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CHICAGO NORTH SHORE AND MILWAUKEE RAILWAY COMPANY

A N N U A L R E P O R T

FOR THE YEAR 1948

SUPERINTENDENT OF WAY, STRUCTURES AND POWER

Highwood, Illinois
March 1, 1949

CHICAGO NORTH SHORE and MILWAUKEE RAILWAY COMPANY

WAY, STRUCTURES and ELECTRIC POWER SERVICE

ANNUAL REPORT
FOR THE YEAR 1948

F O R E W O R D

This report is an account of the work accomplished by all divisions of the consolidated department and includes all A.F.E. and extraordinary maintenance work performed by contractors and regular Company forces as well as information and statistics relating to the regular maintenance work which are of interest at this time and will be of value in the future for record and reference purposes.

Due to a strike by several groups of employees the Railroad did not run from March 26 to June 29, 1948.

I N D E X

	<u>Page</u>
Track and Roadway - Additions and Betterments	1
Track and Roadway - Maintenance Work	5
Ties Renewed	6
Bridge and Building - Additions and Betterments	7
Bridge Repairs	11
Building and Platform Repairs	12
Miscellaneous	13
Fencing	13
Machine Shop	14
Tin Shop	14
Buildings Painted	15
Signals and Interlocking - Additions and Betterments	16
Signals and Interlocking - Maintenance Work	18
Signals and Interlocking - Crossing Protection	21
Equipment	22
Summary - Way and Structures	23
Electric Power Service - Additions and Betterments	26
Electric Power Service - Maintenance Work	27
Power Distribution	28
Power Cost Per Car Mile	29
K.W.H. - C.N.S. & M. Ry. Co. and C. & M.E. Ry. Co.	
Car Miles Operated on North Shore Power	
Cost of Electrical Energy	30
Power Summary	31
K.W.H. Purchased	32
K.W.H. - Milwaukee City Line	33
Illinois Substations - D.C. Output	34
Auxiliary Power Purchased	36
Wisconsin Substations - D.C. Output	37
A.C. Power in Wisconsin	38
Monthly K.W. Demand - Illinois Stations	39
Monthly K.W. Demand - As Run	41
Monthly K.W. Demand - As Billed	41
Substations - Installed Capacity	42
Summary - Electric Power Service	43
Communications Division	44

TRACK AND ROADWAY DIVISION

ADDITIONS AND BETTERMENTS

TRACK REHABILITATION ON HOWARD - DEMPSTER LINE - A.F.E. 5022

Both Main Line tracks from East Prairie Road to Crawford Avenue were ballasted by Company forces. The track was skeletonized to bottom of ties and raised, lined and surfaced on new stone ballast. Ties were renewed where necessary and all rail joints renewed with reconditioned angle bars.

At East Prairie Road the ties in the Main Line crossing were found to be sound and were not renewed. After raising the track the original gumwood crossing sections were reinstalled. Ties in the side track crossing were renewed and new asphalt placed.

At Crawford Avenue all Main Line crossing ties were renewed with 8'-6" sawed ties properly spaced for the concrete slab crossings contemplated for this location. Temporary plank and asphalt crossings were installed.

SIDE TRACK CONSTRUCTION - 12th STREET, WEST LINE - A.F.E. 5002

The south end of the switching lead between 12th Street and 10th Street was shifted west to eliminate a reverse curve. This track is now straight throughout its length.

A new track, 367 feet long, was built extending north across 12th Street from a connection with the switching lead south of the crossing. This track lies west of the lead track and serves the Phillips Petroleum Company. Construction consists of 80# relay rail on secondhand ties and cinder ballast.

The track is electrified for its entire length.

TRACK AND ROADWAY DIVISION

ADDITIONS AND BETTERMENTS - CONTINUED

TRACK REMOVAL - WAUKEGAN CITY LINES - A.F.E. 5055

The work of removing rail and restoring pavement throughout Waukegan, which was started late in 1947, was completed in 1948. The work done was as follows:-

1. SOUTH GENESEE STREET - 10th to SHERIDAN ROAD

Railway Company removed rails and restored pavement by placing 6" of waterbound macadam in the rail slots using 1" stone and screenings rolled in place with truck tires. When sufficiently compacted, entire track zone was primed and covered with 1" layer of cold-lay ready mixed asphalt rolled in place.

