other use. Please advise if you cannot supply Gilbert with necessary lights.

Yours truly,

LW-wls

Assistant Engineer.

Butte, Mont., Sept. 7, 1916.

M. C. Butler, Stkr.,
Deer Lodge.

Trolley Maintenance Crew No. 1 is at present engaged in taking down high line poles set between Morel and Deer Lodge. These poles with cross arms and hardware and all other high line material on the ground between Morel and Deer Lodge will be picked up and shipped to you at Deer Lodge. You can take this material into your stock and re-issue same for use west of Deer Lodge as needed.

Yours truly,

LW-wls

Assistant Engineer.

Butte, Mont., Sept. 8, 1916.

Mr. F. Sears,
Elec Master Mechanic,
Deer Lodge, Mont.

Dear Sir:

We have just closed our records on locomotive miles. In answer to yours of August 28th, our records show 116,643.7 miles made by electric locomotives July 28th to August 27th inclusive. This checks very well with your figure.

Yours truly,

ANV-wls

Electrical Engineer.

Butte, Mont., Sept. 7, 1916.

Mr. H. W. Rusch,
Helena, Mont.

Dear Sir:

E. T. Gilbert, Foreman Outfit No. 13 at Bryson, has asked for a few inspector's lanterns.

We do not carry these lanterns in stock and it is difficult to obtain them.

Will you see what you can do in the sale of these lights, and find out if Mr. Gilbert could use a Williams light, as I presume Foreman's Outfit or one of the Trolley Crews has one of these Carbide lights available for their use. Please advise if this can not be done.

Yours truly,

HTF-wis

Assistant Engineer.

Butte, Mont., Sept. 7, 1916.

Mr. F. N. Haigh, Inspr.,
Garrison, Mont.

Dear Sir:

I am sending you herewith a copy of report which we receive daily from Bonding Outfit No. 13, which shows point at which work was done, number of holes installed, number of holes on hand, number of drills used and the number of men working.

Will you please arrange with Mr. Thompson to supply us with a similar report daily covering as nearly as possible all work done by his Bonding Outfit.

Yours truly,

LT-ala

Assistant Engineer.

Butte, Mont., Sept. 7, 1916.

Mr. S. S. Duff,
Gold Creek, Mont.

Dear Sir:

Herewith Voucher Check No. 2283 favor A. Christensen and No. 2284 favor A. W. Hilker. Kindly have proper parties sign and return direct to the Montana Power Company.

Yours truly,

FAC-wls

Assistant Engineer.

Butte, Mont., Sept. 7, 1916.

Mr. J. T. Crocker,
Purchasing Agent,
Chicago, Ill.

Dear Sir:

File Ingalls: Referring to your wire of the 5th advising that 195 ft. of 600 volt cable had been shipped on Requisition #388[illegible]-[illegible]106. We have already received this cable, but of course it cannot be used. Please give disposition.

Yours truly,

FAC-wls

Electrical Engineer.

Butte, Mont., Sept. 7, 1916.

The Montana Power Co.,
Attention A. C. Correy,
Josephine, Montana.

Dear Sir:

Referring to yours of the 6th regarding an extra arch at Josephine. Will you kindly forward this to me at Morel.

Yours truly,

FAC-wls

Electrical Engineer.

cc--Mr. Doenke--Morel Substation

F.E.P.

Butte, Mont., Sept. 7, 1916.

Mr. G. F. Willier,
Asst Purchasing Agt.,
Seattle, Wash.

Dear Sir:

Herewith invoices covering lumber for Butte Passenger station on various requisitions. Inasmuch as this material checks out OK, I am not sending you detailed tallies covering the shipments.

Yours truly,

FAC-wls

Assistant Engineer.

Butte, Mont., Sept. 7, 1916.

Mr. J. T. Crocker,
Purchasing Agent,
Chicago, Illinois.

Dear Sir:

File RM-#405: Referring to yours of the 1st regarding a shortage of 19 turn-buckles shipped by the Joslyn Manufacturing Company. We have made another search and have been unable to locate these turn-buckles. Please file claim for them.

Yours truly,

FAC-wls

Electrical Engineer.

Butte, Mont., Sept. 7, 1916.

Mr. J. T. Crocker,
Purchasing Agent,
Chicago, Ill.

Dear Sir:

The window cleaners on RB-#2236 arrived at Deer Lodge one short. On taking the matter up with our Storekeeper, he advises that the package containing same was broken open and the cleaners scattered on the car floor. I judge someone appropriated one. Please file claim for same.

Yours truly,

FAC-wls

Electrical Engineer.

Butte, Mont., Sept. 8, 1916.

Mr. F. R. Nicholas,
Assistant Engineer,
Saltese, Mont.

Dear Sir:

I am sending you herewith section ties furnished us by Mr. Reeder in the vicinity of East Portal. Will you kindly acknowledge receipt of same.

Yours truly,

LW-wls

Assistant Engineer.

Butte, Mont., Sept. 8, 1916.

Mr. C. F. Soule, Inspr.,
Haugan, Mont.

Dear Sir:

Sec'y Adams advises that he has secured encroachment rights from the N. P. Ry. at Henderson where I believe you have already installed the anchors, guys and poles, also at a point about two miles east of Henderson where there is a two-pole frame in transmission line at Station 0745 - 30. This for your information.

Yours truly,

REW-wls

Assistant Engineer.

Butte, Mont., Sept. 8, 1916.

Mr. J. J. Murphy, Supt.,
Three Forks, Mont.

Dear Sir:

Mr. Galloway of the B. A. & P. Railway desires to know how many of our trains run from Colorado Junction to the B. A. & P. Depot over their line during the months of July and August, in order that he may make us a bill for the power used.

Will you please furnish this information making two classes of these trains, i.e.,--

Through Trains (7 or more cars)

Local Trains (3 or 4 cars)

Yours truly,

ABV-wlo

Electrical Engineer.

Butte, Mont., Sept. 8, 1916.

Mr. F. E. Willard, Supt.,
Missoula, Mont.

Dear Sir:

As you know, warning signals at bridges and tunnels between Deer Lodge and Avery where trolley overhead has been installed, are now temporarily hung from spans and brackets, also that as soon as overhead work is energized, these old type signals will have to be taken down, as it is impossible to operate pantograph with them in place.

I find upon investigation that about 72 signals are needed in the territory mentioned, and if we are to provide the swinging car type of signal with bamboo pole or some substitute, this matter should be decided at once, so we can place the necessary orders.

Will you please advise as soon as possible so we can make whatever provision is necessary.

Yours truly,

HEW-wls

Electrical Engineer.

Butte, Mont., Sept. 8, 1916.

Mr. H. W. Rasch,
Avery, Ida.

Dear Sir:

Replying to yours of the 7th in regard to material and cars used by Ferguson in tunnel work, which cars are now side-tracked at substation:

Send us in a list of material in these cars at once so we can take the matter up further, as it may be desirable to leave these cars at Avery in connection with odd work in tunnels.

Yours truly,

REW-wls

Assistant Engineer.

Butte, Mont., Sept. 8, 1916.

Mr. C. F. Soule, Inspr.,
Haugan, Mont.

Dear Sir:

Replying to yours of the 7th, in regard to cutting out guy insulation in all guys, Avery Yard, and using drop insulation throughout, I do not believe that this is advisable, and would suggest that in the West Yard where we are carrying only three or four tracks, that we use the O. B. large X-strain in guys and spans, if our stock of Locke insulators does not permit of using Locke strains where standards call for them.

Yours truly,

RLT-wls

Assistant Engineer.

Butte, Mont., Sept. 8, 1916.

Mr. C. F. Soule, Inspr.,
Haugan, Mont.

Dear Sir:

Herewith Expense Account for Kenneth Ellis. I note two Sleeping Car receipt covering trip between Avery and Missoula. It is a question in my mind if this covers Company business. If so, we will be glad to allow it. Otherwise, they should be removed from the account.

Yours truly,

FAC-wls

Electrical Engineer.

Sept. 8, 1916.

Standard Publishing Co.,
Anaconda, Mont.

Dear Sirs:

Your favor of the second quoting on 5,000 Substation Log sheets received.

We have just received a supply of our old form from our Purchasing Agent, and I am holding the order for new logs until a little later in the Fall when we will be glad to have you make them up. Thanking you for your attention, I remain,

Yours very truly,

FAC-TLB

Electrical Engineer.

Butte, Mont., Sept. 8, 1916.

Mr. L. W. Smith,
Asst Signal Engr.,
Tacoma, Wash.

Dear Sir:

I believe we have had this matter up before, but I wish to obtain definite information from you in regard to disposition of block signal equipment and signal posts between Deer Lodge and Avery which we are advised that they will be removed in order to obtain safe clearance, while others no doubt will be taken down to place, such as those between Morgan and Avery, in Shoshone territory, and others, which would seem to be, such as between St. Regis and Morgan, where signal system is to be changed.

We would like to get a low setting on this matter, so as to avoid delay when we are ready to energize for electrical operation.

The territory between Deer Lodge and Avery should of course be kept intact, and the remainder of the territory as soon as is consistent with operating conditions and economy.

Will you please arrange one of your representatives in this territory to go over the entire district and arrange for setting [illegible] so that changes can be made without delay, giving us definite advice as to just what signal posts will have to stay in their present location, after we have energized our feeder.

Yours truly,

REW-ele

Electrical Engineer.

Butte, Mont., Sept. 8, 1916.

Mr. F. E. Willard, Supt.,
Missoula, Mont.

Dear Sir:

[illegible] now low old rock slide on [illegible] interfering with setting two poles for trolley, [illegible] at the west end of passing track [illegible] interfering with the setting of the poles.

[illegible] the removal of the obstruction of the rock, [illegible] and [illegible] with the [illegible].

[illegible] instructions to our men in the field.

Yours truly,

[illegible]-ls

Electrical Engineer.

Butte, Mont., Sept. 8, 1916.

Mr. A. M. Crowder, Engr.,
St. Regis, Mont.

Dear Sir:

You [illegible] that between Rock Creek and Clinton we have one of the poles washed out where located near river bank, and it was necessary to [illegible] guys in place at in order to get these poles back from the river.

At a point a short distance west of this particular locality, there is a [illegible] the west bank of the river which is filled with stiff guys, and the north stiff guy has the appearance of having had the anchor washed out, and in fact, the pole must be in bad condition.

Please look into this at your earliest convenience and let me know about it.

Very truly,

RWE-mls

Assistant Engineer.

Butte, Mont., Sept. 8, 1916.

Mr. C. F. Soule, Insp.,
Hungan, Mont.

Dear Sir:

Please arrange to make a personal investigation as to [illegible] Herman Gilbert is properly [illegible] some timber [illegible] for specific [illegible].

We have had considerable trouble with [illegible] in the [illegible] mines, in furnishing [illegible] for Lodge, and it is possible that this is due either to improper [illegible], or improper [illegible] on the [illegible] is granted on. Let me hear from you on this subject.

Yours truly,

[illegible]-ls

Asst. Supt. Engineer.

Butte, Mont., Sept. 8, 1916.

Montana Power Company,
Butte, Mont.

Dear Sirs:

We intend using Thomas insulators on transmission line as far west as DeBorgia; on ED-#19 and #20 construction it is necessary to use a link with the clevis attached to brackets, and considerable difficulty has been experienced by stringing crew in installing these links in the air.

Will you please, therefore, arrange if not already done, to have Foreman Tavenner install these links before poles are erected between St. Regis and DeBorgia.

I understand from Inspector Crowder that Foreman Jones ordered cross arms and other pole setting material for work west of St Regis and that his order included these links. As Foreman Tavenner is now to be assigned to pole setting in territory referred to, it is possible that you have transferred Jones' order to Tavenner. If Jones order has been cancelled and Tavenner is placing new order, will you please have him include necessary links for installation as referred to above.

Referring to tools for stringing wire for Foreman Ferguson's use, we seem to have pulling clamps and dynamometers, but are not supplied with snatch blocks. Will it be possible to obtain the necessary blocks from your stock for Tavenner's use?

Yours truly,

RTW-sls

Electrical Engineer.

cc--A.N.C.

Butte, Mont., Sept. 8, 1916.

Mr. C. F. Soule, Inspr.,
Haugan, Mont.

Dear Sir:

Referring to Bonzano and Plain Angle joints between Haugan and Avery, I find that the joints of this kind between Haugan and Foreman Gilbert's present location between East Portal and Bryson have all been bonded. There is, therefore, no need for further discussion in this matter.

Supt. Willard advises that the rail between East Portal and Roland, now laid with Bonzano joints, will be changed out between now and January 1st, and replaced with common angle bars as far as he knows.

The Bonzano joints between Roland and Avair will remain in place.

While at East Portal day before yesterday I noticed that Roadmaster Grimes is now engaged in relaying steel at East Portal east switch, and I wish you would arrange to see him, or the foreman of this crew, find out just what their plans are about relaying this steel from the east switch at East portal to the tunnel, and if they are to relay east of the east switch, advising me promptly in regard to the plans, and as to what type of joints are to be left with new steel.

Foreman Gilbert should of course not bond any steel in this vicinity which is to be relaid between now and January 1st, though it may be necessary to later bond up by the substation in order to take care of electrical operation to the East portal of the tunnel.

Yours truly,

REW-wls

Assistant Engineer.

cc--M P Co.

Butte, Mont., Sept. 9, 1916.

Mr. E. H. Barrett,
Asst Gen'l Supt.,
Butte, Mont.

Dear Sir:

I have a copy of letter to you from Mr. Reeder in regard to depressing our main line track under N. P. Bitter Root bridge, Missoula, as authorized by Mr. H. B. Earling.

When checking trolley wire with electric locomotive a short time since, we found that very serious conditions would exist at this particular point in connection with locomotives passing under bridge with broken pantograph, unless more head room was provided.

Will you please advise if you contemplate having this grade lowered before electric locomotives are put in service in that territory. This should certainly be done if practicable, as otherwise it will be very hard to take care of the broken pantograph question.

Yours truly,

RFW-wls

Electrical Engineer.

Butte, Mont., Sept. 8, 1916.

Mr. G. F. Soule, Engr.,
Haugan, Mont.

Dear Sir:

Asst Chief Engineer Reeder advises that Mr. Earling has authorized the lowering of our main line track grade where it passes under N. P. Bitter Root bridge at Missoula, by two feet, which will give us about 20 ft. from top of track rail to underside of bridge, instead of the present 18 ft. clearance.

From the correspondence, I assume that this work will be done before we energize for electrical operation. This change in grade will of course effect our passing tracks in this vicinity, and the overhead work in this vicinity will have to be carefully checked with pantograph before we begin operation.

Yours truly,

RTW-ls

Assistant Engineer.

cc--T Sears
M P C.

Butte, Mont., Sept. 9, 1916.

Mr. C. F. Soule, Inspr.,
Haugan, Mont.

Dear Sir:

Some time since I wrote you in regard to holding up transmission pole setting on N. P. Patented land crossing the N.E. 1/4 of the SW 1/4 and the S 1/2 of the NW 1/4 of Sec. [illegible], T.[illegible], R. 30, this being [illegible] land [illegible] east of Haugan as shown on drawing ED-#447.

Secretary Adams advises we can proceed with setting our poles on this property, subject to future settlement. The poles involved are at the following transmission stations:

6094 - 50
6097 - 50
6100 - 00
6103 - 50
6107 - 55
6109 - 00
6111 - 00
6115 - 00.

Yours truly,

Assistant Engineer.

RTW-sls

cc--M P Co.

Butte, Mont., Sept. 8, 1916.

Mr. C. F. Seale, Engr.,
Hougan, Mont.

Dear Sir:

We have a letter from Asst Engr Mason dated September 7th, to the effect that the passing track at Bonner Junction is to be extended 1450 ft. west, instead of 1350 ft., as previously advised, in order to make use of pole even now in place. That is track will extend 450 ft. east in no change with previous advice.

This for your information. Please advise just what old man Mr. Mason is referring to, as requiring an additional 130 ft. on the passing track.

Yours truly,

RTT-ck

Assistant Engineer.

cc--N P Co.

Butte, Mont., Sept. 9, 1916.

Montana Power Co.,
Attention H. J. Barker,
Foreman Camp #14--Superior.

Dear Sir:

Replying to your letter of the 8th in regard to 15 inch hangers, I wired you in regard to this matter upon receipt of your telegram of yesterday, and also wired you today, to the effect that we are shipping you 300 - 15 inch hangers which were received, this morning, and will supply your further needs to take you to St. Regis at the proper time, as we have additional hangers on the road.

As regards your being furnished with combination side hangers, and not being supplied with 15 inch hangers when your original order was filled, the omission of 15 inch hangers was due to the fact that we did not have them.

Yours truly,

RTT-kls

Electrical Engineer.

c--H.W.Rusch
M.P.Co.--Butte

Butte, Mont., Sept. 9, 1916.

Mr. F. N. Webster,
c/o Florence Hotel,
Missoula, Mont.

Dear Sir:

Following your visit to Saltese with Mr. Nicholas in connection with Right of Way troubles with Seiferman, I have been over the ground at Saltese with Mr. Nicholas, and found upon investigation, as I feared, that Seiferman controls property covering the entire valley from ridge to ridge.

I have been trying to locate you by wire ever since, so as to talk this matter over thoroughly, and have you take steps at once to secure us a Right of Way through this territory. In the meantime we are unable to proceed with further survey work, as it may be necessary for us to condemn the location as shown on our present maps, as regards Seiferman.

I assumed that you were at Grass Range, as we had no advice to the contrary, and upon calling up the Florence Hotel at Missoula this morning I find you have been there since, but they have no advice as to your whereabouts.

In view of conditions that now exist and will exist until our work is completed on the West end, if we are to depend on your services in connection with Right of Way questions which are liable to develop at any time, we will certainly have to be in a position to get into communication with you, and this necessitates your keeping this office advised as to your whereabouts.

We are holding Mr. Nicholas and his party at Saltese until we are able to get into touch with you and decide on the course of action to be followed at that point. I am wiring you today at Missoula and Avery.

Yours truly,

REW-wls

Assistant Engineer.

Butte, Mont., Sept. 8, 1916.

Mr. F. T. Mumma;

As yet we have been unable to get clearance on the high line to Tarkio. It may be that this matter will be taken care of before Tuesday, but if not, you will have to hold over until you are advised everything is in the clear.

Yours truly,

FAC-wls

Assistant Engineer.

Butte, Mont., Sept. 8, 1916.

Mr. J. Jones,
Roland, Ida.

Dear Sir:

I am sending you herewith, as per your request of the 8th, prints of transmission construction. Please acknowledge receipt.

Yours truly,

DFT-wls
Encl.

Assistant Engineer.

Sept. 9, 1916.

Mr. W. W. [illegible], Sec'y,
Milwaukee, Wis.

Dear Sir:

[illegible] 6th in which you [illegible] for [illegible] on your Expense Voucher for [illegible] July:

All the items are [illegible] by the various departments for [illegible] bills against our Stock of Material. [illegible] various [illegible] by your office [illegible] from the information on the [illegible] in our office, and for that reason I took the matter up with you.

[illegible] Sec. [illegible] Crank Pin [illegible] Electrical [illegible] electrification work, [illegible] will [illegible] of Material [illegible] credit.

Yours truly,

Electrical Engineer.

FAC-WLS

cc--W.M.H.

Mr. Harvey: Please note the above and arrange to give us credit account of items mentioned which are charged against us in error.

R.B.--9/9/16

Sept. 9, 1916.

Mr. W. C. Johnson,
General Electric Co.,
Schenectady, N. Y.

Dear Sir:

Herewith find of bills covering the re-
turn of L.T.L. Co. [illegible], [illegible] and [illegible], [illegible] is
[illegible] property to the Vacuum Oil Company at
Rochester, N. Y.

I [illegible] and [illegible] diverted to the
[illegible] Oil Company at Hibbing, Minnesota, instead
of [illegible] as per [illegible].

Very truly,

FAC-vis

Mechanical Engineer.

cc--J.T.C.

Butte, Mont., Sept. 8, 1916.

Mr. R. W. Rusch,
Avery, Ida.

Dear Sir:

Referring to list of hangers which Butler was short in filling at trolley cross, and which was given you by Wylie. You were to investigate Camps and see if you could locate any of the hangers involved. Let us have a report on this as soon as possible.

Yours truly,

RFW-wls

Assistant Engineer.

Sept. 15, 1916.

Postmaster,
St. Regis, Mont.

Dear Sir:

On September 8th this office addressed a letter to Mr. Roscoe Balnes, Forest Supervisor, at St. Regis, in error, as this letter should have gone to St. Maries, Idaho, instead. If this letter is now on hand at your office, will you kindly forward it to Mr. Balnes at St. Maries, and greatly oblige.

Very truly yours,

YLS-e

Electrical Engineer.

Sept. 9,1916.

Mr. Roscoe Haines,
Forest Supervisor,
St. Regis, Mont.

Dear Sir:

Enclosed herewith please find Timber Sale Agreement in duplicate, applying to St. Joe National Forest, in connection with our tree cutting for trolley line protection, duly executed by Vice-President Sewall of this Company.

I presume you will return duplicate copy approved, for the files of our Secretary. Please acknowledge receipt and oblige.

Yours very truly,

RLT-wls

Electrical Engineer.

cc--M.P.Co.

Butte, Mont., Sept. 11, 1916.

Mr. D. McEwen,
Telegraph Dept.,
Seattle, Wash.

Dear Sir:

J. T. Regan, proprietor of the Crystal Springs Hotel at Kingler has a telephone pole on his property and wants same removed. He called upon us to remove it and after investigation we found it belonged to you, although we did not find whether we had received any permission [illegible] on his property. At any rate, we [illegible] it removed properly. This we [illegible] to take the matter in hand.

Yours truly,

FAC-wls

Electrical Engineer.

Butte, Mont., Sept. 11, 1916.

Montana Power Co.,
Butte, Mont.

Dear Sir :

We have been looking up the question of rubber boots required by the men working between St. Regis and Avery. Material Checker Reach, after investigation, reports that it would cost the road have to lay at least three days in one of the rubber boots, and this foreman thinks that a pair of these boots, which he claims he will need.

In view of the high cost of these boots and the nature of the ground and the stage of the water in the streams, I am taking this matter up with you with the idea of determining as to whether we cannot make use of knee boots for the greater part of the work, and distribute the big boots on hand to the best advantage, as we have a very large supply of knee boots at Deer Lodge and it would seem that they could answer except for special conditions.

Please let me hear from you on this subject as soon as convenient, as many of the men are going to be rushed.

Very truly,

FTT-sbs

Electrical Engineer.

cc--H.W.Reach

Butte, Mont., Sept. 11, 1916.

Mr. A. J. Jennings,

Asst Purchasing Agt.,

Chicago, Illinois.

Dear Sir:

Attached find copy of letter to Mr. Jas. Stichler of the Ohio Brass Company, who has agreed to furnish us 24 sample bonds for test purposes under 100 percent joints.

These bonds are to be furnished without charge to this Company. As per letter to Mr. Stichler, will you please arrange to have these bonds moved from Chicago to Butte by Wells Fargo Express.

Yours truly,

RFW-als

Electrical Engineer.

Butte, Mont., Sept. 11, 1916.

Montana Power Co.,
Attention L. B. Mickey,
Alberton, Montana.

Dear Sir:

Will you please advise me as soon as possible as to just how you stand in regard to completion of steady brace work in the territory which you have covered.

I am under the impression that there are a certain number of steady braces, possibly on push curves, which are not fitted with pins and insulators.

Will you please advise at the same time if you have substituted standard length channel irons for short lengths on all push curves.

Your early reply will oblige, as we wish to get this matter straightened out.

Yours truly,

Electrical Engineer.

REW-wls

cc--M P Co--Butte

Sept. 11, 1916.

Ohio Brass Company,
Mansfield, Ohio.

Dear Sirs:

Attention: Mr. J.M.Stickler
Sales Agt, Bond-Insulator Div.

I have your letter of the 8th with attached report from your engineer, Mr. Brown, in regard to recommended length for samples of concealed bonds, and we will be very much obliged if you will send us as soon as possible, twelve of these bonds 16-7/8 inches long, and twelve bonds 17-7/8 inches long, for test purposes, and without charge.

In order to save time in delivery, we would like to have these come by express direct to me at my office at Butte, and I am sending a copy of this letter to our Assistant Purchasing Agent, Mr. A. J. Jennings, with request that he take the matter up with you and arrange so that shipment will be made by Wells Fargo Express between Chicago and Butte.

I am much obliged to you for your courtesy in this matter. Will you please advise me about when we may expect the samples, so that we can anticipate arrangements in connection with their installation.

Yours very truly,

Electrical Engineer.

REW-wls

cc--A.J.J.

Sept. 11, 1916.

Mr. H. L. Shapard,
Hotel Shapard,
Missoula, Mont.

Dear Sir:

I have yours of the 9th regarding hotel expenses of Mrs. Kenneth Ellis. I am investigating this matter and we will advise you later regarding the matter.

Yours very truly,

FAC-wis

Electrical Engineer.

Sept. 11, 1916.

Personal

Mr. Kenneth Ellis,

Avery, Idaho.

Dear Sir:

Mr. Shapard of The Hotel Shapard at Missoula, calls my attention to the fact that you have not paid your hotel expenses while you were at Missoula.

Will you kindly advise what you intend to do in this matter, as it is necessary that same be taken care of promptly.

Yours truly,

FAC-WLS

Electrical Engineer.

Sept. 11, 1916.

Mr. C. A. Lemmon, Chief Engr.,
Butte, Anaconda & Pacific Ry.,
Anaconda, Montana.

Dear Sir:

Referring to yours of the 6th regarding bill for power furnished for operation of trains between Colorado Junction and Butte passenger station:

We have received your bill for $447.23, amount due to July 1st, and same has been placed in line for voucher.

I notice you ask for the number of trains operated in June and July and for each month thereafter, so that bills can be made out. According to Mr. Gallwey's letter of May 8th, the rate was to be $112.05 per month, and according to conversation with you in this office I understood that this was a satisfactory basis for payment.

If I am correct, will you kindly send us your bills covering the months of July and August and we will place them in line for payment promptly.

Yours very truly,

FAC-WLS

Electrical Engineer.

Butte, Mont., Sept. 11, 1916.

Mr. M. C. Butler, Stkr.,
Deer Lodge, Mont.

Dear Sir:

Will you kindly send 1/2 dozen motor-generator brushes to Janney substation. This is Brush No. 13[illegible].

Yours truly,

FAC-wlc

Electrical Engineer.

cc--T.Tr

Butte, Mont., Sept. 11, 1916.

Mr. G. F. Goule, Inspr.,
Haugan, Mont.

Dear Sir:

Supt. Willard advises he expects to have a steam shovel at Saltese by the 15th of this month, and begin work on rock slides at that point.

In view of the facts, I presume it will be best to leave poles out on the south side of track, at least until trolley crew reaches that point, when steps can be taken to take care of conditions existing at that time.

As there are only four poles to be set, it would seem that these could be erected by trolley crew and there is no use in trying to set these four poles now with steam shovel going in to remove the slides.

Yours truly,

RFW-wls

Assistant Engineer.

cc--M P Co

Butte, Mont., Sept. 11, 1916.

Mr. E. H. Barrett,
Asst Gen'l Supt.,
Butte, Mont.

Dear Sir:

Returning herewith telegram of September 8th from Supt. Willard in regard to delay to Work Trains and his plans for the elimination of Work Train delays, I will say that there has been considerable improvement in the time given Work Trains since I spoke to you about the matter upon your leaving for the West, and as regards the average delay given by Mr. Willard, this of course is not conclusive, in that the more important trains may be getting the greatest delays.

We cannot, of course, pass further on the matter until we have more time in which to judge under the new status of conditions.

Yours truly,

REW-wls

Electrical Engineer.

Butte, Mont., Sept. 11, 1916.

Montana Power Co.,
Butte, Mont.

Dear Sirs:

Referring to my note of recent date in regard to tools for Foreman Ferguson in connection with stringing transmission wire, I find that I was in error, in regard to snatch blocks, in that we have 54 of these at our Deer Lodge storehouse which are available towards equipping foreman Ferguson.

Yours truly,

REW-wls

Electrical Engineer.

Sept. 11, 1916.

Mr. C. J. Lemmon, Chief Engr.,
Butte, Anaconda & Pacific Ry.,
Anaconda, Montana.

Dear Sir:

Referring to your's of the 6th regarding bill for power furnished for operation of trains between Colorado Junction and Butte passenger station:

We have received your bill for $447.33, amount due to July 1st, and same has been placed in line for voucher.

I notice you ask for the number of trains operated in June and July and for each month thereafter, so that bills can be made out. According to Mr. Gillsey's letter of May 8th, the rate was to be $111.05 per month, and according to conversation with you in this office I understood that this was satisfactory basis for payment.

If I am correct, will you kindly send us your bills covering the months of July and August and we will place them in line for payment promptly.

Yours very truly,

FAC-WLS

Electrical Engineer.

Butte, Mont., Sept. 11, 1916.

Mr. F. R. Nicholas,
Assistant Engineer,
Saltese, Montana.

Dear Sir:

We have a letter from Sec'y Adams dated September 8th, asking us to hurry blue print showing right of way and true meander line in territory between Ballard and Avery, so that he can close up settlement with the Northern Pacific Company. Please advise promptly how soon this will be in shape for completion.

Yours truly,

Assistant Engineer.

RWT-vla

cc--E.W.Evans

Butte, Mont., Sept. 11, 1916.

Mr. F. E. Willard, Supt.,
Missoula, Mont.

Dear Sir:

Following your notation on my letter to you of September 8th in regard to warning signals to be provided west of Deer Lodge, when trolley wire is energized, I am placing an order for sufficient swinging bar warning signals to cover the heads between Deer Lodge and Alberton, which I presume will be the first section energized for electrical operation. I am not ordering the entire equipment through to Avery, as something may develop to change the type before the line is energized through to Avery. We will try and arrange with the Montana Power Co. to install these signals when final check of trolley wire is made between Deer Lodge and Alberton.

Yours truly,

REW--vls

Electrical Engineer.

cc--M. P. Co.

Sept. 11, 1916.

Mr. H. A. Galloway, Gen'l Mgr.,
Butte, Anaconda & Pacific Ry.,
Anaconda, Montana.

Dear Sir:

Our Signal Department plans installing a signal bridge spanning all tracks at the East end of Alley Yard. They have asked us to prepare a sketch showing proposed attachments for supporting trolley wires, also making provision for feeder and other wires now carried by poles, which will be replaced by the bridge.

We have shown the proposed scheme for supporing your feeder, telegraph and telephone wires on the sketch, copy of which is attached, and if this scheme is agreeable to you, please have blueprint signed and returned, so that we can forward the sketch to our Signal Engineer for his information in connection with getting out plans for the bridge.

Yours very truly,

REW-wls

Electrical Engineer.

Sept. 11, 1916.

Mr. E. W. Adams, Sec'y,
Milwaukee, Wis.

Dear Sir:

Replying to yours of the 8th in regard to blueprint showing right of way and transmission line on N. P. Patented lands between Roland and point west of Avery, our Asst Engineer Mr. F. R. Nicholas is preparing tracings for territory between Roland and Avery, the completion of this work having been delayed on account of our having to obtain from Mr. Reeder corrected section line ties and also on account of right of way troubles at Saltese, which have taken up a good deal of Mr. Nicholas' time. We will get these tracings out as soon as possible, and I will advise you as to the approximate date as soon as I hear from Mr. Nicholas.

Some of the right of way referred to in your description is located west of Avery where we have no transmission line, and this particular part was referred to Mr. Musson for attention and presume he is taking care of it.

Yours truly,

REW-wls

Electrical Engineer.

Sept. 11, 1916.

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

Referring to yours of the 2nd attached regarding material on Requisition RB-78374, the muslin on this requisition is cloth ordered for screening windows, and heating and piping up certain parts of the machinery. Some time ago our Storekeeper secured some damaged cheese cloth and other cotton goods for this purpose, and this requisition was simply an order calling for distribution of a portion of it.

The distilled water is used in the Edison batteries, which operate the relays and other automatic parts of the substation apparatus. During warm weather the evaporation is very rapid and it takes considerable water to keep them in proper condition. Mr. Kelly has installed a small still or condenser in connection with the boilers at Deer Lodge to supply this distilled water.

Yours truly,

FAC-wls

Electrical Engineer.

Sept. 11, 1916.

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

Referring to your letter of the 8nd regarding strand and other cable ordered on my Requisition RB-#2376:

We have made careful estimates of the amount of this kind of material required for the work from time to time. Inasmuch as the local conditions often require guys of different lengths than the blue prints would indicate, it is impossible for one to determine the exact amounts required beforehand, also we have had to arrange for additional tracks and changes in the line on account of passing track extensions and this has consumed a portion of the material we had ordered for the work.

Yours truly,

FAC-WLS

Electrical Engineer.

Butte, Mont., Sept. 11, 1916.

Mr. R. F. Tyler,
Gen'l Signal Foreman,
Three Forks, Mont.

Dear Sir:

Can you say if our contract with the Union Switch and Signal Company for signal material calls for delivery of this material within a certain time? I would appreciate an early reply from you on this matter.

Yours truly,

FAC-wls

Electrical Engineer.

Butte, Mont., Sept. 11, 1916.

Mr. F. Nash,
Gen'l Master Mechanic,
Tacoma, Wash.

Dear Sir:

Please advise what is being done about the alterations to the round house at Avery for wiring for electric locomotives when electrical operation is taken up.

Yours truly,

FAC-wls

Electrical Engineer.

Sept. 11, 1916.

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

Referring to yours of the 2nd attached regarding material on Requisition RB-[illegible]74, the muslin on this requisition is cloth ordered for cleaning windows, dusting and wiping up certain parts of the machinery. Some time ago we secured some damaged cheese cloth and other cotton goods for this purpose, and this requisition was simply an order calling for distribution of a portion of it.

The distilled water is used in the Edison batteries, which operate the relays and other automatic parts of the substation apparatus. During warm weather the evaporation is very rapid and it takes considerable water to keep them in proper condition. Mr. Kelly has installed a small distillery or condenser in connection with the boilers at Deer Lodge to supply this distilled water.

Yours truly,

FAC-wls

Electrical Engineer.

Butte, Mont., Sept. 13, 1916.

Mr. E. T. Roach,
Haugan, Mont.

Dear Sir:

For your information we have a shipment of 3/8" and 1/2" S. M. Strand being made from the Mills tomorrow.

In the meantime, on account of shortage of both sizes, see to it that material on hand is properly distributed according to the needs of the various camps.

I note that we have on hand at Deer Lodge from 50 to 75 pairs of small X-strains made up with 1/4 inch strand, which could be used on one of the trolley crews. Look this matter up and arrange with Butler to ship these strains out to the proper crews, as we do not care to have them left over when the work is completed.

Yours truly,

RTT-mls

Assistant Engineer.

cc--H.C.B.

Butte, Mont., Sept. 12, 1916.

Mr. E. Sears,
Elec Master Mechanic,
Deer Lodge, Mont.

Dear Sir:

I have to ay received a box of speed recorder rolls from Mr. Chubb at Harlowton. Five of these rolls were shy one of the three essential points, time, place and motor at installati n or removal. Further, some were removed over a month ago. All this probably happened before my recent letter to you on this point. I believe it is now understood that we wish these as soon as removed, also we wish time, place and motor number noted thereon at the time of installation and removal.

Yours truly,

ABV-wls

Electrical Engineer.

Sept. 11, 1916.

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

Referring to yours of the 2nd attached regarding material on Requisition RB-#2374, the muslin on this requisition is cloth ordered for cleaning windows, dusting and wiping up certain parts of the machinery. Some time ago we secured some damaged cheese cloth and other cotton goods for this purpose, and this requisition was simply an ordering calling for distribution of a portion of it.

The Distilled Water is used in the Edison Batteries, which operate the Relays and other automatic parts of the substation apparatus. During warm weather the evaporation is very rapid and it takes considerable water to keep them in proper condition. Mr. Kelly has installed a small distillery or condenser in connection with the boilers at Deer Lodge to supply this distilled water.

Yours truly,

R
FAC-WLS

Electrical Engineer.

Butte, Mont., Sept. 11, 1916.

Mr. G. F. Soule, Inspr.,
Haugan, Mont.

Dear Sir:

I am sending you herewith two prints furnished us by the Signal Department which show proper bonding for track circuits. You asked for three prints, and as I assume that one was for Mr. Haigh's use, we are sending him one direct.

Yours truly,

Assistant Engineer.

LW-wls

cc--P.N.Haigh--Gold Creek

Sept. 12, 1916.

Mr. E. W. Adams, Sec'y,
Milwaukee, Wis.

Dear Sir:

We have just received the two tracings showing transmission line location on Helena & Gallatin National Forest land marked Exhibit J-7-A, which you have had executed and they are in such condition from apparently having been torn by a dog, that it will be necessary to make new tracings and send them to you for execution.

The package was not registered, and the tracings were protected by only two or three thicknesses of wrapping paper, and we are, therefore, making no complaint to the Baggage Department.

Will you please arrange so that such tracings will be mailed to us in a regular pasteboard mailing tube, and that they are also registered or send by express, as we are now not only subjected to duplicate expenditure of time and money, but are liable to receive a complaint from the Government on account of delay in submitting the completed tracings.

Yours truly,

REW-wls

Electrical Engineer.

Mr. C. F. Coule, Inspr.,
Hougan, Mont.

Dear Sir:

The distribution of poles for trans mission and trolley work has reached the point where we should be able to make a very close check on just how we stand for poles to complete the work.

Please arrange to give this matter your personal attention at once, and let me have a report on the subject. I presume in order to get a final check you will have to confer with Blakesly, as he should know just where poles have been put off on the ground other than St. Regis and Hougan.

For your information I will say that 30 or 40 fifty-five ft. poles were at Golden and had not been picked up when I was last out that way.

Yours truly,

RFC-AL

Assistant Engineer.

Will you send me copy of contract with one Johnson covering location of his telephone line over our tracks near Superior, on the following day: To date we have not heard from you. Will you please give us the information on this subject, as this line must be taken care of quickly.

Yours truly,

RDW-vls

Electrical Engineer.

Mr. G. F. Soule, Inspr.,
Haugan, Mont.

Dear Sir:

For your information, we have found it necessary to change the location of transmission line in the vicinity of Saltese to the North side of St. Regis River, approximately between Stations #9340 and #9380.

Mr. Nicholas is now engaged in making a new survey, and should have profiles completed by Saturday of this week. We will furnish you with the revised information just as soon as completed.

Local conditions make it desirable to complete pole setting in this revised section as soon as possible after profile is finished.

Yours truly,

REW-wls

Assistant Engineer.

cc--M.P.Co.

Mr. G. F. Wilder,
Asst Purchasing Agt.,
Seattle, Wash.

Dear Sir:

I have your wire of the 11th regarding the return of metal drums furnished with oils by the Continental and Standard Oil Companies.

We have had this matter up repeatedly with our Contractor on this work, and I am sure he is doing all possible to return the drums to the shipper as promptly as possible.

Of course you understand we are holding these metal drums until the oil is used, which often varies from two to six weeks. To return the drums to the shipper at once upon receipt would mean that we would have to invest in about forty metal containers for about two months work, which would not be a very economical proposition.

Before we started to take oils, we went into this matter thoroughly, and found we could afford to pay for a few stolen drums rather than equip ourselves with a plant to handle carload shipments independently.

As you know, we use a large amount of this material, as we have No. 4 cylinder cars good for hauling 12 to 15 men, and such cars consume large quantities of oil, especially on the mountain grades.

I am again taking the matter up with our Contractor to see that there are no empty drums being held in any of the outfits.

Upon taking the matter up with the Standard Oil Company at Butte they advise they have no complaint to make regarding the return of metal drums.

Yours truly,

FAC-wls

Electrical Engineer.

The Montana Power Co.,
Butte, Mont.

Dear Sirs:

Our purchasing agent is criticising us severely on account of not returning empty oil drums furnished with the products of the Standard and Continental Oil Companies.

I would be pleased to have you take it up with your Foremen and ascertain if they have any empty drums on the work which could be returned promptly, and also caution them that they are to return all barrels as promptly as possible after they become empty. Thanking you for your attention in this matter, I remain,

Yours truly,

FAC-wls

Electrical Engineer.

Mr. J. T. McNabb,
Acting Statistician,
Chicago, Illinois.

Dear Sir:

Enclosed herewith please find the distribution of electric power used on the Rocky Mountain Division in August, 1916, as requested in yours of August 28th.

This distribution depends on about 50 meters and it is very hard to keep all of these meters running properly. On account of a couple of them being out of order, we were unable to give you this distribution on the 8th of the month. We hope, however, to be able to do so in succeeding months.

Yours very truly,

AHV-WLS

Electrical Engineer.

Montana Power Co.,
Attention R. Wende,
Deer Lodge, Mont.

Dear Sir:

I find that we have on hand at Deer Lodge quite an accumulation of short lengths of galvanized strand wire of 3/8" and 1/2" size, and a number of reels containing short lengths of trolley wire.

At your first opportunity, please look this over, and as far as possible make use of it in connection with track extension work.

A good deal of this strand has insulators and Crosby clips attached, and no doubt could be used as made up, for guy or span work. You should, if possible, start the use of this material at Janney and Morel extensions, which I believe are the first to be taken care of.

Please advise if regular inspections are being made of the crossings with B. A. & P. Railway at Rocker and Silver Bow. One of the trolley wires in the Silver Bow crossing was getting in very bad shape several months ago, and was supposed to have been taken care of.

Y urs truly,

RFW-ZLS

Assistant Engineer.

cc--M.P.Co.--Butte

Mr. E. W. Adams, Sec'y,
Milwaukee, Wis.

Dear Sir:

On August 19th Mr. J. M. Hughes, Eastern Land Agent for the Northern Pacific Railway wrote the Montana Power Company in regard to transmission line on their property in Section 25, T.1 N., R.6 W., and this letter has been referred to us, as the line referred to is our line where it crosses our track just west of Cedric.

We had considered this piece of land as on Government property, and are making a tracing showing the location referred to, prints of which we will forward to you as soon as completed, so that you can take the matter up with Mr. Hughes.

Yours very truly,

REW-WLS

Electrical Engineer.

Agent--Piedmont.

Dear Sir:

On April 5, 1918, a shipment was made to us at Piedmont, from Three Forks, in St Paul Car #81486, consisting of 12 Porcelain Insulators intended for use at Piedmont engine house.

We have been unable to locate this shipment of insulators, either at the Piedmont substation or at the Piedmont engine house, and feel, therefore, that the insulators must be in your Baggage Room.

Will you please look up your records on this shipment and also have a thorough search made for them, as they are of special design and we need them in connection with wiring the Piedmont engine house for electric locomotives.

Copy of this letter to R. Wende who will please take this up with the Agent at Piedmont at the first opportunity, and advise.

Yours truly,

REW-wls

Electrical Engineer.

cc--R. Wende

Sept. 13, 1916.

Mr. A. Zinram,
Sales Department,
Prest-o-lite Company,
Indianapolis, Ind.

Dear Sir:

Your File #14: I beg to acknowledge receipt of your letter giving information in connection with costs on your "Fire Chief" and "Prest-o-lite" Milburn Flare lights.

We will give this matter our careful consideration, and will advise you if we wish to go into the question further.

Yours very truly,

RFT-vls

Electrical Engineer.

Will you kindly hurry shipment of the following items:

<u>Requisition RB-#[illegible] of August 8th:</u>
Miscellaneous repair parts for Calumet track drills.

<u>Requisition RB-#[illegible] of July 24th:</u>
Rubber Matting for substations.

<u>Requisition RB-#3368:</u>
Rubber Boots.

I would be pleased to receive this material at an early date.

Yours truly,

FAC-wls

Electrical Engineer.

Dear Sir:

Will you please send me a copy of your Power Distribution Sheet covering the Rocky Mountain Division for one representative week in the months of May, June July and August, 1915.

Yours truly,

ABV-wls

Electrical Engineer.

Butte, Mont., Sept. 17, 1916.

Mr. F. Sears,
Elec Master Mechanic,
Deer Lodge, Mont.

Dear Sir:

I am sending you today under separate cover speed recorder rolls. Four of these rolls are OK . On four the record runs off the end of the roll, and one contains two reports. I shall hereafter return these rolls to you unless you otherwise direct. Also we have a large number previously turned in, and wish you would advise disposition for same.

Yours truly,

ABV-wls

Electrical Engineer.

Sept. 13, 1916.

The Prest-o-lite Company,
Indianapolis, Ind.

