

Northern Pacific Railway Company. Engineering Department Records.

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Version 3
August 20, 2018

N. P. 1757
6-24

OFFICE OF CHIEF ENGINEER

FILE NO. 3505 - 2

SUBJECT:

WOOD PRESERVATIVES

From: 1-10-48

To: 9-28-60

Closed

3505
2

3505

HRP

CV-1905 September

6,508.01

Cosmos Wood Preserving Co. of America, Inc.
980 Hillcott Street
Buffalo 9, New York

September 28, 1960.

SIX THOUSAND FIVE HUNDRED EIGHT and 01/100 - - - - - - - - - - - - - - -

For furnishing all labor, appliances, services and material used in treatment of bridges on the Rosebud and Billings and Central Montana Branches of the Railway Company during July and August - 1960, per agreement dated June 8, 1960.

ESTIMATE NO. 1 and FINAL

Branch	Br.No.	Work Performed	Unit	Price		
Rosebud	2	Treat stringers	Lump Sum	$ 476.30	100%	476.30
Rosebud	3	Treat stringers	Lump Sum	728.93	100%	728.93
Rosebud	6	Treat stringers	Lump Sum	325.78	100%	325.78
Rosebud	6.1	Treat stringers, caps, piling and bracing	Lump Sum	511.22	100%	511.22
Rosebud	13	Treat stringers, caps, piling and bracing	Lump Sum	577.11	100%	577.11
Rosebud	14	Treat stringers, caps, piling and bracing	Lump Sum	1,176.86	100%	1,176.86
Rosebud	25.1	Treat stringers	Lump Sum	626.83	100%	626.83
Rosebud	29A	Treat stringers, caps, piling and bracing	Lump Sum	980.85	100%	980.85
BGCM	7	Treat stringers and caps	Lump Sum	422.23	100%	422.23
BGCM	10	Treat stringers	Lump Sum	656.90	100%	656.90
Refund of one-half cost of fire insurance			Lump Sum	25.00	100%	25.00
				AMOUNT OF THIS VOUCHER . . .		$6,508.01

Charge:
Central Dist. Accts. $6,508.01
MWS 208 $6,508.01

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED M.

Glendive, Montana
Sept. 26, 1960

Mailgram

W.R. Bjorklund:

Returned herewith is letter from Osmos Wood Preserving Co. dated Sept. 20th including billing and insurance premium.

The billing is correct and the insurance premium is to be added to Form 107 forwarded with our letter of Sept. 14, 1960.

We requested with our letter that you include ½ ($25.00) of the fire insurance premium in St. Paul in order to expedite payment. We forwarded Form 107 with our letter of Sept. 14th.

H. J. Wilkins
Division Engineer

MANUFACTURERS OF OSMOSALTS · OSMOPLASTIC · PENTOX · COP-R-NAP · OZ

OSMOSE WOOD PRESERVING CO. of AMERICA, Inc.

General Offices 980 ELLICOTT STREET, BUFFALO 9, NEW YORK ELmwood 5905

September 20th, 1960.

Per discussion
9/21

Mr. W. R. Bjorklund, District Engineer,
Northern Pacific Railway Company,
St. Paul 1, Minnesota.

Re: S-69-210

Dear Mr. Bjorklund:

As you requested, we are attaching receipted invoice for the fire insurance as covered by paragraph 4 on page 5 of our agreement. We understand, of course, that this item will be shared fifty-fifty by each of our companies.

We are also enclosing invoice, in triplicate, for the inspection and in place preservative treatment of the eight bridges on the Rosebud Branch and the two on the B&CM Branch, which work has been completed.

We want to take this opportunity to express our appreciation to you and other members of your company for the splendid cooperation we received while doing this work.

Yours very truly,

John L. Surdam

John L. Surdam,
President.

JLS/emc
encs.

Telephone CL. 0424

Taber Agency, Inc.

COMPLETE INSURANCE SERVICE

801-809 Walbridge Bldg. Buffalo 2, N. Y.

Osmose Wood Preserving Co. of America, Inc.
980 Ellicott St.
Buffalo, N.Y.

ALL PREMIUMS ARE DUE ON DATE OF POLICY

DATE	TERM	POLICY	COMPANY	PROPERTY INSURED	LIMITS	PREMIUM
6/22/60- 12/22/60		M686201	Travelers	Scheduled Property Floater - Fire Legal Liability State of Montana Bridges -	$20,000	$50.00

July 18 1960

COPY
OSMOSE WOOD PRESERVING CO.

WAIVER OF LIEN ON ACCOUNT OF MATERIAL FURNISHED AND LABOR RENDERED

STATE OF NEW YORK:
COUNTY OF ERIE : SS
CITY OF BUFFALO :

WHEREAS, the undersigned, OSMOSE WOOD PRESERVING CO, OF AMERICA, INC. has a contract for the inspection and preservative treatment of Company bridges in Montana for the NORTHERN PACIFIC RAILWAY COMPANY, which requires the furnishing of material and labor.

NOW, THEREFORE, KNOW YE THAT OSMOSE WOOD PRESERVING CO. OF AMERICA, INC. the undersigned, for and consideration of the sum of One and More dollars, and other good and valuable considerations, the receipt thereof is hereby acknowledged, does hereby waive and release any and all lien, or claim, or right of lien on the premises of the NORTHERN PACIFIC RAILWAY COMPANY, under the statutes of the State of Montana, on account of labor or material or both, furnished, or which may be furnished, the undersigned, to or on account of the above mentioned contract.

GIVEN, under its hand and seal this 14th day of September, 1960.

OSMOSE WOOD PRESERVING CO.
OF AMERICA, INC.

BY: Guy F. Youngman
Guy F. Youngman
Treasurer

SUBSCRIBED AND SWORN TO BEFORE ME
THIS 14th day of September, 1960
Loretta E. Abel
Loretta E. Abel
Notary Public, County of Erie
State of New York

LORETTA E. ABEL
Notary Public, State of New York
Qualified in Erie County
My Commission Expires March 30, 1962

S-69-210
Glendive, Montana
September 14, 1960

Mr. W. R. Bjorklund:

Attached herto is Estimate number 1 and final in connection with Contract dated June 8, 1960 with Osmose Wood Preserving Co. of Buffalo, New York for wood preserving treatment of Company Bridges in Montana.

As per phone conversation with your office the totals have been left blank for inclusion of the fire insurance premium as per Paragraph four page 5 of the Contract.

Will you please return 1 copy of estimate after completion for our file.

H. B. WILKINS
Division Engineer

attc.

N.P. 107 8-24

NORTHERN PACIFIC RAILWAY COMPANY

Inspection & Preservative Treatment of Co. Bridges (DESCRIPTION OF PROJECT) AT Various Locations in Montana (TOWN AND STATE) Osmose Wood Preserving Co. of Buffalo, New York CONTRACTOR

ESTIMATE NO. 1 & Final OF WORK FOR THE MONTH OF August & September 19 60 UNDER CONTRACT DATED June 8, 19 60

ITEMS OF WORK	UNIT	CONTRACT PRICE	TOTAL WORK TO DATE QUANTITIES	TOTAL WORK TO DATE AMOUNT	PREVIOUS ESTIMATE QUANTITIES	PREVIOUS ESTIMATE AMOUNT	THIS ESTIMATE QUANTITIES	THIS ESTIMATE AMOUNT	ACCT. NO.
Item #1									
Treat Stringers Bridge #2 Rosebud Branch	Lump Sum	$476.30	100 %	476 30	———	———	100 %	476 30	
Item #2									
Treat Stringers Bridge #3 Rosebud Branch	Lump Sum	$728.93	100 %	728 93	———	———	100 %	728 93	
Item #3									
Treat Stringers Bridge #6 Rosebud Branch	Lump Sum	~~$325.78~~ $325.78	100 %	~~325 78~~ 325 78	———	———	100 %	325 78	
Item #4									
Treat Stringers, Piling & Bracing Bridge	Lump								
# 6-1 Rosebud Branch	Sum	$511.22	100% %	511 22	———	———	100 %	511 22	
Item #5									
Treat Stringers, Piling & Bracing Bridge	Lump								
#13 Rosebud Branch	Sum	$577.11	100 %	577 11	———	———	100 %	577 11	
Item #6									
Treat Stringers, Piling & Bracing Bridge	Lump								
#14 Rosebud Branch	Sum	$1176.86	100 %	1176 86	———	———	100 %	1176 86	
Item #7									
Treat Stringers Bridge #25.1 Rosebud Branch	Lump Sum	$626.83	100 %	626 83	———	———	100 %	626 83	
Item #8									
Treat Stringers, Piling & Bracing Bridge	Lump								
#29A Rosebud Branch	Sum	$980.85	100 %	980 85	———	———	100 %	980 85	
Item #9									
Treat Stringers & Caps Bridge #7	Lump								
B C & M Branch	Sum	$422.23	100 %	422 23	———	———	100 %	422 23	
Item #10									
Treat Stringers Bridge #10 B C & M Branch	Lump Sum	$656.90	100 %	656 90	———	———	100 %	656 90	
Item #11									
Fire insurance Premium as Per Paragraph									
Four page 5 of Contract. Premium to be divided equally between the two parties.	~~Lump~~ Lump Sum	25.00	100%	25.00	———	———		25.00	
Inv. from Tabor Agency 6-18-60 $50.00 Fully receipted									
EXTRA WORK PER LIST ATTACHED									

I CERTIFY THAT THE ABOVE ESTIMATE IS CORRECT:

H. J. Wilkins Sept. 14, 1960
DIVN. ASSISTANT ENGINEER

DATE _____ 19___

_____ DISTRICT ENGINEER

M.W.

___ %RETAINED BALANCE	$ 6,508.01	___ %RETAINED FORMER PAYMENTS	$
	6,508.01		
___ %RETAINED DUE ON THIS EST.	$ 6,508.01		
	6,508.01		

3505

OFFICE OF
CHIEF ENGINEER
SEP 19 1960
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

St. Paul, Minn.
Sept. 16, 1960.

S-69-210

Mr. M. O. Woxland:

As you know, we have a contract dated June 8, 1960, with the Osmose Wood Preserving Company to spray and otherwise treat certain bridges on the Rosebud and the B&CM Branches on the Yellowstone Division. The work was recently completed.

Attached hereto is a copy of Division Engineer Wilkins' report of the 14th, together with three page report covering the work done under the contract and the conditions found at the bridges.

Under the 1960 Form 134 the pegging of reject piles on Bridge 13 on the Rosebud Branch will be performed.

We also plan to frame the dump bents of Bridge 14, which recent inspection as well as annual bridge inspection determined that these piling were in poor condition.

You will notice that the Osmose Wood Preserving Company's crews placed Osmos Plastic around some of the piling at no cost. There is attached verifax copies of Osmose Wood Preserving Company's Bridge Inspection and Treating Report covering that work.

W. R. BJORKLUND

District Engineer

WRB:l
enc.

cc: Mr. H. R. Peterson

5-69-210

Xref Y-130-2)R
Y-139-2)BCM

S-69-210

Glendive, Montana
Sept. 14, 1960

Mr. W.R. Bjorklund:

In regard to contract with the Osmos Wood Preserving Co. for treating bridges on the Rosebud and B.& C.M. Branches on the Yellowstone Division.

Work was started on Aug. 17, 1960 and completed on Sept. 5, 1960. We now attach a summary of work as prepared by Inspector Birch as well as boring diagram sheets, and bridge inspection and treating report sheets. We also wish to advise that boring samples were taken after completion of the job on all timbers treated and sent to the Osmos laboratory for testing. A report on these tests are to be furnished to this office in about 30 days.

The contractors work was very satisfactory. The internal treatment was to refusal with 60# pressure. The holes were then plugged and external surfaces were sprayed two coats approximately 24 hours apart. The contractor also decided to treat piling below ground with Osmos Plastim on those bridges he was to spray piling. This was done at no additional charge, however we have kept a record of the amount of labor expended for this work and it is as noted on the attached summary.

Mr. Monson should note that 1 pile on Br. 6.1, 2 piles on Br. 13, 11 piles on Br. 14, and 1 pile on Br. 29A have been rejected and not treated account rotting out below ground line. This would make a total of 15 piling that should be pegged or replaced. The only stringer that was found rotted beyond salvage was stringer #6 over bent #8 on Bridge 10 on the B.& C.M. Branch. This was found to be rotted on the west end and I understand that Mr. Monson crews now working in the vicinity plan to replace it.

On Br. 14 on the Rosebud Branch it should be noted that bent #8 was not treated below ground line due to the fact that the bent was set in hand placed riprap and the contractor felt that the labor involved would be excessive and that our crews should handle this one bent at sometime in the future when working in the area.

All necessary precaution were taken in regard to fire hazard. Spraying was done in the morings only and never after 2:00 P.M. to allow the spray to soak in and set before the contractor left the site. The only bridges that appeared to be used as cattle passes at present were Br. 2 and 14 on the Rosebud Branch. Neither of these bridges had any vegatation growing under them that could become contaminated.

OFFICE OF
DISTRICT ENGR
SEP. 15 19
NORTHERN
ST. PAUL

Att/
cc: A. Monson

H. J. Williams
Division Engineer

The following work was done on Bridges under Contract.

Bridge #2 Rosebud Branch.

Stringers were drilled and internal treated and given 2 spray coats.
120 Gallons used.
Stringers are in good condition and no soft or rotten spots were found.
Galvanized iron on stringers is in very poor condition.

Bridge #3 Rosebud Branch

Stringers were drilled and internal treated and given 2 spray coats.
Stringers are in good condition and no soft or rotten spots were found.
162 gallons used.
Galvanized iron on stringers is in poor condition.

Bridge #6 Rosebud Branch

Stringers were drilled and internal treated and given 2 spray coats.
88 gallons used.
Stringers are in good condition and no soft or rotten spots were found.
Galvanized iron on stringers is in poor condition.

Bridge 6.1 Rosebud Branch

Stringers and piling were drilled and internal treated and given 2 spray coats.
Bulkheads and Bracing were given 2 spray coats.
all ties were given 1 spray coat. (No charge)
Stringers are in good condition and no soft or rotten spots were found.
Bulkheads are in poor condition.
Cross brace between pile #4 & #5 Bent #2 is rotted off below ground line.
Untreated piling were ground lined with Osmo Plastic. (No Charge)
Pile #1 in Bent #5 is a reject Pile, rotted off below ground line.
202 Gallons were used.
For record purpose the following time was spent by Contractor ground lining Bridge 6.1
Foreman 6 Hrs. at $3.63
Helper 6 Hrs. at $3.38
Laborer 21½ Hrs. at $1.50
5 Gallons Osmo Plastic Used.

Bridge #13 Rosebud Branch

Stringers and piling were drilled and internal treated and given 2 spray coats.
Bulkheads and bracing were given 2 spray coats.
Stringers and bracing are in good condition and no soft or rotten spots were found.
Galvanized iron on stringers is in good condition.
130 gallons was used.
Untreated piling were ground treated with Osmo Plastic. (No charge)
Pile #2 in Bent #1 is a reject pile, rotted out below ground line.
Pile #3 in Bent #4 is a reject pile, rotted out below ground line.

The following work was done under Contract on Bridges (Continued)

Bridge #13 Rosebud Branch cont'd

Pile #1 in Bent #2 was treated with Osmo Weld for experiment purpose.

This pile was found to have a 4½" shell and during internal treating took 15 and 3/4 gallons of liquid.
A hole was cut in the side of pile 4'-10" below top of pile, 9" high and 5" wide, 3" of rot was taken out of pile and this portion was treated with Osmo Weld. It appears that it can be used to fill up hollow spots in timber if the need should arise.

The following time was spent by Contractor ground lining this Bridge.
Foreman 6 Hrs. at $3.63
Helper 8 Hrs. at $3.38
Laborer 22½ Hrs. at $1.50

Bridge #14 Rosebud Branch

Stringers and piling were drilled and internal treated and given 2 spray coats.
Bulkheads and bracing were given 2 spray coats.
Stringers and bracing are in good condition and no soft or rotten spots were fpund.
275 gallons was used.
Galvanized iron on stringers is in good condition.
Untreated piling were ground lined treated with Osmo Plastic. (No charge)
Bent #8 was not ground treated account bent set in Riprap.
As shown on sheet #1 there are 11 reject piling in this bridge.
Pile #2- #3-#4- #5 Bent #1 Rotted out below ground line.
Pile #2- #3 Bent #2 Rotted out below ground line
Pile [illegible] #5 in Bent #6 Rotted out below ground line.
Pile #1- #2- #3- #5 in bent #9 Rotted out below ground line.

Bridge #25.1 Rosebud Branch

Stringers were drilled and internal treated and given 2 spray coats.
Bulkheads and bracing on this Bridge were untreated, they were given 2 spray coats. (No charge)
Stringers are in good condition and no soft or rotten spots were found.
154 gallons was used.
Galvanized iron on stringers is in fair condition.

Bridge #29A Rosebud Branch

Stringers and piling were drilled and internal treated and given 2 spray coats.
Bulkheads and bracing were given 2 spray coats.
Stringers and bracing are in good condition and no soft or rotten spots were found.
205 Gallons was used.
Galvanized iron on stringers is in good condition.

The following work was done under Contract on Bridges cont'd

Bridge #29A Rosebud Branch cont'd

Piling were ground treated with Osmo Plastic. (No charge)
Pile #1 & #2 in bent #5 were not ground lined. (Previously posted)
Pile #5 in bent #6 is a reject pile. Rotted out below ground line.
Untreated walk on bridge was given 1 spray coat. (No charge)
The following time was spent by Contractor ground lining this bridge.
Foreman 5 Hrs. at $3.63
Helper 11 Hrs. at $3.38
Laborer 24 Hrs. at $1.50

Bridge #7 On B & C M Branch

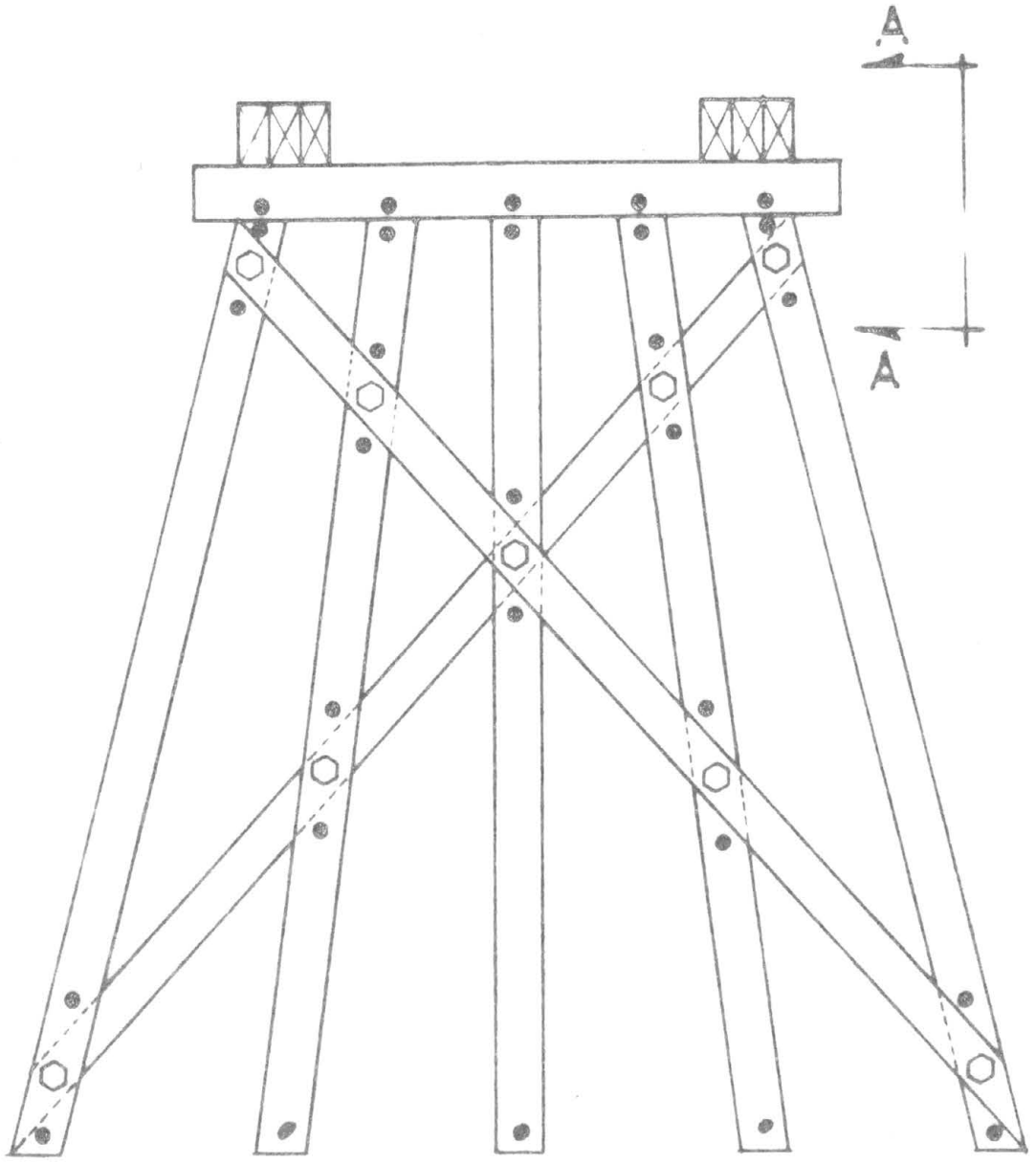
Stringers and caps were drilled and internal treated and given 2 spray coats.
Caps and stringers are in good condition and no soft or rotten spots were found.
79 Gallons was used.
Galvanized iron on stringers and caps is in good condition.
Bracing and piling were untreated and were given 2 spray coats. (No charge)
except for bent #1 which is a posted bent.

Bridge #10 on B & C M Branch

Stringers were drilled and internal treated and given 2 spray coats.
171 Gallons was used.
Galvanized iron on stringers is in very poor condition.
As shown on sheet #1 the stringer #6 over bent #8 was rotted out at the end.

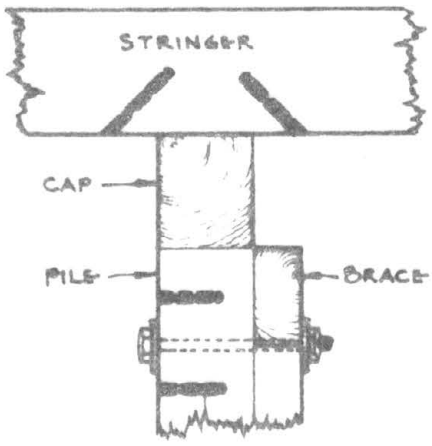
The following was ommitted from Bridge #14 Rosebud Branch

The following time was spent by Contractor ground lining Bridge #14
Foreman 9 Hrs. at $3.63
Helper 7 Hrs. at $3.38
Laborer 44 Hrs. at $1.50



PLAN

SCALE 1/4" = 1'-0"



SECTION "A-A"

SCALE 1/2" = 1'-0"

STANDARD BORING DIAGRAM

OSMOSE WOOD PRESERVING CO. OF AMERICA

BRIDGE INSPECTION AND TREATING DIVISION

- ● STANDARD BORE LOCATIONS
- 8" AVERAGE BORE DEPTH
- 3/8" BORE DIAMETER
- ⬡ BOLTS

Stringers only were spray

Osmose Wood Preserving Co. of America, Inc.

BRIDGE INSPECTION AND TREATING REPORT

PILING DIAGRAM — 140.19c

Area 1 (Upper 1/3) / Area 2 (Middle 1/3) / Area 3 (Lower 1/3) — A B C D E F

Owner N P Ry. Co — Date 1960

Division Yellowstone — Foreman S. Mosher

Line Rosebud — Bridge No. 6 1 — Sheet 1 of 1 Sheets

BENT T* NO.	PILING	INTERNAL DECAY Area 1 Shell Thickness	Area 1 Gallonage	Area 2 Shell Thickness	Area 2 Gallonage	Area 3 Shell Thickness	Area 3 Gallonage	Type Timber and Original Treatment **	Moisture Content 10%	PILING GROUNDLINE T With Osmo Plastic Original Circumference	Effective Circumference	Treated	Rejected	Ant-Termite Treatment	Cross Section	REMARKS (See Symbol List Below.)
1	A	Creosoted Pile No Treatment Given														Pile Drilled Found Solid
	B		1/2				1/8			42 1/2	34 1/2	T				
	C		1/4			4 1/2"	1/2			44	42 1/2	T				
	D		1/8			S.H	1/2			45 1/2	44	T				
	E	Creosoted Pile No Treatment Given														Pile Drilled Found Solid
	F															
2	A		1/2				1/8			45 1/2	43 1/2	T				
	B		1/2		1/8		1/8			43 1/2	41 1/2	T				Bracing Between
	C		1/4		1/8		1/8			48	44	T				Pile N 4 & 5 Rotted
	D		1/8		1/8	S.H.	1/2			50 1/2	45 1/2	T				Off Below Ground
	E		1/8		1/8	4	1			41 1/2	38	T				
	F															
3	A		1/8			4"	1/2			42	36 1/2	T				
	B		1/8		1/8		1/8			48	43	T				
	C		1/8		1/8		1/4			53	48	T				
	D		1/4		1/8		1/8			42 1/2	38	T				
	E		1/4				1/2			40	37	T				
	F															
4	A		1/4				1/8			44	42	T				
	B		1/4		1/8		1 3/4			46	41	T				
	C		1/8		1/8		1/8			42 1/2	36	T				
	D		1/4		1/8		1/8			40 1/2	39 1/2	T				
	E		1/4				1/2			46	43 1/2	T				
	F															
5	A	4 1/2				2"							R			Rotted Out Below Ground
	B	S.H.	1/8				1/8			46 1/2	44 1/2	T				
	C		1/4				2 1/4			45	38 1/2	T				
	D		1/8				1/2			45	38 1/2	T				
	E	Creosoted Pile No Treatment Given														Pile Drilled Found Solid
	F															

S.H. Soft Heart

* Consists of complete Bent plus Decking and Stringers for half the distance between Bents on either side.

**Timber Symbol:
P – PINE
DF – DOUGLAS FIR
WC – WESTERN RED CEDAR
EC – NORTHERN WHITE CEDAR
C – CREOSOTE FULL LENGTH
B – CREOSOTE BUTT
P – PENTA FULL LENGTH
S – SALTS FULL LENGTH
U – UNTREATED

Remark Symbols:
SB – SWAY BRACING, DAMAGED OR DECAYED
CB – CROSS BRACING, DAMAGED OR DECAYED
CA – CAPS, DAMAGED OR DECAYED
ST – STRINGERS, DAMAGED OR DECAYED
UD – UNDER DECKING, DAMAGED OR DECAYED

©1958 Osmose Wood Preserving Co. of America, Inc.

FILL OUT IN DUPLICATE

Osmose Wood Preserving Co. of America, Inc. 140.19c

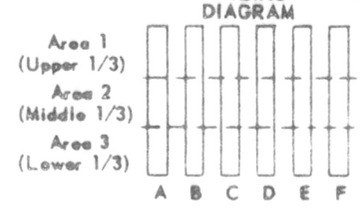
BRIDGE INSPECTION AND TREATING REPORT

Owner N. P. Ry Co. Date 1960

Division Yellowstone Foreman S Mosher

Line Rosebud Bridge No. 13 Sheet 1 of 1 Sheets

PILING DIAGRAM



BENT T* NO.	PILING	INTERNAL DECAY Area 1 Shell Thickness	Area 1 Gallonage	Area 2 Shell Thickness	Area 2 Gallonage	Area 3 Shell Thickness	Area 3 Gallonage	Type Timber and Original Treatment **	Moisture Content 11%	PILING GROUNDLINED T With Osmo Plastic Original Circumference	Effective Circumference	Treated	Rejected	Ant–Termite Treatment	Cross Section	REMARKS (See Symbol List Below.)
1	A		1/8				1/8			42 3/4	39	T				
	B						1						R			Rotted Out Below Ground
	C		1/8			6"	9 1/2			41 1/2	39	T				
	D		1/8				1/8			44	40 1/2	T				
	E	Creosoted		Treated Pile (No Treatment Given)												
	F															
2	A		1/8		1/8	4 1/2	15 3/4			43	43	T				
	B		1/8		1/8		1/8			41	40	T				
	C		1/8		1/8	4 1/2	2			42 1/2	40	T				
	D		1/8		1/8		1/8			44 1/2	43 1/2	T				
	E		1/8		1/8		1/8			42	39	T				
	F															
3	A		1/8		1/8		1/8			48	40	T				
	B		1/8		1/8		1/8			44	41 1/2	T				
	C		1/8		1/8		1/8			47	44	T				
	D		1/8		1/8		1/8			44	40	T				
	E		1/8		1/8		1/8			48	42	T				
	F															
4	A		1/8		1/8		1/8			37 1/2	35	T				
	B		1/8		1/8		1/8			48	45	T				
	C												R			Rotted Out Below Ground
	D		1/8		1/8	5"	1 1/2			44	40	T				
	E		1/8		1/8		1/8			42 1/2	39	T				
	F															
5	A		1/8			S.N	3 1/4			43	38 1/2	T				
	B	S.N	1/4				1/2			39	36 1/2	T				
	C		1/8				1/8			49	45 1/2	T				
	D	S.N	1/4			S.N	1/4			42	34	T				
	E	S.N	1/4			S.N	1/4			43 1/2	41	T				
	F															

S.N. Soft Heart

* Consists of complete Bent plus Decking and Stringers for half the distance between Bents on either side.