2. GENESEE and CLAYTON STREETS FROM SHERIDAN ROAD TO COUNTY STREET; COUNTY STREET FROM CLAYTON TO FRANKLIN STREET; WASHINGTON STREET FROM UTICA TO GENESEE STREET

Railway Company removed rails and restored pavement by placing 5" of traffic-bound macadam mix in the rail slots and rolling with truck tires. When sufficiently compacted, entire track zone was primed and covered with 2" layer of hot mix asphalt, specification I-11.

3. FRANKLIN STREET - COUNTY TO NORTH AVENUE

Railway Company removed special work only. Pavement was restored by priming and filling flangeways of straight track with I-11 asphalt and by covering entire track zone at special work locations with the same type of asphalt.

4. NORTH AVENUE - FRANKLIN TO GLEN FLORA

Railway Company removed rails and filled slots with 5" of traffic-bound macadam mix, rolled in place with truck tires. This section of North Avenue was then repaved by the City with a 3" bituminous pavement. The Railway Company paid the City the sum of \$3,000.00 in lieu of I-11 paving in the rail slots.

TRACK AND ROADWAY DIVISION
ADDITIONS AND BETTERMENTS - CONTINUED

TRACK REMOVAL - WAUKEGAN CITY LINES - CONTINUED

5. NORTH AVENUE - GLEN FLORA TO GREENWOOD
GLEN FLORA AVENUE - NORTH AVENUE TO SHERIDAN ROAD
COUNTY STREET - CLAYTON TO WATER STREET
WATER and UTICA STREETS - GENESEE TO WASHINGTON STREET

Flangeways were swept, primed and filled with cold mix asphalt, specification B-3.

6. GLEN FLORA AVENUE - NORTH AVENUE TO WESTERN AVENUE

Entire track zone was swept, primed and covered with an average 1" wearing surface of hot mix asphalt - I-11.

All the work of removing rail and placing macadam in slots was done by Company Forces. The asphalt was placed by the Skokie Valley Asphalt Company Contractors. Rail was sold on the street for scrap.

RAIL RENEWAL - PETTIBONE YARD - A.F.E. 5079

Relaid 365 track feet of 80# rail with 100# relayer rail on south end of Pettibone Yard Lead Track.

RAIL RENEWAL - RONDOUT - A.F.E. 5092

Relaid 1,253 track feet of 80# rail including 2 switches with 100# relay rail and special work at Rondout Scale and Interchange tracks as follows:

Scale Track	-	530 Track Feet
No. 1 Interchange Track	-	443 Track Feet
No. 2 Interchange Track	-	280 Track Feet

TRACK AND ROADWAY DIVISION

ADDITIONS AND BETTERMENTS - CONTINUED

RETIRE CROSSOVER AT 22nd STREET, EAST LINE - A.F.E. 5069

The trailing point main line crossover located north of 22nd Street was retired.

CROSSING IMPROVEMENTS - WILLOW ROAD, S.V.L. - JOB ORDER 386

In connection with the relocation and paving of Willow Road across the right-of-way, the Cook County Highway Department furnished and the Railway Company installed removable precast concrete slab crossings on both main line tracks and the sidetrack. Ties were completely renewed, track skeletonized to bottom of ties and new ballast applied, stone on the main line and cinders on the siding. 198 lineal feet of 80# rail was relaid with 100# relayer rail in the sidetrack crossing. Main line crossings are 60 feet long and the sidetrack crossing is 84 feet long. The devil strip and the roadway were paved with concrete by the County. The main line was lined and surfaced throughout the curve and the grade at the crossing adjusted to put all 4 rails on one plane.

Improvements and changes to crossing protection are described in the Signal Section.

TERMINAL FACILITIES AT 10th STREET, EAST LINE - A.F.E. 5054

Removed both main line tracks from end of pavement to south side of Envelope Company crossing to make way for new Terminal building.

TRACK AND ROADWAY DIVISION

MAINTENANCE WORK

Both tracks from Howard Street to East Prairie Road were lined and surfaced.

The moveable point crossing at Dempster Interlocking Plant was completely renewed.

A new side guarded slip switch layout was installed in the northbound crossing at Green Bay Junction, South Upton, replacing the original slip switch. The two center frogs were renewed with manganese insert frogs.