Dear Sirs:

File #14: I beg to acknowledge receipt of your letter giving information in connection with costs on your Fire Chief and Prest-o-lite Milburn Flare lights. We will give this matter our careful consideration, and will advise you if we wish to go into the matter further.

Yours very truly,

REW-WLS

Electrical Engineer.

Mr. F. E. Willard, Supt.,
Missoula, Mont.

Dear Sir:

A short time since we wrote you in regard to replacement of inside rail on certain curves between St. Regis and Haugan.

Our present bonding plans are to move a crew to St. Regis in the near future, and do the bonding between that point and Haugan.

In view of this fact, we would like to have the above rail replacement taken care of at once, so that we can complete bonding between the two points mentioned without having to go over the ground the second time.

Please advise if you can arrange for this rail replacement at once, and oblige.

Yours truly,

REW-wls

Electrical Engineer.

cc--M P Co

Mr. G. F. Soule, Insp'r.,
Haugan, Mont.

Dear Sir:

Present plans in regard to bonding are that Foreman Thompson, after he has completed bonding through Alberton Yard, will move to St. Regis and finish up the work between that point and Haugan.

In this connection I wish to remind you that between St. Regis and Haugan rail is distributed for replacing inside rail on a certain number of curves on main line track, and while we will try and arrange with Supt. Willard to have this replacement made before bonding reaches the territory involved, if replacement is not made before that time, it will be necessary to omit bonds on such curves as are affected; that is on inside rail of such curves.

At the same time Foreman Gilbert is to move into Idaho and work between Roland and Avery.

In connection with rail replacement, please arrange to see Roadmaster Grimes as soon as possible, find out what his instructions are, and let me know promptly the result of your conference.

Yours truly,

REW-wls

Assistant Engineer.

cc--M P Co

Butte, Mont., Sept. 14, 1916.

You recently sent this office two copies of vouchers, favor of C. F. McCoy, January, 1916, for $100.00 account legal services, also Henry C. Stiff, dated December, 1915, for $25.00.

Will you kindly take up with the proper party and find out just what the services performed by these men were, so that we may make proper charge to substation, transmission, trolley or whatever accounts the charges should be distributed to.

Yours truly,

Electrical Engineer.

FAC-WLS

Sept. 13, 1916.

Mr. F. W. Adams, Sec'y,
Milwaukee, Wis.

Dear Sir:

Enclosed herewith please find letter from the Great Falls Power Company addressed to the Milwaukee Land Company, with blueprint attached showing proposed transmission line crossing over our tracks and presumably the land of the Milwaukee Land Company at Harlowton.

If the land of the Milwaukee Land Company is involved, will you please put this forward to the proper official of that Company, and assist in any way you can towards expediting the granting of the permit, as the Power Company will greatly appreciate anything we can do in this matter to help them out.

Yours truly,

REW-WLS

Electrical Engineer.

cc--M.P.Co.

Sept. 13, 1916.

Timber Butte Milling Co.,
Butte, Montana.

Dear Sirs: Attention: Mr. R. C. Smith,
Purchasing Agent.

As per your Order #2641, I am shipping you today to Butte, in Car #89036, two reels containing No. 4/0 B. & S. copper trolley wire. The contents of these reels are as follows:

Reel No. 505:

Gross.....3100#
Tare..... 424
Net.....1676

Reel No. 472:

Gross.....1460#
Tare..... 443
Net.....1017

TOTAL Net Weight of Copper.....2693#

As soon as you have removed the copper from the two reels, I wish you would deliver the empty reels to me at our Butte freight office, advising. These reels cost us in the neighborhood of from $7.00 to $10.00, and we would like to get credit for them if they are in good shape. Bill will be rendered to you for this copper at current prices. I presume this is satisfactory.

Yours very truly,

FAC-WLS Electrical Engineer.

Mr. C. A. W. Musson,
Assistant Engineer,
Butte, Montana.

Dear Sir:

Referring to proposed passing track extension at Bonner Junction, your last letter on this subject calls for extending this track 1486 ft. west, whereas the original proposition was to extend it 1356 ft. west, as covered in your letter of August 13th.

Our overhead work was built on the basis of your letter of August 13th, and we prefer to keep it that way if you can so arrange, as otherwise we will have to change our air-gap and will have a bad location for our cut-out switch.

Please advise at once if you can adhere to the original 1356 ft. extension west, which makes a difference of only 130 ft. in the length of the track.

Yours truly,

REW-wls

Electrical Engineer.

cc--G.F.S.

Sept. 13, 1916.

Mr. E. S. Johnson,
General Electric Co.,
Schenectady, N. Y.

Dear Sir:

Please see your MS-#136192 and MS-#136191 covering material shipped to Avery, Idaho, and to Deer Lodge, Montana, in C.B.& Q. Car #45133 August 25th.

I notice you are shipping the same amount of material to both points, and I am wondering if there is not an error, as I have no record of ordering any #838 Compound, or paints to Deer Lodge.

Will you please advise why this shipment was made. I also notice that both shipments apply on your Requisition No. C-307401-1/4.

Yours very truly,

FAC-WLB

Electrical Engineer.

cc---VAW
FU
HWW

Mr. F. M. Webster,
c/o Florence Hotel,
Missoula, Mont.

Dear Sir:

Attached herewith find letter from Mr. Geo. F. Fox of Missoula, who is Logging Engineer for the A. C. M. Company, and who submits claim for $63.00 covering 21,000 ft. of timber cut on his land, lots #3 and #4, Section #6, T.15 N., R.31 W.

Please arrange to see Mr. Fox and clear this matter up.

Yours truly,

RTT-TLS

Electrical Engineer.

cc--Geo. F. Fox,
14 Co. Court. T.,
Missoula, Montana.

Sept. 1[illegible], 1936.

Mr. J. J. Murphy, Supt.,
Three Forks, Mont.

Dear Sir:

Attached hereith please find letter from Mt. Coast Public Power Company, through their Mr. F. T. Bird, with attached blueprint showing proposed crossing over our tracks with power transmission line at Harlowtop.

I have looked into the type of construction proposed, and as far as electrification is concerned, their plans meet with our requirements.

I put the papers forward, with [illegible] this letter, so as to, if possible, [illegible] the time usually involved in having the papers come [illegible] office for investigation [illegible].

Very truly,

REW-WIS

Electrical Engineer.

cc--H.P.O.
P.W.A.

Dear Sir:

Referring to yours of the 13th in regard to installation of signal wires on brackets in snow-shed east of Drexel, advise just how many brackets will be required to take care of the work, so that we can order them.

Yours truly,

REW-wls

Assistant Engineer.

Sept. 13, 1916.

Mr. H. A. Gallwey, Gen'l Mgr.,
Butte, Anaconda & Pacific Ry.,
Anaconda, Montana.

Dear Sir:

Referring to contract in connection with joint overhead work between Colorado Junction and point west of Miles Crossing, and your proposition dated June 10, 1915, which refers to paragraph #16 of specifications attached, such specifications being headed "Proposed Arrangement of Joint Overhead Construction, B.A.& P. and C.M.& St.P. Tracks in and West of Butte", will you please give me a copy of paragraph #16 covering "Apportionment of Fixed and Operating Charges" as it is written in your copy of the specifications and oblige.

A promptly reply will be greatly appreciated as we wish this in connection with calculations which we are now making in connection with the joint work.

Very truly yours,

REW-WLS

Electrical Engineer.

Mr. J. W. Fry,
Chief Lineman,
Seattle, Wash.

Dear Sir:

We have a telephone circuit entering the Superior depot, and a telephone line crossing our tracks at a point about 1½ miles east of Superior, both of which are controlled by Mr. A. P. Johnson.

It is necessary to make changes in this telephone circuit, both at the depot and where it crosses tracks 1½ miles east, on account of our transmission and trolley circuits.

Our Inspector, Mr. A. N. Crowder, took this matter up with Mr. Johnson, and he claimed that these changes should be made at this Company's expense. The crossing east of Superior is not at a Public highway, and therefore, the question of who bears the expense depends upon arrangements made with Mr. Johnson by this Company.

We have had the matter up with Supt. Willard to get a ruling on the subject, and his reply is in the form of a copy of a contract which you made with Johnson, dated December 10, 1910, which contract, as far as we can see, covers only the installation of a telephone in our depot by Johnson, and our paying him $[illegible].50 per month rental, with the understanding that he is to keep the telephone and exchange line in good condition.

This of course has no bearing on Johnson's claim that there is a verbal understanding that we will maintain his line where it crosses our tracks, and his contention that we should make the change at the depot because we are using the telephone.

Will you please advise promptly what is to pay for change of Mr. Johnson's line at both points, as we must have this work done quickly.

Yours truly,

REW-wls

Electrical Engineer.

cc--F. E. W.

was delivered at Fist Portal substation. Can you advise from your records what happened to this barrel, as the Continental Oil Company has not been able to locate same to date.

Yours truly,

FAC-mis

Assistant Engineer.

Mr. G. F. Wilder,
Asst Purchasing Agt.,
Seattle, Wash.

Dear Sir:

Referring to your various tracers of September 7th and 8th regarding empty oil barrels, I hold in this office B/L covering the return of empty oil barrel #300 as furnished on Requisition RB-#1396, dated April 12th, and shipment was made to Missoula. No doubt they have received the barrel long before this.

On March 31st, B/L was forwarded to the Continental Oil Company in Butte covering the return of empty oil barrel #192 which was returned to Missoula. I presume this barrel is already in the possession of the Continental Oil Company.

I am having the other barrels traced and will advise you results as soon as we get some definite advice.

Yours truly,

FAC-WLS

Electrical Engineer.

Montana Power Co.,
Butte, Mont.

Dear Sirs:

Our Purchasing Agent is requesting that we locate the following empty oil drums delivered to the various construction crews for the electrification work. Will you kindly take the matter up with the crews and have them investigate their records and advise what happened to the barrels in question. If we cannot locate same, we will, of course, have to stand the cost of the barrels, which is about $10.00 each.

Drum #41 delivered to Camp #16 at Alberton, October 5, 1915.

Drum #18, delivered to Camp #3 at Donald, August 29, 1915.

Drum #57, delivered to Camp #14, Cardinal, December 28, 1914.

I would appreciate an early reply from you on the result of your investigation.

Yours truly,

TAC-WLS

Electrical Engineer.

Dear Sir:

I understand we have two motor cars in Dallas [illegible] instead of [illegible]. I am being asked requisition [illegible] these cars. Kindly advise [illegible] fitted on.

Yours truly,

FAC-wls

cc--M.C.B.

Electrical Engineer.

Mr. E. W. Adams, Sec'y,
Milwaukee, Wis.

Dear Sir:

I am sending you under separate cover 13 prints of FD-4840 showing our transmission line across section 25, T.1 N., R.6 W., which the Northern Pacific Railway claims, in a letter to the Montana Power Company, is owned by them.

This section of line was included in a Government map, a copy of which you have, and we have assumed, up to the time the letter was received by the Montana Power Company and referred to us, that this particular section was Government land.

As regards our railway right of way in this section, our right of way maps show no width of strip, but I understand from Mr. Musson that Mr. Reeder has recently advised him that the N. P. Railway has recently secured patents on this section, and have asked him to prepare map showing operated line, for use in securing right of way.

You will note that there are two 2-pole frames comparatively close to our track, which will no doubt come within the strip of land secured for operating purposes. This matter was taken up with the Montana Power Company by Mr. Hughes of the Northern Pacific Railway, as I recently wrote you.

Yours very truly,

REW-WLS

Electrical Engineer.

Mr. G. F. Soule, Inspr.,
Haugan, Mont.

Dear Sir:

I have received a statement from H. W. Rusch giving the status of large porcelain strains, spacing bolts, and 20 inch through bolts, both 5/8" and 3/4", on hand at various camps. He asks for information as regards type of construction to be used in Avery Yard involving large strain insulators, and refers to the fact that we had at Deer Lodge storehouse a liberal supply of 3/4" x 18" through bolts, and that Tavener has on hand a number of 5/8" x 20" spacing bolts threaded 8½" at each end, but that it is impossible to cut more threads on account of threaded portion of bolt being upset to larger diameter than center of bolt.

The work in general has reached the stage where it would be absurd for us to attempt to check up material required in this office, and as far as bolts are concerned, if it is absolutely necessary to provide additional bolts, we will have to have them made up at Deer Lodge shops, and should have reliable information as soon as possible, as it is hard to get delivery on material ordered at that point.

As regards large X-strain insulators, you no doubt can give Rusch off-hand, information necessary to figure completion requirements from your knowledge of the status of the work, and the number required for different purposes such as air-gaps, feeder anchors at tunnel ends, cut-out boxes and heavy work in Avery Yard. It would seem that from the quantities he reports as being in stock in the camps and at Deer Lodge, that we should have plenty to do the work, and have a surplus left. I would like to know about this as soon as you check the matter up with Rusch.

As regards machine bolts, I am unable, from Rusch's report, to determine what he means by "SPACING BOLTS" and "DOUBLE ARMING BOLTS", unless he refers to long through bolts for double arming purposes by the term "Double Arming Bolts". However, for your information in clearing this matter up, it will be thoroughly satisfactory to use 7/8" bolts, either through bolts or what was intended for spacing bolts, for attaching double arms to #1.8 and #113 transposition frame, inasmuch as the stresses in these frames are applied direct

to the arms and not to the through-bolts. While we would prefer 3/4" bolts for double arming feeder purposes, if there is a great quantity required over and above our stock for the latter purpose, and we have the 5/8" bolts available, go ahead and use the 5/8" size. If, however, only a small quantity of 3/4" bolts are needed for feeder double arms, we will have them made at Deer Lodge.

In this latter connection, Rusch's statement does not seem to agree with the Progress Reports, in that he refers to Camp "B" requiring bolts for feeder double arms in Avery Yard, and two miles east, whereas Progress Reports show poles erected practically up to Avery Yard. This of course is on the assumption that the arms have been attached to the poles before they were erected, as is customary. Let me know about this.

As regards our supplying orders for 3/4" x 20" bolts with 18" bolts, Butler has been told to follow this plan, as I think you will agree with me that in practically all cases the 18" bolt can be used.

Please arrange to go over this entire matter carefully with Rusch, so that there will be a thorough understanding on his part, and on the part of your Camp Inspectors and Camp Foremen, also that material on hand may be properly distributed for use throughout the different camps, and advise me fully as to the results of your investigation.

Yours truly,

REW-wls

Assistant Engineer.

cc--H W Rusch--St Regis

Mr. O. S. Cooper,
Dist. Reg ngo Agt.,
Spokane, Wash.

Dear Sir:

The following material and tools shipped by mistake, have been lost, and as our work is approaching completion and all the items are very badly needed, will you please have a vigorous investigation started and see if they can not be located.

All items located should be promptly shipped to me at Dear Lodge Montana, as the various crews involved have changed their locations and are continuing to change from time to time.

Item #1---300 - 1 1/8" Creosote Chips shipped from Havenna to Camp #28 at Falcon.
Item #2---One 7/8" tap, one 1/2" tap and leave 7/8" set screws shipped from Dear Lodge to Camp #13 at Kingston.
Item #3---[illegible] for [illegible] passenger hangers, shipped from Dear Lodge to Camp #28 at Falcon.
Item #4---Six [illegible] of [illegible] drive [illegible], shipped from Dear Lodge to Camp #7 at [illegible].

While [illegible] these items are really needed, the [illegible] is expensive and hard to get. Our [illegible] agents of all points involved in regard to the shipments but has been unable to locate them, and the company claim they have not been received.

It is possible that these shipments have been carried west of Avery and barely [illegible] while that they have come to Tacoma and have been unloaded at that point. I am sending a copy of this letter to Mr. Harper A. J. Kuhn, with request that he have a search made, and advise if he can locate any of the items in his stores.

Will you please have this investigation made as early as possible, and advise me the results.

Yours very truly,

RFW-WLG. Tribal Engineer.

Mr. J. J. Murphy, Supt.,
Three Forks, Mont.

Dear Sir:

Herewith bill covering various repairs furnished for the substation machines. These items have not been included in the regular monthly bill against you for operation, owing to the fact that we only recently received the invoices covering same.

The carbon brushes should be considered as a part of the supplies for substation operation. The brush holders and other apparatus should be charged to Account #303, Power Substation Apparatus.

Yours truly,

FAC-WLS

Electrical Engineer.

cc--W.M.H.

Asst. Purchasing Agt.,
Seattle, Wash.

Dear Sir:

Referring further to your memo of September th regarding empty oil barrel 445 sent to East Portal. Upon further investigation I find this barrel is still at East Portal, and will be released some time in the near future.

Yours truly,

FAC-wls

Electrical Engineer.

Mr. A. N. Crowder, Inspr.,

St. Regis, Montana.

Dear Sir:

I have your note of the 12th in regard to clearing transmission line between Primrose and Tarkio, and while you have pointed out to Foreman Blakenly and others, work to be done in certain territory, in order for us to make sure that everything is alright for turning on current, it will be necessary for you to make a personal inspection of the work done and advise this office.

Yours truly,

REW-WLS

Assistant Engineer.

Mr. P. N. Haigh, Inspr.,
C/o Foreman Thompson,
Bonding Camp--Drummond.

Dear Sir:

Acknowledging your note in regard to stolen bonds and negative taps which were not installed, we are taking up the matter of stolen bonds with Company Detective, and I wired you today to try to get Foreman Mickey to install the negative taps if he has not moved West.

In the future, if you find anything of this nature that has not been done, if there is any trolley or line crew in the vicinity, try and arrange with them at once to take care of the work, so that the bonding can be finished, at the same time reporting the matter to this office.

Yours truly,

REW-WLS

Assistant Engineer.

Mr. R. F. Tyler,
Gen'l Signal Foreman,
Three Forks, Mont.

Dear Sir:

Replying to yours of the 17th, we have completed sketch for signal bridge at Alloy and have sent a blueprint to the B. A. & P. Railway for their approval as regards attachment of their wires, assuming that you would prefer to have their approval before forwarding sketch to Milwaukee. If, however, you prefer to anticipate their approval, we will send you blueprints at once. Please advise.

As regards the use of a bridge of the same dimensions at a point near cross-over between our tracks and those of the B. A. & P. at Colorado Junction, we are not in a position to pass upon this, as the Operating Department are now having some controversy with the B. A. & P. Railway in regard to changing location of cross-over, and I would advise your getting cross-over information from them, and we can then give you information as regards wire attachments.

Yours truly,

REW-WLS

Assistant Engineer.

Mr. George Cooper, Contractor,
Superior, Montana.

Dear Sir:

I understand that your Foreman who is loading logs at Spur about two miles east of Cobden cast off guys on one of our transmission frames some time since, that these were replaced, and that your Foreman at that point stated that they would not be removed again.

I now have report that the guys have again been cast off, although our transmission wire has been strung, and this fixture is on an angle point.

Will you please advise if your men removed these guys, and just what the facts are as regards their interfering with your work, as we cannot afford to have our line interfered with in this way unless the matter is properly taken up with this office.

Yours truly,

REW-WLS

Electrical Engineer.

Deer Lodge, Mont.

Dear Sir:

I am returning under separate cover eight speed recorder records recently received from Harlowton. Three of these are OK. On four the record runs off the end of the tape, one having two records thereon. One is taken from a bad order recorder, which I note has since been partially fixed.

Yours truly,

ABV-wlo

Electrical Engineer.

Referring to yours of the 14th in regard to poles to be set at Saltese. In my letter of the 11th I lost sight of poles on the South side other than those affected by rock slides. You should, of course, arrange to set all poles at that point not interfered with by rock slides.

Yours truly,

REW-wls

Assistant Engineer.

cc-- M P Co

Mr. F. E. Willard, Supt.,
Missoula, Mont.

Dear Sir:

Again referring to depression of our main line track under Northern Pacific Bitter Root bridge at Missoula, I have had a copy of a letter from Mr. Reeder to Mr. Barrett, stating that Mr. H. B. Earling has authorized this work, and a copy of Mr. Barrett's letter to you of September 11th, in regard to proceeding with the work.

I notice that Mr. Barrett suggests that you proceed to get the work done before the ground freezes, but does not give any definite time for completion.

As our plans for electrical operation in that territory are vitally affected by overhead clearance at this bridge, will you please advise when you expect to have the work done, so we can have an understanding with all those concerned.

Yours truly,

REW-WLS

Electrical Engineer.

Montana Power Company,
Butte, Mont.

Dear Sirs:

The cars used by Foreman Ferguson for installing tunnel fixtures are now at Avery, and contain considerable tunnel material in addition to Milburn Carbide lights and some carbide.

In view of the fact that St Paul Pass Tunnel work cannot be undertaken for a period of several months, unless you have good reason to the contrary, will you please have these cars shipped to Deer Lodge, so that they can be taken in charge by our Storekeeper, and avoid possible loss of material.

If Foreman Mickey will need the carbide lights, you no doubt will want to remove them before shipment of cars from Avery. If you think it advisable to leave these cars at Avery, they should be securely boarded up in order to keep contents secure. Please advise facts in the case.

Yours truly,

RFW-WLS

Electrical Engineer.

cc--H.W.Rusch

Mr. A. V. Brown, Gen'l Supt.,
Northern Pacific Railway,
Livingston, Montana.

Dear Sir:

I have your letter of the 11th inst. with reference to making a joint check of certain locations in connection with the cutting of some of our guy wires, and I will be glad to make the trip over the line with you if y u will advise me the date when you wi l make this inspection.

Yours very truly,

RB-WLS

Electrical Engineer.

Butte, Mont., Sept. 16, 1916.

Will you please furnish Mr. Paul Lebenbaum, Electrical Engineer, Southern Pacific Railway, with a permit to ride Locomotive on No. 16 September 16th, Butte to Piedmont, also permit to ride Locomotive on No. 37, September 16th Piedmont to Butte.

Yours truly,

ABV-wls

Electrical Engineer.

Mr. G. F. Soule, Insp'r.,
Hauge[illegible], Mont.

Dear Sir:

Acknowledging your note of the 15th, [illegible] your conference with Rusch at Avery in regard to status of material:

From our checking in the office, we have [illegible] the impression that there are sufficient large strain insulators on hand to complete the work and have a surplus left over for maintenance work.

This your finding may be correct, in that it will be necessary for you to use a certain number of large O. B. Y-Strains around Avery Yard, I would like for you to take this up further with Rusch and make sure that you cannot use the large porcelain strains where they are intended and still have a surplus.

As regards using three 1-bolts in place of strain bolts for [illegible], this is quite satisfactory.

Very truly,

BFW-vls

Assistant Engineer.

E.T.R.

Sept. 20, 1920.

Mr. M. E. Flatum,
Mountain States Tel. & Tel. Co.,
Helena, Montana.

Dear Sir:

Acknowledging your letter of the 13th with regard to your wires being clear at crossings over our line west of Great Falls, I note that you say that the Postal wires are still in bad condition, and must be changed before the voltage is increased to 100,000.

Please advise just what Postal crossings you refer to, as our understanding is that you are to take care of Postal wires where they cross over our trolley line, and under transmission line, or over trolley line, together with your wires, while our Telegraph Department was to take care of putting Postal wires underground where your wires go over our transmission wires and the Postal cannot be left under transmission line. Will you please advise fully in regard to this point, so there will be no misunderstanding.

As regards an approximate date for completion of your crossing work up to and including St. Regis, we would like to have this done by October 15th. Please advise if you can so arrange without making special provision for doing the work.

Yours very truly,

REW-wls

Electrical Engineer.

Mr. G. F. Scale, Engr.,
Bozeman, Mont.

Dear Sir:

The [illegible] to personally investigate the timber-bolts required by Company [illegible] timber work, particularly Snyder and Fergusson.

Snyder has a large stock of 20" x 3/4" bolts, and I can see no reason why 16" x 3/4" cannot be used for practically all single timber work.

Butler has on stock a large quantity of 12" x 3/4" bolts, and I am afraid the tendency will be to use long bolts where 16" bolts will answer.

Yours truly,

PTT-ols

Assistant Engineer.

Montana Power Co.,
Butte, Mont.

Dear Sirs:

Bonding Inspector, P. N. Haigh, who is with Foreman Thompson on clean-up work Deer Lodge Sect, has reported that three supplementary negative taps have not been installed. As there were no linemen in the vicinity, it has been necessary to pass them by.

I presume you can arrange to have these taps installed when you do final trimming work on the trolley line before energizing.

I am keeping a record of the location of these taps and will give you a complete report from Foreman Thompson as he goes through to St. Regis.

Yours truly,

RTV-vle

Electrical Engineer.

cc--G.F.S.

Mr. G. F. Soule, Insp'r.,
Haugan, Mont.

Dear Sir:

Referring to your recent note in regard to passing track extension, on the West end at Tarkio Junction:

I assume from your letter that our overhead wire is still built so that 1500 ft. extension of track west will suit conditions as they now exist.

Mr. Musson advises us is arranging to have track extended this distance instead of 1400 ft. Let us know as to actual facts as they now exist.

Yours truly,

J.---- F Co

Asst Chief Engineer.

pieces of 3" x 1" bent channel at Avery substation, and I assume that these are for steady braces. Investigate this at your first opportunity and have the channels delivered to one of our overhead crews. Advise results.

Yours truly,

RFW-wls

Assistant Engineer.

Sept. 18, 1916.

Mr. A. W. MacDonald,
Deputy Sheriff,
Saltese, Mont.

Dear Sir:

Referring to your conversation with Mr. Nicholas in regard to getting contract for clearing trees for trolley protection between Alberton and St. Regis, will say that this clearing is handled by the Montana Power Company, Mr. M. E. Buck, Gen'l Superintendent, Butte, and while I believe Mr. Buck intends doing this work with his own crews, if you see fit, you might take the matter up with him direct.

Yours very truly,

REW-WLS

Electrical Engineer.

cc--M.P.Co.

Mr. G. F. Soule, Inspr.,
Haugan, Mont.

Dear Sir:

I believe there are a number of cut-out switch boxes which have not been fitted with switch locks in territory west of Deer Lodge.

We are placing an order for switch locks to replace the lot which disappeared in the storeroom in some way. Please keep this matter in mind so that all switch boxes will be fitted with locks.

Yours truly,

RCW-mlo

Assistant Engineer.

cc--M P Co

Mr. P. N. Haigh, Engr.,
Missoula, Mont.

Dear Sir:

Replying to your letter of September 16th as regards bonding Polley's Lumber Spur, I note that rail is being changed and new frogs being installed.

Trainmaster Dow informed me one day on the ground that electric locomotives would not go beyond the point where the curved track meets the straight track alongside the log pond. You had better see Mr. Willard personally and get a decision from him as to just how far electric locomotives will go in on this track, and install bonds accordingly.

As regards location of 5/8" supplementary negative wire, where bonds are on inside of rail, this supplementary rail can be laid alongside of rail.

Yours truly,

RFW-wls

Assistant Engineer.

cc--G.F.S.

Mr. F. N. Webster,
c/o Florence Hotel,
Missoula, Montana.

Dear Sir:

In accordance with our conversation of Thursday last, concerning the ownership of the Sch[illegible] Claim in which Mrs. LeLane and others are interested, I [illegible] inquired from old [illegible] people around town and [illegible] that Mrs. LeLane owns [illegible] 1/8 of this claim. Mrs. Evans also owns 1/8th and another party whose name I do not remember also owns 1/8th. This will make 3/8ths or a controlling interest.

Mr. Adams of Adams & Thomson Saloon will give you further information on the subject.

Yours truly,

FRM-TLS

[illegible] Engineer.

I see from Foreman Barker's reports that he cleared up a trolley break west of Superior. Please let me have full facts in this connection.

Yours truly,

REW-wls

Assistant Engineer.

Mr. H. B. Darling,
Vice-President,
Seattle, Wash.

Dear Sir:

Referring to your note of September 9th regarding power for Three Forks, the only way that power could be supplied to Three Forks under our general power contract for electrical operation is by providing a transformer substation connected to our transmission line at Three Forks, or running a separate circuit over from the nearest substation, which is at Austin.

Considering that the bill for power at Three Forks is only amounting to $70.00 per month, a little over half the cost of securing power under the general power contract would pay.

The cost of current to us for electrical operation is 5.5 mills per K.W.H.,--this is the cost to us at the point where the Power Company [illegible] the cost here if it is allowed to cut on transmission line. The rate which would be charged at Three Forks is two cents per K.W.H., in accordance with the attached contract.

Yours truly,

RB-WLS

Electrical Engineer.

Mr. F. Sears,
Elec Master Mechanic,
Deer Lodge, Mont.

Dear Sir:

Referring to your Train Detention Reports for August, No. 34 is reported to have been delayed on August 23th, 1918, account of overhead trouble.

We reported to you on August 21st that Foreman of Maintenance Crew could find no trouble with overhead, and that track and trolley were in proper line, also that the pull-offs and hangers were bent and this seemed to be due to defective pantograph.

In view of Maintenance Foreman's report, have you been able to get any additional information regarding this matter.

Train No. 14 was reported to have been delayed August 16th account trolley roller 5/4 miles east of Kinder. We have no record of any trolley troubles at Kinder on this date. The trolley was down 5 Thus Tests on this car showed it had been struck by lightning, but we were not aware that any trains were delayed on this account. Can you straighten this matter out?

Yours truly,

RB-WLS

Electrical Engineer.

Herewith please find list of pole lengths for distribution and fencing on the revised line at Allison. Profile will follow as soon as it has been completed.

Yours truly,

FLS-s

Electrical Engineer.

cc--W.P.Co.--Butte
G.F.S.

I have your note of September 14th and received the box of sweet peas yesterday. I took them home to Mrs. Beeuwkes and she is enjoying them very much, and wishes you to thank Mrs. Slater for them.

Do not forget to keep us posted as to where we could get hold of you. Meanwhile I hope that you will land something that you like and wish you the best of good luck.

Yours very truly,

RB-WLS

Electrical Engineer.

Butte, Mont., Sept. 20, 1916.

A. J. Jennings,
Asst Purchasing Agt.,
Chicago, Ill.

With reference to stringing of wires for Power Indicating and Limiting Circuit, you told me in our last conversation, that you wanted to pay only the regular $4.25 construction rate for this work.

I explained your views to Messrs. Buck and Kerr. Their Company pays one-half of the cost involved in this work, but they have finally been forced to conclude it is impossible to get the work done at the $4.25 rate, and that the only chance is to enlarge the maintenance crew and pay the additional men on the same basis,--that is, $5.30 for eight hours work. There would, however, be no overtime work and the men would not get paid on Sundays, as is the maintenance crew on account of being subject to call.

The reasons for the necessity of paying the rate stated, if the stringing is to be done in the near future, are that the work is considered "hot", and because it is difficult now to get linemen at all. Putting on the additional men as an increase to the maintenance crew would avoid establishing a precedent in the way of increasing the wages paid for construction work as per agreement, and would only add a few hundred dollars to the cost of the stringing.

In view of the conditions, had we not better arrange on the $5.30 basis?

Yours truly,

RB-WLS

Electrical Engineer.

Referring to your letter of [illegible]
the material in general comes under the contract, though the General Electric Company is asking for an increase in the upset price on account of the substitution of K-12 for K-5 oil switches, see my letter to you this date regarding this.

We are not being charged anything for the original K-5 switches, as the original value of these is to be deducted from the price of the K-12s.

I might say, in this connection, that it was my original idea that there would not be any increase asked of the upset price in the contract, first, because the increase involved is comparatively small and second, because it might be considered that the original K-5 switches should be looked upon as defective apparatus and therefore the General Electric Company, at their own expense, could be expected to replace them with the larger K-12 switches.

However, it seems to me fair to make the change on the basis suggested by the General Electric Company, as they probably cannot again use the K-5 switches, and as we know, they are really being put to additional expense on account of providing the larger switches.

With regard to the out-door disconnecting switches, we have not yet received from the General Electric Company a sketch showing suggested new method of arranging these switches out-of-doors. When this drawing comes, the G. E. will have to say what increase if any, in upset price, would be involved in making the change.

Yours truly,

RB-WLS

Electrical Engineer.

Dear Sir:

Regarding your Reference No. 4119 in which you ask if we would be allowed, under our contract with the Montana Power Company, to furnish power for heating the new school building at Superior, Montana, please note that our contract specifically prohibits our using this power for any other than Railway purposes.

Yours truly,

RB-WLS

Electrical Engineer.

cc--C.A.G.

Referring to yours of September 12th regarding arrangements in Load Dispatcher's office, we merely wished to show space available for maximum desk room requirements, and there is no reason why the arrangement with regard to desks should not be modified in any way you consider best.

With regard to the instruments on the switchboard, these would be visible from desks located approximately as shown.

Relative to the motor-generator, we thought that this probably would not make noise enough to bother anyone, and thought best to enclose the M. G. Set only if it was later found necessary. Telegraph companies use small motor-generators right out in the open next to their operators and have no trouble with noise. The motor generator, if enclosed, would not be looked after as well as it would be in the open, and the enclosure would form a dust catcher. Under the circumstances, had we not best wait with the enclosure until it is found necessary?

Yours truly,

RB-WLS

Electrical Engineer.

Referring to your letter of September 13th, wherever any camp is mentioned twice for a given date, this is because each camp has two work trains. Most of our trolley crews have one camp or base, but there are two work trains to a camp. One is sometimes stringing wire while the other is clipping and finishing, and sometimes they are both doing the same operation.

With regard to "Straight Time Charged" this relates purely to electrification crew.

With regard to "Time Clearing" this refers to delays on account of traffic conditions,--not delays for which the Operating Department is not responsible.

This matter is further explained in our letter to you of May 31st, copy of which is attached.

Yours truly,

RB-WLS
Encl.

Electrical Engineer.

prices on contracts covering locomotives and electrical apparatus for substations:

First Contract - GE-27972:

Extra cost for changing six (6) K-5, 300 amp. and four (4) K-5, 500 amp. for ten (10) K-12, 500 amp. switches.....Total.....$ 767.38

Second Contract - GE-28375:

Extra cost for changing six (6) K-5, 500 amp. for six (6) K-12, 500 amp. switches.Total..... 476.86

Third Contract - GE-28258:

Extra cost for changing three (3) K-5, 300 amp. and thirteen (13) K-5, 500 amp. for sixteen (16) K-12, 500 amp. switches.....Total..... 1055.84

Truly yours,

Asst to the President.

Butte, Mont., Sept. 19, 1916.

Mr. W. M. Harvey,
Auditor Mat'l Accts.,
Chicago, Illinois.

Dear Sir:

Butte, Mont., Sept. 18, 1916.

Mr. P. B. Rivers, Stkr.,
Miles City, Mont.

Dear Sir:

Will you kindly furnish me with 1,000 each of Form #1506 and #1510, envelopes, and 300 shipping notices, at once if possible, as our supply of the above is entirely exhausted.

Yours truly,

WLS-a

Electrical Engineer.

Dear Sir:

I wrote you recently about changing the motor starting switches in the substations to a larger size. In this connection, please see letter from Mr. Johnson, of September 8th, and if you see proper grant him the increase in contract upset price as requested. For your convenience I attach suggested form of letter to him in this connection.

Yours truly,

RB-WLS
Encl.

Electrical Engineer.

Sept. 19, 1916

Dear Sir:

Referring to your letter of August 31st, same has not before been replied to on account of my absence from Butte.

I regret to say that we have no opening for you at this time, but will be glad to consider your application in case an opening develops later.

Very truly yours,

RB-WLS

Electrical Engineer.

Sept. 10, 1916

Dear Mr. Karny:

I have your letter of September 12th and I am glad you injoyed looking over our electrification.

I am attaching hereto the data which you asked for in the second and third paragraphs of your letter.

I note that you are the same Mr. Karny whom I met at the Ver Planck Place some time ago and I am glad that we again had the opportunity of meeting with each other.

Sincerely yours,

Electrical Engineer.

RB-WLS
Encl.

Sept. 18, 1916

Chicago, Illinois.

Dear Sir:

Please note the attached papers and if you see no objection to furnishing Mr. Karny the information he requests, please forward my letter to him. I personally see no objection to giving out the data.

Yours truly,

RB-WLS
Encl.

Electrical Engineer.

Sept. 19, 1916.

garding Thomas roof insulators, we note you consider that there are no objections to the use of these insulators as straight insulators, and that they possess the advantage mentioned by us and the further advantage of being considerably cheaper than the insulators that you furnish.

Unfortunately your reply comes too late for us to make use of it in connection with our present construction work, as was our intention.

Yours truly,

RB-WLS

Electrical Engineer.

cc--V.A.W.
F.B.W.
F.Urban

Sept. 19, 1916.

message of that date, we [illegible]
with the B. A. & P. for overhead work.

There is one point in connection with this contract to which I would like to call your attention, and that is that we have still to pay the B. A. & P. some money in connection with construction work, this money being the amount due them in connection with the contract and representing the portion of poles and fixtures which they installed and which is chargeable to us on the basis of the number of tracks spanned.

This will not be a large amount, but it is a difficult one to arrive at. We have, with the B. A. & P., been working on the matter for some time, and hope soon to get the figures made up. We are at the same time, making up figures which, in accordance with the contract, will determine the proportion of maintenance charges the B. A. & P. and ourselves are expected to pay in connection with the joint work.

Yours truly,

RB-WLS

Electrical Engineer.

Butte, Mont., Sept. 19, 1916.

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

Sept. 19. 1916.

the changes which are to be made in the locomotive train heating apparatus, and in which he gives the figures relative to the performance of the heater.

I do not know whether you have a copy of the report, but there is one point to which I thought your attention should be called. When we made up our locomotive specifications, we called for a water storage capacity of 30,000 pounds and an oil storage capacity of 430 gallons, also an evaporation capacity of 1500 pounds per hour,--the amount estimated to be required to properly heat an 800 ton train under our worst conditions. These figures were decided upon in your office in Chicago when you held a conference at which members of the Motive Power Department as well as representatives of the General Electric and Westinghouse Companies were present.

Fifteen hundred pounds of steam per hour for heating the train would, with a 30,000 pound water storage capacity, give a 20 hour heating capacity before the water gave out. The development of the heating apparatus, however, has shown that a considerable amount of steam has to be used for other purposes, such as stack nozzle, preheater and burner consumption, so that in getting a 20 hour heating capacity, we get but 15 hours total consumption, and in order to get what we originally intended, the oil and water storage capacity would have to be increased. You may think 15 hours is sufficient time, but I have not seen this phase of the situation mentioned in any correspondence, and I wanted to make sure that it was understood.

Yours truly,

RB-WLS
cc--F.Urban

Electrical Engineer.

Butte, Mont., Sept. 19, 1916.

stated that the Crossing Tender, who appeared to be in a somewhat intoxicated condition, approached him and asked what was going to be done about giving the Tender more money. Mr. Wharton endeavored to explain to the Tender that he had nothing to do with the matter, but the Tender was very insistent, stating he had been taking care of the street cars, and that $45.00 per month was not enough for all of this work.

This instance, particularly as it is brought up by Mr. Wharton and also in view of the case of negligence mentioned in my letter of the 28th ult., would seem to indicate that it might be very desirable to consider taking steps to see that the electric switches and gates are properly attended to.

I told Mr. Wharton that I would repeat to you what he had told me.

Yours truly,

RB-WLS

Electrical Engineer.

cc--E.N.B.

Sept. 19, 1916.

Roland and Avery, we have all of the data for making up these maps, but on account of necessary change in the location of our transmission line in the vicinity of Saltese, and maps and profiles to be made up in this connection, we will be delayed in getting out the former maps.

If conditions require immediate action on the N. P. Maps, it might be possible to arrange with Asst Engineer Musson to help out. Please advise. We should be able to get out the N. P. maps within two weeks.

In connection with the change in location of transmission line at Saltese, it is necessary to cross the N. P. Right of Way twice. We are getting out profiles and maps showing the crossings, and will send them to you as soon as possible. These crossings were necessary, as property owners were unreasonable in their damage claims for our original location, and Mr. Webster finally arranged for new location which involves the two N. P. Crossings.

Yours truly,

REW-WLS

Electrical Engineer.

Butte, Mont., Sept. 19, 1916.

Foreman Thompson will pass Primrose and Tarkio substations, and possibly later, Drexel substation. Unfortunately we have now gone by Gold Creek, Ravenna and East Portal. I will take up the question of connections at the three latter points further. I am attaching blueprint showing method of making connections.

As Drexel is in automatic signal territory no connections can be made until present signal system is abandoned, when repeaters will either have to be connected to reactance bonds or direct to rail if there is appreciable delay in getting new system of signals installed.

Yours truly,

RWW-wls

Assistant Engineer.

cc--M.P.Co.--Butte
P.N.Haigh--Missoula

Butte, Mont., Sept. 19, 1916.

Mr. M. C. Butler, Stkr.,
Deer Lodge, Mont.

Dear Sir:

Butte, Mont., Sept. 19, 1916.

Mr. M. C. Butler, Supr.,
Deer Lodge, Mont.

Dear Sir:

I am sending you today by baggage, five pairs of heavy rubber boots which have been turned in by Mr. Nicholas. You may re-issue these boots as required by Construction Crews.

Yours truly,

LW-sls

Electrical Engineer.

Butte, Mont., Sept. 19, 1916.

with Supt. Willard in regard to replacement of inside rail on certain curves between St. Regis and Haugan, in connection with bonding.

As rail bonds are now costing from $1.50 to $2.00 in place, it seems that this matter should be given careful consideration, and if feasible, rail replacement made before bonding crew reaches territory in question. Please advise.

Yours truly,

RCW-wls

Electrical Engineer.

cc--F.E.W.

Butte, Mont., Sept. 20, 1916.

Please advise if negative taps have been installed on all marked poles west of St. Regis.

I notice that bridge warnings are not up at Bryson Tunnel. These should be replaced at once. Advise when this has been done.

There is a pile of material along the track at Stetson which looked like bracket arms and a similar pile at some other station between St. Regis and Avery. Please advise just what this material is and if it consists of bracket arms, please advise why they were left on the ground instead of being kept on the train and shipped to Deer Lodge, if not needed.

Yours truly,

REW-wls

Assistant Engineer.

Butte, Mont., Sept. 20, 1916.

Mr. E. H. Barrett,
Asst Gen'l Supt.,
Butte, Montana.

Dear Sir:

REH-wls Electrical Engineer.

cc--CAG

Butte, Mont., Sept. 20, 1916.

A. N. Crowder, Inspr.,
St, Regis, Mont.

Dear Sir:

I notice a transmission pole on cut-off east of Superior which appeared from the train to be dangerously close to the edge of the bank. Please look into this at your early convenience and let me know about it.

Yours truly,

REH-wls Assistant Engineer.

Butte, Mont., Sept. 20, 1916.

installed that it reached out over a traveled road on which Maudlin was driving a team, also that he was unaware of the fact that the guy existed.

This matter has been placed in the hands of Claim Agent Webb who in turn has called upon us for written statements from those engaged in electrification work and familiar with the facts as regards location of guy and its relation to the alleged road.

Please arrange, therefore to send me as soon as possible, signed statements in duplicate stating just what you know about this entire matter, as to the manner in which the guy was installed, whether or not it was provided with a standard guy guard, dimensions of guard, as to whether there was, at the time of the accident, a traveled road between the anchor rod and pole and under the guy and in fact cover all matters relative to the subject along the above lines.

If one of more of your men are familiar with details, have them make written signed statements in duplicate and forward them with yours. At the same time, please advise me on the side as to whether conditions at the point in question are now just as they existed at the time of the accident. Mr. Webb tells me that conditions have been changed, though I do not know to what he refers.

At the same time, please arrange to go on the ground with helpers necessary, and send me a sketch showing conditions just as they existed at the time of the accident, also as they exist now, making a plan and also an elevation to show relative location of track, pole, anchor rod, guy and so-called road, also our property line, and refer pole and guy in question to

#3

some known point on our right of way, for use in the suit. Please give this matter your earliest possible attention.

Butte, Mont., Sept. 20, 1916.

Mr. E. Sears,
Elec Master Mechanic,
Deer Lodge, Mont.

Dear Sir:

I am sending you today under separate cover five speed records recently received from Harlowton. One is OK; one from #10513 is unreadable; one has no note where record was put on; one contains two records and one has no note where it was put on and the record runs off the end of the spool.

Yours truly,

ABV-wls

Electrical Engineer.

Butte, Mont., Sept. 20, 1916.

Mr. R. W. Hinkle, Inspr.,
Drexel, Montana.

Dear Sir:

I am shipping you by todays baggage, a small camp stove with four lengths of pipe. This is billed to Roland in accordance with your letter of the 18th stating you expected to move to this place by Thursday. Kindly acknowledge receipt.