**Timber Symbol:
P – PINE
DF – DOUGLAS FIR
WC – WESTERN RED CEDAR
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C – CREOSOTE FULL LENGTH
B – CREOSOTE BUTT
P – PENTA FULL LENGTH
S – SALTS FULL LENGTH
U – UNTREATED

Remark Symbols:
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CA – CAPS, DAMAGED OR DECAYED
ST – STRINGERS, DAMAGED OR DECAYED
UD – UNDER DECKING, DAMAGED OR DECAYED

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FILL OUT IN DUPLICATE

Osmose Wood Preserving Co. of America, Inc.

BRIDGE INSPECTION AND TREATING REPORT

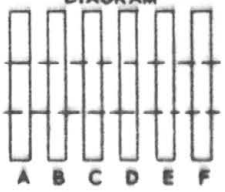
140.19c

Owner N.P.Ry.Co. Date 1960

Division Yellowstone Foreman S. Mosher

Line Rosebud Bridge No. 14 Sheet 1 of 2 Sheets

PILING DIAGRAM



BENT T* NO.	PILING	INTERNAL DECAY Area 1 Shell Thickness	Area 1 Gallonage	Area 2 Shell Thickness	Area 2 Gallonage	Area 3 Shell Thickness	Area 3 Gallonage	Type Timber and Original Treatment**	Moisture Content %	PILING GROUNDLINE T W.th OSMO Plastic Original Circumference	Effective Circumference	Treated	Rejected	Ant–Termite Treatment	Cross Section	REMARKS (See Symbol List Below.)
1	A		3/4			5"	3/4								○	
	B												R		○	Rotted Out Below Ground
	C												R		○	" " "
	D												R		○	" " "
	E												R		○	" " "
	F														○	
2	A		1/8				1/8			40 1/2	37 1/2	T			○	
	B												R		○	Rotted Out Below Ground
	C												R		○	" " "
	D		1/8				1/8			37	31 1/2	T			○	
	E		1/8				1/8			40 1/2	35 1/2	T			○	
	F														○	
3	A		1/8		1/8	S.H.	1 1/2			43	37	T			○	
	B		1/8		1/8	S.H.	3			35 1/2	25 1/2	T			○	
	C		1/8		1/8		1/8			39	32	T			○	
	D		1/8		1/8		1/8			36	33	T			○	
	E		1/8		1/8	S.H	1			40	32	T			○	
	F														○	
4	A		1/8				1/4			50	44	T			○	
	B		1/8		1/8		1/8			36 1/2	35 1/2	T			○	
	C		1/8		1/8		1/8			40	37	T			○	
	D		1/8		1/8		1/8			39	35	T			○	
	E		1/8				1/8			41	35	T			○	
	F														○	
5	A		1/8			SH	1/8			45	32	T			○	
	B		1/8		1/8	SH	1/4			38	32	T			○	
	C		1/8		1/2		1/8			43	38	T			○	
	D		1/4		1/8		1/8			41	36 1/2	T			○	
	E		1/8			S.H.	1/4			46	38 1/2	T			○	
	F														○	

Concrete of complete Bent plus Decking and Stringers for half the distance between Bents on either side.

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P – PINE
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WC – WESTERN RED CEDAR
EC – NORTHERN WHITE CEDAR

S.H. Soft Heart

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Osmose Wood Preserving Co. of America, Inc.

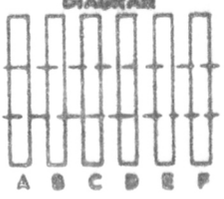
BRIDGE INSPECTION AND TREATING REPORT

Owner N. P. Ry. Co. Date 1960

Division Yellowstone Foreman S Mosher

Line Rosebud Bridge No. 14 Sheet #2 of #2 Sheets

PILING DIAGRAM



BENT T* NO.	PILING	INTERNAL DECAY Area 1 Shell Thickness	Area 1 Gallonage	Area 2 Shell Thickness	Area 2 Gallonage	Area 3 Shell Thickness	Area 3 Gallonage	Type Timber ** and Original Treatment	Moisture Content 11%	PILING GROUNDLINE With Osmo Plastic Original Circumference	Effective Circumference	Treated	Rejected	Ant-Termite Treatment	Cross Section	REMARKS (See Symbol List Below.)
6	A		1/8			5"	4			43	41	T				
	B		1/8		1/8		1/8			35	31	T				
	C		1/8		1/8	SH	1			39 1/2	36	T				
	D		1/8		1/8		1/8			35	30	T				
	E					2"							R			Rotted Out Below Ground
	F															
7	A		1/8			SH	1/4			47	40 1/2	T				
	B		1/8		1/8		1/8			38 1/2	36	T				
	C		1/8		1/8		1/8			37 1/2	33	T				
	D		1/8		1/8		1/8			34 1/2	28 1/2	T				
	E		1/8				1/4			39 1/2	32 1/2	T				
	F															
8	A		1/8			SH	1 3/4									Bent* & Not
	B		1/8		1/8		1/8									Ground Lined
	C		1/8		1/8		1/8									Bent Set in
	D		1/8		1/8	S.H.	1/8									Rip Rap.
	E		1/8				1/8									
	F															
9	A											R				Rotted Out Below Ground
	B											R				" " "
	C											R				" " "
	D		1/8			S.H.	1/2									
	E											R				Rotted Out Below Ground
	F															
	A															
	B															
	C															
	D															
	E															
	F															

S.H. Soft Heart

* Consists of complete Bent plus Decking and Stringers for half the distance between Bents on either side.

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Osmose Wood Preserving Co. of America, Inc. 140.19c

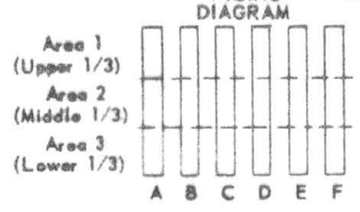
BRIDGE INSPECTION AND TREATING REPORT

Owner [redacted] N. P. Ry. Co. Date 1960

Division Yellowstone Foreman S Mosher

Line Rosebud Bridge No. 29A Sheet 1 of 2 Sheets

PILING DIAGRAM



BENT T* NO.	PILING	INTERNAL DECAY Area 1 Shell Thickness	Area 1 Gallonage	Area 2 Shell Thickness	Area 2 Gallonage	Area 3 Shell Thickness	Area 3 Gallonage	Type Timber ** and Original Treatment	Moisture Content	PILING GROUNDLINE T With OsMo Plastic Original Circumference	Effective Circumference	Treated	Rejected	Ant–Termite Treatment	Cross Section	REMARKS (See Symbol List Below.)
1	A	SH	1/8			SH	1/4			38	34	T				
	B		1/8			SH	1/4			37	34 1/2	T				
	C	4 1/2"	1/2			SH	1/8			39	36	T				
	D		1/2			4 1/2"	2 1/2			36	33 1/2	T				
	E		1/8			SH	1/4			41	39 1/2	T				
	F															
2	A		1/8			SH	1/2			38 1/2	35 1/2	T				
	B		1		1/8		1/8			39	36	T				
	C		1/8		1/8		1/8			44	38 1/2	T				
	D		1/8		1/8	S.H	5 1/2"			39	32 1/2	T				
	E		1/4				1/8			43	37	T				
	F															
3	A		1/2			SH	4			46	46	T				No Trim Needed
	B		1/8		1/8		1/8			43 1/2	43 1/2	T				" "
	C		1/8		1/8		1/8			46 1/2	46 1/2	T				" "
	D		1/2		1/8		1/8			43 1/2	43 1/2	T				" "
	E		1/2				1/8			51	51	T				" "
	F															
4	A		1/4				1/8			45	45	T				" "
	B		1/8		1/8	SH	1/8			40 1/2	40 1/2	T				" "
	C		1/8		1/8	SH	1/2			44 1/2	44 1/2	T				" "
	D		1/8		1/8	SH	1 1/2			41 1/2	41 1/2	T				" "
	E		1/8			5 1/2	1			44	44	T				" "
	F															
5	A		1/2				1/8									Previously Posted
	B		1/8		1/8		1/8									" "
	C		1/2		1/8		1/8			38 1/2	36	T				
	D		1/2		1/8		1/8			42	41	T				
	E		1/2				1/8			40 1/2	36	T				
	F															

SH Soft Heart

*Consists of complete Bent plus Decking and Stringers for half the distance between Bents on either side.

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Osmose Wood Preserving Co. of America, Inc.

BRIDGE INSPECTION AND TREATING REPORT

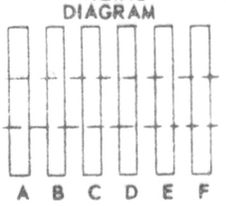
140.19c

Owner U. P. R. Co. Date 1960

Division Yellowstone Foreman S. Mosher

Line Rosebud Bridge No. 29A Sheet 2 of 3 Sheets

PILING DIAGRAM



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								T	6%	With Osmo Plastic						
6	A		1/4			SH	1/4			42	40	T				
	B		1/4				1/8			43	38	T				
	C		1/4			SH	1/2			41 1/2	34 1/2	T				
	D		1/4			4"	2			45	35	T				
	E												R			Rotted Out Below Ground
	F															
7	A		1/8			SH	1/8			41 1/2	38	T				
	B		1/4			SH	1/8			42 1/2	32 1/2	T				
	C		1/8				1/8			41	38	T				
	D		1/8				1/8			41	35 1/2	T				
	E		1/8				1/8			46 1/2	43 3/4	T				
	F															
	A															
	B															
	C															
	D															
	E															
	F															
	A															
	B															
	C															
	D															
	E															
	F															
	A															
	B															
	C															
	D															
	E															
	F															

*Consists of complete Bent plus Decking and Stringers for half the distance between Bents on either side.

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N. P. 1386A 12-24

TELEGRAM—BE BRIEF

TIME FILED 3505 M.

St. Paul, Minnesota August 12, 1

MR. H. J. WILKINS: GLENDIVE

Re contract with Osmose Wood Preserving Company spraying bridges on Colstrip and Shephard Lines STOP Contractor will start Tuesday, August 16 STOP Their Railroad Sales Manager, John Storer, plans to be at Billings evening of 16th and Hockinberry will superintend the work STOP Understand you have been in contact with Hockinberry, and that equipment has now arrived STOP Monson or one of his assistants should take an interest in this work and you must have an inspector at the site for furnishing complete report. B-121.

WRB:z

cc MAIL Mr. H. R. Peterson
Mr. C. E. Ekberg

W. R. BJORKLUND
District Engineer

OFFICE OF
DIVISION ENGINEER

14 1960

...Y. CO.
ST. PAUL, MINN.

St. Paul, Minnesota
July 13, 1960

S-69-210
3505-2

Mr. A. M. Gottschald:

Please refer to the Chief Engineer's letter of June 9 transmitting fully executed contract and additional copies of the agreement dated June 8, 1960, with the Osmose Wood Preserving Company of Buffalo, New York, involving the wood preservative treatment to ten (10) Railway bridges on the Rosebud and B&CM Branches, Yellowstone Division.

Attached hereto for filing with the above mentioned contract is Comprehensive General Liability Policy No. 8657163, Scheduled Property Floater Policy No. M-686201, including Contractual Liability Endorsement issued by The Travelers of Hartford, Connecticut.

Instruments of insurance have been approved and initialed by our Legal Department.

JNJ:b
enc.

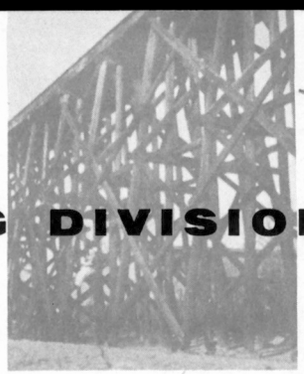
W. R. BJORKLUND
District Engineer

cc: Mr. H. R. Peterson

126B
7/15

from the HPP

3505



BRIDGE INSPECTION & TREATING DIVISION

OSMOSE WOOD PRESERVING CO. OF AMERICA, INC., BUFFALO, N. Y.
980 ELLICOTT STREET • PHONE: ELMWOOD 5905

OFFICE OF
CHIEF ENGINEER

JUN 28 1960

NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

cc
~~CEE~~ - WRB
Shd info for field forces be brot up to date? HPP 7/1

MEMORANDUM NO. 6 - BORING PROCEDURE FOR BRIDGE STRUCTURES

Has been sent out 7/9

There has been a basic change in our procedure for the inspection and preservative treatment of bridge and trestle structures which has developed over the past several years and which we would like to make known to you.

When we first started our inspection and treating work on older bridges some 7 years ago, we figured that, like poles, the major benefits would lie in applying our penta preservative to the exterior of wood surfaces. We soon found, however, that sounding with a hammer turned up a substantial amount of critical internal decay in different areas of the structure. Whenever such internal decay was discovered, we evaluated it by boring and using a Shell Thickness Indicator to determine remaining strength. We then flooded internal voids with preservative.

Internal decay has proved to be such an important factor in structures composed of all types of timber that we have now gone a step further. All locations indicated on the attached Diagram are now bored whether or not sounding by hammer indicates internal voids. Preservative is applied under pressure to each hole and the hole is filled with a treated dowel.

We do this because it has become apparent that a good deal of incipient decay can be present at these vulnerable points even if it is not yet sufficiently advanced to respond to sounding. This can easily be observed in the field by the quantity of preservative taken up by the interior of apparently sound timbers and the manner in which it comes out a check or bolt hole several feet away from point of application.

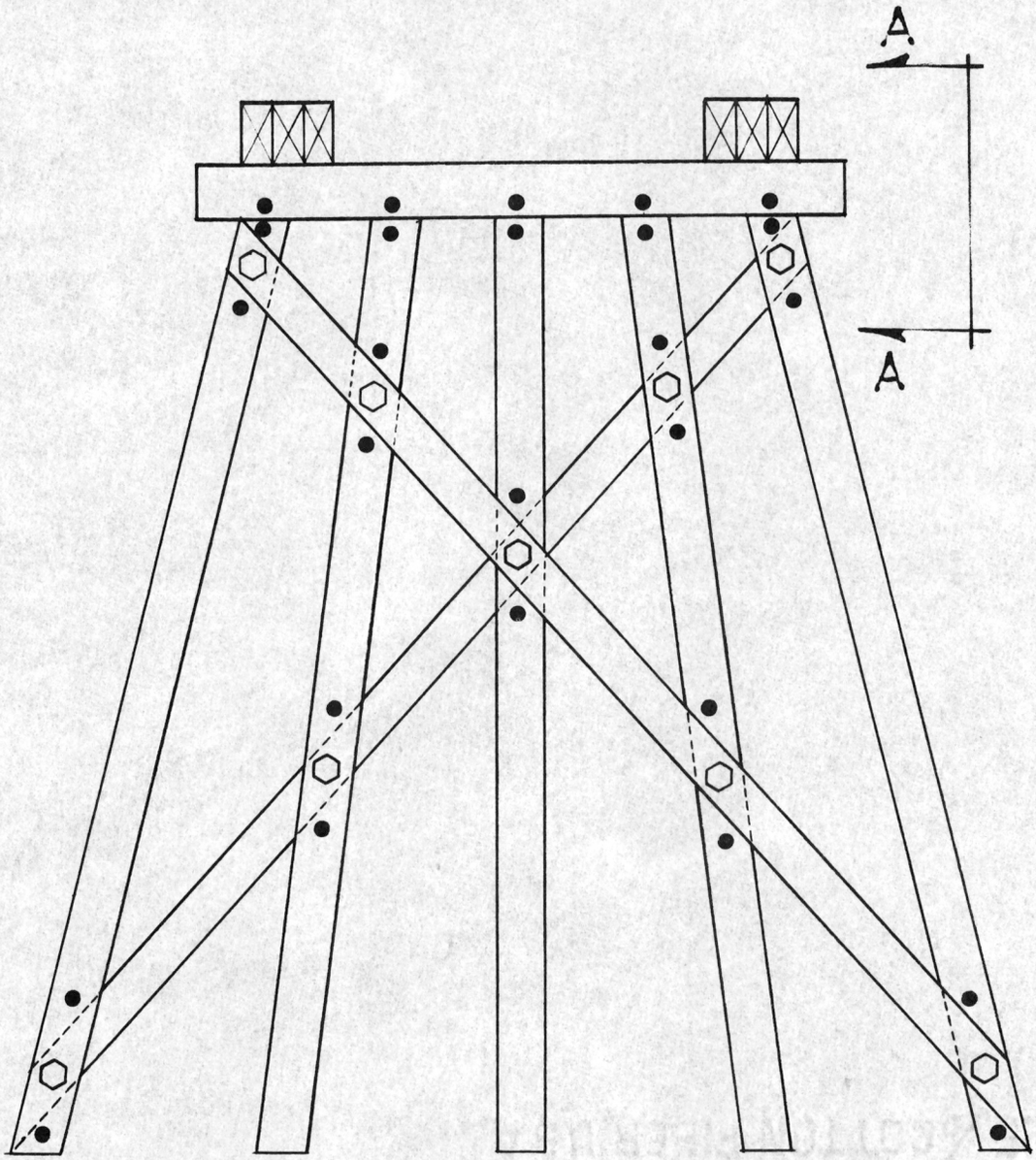
Our Specifications, a copy of which is also attached, have been changed to include this new standard procedure.

John L. Surdam
President

Att-

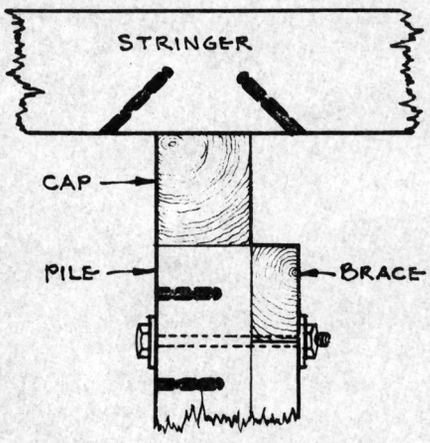
June, 1960

NOR.PAC.RY. CO.
OFFICE OF
JUL
5
1960
BRIDGE ENGINEER
ST. PAUL, MINN.



PLAN

SCALE 1/4" = 1'-0"



SECTION "A-A"

SCALE 1/2" = 1'-0"

STANDARD BORING DIAGRAM

OSMOSE WOOD PRESERVING CO.
of AMERICA

BRIDGE INSPECTION AND
TREATING DIVISION

- ● STANDARD BORE LOCATIONS
- 8" AVERAGE BORE DEPTH
- 3/8" BORE DIAMETER
- ⬡ BOLTS

ADDENDUM A

Specifications for Inspection and Treatment of Bridge Structures

In recognition of the fact that the decay pattern of standing timber is affected by whether or not timber is primarily in contact with earth or air, separate and different techniques and materials are to be used as follows:

I. ABOVE GROUND PORTION OF STRUCTURE

(1) Sound all exposed wood areas designated for inspection, paying special attention to regions surrounding drift pins, bolt holes or where wood is in conjunction with wood.

(2) Inspection borings are to be made in locations as indicated on attached Diagram 140.27 and wherever indicated by sounding. The preservative material shall be applied under pressure to refusal, after which bored hole shall be plugged with treated dowel.

(3) External treatment of designated timber members shall be to fiber saturation with particular attention to checks, bolt hole areas and other surface openings.

(4) The preservative material shall be "24-12", a patented solution containing a minimum of 5% pentachlorophenol by weight in a diluent which will not support combustion 48 hours after application.

(5) Upon completion, Contractor shall furnish Owner a Quality Control Report stating preservative retentions from a sample of approximately 2% of all above-ground timbers treated specifying locations where analysis borings were obtained.

II. BELOW GROUND PORTION OF STRUCTURE

(1) Ground surrounding pilings shall be excavated to depth of 18", exposed area sounded and bored, all decay removed from exterior and evaluated for strength in relation to load prior to rejection or treatment.

(2) Where internal cavities are located Contractor's preservative known as "Hollow Heart Solution" shall be applied internally to refusal prior to plugging all bored holes with treated dowels.

(3) External treatment shall comprise application of Osmoplastic, a patented thixotropic gel wood preserving compound, to that area of wood from 15" below ground level to 3" above. Osmoplastic consists of approximately 50% by weight of the toxic chemicals sodium fluoride, dinitrophenol, potassium bichromate and pentachlorophenol in a coal tar vehicle. Treated area shall be covered with OsmoShield to prevent leaching of the toxic chemicals into the surrounding ground. OsmoShield is a kraft-backed polyethylene film 20" in width.

(4) Excavated poles shall be backfilled in such a manner as not to allow depressions that could be caused by future settling of the earth.

3505

OFFICE OF
CHIEF ENGINEER

JUN 17 1960

NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

St. Paul, Minnesota
June 16, 1960

623

Mr. H. R. Peterson:

Recently I discussed spraying heavy materials with a representative of the Dearborn Chemical Company. This gentleman is prepared to spray their product on a structure for demonstration purposes and carries a complete outfit for this purpose.

Our bridge maintenance crews use large amounts of Laurel No. 9 for tie coating and should heat creosote for field treating cuts and abrasions in treated materials and treated pile tops. At present the above material is heated over an open fire, often a considerable distance from the work as required for safety purposes. This practice is labor wasting.

The Dearborn outfit includes an Acrawatt electric drum heater, which has proven very adequate for heating the NO-OX-ID products. It is possible that the drum heater would not be effective for heating full drums of Laurel No. 9; however, the pail heater would most certainly heat creosote.

If you concur, I will requisition one each of the RH-1 drum heater at $29.50 and of the PH-5 bucket heater at $16.75. Supervisor Rea will check the effectiveness of these items. If they prove out, for 1961 Budget I will recommend that enough of each be obtained that each bridge maintenance crew can be equipped. Besides the savings in labor, the use of really hot creosote and asphalt will greatly benefit new treated timber construction.

Acrawatt circulars are attached.

Dessassed with
CEE-??
HRP 6/16

C E Ehlers
Bridge Engineer

CEE:a
enc.

St. Paul, Minnesota
June 9, 1960

3505

Mr. A. M. Gottschald:

There is attached for filing fully executed agreement dated June 8, 1960, with Osmose Wood Preserving Company of Buffalo, New York, covering wood preservative treatment to bridges on Rosebud and B&CM Branches.

Also attached is Mr. Burgess' letter of June 6 to Mr. Macfarlane endorsed for execution of the above contract by the Chief Engineer.

Ten additional copies of the agreement are attached for your distribution.

H. R. PETERSON

Chief Engineer

PTL:z

enc.
cc: Mr. C. H. Burgess

3505

OFFICE OF
CHIEF ENGINEER

JUN 8 1960

NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

St. Paul, Minnesota
June 8, 1960

606

Mr. H. R. Peterson:

Please refer to your letter of June 2, file 3505, transmitting for execution or authority to execute, proposed agreement with Osmose Wood Preserving Co. of America, Inc., covering the spraying, with Osmosepenta formula, of various pile and timber trestles on the Rosebud and Billings and Central Montana Branches.

Both copies of the agreement are returned herewith, together with my letter of June 6 to Mr. Macfarlane, on which there has been endorsed authority for you to execute. When fully executed, please file the Northern Pacific copy with the Secretary.

C. H. Burgess.

PTL
Go witness & handle
HRP 6/8

St. Paul, Minnesota
June 6, 1960

606

Mr. Robert S. Macfarlane:

Attached, in duplicate, is proposed agreement with the Osmose Wood Preserving Co. of America, Inc., of Buffalo, New York, covering the spraying with Osmosepenta formula, eight untreated pile and timber trestles on our Rosebud Branch and two untreated pile and timber trestles on the Billings and Central Montana Branch, Yellowstone Division.

It is estimated by our Engineering Department that without spraying we may expect to have to rebuild all ten of these structures within five years, but by immediate spraying replacement should not be necessary for 17 years. The bid price of the contractor is $6,500.

I recommend the attached proposed agreement be executed. If you approve, please execute or authorize execution by the Chief Engineer.

C. H. Burgess.

Mr. Burgess:
Execution of this contract as recommended is authorized.
Robert S. Macfarlane
6/7/60

St. Paul, Minnesota
June 2, 1960

File: 3505

Mr. C. H. Burgess:

Please refer to your letter of April 8 in regard to handling of work by contract for spraying with Osmose-penta formula various pile and timber trestles on the Rosebud and Billings & Central Montana branches.

For execution or authority to execute, attached are Contractor's copy and Railway Company's copy of the proposed contract and specifications for Osmose wood preservative treatment.

HRP/jwm
attachments

H. R. PETERSON

3505

OFFICE OF
CHIEF ENGINEER
JUN 2 1960
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

St. Paul, Minnesota
May 31, 1960

S-69-210

Mr. H. R. Peterson:

Please see your letter of April 11, file 3505, concerning spray treatment of 10 bridges on the Yellowstone Division; 8 on the Rosebud Branch, and 2 on the B&CM Branch. This work is planned in order to perpetuate these old timber structures.

The agreements have now been executed on the part of Mr. Surdam, President of the Osmose Wood Preserving Company and I am sending you herewith the Northern Pacific and the Contractor's copies for execution on the part of the Railway Company. You will note Northern Pacific's copy has been initialed by Attorney Krengel.

WRB:m
Enc.

District Engineer

3505

OFFICE OF
CHIEF ENGINEER

MAY 4 1960

NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

St. Paul, Minnesota
May 3, 1960

S-69-210
CE 3505

~~RGZ~~ to note + return see page 2 RBZ 5/20

P 5/6

Mr. H. R. Peterson:

We have yours of April 21st concerning use of Osmoplastic by the Northern States Power Company.

The proposed treatment on certain bridges on the Rosebud and B&CM Branches is somewhat different than the Osmoplastic reported by the Northern States Power Company. In the case of the Northern States Power Company, they were dealing with the ground line treatment with Osmoplastic and other materials similar to what we have been doing for the past five years on piling at a great many locations on the Eastern District. On the Rosebud and B&CM Branches we will be treating Fir stringers and caps, and cedar untreated piling above the ground line by flooding pentachlorophenol formulation over the structure. The cedar piling above ground line, of course, still have the sapwood available and even the Northern States Power Company's report indicates that the sapwood will absorb the treatment but the heartwood of the cedar post did not accept the penetration. Accordingly, I think we should go ahead with the work on the Rosebud and B&CM Branches.

The report of the American Wood-Preservers' Association, as put out by the Northern States Power Company, indicated that there was no significant penetration into the cedar heartwood. Actually, the test has only been in operation for three years and, accordingly, it does not seem to me that we could expect too much penetration into the heartwood in that period of time. However, in placing Osmoplastic at the ground line, we remove the rotted sapwood and place a relatively thick coating of Osmoplastic, between 1/8 and 1/4 of an inch, and then wrap it with the special paper. It seems to me that if the decay causing item is kept away from the heartwood that there should be preservative or delayed rot available. As I mentioned a number of times, this is now the fifth year for our Osmoplastic experiment and we will unwrap some of the piling, take increment borings, and thereby determine the penetration of the penta solution into the heartwood. In addition, you will recall, we will be salvaging or rather cutting off some of the piling at Bridge 3.1 near Lake Phalen, on the Duluth

Line here in St. Paul, and at that time will run some tests on the dispersion of the pentachlorophenol. Mr. Zietlow has the necessary chemicals available to detect this osmosis which is supposed to take place. This becomes possible because of the single tracking between St. Paul and White Bear will no longer require the double track bridge at Bridge 3.1.

I have discussed this situation with Mr. Zietlow and his primary claim is that the report from the Northern States Power Company indicated that Osmosalts did not penetrate significantly into the heartwood and, therefore, the claims of the OsmoseWood Preserving Company were exaggerated. I do not believe that Mr. Zietlow intends to convey the impression that the Osmoplastic is not worthwhile, but he merely feels that the claims of the supplier are greater than experience indicates. Obviously, we could not wait for an actual service test on piling as they would be completely rotted off and require replacement before the test of the first bridge was completed.

WRB:b

District Engineer

P.S. Actually, pressure treated creosote does not penetrate heartwood of either Fir or cedar.