975 lineal feet of 100# rail was renewed with new 100# rail on the high side of the northbound track in the curve at Scranton Avenue, Lake Bluff, Skokie Valley Line.

Installed 1936 - 100# double shoulder tie plates as follows: -

<u>SECTION</u>	<u>TIE PLATES</u>
10 - Kenosha	162
15 - Milwaukee	2
16 - Howard-Dempster	270
17 - Glenayre	1,034
Bridge Gang	<u>468</u>
TOTAL TIE PLATES - 1,936	

Due to abandonment of street car operation in Waukegan, Section No. 6 was abolished on March 6, 1948. The East line from North Chicago Junction to 10th Street has been included in Section No. 7.

Repaired broken rails on Greenleaf Avenue, Wilmette and made 20 thermit welds.

TRACK AND ROADWAY DIVISION

MAINTENANCE WORK - CONTINUED

Repaired slippages on east bank through cut on Winnetka Grade Separation by installing cribs built of old ties and casting back the displaced dirt. Set out 300 black locust slips on the restored sections of the bank.

Repaired broken rails on South and North 5th Street, Milwaukee, and made 64 thermit welds.

Thermit welded 2 joints in National Avenue crossing, Milwaukee.

Replaced 4 bridge guides in center of north draw-bridge, Milwaukee, on southbound track.

Renewed 99C feet of 80# rail, 1 frog and 3 switch points with 80# relay material at west end of Rondout Interchange tracks.

TIES RENEWED

Ties were renewed by Company Forces as follows:

<u>SECTION</u>	<u>MAIN LINE</u>	<u>SIDE TRACK</u>	<u>SWITCH</u>
3 - Highwood	-	63	2
5 - Libertyville	-	60	8
7 - Waukegan, West Line	1	-	-
10 - Kenosha	-	-	93
11 - Racine	-	49	-
14 - Grange Avenue	-	-	1
15 - Milwaukee	-	16	14
16 - Howard-Dempster	184	75	126*
17 - Glenayre	527	-	24
21 - South Upton	395	-	-
	<hr/>	<hr/>	<hr/>
	1,107	263	268

*Includes 17 - 3rd rail chair ties

BRIDGE AND BUILDING DIVISION

ADDITIONS AND BETTERMENTS

PARTITIONS IN WILSON AVENUE COMMISSARY - A.F.E. 5076

The liquor storage space in the Commissary Department at Wilson Avenue was enclosed by the erection of wire mesh partitions to full ceiling height. Seven windows in the room were closed up with steel covered panels bolted through the window frames. Partitions were erected by F. P. Smith Wire and Iron Works and window closures made by Wm. J. Seown Building Company.

RETAINING WALL AND FENCE AT WINNETKA - A.F.E. 5063

To comply with the terms of an agreement with the Village of Winnetka, a reinforced concrete retaining wall was built along the top of the bank south of Pine Street to support a concrete sidewalk around the substation yard. This wall was built by the contractor for the Village in conjunction with their sidewalk construction and the cost was paid by the Railway Company.

A new 4 foot Cyclone fence was erected at the top of the bank from Pine Street south to connect with the existing station grounds fence. This fence was erected by the Cyclone Fence Company.

CONSTRUCTION OF SHELTERS - BEECH ST., HIGHLAND PARK - A.F.E. 5044

The existing old style frame station building on the north end of the northbound platform was retired and the site filled in. A standard "H" type shelter, less roof, was built on the northbound platform under the canopy. The standard 16 foot shelter formerly located on the northbound platform at Cyclone Station, North Chicago, was moved to Beech Street and erected on the southbound platform on a parcel of land 7 ft. x 22 ft. leased from the C. & N.W. Ry.

BRIDGE AND BUILDING DIVISION

ADDITIONS AND BETTERMENTS - CONTINUED

REFRIGERATION EQUIPMENT - HIGHWOOD RESTAURANT - A.F.E. 5082

A new 11 cubic foot capacity Model MJ-11 Frigidaire refrigerator and a Model WWR-150 Frigidaire DeLuxe wet storage beverage cooler complete with glass filler and water coils were purchased and installed in the Highwood Office Restaurant. The old equipment was retired and scrapped.