Yours truly,

FRN-wls

Assistant Engineer.

Butte, Mont., Sept. 20, 1916.

Mr. E. Sears,
Elec Master Mechanic,
Deer Lodge, Mont.

Dear Sir:

I am sending you today under separate cover three speed recorder spools. These are all incomplete in that the record runs off the end of the spool. Further, the records from "1010" and "10104 are hardly legible and that from "10 28 jammed in the machine and did not register for some time. It looks to me as though these recorders need a careful inspection.

Yours truly,

ABV-wls

Electrical Engineer.

cc--J. B. Co

Butte, Mont., Sept. 20, 1916.

Mr. J. H. McNabb,
Acting Statistician,
Chicago, Illinois.

Dear Sir:

In answer to yours of September 15th, the costs for power given in my Distribution of September 12th are the actual costs to the Company, including all losses, etc.

The manner of arriving at these costs is so complicated that I do not feel able to make you understand the matter fully by letter. Therefore I again advise that some responsible person in your office come to Butte for a conference on this matter.

Yours very truly,

APV-wls

Electrical Engineer.

Butte, Mont., Sept. 20, 1916.

Mr. H. W. Rusch,
Haugan, Mont.

Dear Sir:

We have today purchased from the Montana Electric Company at Butte, 30 Wall Brackets to support signal wires in snow shed near Drexel. These brackets have been shipped by baggage to W. C. Butler, Deer Lodge, and will be available for use when required. This for your information.

Yours truly,

LW-vls

Assistant Engineer.

Butte, Mont., Sept. 20, 1916.

Mr. J. S. Cox:

As you know, the motor meter situation is far from satisfactory. We understand a special man to fix these meters left the East some time ago. Will you please advise when he will arrive in Deer Lodge.

Yours truly,

ADV-vls

Electrical Engineer.

Butte, Mont., Sept. 20, 1916.

Mr. R. Beaumke,
Electrical Engineer,
Butte, Montana.

Dear Sir:

In connection with energizing overhead work to Tarkio and operation to Alberton, I wish to bring up the following points:

(1)--Postal Telegraph Wires: I have talked with Mr. Elston of the Mountain States Tel. & Tel. Company and he states that both his Company and the Postal Company will not agree to have transmission line energized with 100,000 volts where Postal wires attach to their poles, crossing over our transmission line. These wires are now up in temporary shape and are to be put underground by Mr. McEwen. I have wired Mr. McEwen as to when he can either put these wires underground, or arrange them temporarily to the satisfaction of the Companies concerned. These crossings are as follows:

One mile east of Huson,
One " west of "
One " east of Alberton
Three miles west of Alberton
Four " east of Cyr
Three miles west of Cyr.

(2)--C.M.& St.P. Telegraph and Telephone wires which are now resting on our messenger wire at various points: I understand Mr. McEwen now has a crew working on these wires and has received his cable for underground work. He wired today in answer to your message that it was OK to energize transmission line to Tarkio at any time, but did not cover the trolley wire. I am wiring him in regard to the latter.

(3)--Order boards and signal posts to be cleared for feeder: I saw Tyler and Allen at the depot this morning upon my arrival and gave them the facts in regard to getting these cleared up. Tyler stated he would proceed at once with this work. This has not been covered in writing.

(4)--General conditions of track between Deer Lodge and Alberton: In coming in this morning on Train No. 16, I noticed that we still have much bad surface in track. The rear car on No. 16 rolled badly from side to side and it is fair to assume that we will have bad pantograph performance [illegible] electric locomotives are [illegible] in to service at any time in the near future. There are a number of curves

working on track surfacing, but there is a large amount of work to be done as yet. I presume you will want to go on record in regard to this matter if anything definite developes with regard to operation to Alberton.

(5)--Negative connections at Substations: I have given Haigh instructions to take care of these connections at Primrose and Tarkio. This will have to be checked up and arrangements will have to be made for making such connections at Gold Creek and Ravenna by the substation men, as we cannot send Thompson's crew back over this work. Walker requested day before yesterday, after Thompson was in Missoula, that these connections be taken care of by Bonding Crew. He should be advised in regard to Ravenna and Gold Creek.

(6)--We were to cut in ohmic resistances on east side feeder at Ravenna substation on account of tunnel being nearer than one mile.

(7)--N. P. Bitter Root Bridge at Missoula should certainly be lowered before electric locomotives are run, and while Mr. Lanning states they will start to do this work at once, I presume this matter should be covered in writing with those concerned.

(8)--New type bridge warnings must be installed. Supr. Kelly informed me this morning these were being made now for use as far as Alberton.

(9)--Line cut-out switch in west end of Deer Lodge I believe is disconnected. This will have to be taken care of.

(10)-Walker reports that Yard feeder at Primrose substation should be cleared from substation entry frame before line is energized. It is possible that he is in error about this, but it should be looked into.

(11)-Passing track extension at Garrison is not completed and while Foreman Mickey was to have cleared all such temporarily hung trolley wires so they would not foul pantograph on main line, this passing track wire looks pretty close to me, and should be checked. I also noticed cable on the ground this morning. The latter point will of course be checked together with many others when electric locomotive is run over the line for final check before operation.

Yours truly,

Butte, Mont., Sept. 21, 1916.

Mr. G. F. Soule, Inspr.,
Morgan, Mont.

Dear Sir:

Acknowledging your report of the 20th on the status of Locke insulators, you may have Johnson proceed on the basis of using O.K. Large T-Strains in Avery West Yard, three and four track work, so as to have a surplus of Lockes left.

Yours truly,

REW-wls

Assistant Engineer.

Butte, Mont., Sept. 21, 1916.

Mr. J. J. Murphy, Supt.,
Three Forks, Mont.

Dear Sir:

On September 6th I wrote you explaining that on August 30th and 31st, and on September 1st and 2nd, we had very severe flash-overs in substations due to two motors, and I suggested a plan which would take these bad motors off the line. To date we have not received any reply from you. If you have had time to give this matter your consideration, will you please advise us of your decision.

Yours truly,

ABV-wls

Electrical Engineer.

Butte, Mont., Sept. 2[illegible], 1918.

Mr. G. F. Soule, Inspr.,
Haugan, Mont.

Dear Sir:

Following the lists recently given you covering replaced lines at [illegible], we find the following changes necessary. Please correct your list accordingly:

St. [illegible] - 00: Changed from 58-6 / 59-6 #12[illegible] to [illegible]-3, #[illegible] [illegible] Guys.

Sta. [illegible] - 00: Changed from 49-6 / 49-6 #1[illegible] to [illegible]-6, #33.

Yours truly,

REW-wls
cc--Foreman Snyder, East Portal.

Assistant Engineer.

Sept. 21, 1916.

Mr. M. R. Elstun,
Mountain States Tel. & Tel. Co.,
Helena, Montana.

Dear Sir:

I notice at a point just east of Montana Street crossing, Butte, that your trunk line is lead-ended on either side of our tracks, and that the line is held over our tracks with galvanized strand which looks to be about 3/8 inch diameter. This strand is fitted with rings and was probably originally your messenger cable.

I am bringing this to your attention, as the strand in question looks rather weak for holding this line under the conditions. Please advise.

Yours very truly,

REW-WLS

Electrical Engineer.

Butte, Mont., Sept. 21, 1916.

Mr. Frank L. Stearns,
East Portal Substation,
East Portal, Mont.

Dear Sir:

I am returning herewith your five negatives showing conditions in substation after D. C. Feeder switch trouble, from which we have obtained prints. Thanking you for your kindness in this matter, I remain,

Very truly yours,

RWW-123

Assistant Engineer.

Butte, Mont., Sept. 21, 1916.

Mr. H. W. Rusch,
Haugan, Mont.

Dear Sir:

Mr. Nicholas informs me that he left at St. Regis, certain parts for gas car which Foreman Snyder now has, and which was used by Mr. Nicholas, also some spark coil parts for a two-cylinder car which B. C. Mottern is using. Please arrange to get these parts and deliver them to Snyder and Mottern respectively, advising when done.

Yours truly,

RWW-mln

Assistant Engineer.

Butte, Mont., Sept. 21, 1916.

Mr. E. H. Barrett,
Asst Gen'l Supt.,
Butte, Montana.

Dear Sir:

Though I believe this matter has been taken up, I wish to bring to your attention the general condition of track between Deer Lodge and Albeaton, as regards surface and its effect upon operation of electric locomotives.

If we are called upon to put this portion of the line into service before track conditions are very much improved, we will probably have a large amount of pantograph trouble, and it is very desirable, in connection with giving information to Mr. Goodnow in regard to earliest possible date for starting electric service between the points mentioned, that we have if possible, a statement from you as to when the track will be in good condition.

Yours truly,

REW-wls

Electrical Engineer.

cc--F.E.W.

Butte, Mont., Sept. 21, 1916.

Mr. G. F. Soule, Inspr.,
Haugan, Montana.

Dear Sir:

Please advise just how the Yard feeder is connected in at Drexel substation. One of the substation men is under the impression that this feeder is connected directly into the substation bus.

While it is probable that he is mistaken and feeder is connected in according to our standards, that is, connected to the passing and industry track wires, and to the Yard Switch in the substation which is to be left open and that the passing track wire is connected to the main line wire at the East switch, advise actual facts.

Yours truly,

RET-wla

Assistant Engineer.

Butte, Mont., Sept. 21, 1910.

Mr. H. F. Tyler,
Gen'l Signal Foreman,
Three Forks, Mont.

Dear Sir:

Confirming conversation with Mr. Wade, I understand that you will proceed at once to clear up order-boards and signal posts which interfere with feeder or signal wires between Deer Lodge and Toronto, so that we will be in a position to energize the alley line between those points at any time in the very near future.

Yours truly,

REW-wls

Electrical Engineer.

Butte, Mont., Sept. 21, 1910.

Mr. J. T. Kelly, Stkr.,
Deer Lodge, Mont.

Dear Sir:

Referring to our recent order for bridge warning frames, for use between Deer Lodge and Silverton, I understand that you are not making this work. Please advise when you expect to have this work done, and also have them installed as soon as it is ready.

Yours truly,

[illegible]

[illegible]

Butte, Mont., Sept. 21, 1916.

Montana Power Company,
Attention Foreman Mickey,--Alberton
Kyle

Dear Sir:

In coming over the line several days since the passing track wire at Garrison looked as if it might foul the pantograph on main line wire. I refer to that portion of the wire which is over the section of track not yet connected in.

Please advise if you arranged this wire so as to provide the desired pantograph clearance. At the same time, there seems to be some copper cable on the ground at the west end of this passing track. Do you know what this is?

Yours truly,

RHW-WLS

Assistant Engineer.

cc--M.P.Co.--Butte

Sept. 21, 1916.

Mr. E. W. Adams, Sec'y,
Milwaukee, Wis.

Dear Sir:

Following my recent letter, I am sending you under separate cover thirteen prints of drawing ED-#844 showing transmission line crossing over N. P. Railway at a point about two miles east of Saltese, near their Mile Post #23, also thirteen prints of drawing ED-#842 showing transmission line crossing over their tracks at a point one mile west of Saltese and near their Mile Post #25. In addition I am sending one print each of ED-#841 and #843, showing proposed profile and types of construction for transmission line at these two crossings. The latter I am sending particularly for the information of their Superintendent of Telegraph, Mr. Clark, who I believe has passed on these crossings for his Company.

Will you please take up the question of making these two crossings, and advise as soon as possible as to whether we can proceed with the work, as we have several crews in this vicinity and are trying to rush the transmission line in this territory to completion. As explained before, these crossings are proposed on account of unreasonable demands for damages by property owners on our original location.

Yours truly,

RSW-wls

Electrical Engineer.

Sept. 21, 1918.

Mr. A. V. Brown, Gen'l Supt.,
Northern Pacific Railway,
Livingston, Montana.

Dear Sir:

Herewith please find blueprints of drawings PD-#841, #842, #843 and #844, covering two proposed crossings over your track on the Wallace Branch, at points one mile west of Saltese and two miles east of Saltese, or near your Mile Posts #25 and #23.

We have asked our Secretary, Mr. Adams, to make formal application to your Company for these crossings, but I am sending you the information in order to facilitate investigation.

Yours truly,

REW-WLS

Electrical Engineer.

3'--E.T.A.

Butte, Mont., Sept. 21, 1916.

Mr. F. E. Willard, Supt.,
Missoula, Mont.

Dear Sir:

I understand that work has been, or will be started within a few days, on lowering track under N. P. Bitter Root Bridge, Missoula. In connection with furnishing Mr. Goodnow information in regard to the earliest possible date for electric service through Missoula, will you please advise about when you expect to have this work done, and oblige.

Yours truly,

REW-wls

Electrical Engineer.

Butte, Mont., Sept. 21, 1916.

Mr. W. B. Potter,
Mr. A. H. Armstrong,
General Electric Co.,
Schenectady, N. Y.

Mr. J. B. Cox,
Mr. Coors,
C/o E. Seare,
Deer Lodge, Mont.

Dear Sir:

I am sending you today under separate cover prints EP-#843 and #846, giving data collected on electric locomotive heat run tests, which I am sure will interest you. This for your information.

Very truly,

AbV-ela

Electrical Engineer.

Butte, Mont., Sept. 21, 1916.

Montana Power Co.,
Attention R. Wende,
Deer Lodge, Mont.

Dear Sir:

Confirming conversation of several days since, as you know, we have had considerable trouble in the past on account of pantographs pushing up between main line trolley wire and passing track wire, and possibly also between passing track wire and industry track wire at overhead switches.

I believe there is no doubt but that some of this trouble is due to these wires not being tied together by pipe spacers made up of galvanized pipe of proper size and castings with ears. We have a number of these in stock at Deer Lodge, and they should be installed by Maintenance Crews at overhead switches as the occasion offers.

The number installed at an overhead switch will depend on the actual conditions, and the results obtained. The idea of the scheme is that if two wires are tied together by a pipe spacer, the wire which is not in contact with pantograph will resist the uplift of the other wire by pantograph, as it must be twisted by the connection made by pipe spacer.

Will you please arrange to have Maintenance Crews obtain a supply of these castings and pipe, and take care of this work in connection with their other duties.

Copy of this letter to Inspector Soule in connection with overhead trolley work now being built, with instructions that he have this detail taken care of on the work under his inspection.

Yours truly,

Electrical Engineer.

REW-mle

cc--G.F.

Sept. 21, 1916.

Mr. W. B. Potter,
General Electric Co.,
Schenectady, N. Y.

Dear Sir:

The fellows in the office here would like very much to obtain a copy of your bulletin "An Epoch in Railroading Electrification". If you can spare us a dozen or so copies of this, will you please send them to me and I will see that they are distributed.

Very truly yours,

AHV-wls

Butte, Mont., Sept. 22, 1916.

Mr. C. L. Whiting, Supt.,
Lewistown, Mont.

Dear Sir:

The papers in connection with proposed Street Railway crossing over Oster-Potter spur and Valeria Way track in Great Falls have been referred to me by Mr. Earling in connection with the proposed form of overhead construction where Street Railway wire will cross our trolley wires.

In looking over the papers I can see no mention made of this important detail, which involves crossing of 600 volt and 1500 volt trolley wires and if the same form of construction is adopted as is now used on Valeria Way where Street Railway tracks cross us, it looks as if the dead section in trolley wire over Oster-Potter Spur might possibly interfere with switching movements in placing cars on the spur.

You of course are familiar with the facts and I am only bringing this to your attention before replying to Mr. Earling.

At the same time, I wish to call your attention to bad conditions as regards Street Railway cars for coasting over two dead sections in our trolley wires, and theirs, when approaching the crossing from the East side, as there is quite a heavy curve in th Street Railway track, which extends nearly to our Valeria Way track.

If you have not already done so, you may want to take up these two points with the Street Railway people at Great Falls before replying. Please let me hear from you on this as soon as possible, so we can get the papers back to Mr. Earling.

Yours truly,

REW-wls

Electrical Engineer.

Sept. 22, 1916.

Mr. E. W. Adams, Sec'y,
Milwaukee, Wis.

Dear Sir:

Blueprints of drawing ED-#842 which is being sent you in connection with crossing of transmission line over Northern Pacific track supersedes drawing ED-#485 previously sent, as anchors shown on drawing #485 are not now required with present location of line. Probably you can adjust this matter in settling up with the N. P.

Yours truly,

REW-wls

Electrical Engineer.

Butte, Mont., Sept. 2[illegible], 1916.

Mr. A. J. Jennings,
Asst Purchasing Agt.,
Chicago, Illinois.

Dear Sir:

I have a telegram signed J. T. Crocker, dated September 21st, stating that solder on our Requisition #2371 was shipped on September 19th from Chicago. This requisition was dated August 28th and on account of solder not being received, and necessity for pushing bonding work in Bitter Root country, it was necessary for us to buy locally.

Will you please advise why order was held up and oblige.

Yours truly,

RTW-wlc

Electrical Engineer.

Sept. 22, 1916.

Mr. F. M. Kerr, Gen'l Mgr.,
Montana Power Company,
Butte, Montana.

Dear Sir:

The application of the Montana Power Company for crossing Oster-Potter Spur and Valeria Way tracks of this Company in Great Falls, by the Street Railway has been referred to me by Mr. Earling, in connection with proposed form of crossing by the Street Railway with our 1500 volt trolley wire.

In order that I may pass upon this matter and return the papers to Mr. Earling as soon as possible, will you please have me furnished with statement and sketch showing just what form of overhead construction is proposed at these two crossings. You will probably recall that where the Street Railway crosses Valeria way track at two other points, that section insulators are installed in trolley wires, and there is a dead section at the crossing which is coasted by both Street Railway cars and locomotive.

Yours very truly,

REW-wls

Electrical Engineer.

Sept. 23, 1916.

Mr. H. B. Earling,
Vice-President,
Seattle, Wash.

Dear Sir:

Mr. E. L. VanDresar of the Rail Joint Company, has written me under date of September 20th, with copy to you, asking me to inform him as to whether the proposed continuous joint submitted by his Company is satisfactory as regards space provided for concealing our rail bonds, and if there are furthere changes which should be made.

I am not replying to Mr. VanDresar except to inform him that I have referred his questions to you, as I assume you prefer to handle this entire matter, inasmuch as you submitted it to me for a report.

You no doubt understand that the joint as proposed provided plenty of space for our 250,000 C.M. Concealed Bonds, and that we are now simply proceeding to investigate as to what is the most economical length of bond to be used. Unless I hear from you to the contrary I assume that you will take care of Mr. VanDresar's letter of September 20th.

Yours very truly,

REW-wls

Electrical Engineer.

Sept. 22, 1916.

Mr. E. L. VanDresar,
Merchants Bank Building,
St. Paul, Minn.

Dear Sir:

Referring to your letter of September 20th, copy of which you sent to Mr. Earling, in regard to suitability of your proposed Continuous Rail Joint in connection with this Company's rail bonding, I have submitted this matter to Mr. Earling, to whom I have made a report on the subject, as I have no authority to discuss this matter, and assume that Mr. Earling prefers to handle it as representing this Company.

Yours very truly,

REW-wls

Electrical Engineer.

Sept. 22, 1916.

Mr. M. R. Elstun,
Mountain States Tel.& Tel.Co.,
Helena, Montana.

Dear Sir:

Acknowledging your letter of the 21st in regard to energizing our trolley and transmission line as far west as Tarkio, Mr. McEwen of our Telegraph Department, has been here since receiving your letter on the subject of Postal wires and is now working West, taking care of his own work and Postal work at the same time, and should occasion demand quick action, he will arrange to take care of the Postal wires in a way satisfactory to the Postal Company and yourselves, until such time as underground work can be installed. It may be possible that all these wires will be underground before we energize. We are, however, getting ready for energizing as far as possible.

Yours very truly,

REW-WLS

Electrical Engineer.

Butte, Mont., Sept. 22, 1916.

Mr. M. C. Butler, Stkr.,
Deer Lodge, Mont.

Dear Sir:

Operating Department, Missoula Division, have billed us as follows for switching for our account at Deer Lodge:

May 31st.....	$ 33.33
June 1st to 7th, inclusive.... An Average of $29.25 per day.	204.75
June 8th to 27th, inclusive... An Average of $27.94 per day.	558.93

Please advise at once if these charges are correct as far as you know.

Yours truly,

REW-wls

Assistant Engineer.

Sept. 8, 1916.

Montana Power Co.,
Butte, Mont.

Dear Sirs:

Attached herewith find Missoula Division Departmental Bill E-#132, dated August 28th, covering labor and material furnished our Department during the month of June, 1916.

Will you please go over this bill as soon as possible, check all items as far as you can, and return, so that we can put it forward without delay, and oblige.

Yours truly,

RTT-wls

Published Engineer.

Butte, Mont., Sept. 22, 1916.

Mr. G. F. Soule, Insp.,
Haugan, Mont.

Dear Sir:

We have Missoula Division Bill E-#132 for the month of June. Please advise what you know in regard to the following items:

Changing Angle Bars Haugan, 100 hrs Section Crew.....	$ 30.92
Repairing Track Falcon on a/c elec gang blasting, 44 hrs Section Crew.....	3.75
Repairing and Throwing Spur Track at Avery, 135 hrs Section Crew.....	37.46
Constructing Spur at Roland,.....	152.98
Shifting Spur at St. Regis.....	5.45
Constructing Spur at East Portal..	13.29
Constructing Spur at Falcon.....	106.09
Remove Spur at Frenchtown.....	31.63
Constructing Spur at Superior.....	106.18

Please advise at once regarding the above items as we are holding bill for checking on the part of all concerned.

Yours truly,

RFW-wls

Assistant Engineer.

Sept. 20, 1916.

The Montana Power Co.,
Butte, Mont.

Dear Sirs: Attention: Mr. Stuney

We have recently had a letter from Mr. Cochrane, saying that in the event of the Power Company's current transformers becoming over-loaded, the Power Company desired to put the power tap relay on the bushing type transformer, using an induction type relay.

If you contemplate any change in the metering or relay protection of the Power Company's lines, we should like to discuss the matter with you before any positive action is taken.

Yours truly,

ABV-vls

Electrical Engineer.

Sept. 22, 1916.

The Montana Power Co.,
Butte, Montana.

Dear Sirs: Attention: Mr. Stuesey

We have recently had a letter from Mr. Cochrane, saying that in the event the Power Company's current transformers become over-loaded, the Power Company desired to power tap relay on the bushing type transformer, using an induction type relay.

If you contemplate any change in the metering or relay protection of the Power Company's lines we should like to discuss the matter with you before decisive action is taken.

Yours truly,

ABV-wls

Electrical Engineer.

Butte, Mont., Sept. 23, 1916.

Mr. J. B. Cox,
c/o E. Sears,
Deer Lodge, Mont.

Dear Sir:

I am sending you today under separate cover today four speed recorder rolls which may have come from Motor #5107, that is #10105. The date of leaving Erie is correct for this motor. The record is continuous and in the same hand writing. Rolls #1 and #3 reached us tied together, the other two separate.

We have a large number of these rolls which have no motor number, date or other mark on them. They are all marked with the stations.

It is possible that the record device is amont these, or that we never received it. I am sorry that we can give you nothing more definite.

Yours truly,

ABV-wls

Electrical Engineer.

Sept. 23, 1916.

Mr. Jas. M. Stickler,
Bond & Insulator Division,
Ohio Brass Company,
Mansfield, Ohio.

Dear Sir:

Referring to your letter of the 19th, I am attaching hereto copy of my letter addressed to you and dated September 13th, which letter you say failed to reach you.

Very truly yours,

Electrical Engineer.

E
WLS-s

Butte, Mont., Sept. 23, 1916.

Montana Power Company,
Butte, Mont.

Dear Sirs:

Referring to No. 4 signal wire for installation between St. Regis and Haugan, we have advice from the Purchasing Agent dated the 22nd to the effect that the Manufacturers did not meet their promise on shipment and that it is now being loaded.

This means several weeks before we receive the wire, and we will, therefore, have to give up any plan in connection with its installation before that time.

Yours truly,

REV-wls

Electrical Engineer.

cc--G F S

Sept. 23, 1916.

Mr. C. A. Lemmon, Chief Engr.,
Butte, Anaconda & Pacific Ry.,
Anaconda, Montana.

Dear Sir:

Enclosed herewith please find blueprint of our drawing ED-#339 showing proposed attachments to proposed signal bridge over all tracks at the East end of our Alloy Yard.

If you approve of the method of attaching your wires to this bridge as shown in the upper right-hand corner, will you please sign in the space provided and return the print to me.

Yours very truly,

REW-WLS

Electrical Engineer.

Butte, Mont., Sept. 23, 1916.

Mr. R. F. Tyler,
Gen'l Signal Foreman,
Three Forks, Mont.

Dear Sir:

Acknowledging yours of the 22nd stating you now have a crew on the way to Garrison to make changes in connection with the crossing bell at that point, and that they will work west clearing up other signal apparatus which interferes with Electrification, and that you expect to have this cleaned up in Three weeks to Tarkio, we are unable to say just when this line will be energized, but under the conditions it would seem best to work west clearing up everything as the gang proceeds, and if we get rush orders in regard to energizing we will have to adopt special means to take care of the situation.

Yours truly,

RET-wls

Electrical Engineer.

Butte, Mont., Sept. [illegible], 1916.

Mr. C. F. Soule, Insp'r.,
Haugan, Mont.

Dear Sir:

I am [illegible] to [illegible] - ing to examination line [illegible] location in the vicinity of S[illegible] together with a revised print of MB-"[illegible] showing location of [illegible] line. Please acknowledge receipt.

Yours truly,

REW-vls

Assistant Engineer.

Butte, Mont., Sept. [illegible], 1916.

Mr. F. W. [illegible], Sec'y,
Milwaukee, Wis.

Dear Sir:

I am sending you herewith a revised print of MB-"[illegible] which shows the location of the transmission line in the vicinity of S[illegible]. With your permission I think this line on the railroad location [illegible] advisable.

Yours truly,

LT-[illegible]

Electrical Engineer.

Butte, Mont., Sept. 23, 1910.

Mr. L. B. Frazer,
Deer Lodge, Mont.

Dear Sir:

Find in Accident Report on injury to your hand [illegible].

Yours truly,

RFT-wle

Electrical Engineer.

Butte, Mont., Sept. 25, 1916.

Mr. A. J. Frohn, Stkr.,
Tacoma, Wash.

Dear Sir:

On September 14th I wrote District Baggage Agent, C. S. Cooper at Spokane, in regard to certain items of material and tools which have been lost in transit. Items were consigned to Construction Camps engaged in Electrification work between Superior and Avery.

Copy of this letter was sent you with request that you have a search made and advise if you could locate any of the items in your storehouse, or in the baggage room at Tacoma. If not already done, will you please have this investigation made and advise as soon as possible as to the results, and oblige.

Yours truly,

REE-wls

Electrical Engineer.

Butte, Mont., Sept. 23, 1916.

Mr. H. W. Rusch,
Haugan, Mont.

Dear Sir:

Referring to four items of material and tools which you reported in as being lost after being shipped to Camps, I understand from Tylie that you are to try to get dates covering these shipments from the various camps.

While I think it is improbable that you will succeed, let me have a report on this matter as soon as possible, as otherwise we are in a very bad position as regards taking it up with the Baggage Department.

Yours truly,

RCT-ms

Assistant Engineer.

Butte, Mont., Sept. 25, 1916.

Mr. G. F. Soule, Inspr.,
Haugan, Mont.

Dear Sir:

Mr. Kenneth Ellis has made application for transportation for himself and wife from Avery to Seattle and return, good until October 30th. He also asks for transportation for himself from Avery to Emerald Creek and return, good until sometime in November.

If you approve Mr. Ellis' applications for transportation for himself, please have him fill out the attached forms and forward them to this office promptly, with your approval thereon.

If you have not already instructed Mr. Ellis in this regard, please do so, and at the same time see to it that all men under your direction are similarly instructed, as otherwise such applications will be delayed.

With regard to transportation for Mrs. Ellis as mentioned in Mr. Ellis' letter, we will of course furnish this without question, and if they are to make the trip together you may give him instructions as to making one request answer for both himself and wife.

Yours truly,

RFT-wls

Assistant Engineer.

Butte, Mont., Sept. 26, 1916.

Mr. G. F. Soule, Insp.,

Haugan, Montana.

Dear Sir:

Butler reports having orders for large number of pole guy hooks which he cannot fill. We have given him instructions to issue 1/"" galvanized lags instead of pole guy hooks. Please see to it that all shops concerned act upon this plan.

Yours truly,

REW-sls

Assistant Engineer.

cc--H.T.R.

Sept. 25, 1916.

Mr. H. L. Shepard,
Missoula, Mont.

Dear Sir:

Referring to your letter of the 9th inst. relative to account of Mr. Kenneth Ellis, I am enclosing herewith my letter of September 18th to Mr. Ellis and his reply of the 24th with reference to this matter, and I trust that the arrangements as outlined by Mr. Ellis will be satisfactory to you.

Very truly yours,

RR-VLS

District Engineer.

Sept. [illegible], 1916.

Mr. F. B. [illegible],
General Electric Co.,
[illegible], N. Y.

Dear Sir:

Referring to your letters of September 15th and 21st in connection with arrangement of wiring for blower starting equipment, Mr. [illegible] has written you a number of times in connection with this matter, and we still have no wiring diagrams on hand. As a consequence, in order to avoid delay, we have wired up one of the sub-stations to suit our own ideas, and will, in order to avoid causing further delay, proceed on the same basis with the other stations. This does not, however, apply to the mounting of the thermostat coil, none of which have been received, and in connection with the dry heaters [illegible] which we have no information.

It would seem that there must be something radically wrong in connection with getting out the drawings for this work, if they cannot be furnished us until long after the machinery to which they apply is on the ground.

The Company is extremely anxious to get the line in operation between Deer Lodge and Alberton as promptly as possible, and the only thing which has delayed this is the situation with respect to the delivery of substation apparatus and material. The stations must be ready for operation before November 1st, and to accomplish this it will be necessary for you to see that any shortages which we have written you about, either as to shipment or tracing of shipment, are immediately taken care of.

Yours truly,

Electrical Engineer.

RB-WLS

cc--V[illegible]

Sept. 25, 1916.

Mr. E. S. Johnson,
General Electric Co.,
Schenectady, N. Y.

Dear Sir:

Referring to your letters of September 19th and 21st in connection with arrangement of wiring for blower starting equipment, my office has written you a number of times in connection with this matter, and we still have no wiring diagram on hand. As a consequence, in order to avoid delay, we have fixed up one of the sets according to our own ideas, and will, in order to avoid risking further delay, proceed on the same basis with the other stations. This does not, however, apply to the mounting of the thermostat coil, none of which have been received, and in connection with the application of which we have no information.

It would seem that there must be something quite wrong in connection with getting out the drawings for this work, if they cannot be furnished us until long after the machinery to which they apply is on the ground.

The Company is extremely anxious to get the line in operation between Deer Lodge and Alberton as promptly as possible, and the only thing which is delaying this is the situation with respect to the delivery of substation apparatus and material. The stations must be ready for operation before November 1st, and to accomplish this it will be necessary for you to see that any shortages which we have written you about, either as to shipment or tracing of shipment, are immediately taken care of.

Yours truly,

RB-FLS

Electrical Engineer.

cc—T. F. [illegible]

Sept. 25, 1918.

Mr. E. M. Johnson,
General Electric Co.,
Schenectady, N. Y.

Dear Sir:

Referring to your letters of September 18th and 21st in connection with arrangement of wiring for blower starting equipment, my office has written you a number of times in connection with this matter, and we still have no wiring diagram on hand. As a consequence, in order to avoid delay, we have wired up one of the sets according to our own ideas, and will, in order to avoid risking further delay, proceed on the same basis with the other stations. This does not, however, apply to the mounting of the thermostat coil, none of which have been received and in connection with the installation of which we have no information.

It would seem that there must be something quite wrong in connection with getting out the drawings for this work, if they cannot be furnished us until long after the machinery to which they apply is on the ground.

The Company is extremely anxious to get the line in operation between Deer Lodge and Alberton as promptly as possible, and the only thing this is the situation with respect to the delivery of substation apparatus and material. The stations must be ready for operation before November 1st, and to accomplish this it will be necessary for you to see that any shortages which we have written you about are immediately taken care of, either as to shipment or tracing of shipment.

Yours truly,

RB-WLS
cc--VAV-FU-HWW

Electrical Engineer.

Butte, Mont., Sept. 26, 1916.

Mr. [illegible] Seare,
Elec Master Mechanic,
Deer Lodge, Mont.

Dear Sir:

I understand that the man to fix locomotive [illegible] [illegible] last [illegible] and is presently begin work. Will you [illegible] [illegible] locomotive pilot [illegible] or [illegible] [illegible] found,

[illegible]

[illegible] Engineer.

[illegible] Cox

Butte, Mont., Sept. 25, 1916.

Mr. E. Seare,
Elec Master Mechanic,
Deer Lodge, Mont.

Dear Sir:

It was noted yesterday that #10207 is running with a damaged pantograph. The whole frame is bent forward, the result being that it will not close to within two feet of the proper position, and the pans will not properly ride the wire. This for your information.

Yours truly,

ASV-cls

Electrical Engineer.

Butte, Mont., Oct. 27, 1916.

C. T. Travis,
Chief Operator,
Janney Substation.

Mr. F. A. Domke,
Chief Operator,
Morel Substation.

Dear Sirs:

[illegible] from your [illegible] if necessary, [illegible] other [illegible] the [illegible]

[illegible]

Electrical Engineer.

ATV-[illegible]

Sept. 26, 1916.

Mr. P. M. Halloran,
Butte, Anaconda & Pacific Ry.,
Anaconda, Montana.

Dear Sir:

Referring to your favor of the 20th inst. with further reference to bill for power used by our trains between Colorado Junction and Butte, we acknowledge receipt of bills for months of July and August, amount $234.10, and these bills have been passed for payment.

With regard to the manner of rendering such bills in the future, inasmuch as it will only be a comparatively short time until we will be running to our new passenger station, we would, if consistent with your methods for handling such matters, prefer to have the bills for this power come to this office until final adjustment is made.

Very truly yours,

RB-TLS

Electrical Engineer.

Sept. 26, 1916.

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

I have not before answered your note of September 1st on my letter of August 28th, as I first wished to have completed the prints which we recently sent you and which gave all test data in connection with locomotive heat runs which we recently made.

My idea of having the dynamometer car here was so that we could repeat these tests at some convenient time and add thereto the very important information which the dynamometer car would give us. I thought if the dynamometer car was out in this vicinity at any time in the near future, it would be a simple and inexpensive matter to repeat the tests and the dynamometer car would give us figures which would check up the efficiency of the locomotive; that is, the draw-bar pull and give us data which would be of value in case it was ever desired to make further calculations.

Yours truly,

RB-ZLS

Electrical Engineer.

Butte, Mont., Sept. 26, 1916.

Mr. E. A. Patterson,
Supt. Telegraph,
Milwaukee, Wis.

Dear Sir:

I am returning herewith license, in duplicate, favor the Mountain States Tel. & Tel. Company, permitting that Company to maintain an iron conduit for the protection of telegraph and telephone wires under our tracks and across our right of way at Rocker, Montana, which license has been approved and initialed as requested.

Yours truly,

RB-wls

Electrical Engineer.

Sept. 26, 1916.

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

The attached requisition RB-#2402 covers an Acetylene Light which, after considerable investigation we have determined upon as being the most suitable for needs of our trolley and transmission maintenance crews.

This light is one described in the attached letter by the Preat-O-Lite Company, dated September 8th, and you will note that they are willing to furnish one light on thirty days trial. I presume they will be willing to furnish two lights on the same basis, and if you approve, will you kindly put the requisition through.

Also will you please note that this light uses Preat-O-Lite tanks which can be gotten here in Butte, the used tank being turned in and a new one issued in its place at a cost of $1.00, this whole exchange of tanks being covered by an agreement as attached to the letter of September 8th.

I would like your advice as to who you think should sign the above named agreement.

Yours truly,

RB-"LS

Electrical Engineer.

c:--H " Co

Butte, Mont., Sept. 26, 1916.

Mr. E. Sears,
Elec Master Mechanic,
Deer Lodge, Mont.

Dear Sir:

Referring to your letter of September 8th which came while I was away from the office, the following changes were supposed to have been made in the pantograph:

1 - Quick Acting Valve on each pan which would give time of dropping of about 1½ to 2 seconds.

Also it was proposed to enlarge the exhaust port and to lower the pressure in order to obtain quicker exhaust.

Kindly let me know if these changes have been made on any locomotives, and how they have worked out.

Yours truly,

KB-WLS

Electrical Engineer.

Sept. 26, 1916.

Mr. H. B. Earling,
Vice-President,
Seattle, Wash.

Dear Sir:

Referring to your note of August 30th with regard to supplying lighting to Mr. Grice's building, our power contract provides as follows:

That the Railway Company "will not, during the life of this contract, use or apply the said electric power or current to any use or purpose other than in connection with the operation of its said line of railway, shops, stations, coaling stations, icehouses and other railway uses, either power or lighting."

My understanding of the situation is that the lighting of Mr. Grice's building would not be Railway use, and that therefore the contract would not allow us to supply such lighting. We have made provision for lighting of the substation building, bungalows and in addition, the station building itself, as covered by recent correspondence.

Yours very truly,

RB-WLS

Electrical Engineer.

[illegible] 30, 1910.

Mr. [illegible],
General Electric Co.,
[illegible], N. Y.

Dear Sir:

[illegible]

[illegible]

[illegible]

Very [illegible],

RS-TIS

Electrical [illegible]

cc--FU
VAT
FBW

Sept. 26, 1916.

Mr. H. B. Earling,
Vice-President,
Seattle, Wash.

Dear Sir:

Referring to your note of August 30th with regard to supplying lighting to Mr. Grice's building, our power contract provides as follows:

That the Railway Company "will not, during the life of this contract, use or apply the said electric power or current to any use or purpose other than in connection with the operation of its said line of railway, shops, stations, selling stations, ice houses and other railway buildings, without power or lighting."

My understanding of the situation is that the lighting of Mr. Grice's building would not be railway use, and that therefore the contract could not allow us to supply such lightning. We have made provision for lighting of the substation building, bungalows and station building itself, as covered by recent correspondence.

Yours very truly,

RB-ELS

Electrical Engineer.

[illegible], Mont., September [illegible], 1916.

Mr. C. J. Dunning,
General Auditor,
Chicago, Illinois.

Dear Sir:

In [illegible] September 16th, the [illegible] clear to me. You [illegible] is not practicable, we will [illegible] extension to electrification [illegible] be [illegible] that the work is [illegible] in connection with their electrification.

Of course it [illegible] charge to the A.T.&T. covering the extensions, but the point is that the [illegible] timated by my [illegible] the [illegible] the [illegible] would [illegible] In other [illegible] present, [illegible] be also- [illegible] bill [illegible] the [illegible] extensions [illegible] I.C.C. [illegible]

Very truly yours,

RB-WLP

Electrical Engineer.

Sept. 26, 1916.

Great Falls Power Co.,
Butte, Mont.

Dear Sirs: Attention:---Mr. F. W. Bird

Acknowledging your letter of September 23rd with which you enclosed various blueprints showing proposed crossing of your transmission line over our right of way between Harlowton and Lewistown:

I note that these prints do not give any information as to type of construction proposed at these crossings. Without this information we are not in a position to pass on them. If you will give us a statement as to just what type of construction you propose at each crossing, including height of your lowest wire over our track rail and telegraph wires, at the same time stating just what your lowest wire is, whether it is power transmission conductor or telephone wire, we can then pass on the crossings as far as this office is concerned, putting them forward for approval by other Departments. Otherwise the prints will have to go forward and come back to us again.

For instance, on your drawing T2881-A, Sheet #4 of #10, showing the crossing over wye tracks at Lewistown, you show 50 ft. pole at stations 2918 - 19, 2913 - 07 and 2916 - 11. This is a single pole that does not comply with our crossing requirements. Furthermore, the print gives no information as to the clearance referred to above.

Upon receipt of information asked for for each of the blueprints involved, we will put them forward promptly, if proposed conditions agree with our standards.

Yours truly,

REF-wls

Electrical Engineer.

Sept. 26, 1916.

Mr. Paul Lebenbaum, Elec. Engr.,
Southern Pacific Company,
#40 Union Station,
Portland, Oregon.

Dear Sir:

Following your request of September 22nd, I enclose herewith copy of our specifications for strain insulator units as used on our 100,000 volt transmission line.

Yours very truly,

Electrical Engineer.

REK-TLS
Encl.

Mr. P. N. Heigh, Engr.,
St. Regis, Mont.

Dear Sir:

I understand from your note of the 23rd that Foreman Thompson, before I sent my telegram to you, had bonded three of the passing tracks at Alberton throughout, and that the remaining passing tracks were bonded only as far as the trolley wire was clipped. Please advise if I am right in my understanding.

Be very careful in the future to avoid unnecessary bonding in rail tracks as are not to be clipped or wired. This condition will have to be looked out for at Haugan and Avery particularly, though I believe the bonding work has already been completed at Haugan.

In your next report St. Regis, I will call attention to the spur track which leads to the A. C. M. Sawmill from St. Regis, and that supplementary negative is strung on poles and there are supposed to be taps from this negative down to the track at intervals. These taps should be clipped to bonds with crosby clips. I believe this matter was taken up with Inspector Scull, to whom you had best refer.

At the same time I wish to call your attention to curves between St. Regis and Haugan which have rail distributed for replacement. This matter was taken up by Mr. Scull with Roadmaster Grimes, and Mr. Grimes' idea was that if we reached the curves in question before replacement was made, we should bond them. We do not, however, care to expend the large amount of money involved until we have received further advice from Capt. Willard. I am writing him today and will wire you at St. Regis as to results.

Yours truly,

REW-ele

Assistant Engineer.

cc--G F S

Mr. F. N. Webster,
c/o Florence Hotel,
Missoula, Mont.

Dear Sir:

B. C. Mattern who is inspecting timber cutting around Butte, advises he has arranged with Mr. Tailor to proceed with clearing over his land, and that the other part-owner of the Spencer Claim has appeared on the work and made settlement for his part of the damages.

This for your information so that you can clear up this matter of my settlement at Butte when you reach that point.

Very truly,

RFP-ele

Assistant Engineer.

cc-- F. N. Webster,
Butte--Office

[illegible] Company,
Butte, Montana.

Dear Sirs:

Bonding Inspector Haigh advises that 5/8" galvanized strand shipped to Missoula for Foreman Thompson to install alon spur tracks at that point for supplementary negative arrived in Missoula on the night of the 16th, that someone in Missoula instructed the Freight Conductor to carry it through to Alberton, and that upon its arrival at Alberton Mr. Blakesly had it sent to Superior, where it is now supposed to be.

We will of course have to arrange some time to install this strand for protection of track men on these spur tracks at Missoula, and if the work is not to be done for some time, strand should be shipped back to our Butte Lodge storehouse for safe keeping. Please advise your plans in regard to this part of this work.

Very truly yours,

RET-wls

Electrical Engineer.

cc--P W Haigh
H T Rusch

Dear Sir:

I have recently been making some figures on costs and have found several points in the figures on enginemen' nd trainmens' wages which you supplied that I cannot understand.

					July Distribution
Steam Passenger		Enginemen,	June '16.....		$ 1188.54
"	"	Trainmen	"	".....	452.49
Electric "		Enginemen	"	".....	2811.58
"	"	Trainmen	"	".....	2591.49

The above shows that about one-third the wages paid enginemen were for steam service. This is as I should expect. However, only about one-sixth of the wages paid trainmen were for steam service. In this connection there is probably something I do not understand, such as a different rate of pay, etc. Please advise.

I note that the total wages paid freight trainmen during June, July and August, is different on the two reports. It is probable that one report contains more items than the other. Will you please advise me on this point.

I also note the total wages paid passenger and freight enginemen in July is different on the two reports. Please advise. Also will you please send me a copy of your final 4708 Report for July and August, 1915.

Yours truly,

ABV-mis

Electrical Engineer.

Mr. F. S. Johnson,
General Electric Co.,
Schenectady, N. Y.

Dear Sir:

In compliance with your request of September 1st, I am enclosing four copies of ED-#835 showing construction details for our transmission and distribution system Deer Lodge to Avery. There has been no revisions made in the diagram for this construction Hurlowton to Deer Lodge, prints of which I believe are now in your possession.

Very truly yours,

RFW-wls

Electrical Engineer.