Pressure treatment will penetrate heartwood of Fir. Cedar heartwood is difficult to penetrate & not much penetration can be expected. RSZ 5/20

St. Paul, Minnesota
April 21, 1960

File: 3505

PERSONAL

Mr. W. R. Bjorklund:

I understand Mr. Zietlow has some adverse information pertaining to the use of Osmoplastic material based on data issued by the Northern States Power Company.

Will you please review this information and advise what if any effect it will have on your previous recommendations for Osmose treatment on certain bridges on the Rosebud Branch, also the B. & C. M. Branch?

HRP/jwm

H. R. PETERSON

St. Paul, Minnesota
April 11, 1960

File: 3505

Mr. W. R. Bjorklund:

Please refer to your letter of March 14, file S-69-210, about spraying, with Osmose Penta Formulation, ten bridges on the Yellowstone Division.

This matter was referred to Mr. Burgess. His reply dated April 8 authorized contracting this work with the Osmose Wood Preserving Company.

You may arrange for execution of original and duplicate copy of the proposed contract by the Osmose Company and forward to me for handling of execution by the Railway Company.

HRP/jwm

H. R. PETERSON

cc: Mr. C. E. Ekberg

3505

OFFICE OF
CHIEF ENGINEER
APR 11 1960
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

St. Paul, April 8, 1960

Mr. H. R. Peterson:

As recommended in your letter of April 7, file 3505, you may arrange for the handling of the work in connection with the spraying with Osmosepenta formulation of the pile and timber trestles on the Rosebud Branch and on the Billings & Central Montana Branch by contracting this work with the Osmose Wood Preserving Company.

C H Burgess

3505

St. Paul, Minnesota
April 7, 1960

File: 3505

Mr. M. O. Woxland:

A hurried review of correspondence in regard to Osmoplastic treatment of piles as covered in the annual Form 134 indicates application of this method for extending life of untreated piles in timber trestles has been quite limited -- in fact, none on the Rocky Mountain Division, and only a comparatively small number on the Idaho Division as compared with applications being made on the Tacoma Division. The question of applying Osmoplastic treatment to the telegraph and telephone line poles is being discussed.

As you are undoubtedly interested in the application of this treatment for piles on the east end, which has been carried out annually since 1954, attached, for your information, is copy of my letter dated April 6 to Mr. Burgess. It will be noted satisfactory performance is being secured which yields desirable savings as far as piles are concerned and anticipated application of Osmoplastic treatment to telegraph and telephone poles.

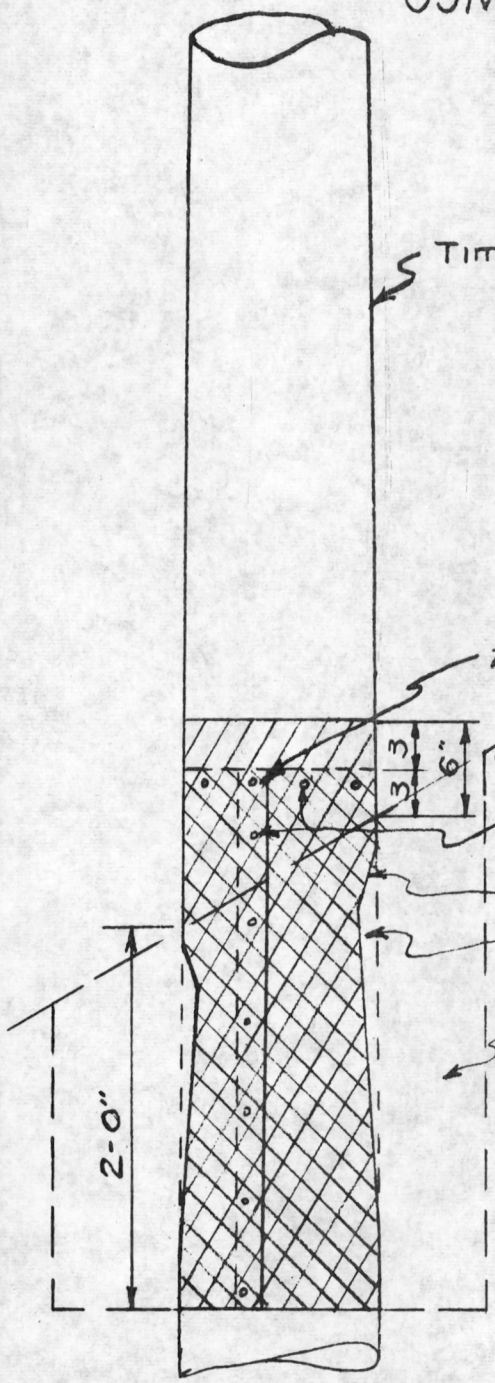
Several copies of Bridge Engineer's sketch dated December 1, 1954, Index 1811-130, are attached in the event you will desire to discuss further with Messrs. Smith and Wold the Osmoplastic treatment of piles.

In 1955 District Engineer Bjorklund arranged for service test record to cover application of Osmoplastic spot preservative on certain bridge piling and ties. It may well be that a similar arrangement was not made on the Western District. Therefore, I am attaching a pad of report forms, Index 1811-130-A, together with four copies of print, file 440-339, revised October 31, 1955, covering details of stainless steel metal tags for curve elevation and Osmose piling.

HRP/jwm
attachments

H. R. PETERSON

OSMOPLASTIC TREATMENT of PILES



Before treatment with Osmoplastic, pile shall be bored to determine extent of heart rot and hole plugged with treated wood plug.

Osmoplastic to be applied with a brush using 1/6 gallon per pile.
Treatment shall be protected with a single layer of Osmo Shield paper with 2" lap at joints.

Note
Excavation to be deep enough to allow removal of all rotten wood with 2'-0" minimum depth.
Rotten wood to be removed from hole, care being taken that none mixes with backfill.

Painted with Osmoplastic

Painted with Osmoplastic and wrapped with Osmo Shield paper

N. P. Ry Co.
Office of Bridge Eng. St Paul Dec 1, 1954

D-JAG
Ch. EAK.

Index 1811-130

St. Paul, Minnesota
April 7, 1960

File: 3505

Mr. C. H. Burgess:

Approved Form 134 for 1960 includes spraying with Osmose-penta formulation eight untreated pile and timber trestles on the Rosebud Branch and two untreated pile and timber trestles on the Billings & Central Montana Branch, Yellowstone Division.

The stringers in the Rosebud Branch trestles were placed in the period 1938-49 replacing stringers installed in 1923 for which the stringer service life was 15 to 26 years. Piling in the Rosebud Branch trestles were replaced in the period 1945-53, thereby establishing a service life of 22-30 years. The stringers in the B. & C. M. Branch trestles were placed in 1941 replacing piles placed in 1913 and established a service life of 28 years.

Inspection of these trestles in July 1959 indicated five years or more of expectable remaining life.

According to our information, in view of the purchase of the Colstrip coal mine, the Montana Power Company expect possibly to start shipping coal by rail in about two years, although their new steam generating plant will not be constructed in Billings for five or six years. At the present time only an occasional train is operated on the Rosebud Branch to pick up a load of livestock or for other purposes.

Messrs. Ekberg and Bjorklund recommend spraying the ten bridges with Osmose formulation by which it is anticipated a minimum of twelve years' additional service life will be secured. It is further anticipated that if spraying is not performed at this time we may expect complete rebuilding of the ten structures in about five years at a total cost in excess of $42,000. The cost of spraying at this time is estimated at $6,500 so that we will then put off rebuilding the structures for seventeen years in lieu of being faced with complete rebuilding in five years of the components now recommended for spraying.

Attached is statement dated Office of District Engineer, March 16, showing the economic setup. The first column covers present cost to replace components. The second column covers cost of spraying. The remaining columns merely carry out the investment on long-range basis; that is the present-day worth of money to be set aside in order

to rebuild the structures in five years and also the amount of money that would have to be set aside at this time in order to rebuild the structures in 1977 or at the end of the service life of the Osmose formulation.

The solution to be applied consists of pentachlorophenol in fuel oil diluent with special additives to provide long-term toxicity. This preservative is applied in a manner aimed at an absorption of 0.25 lb. of dry pentachlorophenol per cubic foot in the outer half inch of the wood.

As the application of the Osmose formulation requires special equipment and experienced applicators, it is preferable that the spraying be handled by the Osmose Wood Preserving Company's crews with their equipment. Clearance has been secured by Mr. Hare from the Organization to permit such handling by contract work.

It will be noted that three timber trestles on the Rosebud Branch and two on the B. & C. M. Branch are included in Form 134 for replacement.

Attached is copy of proposed contract and specifications with the Osmose Wood Preserving Company to cover spraying of the ten bridges.

May I have your authority to arrange for handling this work by contract?

HRP/jwm
attachments

H. R. PETERSON

St. Paul, Minnesota
April 6, 1960 WRB

File: 3505

Mr. C. H. Burgess:

This has reference to your letter of April 4, file 2506, and returning herewith Mr. Hill's letter of March 30 relative to the treatment of poles by the Osmoplastic method.

We have been protecting cedar piling at the ground line with Osmoplastic since 1955. Deterioration of cedar piling is confined to the area immediately below the surface of the ground due to alternate wetting and drying of the piling. All of this type of treatment has been performed by our regular Bridge and Building crews, and we have found that specialized experience is not necessary for such application.

To date we have treated several thousand piling and intend to remove the paper protective shield this summer to thoroughly inspect some of the piles. In addition, at Bridge 3 on the White Bear Line, for which we just this month received approval from the St. Paul City Council for closing the street, we will be able to cut off some of these four-year old Osmos-treated piling to determine by chemical methods the actual osmosis which has taken place during the intervening years.

The primary preservative is pentachlorophenol. This method of treatment relies on the natural osmosis to disburse the preservative. The plastic type of chemical, which is the carrier for the pentachlorophenol, is protected from leaching into the ground with a special paper wrapping.

On September 15, 1954, following Mr. Bjorklund's request to the Otter Tail Power Company of Fergus Falls, he received the following information:

> "In reply to your letter of September 13, we have been using the Osmose Wood Preserving Company system of ground line treatment for standing poles since the late Thirties. Our experience has been entirely on western red cedar poles. Originally we did our own work, buying the material from the Osmose Wood Preserving Company, but for the last two years we have contracted with them for the complete job. We consider the work well worthwhile and are continuing to treat at the rate of about 4000 poles a year. At least five years of life is being added to the standing poles."

Based on older installations of Osmoplastic on timber bridge piling on the Chicago & North Western Railway, we feel reasonably sure that piling can be given an additional fifteen or twenty years of life.

Assuming seventeen years as the probable increased life, we find that in Mr. Hill's particular case the present-day worth of 1000 new poles in ten years will be $30,700 calculated at 5 per cent interest. If these same 1000 poles are now treated with Osmoplastic, then the replacement will not take place for twenty-seven years. The present-day worth of Osmosing at this time and replacing in twenty-seven years is a total of $17,650. It is further possible to retreat with Osmose after, say, twenty years, in which case the present-day worth of the entire job would be less than $15,000.

On the basis of the foregoing, there is a fifty per cent saving in present-day worth of treating with Osmoplastic at this time as compared with admitting that the poles would have to be renewed in ten years.

On an annual cost basis calculated at five per cent, including a sinking fund to replace the poles at fifty-year cycles, we find that the annual cost of 1000 poles is $1,675.

If the same 1000 poles are treated by Osmoplastic, including retreatment when necessary and providing sinking fund for eventual replacement of poles, the annual cost would be $515.

We feel that the protection of cedar poles and piling by the Osmoplastic method is very well worthwhile and certainly provides a lower annual cost.

However, it would appear that we might be subjected to claims if this work were contracted, as our own Bridge and Building crews had no trouble in making similar installations to our pile bridges. Each of our four Eastern divisions has B&B men who have done this type of work. If necessary, they could supervise the work until the Communication employees have become proficient in determining the extent to which the decayed material should be removed.

HRP/jwm
attachment

H. R. PETERS

3505

OFFICE OF
CHIEF ENGINEER

APR 4 1960

NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

St. Paul, Minnesota
April 4, 1960

2506

RGZ

Mr. H. R. Peterson:

I attach hereto a letter received from Mr. D. C. Hill about treatment of poles by the Osmoplastic method.

Please let me have your comments and recommendations with return of the attachment.

C. H. Burgess

WRB
Pls advise for my reply.
HRP 4/4

HRP
Herewith
4/5

VICE PRESIDENT
FILE 2506

Saint Paul, Minnesota
March 30, 1960

89

NOTED
C.H.B. ✓
C.L.H.
G.N.P.
M.W.S.
S.E.C.
J.L.L.

Mr. C. H. Burgess:

I am sure you realize that in the face of constantly rising labor and material costs this department is continually seeking ways and means of off-setting such increases by taking advantage of every reasonable method by which this can be accomplished.

While the number and size of our crews have been reduced by at least 50% over the past few years by providing mechanized equipment, nevertheless, pole replacement costs continue to be one of the major expenditures. Along this line we have been reviewing ways and means of extending the life of existing poles, and the Osmose Wood Preserving Company recently assisted us in an inspection of our pole line between Fargo and Jamestown, N. D. That section was selected because no heavy repairs had been made since 1923 and the poles were of such age and the ground line rot at such a stage that the poles must at this time be considered for re-treatment; and if this is not done, replacement in the next 10 to 15 years. It was the Osmose peoples' opinion that the life of the majority of these poles could be extended an additional 15 or 20 years if treated by their process at this time.

We, of course, realize that because of the expense we could not hope to treat all poles between Fargo and Jamestown in any one year but that we should more or less experiment with about 1,000 poles at a time.

The economics of this initial program is as follows:

Osmoplastic treatment of 1,000 poles at $4.25 per pole - $4,250.00.
Cost of replacing these 1,000 poles in 10 years if no treatment at this time and using current costs at $50.00 per pole - $50,000.00.

In other words, for only 4% of the replacement cost figure we can extend the life of these poles for another 15 or 20 years.

Several of the power companies and some of the telephone companies have already started re-treatment programs of this nature, and it is my understanding that the Chicago & North Western treated 1,000 poles last year and are so well pleased with the results that they will treat additional poles this year.

If we are to initiate a re-treatment program such as this letter, in effect, recommends, it would be our desire to have the work performed entirely by the Osmose Wood Preserving Company whose cost figures have been indicated above. This, of course, raises certain questions regarding our labor agreement with the I. B. E. W. employees, and during the course of our investigation Mr. Hare's department was requested for an opinion as to whether or not this work could be contracted as intended. Mr. Hare's reply quoted several Third Division Awards indicating that work covered by an agreement may be let to contract when special skills or special equipment are required. Here is an indication of the Adjustment Board's reasoning taken from the Third Division's Award No. 6112:

> "The rule is well established and settled by awards of this division that work covered by the scope rule of an agreement cannot be taken away from employees covered thereby by contracting that it be performed by others who are outside the agreement. See awards cited in 3839, also Awards 5151, 5563, 5839.
>
> "The carrier may contract work out when special skills, equipment, or materials are required, or when the work is unusual or novel in character, or involves a considerable understanding. See Awards 757, 2338, 2465, 3206, 4712, 4776, 5029, 5151, 5304, 5563.
>
> "The work to be contracted out is to be considered as a whole and may not be subdivided for the purpose of determining whether some of it could be performed by the employees of the carrier. See Awards 3206, 4776, 4954, 5304, and 5563.
>
> "The burden of proof is on the carrier to show by factual evidence that its decision to contract work out is justified under the circumstances. See Awards 2338, 4671, 5304, 5457 and 5563."

From the second paragraph of the above quotation it is apparent that the proposed re-treatment work would not have to be subdivided (such as having our crews dig around the base of the pole and having the Osmose people apply the preservative) so long as either a special skill, equipment, or material is required.

March 30, 1960

In reviewing this further with the Osmose people, their reply was as follows and I quote in part: "Nearly all of our foremen are graduate foresters and have averaged close to one year in training before considered responsible for the inspection phase of a re-treatment program. Therefore, our first point involves special skill and training on the part of personnel. Secondly, we use tools of our own design and restricted to the use of our own forces. Our third point involves the very poor experience we have had in the past with companies purchasing our material and applying it to poles with their own forces."

The difficulty surrounding the third point is that unskilled labor is unreliable so far as determining the amount of wood rot that must be removed, the depth above and below ground line that must be removed and the amount of treatment to be applied depending upon the specific circumstances and degree of deterioration of each pole.

If you agree that a re-treatment program such as described above is justified, may we have your approval for the expenditure of $4,250.00 so that a re-treatment program can be initiated this summer.

Incidentally, it is my understanding that our Bridge Department has applied the Osmoplastic treatment within the past few years with considerable success, and inasmuch as you are no doubt familiar with what was accomplished in that instance, I have not gone into any detail as to what is involved in the Osmoplastic treatment process.

A. E. Lee

Orig. returned to CHB 4/6

3505

OFFICE OF
CHIEF ENGINEER

MAR 31 1960

NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

St. Paul, Minnesota
March 31, 1960

E

Mr. H. R. Peterson:

Referring to your letter of March 22, File 3505, regarding proposed Osmose preservative treatment on ten untreated timber trestles on the Rosebud and B&CM Branches of the Yellowstone Division:

Stringers in Rosebud Branch trestles listed were placed in period 1938-1949, replacing stringers placed in 1923. This establishes a service life of 15 to 26 years for stringers. Piling in the Rosebud Branch trestles were placed in period 1945-1953, replacing those placed in 1923 establishing a service life of 22-30 years. Stringers in B&CM Branch trestles listed were placed in 1941 replacing those placed in 1913 establishing a service life of 28 years.

release from Hold

Inspection of these trestles in July 1959 indicated five years or more of expectable life remaining in the portions recommended for Osmose spraying. Some other trestles were found to have a shorter expectable life. Three trestles on the Rosebud and two on the B&CM are now carried on Form 134 for replacement. The proposed Osmose treatment covers most untreated timber not scheduled for replacement. Exceptions are bents and stringers in Rosebud Bridges 19, 19.1, 21, 25 and 29, and B&CM Bridge 5.

No work of any consequence has been done on Rosebud Branch trestles since 1954 in anticipation of dieselization, and consequent abandonment of the coal facilities. It is now understood that the Montana Power Company has purchased the Colstrip coal mine, and expect to start shipping coal by rail in about two years, although a new steam generating plant will not be constructed for five or six years.

This new plant is expected to consume about 100 carloads daily. At present, only an occasional train is run up the Rosebud Branch to pick up a load of livestock or for similar reasons.

The Osmose protection now proposed will enable the eight listed Rosebud trestles to remain in service until the branches future is well established. Form 134 also carries $28,215 to be spent to renew, in treated form, the bents and stringers of Rosebud Bridges 5, 15 and 27. The cost for Osmose protection is about 15% of the cost to replace, or represents three years interest on the investment for new structures deferred for about twelve years additional by spending $6483 now. To

defer the Osmose protection beyond this season presents the gamble that the timber may deteriorate beyond redemption as has already occurred at the three bridges now up for rebuilding below the ties.

The untreated trestles on the Rosebud and B&CM Branches present an excellent opportunity to prove out the value of Osmose spray protection. The apparent necessity to maintain the Rosebud Line in condition to economically restore moderate traffic in two years, and heavier traffic in five or six years, indicates that continued maintenance during the interim is advisable. For these reasons, I concur to Mr. Bjorklund's recommendations that contract be negotiated for Osmose spray protection.

The contract form and cost analysis submitted with Mr. Bjorklund's letter of March 17 have been reviewed and are approved.

Your file is returned.

C. E. Ehlers
Bridge Engineer

CEE:z
enc.

St. Paul, Minnesota
March 22, 1960

File: 3505

Mr. C. E. Ekberg:

Attached is copy of Mr. Bjorklund's letter dated March 17 with copy of statement and specifications for Osmose wood preservative treatment on bridges on the Rosebud and B. & C. M. branches, together with my file. Mr. Bjorklund's specifications are in the form of a proposed contract but not so stated on the cover.

You will note work on the timber trestles in the former Colstrip Line is included which, as you know, at the present time is subject to very little if any traffic. The future of this line should be investigated and included in your review.

Will you please have Mr. Bjorklund's information and proposal thoroughly reviewed and submit your recommendations as to further handling and complete comments thereto.

HRP/jwm
attachments

H. R. PETERSON

PTL
File 3505
6 CEE 3/22

Branch	Bridge No.	Components to be sprayed or replaced	Present cost to replace components	Spray Treatment: Bid Price	Spray Treatment: Money to be put aside now to replace in 17 years	Spray Treatment: Total investment 1960	Replace in 5 Years: Money to be put aside now to replace in 5 years	Replace in 5 Years: Total investment 1960	Saving 1960	Worth of Bridge in 1977: Sprayed in 1960 & replaced in 1977	Worth of Bridge in 1977: Replaced in 1965	Worth of Bridge in 1977: Diff.
Rosebud	2	Stringers	2300	476	1003	1479	1802	1802	323	2300	1610	690
	3	Stringers	3220	729	1405	2134	2523	2523	389	3220	2254	966
	6	Stringers	1380	326	602	928	1081	1081	153	1380	966	414
	6.1	Stringers, caps, piling	4880	511	2129	2640	3824	3824	1184	4880	3416	1464
	13	Stringers, caps, piling	4880	577	2129	2706	3824	3824	1118	4880	3416	1464
	14	Stringers, caps, piling	9845	1177	4295	5472	7714	7714	2242	9845	6892	2953
	25.1	Stringers	3220	627	1405	2032	2523	2523	491	3220	2254	966
	29-A	Stringers, caps, piling	7750	981	3381	4362	6072	6072	1710	7750	5425	2325
B&CM	7	Stringers, caps	1700	422	742	1164	1332	1332	168	1700	1190	510
	10	Stringers	3220	657	1405	2062	2523	2523	461	3220	2254	966
		TOTALS	42,395	6,483	18,496	24,961	33,218	33,218	8,239	42,395	29,677	12,718

NOTE: Moneys to be put aside are based on 5 percent interest table.

Office of District Engineer
Northern Pacific Railway Company
St. Paul, Minnesota
March 16, 1960

DJS:b

Cy CEE Cy CNB 4/7

3505

OFFICE OF
CHIEF ENGINEER

MAR 18 1960

NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

St. Paul, Minnesota
March 17, 1960

S-69-210
CE-3505

Mr. H. R. Peterson:

You have our letter of March 14 transmitting suggested agreement with the Osmos Wood Preserving Company covering the spraying of Osmos Penta Formulation on eight bridges on the Rosebud Branch, and two structures on the B&CM Branch. You desired economic comparison for justifying the spraying of these structures.

I am attaching hereto in duplicate our statement dated this office, March 16, 1960, showing such economic setup. If the spraying is not performed at this time, we may expect complete rebuilding of the ten structures in about five years at a total cost in excess of $42,000. The spraying now planned anticipates that there will be an additional minimum of 12 years service life added to the structures, or they would last for seventeen more years by now investing $6,483, total. Essentially, I think that that is the most important economic comparison and with a $6500 investment at this time we can put off rebuilding the structures for seventeen years, rather than be faced with a complete rebuild in five years of the components now planned for spraying. Undoubtedly within the next seventeen years, there could be changes which might make some of these bridges unnecessary.

The remaining columns merely carry out the investment on a long range basis; that is the present day worth of money to be set aside in order to rebuild the structures in five years, and also the amount of money that would have to be set aside at this time in order to rebuild the structures in 1977, or at the end of the service life of the Penta Formulation. Incidentally, the Osmos people feel that if we sprayed again sometime prior to the end of the seventeen year period, we could again extend the life of the structures for a considerable longer period.

District Engineer

WRB:z
enc.

Cy C E E w/spec.

3505

OFFICE OF
CHIEF ENGINEER

MAR 14 1960

NORTHERN PAC. RY. CO.
ST. PAUL, MINN.

St. Paul, Minn.
March 14, 1960.

S-69-210

Mr. H. R. Peterson:

In our approved Form 134 for 1960 we have included ten bridges on the Yellowstone Division for spraying with Osmose Penta Formulation. This material, made and applied by the Osmose Wood Preserving Company, has been used by utilities companies on their pole lines and by several railroads throughout the country in order to perpetuate structures. On the Rosebud Branch and the Billings and Central Montana Branch we have these several bridges where stringers in particular are getting old but we would like to carry them as long as possible by spraying with this Penta Formulation, utilizing the Osmose Wood Preserving Company's crews.

I wrote Mr. Hare under date of February 23 and I am attaching hereto for your information a copy of letter agreement between General Chairman Morehouse and Mr. Hare dated February 26, 1960 approving the use of Osmose Wood Preserving Company for spraying of stringers and bents at these several bridges. The grand total of spraying the ten bridges will be $6,483, all chargeable to operating expense. We received these particular prices from the Osmose Wood Preserving Company sometime ago but I believe they are satisfactory for the coming season. We got a particularly good price as the Osmose Wood Preserving Company would like to have an experimental installation in this territory which might help them in selling other installations.

We are sending you herewith three copies of the proposed agreement and ask if it is satisfactory to send to Mr. Surdam, President of the Osmose Wood Preserving Company, for execution on their part.

WRB Mr. HRP Herewith
to furnish
addtl info per
our phone talk
HRP 3/14

3/11

WRB:r
enc.

District Engineer.

cc: Mr. C. E. Ekberg 1

February 26, 1960

Mr. C. O. Morehouse, General Chairman
Brotherhood of Maintenance of Way Employes
303 Northwestern Federal Building
Minneapolis 3, Minnesota

Dear Sir:

In conference on February 25 the proposed spraying of stringers and bents on certain bridges on the Rosebud Branch and on the Billings and Central Montana Branch of the Yellowstone Division was discussed.

It is proposed to engage the Osmos Wood Preserving Company to spray stringers and bents on certain bridges on the Rosebud Branch and on the Billings and Central Montana Branch of the Yellowstone Division. This company is the manufacturer of a product known as the Osmos Penta Formula, which is a wood preservative. The Osmos Penta Formula is toxic and requires special equipment in applying this formula and also special equipment by individuals assigned to perform the work of applying this formula. The Osmos Penta Formula can only be purchased from the manufacturer on the basis of the manufacturer applying it.

The matter of engaging the Osmos Wood Preserving Company to apply the Osmos Penta Formula to stringers and bents on ten bridges on the Rosebud Branch and on the Billings and Central Montana Branch of the Yellowstone Division was considered in conference with you and the following is agreed to:

In view of the particular facts involved, the Osmos Wood Preserving Company may be engaged to apply the Osmos Penta Formula on the ten bridges on the Rosebud Branch and on the Billings and Central Montana Branch of the Yellowstone Division without laying a foundation for time claims by Maintenance of Way Department employes.

This understanding will not be construed as establishing a precedent in any future similar case that may arise.

Yours truly,

/s/ G. M. Hare
Chief of Labor Relations

AGREED TO:

/s/ C. O. Morehouse
General Chairman
Brotherhood of Maintenance of Way
Employes

St. Paul, Minnesota
March 2, 1959

3505

Mr. C. H. Burgess
Mr. C. L. Harding
Mr. G. N. Page
Mr. W. K. Smallridge
Mr. H. C. Crowder
Mr. D. H. Shoemaker
Mr. H. M. Schudlich
Mr. A. A. Melius
Mr. A. J. Hendry

Mr. W. R. Bjorklund
Mr. S. H. Barlow
Mr. R. W. Humphreys
Mr. J. D. Worthing
Mr. C. E. Ekberg
Mr. H. E. Moore
Mr. R. G. Zietlow
Mr. R. E. Nichols
Mr. D. C. Hill

At 10 A.M. on March 3, there will be shown in the Women's Club Room on 12th floor a Standard Oil of California film of fire test of a full scale model creosoted timber railroad bridge on the Sante Fe Railroad at Albuquerque, New Mexico. The film will run for eight minutes.

This Std. Oil additive is placed in the creosote prior to treatment. The additive costs 30¢ per lb. and 10% additive is added to a gallon of creosote.

H.R.PETERSON
CHIEF ENGINEER

WRB:m

cc: Mr. C. V. Schutt

3505

OFFICE OF
CHIEF ENGINEER
OCT 28 1958
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

~~DHS~~
~~WRB~~ Ass
to note
& return
HRP 10/28

St. Paul, Minn.
Oct. 27, 1958

1-48

Mr. H. R. Peterson:

Thursday, October 16, I observed the Dow Chemical Company's fire retardant test at the National Pole Company treating plant in New Brighton.

This test consisted of burning five crib-like structures constructed of six inch by eight inch by four foot pieces of treated Douglas Fir. Each crib contained 18 pieces which were piled nine high, alternately stacked on the flat side and on the edge and were space 11 inches apart. Two of the cribs used as controls were treated with 100 percent creosote and contained between 9.87 and 10.14 lbs. per cubic foot. Three separate blends of fire retardants mixed as follows were used in the test:

No. 1 consisted of 12 percent Arban No. 86 and 88 percent creosote.