CONSTRUCTION OF FREIGHT OFFICE IN GREAT LAKES STATION -
A.F.E. 5083

The existing Traffic Office located in the northeast corner of the Great Lakes, Main Gate, Station was extended south 16 feet using the same type of frame and glass construction as is in the original office. Additional heating and lighting facilities were provided. This room provides space for the North Chicago Freight Office force formerly located in the North Chicago Freight House.

RETIRE STATION FACILITIES, NORTH CHICAGO, EAST LINE -
A.F.E. 5069

The two platforms and the shelter at 12th Street were removed. The northbound shelter at Stanley Avenue (Cyclone Station) was moved to Beech Street, Highland Park under A.F.E. 5044.

TERMINAL STATION AT 10th STREET, EAST LINE - A.F.E. 5054

An "L" shaped frame building 46'x30' was built on the right-of-way east of Sheridan Road and north of National Envelope Company crossing. This building contains a ticket office and waiting room 15'x30'; a trainmen's room and a room for car cleaners and terminal men of the Mechanical Department. Two toilet rooms are provided, one for the public and one for trainmen. The ticket booth from the old County Street Station was rebuilt and installed in the

BRIDGE AND BUILDING DIVISION

ADDITIONS AND BETTERMENTS - CONTINUED

CONTINUED -

TERMINAL STATION AT 10th STREET, EAST LINE - A.F.E. 5054

new waiting room. Plumbing fixtures were partly old from County Street and partly new from Company and Plumbing Contractor's stock. 110 volt A.C. lighting was installed. A one-pipe hot water heating system with a circulating pump was installed utilizing the boiler and radiators from the old County Street Station. General contractor was Jenkins and Boller and heating contractor was Thomas J. Killian.

RETIRE REFRIGERATOR EQUIPMENT - KENOSHA M.D. - A.F.E. 5066

The frame, cork insulated cold room, frame machine room and all refrigerating equipment located in the Kenosha M.D. Station was removed by a contractor at no cost to the Railway.

NEW CONCESSION EQUIPMENT - RACINE STATION - A.F.E. 5042

In connection with the installation of new concession fixtures at Racine, Company forces repaired the floor in the north portion of the station; made changes to windows in west wall and painted interior of entire station. Plumbing work was done by the Zimmerman Plumbing Co. and electrical work by Wm. H. Hetzel of Racine.

RETIRE SHELTER AT 7-MILE ROAD - A.F.E. 5064

The old style No. 3 station shelter, located on the northbound platform at 7-Mile Road, was retired by Company forces.

REHABILITATION OF WASH ROOMS, MILWAUKEE BARN - A.F.E. 5025

Removed all old fixtures and interior partitions in the washrooms at Harrison Street, Milwaukee Barn and installed new fixtures consisting of wash basin and toilet bowl in ladies' room and three 5 ft. wash sinks, 3 toilet bowls, 1 floor type urinal and 36" steel shower stall in

BRIDGE AND BUILDING DIVISION

ADDITIONS AND BETTERMENTS - CONTINUED

CONTINUED -

REHABILITATION OF WASH ROOMS, MILWAUKEE BARN - A.F.E. 5025

men's room. A new concrete block wall, plastered on both sides, was built between the 2 rooms. The concrete floor was rebuilt and sloped to a catch basin in the center of the men's room. Steam radiators were rearranged to accommodate the new fixtures. All plumbing and heating work was done by Ed. J. Pivonka, Plumbing Contractor, and all carpenter and masonry work was done by Company forces.

REVISION OF HEATING FACILITIES, MILWAUKEE TERMINAL - A.F.E. 5101

Use of 2 existing boilers for furnishing steam heat at Milwaukee Terminal was discontinued on December 17, 1948. On that date the heating system was connected through a 4 inch main to the steam main of the Wisconsin Electric Power Company located in West Michigan Street. All necessary thermostats and other control apparatus were installed. Work was done by Jacob Mergenthaler and Son of Milwaukee.

One of the old boilers was removed from the building and is to be transferred to Dempster Street. The other boiler is to be retained at Milwaukee for the present.

BRIDGE AND BUILDING DIVISION

MAINTENANCE WORK

BRIDGES AND TRESTLES

The following repairs were made by Company Forces:-

INDIAN CREEK, SKOKIE VALLEY LINE

Renewed 19 piles, 7 caps, 7 braces, 18 guard rails and 81 ties. Installed 162 new 100# double shoulder tie plates on ties renewed. Renewed wing walls on both ends of northbound bridge and on north end of southbound bridge.