Montana Power Co.,
Butte, Mont.

Dear Sirs:

Referring to negative connections to track rails at substations, Foreman Thompson has made these connections at Primrose substation, but they are yet to be made at Cold Creek, Ravenna and Turkio before we energize to Turkio, Foreman Thompson being unable to take care of Turkio on account of being moved from Alberton to St. Regis.

I presume you can arrange to have these connections made by Substation Crews. Please advise if you will so arrange.

Yours truly,

REW-wls

Electrical Engineer.

cc--F.B.W.

Mr. F. C. Dow,
Trainmaster,
Missoula, Mont.

Dear Sir:

On Departmental Bill E-7132, Missoula Division, for labor and material furnished us during the month of June, 1916, we are charged for switching at Deer Lodge as follows:-

May 31st.....	$ 33.33
June 1st to 7th, incl.....	304.75
June 8th to 27th, incl.....	558.93

You will see from this that we have been billed for a full days switching crew the entire month, whereas we could not possibly have made use of this crew for the entire time involved.

Will you please look into this matter and advise what should be the proper charge for our switching during the time covered.

Yours truly,

REW-wls

Electrical Engineer.

Mr. G. J. Bunting,
General Auditor,
Chicago, Ill.

Dear Sir:

Referring to your letter of September 20th regarding costs of current used by individual trains, if I had thought the matter which you wished to take up with us was of this nature, I would not have had Mr. Cooper confer with you regarding it. While he is acquainted with the accounting questions involved, he is not aware of the technical reasons which prevent giving the information requested, as we have previously advised.

On May 18th we sent Mr. McNair a copy of our letter of December 23, 1917, to Mr. Hardy, which letter goes into the matter in some detail, but was evidently not sufficiently clear. In fact, I think it will be very difficult for anyone to understand the questions involved unless he comes in contact with the actual data, and I wish it were possible to bring this about. I advised Mr. McNair of this view when he was here, but inasmuch as we have not yet received an answer to our letter of December 23, we do not know what the decision will be made.

We now have the Rocky Mountain Division operating electrically. The electric power is furnished by the Montana Power Company over their transmission lines at 100,000 volts, and is received by us at five of our seven substations. At these five substations meters are inserted which keep account of the total power supplied to us.

Part of this power is used in the particular substations at which it is received, and the rest is transmitted along the Railway Company's 100,000 volt transmission line to the other substations. This power is in the form of alternating current, and before it can be used for the propulsion of trains must first be changed to a lower voltage by means of apparatus called transformers, located in the substations, and then further changed from alternating current to direct current by other apparatus called motor-generators also located in the substations.

The power thus changed is, at the substations, turned into the trolley and feed wires, which of course run over the tracks. The power is taken off of the trolley wires by the locomotives as they move along.

power from the trolley line, instead of taking power from it. This "regenerated power" may either flow along the trolley line to another train which is going up hill, or may flow back through the substations into the Railway Company's transmission line and thence into the other substations, or it may flow back into the Power Company's system, all depending on conditions explained below:

On the locomotives there are in fact wattmeters. These wattmeters [illegible] the total amount of power taken by the locomotive from the trolley line, but give no idea of the portion of power supplied by the Power Company to the system and chargeable to the locomotive in question. The power, before it reaches the locomotive, suffers losses in passing through the Railway Company's transmission line, through the transformers, the motor generators and the trolley line. The total amount of losses which may occur is known, and these average about twenty-five [illegible] of the total power, but the portion which [illegible] is not known and will vary on account of [illegible] the individual train [illegible]. These conditions are, for a number of trains [illegible], and the amount varying [illegible] and [illegible] with respect to [illegible] of other trains, [illegible] in the [illegible] being supplied at any instant [illegible] Company's plant or load, and other circumstances.

It is true that [illegible], get at the efficiency of the system for [illegible] period by comparing at the end of it the total power [illegible] to the locomotives with the total power supplied by the Power Company, but this efficiency figure [illegible] only for any particular train, but simply for all the trains or tonnage as a whole.

Of course it would be possible to read for each train, the locomotive wattmeter and then divide the power consumed by a figure which represented the average efficiency of the system, thus arriving at a figure which if added up for all the trains for the month, would give a sum approximately equal to the cost of power as billed us by the Power Company, but the figures as explained above would not exactly check and would not really represent the power attributable to any given train. The locomotive wattmeters were installed primarily for the purpose of enabling us to have a check on the way the different

be determined.

As explained in my letter to Mr. Murphy, above referred to, after the first year it will be even less practicable to daily charge a given K.W.H. against any individual train, as the K.W.H. for which we will be billed at the end of the month will be influenced, not only by the actual power registered by the integrating wattmeters in the substations, but by the maximum amount of power at any instant which we have contracted to use. You are probably familiar with this feature of our power contract.

I might say that it is not practicable to accurately separate even between passenger, freight and helper service, as we have been doing, because a passenger train gets over the line in a shorter average time than a freight train, and operates under other conditions which result in the situation that for every K.W. [illegible] train is not the same [illegible] that there is [illegible] trains. [illegible] exist with [illegible] helper service, but it is my understanding [illegible] different classes [illegible] be [illegible] fairly measured, for [illegible] sub-station, the only basis that appears [illegible] equitable.

Very truly,

RB-WLS

Electrical Engineer.

cc--C.A.G.

Mr. G. F. Soule, Inspr.,
Haugan, Mont.

Dear Sir:

Referring to the question of pull-offs, we are arranging to have some made at Bear Lodge, and have wired the C. E. and O. B. Companies as to what they have in stock. If we are able to get pull-offs from their stock and get them here by express, we will take certain quantities from them.

In the meantime we wish, as far as possible, to hold the wye tracks at St. Regis and Haugan, the A. C. M. Mill Spur and curved trackle as far as possible for the make shift pull-offs to be gotten out at Bear Lodge.

This in order to keep these special pull-offs out of sight as far as possible. Please see trolley crews involved and so arrange. I will advise you more fully as soon as we get information from the two manufacturers.

Yours truly,

RFW-wls

Assistant Engineer.

cc--W.T.R.

Mr. F. C. Dow,
Trainmaster,
Missoula, Mont.

Dear Sir:

Acknowledging yours of the 23rd in regard to Work Train delays for the week preceding, while this average lost time looks good, this is not a true indication of just what we are getting, inasmuch as the maximum lost time may be imposed upon the work train most needing time on the road.

In this connection I note that Foreman Fulp, I think beginning with the 21st, and up to and including the 28th, has been losing about the same amount of time that he did before the general improvement was made. What say you?

Yours truly,

REW-wls

Electrical Engineer.

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

Following my telegram of the 26th inst., in regard to status of work between Deer Lodge and Alberton, I did not refer to track conditions as referred to in the attached copy of my letter to Mr. Barrett under date of September 21st:

A portion of the track is being ballasted and a certain portion is in its original condition. No doubt some of the track will not be ballasted this year.

Yours truly,

RMW-wls

Electrical Engineer.

Mr. H. F. Rusch,
Material Checker,
Haugan, Mont.

Dear Sir:

As you know, we have completed all tunnel work with the exception of St. Paul Pass tunnel as regards installation of suspensions for feeder and trolley.

As soon as possible arrange to get a list of just what we have on hand at Deer Lodge, and elsewhere, for this purpose, this to include 3" channels complete with Crosby clips for two feeders, messenger and two insulators, tunnel disk insulators complete with pins and cotter keys, expansion shields for 3/4" lag screws, No. 1 eye-bolts, No. 2 eye-bolts and in addition special small eye-bolts made up at Deer Lodge shops for use in connection with castings which are being installed by the Tunnel Lining crew.

At the same time find out from Mr. Urbutt who is in charge of tunnel work, just how many pairs of castings he will have installed when he has completed the work, for our tunnel suspensions, and just how many lineal feet of tunnel will be left for us to drill for eye-bolts. I wish this information so as to make sure that we have all material necessary for taking care of St. Paul Pass tunnel, and also to get an idea as to just how much drilling work we will have to do.

Yours truly,

REW-als

Assistant Engineer.

Montana Power Co.,
Butte, Mont.

Dear Sirs:

Inspector Soule reports that Bonding Inspector Haigh found a certain number of bonds to be replaced between between Alberton and St. Regis, which territory has been skipped by Foreman Thompson, and I am giving you this information so that arrangements can be made to take care of this territory, particularly between Alberton and Tarkio before the line is energized to Tarkio.

I presume you will arrange to have Foreman Thompson go over this territory with a few men after he completes his work at Haugan.

Yours truly,

RWT-wle

Electrical Engineer.

cc--G.F.S.

Montana Power Co.,
Attention R. Vande,
Deer Lodge, Mont.

Dear Sir:

One of the Locomotive Engineers reports that when the last trouble occurred at Montana Street crossing, Butte, there was considerable arcing in the contact switch boxes at that point.

If not already done, please arrange to have these switches carefully inspected and advise results.

Yours truly,

REW-wls

Electrical Engineer.

cc--M P Co--Butte

Mr. G. S. Cooper,

Dist. Baggage Agt.,

Spokane, Washington.

Dear Sir:

Following correspondence in connection with material lost in transit by baggage to various camps, our Material Checker, Mr. R. W. Roach, informs me he has given you data in regard to dates and trains on which this material was shipped, as far as records go, and that you will proceed to trace the material with this information.

Yours truly,

RRW-wla

Electrical Engineer.

Montana Power Co.,
Butte, Mont.

Dear Sirs:

Foreman Tavenner has placed an order with Stkr. Butler for a new forge. I understand he has one which is suitable for intermittent use, and would suggest his exchanging with one of the other crews having a forge in good condition, and whose needs require only intermittent use of the forge.

Please advise if you will so arrange.

Yours truly,

REW-wls

Electrical Engineer.

cc--W.C.B.

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

Our recent telegram in which we gave you November 1st as the date on about which electrical operation from Deer Lodge to Alberton could be started was based on promises of delivery of motor generators which we had at the time we sent the telegram.

Mr. Urban has sent you a copy of his letter to me of September 23rd, which again changes the dates of shipment. Gold Creek, Ravenna and Primrose are in the shape stated by Mr. Urban, also the first set for Tarkio. The second set for Tarkio, instead of being shipped September 17th to 24th, you will note, will not now be shipped until October 5th, at least eleven days later, and this set will of course not be running by November 1st. In other words Tarkio will have to run with only one motor generator and in case this motor generator has to shut down for any reason, the feeding of the line to Alberton will have to be done from Primrose, resulting in corresponding very considerable decrease in the speed of trains.

The first set for East Portal was to be shipped on September 13th. You will note it will now be shipped September 20th to 22nd. The second set for Gold Creek was to have been shipped September 29th and is now scheduled for October 31st, while the third set has been changed from October 23rd to November 4th.

The first set for Avery was to have been shipped September 17th and is now scheduled for September 30th. The second set for this station was promised for October 6th and has been changed to October 14th while the third set originally scheduled for October 27th has been moved back to October 31st.

Yours truly,

RB-wls

Electrical Engineer.

Mr. G. J. Bunting,
General Auditor,
Chicago, Ill.

Dear Sir:

In connection with yours of September 18th, the next to the last paragraph is not quite clear to me. You state that where segregation is not justifiable, we will have to make charges for extensions to electrification cost, but further on intimate that these costs will be charged to accounts which will indicate that the work is not really in connection with electrification, segregation thus being implied.

Assuming then, that the labor and material for electrification of extensions is to be separated from that for electrification of the tracks as they were originally, what I was trying to get was just how detailed the information had to be in connection with the extension estimated, and whether these estimates could be made after the work was done, and according to the manner suggested in my letter of August 25th. In other words, would it be satisfactory for us, for the present, to charge all costs for extensions and otherwise to electrification, and later on make up, in the manner suggested, estimates of labor and material, and then bill them to the A.F.E's covering the extensions.

Yours truly,

RB-WLS

Electrical Engineer.

I am sending you today under separate cover four speed recorder rolls. Two records run off the end of the rolls and one of these records jammed in the machine and was torn. Two contain two records of which one runs off the end of roll.

Yours truly,

ADV-wls

Electrical Engineer.

Mr. C. A. Goodnow,

Asst to the President,

Chicago, Illinois.

Dear Sir:

Attached please find a blueprint made from the graphic speed record of our recent heat run test on passenger locomotive #10102, which I believe will be of interest to you.

Yours truly,

ABV-wls

Electrical Engineer.

graphic speed record of our electric [illegible] passenger locomotive #10102. This I thought might be of interest to you.

Yours truly,

ABV-wle

Electrical Engineer.

Butte, Mont., Sept. 23, 1916.

Mr. J. J. Murphy, Supt.,
Deer Lodge, Mont.

Dear Sir:

Will you please advise as soon as possible electric passenger miles and electric freight ton miles. This necessary to check power distribution.

Yours truly,

ABV-wle

Electrical Engineer.

Mr. J. C. Mill,
Signal Engineer,
Milwaukee Shops.

Dear Sir:

Referring to your letter of September 28th, regarding lightning arresters for underground cables, I notice you call for 87 Premier Lightning Arresters as manufactured by the Bryant Elec Company.

The Telegraph Department had installed some Vacuum lightning arresters that have proven unsatisfactory, and I would like to know if you have discussed this situation with the Telegraph Department and are acquainted with their experience. Also will you please advise your experience with the Bryant arrester as referred to on the requisition and give us any data you may have in connection with the use of this arrester, under the conditions that exist here.

There has been practically no trouble with break-down of underground cables since the lightning storms have ceased, and there is, therefore, no particular urgency just now about getting through the requisition. I would therefore suggest that you make very sure that the situation is thoroughly investigated before type of arrester is decided upon.

Yours truly,

RB-FLS

Electrical Engineer.

cc--C.A.C.

Mr. F. Urban, CM&StP Engr.,
General Electric Co.,
Schenectady, N. Y.

Dear Sir:

I have just received yours of the 23rd inst. regarding lightning arresters for trolley lines, and agree with you with regard to the development of that new arrester.

I would suggest, however, that you follow it up to make sure that the General Electric Company really keeps working at it.

Yours truly,

RB-7LS

Electrical Engineer.

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

You will remember on your last trip out here you OK'd the purchase of some lightning arresters to be installed in different places on our trolley line.

I immediately took up the matter of getting an arrester that would be suitable, but there is nothing which the manufacturing companies would recommend for this voltage, and the General Electric Company is now working on the development of an arrester which they will try out. We are under no obligations in connection with this development.

Yours truly,

RS-WLS

Electrical Engineer.

Mr. Alton R. Bruce,

3 Frederick Terrace,

Dorchester, Mass.

Dear Sir:

Referring to your letter of September 19th regarding a position in our electrification forces, same has been referred to me. We would be glad to have you send us a more detailed account of the places where you have worked, what you have done, and references.

Very truly yours,

RB-wls

Electrical Engineer.

Mr. C. A. Goodnow,

Asst to the President,

Chicago, Illinois.

Dear Sir:

This is to acknowledge yours of the 25th inst. regarding Mr. Walker's attention to the construction of a warehouse at Great Falls. Mr. Walker is going ahead with this.

Yours truly,

RB-WLS

Electrical Engineer.

Mr. R. A. Nofke,
Deer Lodge, Mont.

Dear Sir:

Will you please advise me by return mail if possible, actual original conditions in connection with our power supply at Great Falls, that is at Falls Yard.

My remembrance is that the line supplying us current at Falls Yard substation was tapped off from Great Falls Power Company's line leading out to the Meat Company's plant and that we paid for the construction of the connecting line. Is this so?

Also please advise just what was originally installed in this line in the way of disconnecting switches and fuses, both at the point of junction with the Great Falls Power Company's line and at the substation outside the building. Your quick attention will greatly oblige.

Yours truly,

REW-wls

Electrical Engineer.

Referring to your use of [illegible], it will be OK to let the locomotives come forward without lightning arrestors.

Yours truly,

RB-mls

Electrical Engineer.

cc--CAG*AEM*

E.S

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

Please note the attached copy of letter to Mr. Murphy by R. D. Crowder of the Two Dot substation, in which Mr. Crowder asks that we provide electric lights for him.

It would cost about $35.00 or $60.00 to provide lighting as requested, for which of course the Operating Department would have to pay, but the question is, how far do we want to go with taking care of the lighting of stations which are near to substations? This is a matter which I brought up to you before in connection with the lighting of the Avery substation, but of course you did not know that there were other requests coming. What shall I do?

Yours truly,

RB-WLS

Electrical Engineer.

cost of installing Power Limiting and Indicating service, this bill vs. Great Falls Power Company, kindly note that only a very little of the apparatus has as yet been received, and none of it has been installed, so that we are not in a position to bill the Power Company.

Yours truly,

RB-WLS

Electrical Engineer.

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

Referring to your letter of September 26th in connection with mine of September 13th regarding P. N. Haigh, Mr. Haigh was the Insulator Inspector who was taken on when Mr. Urban went to Schenectady. He proved to be a very good man, and when he finished his work on insulator inspection I had him come out here in connection with inspection of line work and bonding.

Yours truly,

RB-WLS

Electrical Engineer.

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

Referring to your letter of September 5th and mine of September 1st hereto attached, I have only just been able to get advice from the Signal Department in connection with the matter as to whether there was any time limit in the contract with the Union Switch & Signal Company.

Mr. Mill advises me there was no such time limit. Kindly advise me in connection with the last paragraph of my letter of September 1st, so I will be in a position to act on the bills when they come in.

Yours truly,

RB-WLS

Electrical Engineer.

Mr. F. S. Johnson,
General Electric Co.,
Schenectady, N. Y.

Dear Sir:

Referring to yours of September 25th reporting Thomas roof insulators, I have no recollection whatever of ever having made any request "that the same insulator be used throughout".

As a matter of fact, you will find by referring to the correspondence, that we actually "" consider at one time substituting an O. B. insulator for the more expensive one which you were furnishing.

Yours truly,

RB-WLS

Electrical Engineer.

cc--V.A.W.
F.O.

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

Referring to yours of September 26th, my letter of the 19th should have read "telegraph and telephone companies use small motor-generators, etc." I asked Mr. Urban to find out how much noise this set made, and under date of September 23rd he advised me as follows:

"Regarding the question of placing the M.G. set in the Dispatcher's office, wish to say that it is quite noiseless. It has a little hum, such as the small Holtzer Cabot sets which are used in telephone and telegraph offices possess, but do not believe it would be objectionable."

I will await your further advice in the matter.

Yours truly,

RB-WLS

Electrical Engineer.

Mr. C. A. Goodnow,

Asst to the President,

Chicago, Illinois.

Dear Sir:

Referring to your letter of September 18th regarding substitution of K-12 for K-5 Oil Switches, the K-5 Oil Switches were provided for in the contract which I approved, the switches having been proposed by the Manufacturer as of sufficient capacity to meet the requirements.

Yours truly,

RB-WLS

Electrical Engineer.

Montana Power Co.,
Butte, Mont.,

Dear Sirs:

We have a telegram from Supt. Willard under date of September 29th to the effect that passing track extensions at Garrison, Bonner and Drummond are now completed and ready for bonding, also that there are quite a number of broken bonds between Alberton and Deer Lodge, due to changing out of broken rails.

While crossing over the line yesterday I noticed some rail distributed at a point east of Missoula, and it is possible that this is to be placed in the track before we begin operation. We are taking this latter point up with Supt. Willard. The above for your information in connection with completion of negative return before electric locomotives are started.

As regards passing track extensions, I presume under existing conditions the completion of these extensions will have to be deferred until work now in hand west of Alberton is completed. Will you please advise, however, your ideas in regard to completion of overhead work and bonding at the points mentioned. According to our past practice I presume we will bill the Operating Department for work done by special crews brought back. We should, however, keep records on the cost of such work, so that we will be in a position to take care of this billing if desirable.

Yours truly,

RFK-wls

Electrical Engineer.

cc--G.F.S.

Mr. G. F. Scule, Inspr.,
Haugan, Mont.

Dear Sir:

Confirming conversation yesterday and your wire to Haigh, please see to it personally that curves between St. Regis and Haugan which are to be relaid with new steel are not bonded before replacement of steel is made. If Mr. Willard makes good on his promise of completion of this work by October 5th, bonding crew will have to pass up this work and take care of it after rail is relaid.

It is probable that both rails will be changed and both rails should, therefore, be passed up. Although you have wired Haigh to this effect, you should go on the ground or get in touch with Haigh personally and see that the matter is thoroughly understood.

Yours truly,

RFW-wls

Assistant Engineer.

Mr. G. F. Soule, Engr.,
Haugan, Mont.

Dear Sir:

Referring to 5/8" strand shipped to Missoula for Foreman Thompson, to be installed on spur tracks at that point, the Montana Power Company advises that through some misunderstanding this strand was taken to Kyle by Foreman Mickey. They have instructed Foreman Mickey to return the strand to Missoula and will endeavor to arrange to install it as intended at some early date.

Yours truly,

RFW-wle

Assistant Engineer.

cc--M P Co

[illegible] Supt.,
Haugan, Mont.

Dear Sir:

Referring to situation as regards 1/3" S. M. strand, as we telegraphed you yesterday at Haugan, four reels have been shipped to Avery, with the idea that this would be proportionately distributed between Camps [illegible] dealing that mixed strand. This particular strand was borrowed from the B.A.& P. Railway.

We have [illegible] miles of this strand on the road and it should be at Deer Lodge within five or six days. Four miles of this strand will have to be given to the B.A.& P., leaving us [illegible] miles in addition to that shipped to Avery for use on the work.

[illegible] that this would [illegible] in Yard Work [illegible] Avery [illegible] or some other [illegible] not going to be [illegible] [illegible] to cover the work. With this in mind, you will have to instruct the foremen and see to it that particular care is taken in regard to economizing in the use of this and all other strand, and also in regard to the [illegible] anchors so as to not [illegible] extraordinary amount of strand over and above the usual amount. For instance, if single poles or two pole [illegible] are so located that there is a long slope on either or both sides, approaching a parallel condition to guys such as we have had on a part of our trolley work in that territory, arrange to pull anchors in towards poles, as we have ample strength in the number of guys and strength of strand to permit of this. Arrange to give your personal attention to this matter with all inspectors and also with all foremen with regard to keeping wastage down to the minimum amount.

For your private information, conditions may require that we make use of so called high strength strand, although mechanical strength is 2,000 pounds more than the S. M., if towards the end of the work we find we are shy on S. M.

The above, in a general way, applies to all material [illegible] the job, as far as economizing is concerned.

Yours truly,

RET-ele

Assistant Engineer.

cc--H W Russell

Dear Sir:

For your information we are shipping from Deer Lodge Shops 1 0 Special Pull-offs to Barker at St. Regis for installation on wye tracks and A.C.M. Spur. Eighty of these pull-offs are to go to Anderson for use on Bonner Spur, and we will, in a few days, ship from 200 to 300 to Kirkley for installation in tunnels.

With regard to 1/2" strand, we shipped four reels to Johnson at Avery to be distributed among crews as needed. The latest advice on our carload shipment of strand is that it will probably be here Wednesday or Thursday of this week.

Yours truly,

RTT-vlb

Assistant Engineer.

[illegible]

Dear Sir:

We have some correspondence here between Mr. Willard, Mr. Munson and Mr. Dow as to overhead clearance in Tunnel No. 26. I believe this is the second tunnel west of Adair:

As we have heard nothing about this clearance in this office, I would like a report from you as to the actual facts, as to overhead clearance throughout the entire tunnel, and height of trolley wire above top of track rail after installation.

Yours truly,

HTT-vls

Assistant Engineer.

cc--F.C.Dow

Mr. G. F. Soule, Engr.,
Haugan, Mont.

Dear Sir:

Please advise if "Danger" signs are being installed on trolley poles by trolley crews and on transmission poles by pole inspection crews, between St. Regis and Avery.

No such instructions have been issued to this effect, but we must see to it that they are followed out, so that we will not have to go over the line again to install these signs.

Please investigate and advise promptly, so we can arrange to take care of it.

Yours truly,

RFT-ale

Assistant Engineer.

Bozeman, Mont.

Dear Sir:

With further reference to the use of S. M. strand, particularly in connection with transmission work, there seems to be a great difference in opinion as to the average amount of strand required per guy on the part of different men in the field, and no doubt foremen are cutting guys to standard length for most of the work, with a consequent wastage or necessity for splicing out, and owing to the present situation and the scarcity on hand I can see no reason why camp inspectors cannot investigate requirements in this line ahead of the work, keeping the foreman posted so that he can have guys cut to within reasonable actual requirements.

Furthermore, if camp inspectors take care of the work in this way, foremen will have a more accurate idea of the amount of strand they will require, and we will avoid improper distribution of material.

Do [illegible] that has been the practice in this line, and if you will arrange as outlined above.

Yours truly,

RHV-wls

Assistant Engineer.

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

Referring to the attached requisition, RB-#3411 for flexible pull-offs to be furnished by the Ohio Brass Company, the deliveries given on requisition are based on advice from the O. B. Company, and will take care of our needs.

The reason for placing this requisition at this late time is that our original estimated requirements for work between Deer Lodge and Avery were covered on requisition, and the quantity was afterwards reduced through correspondence with Mr. Crocker, on account of our changing method of pulling off curves, and our being uncertain as to the number of pull-offs which would be left over from work east of Three Forks. It was arranged with Mr. Crocker's office that we would advise him later as to the actual number required for work west of Deer Lodge, over and above the actual quantity ordered from the General Electric Company, and this matter was overlooked. The deliveries quoted by the O. B. Company and as shown on the attached requisition will take care of our needs.

Yours truly,

REF-WLS

Electrical Engineer.

cc--A.J.J.

hand in camps and at your Lodge, including a certain number of sleeves which are probably shy, some of bolts and some of wedges.

Yours truly,

REW-wls

Assistant Engineer.

Mr. F. E. Willard, Supt.,

Missoula, Montana.

Dear Sir:

I understand that there is some new rail distributed along track east of Missoula. Will you please advise as soon as possible if you contemplate relaying steel in the near future between Deer Lodge and Avery other than the curves between St. Regis and Haugan, which are now being taken care of and St. Paul Pass tunnel, which we know is to be done. We must have this information in connection with our bonding work, and particularly between Deer Lodge and Alberton.

Yours truly,

REF-WLS

Electrical Engineer.

Dear Sir:

Confirming conversation, I note that tap between Main Line and Yard trolley wire at Drexel was made at the West end.

Our standard method is to make these taps at the East end. I understand you will have the Drexel tap changed, but am bringing this to your attention so that you will see to it that all substations west of Deer Lodge are tapped according to the standard method. Let me hear from you when you have checked up all points involved.

It also seems to me that there is only one cut-out switch at Bonner Junction passing track, that being on the West end. If so, it may be due to the lines being changed for extending this track East. Please advise.

Yours truly,

RE"-vls

Assistant Engineer.

ur. I also note that head guys are stuck on two-pole frame at Timber Yard east of Cobden. Possibly there are the guys you referred to as being cast off by men loading timber. The above for your information and attention and report.

Yours truly,

REW-wls

Assistant Engineer.

Butte, Mont., Oct. 2, 1916.

Mr. E. E. Barrett:

S P Car #21321 passed Mobridge Sept. 28th., consigned to me at Deer Lodge. Please have this car traced through to destination, and keep us posted as to location.

R. Scurkes

Gen'l Signal Foreman,
Three Forks, Mont.

Dear Sir:

Following your recent request, I am attaching hereto blueprint of drawing ED-[illegible], showing in conventional form, proposed dimensions for signal bridge to be located at the East end of [illegible]ley Yard, with provision for supporting our feeder, signal and power limiting wires, and the feeder, telephone and telegraph wires of the B A & P Railway.

This general scheme has been approved by the B A & P Railway, except that they desire that the attachment for their feed wire be arranged so as if feeder comes off the insulator, it will come in contact with wood, and not with the steel in the bridge. This can be accomplished by [illegible] the [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible].

This [illegible] economical to erect the bridge [illegible] [illegible] poles, [illegible] [illegible] [illegible] [illegible] attachments [illegible] [illegible] signal [illegible] [illegible] [illegible] [illegible] poles.

Before the signal bridge is [illegible] up we would like to have your [illegible] [illegible], [illegible] [illegible] [illegible] it and check our attachments.

Yours truly,

RFW-wis

Electrical Engineer.

[illegible] J C M
L W S

Three Forks, Mont.

Dear Sir:

Following your recent request, I am attaching hereto blueprint of drawing ED-[illegible], showing in conventional form, proposed dimensions for signal bridge to be located at the East end of Alloy Yard, with provision for supporting our feeder, signal and power limiting wires, and the feeder, telephone and telegraph wires of the B.A.& P.Railway.

This general plan has been approved by the B.A.& P.Railway, except that they require that the attachment for their feeder wire be so made so as to feeder cross off the signal for, it has come to your attention, not just the signal on the bridge. This can be accomplished by [illegible] the cross arm [illegible] or [illegible] attachment.

[illegible]

Before the [illegible] Railway [illegible] will be able to have your complete [illegible] it will check our attachments.

Yours truly,

[illegible]

Electrical Engineer.

cc--J.C.H.
L.W.S.

Dear Sir:

Replying to yours of the 20th in regard to [illegible] - 10 inch bends shipped to you from our Deer Lodge shops, [illegible] in the order:

I [illegible] the impression that these bends were shipped as follows:

[illegible] to the Dun Joe with no [illegible]. [illegible] these bends were shipped to East Portal, according to your order, and it looks as if they were changed in unloading at Jackson, and if you received no word with the bends it will be advisable to send some to East Portal to look them up.

Copy of this letter to Inspector Smith who will make investigation at Jackson and East Portal and see if that bill can be located up.

Yours truly,

HEM-ms

Assistant Engineer.

cc--G.F.S.

Deer Lodge, Mont.

Dear Sir:

For [illegible] Gilbert reports having received 650 - 40" bonds in bad condition on account of not being packed in boxes, and having been turned out on the station platform in this condition, also that [illegible] number of bond terminals were damaged so as to [illegible] of the method of handling and that the drift pins were missing.

I am [illegible] from Mr. Tyler that lots of these bonds are shipped in bundles. Please see to it that no further shipments of bonds are made in this manner, and furthermore that all boxes containing bonds are in first-class condition when they leave the store room.

In this particular case we doubt the principal trouble was due to the bonds having been sent to East Portal and having been unloaded at that point and afterwards reloaded to go to Falcon. In view of there being no platforms at these stations, the boxes are invariably dumped out on the ground from the car, and damaged unless they are in very good condition, and in view of the value of the bonds, particularly at this time, we will have to take all precautions possible at the store room when shipments are made.

Yours truly,

REW-wis

Assistant Engineer.

Mr. F. E. Willard, Supt.,
Missoula, Mont.

Dear Sir:

We have recently received a shipment of rail bonds at Falcon, Car #503828, Local Freight No. 93. These bonds were thrown out on station platform in a heap with the result that many of the bond terminals were damaged so that they cannot be used.

Our Storekeeper reports that 535 of these bonds left Deer Lodge in boxes, shipment originally being made to East Portal, and afterwards to Falcon, and the boxes must have been broken in handling, probably at East Portal.

While we understand that these boxes are heavy and that there are no elevated platforms at the stations involved, will you please have Local Freight Conductor instructed to use all care within reason in handling such shipments, in order to avoid as far as possible the considerable money loss sustained in the case referred to, and oblige.

Yours truly,

RFT-wls

Electrical Engineer.

Referring to Requisition RB-#3412, I note on this Requisiton items as follows:

1/2" Manilla Rope:

9/9 -- 1 Coil, 94#
9/32 -- 180#

3/4" Manilla Rope:

9/28 -- 1 Coil
9/9 -- 1 " 12[illegible]#

1" Manilla Rope:

9/13 -- 1 Coil
9/22 -- 2 Coils

Solder

9/28 -- [illegible]#
9/21 -- 50#
" --100#
9/22 --100#
9/27 -- 10[illegible]#
9/27 --200#
9/28 -- 25#

Muriatic Acid:

9/23 -- 1 Qt
9/27 -- 1
9/28 -- 1
9/27 -- 1

Sal-Amoniac:

9/23 -- 1#
9/27 -- 2
9/28 -- 1
9/27 -- 1

The point is, it would seem, that we should be better able to foresee our needs than this requisition indicates, taking item of solder particularly, from 9/21 to 9/28 there are several different orders for small quantities of solder.

muriatic

9/23 1 gl.
9/27 "
9/28 1 gl.
9/27 1 gl.?

Sal-ammonia

9/23 1#
9/27 2#
9/28 1#
9/27 1#

— 1/2" mu

9/9 - 1 coil
9/22 - 1

— 3/4" mu

9/28 1 coil
9/9 1 "

— 1" mu

9/13 1 coil
9/22 2 coils

— Sal

9/28 2
9/21 5
" 1
9/22 1
9/27 1
9/27 2
9/26 2

Referring to your letter of September [illegible] regarding a position for Mr. J. E. Blakesly, I spoke to you on May 8th regarding your letter of April 28th and you wished then, to wait for taking anybody on for the position of Maintenance Supervisor until the matter of organization was more fully decided upon. Later on, as you know, we took on Mr. Wende, and it is my idea that we should at least start with trying on the basis of having Mr. Wende handle the maintenance in both divisions. I will inform Mr. Blakesly accordingly.

Yours truly,

INR-WLS

Electrical Engineer.

REW--#2--10/3/16

9/23 to 9/28 there are four orders for Muriatic Acid, and four orders for Sal-Amoniac, and sometimes two separate orders for small quantities each are placed on the same day.

It would seem that in the first place we should have solder and rope and sal-amoniac in stock and in the second place, that if there is some good reason why each purchased has to be made, why could

Butte, Mont., Oct. 3, 1916.

Mr. W. M. Harvey,
Auditor Nat'l Accts.,
Chicago, Illinois.

Yours truly,

RB-TLK

Electrical Engineer.

Oct. 3, 1916.

[illegible] one other point that I would like to mention, [illegible] that is that we will only have one transmission line to feed the four sub-stations; that is, all the feeding will be done from the Golf Creek end.

We are pushing the construction of the transmission line between East Portal and Turkio, so as to get the feed from Thompson Falls as soon as possible.

Yours truly,

RB-NLS

Electrical Engineer.

Oct. 3, 1916.

it is satisfactory to me for you to take a weeks vacation, and the only thing I would suggest before you go is that you make sure that the various shortages in connection with substation installation about which we have written Mr. Johnson be shipped at the earliest possible date. You know we expect to start electrical operation between Deer Lodge and Alberton on November 1st.

Very truly yours,

RB-WLS

Electrical Engineer.

Butte, Mont., Oct. 5, 1916.

Mr. J. B. Cox,

[illegible]

[illegible]

Very [illegible],

RB-WLS

Electrical Engineer.

cc--CAG
F Sears
W B Potter

Oct. 4, 1916.

Mr. C. A. Goodnow,
Asst to the President

blocks and other tools to the Storekeeper at Deer Lodge, where they can be furnished for other work, or drawn on by our trolley maintenance crews as the occasion may demand. The bunk and camp cars should be stripped of stoves, windows, etc., and turned over to the Operating Department for work which may come up next season. The tower cars not needed for maintenance purposes can be handled the same way.

We also have a large amount of kitchen, dining room and bunk car equipment, which we will have to put in storage or dispose of in some other way. On account of the great amount of depreciation on kitchen and dining room equipment when stored, it has occurred to me that you might want to try and dispose of it by selling to some contractor or other party who is looking for such equipment. The value of this equipment when purchased originally was about $15,000. Before we sold any of the equipment we would of course take an inventory and put a price on the items to see to it that we were getting a good price. If this equipment could be sold outright, the Electrification Department would receive a large credit which would not be secured if boxed up and stored with the storekeeper. I understand our Storekeeper does not allow credit on such equipment. Will you kindly advise how you desire this matter handled.

Yours truly,

FAC-WLS

Electrical Engineer.

Butte, Mont., Oct. 4, 1916.

Mr. M. C. Butler, Sthr.,
Deer Lodge, Mont.

Dear Sir:

The material as listed above will be sufficient to take care of Gold Creek and Ravenna, and material for Ravenna substation should be forwarded from Gold Creek together with drilling machine and drills by substation people.

Turkio Substation:

45 -- Ft. of 4/0 19 Wire Strand.
[illegible] -- Separate Terminals.
6 -- Drift Pins.

East Port 1 Substation:

80 -- Ft. 4/0 19 Wire Strand
16 -- Separate Terminals
16 -- Drift Pins.

Yours truly,

RFW-wlm

Assistant Engineer.

cc--F.B.W.

Butte, Mont., Oct. 4, 1916.

Mr. J. J. Murphy, Supt.,
Three Forks, Mont.

Dear Sir:

I have copy of letter to you from Boudinot

gerous, you may consider it desirable to leave the pole and reinforce the rock, rather than remove the pole and remove the rock.

Mr. Wendeman of course give you an estimate on what it will cost to set the new pole and remove the present one.

Yours truly,

REW-PLS

Electrical Engineer.

Oct. 4, 1916.

have a portable and dependable light for use while working in tunnels and at night. They have been and are now using some of the Milburn Acetylene Torches which we obtained from the B. & B. Department for use on Construction Work in tunnels, and which are provided with Acetylene Gas Generators.

The objections to the latter form of light are that a supply of Carbide must be kept on hand and this Carbide is subject to deterioration, it is not economical in that it is hard to determine just how much Carbide should be placed in the generator, for any particular work, it is dangerous in that men are liable to have an excess of Carbide left in the Generator after using it on the work, place it in a car or other enclosed space with liability of an explosion due to excaped gas and this form of light is inconvenient to handle on the tower cars and on the work on account of its size and having a tank filled with water.

The Prest-O-Milburn Fire Chief Light, which we wish to get on trial on account of not being sure as to the amount of light given being satisfactory, seems to be more desirable on account of our being able to obtain ready-made gas in tanks at supply stations in Battle at comparatively small cost, the ability to use this gas only as needed, its safety as compared with other lights, and its convenient form, size and weight for handling both on towers and on the ground.

Sheet 42--C.A.G.--10/4/16

The lights will be used for general emergency work at night on both trolley and transmission lines, and on top of towers or on the ground as occasion demands.

Yours truly,

Butte, Mont., Oct. 4, 1916.

Mr. E. Sears,
Elec Master Mechanic,
Deer Lodge, Mont.

Dear Sir:

I am sending you under separate cover eight [illegible] records. These records are all of little value

Butte, Mont., Oct. 4, 1916.

Mr. R. A. Nofke,
Deer Lodge, Mont.

Dear Sir:

the fuses in the tap line at their expense? Also do you consider it advisable to have these fuses in any event replaced in the line at a point near our substation, so as to provide protection for the substation outside the building, and at the same time have fuses conveniently located as regards our electrician? Also do you consider that fuses so installed will provide all the outside protection needed as far as we are concerned?

Yours very truly,

REW-wls

Electrical Engineer.

Butte, Mont., October 4, 1911.

Ralph Sweidler,
Load Dispatcher,
Three Forks, Mont.

T. Stubsey,
Montana Power Co.,
Butte, Mont.

Dear Sir:

Oct. 4, 1916.

Thanking you for your courtesy in the matter, we remain,

Very truly yours,

RMT- ls

Electrical Engineer.

Butte, Mont., Oct. 4, 1916.

Chief Operator:

Beemske	-- Morel	Substation
Travis	-- Janney	"
Johnson	-- Piedmont	"
Hill	-- Rustic	"
Correy	-- Josephine	"
McGill	-- Loweth	"
Lighton	-- Two Dot	"

Beginning at 5:30 AM on Friday, October 6th, we wish to make a special test of our transmission line. You will, at that time, set the commutating on your synchronous motors so as to hold unity power factor; in other words, so that these [illegible] morning, that in Saturday

Butte, Mont., Oct. 4, 1916.

Chief Operator
Boemeke -- Morel Substation
Travis -- Janney "
Johnson -- Piedmont "
Hill -- Eustis "
Corry -- Josephine "
McGill -- Loreth "
Leighton -- Two Dot "

Beginning at 8:30 AM on Friday, October 6th, we wish to make a special test of our transmission line. You will, at that time, set the compounding on your synchronous motors so as to hold unity power factor; in other words, zero wattless component, until 8:30 the succeeding morning, that is Saturday October 7th. In case difficulty is experienced in holding the machines in step, you will run with the least wattless component possible. In case conditions will not permit this test to be made, you will be so notified by Mr. Sweichler, and if so notified, will run as usual.

R. Beauwkes, Elec. Engr.

Mr. Stussey, c/o
cc--M.P.Co.
Ralph Sweichler

Butte, Mont., Oct. 5, 1916.

C. F. Soule, Engr.,
Hungan, Mont.

Dear Sir:

During the greater part of the work these bearings have given a lot of trouble and were a source of great expense. As this seems to have decreased, I would like to know what the average life of these flexed bearings now is, and what, if anything, has been done to improve the conditions. In this connection I would also like the average time a pair of drilling [illegible] dish [illegible] the number of rotations the rubber would be exposed by the "dog" in the feed now used by both Gilbert and Thompson.

Yours truly,

RCT-1

Assistant Engineer.

Butte, Mont., Oct. 6, 1916.

Mr. A. J. Jennings,
Asst Purchasing Agt.,
Chicago, Illinois.

[illegible] we received shipping notices to the effect that on September 29th, 18 miles had been shipped, and on Oct. 2nd, 17 miles were shipped, making a total of 35 miles on the road, in regard to which we have had no previous advice.

The latter amount checked from the 70 miles leaves, according to our records, 35 miles due us, therefore I believe your records show 35 miles, and which I understand will be gotten out next week at Kalispell.

Will you kindly wire us [illegible] the date of shipment of the 35 miles referred to as soon as possible, as at this stage of the work and under the conditions we cannot afford to depend on shipping notices coming from the manufacturers.

Yours truly,

REW-wlm

Electrical Engineer.

cc:--C.A.G.

Butte, Mont., Oct. 5, 1916.

Montana Power Co.,
Mr. R. Wende, -- Supt. Maintenance,
[illegible]

know then, also just what was done when feed taps were changed, and what change has been made in connection with the extension now being put in.

Yours truly,

R W-wls

Electrical Engineer.

cc--M P Co--Butte

Butte, Mont., Oct. 5, 1916.

G. F. Soule, Inspr.,
Haugan, Mont.

Dear Sir:

During the greater part of the work these bearings have given a lot of trouble and were a source of great expense. As this seems to have decreased, I would like to know what the average life of these thrust bearings now is, and what, if anything, has been done to improve the conditions. In this connection we would also like the average time required for drilling a hole which will give some idea of the feed and should have the number of notches the ratchet wheel is advanced by the "dog" with the feed now used by both Gilbert and Thompson.

Yours truly,

REW-G

Assistant Engineer.

Butte, Mont., Oct. 6, 1916.

Montana Power Co.,
Butte, Mont.

Dear Sirs:

the Acetylene generator.

As some time may elapse before this question is settled, you may wish to look into the feasibility of supplying Foreman Guire from one of the construction crews.

Yours truly,

RFW-wla

Electrical Engineer.

cc--D. Guire,
Thos. Forbe.

Butte, Mont., Oct. 6, 1916.

M. C. Butler, Stkr.,
Deer Lodge

Dear Sir:

Supt. Willard advises that beginning October 8th, the half and half crew at Deer Lodge Yard will be discontinued, and from that time there will be one Yard Engine days and one nights, at Deer Lodge. Advise

Oct. 6, 1916.

On September 12th we wrote the Postmaster at St. Regis requesting him to forward this letter to you at St. Maries, Idaho, and as we have heard nothing to the contrary, we assumed that our request had been complied with.

We are wiring one of our Inspectors today to go to St. Regis and look this matter up, and will advise you just as soon as we hear from him.

Yours very truly,

REW-wls

Electrical Engineer.

Oct. 7, 1916.

ment and oblige.

Yours very truly,

RED-fls

Electrical Engineer.

Butte, Mont., Oct. 7, 1916.

The Montana Power Co.,
Butte, Mont.

Winsoula is being lowered, that this work may require slight changes in the overhead work at that point, and that there will be naturally more or less trimming and odd work on the line between Deer Lodge and Alberton so that you can keep this in mind in connection with your plans for work to be done by trolley crews.

Yours truly,

RMK-ls

Electrical Engineer.

c --G.F.S.

Oct. 7, 1916.

Mr. C. A. Goodness.