No. 2 consisted of 13 percent Arban No. 86 and 6½ percent ET-367, which is a Bromine derivative and 80½ percent creosote.

No. 3 consisted of 13 percent Arban No. 86 and 13 percent pentachlorophenol and 74 percent petroleum. Difficulty was encountered in treating the ties with this last combination and instead of the desired 10 lb. per cu. ft. retention, the actual retention obtained only ranged between 1.83 and 4.84 lbs. per cu. ft. Further work on this combination will be done to eliminate any possibility of treating difficulties.

For the first test, the crib containing the 12 percent Arban 86 and 88 percent creosote and the standard creosote control crib, were ignited simultaneously by having two individuals toss a match into 250 cubic centimeters of gasoline placed in a ply plate within the crib. Within two minutes it was noted that the control pile was burning more severely even out at the ends of the ties.

At four minutes the fire retardant was tending to hold back the flames and by 13 minutes the retardant was starting to put the flames out. The flames were extinguished in 14 minutes and 20 seconds while the control still burned good for an hour and 20 minutes. When the pile collapsed after about an hour and 45 minutes, the control fire was extinguished with the fire hose. The amount of char measured in the fire retardant pile was between one-half and nine-sixteenths inches in depth. The control pile was considered as being completely burned.

Test No. 2 was carried out with the crib containing Arban 86, ET-367 and creosote and the standard control creosote crib. The same procedure was used in igniting the cribs but it was noted that the fire retardant crib caught fire much more slowly than the control crib, requiring about three minutes before the flames spread through the pile. After seven minutes the flames on the retardant treated crib were dying down and at ten minutes went out. The char on this pile measured between one-quarter and five-sixteenths inch thickness. The control pile continued burning until it was extinguished in about an hour and one-quarter later.

Test No. 3 consisted of the crib treated with Arban, pentachlorophenol and petroleum. Because of the poor treatment in this material, no control was burned with it. At fourteen to fifteen minutes the flame was practically out, with the exception of one spot under the cross piling at the top. It was noted that the fire at this point had burned through the treated area and was burning in the untreated wood. Burning from this spot continued for at least 45 minutes. Although the small amount of fire retardant in this crib had the main fire under control within fifteen minutes, there was not enough retardant in the crib to completely control the burning. Further work will be done on this material to facilitate better treatment so that this type of treatment can be made comparable with the other fire retardants.

The value of the fire retardant treated material was definitely shown by the flame suppression in these tests as compared to the free burning straight creosoted control cribs. The Soo Line worked with the Dow Chemical Company in setting up these tests, estimating that the cost of the Arban and creosote treatment would be approximately $11 per lineal foot of bridge or roughly ten percent of the overall cost of the bridge when basing their bridge cost on a figure between $100 and $125 per lineal foot Arban. Although the Arban, Bromine and creosote fire retardant had a better flame suppression control than the Arban-creosote mixture, its basic cost of chemicals was almost twice as high. Now that the Dow Chemical Company has demonstrated the value of the fire retardants, they are attempting to provide a fire retardant with a value in the range of the Arban, Bromine and creosote mixture and yet within the price range of the Arban-creosote combination.

R. G. Zeitow
Engineer of Timber Preservation.

RGZ:K

cc - Mr. C. E. Ekberg.

3505

OFFICE OF
CHIEF ENGINEER
FEB 14 1958
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

St. Paul, Minn.
Feb. 13, 1958

Mr. W. K. Smallridge:

Attached you will find a copy of Mr. Brown's inspection reports of February 11, covering poles purchased on the following orders:

Purchase Order 158-876
158-1539

You will note that the 35 poles purchased from the Idaho Pole Company were properly seasoned, properly treated and the treating solution was above specifications.

The Western Cedar Pole treated at Ahsahka, Idaho and shipped to Billings, does not show too good a penetration of creosote, although the seasoning is satisfactory in both cases.

H. M. SCHUDLICH

Engineer Water Service

HMS:j
enc.
cc Mr. H.R.Peterson enc.
Mr. D.C.Hill "

S

Livingston, February 11, 1958

Mr. H. M. Schudlich:

The following order was treated by the Idaho Pole Company at Bozeman on January 24th, then removed from the vat and loaded out on January 27th:

Purchase Order No. 158-876

35 poles

The treating solutions used on the above order were checked and the following results found by analyses:

Hot oil bath ..... 5.23% pentachlorophenol

Cold oil bath ..... 5.16% "

The poles in the hot bath were raised from 180° to 235° over a period of nine hours and then kept in the cold oil bath at 185° for three hours.

Cores taken show that the oil penetration was from 3/4" to 1¼" with the average being at 1".

The retention of penta was 1.41 pounds per cubic feet of sapwood

Following you will find the corrected moisture meter readings taken on the poles of the above order

1" depth	2" depth	1" depth	2" depth
22	22	20	22
15	16	16	18
12	16	15	17
18	20	14	16
17	19	15	18
18	20	17	19
16	17	16	20
16	18	17	19
19	21	18	20
17	20	17	19
16	19	18	20
17	19	15	18
20	21	18	20
17	19	16	19
18	21	17	20
17	18	18	17
18	19	15	18
17	18		

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MIN...

cc - ACZ & HIG

W. T. Bonny
Water Inspector

5

Livingston, February 11, 1958

Mr. H. M. Schudlich:

Referring to Purchase Order No. 158-1539 covering one 85 foot Western Cedar pole, butt treated at Ahsahka, Idaho, and shipped to Mr. A. C. Skifstad at Billings. Two poles were included in this shipment, one being for Laurel and the other for Billings.

These poles were inspected upon their arrival at Laurel and the following results noted:

Creosote penetration, Laurel pole ..... 1/2"

" " Billings " ..... 1/4" (checked twice)

The following % moisture content readings were also taken:

	Depth				
	1/2"	1"	1½"	2"	2½"
Laurel pole	22	22	18	19	19
Billings pole	22	21	17	18	18

This inspection made on February 5, 1958

W. A. Bonney
Water Inspector

cc - JLG
cc - RGX

OFFIC
ENGR.WATE
FEB 1 1958
Y.CO.
INN.

3505

OFFICE OF
CHIEF ENGINEER
FEB 12 1958
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

St. Paul, Minn.
Feb. 12, 1958

Mr. W. K. Smallridge:

Attached you will find Mr. Brown's inspection reports covering the LP poles purchased and treated from the Idaho Pole Company at Bozeman under the following purchase orders:

Purchase	Order	1157-379
"	"	1257-387
"	"	1257-388
"	"	1157-242
"	"	1157-620
"	"	1157-1105

You will note that the moisture content in the poles on the first three purchase orders is less, indicating a greater seasoning. Also, the retained penta per cubic foot of sap wood is also higher. You will also note that the penetration is satisfactory and the penta content of the treating solution is also above specification.

H. M. SCHUDLICH

Engineer Water Service

HMS:a
enc.

cc:Mr. H. R. Peterson
Mr. D. C. Hill

S

Livingston, February 10, 1958

Mr. H. M. Schudlich:

The following orders were treated by the Idaho Pole Company at Bozeman on November 26th, 1957:-

Purchase Order	Number	Class	Length
1157-242	4	6	40
	5	5	35
	2	5	40
	4	6	35
1157-620	4	6	30
1157-1105	4	6	25

The treating solutions used on the above orders were checked and the following results found after analyses:

Hot oil bath ..... 5.23% pentachlorophenol

Cold oil bath .... 5.16% "

The poles in the hot bath were raised from 180° to 235° over a period of eight hours and then kept in the cold bath for 3½ hours. Cores taken show the oil penetration to be from 3/4" to 1-1/4" with the average at 1". The gallonage used of the penta solution was 1.78 gal. per cubic foot of sapwood. The retention in the outer ½" was 0.83 lbs. penta per cubic foot of sapwood.

Corrected moisture readings (%) taken at ground level

Pole	Depth 1"	Depth 2"	Pole	Depth 1"	Depth 2"
1	18	20	13	20	23
2	17	18	14	18	22
3	16	20	15	16	20
4	19	21	16	15	17
5	22	24	17	17	19
6	20	22	18	18	21
7	21	23	19	16	18
8	19	21	20	17	20
9	18	21	21	19	21
10	17	20	22	17	21
11	18	22	23	19	22
12	19	23			

OFFICE ENGR. WATER SERVICE
FEB 12 58
CO. MINN.

cc - RGZ
JLG

W. T. Brown
Water Inspector

5

Livingston, February 10, 1958

Mr. H. M. Schudlich:

The following orders were treated by the Idaho Pole Company at Bozeman during the week of January 6th to 10th, 1958:-

Purchase Order	Total number of poles
1157-379	335
1257-387	15
1257-388	15

The treating solutions used on the above orders were checked and the following results found by analyses:

Hot oil bath ..... 5.28% pentachlorophenol

Cold oil bath ..... 5.01% "

The poles in the hot baths were raised from 180° to 235° over a period of eight hours and then kept in the cold baths for three hours at 186° average. Cores taken show the oil penetration to be from 3/4" to 1½" with the average being at 1". The retention on Orders 1257-387, 1257-388 and part of 1157-379 was 1.15 pounds penta per cubic feet of sapwood. The retention on the balance of Order 1157-379 was 1.08 pounds penta per cubic feet of sapwood.

Following you will find the corrected moisture meter readings taken on every second to third pole in the above order. On the Order 1157-379 which will be stored at Parkwater, eighteen of the poles with a higher than usual moisture content were marked by means of a numbered tack driven in the butt end.

Pole numbered	1" depth	2" depth
	11	12
	12	13
	12	12
	12	13
	12	13
	12	13
	12	13
	12	12
	12	12
	12	13
	11	12
	12	13

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Pole Numbered	1" depth	2" depth
	12	12
	10	10
	12	12
	12	12
3	12	12
4	10	11
	10	11
	11	12
	10	12
	12	13
5	15	17
6	17	16
7	14	17
8	16	17
9	16	18
	14	16
	14	15
	16	15
	12	13
	13	15
	13	14
10	13	18
	13	14
	11	12
	11	12
	11	13
	11	12
	11	12
	12	13
11	12	15
	12	14
12	17	19
	14	15
	11	12
	11	12
	12	12
	12	11
	11	12
	10	11
	12	13
	12	12
	12	12
	12	12
13	19	20
	11	11
	11	11
	12	12

Pole Numbered	1" depth	2" depth
	12	12
	11	12
	11	12
	11	11
	14	14
	12	12
	12	12
	12	12
	12	12
	11	11
	11	12
	10	11
	11	12
	12	13
	11	12
	10	11
	12	13
	12	12
	12	12
14 ----------	18	19
	16	18
	17	17
	11	12
	15	15
	12	13
	14	14
	14	15
	12	13
	12	12
	13	14
	15	15
	12	14
	14	15
	15	15
	12	13
	14	15
	14	17
	15	16
	13	15
	13	12
	15	12
	14	13
	12	12
15 ----------	17	18
	13	11

Pole Numbered	1" depth	2" depth
	14	14
	14	16
	12	14
	14	15
	16	15
	14	17
	14	16
	12	13
	13	14
	12	12
	12	12
	12	12
	12	13
	12	12
	12	12
	13	14
	14	12
16 ----------	15	18
	13	14
	15	17
17 ----------	18	20
	14	14
	12	12
	11	12
18 ----------	22	22
	17	17
	12	12
	12	12
	14	16
19 ----------	17	19
	15	15
	14	16
	12	12
	15	15
	14	15
	16	14
	12	12
20 ----------	17	18
	11	12
	14	15
	12	12
	15	16
	11	12
	13	14

The above moisture meter readings were taken just above the incised section of the pole and before treatment.

cc - RGZ
JLG

W. T. Brown
Water Inspector

3505

Saint Paul, Minnesota
January 22, 1958

E-1696
89

Mr. W. K. Smallridge:

Your letter October 22, file 166-1 (a) relative to requisition DCH-79, GSK 18742-10, covering purchase of 335 fully treated poles of various classes and lengths from the Idaho Pole Company:

Our Communications Supervisor at Spokane advises under letter dated January 19 as follows:

> "The inspection of the poles received for E-1696 has been concluded as they were unloaded. All poles appear to be of very good quality in comparison to poles received for other jobs. There are very few checks and it looks as though what few checks there are have been well treated.
>
> "At a later date when the poles have had some time in the weather on the ground, another inspection will be made and further information forwarded to you."

The above is for your information.

D. C. Hill

cc: Messrs. C. H. Burgess
H. R. Peterson
H. M. Schudlich

Mr. Peterson: This has reference to your letter of April 8, 1957, file 3505 and mine to you of October 2 and October 17, 1957. I appreciate the fine assistance which you gave me in handling the inspection of these poles prior to shipment, and I thought you would be interested in the above information.

DCH

OFFICE OF
CHIEF ENGINEER

OCT 29 1957

NORTHERN PACIFIC ... CO
ST. PAUL

St.Paul, Minnesota
October 28, 1957

1-160

Mr. H. R. Peterson:

Referring to Mr. Hill's letter of October 2, your file No. 3505 and our conversation regarding the use of treated poles on our railroad.

I have investigated this matter and have prepared the following tabulations of poles purchased during 1956 and thus far during 1957:

Lodge Pole Pine, Full Length, Penta Treated Poles:

Supplier	No. poles purchased and cost. 1956	1957	Total
Idaho Pole Company	2120	156	2276
	$25037.43	$2460.10	$27,497.53
Montana Pole Company	178	266	444
	$4872.63	$1791.88	$6,664.51

Western Red Cedar - Butt treated, Creosote Poles:

Supplier	No. poles purchased and cost. 1956	1957	Total
National Pole Company	22	49	71
	$614.50	$1089.40	$1,703.90
B.J.Carney Company	655	587	1242
	$12715.15	$8246.80	$20,961.95

Northern White Cedar, Full Length Penta Treated Poles:

Supplier	No. poles purchased and cost 1956	1957	Total
Page and Hill	5	0	5
	$48.25	—	$48.25
Total No. Poles	2980	1058	4038
Total Cost	$43,287.96	$13588.18	$56,876.14

From the above tabulation, you will note thus far this year our 1957 pole purchase is only 36% of last years total purchases. You will also note that in 1956 the Idaho Pole Company had the greater share of our pole business.

R.S. Zitlow

RGZ:j

Engineer Timber Preservation

OFFICE OF
CHIEF ENGINEER
OCT 21 1957
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

3505

St. Paul, Minn.
Oct. 18th, 1957

Mr. W. T. Brown:

Attached you will find a copy of Mr. Hill's letter of October 17th to Mr. Peterson, concerning the inspection of lodgepole pine poles from the Idaho Pole Company which will be requisitioned shortly.

Will you kindly arrange to make a careful test of the moisture content of these poles with the Delmhorst moisture meter to note whether or not these particular poles are properly seasoned. As you recall, the last time we were at Bozeman I commented on the method which Idaho Pole Company stacks their poles for seasoning and I am not entirely in accord with this method. I believe that poles should be cross piled in order to get proper ventilation through the stack or piled longitudinally with spacers but your tests with the moisture meter should disclose if any excess moisture is present.

I also call to your particular attention that the 335 poles which will be requisitioned will be shipped and stored at Parkwater and after treatment, if they are not properly seasoned there, will be some cracking through the treatment and of course, these poles if not properly seasoned will not give the service life that is necessary. You will note that Mr. Hill's forces will examine these poles when they are shipped out to determine the extent of the cracking during storage.

Please give this particular shipment of poles your very close attention and very thorough inspection.

H. M. SCHUDLICH
Engineer of Water Service.

HMS:K
enc.

cc - Mr. H. R. Peterson
Mr. D. C. Hill

OFFICE OF
CHIEF ENGINEER
OCT 18 1957
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

3505

Saint Paul, Minnesota
October 17, 1957

89
16-Western
18-Poles

Mr. H. R. Peterson:

Please refer to my letter of October 2 regarding use of lodgepole pine poles and specifically the fourth paragraph wherein it was indicated that requisition would be placed through Mr. Smallridge to the Idaho Pole Company for future delivery of poles which will be used sometime next year between Spokane and Sprague, Washington.

I have initiated Purchase Requisition DCH-79 dated October 15 for 335 full treated poles of various classes and lengths which will be shipped and stored at Parkwater, and have arranged for a thorough inspection to be made of these poles by my people as they are unloaded at Parkwater and also at the time they are loaded out for use in order to determine the extent of cracking during storage.

In addition to this it would be appreciated if you would have your inspector inspect these poles very carefully at the Idaho Pole Company plant before shipment, and Mr. Smallridge will no doubt furnish what additional information may be necessary in the way of purchase order number, etc., after the requisition has been processed so as to assist your people in this matter.

M. E. Thiel

cc: Messrs. C. H. Burgess
W. K. Smallridge
W. J. Luchsinger
H. M. Schudlich

10/16

To note

HRP

OFFICE OF
CHIEF ENGINEER
OCT 3 1957
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

3505

Saint Paul, Minnesota
October 2, 1957

89
16-Western
[illegible]-Poles

Mr. H. R. Peterson:

Please refer to my letter of April 4 calling your attention to deterioration of lodge pole pine poles purchased in recent years from the Idaho Pole Company of Bozeman, Montana, and specifically the last paragraph of that letter stating that we were discontinuing the use of such poles until such time as a more effective drying and treating process was used.

Mr. Luchsinger has just advised me that the Northern Pacific receives about 500 carloads, involving revenue of approximately $200,000, per year from that company and that they are bringing considerable pressure to bear due to our failure to purchase poles from them during the past few months. The truth of the matter is that this department placed requisitions for and received poles for our 1957 work program prior to April, of which the Idaho Pole Company benefitted in fair proportion to other right of way companies with whom Mr. Smallridge places these orders. However, if we would have had additional need for poles since that time, the orders would not have been placed with the Idaho Pole Company due to the difficulties we investigated this past spring and covered in my letter of April 4.

While it is realized how important the business is that the Railway Company derives from this pole company; nevertheless, I am in a position where I am responsible both to the Northern Pacific and The Western Union Telegraph Company as most of the pole line is jointly owned and, therefore, Western Union pays 50% of pole replacement costs. From this it must be realized that the Telegraph Company is in a position to severely criticize us for constant replacement of poles every four or five years when other poles have been and can be obtained giving a life of from 35 to 40 years with the use of butt treatment.

I have this date written Mr. Ralph Hunter of the Idaho Pole Company inquiring as to whether or not their drying and treating methods have been improved since this matter was first brought to their attention in March, 1957. If his reply should indicate that improvement has been made, I will initiate requisition for future delivery of approximately 150 butt treated poles which we will require between Spokane and Sprague, Washington. This, according to Mr. Luchsinger, will ease the situation at least traffic wise.

When the requisition has been placed I will provide you with the necessary information so that your inspector can watch the matter closely at Bozeman.

cc: Mr. C. H. Burgess
Mr. W. K. Smallridge
Mr. W. J. Luchsinger
Mr. H. M. Schudlich

H. S. 10/4
H. E. Lee
HMS-REZ 10/7
to note & keep in mind. HRP 10/3

OFFICE OF
CHIEF ENGINEER
SEP 10 1957
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

St.Paul, Minnesota
September 9, 1957

2-47

Mr. H. R. Peterson:

Referring to your letter of August 22, file 3505, regarding the brochure presented by the Chapman Chemical Company entitled Pentachlorophenol for crossties.

On reviewing this brochure, I find that it is an attempt to introduce a 2½% concentration of Pentachlorophenol as a substitute for the standard 50-50 creosote petroleum mixture for the preservation of crossties. The logic followed in the preface of the brochure is not very stable, in attempting to establish the 2½% concentration of the Pentachlorophenol in comparison with the standard 50-50 creosote petroleum and the assumptions presented are speculative and questionable.

The service record presented in table 1 was based on fence posts and not ties which are subject to much more severe service condition. This service record also makes no mention of a 2½% penta concentration. Likewise the accellerated stake tests cover a 5% penta concentration not the 2½% concentration.

The data presented in the service record may also be considered incomplete as it shows a minimum retention of only 1.6 and 1.9 pounds per cubic feet for the creosote petroleum treated posts, but doesn't show how many of these posts received this low treatment. With this low retention, failures could be readily expected, and if the number of posts that failed are included in this group, the Test would be valueless. It is also noted that the average retention of the penta solutions is above that of the creosote petroleum solutions which would also effect results of the test.

Most of the test installations noted were of the standard five percent penta concentration, and as some of these date back to 1942, they could have been included in the service records to supplement the fence post date which is only 20 years old.

The attempt to reduce the standard 5% penta concentration to 2½% appears to be merely a means of justifying the use of the Pentachlorophenol on an initial cost basis rather than on the merits of the low concentration of the Pentachlorophenol.

RGZ:j

R. G. Zittlow
Engineer Timber Preservation

3505

OSMOSE WOOD PRESERVING CO.

OF AMERICA, INC.

Manufacturers of:
- OSMOSALTS
- OSMOPLASTIC
- PENTOX
- COP-R-NAP

GENERAL OFFICES: ~~980 ELLICOTT ST., BUFFALO 9, N. Y.~~ 1212 Regent St., Madison, Wisc.

OFFICE OF CHIEF ENGINEER
SEP 4 1957
NORTHERN PACIFIC RY.
ST. PAUL, MINN.

September 3, 1957

Mr. Walter Bjorklund, Asst. Ch. Engineer
Northern Pacific Railroad
St. Paul, Minnesota

Dear Mr. Bjorklund:

One of our Bridge Spray crews is to start work September 9th on Bridge 171 and 175 of the Chicago and Illinois Midland Railroad near Pekin, Illinois. This would be an opportunity to have one of your men view our work. I suggest that you contact Mr. N. E. Peterson, Chief Engineer, C. & I. M. R.R., at Springfield, Illinois to clear through proper channels if you have someone available to observe our methods. Our man in charge will be Mr. Scott Hockenberry and he will be staying at the Tazewell Hotel, Pekin, Illinois the week of September 9th.

Best regards,

John W. Storer

John W. Storer
Regional Manager and Forester

JWS:ch

OFFICE OF
CHIEF ENGINEER
JUL 26 1957
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

St. Paul, Minn.
July 26, 1957

3505

Mr. H. R. Peterson:

About use of Chapman Chemical Company product called K-BAN as a substitute for the osmoplastic treatment which we use on bottom of timber piles at ground line:

It is my understanding that the material used for the osmoplastic treatment costs about $1, as compared to the material cost of about $2.75 for the K-BAN application.

The labor cost of osmoplastic is about $7 per pile which includes the excavation of the ground around the piles, the cleaning-out of all the rotted materials around the piles, and the brushing-on of the material. The same operation applies to the K-BAN product except that it is not necessary to use the brush.

It is my opinion that the osmoplastic treatment using a brush, should attain a more thorough impregnation than the K-BAN product, also, the overall expense of the K-BAN application will probably be about $1.50 more per pile, and it is doubtful whether there will be any additional service life.

Papers are returned herewith.

C. E. Ellis

Bridge Engineer

CEE:a
enc.

7/26

3505-

OFFICE OF
CHIEF ENGINEER

JUL 3 1957

NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

St. Paul, Minn.
July 1, 1957

S-69-210
S-69-186

Mr. W. R. Bjorklund:

Your letter of June 26, 1957, file 3505-2 relative to test of osmoplastic as compared with creosote on adzed ties in Mpls. and as covered by Chief Engineers's Service Test No. 220.

I am returning herewith no scale sketch titled, Osmoplastic vs. Creosote Test Ties at MP 13x2536, Psg. Line, WBML, Mpls., Minn. , dated June 7, 1957 and revised July 1, 1957. I have marked a "C" on the sketch at the tie ends treated with creosote and an "O" at the tie ends treated with osmoplastic.

This should clarify as to where the osmoplastic and the creosote was placed.

Paul R Gibson
District Engineer

RA 5
1 Print of sketch
pls + file tracing.
RCM 7/5

REW
For service test
7/3

service test #220

St.Paul,Minn.
June 26, 1957

3505-2

Mr. P. R. Gibson:

Your letter of June 24, file S-69-210 and S-69-186 relative to test of osmoplastic as compared with creosote on adzed ties in Minneapolis and as covered by Chief Engineer's Service Test No. 220:

I am turning over the data to Mr. Nichols for his handling and obtaining the periodic reports.

It is not to clear to me what your sketch means. Does the dot indicate the end of the tie which was treated with osmoplastic and is the opposite end treated with creosote, or is the sketch intended to show both creosote and osmoplastic? I wish you would clarify this to Mr. Nichols, so that the Service Test may be handled properly.

H. R. PETERSON

Chief Engineer

WRB:j
cc Mr. R. E. Nichols

OFFICE OF
CHIEF ENGINEER
JUN 24 1957
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

3505-2

St. Paul, Minn.
June 24, 1957

S-69-210
S-69-186

Mr. W. R. Bjorklund:

Referring to your letter of February 12, file 3505, relative to setting up test of osmoplastic as compared with creosote on adzed ties, between Bridge 12.1 and 33 rd. Ave. N.E. Minneapolis.

Attached is copy of Mr. Pechmann's letter of June 19 with copies of Chief Engineer's Service Test No. 220 covering location between Station 108+31.4 to 112+14.2 WBML.

Paul R. Gibson
District Engineer

LJP:K
enc.

cc - Mr. G. J. Pechmann

6/25

S-69-210
S069-186

June 19-57

Mr. P. R. Gibson:

Please refer to your letter of Feb. 14, 1957 relative to setting upa Chief Engineer's Test to determine the value of osmoplastic as compared to creosote for use on tie surfaces adzed during relays.

The test was set up as stated in your letter and is Chief Engineer's Service Test No. 220.

Original service test papers and a no scale sketch showing the location of the test are attached hereto.

Please furnish me with one print of the location sketch.

G. J. PECHMANN
Division Engineer

N.P. 63 8-48

220
Chief Engr's Test No.

NORTHERN PACIFIC RAILWAY

SERVICE TEST RECORD

DATA SHEET

1. Appliance or product under test osmoplastic

2. Manufactured by Osmose Wood Preserving Co.

3. Samples obtained from Same

4. Quantity under test 12 Ties

5. Purpose of test Service test todetermine the value of osmoplastic as compared to creosote for use on tie surfaces adzed during relays.

6. Location of test (Division and nearest town, also structure or mile post location) St. Paul Division- Mpls. - Passenger Line- See attached sketch titled Osmoplastic Tests Passenger Line N.P.R.R.M.L. Mpls. Dated June 7, 1957.

7. To be carried on under supervision of and reported on by District Engineer

8. Duration of test. (Indicate if final report only is required and date it should be made, or if progress reports are required and dates they should be made.) 12- Ties were adzed prior to relay one end of tie was trt'd. with osmoplastic the other end trt'd. with creosote - 3 ties to be cut yearly at location of treatment so that depth of penetration etc. can be observed.

9. Test started June 7, 1957 completed June 7, 1961

10. Make progress reports, remarks and conclusions on Report Sheets, (Form 64).

N.P. 63 8-48

220
Chief Engr's Test No.

NORTHERN PACIFIC RAILWAY

SERVICE TEST RECORD

DATA SHEET

1. Appliance or product under test osmoplastic

2. Manufactured by Osmose Wood Preserving Co.

3. Samples obtained from Same

4. Quantity under test 12 Ties

5. Purpose of test Service test todetermine the value of osmoplastic as compared to creosote for use on tie surfaces adzed during relays.

6. Location of test (Division and nearest town, also structure or mile post location) St. Paul Division- Mpls. - Passenger Line- See attached sketch titled Osmoplastic Tests Passenger Line W.R.M.L. Mpls. Dated June 7, 1957.

7. To be carried on under supervision of and reported on by District Engineer

8. Duration of test. (Indicate if final report only is required and date it should be made, or if progress reports are required and dates they should be made.) 12- Ties were adzed prior to relay one end of tie was trt'd. with osmoplastic the other end trt'd. with creosote - 3 ties to be cut yearly at location of treatment so that depth of penetration etc. can be observed.

9. Test started June 7, 1957 completed June 7, 1961

10. Make progress reports, remarks and conclusions on Report Sheets, (Form 64).

St. Paul, May 3, 1957

File: 3505

Mr. R. G. Zietlow:

Mr. Ekberg, Bridge Engineer, while at recent meeting of AREA Committee 15 on steel bridges, was advised that recent tests of creosoted timber bridges, which included a fire-resistant mixture with the creosote, indicate possibility of having secured a treating mixture to offer both preservative and fire-resistant qualities.

I suggest you closely follow up these tests to determine benefits to be derived for our consideration and adoption at the earliest possible date.

I have noticed in a number of recent F-27 reports several of our T&T creosoted poles have been destroyed by grass fire.