Mr. Bunting states "If, however, you did not do the actual track extension work and the only work that you did perform is the matter of electrification of such extensions, then, of course, there is no need for you to make a separation by primary accounts as between electrification and track extension. As I see it, the matter simmers down to a separation of expenses between the electrification cost contemplated and the excess amount now obviously due to the extension of such passing or side tracks. This can easily be accomplished by issuing AFE's for such extension work, where you are unable to actually make a separation in cost of material and labor, as between the original electrification contemplated and that necessary to the extended side or passing tracks, an estimate can be made by you separating the items chargeable to the extended tracks. This would mean that all of the electrification cost, irrespective of that portion chargeable to extensions, must be charged to the main line AFE and then an estimate made by you based upon the average cost, for transfer to the subsequent AFE's covering such extensions of side or passing tracks. This I think is covered properly in the wording of the last sentence in your letter of the 27th ult. There is no needed rendering a bill, however; a transfer entry only being necessary by letter authorizing same, addressed to the Auditor of Material Accounts, such letter to cent in all data necessary for the transfer."

The point is to decide what was "the electrification cost contemplated." Would you consider that this was the cost, first, of electrifying tracks which existed

#2--C A G--10/7/16

when you authorized us to proceed with electrification east of Deer Lodge, or second, the cost of electrifying the tracks as they will be when electrical operation in any particular section is started, this bearing in mind that all the contemplated track extensions and electrifications may not have been completed by the time electrical operation is started. In fact, one way of looking at the matter would be that even the extension

Yours truly,

RB-WLS

Electrical Engineer.

cc--G.J.B.

Oct. 7, 1916.

Mr. C. A. Greunow.

let down a couple hundred feet in tunnel. This trouble may have been caused by fouling of pantographs on Train #18, though no such trouble is reported. At any rate about 3:30 A.M. a freight train went through the tunnel and reported the difficulty. It was not, however, until after 6:00 AM that the Operating Department got the Maintenance Crew, which was at Butte Yard, to the scene of the trouble, which could easily have been fixed up temporarily inside of a couple of hours. However, on account of the delay, Train 34 lost one hour and Train No. 17 lost two hours and thirty minutes.

Shortly after this, Train No. 16 got its pantograph mixed up with some of the trolley hangers near Silver Bow and bunched the hangers somewhat, but this did not occasion delay.

Our Maintenance Crew in this section has only a small G-6 engine and the Maintenance foreman reports the loss of a great deal of time in getting around on account of this engine not being large enough to quickly handle the train.

Yours truly,

RB-WLS

Electrical Engineer.

P.S.--We have just found out that the trouble at Silver Bow was due to broken pantograph.

R.B.

Butte, Mont., Oct. 7, 1916.

we go along, which indicate the relative cost of fuel for steam and electric service, respectively.

Yours truly,

ZC-713 Electrical Engineer.

cc--C.A.C.

Butte, Mont., Oct. 5, 1916.

H. W. Rasch,
Haugan, Mont.

Dear Sir:

Please give me a report soon as possible on the status of 500,000 C. M. Feeder. Butler now has on hand at Deer Lodge four reels, and I would like for you to obtain the information as to the amount on hand at

Butte, Mont., Oct. 7, 1916.

A. N. Crowder, Inspr.,
St. Regis, Mont.

Dear Sir:

We are arranging to that we can energize transmission line as far west as Tarkio with 100,000 volts in about ten days, and are working on the basis of energizing up to East Portal within two or three weeks. The Mountain States Tel & Tel people and Mr. McEwen of the Telegraph Department have been notified to this effect and requested to arrange accordingly.

In the meantime, however, would like for you to look over the line as far as it is completed and report at the proper time with the above dates in view.

Yours truly,

REW-wls

Assistant Engineer.

Oct. 7, 1916.

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

I would like to advise you regarding the status of the interlocking which you authorized at Montana Street crossing.

When Mr. Murphy and I talked this matter over with you, we did not think of a cross-over between our line and the Timber Butte Mill tracks which is right near the crossing. This, however, Mr. Murphy has no objections to removing, and will do so.

The matter was taken up with the Signal Department and I expect very shortly to hear from them regarding a distant and home signal plant which will include the feature that, the Crossing Tender will not be able to raise the gates until the full train has passed, so that if there is a helper locomotive somewhere in the train, this condition will have been taken care of.

It was not thought that a mechanical form of interlocking would be desirable, as the local conditions there make it very difficult to maintain such interlocking, and the Signal Department is considering the electrical type.

As soon as I get details from the Signal Department, I will take the matter up with you for final approval.

Yours truly,

RB-wls

Electrical Engineer.

Butte, Mont., Oct. 7, 1916.

Montana Power Co.,
Attention Foreman Gilbert,
Falcon, Idaho.

Dear Sir:

Referring to bonds received at Falcon without boxes and pins, this matter has been taken up with the Operating Department and they report that the bonds were unloaded at East Portal, according to original instructions, but upon their attempting to reload them at that point it was necessary to break open the boxes, as a complete box could not be handled.

Mr. Dow reports having looked these bonds over at Falcon where they were not thrown out of the car, but were piled up, and he saw none of the terminals damaged.

Please advise if you have found the pins and just how many terminals were damaged.

Yours truly,

REW-wls

Electrical Engineer.

cc--M P Co--Butte

Butte, Mont., Oct. 7, 1916.

The Montana Power Co.,
Butte, Mont.

Dear Sirs:

The Telegraph Department complains that Maintenance Crew installing guys in connection with extension to Janney passing track have one of these guys through telegraph leads, which is not only contrary to our requirements, but which is pretty sure to give trouble. They state, furthermore, that this was done without notifying the Telegraph Department.

Will you please investigate and advise, as the telegraph wires cannot be left in this condition.

Yours truly,

REW-wls

Electrical Engineer.

Butte, Mont., Oct. 6, 1916.

Mr. M. R. Fletun,
Mountain States Tel. & Tel. Co.,
Helena, Montana.

Dear Sir:

For your information we are preparing to energize transmission line with 100,000 volts as far west as Tarkio in about ten days, and have asked Mr. McEwen of our Telegraph Department to arrange the Postal wires as agreed with that in view.

Within from two to three weeks we expect to energize our transmission line through to East Portal. Will you please advise when your line will be in shape in that connection.

Yours very truly,

REW-wls

Electrical Engineer.

Butte, Mont., Oct. 7, 1916.

COPY

Mr. E. H. Barrett,
Asst Gen'l Supt.,
Butte, Montana.

Dear Sir:

I am in receipt of copy of a letter written by you to Mr. Foster, dated October 5th. This letter, in part, refers to papers with reference to track conditions on the R. M. Division being responsible for pantograph trouble.

I am unaware who made the complaint regarding the track conditions causing the pantograph trouble, but in any event your letter states that the papers attached thereto indicate there is very little trouble chargeable to track conditions, but that it appears due to faulty overhead construction.

We of course wish to investigate, ourselves, any reports regarding matters of this nature, and incidentally, if such reports are correct, take the necessary steps to see that proper repairs are made. Kindly let me have the papers.

With reference to the third paragraph of your letter, you state that "nearly all the grading work has been done, and a large percentage of the tracks lengthened out, but few wired." I would say that east of Three Forks, passing or industry tracks have been wired complete at all points where the track has been laid. There are eleven such locations. In most of these locations, the Operating Department was in a position to give us, while our construction work was going on, a lineup of extensions which subsequently was not changed. As a result, we had but little pole work to do and our Maintenance Crew has kept up the wiring work as the laying of the tracks progressed.

Between Three Forks and Deer Lodge the conditions in many cases are such that poles have to be shifted, cross spans increased in length, the number of cross spans increased, wire strung and the work done during construction period considerably changed, this requiring a great deal more work than east of Three Forks where it was only necessary to shift over to the added track, wire which had already been hung. The track work at the different locations progressed to completion

more or less simultaneously, and without an increase in the number of wiring crews it was of course found to develop that the track work would be finished before the wiring work was done.

The points still left to be wired west of Three Forks are Morel, Dalney, Colorado Junction, Janney and one track at Cedric. Janney is now being worked on and should be completed inside of a few days.

A second wiring crew was actually organized early in August, to handle track extension work only, but was disbanded before doing any work, on account of certain labor difficulties which developed.

Our regular maintenance crew has, lately, since the lightning storms ceased and other rush work has been completed, had and should have in the future, considerably more time to devote to extension work than they have had in the past, and we will give you a date, depending however, on the amount of emergency work which may develop, upon which we believe they could finish the work at present waiting. If you then believe, even considering the previous difficulties we had, that the organization of a second crew should be considered, we will take the matter up again.

I might, in this connection, call your attention to the fact that our Maintenance Crews lose a great deal of time on account of engine trouble and not being moved over the line properly in connection with train service. For instance, on the 5th inst. while the trolley trouble in Tunnel #18 must have occurred before 3:00 AM, and was reported at 3:25 AM, the Maintenance Crew was not even gotten out of Butte Yard until 6:05 AM. Temporary repairs could have been made in two hours, so that passenger trains would not have been delayed, but on account of delay in handling the Work Train, the latter got on the job just when Trains #34 and #17 were trying to get by. I would be glad if you can think of any way to improve these conditions and give the Maintenance Crew the very prompt transportation which the character of their work justifies and requires.

Yours truly,

RB-WL'S

Electrical Engineer.

cc--W F

Butte, Mont., Oct. 7, 1916.

G. F. Soule, Inspr.,
Haugan, Mont.

Dear Sir:

I am shipping to Foreman Gilbert at Falcon a box containing 12 special rail bonds, 16-7/8 inches long and 12 - 17-7/8 inches long.

These bonds are to be installed under 100 percent joints left for this purpose in the vicinity of Adair. I attach herewith sketch showing dimensions for drilling for these bonds, and it will be necessary for you to arrange for someone to see to it that the bonds are properly installed, both as regards drilling and clearance.

Please check up the receipt of these bonds by Foreman Gilbert and advise me just as soon as they are installed, giving me the exact location of the joints referring to some well known point at Adair.

Yours truly,

REV-wls

Assistant Engineer.

cc--Foreman Gilbert,
Falcon, Ida.

Butte, Mont., Oct. 9, 1916.

E. Seare:

Yours of October 5th received together with Detention Report for September, 1916. This we find entirely correct.

R. Beeuwkes, Elec. Engr.

Butte, Mont., October 9, 1916.

Montana Power Co.,
Attention R. Wende,
Deer Lodge, Mont.

Dear Sir:

Foreman Latham, under date of September 4th, reports going to Vendome on a trouble call, and states that trouble was on account of a grounded motor. I would like to know if this crew went all the way over from Vendome and then found that the trouble was not in connection with the trolley or transmission.

Yours truly,

RB-wls

Electrical Engineer.

cc--M P Co--[illegible]

Butte, Mont., Oct. 9, 1916.

Mr. J. J. Murphy, Supt.,
Three Forks, Mont.

Dear Sir:

I have your note of September 6th. The main point which I wished to bring out is that some routine should be adopted so as to insure that the substations will not be unnecessarily subjected to continued repetion of flash-overs in case of trouble on a locomotive. I therefore suggested the routine described in the third paragraph of my letter, and would like to know if you will consider putting this routine into effect. If so, will you kindly issue the necessary instructions.

Yours truly,

RB-WLS

Electrical Engineer.

Butte, Mont., October 9, 1916.

Montana Power Company,
Attention R. Wende,
Deer Lodge, Mont.

Dear Sir:

Referring to reports made by Foreman Latham on overhead troubles October 8th, I note that Foreman Latham attributes the trouble in Silver Bow Canyon to broken pantograph.

Will you please advise just where Foreman Latham got his information in regard to pantograph being broken, and in the future, so as to make the report complete, have both Maintenance Foremen state on the report just where they get such information.

This is not in the way of criticism, but you can see the necessity for our having all the facts in connection with these overhead troubles.

I have written Foreman Latham at Janney in regard to this particular matter, so as to get quick action, but would like a further report from you.

I note the report on trouble at Tunnel #12 states that catenary broke where brazed and spliced. Will you please go into this fully with Foreman Latham and get all the facts, and let me have a report covering them.

I was under the impression that one of the tunnel insulators had broken down and would like to know just where the reported break in catenary occurred, that is with reference to location of tunnel insulator, and if there were indications of one strand in messenger having broken, this strand being caught by pantograph of train #64. In other words, let me have the full facts including just what led Latham to believe that trouble was due to broken strand in catenary.

Yours truly,

REW-wls

Electrical Engineer.

cc--M P Co [illegible]tte

Butte, Mont., October 9, 1916.

Mr. E. A. Patterson,
Supt. Telegraph,
Milwaukee, Wis.

Dear Sir:

Referring to your letter of September 7th, there is only one item about which, in our opinion, there is some question. This is the item on the fourth page which refers to the installation of fuses and protectors.

Of course this Department should not pay for renewals which really belong to Maintenance. Do the fuses and protectors come under this class?

Yours truly,

RB-WLS

Electrical Engineer.

October 9, 1916.

Mr. G. J. Wagner,
Construction Department,
Michigan Railway Co.,
Kalamazoo, Mich.

Dear Sir:

Referring to your letter of October 2nd, this has been forwarded for my attention. Please note the following answers to your questions:

(1)--We use the slider type of pantograph, and it was manufactured by the General Electric Company in conjunction with the Nuttall and other companies. There are two sliders, so linked together that if for any reason one tends to drop due to some unevenness in the wire, the other one will raise up. The General Electric Company would, I think, be glad to furnish you with prints showing the construction.

(2)--Pressure about thirty pounds.

(3)--The pan consists of sheet-iron and copper strips are mounted on it. The length of the surface in contact is about 8 inches, or eight 1 inch strips, when both pantographs on a locomotive are up. Only one pantograph, however, is used under normal conditions, the second one being provided for use in case of an emergency. The horns originally provided on the pantograph were made of aluminum, but we are now making them ourselves out of sheet-iron.

(4)--Our pantograph operation, as you have no doubt read in papers publishing the matter, has been extraordinarily satisfactory. It is used in conjunction with twin trolley wires, a description of which you have no doubt read, and we can collect up to several thousand amperes without any sparking, and at any operating speed.

(5)--Pantograph only.

(6)--Contact wire is twin construction referred to above and consisting of 4/0 copper.

#2--G.J.W.--10/9/16

(7)--Flexible construction.

(8)--I did not suppose that there was any question as to preference between flexible and rigid construction, as we consider flexible construction necessary to satisfactory collection of current.

Yours truly,

RB-wls

Electrical Engineer.

October 9, 1916.

Mr. H. H. Field,
General Solicitor,
Chicago, Illinois.

My dear Mr. Field:

I have your letter of October 6th with letter from Mr. Curtis of October 5th regarding Jack Devora.

Jack Devora is an employe of the Montana Power Company, engaged in Milwaukee electrification work, the particular work he is doing at present being in connection with the wiring of substations.

I have referred your letter to Mr. M. E. Buck, General Superintendent, Montana Power Company, with a request that if he sees no objections, he furnish the information desired.

Very truly yours,

RB-wls

Electrical Engineer.

Butte, Mont., October 9, 1916.

Mr. M. E. Buck,
Montana Power Co.,
Butte, Mont.

Dear Sir:

Please see correspondence attached. Will you kindly give me the information Mr. Field suggests, or send it direct to Mr. Field himself. Kindly advise your action.

Yours truly,

RB-wls

Electrical Engineer.

October 9, 1916.

Mr. W. H. Elliott, Signal Engr.,
The New York Central Railroad Co.,
Albany, N. Y.

Dear Sir:

I have your letter of October 2nd, and will be very glad to meet you at Harlowton on Sunday, October 22nd. I will be very glad to renew my acquaintance with you.

Very truly yours,

RB-WLS

Electrical Engineer.

Butte, Mont., Oct. 9, 1916.

E. Sears,
Elec Master Mechanic,
Deer Lodge, Mont.

Dear Sir:

Some time ago I called your attention to the lights in passenger trains. These will flare from out to twice brilliancy. I wish to call your attention to this matter again, as it is very displeasing to the passengers and still continues.

Yours truly,

ABV-wls

Electrical Engineer.

cc--J B Cox

Butte, Mont., Oct. 9, 1916.

Mr. E. Sears:

In reply to yours of Sept. 28th regarding mileage for August: Your report 114,357, Mr. Murphy reports 116,788 and our records show 115,064, exclusive of work train service.

Yours truly,

ABV-wls

Electrical Engineer.

Butte, Mont., October 9, 1916.

Mr. J. J. Murphy, Supt.,
Three Forks, Mont.

Dear Sir:

Please note the attached #110 Report. We cannot read it.

I have not yet received the reports requested in mine of September 26th, nor have I received your answer to mine of Sept mber 30th.

Yours truly,

ABV-wls

Electrical Engineer.

Butte, Mont., Oct. 9, 1916.

Montana Power Company,
Butte, Mont.

Dear Sirs:

In connection with the general necessity for economizing in the use of tools, particularly at this stage of the work, I wish to call attention to twist drills which are in stock in connection with bonding. We now have on hand at Deer Lodge 150 - 7/8 inch twist drills which should be ample to cover our needs for completion of bonding, together with those now in the two Bonding Camps, particularly in view of the comparatively small amount of bonding to be done by Foreman Thompson.

Will you please bring this matter to the attention of both Foremen engaged in bonding.

Yours truly,

REW-wls

Electrical Engineer.

Butte, Mont., October 9, 1916.

Mr. H. W. Pusch,
Haugan, Mont.

Dear Sir:

I find Stix. Butler has 150 - 7/8 inch twist drills in stock for bonding work, and feel that this should be more than enough to take care of needs for completion of bonding.

Please get together with Soule and make an investigation of this subject. I would also like as soon as possible a rough check on the amount of solder needed for completion of bonding and feeder work.

Yours truly,

RHW-wls

Assistant Engineer.

cc--C.F.S.

Butte, Mont., Oct. 9, 1916.

Mr. F. H. Barrett,
Asst Gen'l Supt.,
Butte, Mont.

Dear Sir:

Supt. Willard advises he must put into Revenue service large capacity gondolas and flats on which we have placed jack for checking the position of trolley wire. After all other means failed, we used these flats as the only thing which would give the necessary stability. Eight cars in use. Can you arrange to let us keep them, as work otherwise will be seriously interfered with?

Yours truly,

RB-WLS

Electr al Engineer.

Butte, Mont., October 9, 1916.

Montana Power Company,
Attention R. Wende,
Deer Lodge, Mont.

Dear Sir:

I note the following in connection with trolley overhead and transmission between Butte and Harlowton which require attention:

The West switch at Newcomb passing track has not been moved, and overhead switch still has temporary rider wire. Please advise if you have any arrangements with Supt. Murphy as to moving the track switch so the overhead switch can be put into shape.

I note that Section men at various points along the line are beginning to adz out ties under rail, apparently on account of heaving. In any event, this would indicate necessity for watching overhead work in localities subject to heaving due to frost.

Broken pole at Ventome has not been replaced.

On various tangent sections, between Piedmont and Three Forks, particularly, either trolley wire is out of alignment or poles need lining up and keying. In many cases the messenger insulator has been moved along on the bracket arm instead of lining up the pole. Poles should of course be lined up and keyed, and messenger insulator properly located.

At some points where trolley and messenger anchor leads are attached to span wire lead changes direction to go to dead-end pole, the present 1/4" loop holding the angle in 1/2 inch strand should be replaced with 3/8 inch. This should be done before winter if feasible and only at points where the angle is heavy.

At a point about half way between Piedmont and Jefferson Island, catenary hangers are off trolley wire.

There is a transmission pole west of bridge over Jefferson River and west of Jefferson Island which has evidently gone down in the slough, and there is not sufficient clearance between transmission wires and ground. This pole is stiff-guyed and has been under discussion before. It should be checked up and held

with cross ties bolted to pole.

There is a second point east of the above bridge where transmission wire should be checked for clearance from ground. There are a number of transmission poles on tangent work between Piedmont and Harlowton which need straightening up, and either keying or stiff-guying, according to condition of ground.

Transmission pole which is west of Maudlow depot was washed out during the high water, and is still held by guys attached to butt. This pole should be removed and first pole west at least, replaced with higher pole to provide proper clearance.

It may be necessary to replace the first pole east with higher pole in addition. We can give you information in regard to this whenever you are ready to make the replacement.

The dead-end pole at west end of Jefferson Island passing track on the North side is carrying the new passing track wires and others in addition. Please advise how many head guys are on this pole. If it needs additional ones, they should be placed before winter.

A number of pull-off struts throughout the territory are not vertical. This, not only looks bad but either trolley or messenger must be displaced from its original position. These should be straightened up.

At Alcazar water tank has been removed and feeder is still attached to transmission pole which was immediately behind tank. Feeder should be run straight through on trolley poles and eliminate the undesirable angle now in the line.

The cut-out switch box at the West end of Sappington passing track appears to be out of line with operating handle. From the train it looks as if the pipe and insulating stick were badly twisted. This should be looked into and corrected if necessary.

The trolley wire on curve west of Barron about the east end of Eustis cut-off in transmission line swings badly when train passes. This should be examined.

There is a pole on the ground near Two Dot with one end near the track. This should be looked up.

Yours truly,

REW-wls

Electrical Engineer.

cc. K.P.Co. Butte

Butte, Mont., Oct. 10, 1916.

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

Referring to your letter of October 2nd, the Power Company has on hand all the curves made by the curve draving wattmeter, and showing the amount of power pumped into the Milwaukee System at every instant.

The wattmeters, however, are not arranged to read power which is simply transferred over our system, so that when such transfer is taking place the curves do not show the instantaneous net Milwaukee consumption. Moreover, the curves are taken at the different points where power is supplied, and in order to get the total power, these curves would all have to be super-imposed and the curves added up. This, as you may surmise, from the curve hereto attached, constitutes a very big job, and it is for this reason that the Power Company wanted to go in half on the installation of the Power Indicating System.

Under the circumstances, the only way to quickly get an accurate idea of the average and maximum consumption is to run the Milwaukee off of just one power tap. A recent run of this kind was made, extending from about 9:30 AM on September 29th to 9:30 AM September 30th, and I am attaching a curve which shows the results of this run.

We are going to take more runs of this kind, continuing them over several days, so as to get a better average, but I think the curve attached is quite representative.

You will note that the maximum consumption occurred between 11:20 and 11:30 AM on the 29th and that it amounted to close to 20,000 KW. The curve shows 21,000 but a deduction of 4.5 percent should be made straight through. The integrating wattmeters during the 24 hours of the test registered an average load of 9100. This gives a load factor of 45.5 percent, which is certainly I guess better than anyone ever expected we would get.

However, the interesting conclusion which I believe every one would arrive at with a study of the curve is that with a little change in the method of

dispatching, the maximum demand could have been kept down to a point such that 60 percent of it would have given our average load of 9100. Of course, if the Power Indicating System were in place, the Load Dispatcher would have at his hand an instrument which would probably enable him to keep the maximum demand at the figure referred to. We will make more tests as soon as possible, and I will give you the results.

I would judge, from a conversation with Mr. Kerr, that it might not be very difficult for us, pending the installation of the power indicating and limiting system, to secure from the Power Company an agreement that they will call the maximum demand approximately 9100 divided by .6, and I would suggest that you take the matter up with him on this basis, if you consider this suggestion proper. My only reason for thinking that the Power Company would agree to this is that I believe Mr. Kerr feels that it would be satisfactory to him, although he said the matter had to be settled by Mr. Kelly and Mr. Ryan, also because the present curve drawing instruments would have to be changed so they would read negative power as well as positive, and further because it is neither the fault of the Power Company or ourselves that the Power Indicating and Limiting System is not installed.

Yours truly,

RB-wls

Electrical Engineer.

Butte, Mont., Oct. 10, 1918.

Mr. D. B. Rivers, Stkr.,
Miles City, Mont.

Dear Sir:

I am returning to you under separate cover a box containing one dozen black record 1/2" Underwood typewriter ribbons received from you on our last stationery requisition. As all typing in this office must be done with copying ribbons, we are unable to use these record ribbons and ask that you kindly furnish us one dozen 1/2 inch black copy Underwood ribbons in their stead.

Yours truly,

WLS-s

Electrical Engineer.

Butte, Mont., Oct. 10, 1916.

G. F. Soule, Inspr.,
Haugan, Mont.

Dear Sir:

If Haigh is familiar with the proper method of grinding twist drills, please arrange to have him look into this question with both Bonding Camps, at once, and determine if drills are being properly ground.

This is particularly necessary in view of wanting to use as few tools as possible from now on, and from two sample drills used by Gilbert there are indications that some of the drill sharpening is not being done just right. This, of course, cannot be generally so, as the actual work done by Gilbert would indicate that he is, generally speaking, having his work done properly.

Yours truly,

REW-wls

Assistant Engineer.

Butte, Mont., Oct. 10, 1916.

C. F. Soule, Inspr.,
Haugan, Mont.

Dear Sir:

Referring to yours of the 8th on various subjects, I think it will be well to move the air gap and cut-out switch at Bonner Junction when work is done there on the wye track, and other matters in your letter have been carefully noted.

As regards the use of one of Barker's crews for cleaning up work east of St. Regis, we think it is possible that this plan will be followed, though I do not believe the Power Company has fully made up their minds as to just how it will be handled. In any event, some crew will have to be assigned to this work in the near future.

Yours truly,

REW-wls

Assistant Engineer.

Butte, Mont., October 10, 1916.

Mr. F. W. Adams, Sec'y,

Milwaukee, Wis.

Dear Sir:

I am enclosing herewith for your file, duplicate of Timber Sale Agreement made with the Forestry Department, for timber to be cut for the protection of our trolley line between St. Regis and Avery.

Yours truly,

REW-wlm
Encl.

Electrical Engineer.

Butte, Mont., Oct. 10, 1916.

H. W. Rusch,
Mat'l Checker,
Haugan, Mont.

Dear Sir:

We have arranged to ship 100 - 3/4 x 18" bolts from Stkr. Kelley's stock at Deer Lodge and we are having him make up 100 more.

I would like, however, to know just where these bolts are being used, in view of the fact that we have so many 16 inch bolts in stock which should take care of the majority of cases.

Furthermore, in view of no work having been done on transmission line between East Portal and Avery, we must find out promptly just how we stand for bolts in that territory. In the first place, what has Foreman Johnson in stock? Next, determine whether the 18 inch bolts now being shipped on the job and used on the job are being properly used, and if so, determine on that basis roughly the requirements between East Portal and Avery.

There is a general tendency on the part of line foremen, and a natural one, to distribute bolts which will take care of any pole encountered, and this generally means that there is a large percentage of excess length. We cannot, however, afford to work on this basis, and they will have to use more care in selecting the lengths.

Yours truly,

REW-wls

Assistant Engineer.

Butte, Mont., Oct. 11, 1916.

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

I do not know whether you have seen the new R. M. Division time-table, and I am enclosing a copy. You will notice the following changes as compared with the preceding time-table:

Train #17--Time reduced between Harlowton and Deer Lodge 15 minutes.
" #33--Now runs between Harlowton and Butte only, instead of between Harlowton and Deer Lodge. Time between former points has been reduced 10 minutes.
" #15--Time reduced 30 minutes.

Train #63--Time on R. M. Division reduced 1 hr 20 mins
" #61-- " " " " " 1 hour.
" #34--Now runs between Butte and Harlowton instead of between Deer Lodge and Harlowton. Time unchanged.
" #16--Time unchanged.
" #18--Time on R. M. Division reduced 10 minutes.
" #62--Time " " " " 55 "
" #84--No change.
" #64--Time on R. M. " " 15 ".

Yours truly,

RB-WLS

Electrical Engineer.

Butte, Mont., Oct. 11, 1916.

Montana Power Co.,
Attention Mr. Becker,
Butte, Mont.

Dear Sir:

In continuance of our recent conversation regarding test run, energizing the entire Milwaukee System from Two Dot, you will note that I am making arrangements to make this run on Friday as we agreed. I shall leave the switching etc. to you.

Yours truly,

R
ABV-wle

Electrical Engineer.

cc--M.P.R.

Butte, Mont., Oct. 11, 1916.

Mr. M. C. Butler, Stkr.,
Deer Lodge, Mont.

Dear Sir:

I am sending you herewith two prints of our drawing ED-#847, showing sheet metal protection for transmission poles where they are subject to the action of moving ice. Will you please issue a Shop Order on J. T. Kelly, calling for eight (8) pieces of this sheathing, and when the same are completed, hold them at Deer Lodge, awaiting advice as to disposition.

Yours truly,

REW--wle

Assistant Engineer.

cc--J T K

Butte, Mont., Oct. 11, 1916.

Mr. E. S. Johnson,
General Electric Co.,
Schenectady, N. Y.

Dear Sir:

I am sending you herewith a report which gives the characteristics at different substations with generator field rheostats, as the latter are at present installed, this in connection with my letter of August 28th. From these charts we are making certain additional tests:

I would like to have you look over this report and let us have your comments on it, this particularly with respect to the results which we might expect with voltage of 2300 on the machines, instead of 2200 to 2250, as they are. In other words, we would very tentatively assure from your Designing Department on basis of these figures, these which we might expect to obtain at 2300 volts.

When we have this data and your comments, we will make decision with regard to changing the rheostats. Kindly return the report, as we have no copy.

Yours truly,

Electrical Engineer.

RE-#1s

cc--VAW
FU

Oct. 11, 1916.

Mr. C. A. Lemmon, Chief Engr.,
Butte, Anaconda & Pacific Ry.,
Anaconda, Montana.

Dear Sir:

We are sending you today by express the appraisal of overhead structures jointly used by our respective Companies between Colorado Junction and a point west of Miles Crossing.

While the statement gives all details, I will call your attention to the fact that we are not taking into consideration, interest, taxes, engineering, legal expense or depreciation on your structures, as we feel that going into these details would add considerably to the expense of making the appraisal, would cause complications and that all the various items involved will just about balance, leaving a total as shown by the figures in the statement we are sending.

As regards the unit cost of labor for various operations, while the detailed items may change, from our experience and records, we feel that the total amount in each case is as near as we can get at it.

You will note from the summary sheet that the total amount to be paid you for part of your original construction is $8,141.38, and that the proportionate amounts upon which fixed charges are to be based are $12,148.57 for your Company and $10,590.39 for us.

I understand that you will look this appraisal over and return it to us as soon as possible, and have us advised as to whether it is acceptable to your Company.

Yours very truly,

REW-wls

Electrical Engineer.

Butte, Mont., Oct. 11, 1916.

Mr. F. E. Willard, Supt.,
Missoula, Mont.

Dear Sir:

Inspector Soule advises you are arranging to have the coal chute at Clinton changed to opposite side of coal bin, and that you do not want any live trolley wire alongside of the chute in its new location.

If our understanding is correct, you want the trolley wire which is now installed over the track back of coal bin taken down.

Will you please advise, so that we can, when the proper time comes, take care of the matter.

Yours truly,

REW-wla

Electrical Engineer.

Butte, Mont., Oct. 11, 1916.

The Montana Power Co.,
Butte, Mont.

Dear Sirs: Attention: Mr. M. E. Buck

Our electrician at Great Falls has brought up the question of there being no switches or fuses in the line supplying power to our substation at that point, which can be readily reached from the substation, in case of trouble.

According to my understanding, we paid for the pole line between the substation and your line to the Meat Company's plant, and I believe that there were originally fuses in our branch line at the point where it left your line. At the present time there are no fuses, but instead, there are disconnecting switches at the point of tap-off which are normally locked and the keys to which are held by your [illegible] yse.

It seems desirable to have some fuse protection and means of disconnection at a point near the substation, and if the fuses were originally in the line, we would like to have them replaced at or near the substation entry frame.

I presume you will submit this matter to Mr. Dow, who is familiar with all the details, and let us hear from you at your early convenience, and oblige.

Yours truly,

RDW-wlc

Electrical Engineer.

October 11, 1916.

Mr. N. W. Storer, Chairman,
Traction and Transportation Committee,
American Institute of Electrical Engrs.,
33 West 39th Street, New York.

Dear Sir:

I regret very much my inability to be present at the Meeting of the Committee on Traction and Transportation on Friday, October 13th, at Philadelphia, but trust that after the work is planned out at the meeting referred to, you will call upon me to assist in whatever way I can with the work of the Committee.

Very truly yours,

RB-wls

Electrical Engineer.

Butte, Mont., Oct. 11, 1916.

Mr. G. F. West,
Car Service Agt.,
Seattle, Wash.

Dear Sir:

Referring to your note of October 7th, we have discussed with the Montana Power Company the question of the possibility of releasing some of the cars used in Electrification work, and Mr. Buck, Superintendent of the Company has taken up the matter with his foremen and will do all that he can for you in the way of releasing cars.

One of your notes refers to our having in service "80 - 80,000# Cars". I presume this is merely a mistake in your writing, as we have no such number of cars of that capacity in use.

Very truly yours,

RB-WLS

Electrical Engineer.

M.E.B.--Please let me know what you can do as soon as possible.

R.B.--10/11/16

Butte, Mont., Oct. 11, 1916.

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

Referring to your note of October 3rd regarding attached report of delay to Train #18 on September 28th, this motor did use the second pantograph, but it, like the first, was burned. This happened between Three Forks and Penfield, and the motor was towed to Three Forks by Motor #10209. I quote the following from Mr. Sears' letter to me of October 7th:

"In reference to your letter of October 3rd: Early in August I issued an order that all pantographs must be weighed before leaving Deer Lodge. This was shortly after the new siding was completed where we could sectionalize it so as to kill it while making pantograph inspection. I am of the opinion that Engr. Barnes' sparking was due to locomotive #10100 having too light tension, as I recently found out that while I started this work going, it was dropped. This was the cause of Locomotive #10104 having detention on September 29th. Engine laid here for 14 days and had work done on pantograph, but after engine was taken out pantographs were not weighed with scales. I have taken this up very strongly with my electrical Foreman, who is responsible for this, as he disobeyed my instructions."

Yours truly,

RB-wls

Electrical Engineer.

Butte, Mont., Oct. 11, 1916.

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

Referring to your note of October 2nd regarding attached report of delay to Train #18 on September 9th, this motor did use the second pantograph, but it, like the first, was burned. This happened between Three Forks and Penfield, and the motor was towed to Three Forks by Motor #10308. I quote the following from Mr. Sears' letter to me of October 7th:

"In reference to your letter of October 3rd: Early in August I issued an order that all pantographs must be weighed before leaving Deer Lodge. This was shortly after the new siding was completed where we could sectionalize it so as to kill it while making pantograph inspection. I am of the opinion that Engr. Barnes' sparking was due to locomotive #10100 having too light tension, as I recently found out that while I started this work going, it was dropped. This was the cause of locomotive #10104 having detention on September 28th. Engine laid here for 14 days and had work done on pantograph, but after engine was taken out pantographs were not weighed with scales. I have taken this up very strongly with my electrical Foreman, who is responsible for this, as he disobeyed my instructions."

Yours truly,

RB-wls

Electrical Engineer.

Butte, Mont., Oct. 11, 1916.

Mr. J. J. Murphy, Supt.,
Three Forks, Mont.

Dear Sir:

Referring to Mr. Cromier's note to you of August 28th, we have made an estimate of the cost to provide electric lights in Tie Dot station, as requested, and find this would cost approximately $100. We have furthermore secured permission to furnish this light from the substation transformer, if you so desire.

If you wish to go ahead with this matter, suggest that you take it up with the Motive Power Department who install the wiring in the passenger stations, and have them confer with us regarding connection to substation transformer.

Yours truly,

Electrical Engineer.

HB-wls

Butte, Mont., Oct. 11, 1916.

Mr. E. W. Adams, Sec'y,
Milwaukee, Wis.

Dear Sir:

I am enclosing herewith corrected Field Notes for Transmission Line Survey through Lolo and St. Joe National Forests, Exhibits "G-1" and "F", respectively.

As per notes inserted, will you please have Page #7 and Pages #18 to #24 inclusive, in Exhibit "G-1" which you now have destroyed, replacing them with the sheets enclosed herewith, also Pages #1 to #11, inclusive, in Exhibit "F" which you also have, destroyed, and replace them with sheets of the same numbers and belonging to the same Exhibit, enclosed herewith, this giving you a corrected copy of each of the Exhibits as revised by request of the Forestry Department.

We will send you revised blueprints of tracings as soon as we can have them made up.

Yours truly,

REW-wls

Electrical Engineer.

Butte, Mont., Oct. 11, 1916.

Mr. E. O. Reeder,
Asst Chief Engineer,
Seattle, Wash.

Dear Sir:

Following your request, I am sending you herewith Van Dyke Print of ED-#483 showing proposed trolley construction under N. P. Bitter Root Branch Bridge which crosses our tracks just west of Missoula Passenger Station.

Yours truly,

REW-wls

Electrical Engineer.

Butte, Mont., Oct. 11, 1916.

Mr. F. Rusch,
Gen'l Master Mechanic,
Tacoma, Washington.

Dear Sir:

Referring to your letter of October 2nd, regarding power for Harlowton, my understanding was that as far as handling the locomotives in and out of the roundhouse was concerned, we were going for the present, to use simply a locomotive motor generator, run off of the trolley. I also explained to you that it was probable that the Montana Power Company would have power available at Harlowton by winter, and that it might be advantageous to eventually get all the power for the roundhouse from that Company.

The Montana Power Company now have extended their line down to Harlowton, and I find we can get the power. It may, however, be feasible to get this power from the Two Dot substation, and I expect shortly to be able to have some figures made up which will enable this to be determined.

Yours truly,

RB-wls

Electrical Engineer.

cc--E. Sears

Butte, Mont., Oct. 11, 1916.

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

Referring to your letter of September 26th regarding Mr. Busch's Requisition #22, hereto attached, I have had Mr. Wende, our Superintendent of Trolley and Transmission Maintenance, make an investigation of the poles on the Gallatin Valley line. Mr. Wende is a man whom I consider would not be afraid to say exactly what he thought about the requisition. He counted 132 poles on the N. P. Transfer Track alone which need to be replaced. The poles, he says, are not thoroughly rotten, but have an outside rot at the butts of a depth of from 1½ to 3½ inches, and are "buckled" and in bad shape, also that the present poles are too light to carry the load that is on them. And under the conditions the poles are apt to break at any time and cause a serious accident.

I would suggest, therefore, that Mr. Busch's requisition be filled from the poles which we took out west of Morel. These poles will have a sufficient height to sag the cross-supporting catenary sufficiently to prevent the poles from "buckling" excessively, and still allow the wire to be a proper height above the track, which it now is not. The poles which we took down from west of Morel have cross arm gains in them, but I do not think this should make any difference. On this basis Mr. Busch will not only get the poles he wants, but will be sure that they are of the best material, and there will be no delay in getting them on the ground. The poles in question have been framed, of course, so that they are cut down somewhat from the standard length of which they were ordered. I would therefore suggest they be billed to Mr. Busch at the price corresponding to the next lower standard length, the price not to include any freight which we paid from point of manufacture to Butte. Please advise your wishes.

Yours truly,

RB-wls

Electrical Engineer.

Butte, Mont., Oct. 11, 1916.

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

As you know, we now have seven substations in operation, and will very shortly have four more, or a total of eleven, leaving three yet to be placed in operation.

The operation of the substations has been supervised from this office, but the importance of our securing a competent superintendent of substations to devote his entire time to their supervision has been recognized and talked over with you.

Mr. Mumma, who has been in charge of our construction work in substations, has expressed a desire to take the position, which at first he was not sure he desired, on account of wishing to continue in construction. He would be glad to continue at his present rate of $175.00 and expenses. We cannot get a man to take charge of fourteen important substations like these for less money who would be worth while, and I would like to know if you would care to take Mr. Mumma on under these terms. Of course for the present he would continue on the rolls of the Montana Power Company.

Yours truly,

RB-wls

Electrical Engineer.

October 11, 1916.

Mr. E. W. Kramer,
District Forester,
Missoula, Mont.

Dear Sir:

I am sending you by express today tracings showing map of transmission line across Lolo National Forest, Mineral County, Montana, consisting of six sheets in duplicate, called Exhibit "D", also tracings showing map of transmission line across St. Joe National Forest, Shoshone County, Idaho, consisting of three sheets in duplicate, called Exhibit "E".

In addition to the above, I am enclosing herewith Field Notes to go with the tracings. Both tracings and field notes have been corrected to meet your requirements.

Please note that, as you requested, the sub-station and dead-end tower are located approximately at the terminus of the survey.

I believe you retained the other Exhibits originally forwarded with tracings and field notes. Will you please acknowledge receipt and oblige.

Yours truly,

REW-wls
Encl.

Electrical Engineer.

Butte, Mont., Oct. 11, 1916.

Mr. F. Sears,
Elec Master Mechanic,
Deer Lodge, Mont.

Dear Sir:

Considering the fact that the motors will soon be operating on the Missoula Division, I believe it would be a good thing to make sure that the blue-prints of instructions on power reports are properly posted in all motors. We will gladly supply all the blue prints you may need.

Yours truly,

ABV-vls

Electrical Engineer.

WH

Butte, Mont., Oct. 11, 1916.

Mr. E. H. Barrett,
Asst Gen'l Supt.,
Butte, Montana.

Dear Sir:

Referring further to my letter of October 7th, I believe that we can finish up the wiring of the extension tracks between Three Forks and Deer Lodge, except at Colorado Junction, by about the 10th of November. How does this look to you?

Yours truly,

RB-wls

Electrical Engineer.

cc--W.B.F.

Butte, Mont., Oct. 11, 1916.

Mr. E. Sears,
Elec Master Mechanic,
Deer Lodge, Mont.

Dear Sir:

I am returning to you under separate cover 21 speed recorder rolls. Four contain a double record which runs off the end of the roll, three contain records running off end of roll, two are torn, one is from a last order speed recorder but one is OK.

Yours truly,

AEV

Electrical Engineer.

Butte, Mont., Oct. 12, 1916.

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

Referring to your letter of October 6th, the following is a statement of actual cost of all Maintenance Crews for the month of September, and what these Crews would have cost under the proposed Agreement:

THREE FORKS--HARLOWTON:

Occupation	Number Men	Actual Cost	Cost Per Agreement
Foreman	1	$ 230.67	$ 170.70
Linemen	2	401.90	314.30
Helpers	1	135.93	89.44
TOTAL.....		$ 768.50	$ 574.44

DIFFERENCE.....$194.06

DEER LODGE--THREE FORKS:

Occupation	Number Men	Actual Cost	Cost Per Agreement
Foreman	1	$ 284.37	$ 184.98
Linemen	5	928.09	822.98
Helpers	3	402.00	256.64
TOTAL.....		$1614.46	$1264.60

DIFFERENCE.....$349.86

The reason why the Maintenance Crew between Deer Lodge and Three Forks has been costing more, is on account of work, in addition to the regular maintenance work, having to be handled. The maintenance itself for the two crews during September cost $1445.58.

Yours truly,

RB-wls

trical Engineer.

Butte, Mont., Oct. 13, 1916.

Mr. E. Sears,
Elec Master Mechanic,
Deer Lodge, Mont.

Dear Sir:

When we made our first tonnage test between Lombard and Loreth, we had to stop on a bad reverse curve at Deer Park. In starting up again, the wheels not sanded slipped at about 270 or 280 amperes, while the sanded wheels held firmly.

It seems to me that this feature is one which not only limits the tonnage we may handle, but probably also accounts for a good many flash-overs. I do not think it would follow that if we sanded all drivers, instead of only the leading ones, as at present, that we would use anything like twice the sand. In any event, this is of secondary importance.

The present practice seems open to question where there are two motors in series, and the weights on both sanded and unsanded drivers is approximately the same. The fact that sand is used pre-supposes that the drivers are slipping. We then apply sand and increase our tractive effort, but inherently introduce the difficulty of tending to throw a sudden excess voltage on the motors connected to sanded wheels. It seems to me we should seriously consider fixing up one locomotive to have all wheels sanded, and try it out.

I would like to know what you think about this, and also to have your advice as to the feasibility of sanding all drivers.

Yours truly,

Electrical Engineer.

MB-wls

cc--J.B.Cox
Roy Cleveland
Geo. Spaulding

Butte, Mont., Oct. 1[illegible], 1916.

Mr. F. Sears,
Elec Master Mechanic,
Deer Lodge, Mont.

Dear Sir:

I am sending you today under separate cover five speed recorder rolls. Two contain two records which run off the end of the roll. One is marked so faintly that it cannot be read. Two have the record off the end of the roll and are torn.

R. Becuwkes, Elec. Engr.

Butte, Mont., Oct. 12, 1916.

Montana Power Co.,
Butte, Mont.

Dear Sirs: Attention: Mr. M. E. Buck

At our coal track and spur leading to the Hawkes' Warehouse on South Montana Street, we have a pole to which trolley dead-end is attached, and this pole is side-guyed over the Hawkes Warehouse to a stub set in vacant lot immediately to the North of the Hawkes warehouse. This vacant lot belongs to a Mr. J. W. Marshall, who is at present engaged in excavating for a basement for a building which is to be erected on this lot, and it will be necessary to have the stub on this lot removed.

There are two Power Company wires for 110 volt service attached to this guy, though insulated from it. Mr. Hawkes has given us permission to place an eye-bolt in the roof or through the fire-wall of his building to serve as a new point of attachment for the side guy after stub is removed. As there is a very small amount of strain on this side-guy, this attachment will serve the purpose.

As any change in the location of this guy will necessitate a slight change in the location of the Power Company wires, we thought possibly one of your City crews could remove the stub and transfer the guy to eye-bolt which is to be attached to the Hawkes warehouse. If this cannot be done, will you please hand this information with the attached sketch to Mr. Wende.

Yours truly,

Electrical Engineer.

R
LW-wls

Butte, Mont., Oct. 12, 1916.

Mr. E. H. Barrett,
Asst Gen'l Supt.,
Butte, Mont.

Dear Sir:

I had a conversation with Mr. Dow recently while at Avery regarding wiring of the tracks there. You will remember that for the West Yard, we were to wire only No. 2 track, and then two tracks into the West end of the Roundhouse, and three of the tracks coming out of the East end of the Roundhouse.

Of course, operating as we do, on the East end, Helper has to be handled in the middle of the train, and it would seem that it is going to be very inconvenient to provide for this with the wiring as laid out.

Any switching which is done over to the Main Line of course, throws the "distant" signal considerably west of the Yard to "danger" which of course is proper, but which precludes making any switching movements on the Main Line, and also Mr. Dow tells me it would be impossible for the head locomotive to pull up into the East Yard in order to cut in the middle locomotive. Maybe you have given this all consideration, but if not, I thought possibly you might wish to go into the matter further.

Yours truly,

Electrical Engineer.

RB-wls

Butte, Mont., Oct. 12, 1916.

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

The Montana Power Company has extended their Two Dot power tap from Two Dot substation to Harlowton. In doing this, however, without first securing our permission, they erected some poles and switches in location as shown on the attached blueprint and sketch.

We took this up with the Power Company and they replied as per their letter of September 22nd , copy hereto attached.

Clause "Fifteenth" of the Power Contract in which the Power Company is given the right to erect poles, etc. on our right of way states that the location is to be designated by us. Furthermore, the Power Company, if required by us, would have to remove the fixtures from our right of way. In view of Mr. Bird's letter of September 22nd, do you wish to take any further action in the matter?

The poles are not just where we would like to have them, but they do not interfere with any of our present plans, nor with the appearance of our layout.

Yours truly,

Electrical Engineer.

RB-wls
Encl.

Butte, Mont., Oct. 1[illegible], 1916.

Mr. F. E. Willard, Supt.,
Missoula, Mont.

Dear Sir:

A portion of the Missoula Division will soon be placed under electrical operation. At the present time our office is taking care of the accounting for this form of fuel. In order that we may do this, we would ask that you furnish us with the following reports, as is done on the R. M. Division:

#1---A report from each engine covering 24 hours. Full instructions concerning this report are posted in locomotives, and the instructors and traveling engineers are familiar with the same. You should obtain a supply of these blanks from the Company printer. They are known as (MP-#111). Several sample blanks are attached hereto.

#2---A "Motor Movement Report". This is made out by the Chief Dispatcher, and sent to Mr. H. B. Farling and G.F.West, Seattle, C. A. Goodnow, Chicago, and R. Beaukes, Butte. It contains the following information on all electric trains: Train number, Train and Helper motor numbers, Train and Helper engineers names; loads, empties, and tons leaving Deer Lodge, Alberton and Avery, with footnotes giving all large fills or reductions. Point and Time of Departure and Arrival, with Total Time on the road.

#3---A legible copy of your #110 Report. This office will then furnish you each month, with a division of the total cost of power as required by the I. C. C.. Further arrangements are being made, that we shall forward to Chicago what data they desire.

Yours truly,

ABV-wls

Electrical Engineer.

Butte, Mont., October 12, 1916.

Mr. L. W. Smith,
Asst Signal Engineer,
Tacoma, Washington.

Dear Sir:

Referring to your letter of September 21st, I have prepared the following information relating to equipment installed in our substations for the purpose of energizing and controlling the primary signal circuit, as per your request therein, and trust the following will meet your requirements:

The electrification of the Mountain division of the C. M. & St. P. Railway, through Montana, made it necessary to change the Automatic Block signals in this territory from direct to alternating current. The logical place from which to obtain this alternating current is the substations, which are supplied with power by the Montana Power Company, at a normal voltage of 100,000. The signal circuit requires 4400 volts, which is obtained from the 2300 volt side of power transformers feeding the motor generators.

The substations are so arranged that a 2300 volt, three phase bus is provided at the main switchboard. This bus is fed from the secondary of the power transformers, and in order that the circuit may not, under normal conditions, be interfered with because of a damaged transformer or switching equipment, provision was made whereby the connections could be quickly and easily transferred to either one of two transformers. This is accomplished by means of so-called selector switches (See Fig. #1). The tap for each power transformer secondary is connected through so that when it is desired to transfer the 2300 volt bus feed from one transformer to the other, the open switch is thrown in and the switch originally closed is tripped out. In this way the signal circuit is not interrupted at time of transfer.

As protection against an overload on the power transformer due to a short circuit in the 2300 volt bus connections, inverse time limit relays are provided, the coils of which are connected to Type W-2

current transformers, of 3:1 ratio.

The step-up transformer required for obtaining the 4400 volts is a 25 K.V.A. single-phase, 60 cycle, 2300/4400 volt transformer. It's 4400 volt winding is connected to a bus, which feeds the signal circuits on each side of the station. Each signal circuit is controlled by a separate automatic K-5 200 amp. 4500 volt oil switch. The signal circuits being separate from each other precludes the possibility of trouble on one line interfering with the other. The primary of the 25 K.V.A. transformer is connected through a set of LG-6 disconnecting switches which permits the transformer to be entirely isolated from the 2300 volt bus. Also on the line side of the K-5 switches is another set of LG-6 disconnecting switches, which permits the 4400 volt side of the transformer to be isolated from the line.

The meter equipment consists of a recording voltmeter, ground detector, and an ammeter on each circuit. The voltmeter is a Bristol type with 24 hour chart connected across the secondary of a BQ-4 potential transformer of 40:1 ratio. The ground detector is of the electrostatic vane type. This meter indicates a ground on either circuit and the extent of the ground. The ammeters are of 5 amp. capacity, and are connected to the secondary of type W-2 current transformers of 1:1 ratio.

Protection against overloads is obtained by means of inverse time limit relays, one for each circuit, the coils of which are connected to the same current transformers, as the ammeters. In case of an overload on the equipment, the relay in the circuit affected, closes the trip coil circuit, and trips out the switch on the affected line. If for any reason this relay fails to operate, the inverse time limit relay will trip the switches on the 2300 volt circuit, providing the overload is heavy enough. It is not desirable that this happen except under extreme conditions, as with the 2300 volt bus dead, the signal circuit in both directions is opened and all signals go to danger.

In order to reduce to a minimum, the delays to train operation, incident to an automatically opened switch, auxilliary switches are attached to

each automatic switch which control a bell alarm and pilot light circuit. When the switch is tripped, the bell circuit is closed. This rings a bell, and lights a pilot light, the latter being mounted on the panel and above the switch opened. The bell is large enough to be heard from any part of the station and the pilot light enables the operator to tell at a glance, the circuit which has been interrupted.

Each substation, which is in or near signal territory, is provided with complete equipment as outlined above. Fig. #1 is a wiring diagram showing complete substation equipment having to do with signal operation in the electrified zone, and I am attaching four prints of this sketch hereto.

Yours truly,

Electrical Engineer.

RB-wls

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

Referring to trouble at Tunnel #12 about which we wrote you October 7th, we find that the Catenary parted at a brace at the second pole outside the east end of the tunnel, and with regard to the trouble at Silver Bow, this appears to have been due to the burning of the top of a pantograph, probably due to poor contact, which caused the pantograph to foul the overhead construction and hangers to get bunched together.

Yours truly,

RB-wls

Electrical Engineer.

Mr. H. A. Potter,
Telegraph Dept.,
Building.

Dear Sir:

Referring to the attached, the trouble between Stetson and Avery must be caused by our Feeder Stringing Crew.

The weather conditions are very bad to avoid trouble. I have taken this matter up again with the Montana Power Company, and Mr. Buck will advise his foremen, particularly the Crew between Stetson and Avery, to be more careful. I do not think there will be any further trouble between Butte and Donald, as this must have been caused by the Crew working on the passing track extension at that point, which I now understand has been completed.

Yours truly,

HB-wls

Electrical Engineer.

Mr. F. Rusch,
Gen'l Master Mechanic,
Tacoma, Wash.

Dear Sir:

Referring to your letter of October 11th to Mr. Prengel, the passenger stations cannot be illuminated from the 3,000 volt d.c. trolley circuit.

When the electrification plans were first being gotten out, I took up with Mr. Goodn the provision of a lighting circuit to extend along the line similar to that provided for signals, but Mr. Goodnow decided such circuit should not be provided.

I understand there is some spare capacity on the 4400 volt circuit provided for signals which will eventually run from one end of the electrified line to the other. I do not know whether the Company would care to consider power being taken off of this signal circuit for lighting stations, thus tending to subject the signal circuit to additional interruptions in service. This mattef should be taken up with Signal Engineer Mill.

Yours truly,

RB-wls

Electrical Engineer.

cc--C.A.G.

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

Referring to Mr. Sears' Detention Report for September, the overhead trouble was caused by lightning breaking the insulators in a strand wire connected to the troller, so that this strand wire burned off and hung down on the ground. The Maintenance Crew, unfortunately, on this particular night happened to be working near Deer Lodge and had tied up there. When Mr. Buck and I heard of the trouble we went down to Colorado Junction, and inside of a few minutes, swung the strand wire into the clear.

The trouble occurred at 7:15 PM. Owing to wire trouble, the crew at Deer Lodge was not notified until 8:00 PM. It then took one hour and twenty-five minutes for the Work Train to get started. They arrived at Colorado Junction at 10:10 PM.

Yours truly,

RB-ELS

Electrical Engineer.

cc--HEU*
WEF*
WHB*
JJM*
E SEARS

Mr. F. Ruach,
Gen'l Master Mechanic,
Tacoma, Wash.

Dear Sir:

Referring to your letter of October 11th to Mr. Prengel, the passenger stations cannot be illuminated from the 3,000 volt d.c. trolley circuit.

When the electrification plans were first being gotten out, I took up with Mr. Goodn the provision of a lighting circuit to extend along the line similar to that provided for signals, but Mr. Goodnow decided such circuit should not be provided.

I understand there is some spare capacity on the 4400 volt circuit provided for signals which will eventually run from one end of the electrified line to the other. I do not know whether the Company would care to consider power being taken off of this signal circuit for lighting stations, thus tending to subject the signal circuit to additional interruptions in service. This matter should be taken up with Signal Engineer Mill.

Yours truly,

RB--le

Electrical Engineer.

cc--C.A.G.

In regard to flashing at the overlap air gap, this flashing is not at the air gap. The flashing was at the West switch point where the pantograph would close the East and West feeder. On account of passing track being bridge at East end of feeder, we have lowered this passing track wire a little, and do not think we will have any more trouble there.

Yours truly,

RE-wls

General Foreman.

Butte, Mont., Oct. 13, 1916.

Mr. C. L. Whiting, Supt.,
Lewistown, Mont.

Dear Sir:

Will you please advise me the maximum train tonnage handled at any one time with our electric locomotive at Great Falls.

Yours truly,

RB-wls

Electrical Engineer.

Catenary broke the second pole outside of the East end of the tunnel. When they dropped the train back in order to get it off the main line, the end of this catenary wire caught in some part of the train and piled up on the inside of the tunnel, broke insulator and pulled off a lot of hangers.

Yours truly,

RW-wls

General Foreman.

Butte, Mont., Oct. 13, 1916.

Mr. R. Beeuwkes:

On September 4th Foreman Latham went to Vendome on a trouble call and found that the trouble was not in connection with the trolley or transmission, but was due to a grounded motor.

Yours truly,

RW-wls

General Foreman.

Referring to your note of the 6th with reference to rock 3/4 mile west of Eustis, in my estimation this pole should be moved and rock taken down. We have a pole in Three Forks and can go ahead with this as soon as we get a little spare time. It will cost about $150.00 to change this pole.

Yours truly,

RW-wls

General Foreman.

Butte, Mont., Oct. 13, 1916.

Mr. R. Beeuwkes:

In regard to insulators intended for use in Piedmont engine house, upon thorough search at Piedmont I have been unable to find them. I went to the Agent about the matter and he wants the billing, so I went to Three Forks and got the billing from the Agent at Three Forks, who advises he will make us a duplicate bill if we want it. The billing was W/B No. 34, Shipped on April 5, 1916.

Yours truly,

RW-wls

General Foreman.

Mr. F. E. Willard, Supt.,
Missoula, Mont.

Dear Sir:

Following your decision in regard to bridge warnings west of Deer Lodge, we are preparing to have our trolley clean-up crew install the swinging type of warning fitted with bamboo pole, beginning next week, and wish to call your attention to the question of maintaining these warnings, which I believe consists principally of replacing the bamboo poles.

Supt. Murphy is taking care of this replacement with his Section Crews on the R. M. Division, and they were provided with ladders made up in Deer Lodge Shops from a sketch which we furnished.

Will you please advise, as soon as possible, if you propose to maintain these in the same way, and if you wish us to arrange for the necessary ladders, giving the number required and the points to which they are to be shipped.

Yours truly,

REW-wls

Electrical Engineer.

Butte, Mont., Oct. 14, 1[illegible].

Montana Power Co.,
Attention H. Fenn,
Deer Lodge, Mont.

Dear Sir:

It appears sometimes repairs are made which are carried by regular Work Report, instead of Trouble Report. This is no doubt due to our instructions in this connection not having been as clear as they might be.

Hereafter will you kindly make out a trouble report for any case where you are called to make immediate repairs, or investigation, owing the necessity of some, say, for instance, a car might go off the track and knock down a pole. You would be notified by the Dispatcher and probably after doing so the product it would not be found necessary to send the crew just then in order for service to start run. You could cover this by Trouble Report because you have to leave regular Maintenance Work and make the investigation.

Yours truly,

PB-wls

Electrical Engineer.

cc--M.P.Co.--Butte
H.M.Lathem--Butte Yard
R. Claire--Three Forks.

Butte, Mont., Oct. 14, 1916.

Mr. F. E. Willard, Supt.,
Missoula, Mont.

Dear Sir:

We expect to start a trolley Crew cleaning up overhead work between Deer Lodge and Alberton, in connection with energizing the line between those points, the first of next week.

In this connection, will you please advise what your plans and wishes are in regard to the maintenance of trolley wire over track back of coal dock at Clinton. If you are to maintain derrick, which is liable to come in contact with this wire or dangerously close, it will not be safe to have this wire so it can be energized. Please advise at once.

Yours truly,

REW-wls

Electrical Engineer.

The Montana Power Co.,
Attention Mr. Sweichler,
Three Forks, Mont.

Dear Sir:

Referring to our conversation of a few days since in which I promised you I would give you a brief description of the operation of the Power Indicating and Limiting System, the general operation is as follows:

In or near the Dispatcher's office there is located a transformer whose primary is connected to the signal system, and whose secondary is connected to the motor of an AC-DC motor generator of about one KW capacity. The DC voltage is 1200. In the Dispatcher's office are indicating, integrating and curve drawing wattmeters, the system being so arranged that these wattmeters add up for each instant, power supplied to the whole system between Butte and Four Lodge. This is effected by means of a No. 8 copper wire circuit which extends between Morel and Two Dot substations. One wire passes from one end of the line to the other, going only into the end substations, and the second wire loops into each substation, and also into the Dispatcher's office, where the DC 1200 volt current is connected.

At each point where the Power Limiting circuit loops into the substation, it passes through a motor driven rheostat. The amount of resistance in this rheostat is increased or decreased through the medium of a clutch between the motor and the rheostat, the action of which clutch is controlled by a contact-making wattmeter which is energized from the Power Company entrance line at the substation. As a consequence, the total resistance in the Power Limiting Circuit is dependent on the total power and therefore the current flowing is so dependent. This current passes through the so-called wattmeters in the Dispatcher's office and the amount of such current is in proportion to the KW taken from the Power Company's system.

There are two limiting features of this system. The first is one which enables the Dispatcher to at any time reduce the maximum load by thirty percent,

and the second the being [illegible]
causes the load on any substation, upon reaching a predetermined amount, to shift to an adjacent substation.

The first feature is secured through the operation of a contact-making ammeter through which the Power Limiting Circuit passes, and which causes to be energized, relays which operate a motor connected to rheostats in the 1,000 volt generator fields.

Yours truly,

RB-sls

Electrical Engineer.

c--M.E.B.

Mr. E. W. Adams, Sec'y,
Milwaukee, Wis.

Dear Sir:

I am sending you today under separate cover thirteen prints each of our drawings ED-#851, #852 and #853, which we have prepared in accordance with your letters of August 24th and September 8th, showing the location of transmission line, and transmission and trolley anchors, on U. P. Patented Lands between the Montana-Idaho State line and Avery, with reference to operating Right of Way.

Will you please advise what disposition you desire made of the original tracings for these drawings, as it is not necessary that we should keep these in our files. Please acknowledge receipt of these blueprints.

Yours truly,

LW-wla

Electrical Engineer.

Dear Sir:

Following your request, I am sending you Van Dyke print of drawing ED-[illegible]826 showing location of poles and anchors on N. P. right of way at Henderson.

Yours truly,

REW-wls

Electrical Engineer.

Mr. F. E. Willard, Supt.,
Missoula, Mont.

Dear Sir:

Following my letter of several days since in the same connection, about the first of next week we expect to start cleaning up overhead work for energizing between Deer Lodge and Tarkio.

I understand that you contemplate changing location of coal derrick so as to handle coal on track back of coal dock, instead of on passing track, also that you do not care to have a live wire on this back track.

It would seem feasible to leave the trolley wire, which is now installed, over the back track in place, and change the derrick so as to give safe clearance over trolley wire. Please advise if derrick cannot be so arranged and trolley wire left as it now is.

We must have this information quick, as we will have to push our clean-up work as fast as possible in order to prepare for operation by the first of November.

Yours truly,

REW-wlc

Electrical Engineer.

Butte, Mont., Oct. 14, 1910.

Mr. E. T. Chapin,
E. T. Chapin Company,
Spokane, Washington.

My dear Mr. Chapin:

Referring to your letter of the 11th inst in which you state you are desirous of securing some photographs of long spans in our transmission line where the Western Red Cedar Pole is in use, we will make an effort to get these pictures for you, and if we find we cannot get what you want, we will be glad to advise your photographer where to go to secure them. We will advise you further with regard to the matter a little later.

Yours very truly,

RB-WLS

Electrical Engineer.

Mr. E. W. Adams, Sec'y,
Milwaukee, Wis.

Dear Sir;

I am sending you under separate cover blue line prints of the following drawings which show the location of our transmission line on the Lolo and St. Joe National Forest Lands:

Exhibit "D"---Sheets #1, #2, #3, #4, #5 and #6. Please destroy all sheets of this Exhibit previously sent you.

Exhibit "E"---Sheet #3. Sheets #1, and #2 of Exhibit "E" as previously sent you have not been changed, and copies of these drawings which you now have are correct.

Please destroy Sheet #3 of Exhibit "E" previously sent you.

The Field Notes which cover location of the line as shown on these prints has already been mailed to you.

Yours truly,

LW-wls

Electrical Engineer.

Dear Sir:

Following your request I am sending you blueprint of Avery Yard showing tracks to be wired. I note in my special instructions in regard to bonding, except that the bonding on main line will stop at the substation, and all other tracks wired will be single bonded according to our standards. You will note that the main line track is to be wired several hundred feet west of the west switch. I presume you are going ahead on this yard and seeing to it that the long angle bars are changed out ahead of the bonding.

Yours truly,

REW-wls

Assistant Engineer.

Mr. T. E. Anderson,
Gen'l Foreman, Telegraph Dept.,
Northern Pacific Railway,
Livingston, Mont.

Dear Sir:

Following instructions from Mr. Clapp, I am sending you herewith blueprint showing proposed change in transmission crossing over your track just west of your Mile Post 836, on your Wallace Branch, and at a point just west of Saltese, as shown on our drawing ED-#842.

Mr. Clapp wrote us on October 9th, objecting to the length of span as proposed in our original layout, and suggested a change which involved extending the line further east on the south side, and shortening up the crossing in that way.

As we have set our poles in this vicinity and as we could obtain a straight line crossing by setting an additional pole at Station 6377 plus 40, as indicated on attached blueprint of the map and profile, we submitted this latter plan to Mr. Clapp and he wires us that if the span can be reduced to 140 ft. as shown, that he considers this plan preferable.

We are, however, to submit this matter to you, and he states you are to forward the attached plans to him with your recommendations. Your early notice in this matter will be greatly appreciated as we are very anxious to get our line energized to East Portal as soon as possible.

Yours truly,

RSW-wls

Electrical Engineer.

cc--W. H. Clapp, Supt. Telegraph,
Northern Pacific Ry.,
St. Paul, Minn.

Mr. C. F. Urbutt,
Roland, Ida.

Dear Sir:

I understand that you are now using some form of staging for your men engaged in tunnel lining work, which permits them to work independent of passing trains, and that it may be feasible for us to use this same staging in installing eye-bolts in some 3,000 ft. of tunnel which we have to drill. Will you please advise just how this staging is arranged, and what would be involved if we made use of it for our work.

Yours truly,

REW-wls

Electrical Engineer.

Butte, Mont., Oct. 18, 1916.

Mr. T. E. Anderson, Gen'l Foreman,
Telegraph Department,
Northern Pacific Railway,
Livingston, Montana.

Dear Sir:

Following instructions from Mr. Clapp, I am sending you herewith blueprint showing proposed change in transmission crossing over your track just west of your Mile Post #25, on your Wallace Branch, and at a point just west of Saltese, as shown on our drawing ED-#842.

Mr. Clapp wrote us on October 9th objecting to the length of span as proposed in our original layout, and we have suggested a change which involves extending the line further east on the south side, and shortening up the crossing in that way.

As we have set our poles in this vicinity and as we could obtain a straight line crossing by setting an additional pole, at Station 9377 plus 40, as indicated on attached blueprint of the map and profile, we submitted this latter plan to Mr. Clapp and he wires us that if the span can be reduced to 140 ft. as shown, that he considers this latter plan preferable.

We are , however, to submit this matter to you and he states you are to forward the attached plans to him with your recommendations. Your early action in this matter will be greatly appreciated, as we are very anxious to get our line energized to East Portal as soon as possible.

Yours truly,

NEW-wls

Electrical Engineer.

cc--M. H. Clapp, Supt. Teleg.
Northern Pacific Ry.,
St. Paul, Minn.

Dear Sir:

Referring to your letter of October 11th, the eastern end of the transmission line of the Railway Company is at our Two Dot substation, twelve miles from Harlowton. East of Two Dot we have nothing but our D. C. line which also runs approximately at right angles to your line. There must be some other power line causing your trouble. The 100,000 volt power line running into Harlowton is not the property of the Railway Company.

Yours truly,

RB-wls

Electrical Engineer.

Butte, Mont., Oct. 16, 1916.

Montana Power Co.,
Butte, Mont.

Dear Sirs:

Mr. Willard requests that we notify him three or four days in advance in regard to energizing trolley line between Alberton and Deer Lodge, so that he can arrange to dismantle coal hoist at Clinton and stand-pipe east of passenger station at Missoula. Will you please advise us in regard to this so that we may notify Mr. Willard as requested.

Yours truly,

REW-wls

Electrical Engineer.

cc--F E W

P. O. Box #46,
Twin Falls, Idaho.

Dear Sir:

Referring to your letter of October 10th, all our substation operators are lined up, but in case any further opportunity should develop we will be glad to communicate with you.

Yours truly,

Electrical Engineer.

RB-wlo

Mr. Buck: Oleson's letter hereto attached.
He appears to have had very good experience.

cc--M.E.B.

R.B.--10/16

Butte, Mont., Oct. 16, 1918.

Mr. J. J. Murphy, Supt.,
Three Forks, Mont.

Dear Sir:

Please see Mr. Boemake's note of October 13th attached. Of course we have to make some arrangements so the substation operators and their families can get in and out from the substation locations, and I would like to know what you can do for Morel.

Yours truly,

RB-wls

Electrical Engineer.

National Lead Co.,
111 Broadway,
New York City.

Dear Sirs: Attention: R. E. Smith

Replying to your favor of the 11th with reference to your Cinch Expansion Bolts, will say that our work is nearing completion, and we will not, therefore, be in the market for any of the bolts referred to at this time.

Yours truly,

REW-wls Electrical Engineer.

Dear Sir:

You will recall that the east switch Newcomb Passing track was not located so as to match up with the overhead switch, and in consequence temporary and objectionable arrangements were made so that the overhead switch could be used. Tande advises it will cost from $150.00 to $200.00 to remove the overhead switch. Will you please advise us to whether you prefer to have this done or change the location of track switch so as to do away with present temporary work.

Yours truly,

RPW-wls

Electrical Engineer.

Butte, Mont., Oct. 16, 1916.

Mr. F. Rusch,
Gen'l Master Mechanic,
Tacoma, Wash.

Dear Sir:

Referring to your letter of October 12th regarding the attached file, would say that this has been the subject of various correspondence since the middle of March and I am sending you all this correspondence herewith, and ask that you return same to me as soon as you are through with it.

Yours truly,

RB-wls

Electrical Engineer.

Mr. C. F. Loweth,
Chief Engineer,
Chicago, Ill.

Dear Sir:

If consistent with your plans, it may prove economical to make use of the air compressor and electric light plant now installed at the East end of St. Paul Pass Tunnel, in connection with installing fixtures for supporting trolley and feed wires after tunnel lining work is completed.

We will have about 5,000 lineal ft. of tunnel to drill for such fixtures in the roof, and probably holes to drill on the side of the tunnel throughout the entire length.

Will you please advise in regard to this and oblige.

Yours truly,

RHT-sls

Electrical Engineer.

cc--C.F.Urbutt, -- Roland.

Replying to your notes of the 11th, we think it advisable to make use of the Jennings Crosby clips instead of Cincinnati, holding the latter for Maintenance Work. As regards various material scattered along the line and not needed for completion of work, this should be picked up and shipped back to Deer Lodge before any amount of snow falls.

Yours truly,

REW-wls

Assistant Engineer.

Butte, Mont., Oct. 16, 1916.

Mr. F. C. Dow,
Trainmaster,
Missoula, Mont.

Dear Sir:

Referring to your note in regard to trolley wire clearance in Tunnel #26, near Adair, since trolley wire has been built in this tunnel we find that it measures from 18 ft. to 18 ft. 3 in. in this tunnel, and therefore there should be no interference with equipment.

Yours truly,

RET-wls

Electrical Engineer.

Montana Power Co.,
Butte, Mont.

Dear Sirs:

Will you please arrange definitely so that Construction Crews between St. Regis and Avery will install all "Danger" signs on both trolley and transmission poles, according to the standard method.

Inspector Soule was instructed to arrange so that all foremen would place orders for these signs and to give them the information in regard to the method of installing the signs, but I believe that Foreman Tavenner is the only one who is now installing them.

As it takes very little time to put these signs up, they should certainly be placed as other work is done, and avoid having to send someone specially over the line, particularly in view of the fact that on the trolley line many of the signs are so high above ground that it is necessary to use climbers on this work, and they can be very easily installed by Trolley Stringing Crews while other work is being done. Please advise if you will so arrange.

Yours truly,

Electrical Engineer.

REW-wls

cc--G.F.S.

Montana Power Co.,
Butte, Mont.

Dear Sirs:

Mr. Barrett advises that now that the Mill at Three Forks has been started, they have no way of hearing the switching at the Mill except when the Gallatin Valley steam engine comes in at night, and hence if the eye track at the Mill cannot be wired.

I believe Foreman Guire is now taking down trolley and messenger in Three Forks Yard where Supt. Murphy proposes to remove tracks, and under the conditions I presume Mr. Murphy would prefer to have overhead work put up on eye tracks and defer the completion of taking down wire in the Main Yard.

Please advise if you can have Foreman Guire take up the eye track work at once.

Yours truly,

REW-wls

Electrical Engineer.

cc--E H B
J JM

Mr. T. F. Tyler,
Gen'l Signal Foreman,
Deer Lodge, Mont.

Dear Sir:

Regardless of plans for energizing trolley and feeder west of Tarkio, we should, as soon as possible, clear up the situation as regards lack of clearance between signal and order board posts between Tarkio and Avery.

As the matter now stands, I believe we have a number of signals which are to be moved to new locations, a number between St. Regis and Haugan which will be done away with, and possibly some in other territory which can be changed so as to clear feeder or other wires.

For instance, at Bryson there is a signal post dangerously close to transmission wire, and it would probably foul the wire if the semaphore blade were replaced. At Drexel and other points we have signal posts which do not clear trolley overhead work and feeder.

We would like very much to have someone from your Department assigned to this particular work, and make a definite report which will indicate to us at just what points we must make special provision for necessary clearance. Please let me hear from you on this subject and oblige.

Yours truly,

REW-wls

Electrical Engineer.

Montana Power Co.,
Attention R. Tendo,
Deer Lodge, Mont.

Dear Sir:

I notice a steady span opposite the West end of Deer Lodge shop fence which is in very bad condition. This span is subjected to considerable pull-off strain which has thrown considerable slack in the span south of pull-off attachment.

Will you please arrange to have maintenance crew clear this up at their first opportunity.

Yours truly,

REW--ela

Electrical Engineer.

cc--MP Company--Butte

Mr. O. A. Goehnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

I am enclosing herewith copies of letters of October 7th and 11th and Mr. Barrett's reply of October 13th with reference to change to pantographs and completion of overhead work at passing track extensions.

I presume the papers referred to in my letter to Mr. Barrett will be sent to you.

Yours truly,

RS-WLS
Encl.

Electrical Engineer.

Mr. F. Sears,
Elec Master Mechanic,
Deer Lodge, Mont.

Dear Sir:

Referring to your letter of September 23rd in regard to provision of fuse switch protection for Great Falls substation, I have had this matter up with various people concerned, and the Montana Power Company advises that their Mr. Doe will be glad to furnish our Electrician with key to control locks on switches at point where our line taps their line.

Furthermore, the transformer, which is now located inside of the substation, was originally on the outside of the building and was protected by fuse blocks. No doubt these fuse blocks are around the Great Falls substation, and if so, I would suggest that they be installed just outside of the building by Electrician Healy.

The above arrangement would seem to be all that should be required for the protection of the plant. Please advise the result of your investigations and as to what is done.

Yours truly,

RFW-wls

Electrical Engineer.

Montana Power Co.,
Attention Foreman D. Claire,
Three Forks, Mont.

Dear Sir:

I believe that a full reel of trolley and messenger wire was left at Three Forks on the ground, with the intention of using it on the Three Forks wye.

Now that you are taking down trolley and messenger in Three Forks Yard, we would prefer that you use this wire which you have taken down in connection with the wye, and that you arrange to ship the reel of trolley and messenger and such of the wire which you have taken down as was left over from the wye job, to me at Deer Lodge, care of Shop. Better notifying this office when shipment is made.

Yours truly,

RHH-wls

Electrical Engineer.

cc--M.P.Co.--Butte

M.C.R.--Deer Lodge

G. F. Soule, Inspr.,
Haugan, Mont.

Dear Sir:

I have taken up with Mr. Beaukes the question of disposition of feeder at Bowlan rock cut until rock work is finished, and work can be completed at that point.

He advises that you can leave the feeder open temporarily at that point, and from my inspection from the train after leaving you, I would say that you can take care of this work temporarily by picking up and insulating the feeder on either side of the cut and replacing bracket poles on the cut side in their original position and that we can replace the anchors on all poles with the exception of one which is opposite that part of the rock which has not yet been removed. This particular pole can be raised and kept so as to hold the trolley line.

Yours truly,

RSK-ela

Assistant Engineer.

cc--M P Co

H. W. Rusch,
Nat'l Checker,
Haugan, Mont.

Dear Sir:

I wish to call your attention to any material along the line which is on the ground and liable to be covered by snow.

This applies particularly to material like high line stock in East Portal, which includes washers, lag screws and small material which is loose on the ground and liable to be lost.

Please give this matter your particular attention from now on.

Yours truly,

BFW-wls

Assistant Engineer.

Mr. F. E. Willard, Supt.,
Missoula, Mont.

Dear Sir:

In order to take care of plans for energizing the line between Deer Lodge and Tarkio it will be necessary for us to replace trolley wire where temporarily displaced opposite rock cut just west of Scotsman.

From appearances, the rock work at that point will not be completed for some time, and it would seem necessary to replace the trolley wire and take all precautions possible against damage by falling rock.

Yours truly,

Electrical Engineer.

RE--wls

cc--C.A.W.M.

A. H. Crowder, Inspr.,
East Portal, Mont.

Dear Sir:

I notice the transmission pole near point where line was changed at Rock Creek, on account of bank sinking out, while it appears to be a tangent pole, is leaning badly towards the south.

It is possible that this pole is intentionally raked and guyed towards the south, but I would like a report from you on the subject.

I wish also to call your attention to broken transmission insulator at the west end of Alberton yard and on private location near Bonner. Please advise if the latter have been replaced.

Yours truly,

RFW-ais

Assistant Engineer.

cc--M P Co

G. F. Soule, Engr.,
Haugan, Mont.

Dear Sir:

Confirming conversation, please keep in mind that struts must be installed between all head-guys when in pairs and when strain insulators are close enough to be broken by guys being slapped together. Such struts were installed by Foreman Mickey in cleaning up trolley work between Deer Lodge and Gordon and I presume he is installing them in his present work.

I note broken strain insulators in head-guys at the east end of tunnel near Falcon. Please arrange with all crews concerned to install these struts without fail, as Railway trainmen and others have a habit swinging these guys and we are sure to have all such insulators broken unless struts are installed.

On some parts of the work between St. Regis and Avery, particularly where feeder is crossed up alongside pole, we seem to have very little clearance between the positive and negative feeder.

I have noticed particularly the lack of clearance at a point between Falcon and Alair near one of the tunnels. Please give this matter your careful attention, as such lack of clearance establishes a very dangerous condition which does not exist on other parts of the line. Let me hear from you on this particular subject.

Yours truly,

Assistant Engineer.

EEM-ele

cc--M P Co

Mr. T. F. Tyler,
Gen'l Signal Foreman,
Deer Lodge, Mont.

Dear Sir:

Regardless of plans for energizing trolley and feeder west of Tarkio, we should, as soon as possible, clear up the situation as regards lack of clearance between signal and order board posts between Tarkio and Avery.

As the matter now stands, I believe we have a number of signals which are to be moved to new locations, a number between St. Regis and Haugan which will be done away with, and possibly some in other territory which can be changed so as to clear feeder or other wires.

For instance, at Bryson there is a signal post dangerously close to transmission wire, and it would probably foul the wire if the semaphore blade were replaced. At Drexel and other points we have signal posts which do not clear trolley overhead work and feeder.

We would like very much to have someone from your Department assigned to this particular work, and make a definite report which will indicate to us at just what points we must make special provision for necessary clearance. Please let me hear from you on this subject and oblige.

Yours truly,

HWW-sis

Electrical Engineer.

G. F. Soule, Inspr.,
Haugan, Mont.

Dear Sir:

Following our conversation in regard to cribbing for protection of anchors and poles between Deer Lodge and St. Regis, a careful inspection will have to be made in order to determine the number of cribbs necessary, bearing in mind that wherever feasible, it is desired to move the anchor rather than protect it by cribbing in its present location.

I have placed an order for some bolts for these cribs, so we would have some to start with, but would like, if possible, to get a somewhat definite idea on the subject before Tavenner takes up this work.

Yours truly,

RTS-vls

Assistant Engineer.

Assistant Engineer,
Butte, Mont.

Dear Sir:

Confirming conversation, please arrange so that the cost of clearing timber for feeder line between point east of Roland and Falcon will be kept separate from account for clearing for transmission line. This is necessary in order to properly distribute the costs.

Yours truly,

MMM-wls

Assistant Engineer.

G. F. Soule, Inspr.,
Haugan, Mont.

Dear Sir:

While your notes may cover, I wish to bring to your attention the following points in connection with negative return, Deer Lodge west:

Bonds were removed at Garrison crossing on account of signal bell, and were to have been replaced by the Signal Department, and should be checked.

Negative tap to be installed on the fourth pole west of the west Mile Post, Drummond.

Negative tap to be installed on the fourth pole east of the east Mile Post at Ozan.

Negative tap to be installed on the 7th pole west of the west Mile Post, Ozan.

As to the above negative taps, it may be possible that these poles were marked for original location, which is apt to be changed. This should be borne in mind when checking over the bonding.

Supplementary negative to be replaced N. P. Bitter Root Bridge, Missoula. Negative connections to rail at all substations should be checked.

Defective rails have been removed and replaced at various points between Deer Lodge and Tarkio, and certain passing track extensions are now to be bonded. Conditions, as usual, necessitate that the entire line be checked for missing bonds.

In this connection the territory between Alberton and Tarkio was not included by Foreman Thompson in making his first trip over the line west of Deer Lodge. This will have to be carefully gone over.

I would like a statement as to the actual amount of work yet to be done between Tarkio and St. Regis, as

this section was not covered and the amount of work involved may make it undesirable to defer it until final cleaning through to East Portal.

Yours truly,

REW-wls

Assistant Engineer.

cc--M.P.Co.--Butte

Butte, Mont., Oct. 17, 1910.

Great Falls Power Co.,
Butte, Mont.

Dear Sirs: Attention: Mr. F. W. Bird

Returning herewith my letter to you of September 26th and following your request in regard to our standards for crossing construction over our tracks, please note that our specifications are, in general, according to the requirements of the American Railway Association.

In general, we prefer to have the poles or towers supporting the crossing span outside the Railway Company's right of way, but it is preferable to locate on the right of way if local conditions would otherwise necessitate a span of unusual length.

The poles or towers supporting the crossing span and the adjacent span on each side should, preferably be in straight line. High tension conductors to go over all wires and to clear the nearest wire by not less than eight ft. The crossing span to be dead-ended at the poles or towers supporting the crossing span, and preferably at the next adjacent poles. The poles are not to be spliced in the crossing span, and no taps to conductors to be made in the crossing span. Unless two-pole frames are used at crossing, crossing poles are to be side-guyed.

The supporting structure and wires in the crossing shall be so constructed as to take care of the following conditions: 3½ pounds of wind for conductors and other wires and 8 pounds of wind on poles, a layer of ice of 1/2 inch in thickness and temperature of 0 degrees F.

In connection with the above load conditions, the following factors of safety are to be used: Wires and cables, 2; pins 2; insulators, conduttor attachments and guys, 3; wooden poles and cross arms, 6; structural steel 3; foundations 2.

The above covers, in a general way, our requirements for such crossings. If you desire additional information, please advise.

Yours truly,

RFW-wls

Electrical Engineer.

Great Falls Power Co.,
Butte, Mont.

Attention:---Mr. F. W. Bird

Dear Sirs:

Returning herewith my letter to you of September 28th and following your request for information in regard to our standards for crossing construction over our tracks, please note that our specifications are, in general, according to the requirements of the American Railway Association.

In general, we prefer to have the poles or towers supporting the crossing span outside the Railway Company's right of way, but it is preferable to locate on the right of way if local conditions would otherwise necessitate a span of unusual length.

The poles or towers supporting the crossing span and the adjacent span on each side should, preferably, be in a straight line. High tension conductors to be over all wires and to clear the nearest wire by not less than eight feet. The crossing span to be dead-ended at the poles or towers supporting the crossing span, and preferably at the next adjacent poles. The conductors are not to be spliced in the crossing span, and no taps to conductors to be made in the crossing span. Unless two-pole frames are used at crossing, crossing poles are to be side-guyed. The supporting structure and wires in the crossing shall be so constructed as to take care of the following conditions: 30 pounds of wind for conductors, and other wires, and 8 pounds of wind on poles, a layer of ice 1/8" in thickness and temperature of 0 degrees F.

In connection with the above load conditions, the following factors of safety are to be used: Wires and cables, 2; pins 3; insulators, conductor attachments and guys, 3; wooden poles and cross arms, 6; structural steel 3; foundations 2.

The above covers, in a general way, our requirements for such crossings. If you desire additional information, please advise.

Yours truly,

REW-wls

Electrical Engineer.

Mr. J. C. Mill,
Signal Engineer,
Milwaukee Shops.

Dear Sir:

Following yours of the 10th, I enclose herewith blueprint of Drawing ED-#830, showing conventional layout for signal bridge and wire attachments for use at the east end of Alloy Yard.

You will note that this drawing shows attachments on the basis of bridge replacing present span poles, and as already brought to the attention of Mr. Tyler, if your plans permit this bridge being located between span poles, the eye-bolts in truss and posts can be omitted and the expense of removing the present poles and transferring supporting attachments can be done away with.

Please advise for our information if you contemplate replacing poles, or locating between.

As regards supports for B.A.& P. wires and our feeder, power circuit and signal primaries, we consider it desirable to detail these attachments after receiving your drawing from the Engineering Department and to arrange to have t is made up complete with the bridge, so as to avoid delay when it is installed.

Yours truly,

RFT-wls

Electrical Engineer.

cc--R.F.T.

Butte, Mont., Oct. 18, 1916.

Mr. R. Benowkes,
Electrical Engr.,
Butte, Mont.

Dear Sir:

The Special Concealed Rail Bonds furnished us by the Ohio Brass Company for test have been installed on Main Line track at Kyle station.

Joints were assigned to this work in the vicinity of Adair, but Gilbert had moved before the bonds arrived. We therefore put them in at Kyle.

We arranged to have Inspector Haigh personally supervise the installation, so as to make sure that the bonds were put in properly.

What further action do you wish to take in order to keep a record of the location of these bonds and make sure that their performance will be checked? I would recommend that the O. B. Company be notified as to where the bonds are installed, also that Supt. Willard be notified and cautioned so that he will notify us if any of these bonds are removed.

Yours truly,

REW-wls

Assistant Engineer.

Mr. A. J. Busch, Supt.,
Gallatin Valley Railway,
Bozeman, Montana.

Dear Sir:

Following instructions from Mr. Goodnow, we are arranging to ship you from Deer Lodge, 135 poles of 45 ft. and slightly over, in length, which we assume you will use on the N. P. Connection line, and we are arranging to ship from our stock on the West end, 65 poles not less than 35 ft. in length, which we assume you will use on the line towards Salesville, making a total of 200 poles, as authorized by Mr. Goodnow.

Before setting poles on the N. P. Connection, please advise me, so that I can furnish you with sketch showing height of pole, sag in span and approximate rule to be given pole in setting. This is all very essential on account of your not being able to back-guy these particular poles.

Yours truly,

REW-wls

Electrical Engineer.

Butte, Mont., Oct. 18, 1916.

Mr. D. McEwen,
Chief Lineman,
Seattle, Wash.

Dear Sir:

In connection with clearing wires crossing transmission and trolley lines between Tarkio and East Portal, Inspector Crowder reports the following, and while you may have them in mind, I wish to bring them to your attention:

At Tarkio depot there are two Government wires and Continental Telegraph.

One Mile East of Superior A. P. Johnson's private line to be cleared.

At Superior depot, A. P. Johnson's telephone circuit to be cleared and located under overhang on roof.

At a point one mile east of Forsker, two Government wires to go underground.

In addition to the above, there is the regular work to be done on Postal wires where they cross with the Mountain States wires.

While this is supposed to cover all of the wires needing attention, we assume that you will have your Foreman check the line throughout for any additional wires which may need clearing.

In order to prepare for energizing line to East Portal, you will no doubt have to send your crew ahead and do temporary work, and if so, it would seem advisable to provide clearance for 100,000 volt work, instead of temporarily clearing for 2300 volts, as we have done on some occasions. Please advise if you can so arrange.

Yours truly,

Electrical Engineer.

REW-wls

Mr. R. Beaurkes,
Electrical Engr.,
Butte, Mont.