HRP/jwm

H. R. PETERSON

3505

OFFICE OF
CHIEF ENGINEER
MAY 7 1957
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

St. Paul, Minn.
May 3, 1957

Mr. D. C. Hill:

Referring to the various correspondence concerning the treatment of lodgepole pine poles by the Montana Pole & Treating Company and the Idaho Pole Company with pentachlorophenol.

I am attaching herewith for your information two copies of the inspection reports covering the inspection of the treatment of these poles.

H. M. SCHUDLICH
Engineer Water Service

HMS/k
enc.

cc: Mr. W. K. Smallridge
Mr. H. R. Peterson

Livingston, April 18, 1957

Mr. A. J. Loom:

The following orders were treated by the Montana Pole & Treating Plant on March 19th, 20th and 21st:

Purchase Order	Number	Class	Length	
157 - 2348	119	7	16'	(45 of these were
(To Jamestown)	85	7	20'	-- (treated 2/25/57
	25	7	25'	(with PO 1256-1247
	16	7	30'	
	2	7	35'	
	1	7	40'	
257 - 1562	12	3	35'	
(To Staples)	4	3	40'	

The treating solution used on the above orders was checked and the following results noted by analyses:

(A Western Electric Inspector)
Pentachlorophenol - 5.03% (found 5.04% on same solution)

Cores taken indicate the oil penetration to be from 3/4" to 1¼" with the average being at 1"

Attached to Mr. Schudlich's copy of this letter is a copy of the treating record for the above two orders. It is noted that the treating engineer's record of the contents of the charges does not balance out with the order, especially when consideration is taken of the 45 poles treated with PO 1256-1247 in February. However, it is being sent along for what it is worth.

(Readings taken before treatment)

Corrected moisture meter readings taken on cross section of poles at ground level - %

Pole	Order	Depth ½"	1"	1½"	2"	2½"	3"
1	157-2348	19	22	23	24	26	26
2	"	24	24	24	25	25	25
3	"	14	14	15	15	16	16
4	"	15	15	15	15	16	16
5	"	13	13	15	15	16	16
6	"	14	14	15	15	15	15
7	"	22	23	24	26	26	26
8	"	24	24	25	24	23	24
9	"	23	23	24	24	25	26
10	"	22	24	24	25	26	26

Mr. A. J. Loom - April 18, 1957 - Sheet No. 2

Pole	Order	Depth ½"	1"	1½"	2"	2½"	3"
11	157-2348	18	18	20	20	20	22
12	"	16	16	17	18	18	19
13	"	22	22	24	26	26	26
14	"	21	22	22	23	24	26
15	"	22	23	24	26	27	27
16	"	23	24	26	26	26	26
17	"	19	19	20	22	24	26
18	"	20	21	22	22	24	24
19	"	23	24	24	26	26	25
20	"	23	24	24	24	24	24
21	"	15	16	16	16	19	19
22	"	20	22	24	24	24	24
23	"	22	22	24	24	24	24
24	"	23	23	24	24	24	24
25	"	24	28	29	29	29	29
26	"	16	16	16	17	17	17
27	"	16	16	17	17	18	18
28	"	24	28	29	28	28	29
29	"	17	18	18	18	19	20
30	"	16	18	18	18	19	19
31	" (Class 7/40')	29	29	29	30	32	33
32	"	19	21	22	22	22	22
33	"	16	16	18	18	18	18
34	"	18	18	19	20	20	20
35	"	18	20	22	23	24	24
36	"	16	16	20	20	20	20
37	"	16	16	18	18	18	18
38	"	16	16	16	18	18	18
39	"	16	18	18	18	19	20
40	"	17	19	20	20	21	22
41	257-1562	22	24	24	24	26	26
42	"	23	24	24	24	24	26
43	"	24	26	28	28	29	30
44	"	23	26	26	26	27	28
45	"	26	28	27	28	28	29
46	"	26	26	26	26	26	27
47	"	24	26	26	26	27	27
48	"	24	23	28	28	28	29
49	"	25	26	27	28	30	30
50	"	26	28	28	28	28	29

cc - HMS ✓
JLG

W. J. Brown
Water Inspector

Livingston, April 17, 1957

Mr. A. J. Loomis

The following order was treated by the Montana Pole & Treating Plant at Butte on February 25, 1957

Purchase Order No. 1256-1247 (To Garrison)

8	Class	5	poles, 35'	long
5	"	5	" 40'	"
8	"	5	" 45'	"
1	"	5	" 50'	"

(Also treated with this order were 43 poles for PO 157-2548. Balance of this order treated March 19th)

The treating solution used on the above orders was checked and the following results noted by analyses:

Pentachlorophenol - 5.03%

Cores taken indicate the penetration to be from 3/4" to 1½" with the average at 1".

Corrected moisture meter readings taken on cross section of poles at ground level - %

Pole		Depth ½"	1"	1½"	2"	2½"	3"
1	Class 5	26	30	27	31	30	30
2	"	24	28	28	29	30	30
3	"	27	32	30	28	29	32
4	"	25	26	27	27	27	29
5	"	21	24	24	26	27	28
6	"	17	18	19	20	20	24
7	"	25	24	24	23	24	27
8	"	26	27	27	27	27	28
9	"	27	27	28	30	32	33
10	"	22	23	24	26	28	30
11	"	25	26	27	29	28	29
12	Class 7	17	16	18	18	19	22
13	"	17	16	18	18	19	20
14	"	18	19	20	21	21	22
15	"	18	18	19	19	20	25
16	"	18	19	20	25	26	27
17	"	16	16	17	17	17	17
18	"	19	18	20	20	22	25
19	"	14	15	15	16	22	26
20	"	17	17	17	18	18	18

Moisture meter tests taken before treatment in retorts it takes considerable time for poles to cool uniformly to get accurate readings after treatment.

W. T. Brown
Water Inspector

cc - RMS, JLG

Livingston, April 17, 1957

Mr. A. J. Loom:

The following orders were treated by the Idaho Pole Company at Bozeman on February 21st and 22nd:-

Purchase Order No.	Number	Class	Length
1256-1246	8	5	20'
(To Garrison)	410	5	25'
	25	5	30'
	1	3	30'
257-410	2	5	35'
(To Livingston)	1	3	45'

The treating solutions used on the above orders were analyzed with the following results noted:

Hot oil bath ..... 5.28% pentachlorophenol
Cold " " ..... 5.34% "

The poles in the hot oil bath were raised from 180° to 235° over a period of 8 hours and then kept in the cold oil bath at a temperature of 180° for 3 hours. Cores taken indicate the oil penetration to be from 1" to 1¼" with the average to be at 1-1/8".

Corrected moisture meter readings taken on cross section of poles at ground level - Percent

	Depth					
Pole No.	½"	1"	1½"	2"	2½"	3"
1	15	15	16	16	17	17
2	12	12	13	14	14	14
3	12	13	13	13	14	15
4	14	14	15	16	16	16
5	14	14	14	15	16	16
6	16	16	16	15	16	17
7	15	16	16	17	18	19
8	13	14	15	16	16	17
9	12	12	13	15	17	18
10	14	15	15	16	16	19
11	14	15	14	17	18	19
12	15	17	19	19	19	20
13	16	17	19	20	21	21
14	17	17	18	18	19	19
15	15	16	17	17	18	18
16	14	15	15	17	18	19
17	14	16	19	20	21	22
18	15	17	17	19	19	20
19	15	16	18	19	20	21
20	16	17	17	20	21	25

W T Brown
Water Inspector

cc - HMS - JLG

Livingston, April 17, 1957

Mr. A. J. Loom:

The following order was treated by the Idaho Pole Company at Bozeman on March 29th:

Purchase Order No. 357-689 (To Livingston)

4 Class 5 poles, 35' long
4 " 6 " 25' "

The treating solutions used on the above order was checked and the following results noted by analyses:

Hot oil bath ..... 5.24% pentachlorophenol
Cold " " ..... 5.19% "

The poles in the hot oil bath were raised from 180° to 235° over a period of 6½ hours and then kept in the cold oil bath of 190° for 5¼ hours. Cores taken indicate the oil penetration to be from 1" to 1½" with the average at 1¼".

Corrected moisture meter readings taken at ground level - %

Pole	Depth ½"	1"	1½"	2"	2½"	3"
1	22	22	22	24	24	25
2	20	22	22	23	24	23
3	18	20	20	22	22	22
4	18	18	20	21	21	21
5	20	22	24	25	26	26
6	22	22	24	25	26	26
7	20	22	24	25	26	26
8	20	20	22	23	23	24

W. I. Brown
Water Inspector

cc - RMS
JLG

St. Paul, Minnesota
April 8, 1957

File: 3505

Mr. D. C. Hill:

Referring to your recent correspondence, files 89, 16-Western, and 18-Poles, in regard to deterioration of lodgepole pine poles.

You furnished Mr. Loom copy of your letter of April 4. For your further information, attached is copy of Mr. Loom's letter of April 5 in regard to your letter. The AWPA papers and Forest Products Bulletin No. D-1619 are attached for your review, your time permitting.

I note Mr. Loom does not request return of these papers.

HRP/jwm
attachments

H. R. PETERSON

OFFICE OF
CHIEF ENGINEER
APR 6 1957
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

3505

Brainerd, Minnesota, April 5th, 1957

Mr. H. R. Peterson:

Referring to Mr. Hill's letter of April 4, reporting failure of butt-treated lodgepole pine poles in our lines and full length treated lodgepole pine poles on the Union Pacific.

Mr. Hill states that the Northern Pacific poles were treated with Penta and the Union Pacific poles were treated with creosote, 8 pounds per cubic foot.

Judging by the samples of treated wood taken from the decayed N.P. poles, I am of the opinion that their failure was due to deficiency in the preservative rather than in the quality of the original wood.

From all information I have been able to obtain, I believe sound lodgepole pine poles properly air seasoned and pressure creosoted full length in accordance with AREA specifications should resist decay as long as properly creosoted poles of any other species.

I think it is definitely proven that no other preservative protects wood from decay in contact with the soil as efficiently or as economically as the AREA standard creosote we are using at our own plants.

It is our practice to make a fractional analysis of the contents of every tank car or boat load of creosote received and a weekly analysis of oil in the storage and working tanks at each plant to assure that it complies with AREA specifications.

Aside from attention to quality of the preservative used, poles of any species must be adequately seasoned to assure uniform depth of penetration as well as the required absorption per cubic foot in treatment by any process. Many failures of treated wood are caused by carelessness in treatment with any preservative.

The attached Forest Products Laboratory bulletin No. D1619 entitled "Fiber Stresses for Wood Poles" includes more information than anything else I have pertaining to the physical characteristics and strength properties of lodgepole pine poles, compared with poles of other species.

I am also enclosing some AWPA papers explaining the importance of seasoning and proper treatment of poles of any species of timber.

Cy DCH w/attach.

AJL/dm

OFFICE OF
CHIEF ENGINEER
APR 4 1957
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

Saint Paul, Minnesota
April 4, 1957

89
16-Western
18-Poles

Hold for advice from AJL
HRP 4/4

Mr. H. R. Peterson:

Referring to your letter of March 29, file 3505, in reply to mine of March 21, in connection with deterioration of lodgepole pine poles of which we have been using a considerable number in recent years. Mr. Loom's letter to you March 25 states that he is thoroughly convinced that the standard treatment at our own plants assures most satisfactory and economical results; however, investigation which I have been making indicates that it is quite apparent that neither creosote nor penta treatment would prevent deterioration of the lodgepole pines.

As an example: the defective poles which we have found were butt penta treated; but, on the other hand, in a letter dated March 29, Superintendent G. R. VanEaton of the Union Pacific Railroad wrote me as follows in connection with lodgepoles treated with 8 lb. creosote penetration:

> "The poles were full treated Douglas fir and lodgepoles with 8 lb. creosote penetration." (These were set in 1949.) "In 1956, we noticed that some of the poles were broken off and upon making a complete inspection of the line, we found we had set about 140 lodgepole pines pressure treated with 8 lb. retention creosote. Of the 140 poles, about 115 of them were defective, having broken off at the ground line. The wood in the poles below the ground line was soft and could be dug into with the fingers or a screwdriver. The poles above the ground were perfectly solid and appear to be in as good condition as the day they were set.
>
> "In 1948, we completely reconstructed our pole line between Los Angeles and Riverside, California, a total distance of 55 miles . . . . This line consists of Class 3 and Class 4 poles, body of line being 30 feet. The poles used were Douglas fir and a few lodgepole pines, both types being full treated poles with 8 lb. creosote retention.
>
> "There was considerable wind in the vicinity of Riverside last year and a number of the lodgepole pine poles broke off at the ground line. In inspecting the line, we found we had about 150 lodgepoles in it, of which over 100 were punklike and soft below the ground level. The tops of these poles appeared to be in as good condition as when they were set.
>
> "We have handled this matter with the supplier, but have not been able to determine why the poles broke off at the ground line in such a short period of time.
>
> "We have set a large number of lodgepole pines in our line between 1950 and 1955, but the above two instances are the only ones where poles were found defective.

"We have discontinued the use of lodgepole pines and are using Douglas fir and Southern yellow pine poles full pressure treated."

In view of our experience and that of the Union Pacific, it is apparent that neither type of treatment is successful with lodgepole pine; and, therefore, effective immediately this department will discontinue the use of such poles. Until such time as a more effective treatment is found, Western Cedar poles will be ordered exclusively. There no doubt will be some repercussions trafficwise from the Idaho Pole Company, but in view of the economics involved to both the Northern Pacific and The Western Union Telegraph Company I have no alternative but to discontinue the use of these poles.

M. E. Lee

cc: Messrs. C. H. Burgess
W. K. Smallridge
H. M. Schudlich
A. J. Loom

St. Paul, Minnesota
March 29, 1957

File: 3505

Mr. D. C. Hill:

Referring to my copy of your letter of March 21, file 89, to the Idaho Pole Company about butt penta treated lodgepole pine telegraph poles set between Helena and Garrison in 1948.

Copy of your letter was referred to Messrs. Loom and Schudlich with request for their comments or recommendations. For your information and file, attached is copy of Mr. Loom's letter of March 25 and Mr. Schudlich's letter of March 26 which are self-explanatory.

HRP/jwm
attachments

H. R. PETERSON

OFFICE OF CHIEF ENGINEER
MAR 29 1957
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

3505

St. Paul, Minnesota
March 26, 1957

Mr. H. R. Peterson:

Referring to my copy of your letter of March 22, File 3505, to Mr. Loom which referred to your copy of Mr. Hill's letter to the Idaho Pole Company concerning serious decay of the poles at and below ground line between Helena and Garrison.

I believe that your letter of Oct. 3, 1956, to Mr. Hill covered the situation in quite some detail. The samples of the decayed poles which I have in my office indicate to me that they were butt treated using a No. 2 oil with creosote butt treated.

I can appreciate why the Communication Department would not want poles treated with creosote as whenever a bleeder is encountered the men will refuse to climb these poles and they no doubt will become covered with creosote and develop allergic reactions. Further, the creosoted poles are slippery and probably more dangerous to climb than the penta-treated poles.

Our tests made with the moisture meter and checking the penta treatment at the Bozeman plant have indicated that seasoning and treatment on the poles we are now receiving is satisfactory.

I agree with Mr. Loom that creosote treatment probably is superior to pentachlorophenol treatment for poles but under the circumstances I believe that the Communication Department would insist that we continue purchasing the penta-treated poles.

H. M. Schmaltz
Engineer Water Service

HMS/k
Cy DCN

OFFICE OF
CHIEF ENGINEER

MAR 26 1957

NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

3505

Brainerd, Minn., March 25th, 1957

Mr. H. R. Peterson:

In reply to yours of March 22nd, with reference to copy of Mr. Hill's letter of the 21st to the Idaho Pole Company reporting failure of Penta treated lodgepole pine poles after nine years service.

In view of the fact that lodgepole pine poles should last almost that long without any treatment, I agree with you that this is a disturbing situation, especially since so many lodgepole pine poles have now been placed that were treated in the same manner.

Purchase of poles treated with a solution of 5% pentachlorophenol in light petroleum has continued contrary to our recommendations and I believe your file on this subject will confirm the following statements.

After thorough investigation of treatment with pentachlorophenol at commercial treating plants and our recommendations to treat poles for the Communications Department at our own plants with creosote-petroleum solution, Mr. Blum wrote Mr. Willis on September 17, 1951 as follows:

> "I understand that requisitions for creosote treated telegraph poles are being filled by furnishing poles treated by the pentachlorophenol method. Are there reasons for using this method?"

On September 18, 1951, Mr. Willis replied that he was in no position to answer, etc.

On September 23rd, Mr. Blum wrote to Mr. Steinbright as follows:

> "It is my understanding from what you have said to me that Mr. Turner will furnish the proper wording on the standard stock list and possibly you will make your requisitions up henceforth to cover poles treated with 50% creosote and 50% fuel oil, full pressure treated."

Subsequent correspondence indicates that purchase of Penta non-pressure treated poles from the Idaho Pole Company at Bozeman and Penta pressure treated poles from the Montana Pole and Treating Company at Butte continued regardless of the recommendations to treat all of our poles with creosote or with creosote-petroleum solution.

We have been unable to determine that it has been impossible in recent years to obtain requirements in other than penta treated poles or that treatment with pentachlorophenol costs less than treatment with creosote-petroleum solution.

For the reasons explained in my previous letters, I do not recommend the use of penta treated wood to resist decay in contact with the soil and I am thoroughly convinced that our standard treatment at our own plants assures most satisfactory and economical results.

AJL;rwm
Copy - Mr. H. M. Schudlich
Cy to C14

St. Paul, Minnesota
March 22, 1957

File: 3505

Mr. A. J. Loom:

For your information and file, attached is copy of Mr. Hill's letter of March 21 to Idaho Pole Company in regard to decay of their penta butt-treated lodgepole pine telegraph poles between Helena and Garrison which were set in 1948.

This is a rather disturbing situation. Do you have any comments or recommendations?

H. R. PETERSON

HRP/jwm
attachment

cc: Mr. H. M. Schudlich, w/attach.

3505

OFFICE OF
CHIEF ENGINEER
MAR 22 1957
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

Saint Paul 1, Minnesota
March 21, 1957

89

Idaho Pole Company
Bozeman, Montana

Gentlemen:

Recent inspection of some butt penta treated lodgepole pine set between Helena and Garrison in 1948 indicates a very serious deterioration of these poles at and below ground line. The samples which I obtained indicated that the wood throughout the entire diameter of these poles below ground line showed there was no strength remaining and that the wood had assumed a soft punk-like condition.

I had an opportunity recently to discuss this matter with a Union Pacific Railroad communications officer and he indicated that his company also was experiencing similar difficulty on poles set as recently as 1950 and 1951. This leaves little doubt that the condition is serious in view of the number of lodgepoles we have been using the last six or seven years.

A thorough investigation of this matter will have to be made and I would appreciate any comments you might wish to make in the meantime.

Very truly yours,

D. C. Hill

cc: Mr. H. R. Peterson
Cy a J L
HMS
DCH.

OFFICE OF
CHIEF ENGINEER
MAR 15 1957
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

St. Paul, Minnesota
March 13, 1957

143-2

Mr. H. R. Peterson:

Referring to your letter of January 10, File 3505, concerning Chapman Chemical Company Newsletter No. 17 covering a method for determining the penetration of pentachlorophenol-petroleum solutions in treated wood.

The test set from Chapman was received and I forwarded it to Mr. Brown for test. He advises that the material was very effective and the method better than the Wood Treating Chemicals Company method. We will therefore use this test for all future inspections of penta-treated material.

H. M. Schmaltz
Engineer Water Service

HMS/k

3505

March 8th, 1957

OFFICE OF
CHIEF ENGINEER
MAR 9 1957
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

Lieutenant B. Crane
Contracting Officer
U.S. Naval Ammunition Depot
Crane, Indiana

Dear Lt. Crane:

Referring to your letter of February 26, to Northern Pacific Railway, St. Paul, Minnesota, about splitting of creosoted ties, which was forwarded to this office for reply.

It is our standard practice to buy green ties for delivery to our treating plants during the fall and winter months for seasoning the following summer and treatment in the fall and winter for use the following year. Ties received at the plants previous to April, 1956 are seasoned and are now being treated for use in 1957.

Ties are stacked in our seasoning yards in the usual 1 X 9 manner and crinkled and ribbed "S" and "C" anti-checking irons are applied as soon as possible after ties are piled for seasoning.

Hardwoods treated at our Brainerd, Minnesota plant are most susceptible to checking and splitting. Obviously all ties in the piles cannot be reached for proper application of anti-checking irons and we find about half of one percent of our hardwoods will split during seasoning or in treatment and such ties are separated and moved to our tie reclaiming machine where they are squeezed together and bolted at the ends with 3/4" bolts, nuts and washers.

There are many commercial plants who are in position to sell you treated ties to comply with your specifications but I do not know of any tie producers in position to sell you seasoned untreated ties.

A. J. LOOM
Gen'l. Supt. Timber Preservation

AJL/dm

Mr. H R Peterson:
This in compliance with your letter 3/7-57

St. Paul, Minnesota
March 2, 1957

File: 3505

Mr. A. J. Loom:

Attached is print copy of letter from the U. S. Naval Ammunition Depot, Crane, Indiana, dated February 26, requesting advice re tie splitting.

Will you please reply directly to Lieutenant B. Crane and let me have two copies for my file?

HRP/jwm
(Dictated)
attachment

H. R. PETERSON

10473
3505

St. Paul, Minnesota
February 14, 1957

S-69-210
S-69-186

Mr. C. J. Pechmann:

Attention: Mr. W. R. Bjorklund

We have been requested to set-up a Chief Engineer's Service Test to determine the value of osmoplastic as compared to creosote for use on tie surfaces adzed during relays.

The track from Br. #12.1 to 33rd Avenue MP 12.7 to 14.8, Minneapolis Terminals is to be relaid and ballasted in 1957 and this appears to be a desirable location for this test.

As per our conversation, will you pick out 12 ties for the test. These ties should be in reasonably good condition, probably 4 or 5 years old, and should have been adzed during the 1957 relay in order to place them in a condition for the test.

The adzed portion under one rail should be treated with creosote and the adzed portion under the other rail with osmoplastic. It would be well to alternate the sides in which the treatment is made and to mark the ends with the osmoplastic treatment with one of the metal tags showing the year similar to the tags used for treating piles.

It is the intention to remove 3 of the ties after one year and cut them at the location of the treatment so that depth of penetration etc. can be observed. It might also be well to take some kind of a test to determine whether or not there is a difference in surface hardness between the two materials.

The balance of the ties should be removed and inspected at yearly intervals, 3 each year until the 12 ties have been inspected.

Will you arrange to obtain the osmoplastic from the B&B Supervisor so that it will be on hand, supervise the start of the test during the 1957 relay and prepare the original service test papers.

P. R. GIBSON

District Engineer

PRG/p
cc: Mr. H. R. Peterson

St. Paul, Minnesota
February 12, 1957

3505

Mr. P. R. Gibson:

Do not overlook setting up your test of Osmoplastic as compared with creosote on adzed ties. I would suggest that about a dozen ties coated with Osmoplastic on one side and creosote on the opposite end would adequately fulfill this test. It would appear that the relay between Bridge 12.1 and 33rd Ave. N.E., Minneapolis, would be a good spot to check.

Of course, this comes about by the fact that there is some question of how much actual penetration we get by a brush application of creosote on a tie. We know that brush-treated timber placed in bridges did not add materially to the life of those structures and it is very probable that we are not getting any actual penetration of creosote into the wood along the adzed surface of tie. On the other hand, Osmoplastic is reputed to have a penetration action through osmosis. Therefore, we would allow the test to run for - say 4 or 5 years - in checking the penetration of the creosote as compared with the Osmoplastic.

W. R. BJORKLUND

WRB:m

Train 2, Rocky Mountain Divn.
February 2, 1957

File: 3505

Mr. A. J. Loom:

Returning letter dated January 21 from Mr. L. W. Kistler, Tie and Timber Agent, St. Louis - San Francisco Ry. Co., and referring to your letter of January 11 about possibility of incising, in transit, at our Paradise treating plant, bridge timbers, etc.

This matter was referred to Mr. Burgess. His reply of January 30 advised, in part, as follows:

"If it is necessary that you reply further to Mr. Kistler, I suggest that you advise him that we are not, under the circumstances, interested in doing this work for them."

You have previously advised Mr. Kistler that we are not equipped at the Paradise plant to handle incising of heavy timber materials. I do not see that there is anything further that can be progressed in this matter.

HRP/jwm
attachment

H. R. PETERSON

N.B. Returned also is Mr. Kistler's letter of January 9 to you with Routing Instructions DX-202.

3505

OFFICE OF
CHIEF ENGINEER

JAN 31 1957

NORTHERN PACIFIC RY. CO
ST. PAUL, MINN.

St. Paul, January 30, 1957

1720

Mr. H. R. Peterson:

Please refer to your letter of January 27, and previous letters, in connection with request from Mr. L. W. Kistler, Tie and Timber Agent, St. Louis-San Francisco Railway Company, that we consider the incising of their bridge timbers at our Paradise plant.

If it is necessary that you reply further to Mr. Kistler I suggest that you advise him that we are not, under the circumstances, interested in doing this work for them.

C. A. Burgess.

At Seattle, Washington
January 27, 1957

File: 3505

Mr. C. H. Burgess:

Referring to my letter of January 14 in regard to letter dated January 9 from Mr. L. W. Kistler, Tie and Timber Agent, St. Louis - San Francisco Railway Co., in regard to incising their bridge timbers at our Paradise plant while en route over our lines to their destination.

Mr. Kistler, in his letter of January 21 to Mr. Loom, advised, in part, as follows:

"As we mentioned in our previous letter, we have never had sufficient volume to feel we were justified in having a timber incisor installed and consequently doubt if our volume would be sufficient to justify your making any capital expenditure. During the past 5 or 6 years, our purchases of timbers requiring incising has ranged from 4 to 69 per year averaging about 25 cars annually. Frankly, I doubt if our average over the next 5 or 10 years will be more than 12 or 15 cars.

"It is of course possible that there might be some other railroads in this area who have treating contracts but who might be interested in obtaining their untreated fir timbers incised in transit."

In view of the circumstances involved, there is nothing further we can do in this matter unless revised routing instructions are possible for handling carloads over our line with provision for incising in transit at our Brainerd plant and transfer of carloads to other lines at St. Paul for delivery to Frisco Lines at Kansas City.

HRP/jwm

H. R. PETERSON

OFFICE OF
CHIEF ENGINEER
JAN 23 1957
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

St. Paul, Minnesota
January 23, 1957

Mr. H. R. Peterson:

Referring to your letter of January 20, file 3505 concerning the Chapman Chemical Co. newsletter of January 15, concerning a new method for determining penetration of pentachlorophenol-petroleum solution in treated wood.

I have today written to the Chapman Chemical Co. over your signature asking them to furnish us with a trial quantity of the calcium stearate-dye mixture with the puff duster and I will arrange to have Mr. Brown make a test with this equipment.

Heretofore, we have been using a method devised by the Wood Treating Chemicals Co. of St. Louis. This method, although partially satisfactory, does not appear quite as practical as that which is outlined in Chapman's newsletter #17. As soon as the equipment arrives, I will forward to Mr. Brown for his use.

H. M. Schmidlin
Engineer Water Service

HMS:c

3505

FRISCO

ST. LOUIS-SAN FRANCISCO RAILWAY COMPANY
PURCHASING DEPARTMENT
906 OLIVE STREET, ST. LOUIS 1, MISSOURI

H. E. MARTIN, PURCHASING AGENT
E. W. GATZERT, ASST. PURCHASING AGENT
H. M. COMPTON, ASST. PURCHASING AGENT
L. W. KISTLER, TIE AND TIMBER AGENT

January 21, 1957

DX-110-11

OFFICE OF CHIEF ENGINEER
JAN 24 1957
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

Mr.A.J.Loom
Gen.Supt.Timber Preservation
Northern Pacific Ry.Co.
Brainerd,Minnesota

Dear Mr. Loom:

Thanks for your recent letter replying to our file DX-110-11 of January 9th in regard to possibility of incising fir bridge timbers for us at Paradise,Montana.

As we mentioned in our previousletter, we have never had sufficient volume to feel we were justified in having a timber incisor installed and consequently doubt if our volume would be sufficient to justify your making any capital expenditure. During the past 5 or 6 years, our purchases of timbers requiring incising has ranged from 4 to 69 per year averaging about 25 cars annually. Frankly, I doubt if our average over the next 5 or 10 years will be more than 12 or 15 cars.

It is of course, possible that there might be some other railroads in this area who have treating contracts but who might be interested in obtaining their untreated fir timbers incised in transit.