Dear Sir:

In going West on Train No. 17 Wednesday the 11th inst., I took the following notes, which may be of interest in connection with energizing the line west of Deer Lodge:

#1---At Garrison passing track extension, trolley wire is strung and clipped and is to be moved over to proper location and trimmed to main line at switch.

#2---At Gold Creek the location of center line of passing track has been changed for a certain distance, requiring shifting of trolley wire. Trackmen were working on the East end of Industry track, surfacing.

#3---Between Gold Creek and Haskell, beginning at a point just east of overhead bridge east of Haskell, track was being surfaced and passenger train moved under slow order.

#4---There are from one to two miles of track east of Drummond which seems to need raising where ballast has been placed, and track gang was working on the Drummond end of this section.

#5---Main line track in Drummond Yard is not in a finished condition, while Drummond passing track wire looks to be in an unfinished condition on the extension.

#6---For about one mile west of Drummond ballast is placed, but track not raised and ties not changed.

#7---Main line and passing track being surfaced and probably raised at Ozan. Passing track in particularly bad condition.

#8---Ballast has been placed on the short section of track between Ozan and Bearmouth. At Bearmouth ballast is placed on passing track but track not raised. Passing track at west end in bad shape. Industry track in bad shape.

Item #9---At Ravenna Extra Gang was working on passing track extension. Trolley wire is strung and clipped, to be thrown over to proper center.

#10--There is a short section of bad track just East of Bonner. There is a stretch of about 1½ miles of ballast placed, beginning at a point about 3½ miles west of Missoula and track does not seem to have been raised.

#11--At Cyr industry track is in such condition that electric locomotives should not enter.

#12--At Cobden, industry track is in bad condition.

#13--Track men were working on curves just west of Cobden, apparently surfacing.

#14--At St. Regis passing track extension was being laid.

I am bringing the above to your attention in the way of general information, in connection with energizing line, though we will not be in a position to pass on condition of track until we make our contemplated check with electric locomotive.

Yours truly,

REW-wls

Assistant Engineer.

Butte, Mont., Oct. 18, 1916.

Mr. G. F. Soule, Inspr.,
Haugan, Mont.

Dear Sir:

We are arranging to supply Supt. Willard with twelve sets of tools for bond maintenance, Deer Lodge to Alberton, to be delivered to his Section Foremen around the first of November, and we would like to arrange to have Inspector Haigh instruct these various Section Foremen as to the proper method of installing bonds. These instructions should, however, not be given until the tools have been received by the Section Foremen.

Please keep this matter in mind, so we can take care of it at the proper time.

Yours truly,

REW-wls

Assistant Engineer.

Butte, Mont., Oct. 18, 1916.

Mr. F. E. Willard, Supt.,
Missoula, Mont.

Dear Sir:

Referring to the matter of bond maintenance by Section Foremen, and plans for equipping various Section Gangs between Deer Lodge and Alberton by November 1st, I assume that you will take up with Storekeeper Kelly the question of outfitting these Section Crews with the necessary bonds.

We will, of course, upon completion of our work, have a certain number of bonds left over which we will no doubt turn over to Storekeeper Kelly, but in the meantime would prefer to have you draw from his stock as far as possible until our construction work is done.

Yours truly,

REW-sla

Electrical Engineer.

cc--J.T.K.

Butte, Mont., Oct. 25, 1922.

Montana Power Co.,
Butte, Mont.

Dear Sirs:

We wish to ship as soon as possible from stock on hand at Haugan, to A. J. Busch, Supt. Gallatin Valley Railway, at Bozeman, Montana, 66 poles from 35 ft. to 40 ft. in length.

I think we have a number of poles at Haugan which have been cut down from forties, and which are 35 ft. or more in length. The total number required can be made up of the latter poles as long as they are between 35 ft. and 40 ft. long, and of 40 ft. poles.

Will you please arrange to have these poles loaded and shipped soon as possible, having we furnished a proper statement showing what poles were shipped and car numbers, so as to show contents of each car.

Mr. Busch needs these poles soon as possible in order to get them set before the ground is frozen, and Mr. Goodnow is anxious to get quick action.

Yours truly,

Electrical Engineer.

REY-s.s

cc--G F S

Mr. F. N. Webster,
c/o Florence Hotel,
Missoula, Mont.

Dear Sir:

I understood from your conversation on the train on the 11th that you have not yet secured right of way for transmission line location between stations 7353 plus 00 and 8038 plus 80, in territory about two miles east of Mt. Ragle.

Will you please advise facts in regard to this, as we do not care to leave any such matters unsettled where it is possible to clear them up.

Also I understand from your conversation and from Mr. Nicholas that our feeder cut-off line crosses a homestead on the Falcon end. As we expect to push all this pole work to completion, we cannot afford to have any hold-ups on account of right of way matters where we can anticipate them, and it would seem advisable to clear up this right of way matter without delay.

Yours truly,

RTW-wls

Electrical Engineer.

cc--F. N. Webster--Butte

M. G. Butler, Stkr.,
Deer Lodge, Mont.

Dear Sir

Out of the poles recovered from the transmission line between Morel and Deer Lodge, I understand you have the following on hand:

110 -	45 ft.	Poles
1 -	40 "	"
4 -	45 "	"
20 -	50 "	"

making a total of 135 poles, which please arrange to load and ship to A. J. Busch, Supt., Gallatin Valley Railway, Bozeman, Montana, giving us full information as to shipment, including car numbers, as soon as shipment is made.

Yours truly,

HH--mis

Electrical Engineer.

Helena, Montana.

Dear Sir:

Confirming conversation with you yesterday, our transmission line inspector reports that in certain territory near Cobden, where your lines parallel our transmission line, wires are too close for energizing with 100,000 volts, and while I understand that you have a crew working in this territory now, I am bringing this to your attention in connection with our preparations for energizing through to East Portal according to our recent letter.

Very truly yours,

RFW-wls

Electrical Engineer.

Butte, Mont., Oct. 19, 1916.

can serve our Freight yard with Switching locomotive provided with one pantograph, and avoid coasting 100 ft. or more as would be necessary with the two section insulators in the cross-over wire.

The blueprint attached shows in a general way the proposed scheme which involves contactor switches, operated independently from the interlock with cross-over track switch which is in your track. From an examination of the print you will see that normally with track switch lined up for your main line movements, the crossing section in trolley wires would be energized with 2400 volts together with the two protective zones "A" in your main line wire. At this same time the two protective zones in cross-over wire and our freight track wire would be dead.

If under these conditions, one of our locomotives with two pantographs up was run in through the crossing section regardless of the line-up, it would not cross our current with your wire.

With track switch lined up for cross-over movement, protective zones "A" in your wire would be dead and crossing section and protective zones "B" and "C" would be energized with 3,000 volts.

The electrical switches, which are of the contactor type, with plenty of capacity, are to be interlocked with the track switch so that it will be absolutely impossible to energize with 3,000 volts when track is lined up for your main line movements, and similarly impossible to energize with 2400 volts when track is lined up for cross-over movement.

I understand from Mr. Spangler that the distance between the two pantographs on your locomotives is 51 ft. 6 in. Will you please advise as soon as possible the minimum distance required between your wye switch point and switch point of the cross-over as it will be located in order to cut in two air breaks and take care of the conditions mentioned above.

This will enable us to decide on the cross-over location regardless of the switching scheme. As soon as possible we would also like a decision on the acceptability of the switching scheme, as we have yet to order the contactor switches and interlocking mechanism. Your early attention in both matters will be greatly appreciated.

Yours very truly,

REW-wls

Electrical Engineer.

We have installed 34 Special Concealed Rail Bonds in Main Line track joints at Kyle, Idaho.

These bonds are put in for special test on account of their being entirely concealed and on account of their comparative cheapness as compared with the longer bonds which we are now using as standard.

Will you please instruct your Roadmaster and others concerned so that we will be promptly notified if it is necessary to remove any of these special bonds, also if any of these bonds are removed, they should be carefully removed and sent to me.

Yours truly,

REW-wle

Electrical Engineer.

our Deer Lodge storehouse for 1 - 4" Single Block, 1 - 5" Single Block and 1 - Gasoline Furnace.

We have none of this material in stock and if consistent with Latham's needs, suggest the order be held until some of our Construction Crews can supply the items in question. It is possible that they could now be obtained from some crew. Please advise.

Yours truly,

Electrical Engineer.

HFW--sls

cc--H.C.B.

Deal with: Attention: Bond-Insulator Division.

For your information in connection with Special 16-7/8" and 17-7/8" concealed bonds which you furnished us for trial, please note that these bonds have been installed in joints on main line track at Kyle, Idaho. We intend observing these bonds from time to time, and if anything develops, will advise you.

Yours very truly,

REW-wls

Electrical Engineer.

Butte, Mont. Oct. 19, 1916

Referring to recent correspondence regarding the use of wooden poles on long transmission spans in connection with our electrification work, I am sending you herewith some photographs which may or may not answer your purpose.

If they do, we can arrange to get you the negatives, or give you more prints. Unfortunately the wires cannot be made to show up clearly in these photographs. On the various pictures the poles at the two ends of the long spans are indicated by arrows.

Very truly yours,

RB-wls

Electrical Engineer.

Butte, Mont., Oct. 18, 1916

We have taken up with Supt. Murphy the question of correcting conditions now existing at the west switch Newport Yard, and find that he declines to change the location of overhead switch rather than move the track switch.

Will you please arrange to have this done as soon as it can be consistently done in connection with other work in hand, so as to do away with the temporary and undesirable conditions now existing at the overhead switch.

Yours truly,

RTW-mla

Electrical Engineer.

cc--M P Co--Butte

Butte, Mont., Oct. 19, 1916

at Valeria Way, [illegible] Spur, the method of making the crossing seems to comply with our standards as far as insulation goes, and the principal question at issue would seem to be whether the coasting distance of forty feet would interfere with your locomotive operation on Valeria Way, and particularly in switching the Oster-Potter spur.

Will you please advise in regard to this so that I can reply to Mr. N. B. Darling in regard to the crossing.

Yours truly,

REW-wls

Electrical Engineer.

Butte, Mont., Oct. 19, 1916.

There the Street Railway and the Milwaukee cross, the overhead wires are connected together by a trolley cross-over, and these wires are insulated from the rest of the trolley wire. In addition there is another insulated piece of trolley wire between each end of our crossing wire and the trolley going east and west. This we call an "intermediate" section. Electric switches mounted on poles are so connected to the latter that when the gates are up, the intermediate wires are dead, and the crossing wires are energized with 600 volts. When the gates are down, both the intermediate wires and the crossing wires are energized with 3,000 volts.

The idea of having an intermediate wire is that this intermediate section is of such length that the two pantographs on a single locomotive cannot bridge between the crossing wires and our 3,000 volt wires. In other words, this is an additional safety precaution. If we had no intermediate wires and an electric locomotive came too far when the gates were up, the two pantographs would connect the 600 volts of the Street Railway System with our 3,000 volts.

From the above it will be noted that if one of our trains comes along and the gateman does not lower the gates, our locomotive looses its power when it crosses Montana Street and for some distance each side of this street.

As long as everything is working properly, there is no danger to life on account of the switchman not operating the gates unless the insulation should be broken down somewhere, and this has happened once or twice, due to lightning, the insulation between the intermediate section and the 3,000 volt trolley having broken down, so as to put 3,000 volts on the intermediate section.

Mr. Gardner as you know, has recently authorized installing regular signals at the crossing and interlocking these with the gates. Of course if the gate tender then does not do his duty, the signal will stand to "danger" and the train will come to a stop.

Mr. Wharton also approached me on the subject of the watchman and I sent you a copy of my letter of September 13th to Mr. Murphy. In this letter to Mr. Murphy I referred to another letter of mine of August 28th, and I am attaching a copy of it.

Yours truly,

RB-wls

Electrical Engineer.

Butte, October 12, 1916.

No. 15 entered New Dorsey with bad pantograph, due to sparking caused by either loose springs or sleet. Probably sleet. Both pantographs up. Caught front pantograph at New Dorsey but ran to Ringling without repairs. Probably broken panto-

Butte, Mont., Oct. 20, 1916.

you herewith a sketch showing the framing for these poles, with the sag in the span which is necessary and in order to obtain the necessary strength under worst load conditions, these poles should of course be well keyed at top of ground in front and at the butt in the back, so as to hold them in position.

The sketch, I think, is self-explanatory, so that you can proceed with the work as soon as you desire after the first poles arrive. I am arranging, however, to have Mr. Wade come over and see you sometime in the near future in connection with this work. If you desire any further information, in the meantime, please advise at once.

Yours truly,

REW-wls

Electrical Engineer.

We expect to be able to turn the current on the trolley next Monday morning, October 23rd, to make a run with electric locomotive from Deer Lodge to Tarkio to check up the trolley.

I would suggest that you have some proper member of the Operating Department accompany us on this test trip so that he will be in a position to note the operation of the pantograph, and if same is affected by any local track conditions, steps may be taken to correct such conditions.

In this connection I am sending you a copy of Mr. Sears letter to me of October 16th and copy of Mr. Vale's letter of October 18th.

Yours truly,

RB-wis
Encl.

Electrical Engineer.

cc--E. Sears

We have installed in main line track at Kyle, Idaho, 24 - Special Concealed Bonds for test purposes. The joints for these bonds which were originally marked with crayon, are supposed to be marked with paint.

Will you please arrange, beginning November 1st, to check up with local section foreman and determine whether these bonds are still in place; that is, whether it has been necessary to remove the rail, and report your findings to this office.

Yours truly,

Electrical Engineer.

RMT-vla

cc--N P Co--Butte

Butte, Mont., Oct. 30, 1916.

about 50 KW being required for this purpose. In the case of Avery, I believe we could readily arrange to take this from the substation transformers, and in the case of Harlowton, I have looked into a number of schemes which involve either taking the power from the Two Dot substation over the signal wires with the addition of a third wire, or taking the power from the Montana Power Company, or from the trolley.

With respect to Avery, shall I go ahead and draw up specifications and ask for bids, or should the Motive Power Department attend to this?

With respect to Harlowton, I find it will be cheapest to run off the signal wires, making same three-phase instead of single-phase, as above referred to, but it may be that the Signal Department will not want us to do this. If they did not, we could run off the Montana Power Company, which now has a line from Two Dot to Harlowton. I will let you know later which scheme will have to be adopted, but in any case, should I go ahead and prepare for ordering the necessary apparatus and material, or should the Motive Power Department do this, installing such arrangement as we recommend?

Yours truly,

RB-wle

Electrical Engineer.

our locomotives in two, so as to handle light trains with a half unit, getting thereby the benefit of considerable saving in current, and also in engine crew wages.

I was talking to Mr. Murphy about this yesterday and he happened to mention that he had two or three Work Trains in operation that could just as well be handled by a half unit.

You know when we originally discussed our locomotive specifications with the representatives of the manufacturing companies, the idea was that the locomotives would be arranged so that the two half units could be quickly separated. Later on, however, locomotives for Trains 433 and 434 were built to accommodate, I understand, some particular draft rigging, so that it was necessary to change the whole end frame.

Without going into the matter deeply or knowing the full details in connection therewith, it would seem to me that even if we had to use any draft rigging, whether it was our standard or not, it would be advantageous to be able to quickly separate the locomotives into the two half units. You might wish to take this matter up again.

Yours truly,

RB-wla

Electrical Engineer.

cc--J.J.M.

Butte, Mont., Oct. 30, 1916.

west, will look out for any pick up all waste material along the line. This of course applies to small hardware in particular.

In going over the line I would suggest also that he inspect the entire transmission line for broken insulator units and make the necessary replacements. At one time there were a number of insulator units broken. Here line was on private property at Denver, and I am not sure as to whether these have been replaced.

Yours truly,

RET-vis

Electrical Engineer.

cc--G.F.S.

Butte, Mont., Oct. 20, 1916.

Yours truly,

RB-wls

Electrical Engineer.

M. H. Clapp, Supt. Telegraph, Northern Pacific Railway, advises that our plan for changing crossing over their track at point west of Saltese, by placing single poles between the ED-#39 structure on the south and #113 structure on the north, is not acceptable to him, and it will be necessary for us to follow the scheme which he suggested, which involves extending our line on the south side to a point opposite the #113 fixture on the north side, and making a short crossing with dead-ends on both sides.

This will probably require a terminal ED-#39 structure on the south, replacing the present #39 structure, either with ED-#33 or #113.

We should use the #33 construction if there is a dead-end frame close enough west to enable us to change tension and avoid using the expensive two-pole frame in addition to the terminal ED-#39.

On the north side we will probably have to use #113 or ED-#39. This of course will depend on the angle.

Please arrange to change this layout accordingly as soon as possible, and at the same time ascertain if we are encroaching on private property when the line is extended east on the south side.

Copy of this letter to Inspector Crowder for his information and assuming that he will see to it that wire is not re-strung over N. P. tracks either at this crossing or the one east of Saltese, until we obtain necessary authority from the N. P. Railway. Mr. Nicholas to change his supplementary Government map to meet new conditions, and obtain necessary data in the field for making the change so that Government map can be completed.

Yours truly,

REW-wls

Assistant Engineer.

Acknowledging your telegram of the 19th, from Armstead in regard to transmission line crossing over your track just West of Saltese, we will arrange to change this crossing to meet your requirements, that is we will extend the line on the South side and make a short section crossing with dead-ends on both sides.

Anything you can do to hurry approval of both these crossings at Saltese will be greatly appreciated, as we are very anxious to get our transmission line energized to East Portal.

Yours very truly,

RWB-Gs

Electrical Engineer.

cc--T. E. Anderson,
Gen'l Foreman, Telegraph Dept.,
Northern Pacific Ry., Livingston, Mont.

Dear Sir:

I am sending you under separate cover white print of tracing showing transmission line over Helena and Gallatin National Forests, Exhibits J-7-A, revised to suit the requirements of the Forestry Department, also revised Field Notes, Exhibit K-7-A. The original tracings in duplicate and corrected Field Notes in triplicate have been sent to the Forestry Department, Missoula.

Yours truly,

REF-wls

Electrical Engineer.

Butte, Mont., Oct. 20, 1916.

I am sending you by express today tracings in duplicate showing our transmission line across Helena and Gallatin National Forests, Gallatin and Meagher Counties, Montana, dated August 1916, and marked "Exhibit J-7-A". These tracings have been corrected according to your instructions and I trust they will meet with your approval.

I am also enclosing herewith corrected Field Notes in triplicate, marked "Exhibit K-7-A". Will you please acknowledge receipt and oblige.

Yours truly,

REW-wls
Encl.

Electrical Engineer.

Butte, Mont., Oct. 30, 1916.

Yours truly,

RBV-wls

Electrical Engineer.

Butte, Mont. Oct. 20, 1916.

Mr. C. W. Thompson,
Forwding M. P. Camp #23,
Drexel, Mont.

Dear Sir:

Please arrange to ship soon as possible from your stock, 1,000 - 37" Bonds complete with Pins, to Mr. Butler at Deer Lodge. Copy of this letter to Mr. Butler who will ship these bonds over to Stki. Kelley to replace a portion of a lot of 1800 borrowed from Mr. Kelley's stock. Please advise promptly when shipment is made, giving our number.

Yours truly,

Electrical Engineer.

RBV-wls

cc--M.C.D.

Butte, Mont., Oct. 20, 1916.

Mr. J. J. Murphy, Supt.,
Three Forks, Mont.

REW-wls Electrical Engineer.

Butte, Mont., Oct. 20, 1916.

F. B. W.

A few days ago Mr. Peck and I went thoroughly into the Power Limiting and Indicating work, and I believe we dug out what was the correct operation of all the different relays, etc. I would like Peck to write a letter to the G. E. Company explaining our understanding of the operation and asking if this is correct.

Yours truly,

RB-wls Electrical Engineer.

I am sending you at Coltese blueprints as follows in connection with feeder cut-off between point west of Roland and Falcon, following your request of the 20th.

As there has been some confusion heretofore in regard to this particular point, please note that the framing height shown on profile is height from top of pole to butt; in other words, the framing length over-all, and that the top of cross arm or cross arms is to be 9 inches from the top of poles.

As noted on the profile, you will have to carefully check the profile for feeder clearance from ground, making necessary changes in location of poles or their height, advising this office as to changes made, so we can correct our records, the profile shown having been based in inter.

Also danger signs are to be placed on alternate poles.

The location of poles at terminals of cut-offs will have to be determined so as to properly connect in with main line feeder, and provision has to be made for cut-out switch on both ends of positive feeder. Drawings sent you are ED-#803, #804 and Government map showing transmission and feeder line location in that territory.

Yours truly,

RFW-vls
cc--G.F.

Assistant Engineer.

Butte, Mont., October 21, 1916.

ing entered against the Montana Power Company by David T. Mauslin for alleged personal injuries resulting from his coming in contact with a guy installed along our right of way at Cobden.

I understood from Mr. Webb, Claim Agent, that suit was brought against the Railway Company for the sum of $20,000.

An opening had been made in the right of way fence previous to the installation of the guy, and including the location of the latter, in order to enable certain logging contractors to more conveniently load their logs, but the guy was provided with a guard at the time of the accident, and I infer from reports that there was ample room for the driver to pass without coming in contact with the guy. Besides this, there was another trail which the driver could have taken and thereby avoided the use of the trail over which the guy was located.

Our Missoula attorney, Mr. Stiff, was in the office this morning talking about this matter and he thought that Mr. Mauslin had no claim against us. We will keep you posted as to the developments in this case, as the details in connection with it become definitely established.

Yours truly,

RB-WLS

Electrical Engineer.

Butte, Mont., Oct. 21, 1916.

wire at point of pull-off from center of track, on ten degree curves where trolley crews are working, and where trolley wire has been finished.

I would like this information taken at all three camps between St. Regis and Avery, making sure that they are taken on ten degree curves in each case and that the same number of pull-offs are used, per section, in each case. The surest way to get this is to use a very heavy plumb-bot dropped from trolley wire and measure to actual center of track. In each case a close measurement of super-elevation of rail at the point where displacement measure is taken, will be required.

Yours truly,

RBW-mls

Assistant Engineer.

Butte, Mont., Oct. 21, 1916.

issuing box from this office and measure the resistance of joints bonded with Special bonds at Kyle, assigning numbers to those joints from East to West and painting these numbers on the rail at the joints.

At the same time, take the resistance of an equal number of joints bonded with the 35 inch bonds, including the same amount of rail in each case. It is our intention at certain intervals later on to measure the resistance of these joints in addition to making an actual inspection.

Yours truly,

REW-wls

Assistant Engineer.

Mr. W. F. Coors reports that there is bad flashing and momentary breaking in circuit, particularly noticeable on west-bound locomotives when passing the west switch at Newcomb.

Following my letter of recent date, this switch should be re-located to conform with the track switch as soon as possible, and do away with the present temporary arrangement which seems to be causing the flashing.

Yours truly,

RFN-wls

Electrical Engineer.

cc--M P Co--Butte

Butte, Mont., Oct. 21, 1916.

extensions, new passing tracks, or any changes in construction which require crews to go back on the work after having passed a given point, or which put this Department to additional expense over and above that contemplated in the original layout.

For instance, Foreman Barker spent considerable time at Alberton on account of changes made in the Yard layout after our original work was pretty well completed.

We should have the inclusive dates covering time put in at that point on account of change, and the part of his equipment used on this particular work during that time.

Foreman Mickey, when cleaning up trolley work from Deer Lodge east, extended wire over several passing tracks. Foreman Barker took down overhead work at Sudan rock cut and has just replaced it. He will also, on his present clean-up work, take care of passing track extension work at Bonner, Garrison and other points.

It will be necessary for some crew to finish up work at Forsker and also at Henderson. In all of the above cases we should have the data mentioned above so that this office can determine just what additional cost has been imposed upon our estimate figures, on account of the work in question not being ready for our crews when going over the work originally. You can no doubt best determine this from interviewing the individual foremen and camp clerks on the subject.

Yours truly,

REW-wls

Assistant Engineer.

[illegible] Transmission Station #8563 just west of Drexel, pole framing was made 48 ft. 6 in. whereas profile showed 60 ft. 6 inches, and it was necessary for the Stringing Crew to replace the pole.

It would seem from Inspector Miller's report that this pole was changed by Foreman Tavenner with Miller's knowledge, and while we do not intend to have such matters determined by foremen, neither do we intend for our Inspectors to permit such changes to be made by anyone without proper authority. Please advise Inspector Miller in regard to this.

About one mile west of Drexel, Station 8605 plus 68, and at several other points, #113 fixtures are fitted with arms shorter than 13 ft. 6 inches, and proper clearance from guys cannot be obtained. I would like to have this matter investigated and a report as to why this was done. It is true that we may have been short of 15 ft. 6 inch arms, but this is no justification for using arms of improper length.

At Station #8609, pole has been cribbed with cross-ties, and ties are split by drift bolts and whatever has been used to fasten them together instead of our standard through-bolt. While it is satisfactory to use drift-bolts for fastening these cribs, if timbers are properly bored, there should be no splitting. Furthermore, we must make sure that all timber used for this purpose and for any other purpose, is of good quality and not rotted.

At Station #8636 plus 80, ED-#39 construction, poles are 20 ft. apart instead of the standard distance, and one pole is within three feet of edge of cut. Please advise why these poles were set this way, and have precautions taken to keep the pole away from the cut.

REW-wls

Assistant Engineer.

cc--A N C

Butte, Mont. Oct. 21, 1919

Dear Sir:

I am enclosing herewith one copy each of blueprints showing cut-out switches on trolley line and general distribution diagram showing high tension taps, substation locations and other data .

I am sending a additional copies to Mr. Willard so that if you happen to need more, you can get them from him.

Yours truly,

EFT-wls
Encl.

Electrical Engineer.

cc--M P Co--Butte

Butte, Mont., Oct. 21, 1916.

REW-wls

Ele ical Engineer.

Butte, Mont., Oct. 21, 1916.

Mr. F. E. Willard, Supt.,
Missoula, Mont.

Dear Sir:

I am sending you ten copies each of blueprints showing cut-out switches on trolley system, high tension system, and general data on distribution system. I am sending one copy each to Mr. Reichler, who is to handle Load Dispatching, at least temporarily. If you need additional copies of these prints, we can furnish them.

Yours truly,

REW-wls

Electrical Engineer.

Butte, Mont., Oct. 21, 1916.

Mr. E. Sears,

3 - have double records with your notes thereon.

Yours truly,

ABV-wls.

Electrical Engineer.

Butte, Mont., Oct. 21, 1916.

Mr. E. T. Chapin,
T. T. Chapin Co.,
Spokane, Wash.

Dear Sir:

Replying to your request for photographs illustrating the use of wooden poles in Aberdeen, our transmission line, I am enclosing another view of this line in which I have sent you on the 14th, which may be of more value to you.

Yours truly,

Electrical Engineer.

R
WLS-s

Butte, Mont., Oct. 21, 1916.

F. B. W.

to get this matter settled promptly so we can ask the G. E. Company for an estimate to cover the cost of the apparatus.

R. B.

Butte, Mont., Oct. 21, 1916.

the Railway Company, but I understand claim is also being entered against the Montana Power Company, by David T. Maudlin for alleged personal injuries resulting from his coming in contact with a guy installed along our right of way at Cobden.

I understood from Mr. Webb, Claim Agent, that suit was brought against the Railway Company for the sum of $20,000.

An opening had been made in the right of way fence previous to the installation of the guy, in order to enable certain logging contractors to more conveniently load their logs, but the guy was provided with a guard at the time of the accident, and I infer from reports that there was ample room for the driver to pass without coming in contact with the guy. Besides this, there was another trail which the driver could have taken and thereby avoided the use of the trail over which the guy was located.

Our Missoula attorney, Mr. Stiff, was in the office this morning telling about this case, and he thought that the party had no claim against us. We will keep you posted as to the developments of this case as the details in connection with it become definitely established.

Yours truly,

RB-WLS

Electrical Engineer.

Butte, Mont., Oct. 23, 1916.

In view of extra work on St. Paul Pass Tunnel having been deferred until next Spring, and our being able to start electrification work in the tunnel sooner than we had expected, will you please advise just when you anticipate our being able to start a crew drilling and installing tunnel fixtures in the 3,000 ft. of tunnel which has not been provided with castings, also if it will not be feasible for us to start a crew on this work before your work is entirely finished, and if so, when? Your early reply will be greatly appreciated, as we wish to furnish the Montana Power Company with the above information.

Yours truly,

REW-wls

Electrical Engineer.

Butte, Mont. Oct. 23 1916

overhead work at Great Falls, we wish to send someone to look into this matter, and willyou please advise me promptly as to whether the Agent at Great Falls is familiar with the tracks which are to be wired, so that our representative can confer with him and make sure that we are covering the proper work.

Yours truly,

REW-wls

Electrical Engineer.

Butte, Mont., Oct. 23, 1916.

has finished, and if construction conditions make a crew available for tunnel drilling, it may possibly be feasible to start on this work before tunnel lining work is finished.

I understand from Mr. Urbutt that he has completed at least a portion of his work on one end of the tunnel, and therefore it might be feasible to start our crew in on that section before his work in the other part of the tunnel is done.

I am giving you this information so that you can make your plans accordingly, and am writing Mr. Urbutt for information as to just when we can best start in on our work. I will advise you as soon as I hear from him. I presume you will want to have Foreman Gilbert do the bonding as soon as he completes through to Avery, and in this connection, wish to bring to your attention the necessity for making definite arrangements for the protection of bonding crew in tunnel while doing the work, particularly if this is done while tunnel work is going on, as it will probably require joint protection arrangements with the tunnel linin forces.

As soon as you have made your plans for taking care of this work, will you please advise me and oblige.

Yours truly,

REW-wls

Electrical Engineer.

cc--G.F.S.

Butte, Mont., Oct. 23, 1916.

MONTANA POWER CO.
Attention;
CHIEF OPERATOR: Gold Creek Substation

switches. This may be abbreviated to "East Ry H L Sw." or "East Ry H L Sw". The Montana Power Company's switches at Gold Creek and Fort Portal shall be "M. P. Co. Sw." In noting the position of these switches at 12:01 AM on the log, cross or scratch out the word "Open" or "Closed" which is NOT desired.

The trolley lines shall be known as "East Trolley Feeder" or "West Trolley Feeder" which, when abbreviated will be "East T.F." and "West T.F.".

It must be noted what opens switches or breakers; that is, whether it is automatically or by hand, and reason, if known. Thus "East Ry. H.L.Sw. opened auto. overload" or "East T.F.Breaker opened auto. overload" or "East Ry.H.L.Sw.opened by hand, order Dispatcher", etc.

When a M.G. set is put in or taken out of service, note both the A.C. and D.C. Switching; for example,—

"West M.G. in -- A.C. and D.C."
"East M.G. out -- D.C."
"East M.G. in D.C."

The reason for the above must also be noted, as "Hot Bearing" or "To Clean out" etc.

EXAMPLE: A Station is running with both trolley feeders energized from the West M.G.; Light load east; regenerated current coming in from the west; the breakers blow out and the machine flashes over. If the operators note this change, he should find out the cause of the flashes, whether the line was down or grounded, or if nothing of this nature can be located, he should note what motors are coming down hill west of him. The entry on the log would be as follows:

Sheet 22—4/14/16

10:15 PM——West T.F. and West M.C. Breakers opened, auto.

The time compressor, oil filler, etc./are run must be noted.

The time the water pump is run must be noted.

Any suggestion for improvement, reason for flash-over or other accidents, or questions on operation, should not be entered on log sheets. These should be sent in on separate paper. They will be welcomed and attended to as quickly as possible by this office.

R. BRUNKES, Elec. Engr.

cc--M.P.Co.--Butte

Butte, Mont., Oct. 2?, 1916.

station operators will [illegible] continuously for more than 24 hours without cleaning and inspection.

It has been called to my attention indirectly that some of the substation operators are starting M. G. Sets by first throwing in 2300 volt starting switch and then closing 100,000 volt transformer switch. Considering the trouble with starting switches this seems a rather natural thing for them to do. I believe it would be well to ascertain at once whether or not this is the case. If such is the case, a rigid examination of the 100,000 volt switches so used should be made at once, and at frequent intervals subsequently, to make sure that they are working properly, or the practice should at once be discontinued. Trouble with these switches might have immeasurably disastrous results.

Yours truly,

ABV-wls

Electrical Engineer.

Butte, Mont., Oct. 23, 1916.

ADV-ela

Electrical Engineer.

[illegible], Mass., [illegible], 1918.

[illegible] J. H. [illegible]
Acting Statistician,
[illegible], L.I.

[illegible] Sir:

[illegible]

Yours truly,

[illegible]

ASV

Electrical Engineer.

Date: Mont. Oct. 23, 1918

It is noted that Foreman Latham attaches to his trouble reports a short statement called "Reason of Delay" which accounts in full, for all time from time of notification of trouble to time of arrival at trouble. This has been a great help to our office, and we desire that such a note be attached to all trouble reports hereafter.

There seems to be an idea that trouble reports shall only be made out when trains are delayed. This is not so. A trouble report should be made out whenever a crew receives an emergency call, even if no trouble is found, or no trains held up. That is whenever called out of working hours and whenever called during working hours when the work in hand is dropped and the crew taken at once to the reported point of trouble.

Yours truly,

ABV-wla

Electrical Engineer.

cc- M P Co--Butte

Butte, Mont., Oct. 12, 1916.

Montana Power Co.,

ABV-als

Electrical Engineer.

Butte, Mont., Oct. 23, 1916.

Mr. J. Crockett, Engr.,
Three Forks, Mont.

Dear Sir:

Enclosed please find the Train Delay Report. [illegible]

Yours truly,

ABV-als

Electrical Engineer.

Butte, Mont., Oct. 23, 1916.

can determine in this office just what amount is [illegible] to that particular item.

Yours truly,

RWW-wls

Assistant Engineer.

Butte, Mont., Oct. 23, 1916.

Mr. E. O. Reeder,
Asst Chief Engineer,
Seattle, Wash.

Dear Sir:

Herewith van dyke prints of our obsolete drawings as per your letter of October 18th and your wire 21st, showing the location of poles and anchors on L. P. property. These van dykes are the following prints:

ID-"[illegible]", "[illegible]", "[illegible]", "[illegible]" and "[illegible]".

Yours truly,

LEOwls

Electrical Engineer.

[illegible] handing you herewith signed statements by General Inspector G. F. Soule, Inspector H. W. Wieloesky, Foreman T. F. Henley of the Montana Power Company and Jack Jones, one of our inspectors, also L. R. Sisson of the Montana Power Company.

You will note that in Wieloesky's statement he says he was given to understand that Cooper had completed his hauling by way of this opening in the fence, but does not state who gave him to understand that the hauling was completed. Also Inspector Soule states that after the accident, Mr. Blakeslyn, who is General Foreman for the Montana Power Company, gave instructions to his Foreman, Henley to remove the guy from its old location and put in a new stub and anchor, but does not state as to whether he, as a representative of the Railway Company, was concerned in any way in changing this guy.

In view of the above facts, I consider that the proper and only satisfactory way for you to obtain written statements from all these men which you can use in court will be for you to interview them personally, and have them write out their statements so they will be thoroughly consistent, and cover the evidence which you require.

We are preparing certain sketches in connection with the statements, which we will be able to send you in a few days, their completion having been held up on account of certain discrepancies in the field notes affecting essential points at issue. Please arrange to have copies of all statements furnished you by those concerned sent me for my records.

Very truly yours,

cc--G.F.S.

REW-wls

Electrical Engineer.

Butte, Mont., Oct. 23, 1916.

Mr. E. O. Reeder,

Yours t ly,

LW-wis
R

Electrical Engineer.

Dut , Minn., Oct. [illegible], [illegible].

[illegible] Moore,
[illegible] Woodlands,
[illegible]-Lodge

[illegible] Sir:

[illegible] has two rooms
[illegible] on it and roox

[illegible]

LW-[illegible]

[illegible]

[illegible], Minn., Oct. [illegible], 1916.

Yours truly,

ABV-wls

Electrical Engineer.

Butte, Mont., Oct. 24, 1916.

we understood that the original estimates were not accurate. In addition, however, I am under the impression that they have billed us, not only for work due to electrification, but also for other work done on account of track work at that point. At the time work on our account was undertaken, they had temporary work under trestle over Centennial Ave. I think there is no doubt but that they should render two bills covering this point, one against our work and the other against whoever authorized the changes on account of track work.

The two bills for work done at point two miles west of Three Forks, amount $177.79 and 1/4 mile west of Piedmont, amount $153.52, require explanation, in that on the Three Forks job, with an existing one wire capacity and proposed four wire capacity we are billed for 1½" pipe. The use of the large pipe west of Three Forks would seem unnecessary, and we should not pay for it. Furthermore, on the Three Forks work we are charged with 490 ft. of twisted pair, or two runs, whereas there was only one wire at the time the crossing was changed. We should have an explanation of why four twisted pairs were put in at Piedmont whereas the existing capacity of the line when changed was given as four wires; that is, whether the four wires mean four single wires or four pairs of wires, this for use in connection with checking future bills. You will note that while the Three Forks bill exceeded the estimated amount, the Piedmont bill was less, though the discrepancies do not balance.

In view of the understanding being that the actual costs of these various jobs would not be the same as the estimated costs, it would be of considerable help to us to have them furnish a note of explanation with each bill as to why such discrepancies do exist. In case of the Piedmont job where the estimated amount was $112.31 and

October 26, 1916.

Dear Sir:

In response to my telegram of July 31st regarding the fourteen tank lifters, you advised these would be shipped on August 31st. To date we have not received shipping notice covering these items. Will you kindly advise definitely when they will come forward.

Yours truly,

FAW-wla

Electrical Engineer.

cc--VAW
FU
JTK

Butte, Mont., Oct. 25, 1916.

Mr. S. H. Burrett,
Asst Gen'l Supt.,
Building.

Dear Sir:

The [illegible] policy for Mr. A. J. [illegible] at Coleman have been sent to

CM&StP #62121 and #75203
From Haugen on 23rd:
CM&StP #32115.

Yours truly

FAC-wls

Electrical Engineer.

Butte, Mont., Oct. 26, 1916.

[illegible]

Dear Sir:

[illegible]

Yours truly,

A.V.-ls

Electrical Engineer.

cc--M.P.Co.- Butte

Butte, Mont., Oct. 26, 1916.

[illegible] in [illegible] Track [illegible], and the [illegible] East Yard: [illegible] Track #5, [illegible] total [illegible] 3/8".

[illegible] the [illegible] 3/8" [illegible] Yard. [illegible] above. The [illegible] West Yard [illegible] River.

The remainder [illegible] main line [illegible] 3/8" [illegible] longer.

For your guidance [illegible] the 3/8" [illegible] to 1,000 [illegible] strength of the [illegible] to one-half the [illegible] 3/8" [illegible] fourth.

Copy of this letter to H. W. Rugh for [illegible] information, and to Mr. Butler, who will [illegible] and to Mr. Barker or for Avery Yard work, [illegible] car for For [illegible] of 3/8" instead of the H. S. [illegible] to have five miles of 3/8" [illegible] at once so to [illegible] 3/8" [illegible] will [illegible] the standard rail car axles.

As [illegible] receiving this letter please [illegible] change at once and advise it understood.

Yours truly,

RHW-ils
cc--HWR*MCB

Assistant Engineer.

Butte, Mont., Oct. 26, 1916.

[illegible] connecting [illegible] Mill [illegible] Co. and
River and little [illegible] Joe River [illegible] together, [illegible]
[illegible] East [illegible] Avery Park, the point is
[illegible] being [illegible] to [illegible] the crib [illegible] not be
[illegible] away by logs when they are floated down
[illegible] the high water in the Spring.

[illegible] investigate this matter [illegible]
[illegible], [illegible] to the [illegible] below
[illegible] away if there is any liability on the
[illegible] by the [illegible]. Let us hear from you.

Yours truly,

RMW-[illegible] [illegible] Dynamic.

Butte, Mont., Oct. 26, 1916.

[illegible] D. T. Company instead of sending by express, was sent by freight. You will, therefore, have to [illegible] special care to keep this pump-cylinder in stock distributed among the different [illegible], so as to lose [illegible] thing.

Please [illegible] to check the [illegible] carefully [illegible] as soon as [illegible] is in your [illegible] to pump-cylinder and [illegible] instruments to possible the [illegible] and we hear from you.

Yours truly,

E. T.-ale

Assistant Engineer.

Butte, Mont., Oct. 26, 1916.

various matters, the special eye-bolts for use with castings in St. Paul Pass tunnel have been found at Deer Lodge and Butler has them in stock.

With regard to the sand barrels at Deer Lodge, these can be ordered out on the work if needed.

As to use of special pull-offs outside of tunnels and wyes, they should be used where they are more or less out of sight from main line, such as at the west end of Avery Yard and on two or three tracks next to the River in the East Yard if necessary.

As regards lip boots in stock in Deer Lodge, if absolutely needed on the work, they should be ordered out, but from now on great care must be used in ordering anything in the way of tools and supplies, as there is hardly time to obtain additional.

With regard to solder ladles and gas car parts lost in transit, we cannot take this up with Mr. Cooper unless we have dates on which both shipments were made and train on which shipments were sent.

Yours truly,

REW-wls

Assistant Engineer.

Butte, Mont., Oct. 20, 1916.

Yours truly,

RB-wls

Electr[illegible] Engineer.

Oct. 28 1916.

[illegible], and [illegible], in [illegible]
Forestry Department.

Yours truly,

Electrical Engineer.

REW-wls

cc--Mr. Rutledge Parker,
Forest Supervisor,
Missoula, Mont.

October 26, 1916.

Mr. E. V. Adams, Sec'y,
Milwaukee, Wis.

Dear Sir:

view of your letter of [illegible] we will keep the tracings in our files together with other data on H.T. encroachments.

Yours truly,

REW-wls

Electrical Engineer.

[illegible], Mass., Oct. [illegible], [illegible].

[illegible]

[illegible]

[illegible]:

[illegible]

Butte, Mont., Oct. 26, 1926.

Mr. C. F. Seale, Inspr.,
Helena, Mont.

Dear Sir:

Yours truly,

[illegible] Assistant Engineer.

Butte, Mont., Oct. 26, 1916.

Mr. F. E. Willard, Supt.,
Missoula, Mont.

Dear Sir:

the future, if any part of the overhead construction interferes in any way with work to be done details should be reported to this office, so that construction crews, or later on maintenance crews, can make the necessary changes.

Yours truly,

RFW-wls

Electrical Engineer.

Butte, Mont., Oct. 26, 1916.

Mr. F. R. Nicholas,
Assistant Engineer,
Butte, Montana.

Dear Sir:

Yours truly,

REW-wis

Assistant Engineer.

October 26, 1916.

Mr. E. W. Adams, Sec'y,
Milwaukee, Wis.

The map, are really of the right of way of the N. P. Company, but that there will be four anchors on the East side of this two-pole frame which are located on N. P. property.

Yours truly,

RET-wls

Electrical Engineer.

Butte, Mont., Oct. 26, 1916.

Mr. C. F. Soule, Insp'r.,
Baugan, Mont.

Dear Sir:

without interfering with our work.

We will then advise Mr. Willard who I presume will make necessary arrangements with our Telegraph Department if it is feasible to leave the pole in.

Yours truly,

REW-wls

Assistant Engineer.

cc--F.E.W.

Butte, Mont., Oct. 27, 1916.

Montana Power Co.,
Butte, Mont.

Dear Sirs:

Yours truly,

REW-wls

Electrical Engineer.

Butte, Mont., Oct. 27, 1916.

Mr. F. N. Webster,
Florence Hotel.

Will you please advise [illegible]
were secured in the latter sections.

Yours truly,

REW-wls

Assistant Engineer.

Butte, Mont., Oct. 27, 1910.

Mr. C. F. Soule, Insp. E.,
Hougan, Mont.

Dear Sir:

Mr. J. B. Cox of the Deer Lodge [illegible] will introduce you to Mr. Kanly and may wish to go with you on a trip. Acknowledge this as soon as received, so that we will know that all arrangements are made.

Yours truly,

RFW-wis

Assistant Engineer.

cc--J B Cox--Deer Lodge

Butte, Mont., Oct. 27, 1916.

B. J. Barker, Foreman,
Missoula, Mont.

* * * *

Kohrs:
Low wire east end passing track.
Low wire west end industry track.
High wire east end industry track.
Low wire east end of 4th curve west.

Garrison:
Low wire east end industry track.
Low wire west end industry track.
Low wire west half of passing track.