Yours very truly,

L.W.Kistler

LWK:GH

Mr A J Loom
Referring to my letter of Jan 11 and
my reply to Mr Kistler letter of
the 21st of which you have copies

Train 1, St. Paul Division
January 20, 1957

File: 3505

Mr. H. M. Schudlich:

Attached is Chapman Chemical Company letter of January 15 with their Technical Newsletter No. 17 addressed to the Wood Preserving Industry and refers to an easy method for determining penetration of Pentachlorophenol-Petroleum solutions in treated wood.

According to their information, the suggested test procedure is applicable to recently treated timber and also treated materials which have been exposed for two or three years.

You may be interested in passing this information to your Water Service Inspectors responsible for testing treatment of new poles.

Mr. Hill may be interested in regard to testing poles which are in service and indicating defective treatment or attack due to soil conditions.

HRP/jwm
attachment

H. R. PETERSON

St. Paul, Minnesota
January 14, 1957

File: 3505

Mr. C. H. Burgess:

For your information, print copies of the following attachments are submitted herewith:

L. W. Kistler's (St. Louis-San Francisco Ry. Co. Tie & Timber Agent) letter of January 9,with copy of their present Routing Instructions, to Mr. Loom; the latter's reply of January 9 to Mr. Kistler; and Mr. Loom's letter of January 11 to me, in regard to incising bridge timbers.

I concur with Mr. Loom that the present incisor at our Paradise plant is not satisfactory for handling bridge timber materials.

In the meantime, this matter may be held in abeyance until further information is received from Mr. Kistler as referred to in Mr. Loom's letter.

HRP/jwm
attachments

H. R. PETERSON

OFFICE OF
CHIEF ENGINEER
JAN 12 1957
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

3505

Brainerd, Minnesota, January 11th, 1957

Mr. H. R. Peterson:

Referring to the attached letter of January 9, the accompanying routing instructions and copy of my reply today to Mr. L. W. Kistler, Tie and Timber Agent of the St. Louis & San Francisco Railway about the possibility of incising bridge timbers for them at our Paradise plant.

It seems doubtful if the valume of traffic involved in this proposition would justify the cost of providing the additional equipment that would be required at Paradise to permit us to derive any profit from it.

Present facilities at Paradise are adequate for our present needs and until our own requirements at that plant increase to justify the cost of a modern incisor and a crane, we will not be in position to accept a proposition of this kind without assurance that enough additional traffic will be derived to make it pay.

You will note I have informed him that we have facilities at Brainerd.

AJL/dm

Cy C H B

January 9, 1957

Mr. L. W. Kistler
Tie and Timber Agent
St. L. & S. F. Railway
906 Olive Street
St. Louis 1, Missouri

Dear Mr. Kistler:

In reply to your letter of January 9, about the possibility of incising in transit at our Paradise, Montana, plant, Douglas Fir bridge timbers, purchased in the West Coast District and routed to Springfield, Missouri, for preservative treatment.

We have at our Paradise plant only a light type tie incisor, intended originally for cross ties and switch ties and although we do incise some bridge ties and lumber at this plant, we do not have facilities for either mechanical handling or incising bridge stringers, caps and larger timbers at this plant.

Most of our bridge material and large timbers are incised and treated at our Brainerd, Minnesota plant and at Seattle, Washington, by the West Coast Wood Preserving Company, where ample facilities are provided.

However, in view of the traffic involved I am forwarding your letter to our Management and if you will let me know the approximate volume of this material I will be in better position to submit our recommendations.

Yours truly,

AJL/dm

A. J. LOOM
Gen'l. Supt. Timber Preservation

Copy - Mr. H. R. Peterson
Cy CH B

FRISCO

ST. LOUIS-SAN FRANCISCO RAILWAY COMPANY
PURCHASING DEPARTMENT
906 OLIVE STREET, ST. LOUIS 1, MISSOURI

H. E. MARTIN, PURCHASING AGENT
E. W. GATZERT, ASST. PURCHASING AGENT
H. M. COMPTON, ASST. PURCHASING AGENT
L. W. KISTLER, TIE AND TIMBER AGENT

January 9, 1957

DX-110-11

Mr.A.J.Loom,
General Supt.Timber Preservation
Northern Pacific RR.
Brainerd,Minnesota

Dear Mr. Loom:

Most of our large bridge timbers are purchased in Douglas Fir but we have never had sufficient volume to feel we were justified in having a timber incisor installed at the Springfield,Missouri treating plant where this treatment is done. Quite a few years ago, I worked out an arrangement with the Burlington whereby they incised these timbers for us at their Sheridan, Wyoming plant. They performed this on a very reasonable basis since by so doing, they assured themselves of the routing on all of these timbers from Laurel to Kansas City. Also by reason of this routing, the timbers moved about equally between your railroad the Northern Pacific and the Great Northern.

As you know, the Burlington has discontinued operation of the Sheridan treating plant and most of the commercial treaters are reluctant to handle the incising for us unless they also get the treatment. Believe you are equipped at Paradise, Montana, to incise large timbers so was wondering if you thought perhaps we might work out a similar arrangement for incising there. This of course would have to be worked out with your Traffic Department and I am attaching for your information, in duplicate, routing instruction form which we used in connection with routing timbers through Sheridan for incising. It would be my thought that we would use a similar type of form covering incising at Paradise if these arrangements could be worked out.

Yours very truly,

LWK:GH
Cy CM B

ST. LOUIS-SAN FRANCISCO RAILWAY COMPANY

Purchasing Department

DX-202

ROUTING INSTRUCTIONS

The timbers on the attached order_____are to be incised in transit at Sheridan, Wyoming. They must originate at points and on lines where through tariffs permit incising in transit at Sheridan when the final destination is Seneca, Missouri. (Milwaukee origins do not permit this).

Cars should be billed as follows:

Consigned to: St.Louis-San Francisco Ry. Co.,C/o A.G.Denham,G.S.K.
Destination: Sheridan (for incising). State of: Wyoming.
Route: (Show intermediate carriers), Frisco - Final destination Seneca, Missouri.

In the body of the bill of lading, please be sure to also show "Final destination Seneca, Mo." which is the same notation we wish made after routing as shown above.

You will please advise the Chicago, Burlington & Quincy RR. Agent at Sheridan, with copy to us, car number and contents immediately as shipments are made.

We will pay the transit or stop charge so that settlement will be made with you in accordance with original terms of purchase.

A. N. Laret
Vice Pres-Pur.& Stores

718 Frisco Building
St. Louis 1, Missouri

Sept.1953

LWK:GH

cy C H B

January 7, 1957

3505

Mr. J. L. Surdam
President
Osmose Wood Preserving Company of America
980 Ellicott Street
Buffalo 9, New York

Dear Mr. Surdam:

Thank you for your letter of December 18, concerning the work your company will be performing on preservation in-place treatment of the Fox Terminal Wharf of the Alton & Southern Railroad at East St. Louis.

I am sorry that we will be unable to attend the demonstration, however, hope you will keep us informed and should a similar project be occurring in the close proximity of the Twin Cities, we will certainly be very much interested in viewing the work.

Most sincerely yours,

WRB:mh
cc - Mr.P.R.Gibson

3505

OSMOSE WOOD PRESERVING CO.
OF AMERICA, INC.

GENERAL OFFICES: 980 ELLICOTT ST., BUFFALO 9, N. Y.

Manufacturers of:
- OSMOSALTS
- OSMOPLASTIC
- PENTOX
- COP-R-NAP

December 18th, 1956.

Mr. W. R. Bjorklund, Asst. Chief Engineer,
Northern Pacific Railway Company,
St. Paul, Minnesota.

Dear Mr. Bjorklund:

Our company is presently performing a contract for the preservative in-place treatment of the Fox Terminal Wharf of the Alton & Southern Railroad. We felt that you might be interested in observing this work and, therefore, are taking the liberty of supplying you with the necessary information as to location, etc., in the event that you or one of your representatives would like to visit the job.

Owner - Alton and Southern Railroad
Fox Terminal Wharf
East St. Louis, Illinois

Owner's Personnel -

R. G. Brichler, Chief Engineer
Manuel Garcia, Assistant Engineer
John Parker (in direct charge of work)
Norman A. Vines, Dock Superintendent for Cooper Terminal Co., Inc., from whom dock is leased

Osmose Company Personnel -

Ted Swanson, Lead Man

Mr. Brichler, of the Alton & Southern, has requested that anyone visiting the job stop in first at his office in East St. Louis, or, if you care to, you could check out with Jack Storer, 307 State Street, Madison, Wisconsin - Phone Alpine 6-0422.

It is estimated that this contract will be completed by approximately January 10th, and we sincerely hope that you will find it possible to spend a few hours witnessing our operations.

Yours very truly,

John L. Surdam

John L. Surdam,
President.

JLS/emc
Enc. 170.5

cc: P. R. Gibson, District Engineer

D 1/3

Crosstie Survey By Research Department of

Southern Wood Preserving Company

Atlanta, Georgia

Questionnaire on Use of Oak Crossties by Railroads

1. Do you use white oak crossties? YES

2. Do you accept them along with red oak? YES

3. Do you limit the species or growth locations of

   a. Red oak? NO (Please explain under Remarks)

   b. White oak? NO (Please explain under Remarks)

4. Do you limit the percentage of white oak ties you will accept along with the red oak? NO

5. If you do not accept white oak with red oak or as a separate species, do you accept white oak along with mixed hardwood ties? ---

6. Do you treat red oak and white oak together? YES

7. If treated together what average net retention do you specify? 8 lbs. 50-50 creosote-petroleum.

8. If treated separately what average net retention do you specify for

   a. Red Oak? --

   b. White Oak? --

9. Do you have any test track records that will show a comparison between the service life of treated red oak ties versus treated white oak ties? NO

10. What is the average life of

    a. Red Oak? Untreated - 5 years Treated - 40 years

    b. White Oak? Untreated - 12 years Treated - --

11. Do you consider the treated white oak crosstie

    a. Equal to the treated red oak tie? YES

    b. Superior to the treated red oak tie? NO

    c. Inferior to the treated red oak tie? NO

12. How long have you been using white oak crossties? about 85 years.

13. In discussing this survey may we use the data submitted by you? YES

14. Remarks

All oak ties used on our railway were obtained in Minnesota and Wisconsin. Previous to 1907 when we started our treating plants, possibly ten percent of ties used were white oak and no red oak ties were used. After we started treatment very few white oak ties were purchased and during the past ten years less than one percent of our oak ties have been white oak.

We do not limit the purchase of white oak ties but in the territory our oak ties are obtained, there is a demand for white oak for other purposes so practically all of the oak ties we have treated have been red oak.

Railroad NORTHERN PACIFIC RAILWAY COMPANY

Data by CHIEF ENGINEER

Date October 11, 1956.

St.Paul, Minn.
Oct. 10, 1956.

3505

Mr. C. H. Burgess:

For your approval attached is Req.ED.1621 to cover a Delmhorst moisture meter for determining the extent of seasoning in poles, piling and other timbers.

The Communications Department have recently called to our attention the early decay of treated poles installed by them and which were purchased from suppliers at Bozeman.

The local Water Service Inspector has been handling inspection of poles and treatment. The quality of treatment materials and penetration of same for the poles which have been reported defective, have been rechecked by the Water Service Inspector.

In order to check the extent of seasoning of poles it is advisable that moisture meter be purchased for use of our Inspectors. It is our information this instrument will more than pay for itself in our checking of the various poles and extend their service life if properly seasoned before treatment.

The various types of moisture meters on the market have been investigated and we find that the Delmhorst instrument is most reliable on the market.

Your approval of the requisition is recommended.

HRP:e
enc.

3505

St.Paul, Minn.
October 10, 1956.

Mr. H. R. Peterson:

Attached herewith you will find reqn. ED-1621 covering a Delmhorst moisture meter for determining the extent of seasoning in poles, piling and other timbers. I am requisitioning this instrument to check the extent of seasoning in poles which we are purchasing. This is in line with the correspondence which we had with Mr. Hill. I believe this instrument will more than pay for itself in our checking of the various poles and extend their service life if properly seasoned before treatment.

I have investigated the various types of moisture meters and have been advised by Mr. Dreitzler of the West Coast Wood Preserving Company and Mr. Mathewson, in charge of the Physics & Engineering Section of the Forest Service Laboratories at Madison, Wisconsin, that this instrument is the most reliable on the market today.

Harris Schmalzl
Engineer of Water Service.

HMS/gs
Encl.

ED-1621 HMS-113

St. Paul, Minn., October 10, 56

Mr. W.T. Brown, Water Inspector % H.E.Nelson, DSK Livingston, Montana.

1.	1	Model RC-1 Delmhorst Moisture Detector.	$160	AT ONCE	Instrument for Determining Seasoning of Poles.
2.	1	Type 18-E Electrode.			
3.	1 set	#608-18E contact pins.			Chge. MW&S

Manufacturer to furnish 2 sets operating instructions. Instrument to be used for Lodgepole pine poles. Furnish table of factors when used with cedar, larch and other species.

Delmhorst Instrument Co.
Boonton, N.J.

cc HRP WTB HEN CAL JLG KHB

Chief Engineer

Engineer of Water Service

OFFICE OF
CHIEF ENGINEER
OCT 4 1956
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

3505

St. Paul, Minn.
October 3, 1956.

Mr. W. R. Bjorklund:

You have a copy of Mr. Peterson's letter of October 3 to Mr. Hill.

I believe all the information you requested in your letter of Sept. 7 is answered therein. I am now investigating the various types of moisture meters and will in due time make up a requisition. I believe that these meters will cost about $150 and believe the expenditure will be more than justified.

I have known in the past that we have received unseasoned poles from the Montana Pole Co. at Butte. They like to finish their seasoning in the retort when treating with penta. This, of course, cannot be done with the hot and cold bath as is done by the Idaho Pole Co. at Bozeman.

H. M. Schmaltz
Engineer of Water Service.

HMS/gs

3505

bcc-Mr. W. R. Bjorklund: Please refer to your letter of Sept. 7, File ~~8203~~ to Mr. Schudlich. Attached herewith you will find Mr. Brown's letter and inspection report of Sept. 29 referred to in the above.

HRP

bcc-Mr. H. M. Schudlich

St. Paul, Minn.
October 3, 1956. s

File 3505

Mr. D. C. Hill:

Referring to your letter of August 21, File 16-Central concerning the failure of butt treated poles between Helena and Blossburg, installed in 1948.

In investigating the failure of these poles with the Idaho Pole Co. officials at Minneapolis and Bozeman and with Mr. Smallridge's office, we cannot find where any Lodgepole pine poles butt treated with pentachlorophenol were purchased in 1948. The Bozeman plant did not treat with pentachlorophenol until 1950. We did locate order 1247-4-L which covered butt treatment with creosote under the obsolete Western Union specification 809B. These were cedar poles. In Mr. Schudlich's discussion of these poles with the Idaho Pole Co. he was advised that at the time the poles were purchased there was a shortage of poles and the pressure on the Idaho Pole Co. was so great that insistence on pole delivery allowed them not to season the poles sufficiently. The Montana Power Co. and several electrical cooperatives who purchased poles at that time have also had the same difficulty.

In view of this information possibly the situation should be thoroughly studied further in the field and a close examination made of the poles which are failing, to indicate whether or not the shell of creosote still remains on the outside surface. This could be determined by close examination. The poles which failed, no doubt being unseasoned, split through the treatment, allowing the fungi to attack the exposed heartwood.

On September 27-28 our Inspectors observed the treatment on 43 Lodgepole pine poles covered by Purchase Orders 956-879 and 881 and found the rigid specifications were followed very closely. The pentachlorophenol content of the hot and cold baths was at a concentration above that which was required, the penetration was excellent and a random 14 poles were checked with a moisture meter and the average moisture content was found to be 10%. These poles were certainly well seasoned and should give excellent service life.

If you feel the situation warrants further investigation, will you kindly advise and I will arrange to have one of the Engineering Dept. Inspectors accompany one of your men in investigating the poles on the ground.

Chief Engineer.

Livingston, September 29, 1956

Mr. H. M. Schudlich:

Referring to the matter of the butt treated poles failing between Helena and Blossburg:

In talking to Mr. Harrington of the Idaho Pole Company at Bozeman yesterday, I believe we found the answer. He advised that during the years 1946 and 1947 there was a shortage of poles and the pressure for them was so great that several companies insisted on pole delivery even though they were told that not enough seasoned poles were in stock. Some of these companies are now reporting pole failure on those purchased during the two years. The Montana Power Company and a couple of Co-Ops were mentioned. Although Mr. Harrington did not say so, probably the same condition carried over into 1948 when the NP poles were purchased.

Since 1953 when I started making inspections at Bozeman I have noted no indication whatever of unseasoned poles being treated for anybody.

As per Mr. Bjorklund's letter of Sept. 7th an attempt was made to obtain a sample cut of a treated pole, but no treated poles whatever are carried in stock. All treatment is made to fill specific orders. However, they will treat a cull for us from which I can obtain a cut.

The Idaho Pole at Bozeman have a Tag Moisture Meter, Model 8008, Type 2, Serial No. 122. This is made by the Tagliabue Instruments Division of the Weston Electric Instruments Corporation, Newark 5, New Jersey. I believe it would be money well invested for the NP to have one of these.

Tests as reported to Mr. Loom today were personally made with this instrument. The poles tested had all been seasoned for a year and the results indicate it.

W. I. Brown
Water Inspector

cc - JLG

Livingston, September 29, 1956

Mr. A. J. Loom,

The following orders were treated by the Idaho Pole Company at Bozeman on September 27th & 28th:-

Purchase Order No.	Number	Class	Length
956-879	18	6	16'
956-881	25	5	25'

The treating solution used on the above orders was analyzed and the following results found:

Hot oil bath ..... 5.27% pentachlorophenol

Cold oil bath ..... 5.23% "

Cores taken indicate that the oil penetration was from 3/4" to 1¼" with the average being at 1".

Before treatment of the above poles tests were made on them with a Tag Moisture Meter and the following results noted on those tested:

8 % moisture
10
12
9
10
11
12
9
9
9
9
11
11
12

This gives an average moisture content of 10%

cc - HMS
JLG

W. [illegible]
Water Inspector

St. Paul, Minn.
October 3, 1956. s

File 3505

Mr. D. C. Hill:

Referring to your letter of August 21, File 16-Central concerning the failure of butt treated poles between Helena and Blossburg, installed in 1948.

In investigating the failure of these poles with the Idaho Pole Co. officials at Minneapolis and Bozeman and with Mr. Smallridge's office, we cannot find where any Lodgepole pine poles butt treated with pentachlorophenol were purchased in 1948. The Bozeman plant did not treat with pentachlorophenol until 1950. We did locate order 1247-4-L which covered butt treatment with creosote under the obsolete Western Union specification 809B. These were cedar poles. In Mr. Schudlich's discussion of these poles with the Idaho Pole Co. he was advised that at the time the poles were purchased there was a shortage of poles and the pressure on the Idaho Pole Co. was so great that insistence on pole delivery allowed them not to season the poles sufficiently. The Montana Power Co. and several electrical cooperatives who purchased poles at that time have also had the same difficulty.

In view of this information possibly the situation should be thoroughly studied further in the field and a close examination made of the poles which are failing, to indicate whether or not the shell of creosote still remains on the outside surface. This could be determined by close examination. The poles which failed, no doubt being unseasoned, split through the treatment, allowing the fungi to attack the exposed heartwood.

On September 27-28 our Inspectors observed the treatment on 43 Lodgepole pine poles covered by Purchase Orders 956-879 and 881 and found the rigid specifications were followed very closely. The pentachlorophenol content of the hot and cold baths was at a concentration above that which was required, the penetration was excellent and a random 14 poles were checked with a moisture meter and the average moisture content was found to be 10%. These poles were certainly well seasoned and should give excellent service life.

If you feel the situation warrants further investigation, will you kindly advise and I will arrange to have one of the Engineering Dept. Inspectors accompany one of your men in investigating the poles on the ground.

Chief Engineer.

13505

bcc-Mr. W. R. Bjorklund: Please refer to your letter of Sept. 7, File 8203 to Mr. Schudlich. Attached herewith you will find Mr. Brown's letter and inspection report of Sept. 29 referred to in the above.

bcc-Mr. H. M. Schudlich

3505

OFFICE OF
CHIEF ENGINEER
SEP 26 1956
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

St. Paul, September 26, 1956

File 166-11

AMS-will draft
reply to Hill
HRP 10/1

Mr. H. R. Peterson
Chief Engineer

Referring further to your letter of September 18 regarding pole failures between Helena and Blossburg.

On September 24 our complaint was discussed with Mr. Hunner of Idaho Pole Company, who advised that they did not begin to use the pentachlorophenol treatment until 1950, whereas your letter states the failed poles were placed in service in 1948. This, of course, raises a question as to the accuracy of our information that the poles were received from Idaho Pole Company.

A review of records in this department discloses that two shipments of poles applying on requisition GSK 18860-10 of 1947, purchase order 1247-4-L were received during February, 1948 on cars NP 60964 and NP 61124 from Idaho Pole Company. However, the above order called for poles to Western Union Specification 809-B covering creosote treatment.

If possible, I believe the failed poles should be positively identified as to date of receipt, order and requisition reference.

WKS:VN

W. K. Smaciage

cc: Mr. H. M. Schudlich

Copy made for
A J Loom
EDR 9/27

St.Paul, Minn.
Sept. 7, 1956.

~~8203~~ 5505

Mr. H. M. Schudlich:

Please be referred to your letter of the 6th, concerning pentachlorophenol pole treatment, paricularly at the Bozeman plant.

It occurred to me that the Pole Treating company are so vitally interested in having the poles which will give service life and would certainly not want to have a condition exist where their treated poles would rot out almost as rapidly as untreated poles. Therefore, I should think it entirely feasible for Mr.Brown to wander around the pole yard and pick out a pole which he suspects has checked after treatment and have a portion of the pole cut off and then use the fluorescent dye method entirely over the end of the pole to see if the penetration actually obtains at the bottom of the checks.

WRB:e

OFFICE OF
CHIEF ENGINEER
SEP 1 1956
NORTHERN PACIFIC CO.
ST. PAUL, MINN.

3505

Brainerd, Minnesota, August 31st, 1956

Mr. H. R. Peterson:

Referring to your letter of August 22, and my reply of the 23rd about pentachlorophenol treated poles reported by the Communications Department to be completely decayed below the ground line after 8 years service.

My investigation of our records indicates that poles purchased from the Idaho Pole Company in 1948 were treated at their non-pressure treating plant at Bozeman, Montana. The untreated poles were inspected by our Foreman Inspector, Mr. H. W. Workman who was informed that the poles were treated with a solution of 5% pentachlorophenol in a very light petroleum. After treatment, Mr. Workman sent me increment borings which indicated more than the required penetration of oil but at that time we had no facilities for determining the pentachlorophenol content of the solution or in the borings.

Pentachlorophenol is colorless but the petroleum used by the Idaho Pole Company is dark enough to stain the wood so that penetration of the oil can be determined readily by visual examination. Penetration of pentachlorophenol content of the solution in the wood requires elaborate laboratory analysis such as is now being performed by our Water Service chemists.

It is acknowledged by all concerned that light petroleum has no preservative value and is used only as a carrier for the pentachlorophenol which in the required 5% complete solution in the right kind of petroleum I believe has proven effective in resistance to most wood destroying organisms except marine borers.

The required solution consists of 95% inert and only 5% active ingredients, and therefore it is vitally important to determine if the penetrated wood contains the required 5% pentachlorophenol or if the visual penetration is only an oil discoloration of the wood.

Today I received from Wood Treating Chemicals Co., their technical bulletin 1023 attached, from which you will note that some light petroleums are almost colorless and they have developed a method to show the depth of penetration in wood treated with such light colored penta-in-oil solutions.

We have had no difficulty in determining penetration but I am not convinced that specified penetration is positive proof that the wood has the 5% pentachlorophenol required to resist decay.

I believe Mr. Schudlich would be interested in seeing the attached bulletin.

Cy Ibm S

3505

MEMORANDUM

St. Paul, Minnesota
September 19, 1956

Mr. H. M. Schudlich:

Mr. Smallridge has arranged for meeting in his office with Mr. Hunter of the Idaho Pole Company Monday morning, September 24.

Please arrange to attend this meeting which is to discuss the matter of seasoning and treatment at the Idaho Pole Company's plants.

HRP/jwm

H. R. PETERSON

3505

OFFICE OF
CHIEF ENGINEER
SEP 19 1956
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

St. Paul, September 19, 1956

File 166-11

Mr. H. R. Peterson
Chief Engineer

Referring to your letter of September 18 regarding pole failures between Helena and Blossburg.

This condition was discussed today with Mr. Ralph Hunner, Vice President, Idaho Pole Company. Mr. Hunner is very much concerned about our complaint and has agreed to discuss the matter at a meeting in my office at 10 A.M., September 24. No doubt you will wish to have Messrs. Schudlich, Loom and other interested parties present.

WKS:VN

cc: Mr. H. M. Schudlich

W. K. Smallridge

3505

St.Paul, Minn.
Sept. 18, 1956.

Mr. W. K. Smallridge:

During the month of July a test inspection was made between Helena and Blossburg by Mr. Hill to satisfy themselves as to the condition of the lodgepole pine poles which were butt treated with pentachlorophenol and set in 1948. 26 poles which were inspected showed eleven were rotted off below the ground line at varying depths from 6" to 14". Most of the bad poles were set in earth. Those which were set in gravel seemed to be sound. These poles were purchased from the Idaho Pole Co. and about 250 of them were used in this project. The 8 year life indicated not to be much better than untreated poles.

In reviewing the matter with Messrs. Schudlich and Loom it is their conclusion that Idaho Pole has always given us a properly penta treated pole as we have always found from 1-3/8" to 1-1/2" of penta in the treated poles. We have always found that the treating solution has contained the 5% of pentachlorophenol.

The poles at least have been adequately air seasoned otherwise it would not have been possible to obtain such a penetration into the sapwood by a non-pressure process. Question now arises whether or not the treated poles were uniformly seasoned and considerable moisture still remained in the heartwood which allowed the pole to split through the treatment and exposed the heartwood to the fungi which resulted in the short life. Best seasoning results are secured by either cross piling or placing stickers between the layers of the poles as recommended by the AREA.

In order to avoid future trouble and short life would it not be possible to have your inspector critically examine the poles for proper treatment, especially the heartwood and even though the poles are split, treatment will then penetrate into the heartwood and minimize soil fungi attack. We are now making an investigation to determine whether or not a suitable moisture meter can be obtained to scientifically determine the amount of moisture present in the heartwood. As you suggested in your discussion with Mr. Schudlich, possibly it would be well to discuss the matter further with the Idaho Pole Co. officials to determine what can be done to increase the life and obtain a better seasoning. It might also be well to have investigation made into service

results other customers from Idaho Pole are obtaining.

Chief Engineer.

3505

St.Paul, Minn.
Sept. 18, 1956.

Mr. H. R.Peterson:

Referring to Mr. Loom's letter of Sept. 10 concerning penta treated poles, more especially at Bozeman. The last paragraph mentions that it is possible for the pentachlorphenol to leach out or be evaporated with the light petroleum. I agree with Mr. Loom that if a heavier solvent is used, at least one with a higher boiling point, there would be less chance for migration of the pentachlorophenol.

I suspected that migration was taking place a year ago and we made the following test when borings were taken from two poles treated by the Idaho Pole Company at Bozeman, one in 1951 and the other in 1955. Both of these poles were from the pole storage yard at Livingston store. The borings were taken midpoint of the pole in the non-incised area. Analyses were made and the following results obtained:

	1951 pole	1955 pole
Oil penetration	1-1/4"	1-1/4"
First 1/2"	0.28 lbs./c.f.	0.39 lbs./c.f.
Second 1/2"	0.22 "	0.32 "
Third 1/2"	0.10 "	0.13 "

H. M. Schmidt
Engineer of Water Service.

HMS/gs

N. P. 1386A 12-24

TELEGRAM—BE BRIEF

TIME FILED 3505 M.

St Paul September 14 1956 W T Brown - Livingston

POs 956-879 and 881 cover 8 and 25 LP pine poles Idaho Pole Bozeman please arrange for inspection and analyses of penta soln. If possible

be on hand when Workman makes his inspection and discuss with him the extent of seasoning and endeavor to determine whether or not

heartwood ~~and~~ dried out sufficiently so that heavy checking will be minimized to avoid cracking thru the treatment and exposing heartwood

to decay S-25

H M S

~~Mr HRP~~ 9/14

HMS.

3505

OFFICE OF
CHIEF ENGINEER
SEP 12 1956
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

Brainerd, Minnesota
September 10th, 1956

Mr. H. R. Peterson:

Referring to Mr. Schudlich's letter of September 6th about the condition of untreated and penta-treated poles he had observed recently in stock at Livingston and Bozeman.

I agree with Mr. Schudlich that more uniform seasoning will result if poles are not piled solid. Best results are assured by either cross piling or by placing 1" stickers between layers as recommended by the A.R.E.A.

However, the 1-3/8" to 1-1/2" of penta solution in the treated poles, as determined by Mr. Schudlich, verifies our own observations and indicates that these poles had been adequately air-seasoned before treatment. Otherwise, it would not be possible to obtain such penetration by non-pressure process.

As stated in my letter of August 31, I do not believe that penetration of penta solution offers any definite proof that the penetrated section of the wood retains the 5% pentachlorophenal that is said to be necessary to prevent decay.

Analysis by our own chemists has proven that the penta solution in use by the Idaho Pole Company contains the stipulated 5% pentachlorophenal content as stated by the pole company. I have no reason to believe that the rotted poles reported by our Communications Department were not treated with the same solution.

Service life of the poles in question was no longer than that of untreated poles and therefore the solution had no preservative value whatever in the location referred to.

It is possible that the entire pentachlorophenol content leached out or evaporated with the light petroleum, which as you know is of about the same gravity as Diesel fuel oil. Pentachlorophenol in solution with heavy petroleum should not leach out as fast and therefore is recommended by the promoters for treatment of wood to resist decay in contact with the soil.

AJL;rwm

By handed
AMS - to progress
HRP 9/14

Jaay

OFFICE OF
CHIEF ENGINEER
SEP 6 1956
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

St. Paul, Minn.
September 6, 1956.

Mr. H. R. Peterson:

Referring to your letters of August 22 and September 4, File 3505 covering pentachlorophenol pole treatment:

Last Wednesday I was at Livingston and examined the stock of poles in the pole storage yard, most of these being penta treated. I observed that there was considerable quartering in the butts of the poles. Obviously this type of cracking will go through the treatment. Whether these poles were properly seasoned, I could not say, but apparently they could not have been, otherwise this excessive cracking would not have occurred.

In the afternoon I went over to Bozeman and examined a small lot of poles that had been penta treated for the Railway Co. Increment borings indicated 1-3/8" to 1-1/2" penetration and the poles appeared to me to be fairly well seasoned. There were merely surface checks and these had occurred before treatment, therefore the penta should have penetrated well to the heartwood. Whether these poles will crack further, and especially the untreated heartwood, it is difficult for me to say. I casually wandered around in the yard and found that there were many piles of well seasoned poles although I did notice that the poles were piled solid and it is doubtful in my mind if proper seasoning can take place under these conditions. It would appear to me that the poles would be stacked with an open space between so that proper circulation will remove the moisture uniformly. I presume that this would be uneconomical since these pole piles were as high as 30 ft.

I have forwarded the fluorescent dye method penetration test to Mr. Brown for his comments as he has been handling the pole inspections since most of the poles are purchased from Idaho Pole Company at Bozeman.

Engineer of Water Service.

HMS/gs

3505

OFFICE OF
CHIEF ENGINEER
SEP 6 1956
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

Saint Paul, Minnesota
September 5, 1956

16-Central

Mr. H. M. Shudlich:

Your letter August 31 in reference to mine of August 29 to Mr. Peterson pertaining to a moisture meter to be used in checking moisture content of poles purchased by this company:

The idea which Mr. Lowe intended to convey, I believe, was that a moisture meter be provided the Engineering Department employee who inspects these poles at the Pole Company yard so that the Railway Company could thereby be satisfied that the moisture content was not being exceeded. I trust this is what you have in mind.

D. C. Hill

cc: Mr. H. R. Peterson

St. Paul, Minnesota
September 4, 1956

File: 3505

Mr. H. M. Schudlich:

Attached is copy of Mr. Loom's letter August 31 about pentachlorophenol treated poles for the Communication Department together with the pamphlet referred to by Mr. Loom.

Do you have any further comments?

HRP/jwm
attachments

H. R. PETERSON

OFFICE OF
CHIEF ENGINEER

AUG 31 1956

NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

3505

August 31, 1956.

Mr. L. C. Collister
Manager Treating Plants
A. T. & S. F. Rwy. Co.
Topeka, Kansas

Dear Mr. Collister:

It was my understanding when I was last inspecting your plant that you were using a moisture meter to determine the extent of seasoning of various timber products.

Could you advise the type meter you were using and also the accuracy and suitability for your work.

With kindest personal regards, I am

Yours very truly,

H. M. SCHUDLICH
Engineer of Water Service.

HMS/gs

bcc-Mr. H. R. Peterson

3505

OFFICE OF
CHIEF ENGINEER
AUG 31 1956
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

St. Paul, Minn.
August 31, 1956.

Mr. D. C. Hill:

Referring to your letter of August 29, File 16-Central to Mr. Peterson concerning a moisture meter to be used in checking the quality and extent of seasoning in various timber products.

When I discussed the matter with Mr. Lowe I was under the impression that the moisture meter would be readily available. Will you kindly advise exactly what he had in mind during our discussion.

H. M. SCHUDLICH

Engineer of Water Service.

HMS/gs

cc: Mr.H. R.Peterson

3505

OFFICE OF
CHIEF ENGINEER
AUG 29 1956
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

Saint Paul, Minnesota
August 29, 1956

16-Central

Mr. H. R. Peterson:

Your letter August 27, file 3505, and attachments, in reply to my letter of August 21, file 16-Central, regarding defective pentachlorophenol treated Lodgepole pine poles between Helena and Blossburg:

It was not our intention that the Communications Department purchase the moisture meter but rather that it be supplied to the inspector by the Engineering Department for use in making moisture tests not only on poles but on other similarly treated wood.

Will you please advise if this can be arranged.

A. E. Lee

HRP 8/29

OFFICE OF
ENGR. WATER SERVICE
AUG 28 '56
NOR. PAC. RY. CO.
ST. PAUL, MINN.

St. Paul, Minnesota
August 27, 1956

File: 3505

Mr. D. C. Hill:

Referring to your letter of August 21, file 16-Central, about defective pentachlorophenol treated Lodgepole pine poles.

I referred your letter to Messrs. Loom and Schudlich for their comments.

For your information, attached is copy of Mr. Loom's letter of August 23 which merely reiterates his preference for creosote and creosote oil treatments. The correspondence to which he refers may be found in your files.

Also attached is copy of Mr. Schudlich's letter of August 23 reviewing this matter. Mr. Schudlich has requested his inspector to advise in regard to his observations about seasoning of the poles based merely on visual inspection.

It seems to me the purchase and use of moisture meter is advisable, as suggested.

Likewise, consideration should be given to application of Barrett ground-line treatment for poles located in earth.

HRP/jwm
attachments

H. R. PETERSON

3505

OFFICE OF
CHIEF ENGINEER
AUG 23 1956
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

St.Paul, Minn.
August 23, 1956.

Mr. W. T. Brown:

Mr. Hill has advised Mr. Peterson that 26 poles were inspected between Helena and Blossburg which were LP pine, butt treated with pentachlorophenol. Of those inspected, eleven were rotted off below the ground line at depths varying from 6 to 14" which certainly should be in the incised area.

In discussing the matter with Mr. Lowe, he is of the opinion that the poles cracked through the treatment. This would indicate that the poles were not properly seasoned. In your inspection of the poles at Bozeman have you at any time ever noted that we were receiving improperly seasoned poles? As I recall, even the poles in storage at Livingston store do not crack through the treatment, even after being in the pole yards for months.

Will you kindly advise in this respect.

H. M. SCHUDLICH
Engineer of Water Service.

HMS/gs

cc: Mr. H. R. Peterson
Mr. J. L. Goss

OFFICE OF
CHIEF ENGINEER

AUG 23 1956

NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

St. Paul, August 23, 1956.

Mr. H. R. Peterson:

Referring to my copy of your letter of August 22, File 3505 to Mr. Loom, concerning the pole inspection made by Mr. Lowe and the finding of a considerable number of rotted-off poles:

Since we have been making the pentachlorophenol inspections at the various pole yards we have never as yet found the treatment to be below the specifications. Likewise it must be said that we have always found the proper amount of penta in the treating solution. On three different occasions when I have been passing through Bozeman by auto, I have stopped at the Idaho Pole Co. yard and made a cursory examination of the pole stock and I have also observed them treating poles. Visual examination indicated that the poles being treated were properly seasoned.

When I discussed the matter of this pole disintegration with Mr. Lowe yesterday, before receiving your letter, he was inclined to believe that the poles contained too much moisture and split through the treatment, allowing the fungi to reach the untreated wood. Apparently the soil in the area where the poles are located contains some very aggressive and lethal fungi and of course if the pole is split through the treatment, attack would be serious. Mr. Lowe suggested that the Communication Dept. purchase a moisture meter so that Mr. Brown when inspecting the poles for treatment can at the same time make an inspection for seasoning. Personally I believe that this meter would pay for itself in a short time as I understand the cost is less than $100.

It might also be well to consider using Barrett ground-line treatment. This could be applied after the poles have been in service for a year or more and all the cracking has reached a maximum point. It requires approximately 3 lbs. of Barrett pole sealer for the average size pole and 1/3 gal. of creosote and the two chemicals cost approximately 75¢. Labor costs will vary considerably and if the treatment is applied in connection with pole inspection, the cost will be materially reduced. I am assuming that it will require approximately one-half hour to treat an average pole.

I noted when I was out west on the last trip that in the Seattle area one of the utility pole lines were applying this treatment. The 20" poles were attacked at the ground line and the diameter was reduced to approximately 15-16". Apparently they find it economical to apply this ground line treatment.

H. M. Schmaltz
Engineer of Water Service.

HMS/gs

Cy DCH

3505

OFFICE OF
CHIEF ENGINEER
AUG 24 1956
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

Brainerd, Minnesota, August 23rd, 1956

Mr. H. R. Peterson:

In reply to yours of August 22, with reference to Mr. Hill's report of failure of pentachlorophenol treated Lodgepole pine poles after only 8 years service.

No doubt your file on "Pentachlorophenol Treatment of Poles" includes my recommendations and all of the information I have on this subject but I have selected the attached letters from my file for your convenience.

It seems evident that the poles referred to by Mr. Hill were purchased without any inspection of the treatment such as is now being conducted by laboratory analysis under direction of Mr. Schudlich.

We have no report of failure of any of the cedar, fir, larch or pine poles treated at our own plants during the past 35 years with either straight creosote or creosote-petroleum solution. It would be interesting to have the Communications Department's service record of the poles we have treated.

I still believe that best results are assured by treatment at our own plants with 50-50 creosote-petroleum solution.

AJL/dm

Cy DC H

COPY

Saint Paul, November 28, 1951

MR. F. L. STEINBRIGHT:

Your letter of October 31 to Mr. Turner about the poles ordered for use between LAUREL and LIVINGSTON, and our several discussions about treatment of poles with creosote and with pentachlorofinol:

As I stated to you, it has been our opinion that pressure treatment with creosote is the safest type of treatment, for we know from many years experience what creosote treatment does to timber exposted to the ground. I may add that for many years, in our tie and timber treatment, we have been employing 50% creosote and 50% fuel oil mixture. Our experience indicates that the 50% mixture affords as full protection against decay as does the 100% creosote.

I think there can be no question but that pressure treatment, no matter the re-agent employed, is far superior to the open tank method.

You will be interested in the attached letter from Mr. Loom dated November 5, summarizing the various methods and references to specifications. Apparently there has been no established specifications for the non-pressure treatment of poles, and Mr. Loom has prepared such a specification, two copies attached, which he has prepared on the basis of the existing specification T-4-49 of the American Wood Preservers' Association, NP Engineering Department specification 809-B for incising and butt-treating of cedar poles, Western Union specifications, and the Idaho Pole Co. specifications.

It is my suggestion that in making up your future requisitions for poles you decide which type of treatment is desired: i.e. creosote pressure, pentachlorofinal pressure, or pentachlorofinal open-tank - and then provide specifications to cover such treatment.

You will note in the second paragraph of Mr. Loom's letter that he makes the statement that pentachlorofinol is not on a par with creosote for the preservation of poles. He may be correct, but I question if there is data available to sustain that opinion. I think that as far as we can go now is to say that there has not been sufficient experience to determine whether pentachlorofinol is the equivalent of creosote.

BERNARD BLUM

cc-Mr. A. J. Loom

bb/s att.

Brainerd, Minnesota, November 5th, 1951

Mr. Bernard Blum:

In reply to yours of November 2nd with reference to the accompanying copies of Mr. Willis' letter of September 18th to you, and Mr. Steinbright's letter of October 31st to Mr. Turner, about preservatives and methods desired in the treatment of Northern Pacific poles at plants other than our own.

I believe information I have sent you to date indicates clearly that non-pressure methods are inferior to pressure treatment, and that pentachlorophenol is not on a par with creosote for preservation of poles. I think Mr. Steinbright's letter to Mr. Turner explains the comparative preservative values of creosote and pentachlorophenol precisely but both he and Mr. Willis have omitted any reference to the difference between non-pressure and pressure methods used to obtain required absorption and penetration of either preservative in the wood.

In my estimation, there can be no question about the superiority of pressure treatment. If equal results could be obtained by low cost non-pressure equipment, there would be no pressure treating plants on account of their much higher cost of construction. You have no doubt noted from literature I have sent you that even the promoters of penta recommend that best results are assured only by pressure treatment.

The plants at which we have accepted penta treated poles are located at Bozeman and Butte. The plant at Bozeman is a non-pressure layout and the one at Butte is a pressure plant.

All treatment at our own plants and the Seattle plant is conducted in accordance with A.W.P.A. specifications. Pressure treatment of cedar and lodgepole pine poles is covered by A.W.P.A. standard specification T-4-49. This does not include treatment with pentachlorophenol but the same processes can be employed as are recommended for treatment with creosote.

The A.W.P.A. has no specification for non-pressure full length treatment of poles of any species with any preservative. Therefore To comply with your request, I have prepared the attached for your approval. This I have compiled from A.W.P.A. T-4-49, the Western Union Telegraph Company, Engineering Department specifications 809-B for Incising and Butt Treating Cedar Poles with creosote and the Idaho Pole Company's specifications no. 1 for full length treatment of lodgepole pine poles with either creosote or pentachlorophenol solution, a copy of which I sent you with my letter of April 9th, 1951.

If it is necessary to purchase penta treated poles from outside plants rather than to treat with creosote at our own plants, I would recommend that orders placed with the Butte plant should specify treatment in accordance with A.W.P.A. specification T-4-49 and orders placed with the Bozeman plant should specify treatment in accordance with the attached.

Adams

AJL/dm

Brainerd, Minnesota, March 19th, 1951

Mr. G. H. Stone:

In reply to your letter of March 16th about the stability of pentachlorophenol in solution with petroleum.

At the A.R.E.A. convention in Chicago last week I discussed this with recognized authorities and chemists who seemed glad to let me have their personal opinions.

All of them agreed that a heavy petroleum such as we use for solution with creosote was also best for a satisfactory solution with penta but of course a light petroleum, although of lesser preservative value, makes a cleaner treatment. All of them did not agree as to stability and they recommended agitation and uniform heating of the solution as safety measures to avoid possibility of precipitation or separation of the crystals.

This morning, Dick Zietlow, Water Inspector, brought me a 6 oz. sample of 12% penta solution in light petroleum which he had obtained at Minnesota University. It is in a stoppered bottle and there is a 3/4" deep layer of penta-crystals already formed in the bottom of the bottle. Dick is a chemist and became interested some time ago when I showed him our file on this subject. He has ordered the chemicals required for analysis and has volunteered to help us. He says Dr. Kaufert of the Forestry Department of the University will be up here to see us one of these days.

I noticed last January that orders for penta-treated poles were being placed by our Purchasing Department without any specification requirements and that is what prompted me to ask Mr. Blum "how come"? He did not know and asked me to find out. In the meantime several hundred poles have been treated for us and although Mr. Workman's borings indicate good penetration, this in my opinion is no assurance of preservative value or any indication of the absorption in pounds per cubic foot that should be specified.

I am unable so far to determine that penta treatment costs less so am unable to explain why it is being given preference to our standard creosote treatment which is recommended by the A.W.P.A., the A.R.E.A. and Forest Products Laboratory as most effective for this purpose.

AJL/dm

Copy: Mr. C. L. Willcutt
Mr. H. W. Workman

Brainerd, Minnesota, March 12th, 1951

Mr. Bernard Blum:

Referring to our recent discussions about pentachlorophenol treatment of our poles at Bozeman and Butte.

I am attaching reports of Mr. Willcutt and Mr. Stone quoting information they obtained on their recent visit at these plants.

You will note there is no reference to treating specifications under which our poles are being treated in either of their reports. I am therefore requesting Mr. Willcutt and Mr. Stone to let me know what absorption and penetration of the 5% pentachlorophenol - 95% petroleum solution is said to be specified or required at these plants. Pole orders placed by our Purchasing Department do not state what these requirements should be and therefore our inspection is superficial as compared with our inspection of creosote treatment under definite specifications.

If treatment with pentachlorophenol is approved by the Northern Pacific I believe you will agree that we should be so advised by your office so a specification can be prepared or adopted that will cover all of the details of this treatment that must be complied with to assure satisfactory results.

Investigations and accelerated service tests indicate that 5% by weight of pentachlorophenol crystals in solution with the proper kind of petroleum produces a wood preservative that will resist decay and termite attack. It will not resist marine borers as originally claimed and only creosote is recommended by accredited authorities for this purpose.

Light petroleum such as used in preparing the pentachlorophenol solution has no preservative value and is simply a vehicle for the pentachlorophenol so the value of this solutionddepends on its proper uniform content of the chemical. To assure that the solution contains at least 5% of the preservative chemical at all times requires continuous careful attention of a competent chemist.

Petroleum stains the wood so penetration of solution is easily determined by boring the poles with an increment auger but only an elaborate laboratory analysis will indicate if the solution contains any pentachlorophenol.

Assuming that a 5% pentachlorophenol solution will resist decay as well as creosote, we still have the problem of determining that the solution contains the required 5% of the chemical.

For the reasons I have mentioned I can see no advantage in choosing pentachlorophenol in preference to creosote especially since there seems to be little if any difference in price and in view of our difficulty in providing competent inspection of the so-called penta treatment.

AJL/dm

Brainerd, Minnesota, January 10th, 1951

Mr. Bernard Blum:

The only specifications we have other than our own for preservative treatment of poles are the Western Union Telegraph Company Engineering Department specifications, namely, Specifications 495-C, dated June 24th 1935, covering pressure treatment of all species accepted and 809-B covering incising and butt treating of cedar poles.

The Western Union specifications call for treatment with No. 1 creosote. All pole treatment at our own plants and all treatment of poles accepted for use on our railway from other plants has been conducted in accordance with these specifications until recently when it has come to my attention that poles treated with pentachlorophenol are being accepted by our Purchasing and Telegraph Departments for the same purposes.

Poles treated with pentachlorophenol in solution with fuel oil, by both open-tank and pressure methods, I understand, are being accepted but we have no information about the specifications under which they are being treated or any advice that poles treated with any preservative other than creosote are acceptable, except Mr. Smallridge's statement that pentachlorophenol treated poles are being purchased.

Mr. Smallridge informed me that penta treated poles are acceptable to our Telegraph Department and that an order for 735, 16' and 320, 20', Class 5 poles has been placed with a newly constructed pressure treating plant at Butte, Montana, so no doubt the Telegraph Department has specifications showing the details of treatment with pentachlorophenol that must be complied with to make poles acceptable to them.

In my estimation pentachlorophenol is not equal to creosote in preservative value and when used in solution with heavy fuel oil, this treatment is no cleaner than our own, so in view of the adequate facilities at our own plants, I have not been able to see why so much of our material should be treated at commercial plants or why any of it should be treated by methods that are not proven of equal value for the purposes for which it is to be used.

All of our treating specifications have always been made or approved by the Engineering Department so I shall be glad to have your advise before asking the Purchasing Department or the Telegraph Department for further information.

dcm

C O P Y

St. Paul, Minnesota
November 17, 1948

E-1461
18-Poles

Mr. E. M. Willis:

Rlease refer to my letter of November 10 concerning 1200 Class 6 lodge pole pine poles ordered on my requisition FLS-46, GSK 19311-10.

Since writing you I have had further information about the method of treatment employed by the supplier and inquiry has satisfied me that the hot-cold method of applying Creosote is satisfactory. Therefore, if it is consistent with Northern Pacific practice to purchase poles ready-treated rather than having them treated in our own plants, you may place the order as proposed, disregarding my former letter to the contrary.

F. L. STEINBRIGHT

cc; Mr. A. J. Loom
Brainerd

C O P Y

St. Paul, Minnesota
November 10, 1948

E-1461
18-Poles

Mr. E. M. Willis:

Our requisition FLS-46, GSK 19311-10, calls for approximately 1200 class 6 lodgepole pine poles full length treated. It is our desire that these poles be full length pressure treated and our thought was that this would be done at Northern Pacific treating plants.

I understand that one of the suppliers have advised that they can treat these poles full length by the tank method. We do not feel that this method of treating lodgepole pine will be at all satisfactory and Mr. A. J. Loom, General Superintendent of Timber Preservation, concurs in this opinion.

Therefore the poles should be purchased untreated and gained if the supplier will do this work. Then the poles should be full length pressure treated at our own treating plants.

F. L. STEINBRIGHT

cc: Mr. A. J. Loom
Brainerd

St. Paul, Minnesota
August 22, 1956

File: 3505

Mr. A. J. Loom:

Attached is copy of Mr. Hill's letter of August 21 about defective pentachlorophenol butt treated poles recently observed by the Communications Department and for which the expired service life to date is merely 8 years.

Do you have any comments or suggestions?

HRP/jwm
attachment

H. R. PETERSON

B/C Mr. H. M. Schudlich,
with attachment

3505

OFFICE OF
CHIEF ENGINEER
AUG 21 1956
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

Saint Paul, Minnesota
August 21, 1956

16-Central

Mr. H. R. Peterson:

During the month of July a test inspection was made between Helena and Blossburg (this was rebuilt in 1948) for the purpose of satisfying ourselves as to the condition of the Lodgepole pine poles, butt treated with pentachlorophenol, which were set in 1948 and about which we have been receiving various reports from our linemen.

A total of 26 of these poles were inspected of which 11 were rotted off below the ground line at depths varying from 6 in. to 14 in. Almost all of the bad poles were set in earth--those in rock or gravel seemed to be very sound.

For your information, these poles were purchased from the Idaho Pole Company and our investigation indicates that about 250 of them were used in this project. Although we perhaps can get no return or adjustments in view of the fact that they apparently were passed by our inspector; nevertheless, you may want to take up with the proper parties and, if possible, fix responsibility.

A. E. Hill

Cy a J L
10m S

OFFICE OF
CHIEF ENGINEER
AUG 10 1956
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

3505

St. Paul, Minnesota
August 8, 1956

Mr. H. R. Peterson:

Referring to your letter of August 7th, file 3505, about Osmose Wood Preserving Company's letter of August 3rd and attachments covering preservation for railroad timber bridges.

Mr. Bjorklund has had a letter dated October 21, 1955 from this company in regard to spraying Bridge 244, St. Paul Division. Bridge 244 is a double track timber trestle bridge 285' long and 46' high. According to this letter they were willing to apply 6% solution of pentachorophenal to the entire exposed surface of piling, stringers, braces, etc. Also, to apply a fire retardant solution, to sound entire length of each pile and apply internal treatment to piles found to be decayed by forcing preservative solution into piles under pressure to point of refusal. Cost for performing this work was $5291.60. If they provided ground line treating to 240 piles, it would cost an additional $1656. They stated that this preservation treatment would extend the live of the bridge 25 years.

Mr. Bjorklund had written to Mr. Bodie, Chief Engineer of GM&O Railroad about hazards of fire when this material is applied. Mr. Bodie stated that "watchman was required for a period of 9 days until there had been several rains to reduce hazards of fire." On account of the isolated location of this bridge, Mr. Bjorklund did not want to take a chance on treating due to the fire hazards. He plans to make a test on a portion of the Ore Dock timber treatment where creosote sills and untreated posts were placed about 10 years ago. It is his intention to apply this preservative on the untreated posts at this location because of available fire protection and presence of personnel who can detect any insipient fires.

This company has already contacted Mr. Woxland at Seattle and is to make up a proposal for bridges in that area, and as you state, Mr. Young is being contacted by this company in the central area. This will give us three different locations for tests which should be sufficient at this time.

I was talking to Mr. Holderman, the Bird tie pad man, who formerly was in charge of wood preservation on the Northwestern Railroad, and he said that he did not believe that the spraying of treated timber trestle on the GM&O was a particularly good economic procedure. It was his opinion that treated timber piles have creosote which prevents a formation of any fungus, although he did feel that application of

~~HRP~~: Have talked to WRB to recommend bridge needing heavy repair as determined by Bridge Inspection. Bridge to be in city or proximity of fire apparatus CEE

~~C. E. Ebberg~~

Am only interested in making test on bridge in need of heavy repairs so that definite saving is shown by Osmose applica

HRP 8/10

This material to the piles at ground line might be of some value. He stated that the Forest Products Laboratory at Madison were not too impressed with the value of this product. However, the telephone and power companies are finding increased life in their structures due to application of this preservative.

I am attaching letter dated March 20, 1956 which Mr. Bjorklund received from GM&O Ry.

C. E. Ebberg

Enc.
CEE:l

NOR.PAC.RY.CO.
OFFICE OF
AUG
10
1956
BRIDGE ENGINEER
ST.PAUL, MINN.

GULF, MOBILE AND OHIO RAILROAD COMPANY

B. V. BODIE
ASSISTANT VICE PRESIDENT & CHIEF ENGINEER

Mobile, Alabama
March 20, 1956

Mr. W. R. Bjorklund, District Engineer
Northern Pacific Railway Company
St. Paul 1, Minnesota

Dear Sir:

Please accept my apology for not replying to your letter of January 9, file S-69-210, but your letter apparently became misplaced with other files and just showed up today.

In regard to bridge spraying with pentachlorophenol with the thought of perpetuating the life of timber bridges, I wish to advise that several years ago we used this solution on six of our smaller bridges with very good result, and that is what prompted us to try the treatment on our Warrior River bridge as we feel that if it can extend the life of the timber two years it will more than pay for itself.

The precautions that the crews took while doing this work on our bridges were that they first go in with a small plow and plow up all the soil around the bridges, and then after they have completed spraying, they again plow up the ground around the bridges. On one of our bridges sprayed, there was a dump that was always burning continuously and a fire retardant was mixed with the penta solution for spraying in the vicinity of the dump; however, this fire retardant also retards absorption of chemical to some extent. In addition to this at this particular location, we kept a watchman on for seven or eight days until after we had had several good rains.

We hope that the above information will be of help to you.

Yours very truly,

Assistant Vice-President & Chief Engineer

BVB:ae

OFFICE OF
DISTRICT ENGINEER
MAR 23 1956
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

3/23/56

St. Paul, Minnesota
August 7, 1956

File: 3505

Mr. C. E. Ekberg:

Attached is Osmose Wood Preserving Company's letter of August 3 with attachments referred to about their preservative for application on railroad timber bridges in order to extend service life.

If you have not already investigated this product, it appears advisable you do so and request that their service expert call on you in order to entirely determine complete facts.

Their literature merely refers to one application on the G. M. & O. Determine what applications if any have been made on other railroads and performance to date.

One of their representatives from the Portland office called on Mr. Young one evening when I was last in Spokane. Mr. Young was to select a timber bridge which was in need of heavy repair work and refer same to the Osmose Company for their inspection and estimate of cost for application of their product, copy to be furnished to you.

If their product performs as stated in the attachments, it seems to me advisable that we arrange for test application providing same can be justified.

I will appreciate if you will actively progress this matter.

HRP/jwm
attachments

H. R. PETERSON

St. Paul, Minnesota
March 6, 1956

File: 3505 ←
3065

Mr. J. E. Hoving:

The use of Osmoplastic Treatment of untreated timber piles has progressed to where over 2000 piling on the Eastern District are included in this year's Form 134.

It is estimated that in Western Minnesota the service life of untreated piling may be extended by up to 10-12 years through its use. The approximate cost of application is $5.00 to $8.00 per pile, or approximately $2.50 per foot of pile trestle bridge.

Attached are a number of reprints from the September 1955 RAILWAY TRACK & STRUCTURES magazine describing the operation and product, a number of printed Index 1811-130 giving application instructions for use of B&B foremen, a number of printed Index 1811-130A for reporting treated units to the Bridge Engineer, and 5 prints of VF-440-339 showing tags placed on treated bents. Additional supply of the latter three items is available from the Bridge Engineer. Index 1811-130A should be handled similarly to Form 124. Print copies may be made by the District Engineer for distribution and file before the original is forwarded to the Bridge Engineer.

For your further information, attached is print copy of Mr. Bjorklund's letter of February 24. Apparently this material and application thereof was not previously referred to your office or may have been overlooked.