Haskell:
Low wire at west end industry track.
Line industry track to 13 ft. centers for a distance of 400 ft. from switch.
High wire 1st curve west.
Pull 2 transmission line guys turned loose at 3rd curve west.

Drummond:
Trim passing track west switch.
Low wire at 1st and 2nd pull-offs west of industry east switch.
Install switch lock at cut-out west air gap.

Ozan:
Low wire on passing track.
One pull-off high at west end of first curve west.
One pull-off high in 2nd curve west.
Loose wire hanging from 4/0 negative at spur track in cut west.
Low wire at east end of 4th curve west.
High wire in middle of 5th curve west.
Low wire at west end of 5th curve west.
High wire at 1 pull-off at west end of 6th curve.
Two pull-offs high in 7th curve west.
Install switch lock at cut-out west air gap.

Sheet #2--B.J.B.--10/27/16

* * * * *

Bearmouth:

Check pull-offs in middle of 1st curve west.
Line up trolley between 3rd and 4th curve west.
One pull-off high at west end of 4th curve west.
Install switch lock at cut-out east air gap Ravenna.

Ravenna:
Complete overhead work on passing and industry tracks.

Iris:
One pull-off high at passing track west switch.

Pantograph wire.

Missoula:
One pull-off on house track high.
Bend pipe-pull-offs to make wood break, opposite old freight house, hang level.
Install lock at cutout box same location.
Slack trolley and messenger on house track new freight house.
One back bone pull-off low on house track new freight house.
Feed tap to trolley cut at old freight house cut out switch.
Two pull-offs low in first section west of cut-out switch, on passing track.
Two sections of low wire at passing track west switch.
One pull-off low at a span just west of passing track west switch.
Line up coach track from Higgins Avenue Viaduct to east switch.
Slack span on main line at third span east from N P transfer.
Check height of trolley wire for grade under Bitter Root crossing.
Two low pull-offs in first section on N. P. transfer.
Pick up span 3/8" strand on the ground.
Install 4/0 negative under Bitter Root crossing.
Slack trolley on passing track west of Bitter Root crossing.
Pick up passing track back of switch west of Bitter Root crossing to prevent pan on main line striking same.

Sheet #2--B.J.B.--10/27/16

* * * *

Primrose:
One pull-off at passing track east switch to be reversed.
Slack trolley and messenger on industry track.
Remove one pull-off on industry.
Remove guy guards inside right of way fence south side of industry track, and five or six guy guards west of west bungalow on north side main line.
Three low pull-offs west end of industry track.
Pull-off from back-bone low west end of passing track.
Line up trolley wire on main line covering a distance of one-half mile east from first mile strain east of Frenchtown.

Low pull-off from check-zone in cross-over east of station.
Low pull-off at span east of east switch cross-over east of station.
Low pull-off at spur east of east switch cross-over east of station.
Low pull-off at first span on Track #1 new yard.

Cvr:
One high pull-off at span about 800 ft. west from east switch, on passing track.
At west end of tunnel, anchor pull out east end of trolley and messenger anchorage.
Check industry track when surfaced.

Tarkio:
Install jumper between main line and passing track east end.
Check insulation throughout yard and see that no jumper is left on at west end of passing track.

* * * * *

2--B.J.B.
3--File

Butte, Mont., Oct. 27, 1910.

Montana Power Co.,
Butte, Mont.

[illegible]

[illegible] Dear Lodge [illegible] there for the [illegible] material in [illegible] insulators, [illegible] use of it [illegible] up long enough to use. [illegible] please [illegible] instructions at once, so that [illegible] be [illegible] care of as outlined above, [illegible] drings.

Yours truly,

Electrical Engineer.

EGF-sle

cc--M.C.B.-------Dear Lodge
H.W.Latham--Butte Yard
C. Caire-----Three Forks

Butte, Mont., Oct. 27, 1916.

Mr. G. F. Soule, Insp.,
Bozeman, Mont.

Yours truly,

REX-wls

Assistant Engineer.

Butte, Mont., Oct. 27, 1916.

Mr. H. T. Rusch,
Deagan, Mont.

Dear Sir:

[illegible]

Butte, Mont., Oct. 27, 1916.

Mr. A. M. Crowder, Inspr.,
Fallesa, Mont.

Dear Sir:

We are trying to arrange to energize the line to East Portal with 100,000 volts by November 1st, and everything should be handled with that in mind. Let me know promptly as to your understanding of this and as to whether everything will be ready.

Mr. Beauwkes reports insulators picked up on a pole between Bryson and Saltese. From his description, I presume this is a short distance east of Bryson. These should be taken care of as soon as possible, or before the crews leave this territory. Let me know when this has been done.

Yours truly,

REW-wls

Assistant Engineer.

October 28, 1916.

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

Referring to my telegram of even date, in [illegible] of October 18th, relating

the Power Company, of course immediately call our attention to the fact and require that we elect an option which corresponded to the actual maximum demand. Maybe I have not understood you correctly regarding this.

The last paragraph of your letter states you think it would be a good idea to enter into the arrangement which I suggested in my letter of the 10th. Of course the minute we entered into such an arrangement, we would be tied down for all time to a maximum demand basis corresponding, and later when business possibly got poorer than it is now, we would not be operating under the arrangement suggested as satisfactorily as we would be operating now. This, no doubt, has occurred to you, but I thought best to bring it to your attention. Am I to understand that you wish me to take up the matter of this arrangement with the Power Company?

Yours truly,

RB-wls

Electrical Engineer.

October 28, 1916.

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Dear Sir:

[illegible] to Spur [illegible]
between Greenwalt and Borten that Greenwalt would return to his work just east of Bogle Spur. Greenwalt however, went into Falcon ahead of Johnson and cleared for 3rd/61, Voss, met at Falcon. Operator at Falcon then gave 3rd/61 clear block to Kyle knowing that Borten was in Block and that he had not cleared anywhere. Dispatcher had not safeguarded movement by train order as per Block Rule #18, 3rd/61 found Borten's train on Main track near Bogle. Damaged caboose and one car, bent pilot on Engine #9502. Accident happened at 11 AM. Track clear at 2:10 PM. No personal injuries. No. 18 delayed two hours ten minutes."

Yours truly,

RB-wls

Electrical Engineer.

Butte, Mont., Oct. 28, 1916.

Montana Power Co.,
Attention H. M. Latham,
Butte Yard, Mont.

Dear Sirs:

[illegible] Chief Operator

Yours truly,

REW-wls

cc--M P Co--Butte

Electrical Engineer.

Butte, Mont., Oct. 28, 1916.

Mr. M. C. Butler, Stkr.,
Deer Lodge, Mont.

Dear Sir:

light is furnished, both for that work and also to provide at night for general emergency work.

Yours truly,

REW-wls

Assistant Engineer.

cc--L Wylie

Butte, Mont., Oct. 28, 1916.

Mr. A. J. Jennings,
Asst Purchasing Agt.,
Chicago, Illinois.

Dear Sir:

On the 18th, after a period of 11 days, we wired you asking that this shipment be checked, meaning of course as to whether the shipment had actually come through by expres or by freight, and on the 21st we wired you again, not having received any information.

We assumed that you would have time, after our message of the 18th, to ascertain as to whether shipment had come through by express, or had been transferred to freight at Chicago.

Our reason for following the above course was that in connection with bond shipments of the past, we had been advised that shipments would be made by express and found afterwards that they came through by freight without our having had any advice to that effect from your office, and in both cases, it was necessary for us to know how the shipment was coming in order to make our plans in the field.

Yours truly,

REW-wls

E] rical Engineer.

Butte, Mont., Oct. 27, 1916.

Mr. F. N. Webster,
c/o Florence Hotel,
Missoula, Mont.

Dear Sir:

B. C. Mottern advises he has arranged with Horesky to proceed with clearing for feeder line on his property near Falcon and I resume he has done this on the assumption that you will call on Horesky and settle with him. Please take care of this as soon as possible.

Butte, Mont., Oct. 30, 1916.

Mr. T. F. Crors,
c/o W. Sears,
Deer Lodge.

Dear Sir:

Referring to your note of October 12th, we have been aware of the two place in the trolley line just east of Deer Lodge and the Washington Creek, as soon as possible, we have this fixed up. With regard to the two cut-offs on the curve just east of Main Street Bridge at Missoula, I believe that in the first place the cut-offs are intentionally bent to give clearance, but we will look into the matter further. We thank you for calling these points to our attention.

Yours very truly,

Electrical Engineer.

RB-wls

Butte, Mont., Oct. 30, 1916.

Mr. F. Urban, CM&StP Inspector,
#540 Building #5--G. E. Co.,
Schenectady, N. Y.

Dear Sir:

Referring to your letter of October 24th

ing most of the time, and the thermostat and machine rises should, particularly around this load, be closer together.

Yours truly,

PB-vls

Electrical Engineer.

Butte, Mont., Oct. 30, 1916.

Mr. E. Sears,
Elec Master Mechanic,
Deer Lodge, Mont.

Dear Sir:

Referring to yours of October 28th in answer to my letter of October 18th regarding sanding of all wheels of electric locomotive, the sanded wheels, when we made our test, were getting plenty of sand and there [illegible] locomotive about

I am sending a copy of this [illegible]
and would also like to get his opinion in this connection.

Unless you have of some serious objection, I would like to suggest your getting necessary authority to fix up one of the locomotives, or if you think best, I would have one of the locomotives still to come fixed up this way. What do you think would be the best plan?

Yours truly,

Electrical Engineer.

EB-wis

cc--C.A.G.
J.B.Cox

Butte, Mont., Oct. 30, 1916.

Mr. J. T. Kelly, Supt.,
Deer Lodge, Mont.

Dear Sir:

[illegible] your letter of the 27th in

of proper size. I would suggest, therefore, and presume it will be satisfactory to Roadmaster Miller, that you do not supply section crews with these grinding machines, on the assumption that drills will be sent to Deer Lodge.

Yours truly,

RWR-als

Electrical Engineer.

cc--Roadmaster Miller

M.C.B.

Butte, Mont., Oct. 30, 1916.

H. W. Rusch,
Material Checker,
Haugan, Mont.

Dear Sir:

Yours truly,

RW--sla

Assistant Engineer.

cc--G.F.S.

Butte, Mont., Oct. 30, 1916.

Mr. F. R. Nicholas,
Assistant Engineer,
Butte, Montana.

Dear Sir:

Inasmuch as Mr. Hornsby has shown up at

Before doing this, however, we wish to prepare and forward to Secretary Adams revised drawings covering crossing over N. P. track just west of Bulbese.

Yours truly,

REW-wls

Assistant Engineer.

Butte, Mont., Oct. 30, 1916.

Mr. C. F. Soule, Engr.,
Haugan, Mont.

Dear Sir:

[illegible] 3/8" run-

and see to it that it is done. Advise if you will
so arrange, and give approximate quantity of strand
recovered for this purpose.

Yours truly,

HWR-wls

Assistant Engineer.

cc--H.W.R.

Butte, Mont., Oct. 30, 1916.

Mr. F. N. Webster,
c/o Florence Hotel,
Missoula, Mont.

Dear Sir:

I am enclosing herewith blueprint of cross-

ment. I understand you will see Mr. Borosky upon your return from the East and investigate his claims.

In the meantime, I am writing Mr. Nicholas to proceed as soon as possible and locate property lines in this territory.

In this connection, there is a property owner whose ranch is just east of Falcon, who may have some claims.

Yours truly,,

RFW-wls

Assistant Engineer.

Butte, Mont., Oct. 30, 1916.

Mr. F. C. Dow, Trainmaster,
Missoula, Montana.

Dear Sir:

I understand from Mr. Urbutt that he will probably complete lining St. Paul Pass tunnel about December 15th and that the estimated time for completion of grouting is about January 1st. The completion

Mr. Urbutt completes wooden lining on or about Novem-
ber 15th?

I understand Mr. Urbutt is using two engines in the tunnel, and that our drilling for roof supports will be about at the center of the tunnel, covering a distance of about 3,000 feet. The drilling for eye-bolts in the side of the tunnel will of course extend the full length of the tunnel. I was in doubt as to whether operating conditions would permit the use of three engines in the tunnel at once time. It has been suggested that our towers could be handled by one of Mr. Urbutt's engines and thus do away with the third engine. It is somewhat doubtful, however, as to whether this would be satisfactory, as our crew might need the engine for moving the towers when it was not available on account of Mr. Urbutt's own work.

Second, if it is feasible and permissible from an operating standpoint to have one of Mr. Urbutt's engines spot our towers and leave these towers without an engine attached, and if it is possible to pinch the towers along with bars if Mr. Urbutt's engine was not available for moving the towers.

#2--F.C.D.--10/30/16

Third, is it feasible to work in this tunnel with an engine attached to towers, or would smoke and gas conditions permit this? My understanding is that Mr. Urbutt has been doing his work with an engine attached to his cars.

Fourth, if it is necessary for us to hold our work until Mr. Urbutt has finished lining and is engaged only in grouting, how many engines would he use for his grouting work? In other words, if he uses only one engine, I can see no reason why we should not

the present air line in the tunnel and using it for drilling. This, however, would involve considerable expense, not only on account of keeping the air plant going, but also on account of having to have an engine in addition to place our towers. If, however, Mr. Urbutt's engine is available for placing our towers and they can be handled, either with this engine or if they can be pinched in to position after being placed, it may be economical to leave the air line in and make use of this instead of using locomotive for air.

Will you please investigate this entire matter at your earliest convenience and advise me fully as to the results. It will of course be necessary for you to confer with Mr. Urbutt as to the above details.

In view of the work on the track having been deferred until next spring, we wish to proceed with bonding in the tunnel, and I presume Gilbert's crew will be assigned to this work when he finishes up at Avery. The details of protection for this crew and the time when they can start on this work have also to be decided.

#3--F.C.D.--10/30/16

I am taking these matters up with you, as the controlling factors are of an operating nature.

Yours truly,

October 30, 1916.

Mr. L. C. LaMont,
Westinghouse Elec.& Mfg.Co.,

#2--Yes.
#3--Yes.
#4--No.
#5--No.
#6--No.

#7--The Railway has no such map, though the Mountain States Tel.& Tel.Company may have.

I trust this supplies the information necessary.

Very truly yours,

ABV-wls

Electrical Engineer.

October 30, 1916.

Mr. L. C. LaMont,
Westinghouse Elec.& Mfg.Co.,
Butte, Montana.

October 30, 1916.

Mr. Ray Webb, Att'y,
Missoula, Mont.

Dear Sir:

I am enclosing herewith two blueprint of our drawing ED-#859, showing original and present location of trolley guy at a point near and east of

driving, and you probably will know as to whether it was possible for a team to drive closer to the trolley pole and further from the guy without inconvenience, as I assume that no regular road had been made at this point.

I believe this is all the information that you desired from this office, and that you will obtain any other information required in connection with the suit from our men in the field. If you desire any additional information, please advise.

Yours truly,

REW-wla

Electrical Engineer.

Butte, Mont., Oct. 30, 1916.

Mr. F. E. Willard, Supt.,
Missoula, Mont.

Dear Sir:

The Forestry Department have taken over six [illegible] over our transmission line at a point [illegible] west of [illegible]. [illegible] are interested after it [illegible] built. Will you please advise if this Company [illegible] Department [illegible]

Butte, Mont., Oct. 30, 1916.

Mr. H. W. Rusch,
Material Checker,
Haugan, Mont.

Dear Sir:

In connection with trolley building, I understand that a part of the section originally allotted to [illegible]

Stetson Yard.....	12	2	3	5	3	2	
Avery Yard.....	1	5	4	21	45	14	1

Single Copper Sec.

Stetson Yard.....	12	1	3	11	11	3	
Avery Yard.....	2	13	5	53	140	30	2

Since the time when these figures for section lengths were made up, the yard tracks at Avery and the layout of tracks to be wired in Avery Yards have undergone some changes and it would be well to ascertain the present number of single and double copper sections in Avery Yards under the new layout. Hangers for Fulp's new section which are now in Mickey's camp should be transferred and any additional hangers required should be ordered from Deer Lodge.

Yours truly,

LW-wls

Assistant Engineer.

Butte, Mont., Oct. 30, 1[illegible].

Mr. F. [illegible] Reeder,
[illegible] Engineer,
[illegible], Wash.

[illegible] Sir:

[illegible]

Butte, Mont., Oct. 30, 1916.

Mr. [illegible] Moore,
Gen Master Mechanic,
Butte Lodge.

Dear Sir:

[illegible]

[illegible]

Yours truly,

ABV-als

Electrical Engineer.

October 30, 1916.

Mr. N. W. Storer, Chairman,
Trac. & Trans. Committee, A.I.E.E.,
c/o Westingh use Elec.& Mfg.Co.,
Pittsburgh, Penn sylvania

I expect to get out such a paper as soon as I can, but will have to get it further advanced before I could be in a position to give you a definite promise of completion.

Yours very truly,

RB-WLS

Electrical Engineer.

[illegible]

[illegible] J. J. [illegible], [illegible]
[illegible], Mont.

[illegible]

October 30, 1916.

Mr. C. A. Goodnow,
Asst to the President,
Chicago. Illinois.

Yours truly,

RB-wls

Electrical Engineer.

Butte,Mont., Oct. 30, 1916.

Mr. E. H. Barrett,
Asst Gen'l Supt.,
Butte,Mont.

like to know if it would not be satisfactory for us, in place of the cars just referred to, to keep the ones used for maintenance.

Yours truly,

RB-wls

Electrical Engineer.

October 30, 1916.

Mr. D. A. Willey,
Porter Building,
Baltimore, Md.

The last paragraph of your letter very kindly refers to giving me credit in connection with the preparation of the magazine article. I would suggest that if any names are mentioned of those belonging to the Railway organization connected with the work, that this be done merely in connection with stating what such connection was. This work was done under the direction of Mr. C. A. Goodnow, Assistant to the President of the Railway, and the writer was the Electrical Engineer in charge.

Yours very truly,

RB-wls

Electrical Engineer.

Butte, Mont., Oct. 30, 1916.

Mr. E. Sears,
Elec Master Mechanic,
Deer Lodge, Mont.

Dear Sir:

works.

I am sending a copy of this letter to Mr. Cox and would also like to get his opinion in this connection.

Unless you know of some serious objection, I would suggest your getting necessary authority to fix up one of the locomotives, or if you think best, I would have one of the locomotives sent to some fixed up this way. What do you think would be the best plan?

Yours truly,

HB-wls

Electrical Engineer.

c:--J B Cox

October 30, 1916.

Mr. C. A. Goodnow,
Asst to the President,
Chicago, Illinois.

Yours truly,

RB-wls

Electrical Engineer.

Butte, Mont., Nov. 1, 1916.

Mr. J. J. Murphy, Supt.,
Three Forks, Mont.

Dear Sir:

On Sept. 20th I wrote you pointing out various [illegible] in your [illegible] report [illegible] #738 Reports for June and August, 1916. I [illegible] your attention to this [illegible] several times since, but have received no reply. I must infer that you are unable to [illegible] my position and have not the reports asked for. If you kindly send me about thirty blank #738 Reports and I will endeavor to get in the information elsewhere.

Butte, Mont., Oct. 1, 1916.

Mr. A. J. Busch, Supt.,
Gallatin Valley Railway,
Bozeman, Montana.

Dear Sir:

On August 22nd I wrote you asking for certain information. This I have received [illegible] I have received [illegible] thing. [illegible] sent the data [illegible] Nov.

Yours truly,

DV-ela

Electrical Engineer.

Butte, Mont., Nov. 1, 1916.

Mr. J. F. McNabb,
Acting Statistician,
Chicago, Ill.

Dear Sir:

Replying to your of October 24th, with N.P.T., [illegible] report the [illegible] in that on which to receive the manager's N.P. [illegible] report. [illegible] give the [illegible] in [illegible] division point, and report each sub-division separately.

Butte, Mont., Nov. 1, [illegible]

Mr. [illegible] Sears,
[illegible] Master Mechanic,
[illegible] Lodge, Mont.

[illegible] Sir:

You no doubt received a report from A. J. Krohn, [illegible] "[illegible]," [illegible] [illegible] [illegible] report.

Yours truly,

APV-wls

Electrical Engineer.

Oct. 31, 1916.

Mr. M. H. Clapp,
Supt. Telegraph, N. P. Ry.,

than you asked for [illegible]

Yours truly,

MC-wls

Electrical Engineer.

Butte, Mont., Oct. 31, 1916.

Mr. E. W. Adams, Sec'y,
Milwaukee, Wis.

Dear Sir:

I am enclosing herewith 13 prints of PD-[illegible]-A which supersede PD-[illegible], and shows final location of transmission poles over the T. W. crossing and also not of Maltese. These are the prints about which I wired

Butte, Mont., Oct. 31, 1916.

Mr. J. C. Mill,
Signal Engineer,
Milwaukee Shops.

Yours truly,

HB-sls

Electrical Engineer.

Oct. 30, 1916.

Mr. Henry L. Gray,
941 Henry Building,
Seattle, Washington.

completed, will appear in the transactions of the American Institute of Electrical Engineers, also I have made promises with respect to the preparation of other papers.

However, as we expect to open up another engine division to electrical operation on November 1st, and to open up our last Division before the end of the year, you will realize that I have very little time for the preparation of papers, and cannot, therefore, make further promises regarding them. Should later developments make it possible for me to give you a paper, I will be glad to do so, and will let you know.

Very truly yours,

RB-wls

Electrical Engineer.

Butte, Mont., Oct. 31, 1916.

Mr. E. Sears,
Elec Master Mechanic,
Deer Lodge, Mont.

Dear Sir:

with track. This air gap is a cut-in air-gap and as you know, has single trolley. I could find only one shoe near the trouble and neither of the horns were broken, nor did they show that they had been struck by anything. Both trolley and messenger had at least one-half inch of solid ice on them. After trouble had been temporarily cleared, I asked to have a light motor run over the wire ahead of Train #16, and as it left Ringling it could be seen for miles by the arc on both pans. After Train #15 tore down trolley, it hooked in to a feed tap and burned down the negative, which fell over feeder and froze fast, and put section of line out between Substation #2 and #3; then he went on with reserve pan to Substation #3 and run under tap there and burned down Messenger."

Did you get the pantograph back, which Mr. Guire picked up, and if so, in what condition did you find it. One would suppose that if the pantograph struck something on the wire, that the pan would be damaged in some way. From Guire's report, one would judge the pan was not damaged, but he is not entirely clear about this.

Yours truly,

RB-wls

ctrical Engineer.

Butte, Mont., Nov. 1, 1916.

Montana Power Co.,
Butte, Mont.

Dear Sirs:

Last Trainman Nicholas reports quite a

[illegible] above is perhaps the trouble.

Copy of this letter to Assistant Engineer. Nicholas who will see to it that Local Foreman representative at Avery is notified as to this timber cutting so he can get the necessary preliminary data if so desired.

Yours truly,

REF-wls

Electrical Engineer.

cc--F.R.N.

Nov. 1, 1916.

Mr. L. R. Adams, Line Supt.,
Bay State Street Railway Co.,
Security Building,
Lynn, Massachusetts.

To that end, and on the basis that I propose to stay with you, please give me an idea of the nature of the work with your best possible terms.

Very truly yours,

GFS-wls

Butte, Mont., Nov. 1, 1910.

Western Power Co.,
Attention L. McClia,
Chief Operator--Lowell Substation.

Dear Sir:

Butte, Mont., Nov. 1, 1916.

Mr. C. F. Urbutt,
Asst Engineer,
Roland, Ill.

Dear Sir:

Acknowledging your letter of October 1st in regard to [illegible] I [illegible] to report, in view of the [illegible] it will not be [illegible] the [illegible] of the [illegible] or the [illegible]

Nov. 1, 1916.

Mr. P. M. Halloran, Auditor,
Butte, Anaconda & Pacific Ry.,
Anaconda, Montana.

Dear Sir:

27th.

Yours very truly,

RPM-wls

Electrical Engineer.

Butte, Mont., Nov. 1, 1916.

Montana Power Co.,
Mr. F. Wende,
Can'l Foreman Maintenance,
Deer Lodge, Mont.

Dear Sir:

[illegible] Maintenance reported some time

forks, and pieces [illegible] it is desirable to use this up for our messenger on the wye job, the shorter pieces being used for guys.

At the same time, we would like to recover all the guys and spans from the abandoned poles, for use on the wye job, and also on the passenger station and second track job in Butte. Will you please see that this is taken care of, as we must economize as far as possible on new material for construction work.

Yours truly,

RFW-wls

Electrical Engineer.

cc--M P Co--Butte

Butte, Mont., Nov. 1, 1916.

Montana Power Co.,
Butte, Mont.

Dear Sirs:

Enclosed herewith please find in duplicate, list of work to be done on line from Tarkio to East Portal, as made out by Inspector Soule.

A copy of this was mailed to Mr. Blakesly at Haugan, and Mr. Soule is handing a copy to

Nov. 1, 1916.

Mr. Rutledge Parker,
District Forester,
Missoula, Montana.

Dear Sir:

Butte, Mont., Nov. 1, 1916.

A. N. Crowder, Inspr.,
Saltese, Mont.

Dear Sir:

It will be satisfactory for you to go to Anaconda November 7th to vote.

Very truly,

HM-wls

Assistant Engineer.

Butte, Mont., Nov. 1, 1916.

Mr. A. J. Kroha, Stkr.,
Tacoma, Wash.

Dear Sir:

We have just received your comparative statement for August and wish to thank you for it. It contains much valuable information, but there are some items which I believe must be in error.

#1---Electric passenger locomotive miles you report as 28,314. Our Division is 226.4 miles long and we have six through passenger trains daily. August was a thirty-one day month, hence we must have had about 42,000 passenger train miles. It looks as if your engine miles are low.

conclusion to a sure at. Harvey that our figure is correct, but point out that according to our unofficial figures the mileage noted is about 75% low.

I do not believe it is proper to list the Great Falls switch engine of the Northern Montana Division in with the electric locomotives of the Rocky Mountain division, but think there should be separate columns for the Great Falls engine.

I am very sorry to note that our electrics are making such a very poor showing on their lubricating oil consumption. I am taking this matter up with Mr. Soare in an endeavor to make this expense as small as possible.

#2--11/1/16--AJK

You will of course appreciate the fact that we wish the electrics to make as good a showing as possible. In this respect, I believe it is entirely wrong to give freight locomotive costs on a mileage basis. The size of train is of such direct importance that I believe all such costs should be based on the ton mile. This is more nearly the unit of business or revenue, and therefore should be used as the basic unit for costs.

Yours truly,

Electrical Engineer.

ADV-vls

Butte, Mon . Nov. 1, 1916.

Mr. R. Beeuwkes,
Electrical Engineer,
Butte, Mont.

Dear Sir:

Replying to your questions in regard to Timber Sale Agreement, St. Joe National Forest:

#1---I have not had in mind having all this timber removed by January 1, 1917, inasmuch as the entire question of clearing the timber has been in doubt, and also as far as I know, the question of disposition of timber will not be settled until ruling has been made by the Forestry Department. Furthermore, if such timber is considered merchantable

of the timber as finally decided upon.

It would seem that in order to insure the disposition of timber by any certain date, it would be necessary either to place Cooper and Minnehan under heavy bonds for doing the work if they take care of it, or for the Montana Power Company to arrange their own forces.

#2---In regard to the requirement that no timber be cut until paid for, letter from Mr. Roscoe Haines, Forest Supervisor, dated July 25th, enclosed letter of transmittal in the amount of $500.00, which amount was to be forwarded before cutting was started. He states that arrangements were being made to make examination and appraisal of the timber, and that we

would be advised as to the valuation placed on the timber. He believed that the amount of $500.00 would cover the value of all timber cut on Government lands within the St. Joe National Forest, and if I remember correctly, Mr. Silcox verbally agreed with Mr. Buck that it would be satisfactory to the Forestry Department for us to make an initial payment and if the value of timber exceeded this payment, subsequent payments could be made from time to time, as the timber was examined and appraised by representatives of the Forestry Department.

My understanding, at the same time was, that Mr. Silcox stated that any timber cut outside of the transmission line forty ft. strip, for the purpose of protecting the transmission line, would be included in the appraisal of timber cut on the forty ft. strip, and therefore there would be no special agreement required for timber cut outside of the forty ft. strip.

desirable, [illegible]
latter item is merely incidental, as we should be able to comply with the date of January 1, 1917 by either of the methods outlined above.

#3---This is answered in No. 2.

As regards "danger" timber, on account of trolley line in St. Joe Forest, there is a considerable amount of this to be removed across the river from Avery and across the river above Avery, in order to protect trolley guys. This timber has not been cut as yet, on account of clearing the way for transmission work, as agreed upon by all concerned.

Yours truly,

DEW-wlc

Assistant Engineer.

Nov. 2, 1916.

Butte, Anaconda & Pacific Ry.,
Anaconda, Montana.

Dear Sirs: Attention: F. W. Bellinger

Will you please advise when you can give us an answer to our letter in regard to switching arrangement at Colorado Junction involving location of west switch of cross-over track referred to east switch of your eye.

Our Operating Department is anxious to settle the cross-over question as soon as possible

Butte, Mont., Nov. 2, 1916.

Mr. A. N. Crowder, Inspr.,
Saltese, Mont.

Dear Sir:

You will recall my having loaned you certain blueprints of curves and other data in connection with your tests for making up trolley dynamometer curves. Please advise promptly what disposition has been made of my curves and data, and if you still have them, please send them in promptly, as I want them.

Yours truly,

Elect

RSW-wls

Nov. 3, 1918.

Mr. A. M. Armstrong,
General Electric Co.,
Schenectady, N. Y.

Mr. J. B. Cox,
c/o E. Sears,
Deer Lodge, Mont.

Mr. E. Sears,
Elec. Master Mechanic,
Deer Lodge, Mont.

Dear Sir:

[illegible] in October. This is very gratifying indeed, and I hope that November will show even better results.

Yours truly,

ABV-wls

Electrical Engineer.

Butte, Mont., Nov. 9, 1918.

Mr. W. Geare,
[illegible] Mechanic,
[illegible] Lodge, Mont.

Dear Sir:

I [illegible] are calibrating [illegible] the following:

[illegible]0-A	[illegible]7-A
[illegible]-A	[illegible]-A
[illegible]05-B	[illegible]1-A and B
[illegible]06-B	[illegible]1 -A
[illegible]10-B	[illegible]11-B

If not already calibrated, they should be looked after at once. Will you please advise when OK.

Yours truly,

R
ABV-wls
cc--J B COX

Electrical Engineer.

Butte, Mont., Nov. 8, 1916.

Mr. E. H. Barrett,
Asst Gen'l Supt.,
Butte, Montana.

Dear Sir:

The bridge over St. Joe River at Avery, which I believe is called the "Therriault" I understand is owned by the Forestry Department, and has cables crossing over our tracks and anchored into the bank above the track. These cables will be over our trolley wires after the Yard is electrified.

Mr. W. E. Dougs of the Forestry Department and located at Avery states that these cables

REW-wls

Electrical Engineer.

Butte, Mont., Nov. 2, 1916.

Mr. R. Beeuwkes:

Referring to the matter of maximum power demand at Great Falls Substation, Agent Stablein was so rushed with work while I was there that he was unable to give me a detailed statement showing work actually done by the electric locomotive. He promised, however, to forward this promptly.

As soon as we get his report, we can go into the matter further. From conversation with him, however, he stated he could arrange to cut down the train tonnage without causing any trouble with the Company's customs. This would mean his selecting the freight to be handled, and delaying deliveries to certain customers. Otherwise, he states that it

mum demand. It also seems that Mr. Dow's original measurements showing a maximum demand of 161 H.P. were not dependable on account of the nature of the instrument used. Furthermore, if the demand at that time was 161 H. P., there is nothing on record to indicate that this was to be the assumed maximum, and while it is of course desirable and we are working towards holding down the maximum demand to a minimum, it is possible that our necessary maximum will be a great deal more than 161 H.P., particularly in view of the fact that there is more business being handled at Great Falls at this time than they have ever had to take care of heretofore. As soon as I receive Mr. Stablein's report I will go into this matter thoroughly with you.

Yours truly,

REW-wls

Assistant Engr.

AS--E.S.J.--11/3/16

We cannot check the saturation curve of the self-excited field, as for a given field current the armature volts are more than twice the value as given on representative tests for similar machines on the First and Second Contracts. We presume there must have been a multiplier used in making the test which was omitted in reporting the test.

Test #114873: The same applies as to the saturation of the self-excited field.

Test #114878: The same comment as to the saturation.

Test #114887: Find the resistance of the commutating field approximately 10 percent above the average. The same can not hold as to saturation of self-excited field.

AS FL TO Fuller:

You have omitted the armature resistance from a number of tests, as well as core losses, etc., consequently we have been unable to check these sets. We would like to have you explain the reason for the discrepancies in the test sheets noted above.

Yours very truly,

D-ale

Electrical Engineer.

cc--F.U.
V.A.W.
Peck

November 2, 1916.

Mr. E. W. Adams, Sec'y,
Milwaukee, Wis.

Dear Sir:

I am enclosing you under separate cover 18 prints of drawing ED-383E-A, which is a revision of drawing ED-4133, showing transmission line crossing over Northern Pacific right of way at St. Regis.

I found, upon investigation, that drawing

REW-wls

Electrical Engineer.

November 8, 1916.

Mr. M. H. Clapp,
Supt. Telegraph,
Northern Pacific Ry.,
St. Paul, Minn.

Dear Sir:

In sending you revised map showing transmission line crossing over your track west of Saltese, drawing ED-7842, we failed to send you a

Oct 17
Oct 9

November 2, 1916.

Mr. E. S. Johnson,
General Electric Co.,
Schenectady, N. Y.

Dear Sir:

We have received a number of test sheets pertaining to W. C. Seis on the Third Contract, and after checking them over, we have the following comments to offer:

<u>1,000 KW M.G.F. Generators:</u>

<u>Test Sheet 30</u>: The cold free winding of this generator is approximately 40 [illegible]

given does not agree [illegible] the M.C.F. and A.T.I.

Test #214383: Core loss on A.T.I. approximately 3 KW higher than average.

750 KW M.C.F.

Test #215256: Core loss on A.T.I. 16 percent above average. Core loss on M.C.F. 25 percent below average.

30 KW M.P.C. Exciters:

Test #215034: We find the resistance of the series field is approximately 13 percent above the average.

Butte, Mont., Nov. 2, 1916.

Mr. F. E. Willard, Supt.,
Missoula, Mont.

Dear Sir:

Herewith find letter to you from Acting District Forester, F. A. Fenn, in regard to leaving in telegraph pole at the North end of Therriault bridge, Avery, for use in connection with putting their telephone wire underground.

I find all telegraph poles in this vicinity have been removed. Mr. McEwen of our Telegraph Department, however, has strung the Forestry telephone wire under one of the bridge cables with supports at frequent intervals, and this would

RPW-wls
Encl.

Electrical Engineer.

November 3, 1916.

Mr. E. W. Adams, Sec'y,
Milwaukee, Wis.

Dear Sir:

I am sending you two prints each of maps ED-851, #852 and #853, showing transmission line location and right of way secured from the Northern Pacific Railway on their Patented Lands between Roland and Avery. I have also shown in detail the actual number of poles and anchors on each sheet and the location in detail of poles and anchors.

From this you will note that the total number

their operation right or wrong.

Yours truly,

REW-als

Electrical Engineer.

[illegible], [illegible], Nov. [illegible], 1[illegible].

[illegible] Power,
[illegible],
[illegible], [illegible].

[illegible] Sir:

[illegible] further. [illegible]
[illegible] you can [illegible] [illegible] [illegible].

Yours truly,

[illegible]-als

[illegible]

Butte, Mont., Nov. 2, 1916.

Montana Power Co.,
Mr. R. Wende,
Gen'l Foreman Maintenance,
Deer Lodge, Mont.

Dear Sir:

Referring to installation of overhead work over Three Forks eye trings and Mill track, please advise date when you expect to have this work done.

The Operating Department is very anxious to be able to use this track in order to switch the mill.

We have received from Foreman Guire a list

REM-vls

Electrical Engineer.

bc--M P Co--Butte

Butte, Mont., Nov. 7, 1916.

Mr. H. P. Foster,
Chief Clerk,
Helena, Mont.

Dear Sir:

"Permit order of Will Peter Traffic Manager, authorized by Mr. Thomas' office, P. T. Div. (signature illegible) to conclude with them.

Yours truly,

A. B. VanDusen

Butte, Mont., Nov. 3, 1916.

Mr. C. F. Soule, Inspr.,
Haugan, Mont.

Dear Sir:

Referring to your telegram in regard to giving Barker a list of items to be cleaned up between Tarkio and East Portal, also instructing him in regard to wiring caboose track at Alberton, I talked with Mr. Buck this morning and he informs me that Barker is to clean up up to and including St. Regis, also at the passing track at Foraker. The caboose track at Alberton will be wired later by Maintenance Crew and clean-up work between Foraker and East Portal will be handled at the proper time by Anderson.

RE -wls

Assistant Engineer.

Butte, Mont., Nov. 3, 1916.

Mr. E. W. Adams, Sec'y,
Milwaukee, Wis.

Dear Sir:

Returning herewith letter to you from Mr. J. M. Hughes of the Northern Pacific Railway in regard to our transmission line location on their property crossing Section 23, T.5 N., R.5 E., Montana, I am also sending you revised blueprints giving tie from our transmission line to section corner, also showing poles and anchors and width of right of way for Railway purposes.

I presume Mr. Hughes referred to the lat-

Butte, Mont., Nov. [illegible], [illegible].

Mr. T. T. Adams, Sec'y,
Milwaukee, Wis.

Dear Sir:

I [illegible]

Very truly,

RET-vls

Electrical Engineer.

Butte, Mont., Nov. 3, 1916.

Montana Power Co.,
Butte, Mont.

Dear Sirs: Attention: Mr. Stussey

In continuation of our conversation of this date, in case you find the October Power Bill correct, according to your load sheets, will you please continue with the test mentioned as soon as your high line conditions will permit; that is, will you please operate the Milwaykee System for 24 hours in such a way that no two Power Company taps will be connected by a Milwaukee high tension bus. It is immaterial just what switches are opened

Butte, Mont., Nov. 3, 1916.

Mr. C. F. Soule, Inspr.,
Haugan, Mont.

Dear Sir:

You were to arrange to have slack thrown into feeder at Bryson cut-off, so as to throw strain on head guys and snubs and avoid liability of its being picked up from cross arm in cold weather. I have had no report from you on this, and would like to know if it has been taken care of.

Yours truly,

REW-wls

Assistant Engineer.

Butte, Mont., Nov. 3, 1916.

Mr. C. F. Soule, Inspr.,
Haugan, Mont.

Dear Sir:

You were to arrange to have slack thrown into feeder at Bryson cut-off, so as to throw strain on head guys and guys and avoid liability of its being picked up from cross arm in point another. I have had no report from you on this, and would like to know if it has been taken care of.

Yours truly,

REW-wls

Assistant Engineer.

Butte, Mont., Nov. 4, 1916.

Mr. R. Beeuwkes:

Mr. F. W. Ballinger of the B.A.& P.Railway called yesterday in regard to proposed switching scheme and location of cross-over at Colorado Junction. I went on the ground with him and took up the subject in detail:

#1---Primarily, they object to the switching scheme in general; that is, they dislike the switching of 3,000 and 2400 volts.

#2---They realize, however, without such a switching scheme, and our use of their current in handling our freight house work, the possibility of our causing undesirable peak loads on their Butte substation and their daily load curve.

#6---They bring up the possibility of their locomotive running in crossing section while energized with 3,000 volts, although the track be improperly lined up for their train movements.

* * * *

First, as to their objection to switching scheme, I called his attention to our prime reason for going to this expense; that is, it being doubtful as to our being able to coast the 110 ft. section in cross-over wire with a single pantograph. I also stated that our objections were as strong as theirs to the use of the switches, but it seemed necessary and we had in mind the possible peaking of their load if we used their current.

November 6, 1916.

Mr. E. B. Katte,
Chief Engr. Elec. Traction,
N.Y.C.H. R.R., Grand Terminal Sta.,
New York City.

Dear Sir:

Referring to your letter of October 25th with blueprints of Tables Nos. 1 to 9 inclusive covering electrification data, you state that before proceeding to fill in this data, it is desired to ascertain more or less definitely to what extent the data can be supplied.

RB-wls

Electrical Engineer.

cc--C.A.C.

Mr. Goodnow:- I will fill in the blueprints referred to with such information as I believe you would care to give out, and submit them to you for approval before sending them to Mr. Katte.

R.B.--11/6/16

Butte, Mont., Nov. 3, 1916.

Mr. R. F. Tyler,
Gen'l Signal Foreman,
Deer Lodge, Mont.

Dear Sir:

We are arranging to clear up trolley overhead work as far as Fast Portal as soon as possible, and at one time there were a certain number of signal and order-board posts which did not properly clear our overhead work, principally feeder.

I understand that you have had a crew working in this territory for some time, and would like advice from you at your early convenience as to

R-W-wls

Electrical Engineer.

Butte, Mont., Nov. 3, 1916.

Mr. G. F. Soule, Engr.,
Keagan, Mont.

Dear Sir:

In connection with cleaning up trolley work from East Portal, I do not believe you have included posts supporting signals or order boxes which may interfere with feeder or with other work of our construction.

I have in mind one which [illegible] Dayton was which interfered with feeder. Please advise [illegible] if you have checked this detail over, and

Sheet #3--R.B.--11/4/16

While at Colorado Junction, a point developed in connection with our switcher entering B A & P Sample Mill Yard. On account of protective zone between crossing section and Sample Mill Yard, it will probably be necessary for our switcher, when entering the Sample Mill Yard, to stop on the crossing section and have the contactor switches thrown into 2400 volt position,-- also after completion of switching in Sample Mill Yard, and when returning to our line, to enter and stop on crossing section, have switches thrown on 3,000 volt position and proceed to our track. If these operations are not carried through in this way, our locomotive would have to coast the protective zone between crossing

REW-wls

Assistant Engineer.

Sheet #2--R.B.--11/4/16

Second, on account of the liability of such peaking, I have no doubt they will agree to the switching scheme.

Third, while the solenoid operating contactor switches have their good points, his attention was called to the fact that the switching controlling their current would not be involved, as it would normally lock into position and we only, would be subjected to the liability of a switch burnout. Furthermore, this scheme would necessitate our using current from signal circuit and switches arranged for alternating current and at the same time inject many

cross-over switch target would be set against their train, that the chances for such an occurrence were remote and if it did happen, it would result only in putting 3,000 volts on their locomotive.

Butte, Mont., Nov. 2, 1916.

Mr. R. Beeuwkes:

I investigated the question of additional tracks to be wired at Great Falls, and find that a spur track is now laid between Fourth and Sixth Ave., South, along our Alley track, and is called the Rooney Spur. In addition to this, it is necessary to lay a track along the Industry lots opposite the new freight house, to serve the new Wilbur Transfer building and other buildings contemplated in the near future, this track to extend from a point just west of Fifty Avenue, South, to Second Avenue South, and also in order to switch this track without interfering with warehouse just west of Fifth Avenue, a cross-over track will be laid between present team track and the proposed industry track.

whether a team can handle the car on the curved track involved.

The estimated cost is made up of about $563 for material, $355 for labor and locomotive, with 10% added for incidentals.

As regards material for doing the work, while there is a certain amount of material at Great Falls that can be used, beyond certain items including poles, 1/2" strand, odd strain insulators and a certain number of hangers, it is advisable to order or supply material from our stock in order not to deprive them of spare material for repair work. In this

connection, Supt. Whiting should be asked to use 24" angles in laying track, so that 36" bonds can be used. There are a number of hangers on hand of various lengths and we should give Mr. Todd a rough estimate of the lengths required and arrange to have him look over the hangers and cut some down if necessary.

Bonds will have to be ordered for the work, and a surplus should be included for replacement, as those they now have on hand will be used up in replacing bonds stolen. They now have a part reel of 3/8" strand and in order to take care of this work and leave them a surplus, a mile reel should be ordered.

As soon as the work is approved, I will make out a detailed list covering what should be ordered, what we can supply from our stock and what can be supplied from Great Falls stock.

Yours truly

Butte, Mont., Nov. 1, 1916.

Montana Power Co.,
Attention R. Wendle,
Gen'l Foreman Maintenance,
Deer Lodge, Mont.

Dear Sir:

Foreman Guire reports poles at Josephine, Doyne, Huson and Loveth as having been set up on the bank on account of passing track extensions, and states that at Josephine, four poles will be required when the present poles are moved down to standard position, on account of back-bone. You no