I trust you will be able to review the attached forms and distribute to the District Engineers for their review and handling with the B&B Supervisors.

The application as being made on our lines merely applies to untreated piling where the life of the pile bents and the bridge may be extended to economically justify the cost of applying the Osmoplastic treatment.

HRP/jwm
attachments

H. R. PETERSON

OFFICE OF
CHIEF ENGINEER
FEB 27 1956
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

S-69-210

St. Paul, Feb. 24, 1956

Mr. H. R. Peterson:

Please be referred to your letter of the 23rd, file 3065, particularly the second portion wherein Mr. Burgess would like a little more information about Osmoplastic.

First, I would like to say that before we recommended using any of this material I investigated some of the companies in this area who had been using Osmose Wood treatment and their replies indicated that it was very successful. For example, the Otter Tail Power Company of Fergus Falls advised me under date of Sept. 15, 1954:

> "....we have been using the Osmose Wood Preserving Company system of ground line treatment for standing poles since the late 30s.....We consider the work well worthwhile and are continuing to treat at the rate of about 4,000 poles per year."

Pickands Mather & Co. under date of Oct. 20, 1954 advised, as follows:

> "Our mines on the Gogebic Range have five years of experience with this wood preservative on surface and three years underground. To date they have found no deterioration where it was used."

Osmoplastic is not a substitute for the present type of treatment we are obtaining. The Osmoplastic is installed at the ground line of untreated bridges which would have to be rebuilt in a matter of five years if the ground line of the piling were not protected.

As an example, assuming a 6 span pile bridge 90' long should cost $9000 to be rebuilt and assuming that it would ordinarily be rebuilt in 1961 or 5 years hence, the present-day worth of the $9000 cost of rebuilding is $7050.

With the ground line treatment with Osmoplastic we can defer the rebuilding until 1970 or 14 years, and the present-day worth at 5% interest of $9000 in 1970 is $4540. The cost of treating the piling with Osmoplastic in 1956 is $280. In other words, an investment of $280 in 1956 results in saving of present-day worth of $2510. Of course when we have all treated timber

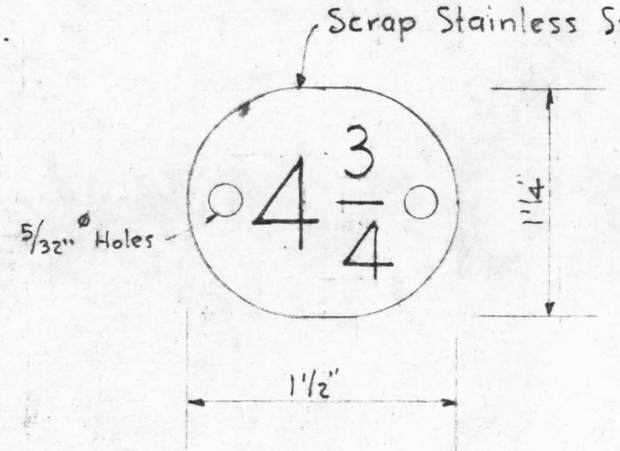
bridges there will be no further use for Osmoplastic and I do not intend to recommend it on our creosoted piling.

I am replying about the 1956 Form 134 for the Lake Superior Division by separate missive.

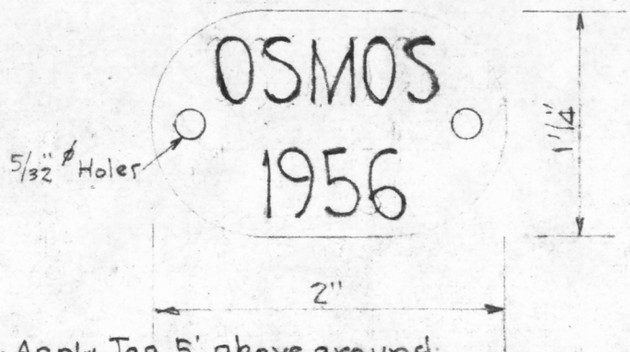
District Engineer

WRB:m
Cy CH B

Tube Cy
3505



Regular Tags	Special Tags
0"	1 3/4"
1/2"	2 1/4"
1"	2 3/4"
1 1/2"	3 1/4"
2"	3 3/4"
2 1/2"	4 1/4"
3"	4 3/4"
3 1/2"	
4"	
4 1/2"	
5"	
5 1/2"	
6"	



Note:
1. Apply Tag 5' above ground
2. Place Tag on Pile No. 1 of each bent on which Osmoplastic is applied except on Pile Trestles of 2 or more tracks apply on outside.
3. Order Tags from Store Dep't - Specify year desired and show this plan number on requisition

N.P. Ry.

Stainless Steel Metal Tags

for

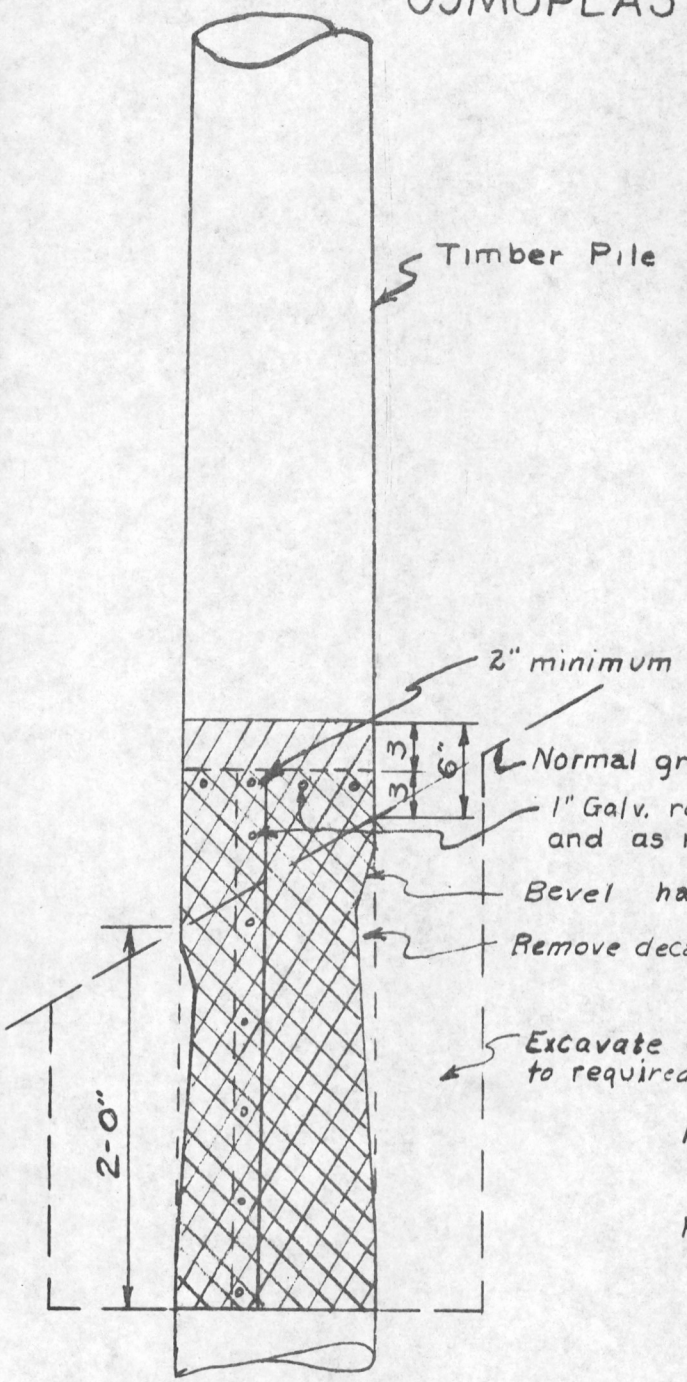
Curve Elevations & Osmos Piling

Scale - Full Size

Office of Chief Engineer - St. Paul - Sept. 19, 1955

Rev. 10-31-55

OSMOPLASTIC TREATMENT of PILES



Before treatment with Osmoplastic, pile shall be bored to determine extent of heart rot and hole plugged with treated wood plug.

Osmoplastic to be applied with a brush using 1/6 gallon per pile.
Treatment shall be protected with a single layer of Osmo Shield paper with 2" lap at joints.

Note
Excavation to be deep enough to allow removal of all rotten wood with 2'-0" minimum depth.
Rotten wood to be removed from hole, care being taken that none mixes with backfill.

Painted with Osmoplastic

Painted with Osmoplastic and wrapped with Osmo Shield paper

N. P. Ry Co.
Office of Bridge Eng. St Paul Dec 1, 1954

D-JAG
Ch. ERK.

Index 1811-130

N.P.RY.CO. OSMOPLASTIC APPLICATION

DATE_____ BR. NO._____ _____DIV._____ SUB.

Bent	Pile	Inches of Heart Rot.	Diameter Above Decay	Diameter Thru Decay	Height of Osmoplastic	Height of Paper

OFFICE OF
CHIEF ENGINEER
FEB 3 1956
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

St. Paul, February 3, 1956.

Mr. H. R. Peterson:

Referring to the Chapman Chemical Co. file attached, concerning the treatment of various types of timber with pentachlorophenol:

Last summer I was concerned about the trapped air in the hot and cold dipped poles we are treating with penta causing exudation or possibly migration and blooming of the penta by solvent evaporation. I had Mr. Brown take increment borings from two poles treated by the Idaho Pole Co. at Bozeman, one in 1951 and the other in 1955. The borings were taken approximately midpoint of the pole which is in a non-incised section. The following are the results of these tests:

	1951 pole	1955 pole
Oil penetration	1-1/4"	1-1/4"
First 1/2"	0.28 lbs./cu.ft.	0.39 lbs./cu.ft.
Second 1/2"	0.22 "	0.32 "
Third 1/2"	0.10 "	0.13 "

Since these are not pressure-treated as those in the bulletin attached to theChapman letter, we do not have as high a penta retention as those outlined in Table 8, although I believe that the retention is very satisfactory for hot and cold dip.

It is interesting to note that with low volatile carrier oils the migration of the penta is more rapid than with the aromatic oils which are less volatile. I also believe that with the aromatic oils there is a sealing effect due to their ease of oxidation and the oxidized products form a waxy or varnish-like coating over the exterior of the pole which tends to retain the penta, eliminating the excessive blooming.

H. M. Schmaltz
Engineer of Water Service.

HMS/gs
Encl.

OFFICE OF
CHIEF ENGINEER
OCT 26 1955
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

mrs. HRP's
See me
HRP 10/27

3505

S-187-8

St. Paul, October 26, 1955

Mr. H. R. Peterson:

The Osmose Wood Preserving Company have contacted us on numerous occasions about the work they are doing on other railroads in spraying pentachlorophenol treatment on untreated or treated pile trestles. They claim that they can extend the life of untreated wood up to 25 years by spraying 5% pentachlorophenol on this wood.

You are familiar with the work we are doing on the Eastern District in prolonging the life of untreated piling by applying Osmoplastic in the vicinity of the ground line and from which we expect an extension of 10 to 15 years of service life.

In order to completely investigate the work suggested by Osmose Wood Preserving Co. I went with Messrs. Hockenberry, Storer and Evans, together with our Supervisor, C. M. Rea, to Br. 244 on the St. Paul Second Subdivision east of Glyndon.

Bridge 244 is a double track pile trestle, 59' high, 19 spans, 285' long. The untreated piles and stringers were placed in 1943. The ties and caps are treated. We would estimate that this structure would probably be rebuilt in 1963 at a cost of $60,000.

By treating the piling at the ground line with Osmoplastic at a cost of $1,500 we should defer the rebuilding until 1970 and have a safer bridge. This because the piling are now beginning to rot rather severely in places and the structure should be rebuilt when 15% of them are pegged. The dumps are steep and some of the points of the piling are very small. By doing the ground line treatment with Osmoplastic and spraying of the remainder of untreated wood with pentachlorophenol at a cost of $7,000, it should be possible to defer rebuilding until 1980.

On the basis of interest at 5% the following is an economical study of three possibilities; namely, no treatment and rebuilding in 1963; ground line treatment and rebuild in 1970; and ground line and spray treatment and rebuild in 1980:

	No trtmnt. 1963	G.L.Trtd. 1970	G.L.&Spray 1980
Amortize $60,000	$7368/yr.	$3060/yr.	$1350/yr.
Annual interest on treatment	0	75/yr.	350/yr.
Amortize trtment.	0	77/yr.	158/yr.
Annual repairs & mtce. until rebuilt perm.	2400/yr.	3000/yr.	4200/yr.
Total annual cost until rebuilt permanent	$9768/yr.	$6212/yr.	$6058/yr.

I have shown 7% annual costs of repairs and maintenance on the ground line and spray treated proposition as undoubtedly it would be necessary to re-treat at the ground line and possibly do a second spraying if we attempt to carry this structure through to 1980. There will also be bracing to replace and certainly a number of piling will have to be stubbed by that time.

On the basis of the foregoing it would appear that the spraying would be economical. However, I am quite concerned about the fire hazard as it would be necessary to have a watchman available for possibly a month to watch this bridge after the fairly inflammable pentachlorophenol and oil is sprayed on the structure. For that reason, I do not recommend accepting the Osmose Wood Preserving proposition and suggest that we carry out our proposed Form 134 work which covers treating the piling at the ground line with Osmoplastic, utilizing our own B&B labor.

I am attaching copy of Osmose Wood Preserving Co. letter of Oct. 21. I understand Mr. Ekberg has also been furnished with a copy.

WRB:m

Att.

District Engineer

OFFICE OF
CHIEF ENGINEER
OCT 27 1955
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

3505

St. Paul, Oct. 26, 1955

Mr. H. R. Peterson:

Returning herewith letter of Oct. 13 from Barrett Division of Allied Chemical and Dye Corporation together with brochure covering their creosote and pole sealer treatment for piling and poles. This application is apparently quite similar to the Osmoplastic which we have been using during the 1955 season and cost is about the same.

You will note the brochure suggests 60¢ for a pole. I presume that on that basis the piling being slightly larger would probably consume 70 or 75¢ worth of materials. Our material costs for Osmoplastic will average between 65 and 70¢ per piling so that there is no saving in the material, and labor cost should be identical, although in the case of the Barrett material two applications are necessary, one of creosote and then followed with the pole sealer.

I investigated the Osmoplastic material rather carefully before recommending it for use on the Eastern District and contacted a number of utility companies in the Minnesota area to be sure that those companies were completely satisfied with the results they were obtaining. For that reason, I see no reason to revise our present plans to continue with Osmoplastic which has been used for at least 20 years that we know of.

WRB:m
Att.

District Engineer

S-187-8

OSMOSE WOOD PRESERVING CO.
OF AMERICA, INC.

GENERAL OFFICES: 980 ELLICOTT ST., BUFFALO 9, N. Y.

Manufacturers of:
OSMOSALTS
OSMOPLASTIC
PENTOX
COP-R-NAP

October 21, 1955

Mr. W. R. Bjorklund, District Engineer
Northern Pacific Railway Co.
St. Paul 1, Minnesota

SUBJECT: Your Bridge No. 244

Dear Mr. Bjorklund:

Many thanks for the courtesies extended our Messrs. Scott Hockenberry, Jack Storer, and Bill Evans during their recent inspection of the subject bridge.

Based on the detailed information supplied us by the above men we have been able to accurately compute the square footage of timber surface to which preservative material should be applied. This letter constitutes our proposal for the application of preservative material to all exposed surface areas as well as the internal treatment of hollow piling. Please note that the inspection and groundline treatment with Osmoplastic of pilings is being quoted separately, since we realize your company may wish to do this work with its own crews.

We propose:

1. To apply 6% solution of pentachlorophenol to the entire exposed surface area of pilings, stringers, braces, underdecking and edges, etc. (We are excluding crossties, caps, and guard rails since these are already properly treated.)

These areas shall be treated to refusal, and based on our experience with similar type structures will absorb a considerable amount of preservative material. It is estimated that this will result in a retention of .25 pounds dry pentachlorophenol per cubic foot of sapwood in the case of piling, crossties, etc. It may be difficult to secure this same retention on bottom of decking and the sides and bottom of stringers.

2. To apply our 24-12 fire retardant solution (containing 5% pentachlorophenol) wherever, in the opinion of Contractor, it is deemed necessary, and to take all other precautions necessary wherever fire might be deemed a hazard.

3. To sound entire length of each piling and, where sounding indicates presence of decay, to determine its extent by making as many borings as deemed advisable. Reports shall be furnished

Northern Pacific Railway Co. October 21, 1955

Owner on sheets provided for this purpose, indicating condition of each individual piling.

4. To apply internal treatment to piling found to be internally decayed by forcing preservative solution into piling under pressure to point of refusal.

5. To supply detailed information on condition of individual piling, gallons of solution applied externally as well as internally, and gallons of solution applied to each "Bent T" on report forms, copies of which are attached.

6. To apply Osmoplastic at those points where the cap rests on the piling. This area is particularly vulnerable to decay since moisture accumulates there.

7. To inspect the groundline area of all piling and to treat with Osmoplastic those which do not come under the category of "rejects". This groundline treatment involves the application of Osmoplastic in a zone of from 15 inches below groundline to 3 inches above. However, this area may be increased to as much as 30 inches for side hill piling or where the actual groundline area is subject to fluctuations due to erosion and filling. Prior to application, all decayed wood is removed, borings are made, and the groundline area is thoroughly inspected. We will include a copy of the report forms used for this particular work.

8. To supply Northern Pacific Railway Co. with certificates of Workmen's Compensation, Property Damage and Public Liability.

9. To furnish all supervision, labor, tools, equipment and material necessary or required for the preservative treatment of Owner's bridge No. 244.

10. To perform the above described work for the following sum:

Bridge No. 244, excluding groundline treatment $5291.60

Groundline treating 240 pilings at $7.00 each for "treats" and $6.00 each for "rejects", estimated $1656.00

6947

It can be expected by Owner that the preservative treatment of these bridges in the manner described above will defer their replacement by approximately 25 years.

Northern Pacific Railway Co. October 21, 1955

We sincerely hope that we will be able to perform this work for your company, and if you or any members of your organization have any questions whatsoever, please call the writer collect at Elmwood 5905, Buffalo, New York.

Sincerely,

John L. Surdam
President

JLS:bap
Enclosures

OFFICE OF
DISTRICT ENGINEER

OCT 24 1955

NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

OFFICE OF
CHIEF ENGINEER
SEP 28 1955
NORTHERN PACIFIC RY. CO.
ST. PAUL, MINN.

3505

St.Paul, Minn.
Sept. 28, 1955.

Mr. H. R. Peterson:

Referring to the Chapman Chemical Co. bulletin covering the advantages of pentachlorophenol as a wood preservative. I presume that by the question mark you have in mind that I criticize the statements that are being presented which indicate that 0.20 lb. of penta per cubic foot, which is equivalent to 8 lbs. of 2-1/2%, is equal to 8 lb. treatment of a 50/50 creosote-petroleum treating solution.

In reviewing the booklet there is substantial short-range information indicating that 8 lb. treatment of 2-1/2% penta might be equivalent in protection to the creosote-petroleum solution. The first chart in the booklet establishes this fact.

In the second chart the test using stakes with Southern Pine sapwood treated with 0.21 lb. per cubic foot which is slightly more than 2-1/2% shows an index of condition to be better than 7 lb. treatment of 50/50 creosote as indicated on line 4. Possibly if the 8 lb. treatment had been used, lines 2 and 4 probably would have terminated at approximately the same point. Line 2 is dropping off rapidly whereas line 4 seems to be levelling off.

In the 1950 Dow stake tests it is interesting to note that the 2 and 3% penta treatments show better than the equivalent 40/60 and 60/40 creosote treatments but the 101E oil control showed better than either one. The 101E oil is a heavy recycle oil from a catalytic cracker and is very high in aromatics. This oil dries when exposed to the air and forms a varnish-like film over the wood. It could be that in time this film would break down and there would be a rapid disintegration of the wood when the fungi could reach the interior. I believe that some of the advantages of the penta treatment as mentioned at the top part of this page may be due to the oil carrier.

Referring to the next comparison made by the U.S.D.A. in Mississippi the untreated post had a life of 3.7 years and 100% failure. The penta treatment which is respectively 3 and 4.8%, showed failure of 2.1 and 1%, but the carrier is used crankcase oil. Crankcase oil due to its naphthalene chloride content, is an effective preservative and I call to your attention that posts when treated with this material had an average life of 15 years; therefore the carrier in this case is a very effective preservative, as I mention in the paragraph above.

Duncan and Richards report in the A.W.P.A. proceedings that their tests indicate:

4%	penta in suitable gas oil is equivalent to	80/20	creo.-petroleum
3%	do.	60/40	do.
2½%	do.	50/50	do.
2%	do.	40/60	do.
1%	do.	20/80	do.

On the basis of this information ten railroads have treated ties accordingly, to evaluate the statements made.

On the page showing the creosote tie oil story I have changed the figures presented by Chapman Chemical Co. and have shown in ink the actual price we would pay. This of course results in a greater savings per tie than Chapman indicates.

After I have reviewed all the information that is so far available I believe that creosote still has its many advantages. Even though they recommend using a 2-1/2% penta in heavy oil, the oil must be compatible with the penta and we would have to use probably a No. 5 blend which is slightly higher than No. 6 residual. This No. 5 blend contains No. 2 oil and if this blend were not used, we probably would have to dissolve the penta in No. 2 oil and then add 90% of No. 6. Of course this extra handling and mixing would be slightly inconvenient but if the equipment were available, the labor costs I do not think would be materially increased.

In conclusion I do not believe there is still enough long-range information indicating that 2-1/2% penta at 8 lb. per cubic foot is equivalent to our 8 lb. treatment of 50/50 creosote and oil.

Engineer of Water Service.

HMS/gs
Encl.

3505
~~3659~~

St. Paul, June 20, 1955.

Mr. H. R. Peterson:

Referring to Mr. Burford's letter of June 14, attached, concerning penta treated wood:

As a matter of information, my letter of June 16 contained the following cost data adjusted to Brainerd, and includes all freight over company lines:

	Gallon	Approx. 8# Treatment
Straight #1 creosote	24.5¢	22.74¢/cu.ft.
5% penta - #2 oil	22.75¢	21.11¢ "
5% penta - #6 oil	16.95¢	15.73¢ "
50:50 creosote & #6 oil	15.1¢	14.01¢ "
2½% penta - #6 oil	11.32¢	10.50¢ "

You will note that 5% penta in#6 oil for approximately 8 lb. treatment costs more than 50:50 creosote in #6 oil. There is no selling point as far as I know that can be used that would warrant the higher cost of treatment with the 5% penta, therefore they are saying all indications are that the 2½% by weight of penta in heavier oil is a better cross tie treatment. On what they base their conclusions I do not know. I do not believe that sufficient tests have been made with 2½% penta treating solution to warrant considering making such a statement. This 2½% solution will then cost less than 50:50 creosote and #6 oil and it is the only argument they seem to have. You will note that they recommend the #6 oil on account of other desirable characteristics.

What I do not understand is the fact that they still recommend a 5% penta in aromatic gas oil for the treatment of poles and cross members which I do not think have the severe service that a cross tie would have, especially those ties that are found in pit run gravel, dirty processed gravel, etc. There is enough data substantiating the value of penta in 5% solution but I cannot see that it would justify increasing the treating costs as the 50:50 creosote petroleum certainly has not been found wanting.

H. M. Schmalzel
Engineer of Water Service.

HMS/gs
Encl.

OFFICE OF CHIEF ENGINEER
JUN 20 1955
NOR. PAC. RY.
ST. PAUL, MINN.

St. Paul, June 20, 1955

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Engineer of Water Service.

HMS/gs
Encl.

3505

St. Paul, Minnesota
June 16, 1955

Mr. R. E. Smith:

Referring to your letter of June 2, file A, about inquiry from Monsanto Chemical Co. as to our use of pentachlorophenol wood preservative.

Your 1952 correspondence is returned herewith. Also returned are four copies of questionnaire which has been filled out by Mr. Loom to cover the extent of use of penta treatment on the Northern Pacific.

Mr. Loom in his reply advised that we have never used any pentachlorophenol at Northern Pacific treating plants. Our use of penta treated materials has been confined to some car decking and poles which have been treated at commercial plants.

Mr. Ernstrom in his letter of February 5, 1953 advised that 159,125 fbm of penta pressure treated oak car decking were used in construction of 250 gondola cars for the Northern Pacific in 1952 and a similar quantity would be used in construction of the same number of gondola cars in 1953. We are continuing the purchase of penta treated lodgepole pine and northern white cedar poles from four commercial plants located on our lines. Three of these plants treat by the non-pressure hot and cold open tank method. The other plant treats by the standard AREA-AWPA pressure method.

Mr. Loom goes on to call attention that on page 4 of their booklet they indicate cost of standard 5% penta solution will be the same as treatment of No. 1 creosote which at present costs us 23¢ per gallon. Our present cost of fuel oil is 3.3¢ per gallon. Present average cost of one gallon of our standard 50-50 creosote-petroleum solution is 13.2¢ per gallon.

On the assumption that cost of penta would be 23¢ per gallon, the same as cost of No. 1 creosote, the cost of penta black oil treatment will amount to $0.1573 per cubic foot as compared to our cost of $0.1401 per cubic foot for our current creosote-petroleum solution.

During 1954 we treated at Brainerd, Paradise and Seattle a total of 2,743,705 cubic feet of forest products. If we had treated a similar quantity with the standard 5% penta solution, the increased cost to the Northern Pacific would have amounted to $49,192.

I believe you will readily agree that our present practices should be continued.

HRP/jwm
attachments

H. R. PETERSON

St. Paul, Minn.
June 16, 1955.

Mr. H. R. Peterson:

Referring to your file, attached, more especially Mr. Loom's letter of June 8 concerning comparative costs of creosote and pentachlorophenol wood preservatives:

In reviewing Mr. Loom's letter I find that he has based his costs on approximately 8 lbs. per cubic foot treatment or roughly 0.928 gal. per c.f. retention. His cost of 13.2 ¢ gal. for 50-50 creosote petroleum treating solution does not include freight on company line. 13.2¢ x 0.928 gives a cost of 12.25¢ per c.f. which checks his figure of 12.26¢. Creosote delivered at Brainerd costs 24.5¢ gal. and #6 oil delivered at Brainerd, including company freight, is 5.7¢ gal. or a 50-50 creosote-petroleum solution actually costs us 15.1¢ gal. Based on 0.928 gal. per c.f. our actual charges would then be 14.01¢ per c.f. for treatment.

On Page 4 of the Wood Treating Chemicals bulletin in the file, Mr. Loom takes advantage of the statement made that penta treatment is the same price as Grade 1 creosote. That is how he derived his 23¢ per gal. for the penta treating solution. Using 0.928 gal. per c.f. and the 23¢ per gal. figure that he used as the cost of #1 creosote, we arrive at 21.34¢ per c.f. which corresponds closely to 21.33¢ which Mr. Loom shows in the third to the last paragraph of his letter.

A 5% penta solution which is usually recommended, contains 0.375 lbs. per gal. which costs 11.25¢. Using #2 oil as a carrier at 11.5¢ delivered at Brainerd gives us a cost of 22.75¢ gal. Therefore using a treatment of 0.928 gal. per c.f. we arrive at an actual cost of 21.11¢ per c.f. This is 0.22¢ less than Mr. Loom has calculated.

The last pressure-treating material we handled with penta was obtained from the Montana Pole Co. and the retention was 6 lbs. per c.f. or 0.75 gal. Based on the figures above, this would cost 17.06¢ per c.f. If we used #6 oil as a carrier and a 5% penta solution, we arrive at a cost for treating solution of 16.95¢ gal. This is still 1.85¢ gal. more than our present creosote mixture and would cost 15.73¢ per c.f. which is 1.72¢ per c.f. more than our present creosote treatment. These prices are all based on chemicals delivered at Brainerd.

Monsanto, Dow and Chapman Chemical Companies realize that they cannot compete with creosote due to this higher cost, which appears insignificant but would run into quite a few dollars when several million c.f. are treated annually. They have therefore now recommended using a 2½% penta solution in #6 oil and this would cost 11.32¢ gal. which would result in a treating cost of 10.5¢ per c.f. This gives a net retention of 0.17 lbs. per c.f. of penta. This low treatment is untried and untested and I doubt very much if we could seriously recommend such a light treatment in view of the fact that the Edison Electric Institute Spec. TD-100, of which you have a copy, requires a minimum retention of dry penta for incised sections covering ordinary treatment of 0.5 lbs. per c.f.

Under these circumstances I can only agree with Mr. Loom in that we retain our creosote treatment as has been the case. Creosote in heavy petroleum or coal tar pitch also provides a certain amount of protection against mechanical wear and this is not to be overlooked.

Engineer of Water Service.

HMS/gs
Encl.

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