STATE LINE BRIDGE

Renewed all ties on structure. Installed 88 ties and 176 new 100# double shoulder tie plates.

PUETZ ROAD

Renewed all 4 piles in bent #7 northbound and all 4 piles, mudsill and 5 braces in bent #6 southbound.

SOUTH MILWAUKEE ROAD

Renewed all 4 piles, cap and mudsill in bent #4 and #5, southbound. Renewed 18 braces, 13 stringers and 12 guard rails. Installed 64 secondhand ties and 130 new 100# double shoulder tie plates on southbound bridge.

DES PLAINES RIVER

Renewed 4 piles, 6 caps and 21 stringers.

BRIDGE AND BUILDING DIVISION

MAINTENANCE WORK

BUILDING AND PLATFORM REPAIRS

In addition to routine minor repairs to buildings and platforms on the system, the following major items were done:

Built new motor car set-offs at Ridge Avenue Crossover, Dodge Avenue, west end of Canal Bridge and at Hamlin Avenue Section House, all on the Howard-Dempster Line.

Built frame and glass vestibule inside of north doors at Dempster Street, Skokie, Station.

At Downey's Station, Skokie Valley Line, the ticket office was extended south 9 feet and additional ticket windows installed.

The two doors in the east side of the Zion Station were removed and the opening closed in with a brick wall plastered on the inside to match the rest of the station. Wood platform and steps on east side of station were also removed.

At Kenosha Station a frame and glass vestibule was built inside the north doorway.

A concrete block building 5' x 13' x 4' was built on the concrete platform at the north end of the 6th and Clybourn M.D. Station. This building is used for housing garbage cans.

A frame and glass vestibule was built inside the doorways at the north end of Milwaukee Terminal.

At Milwaukee Terminal the area between Tracks 2 and 3 was excavated to basement floor level for a distance of 24 feet south from the bottom of the old stairway. Concrete block walls were built at the north and south ends of the excavation and a concrete floor placed. A 6' x 20' wood platform at car floor height was built between the tracks at this point and equipped with a removeable pipe railing. New wood steps were built at the south end of the pit, leading up to the track level. Platform is used for handling baggage to and from trains.

BRIDGE AND BUILDING DIVISION

MAINTENANCE WORK

BUILDING AND PLATFORM REPAIRS - Continued

The second floor of the Waukegan Garage was remodeled to provide offices for the Motor Coach Company. New Waylite block partitions were erected, lighting system rearranged, additional toilet facilities installed and the rooms painted. All work except electrical was done by Company forces. S. H. Bente was the electrical contractor.

A small office, 8' x 12', was built in the North Chicago Substation for the operators and the toilet facilities were partitioned off from the rest of the room.

All bearings and moveable parts of the Rondout track scale were repaired and reconditioned in the Milwaukee Shops of Fairbanks-Morse Scale Company.

MISCELLANEOUS

Maintained passenger stations and South State Street Baggage Room in Chicago.

Operated steam heating plant at Highwood Office.

Repaired asphalt crossings on the system.

Operated the Weed Killer.

Repaired Company owned houses and buildings as requested by the Real Estate Department.

FENCING

Rebuilt right-of-way fence as follows: -

South of Berkley Road, S.V.L., East Side	1,200	Lin.	Ft.
Wheeler Road, West - North Side	3,000	"	"
Washington Street to Cornelia St. - West Side	500	"	"

TOTAL - 4,700 Lin. Ft.

BRIDGE AND BUILDING DIVISION

MAINTENANCE WORK

MACHINE SHOP

In addition to the routine work of maintaining plumbing, heating plants, tools and work equipment and making and repairing parts for the Signal and Interlocking Division, the following work was done: -

Overhauled 1 Section Motor Car and completely rebuilt 1 Maintainer's Speeder demolished by collision with a train.

Rebuilt 6 push cars.

Repaired 6 frogs and 5 switch points.

Built up crossings and frogs at Ryan Tower, Austin Avenue, Milwaukee Terminal, 5th and Wisconsin, National Avenue and Greenfield Avenue.

TIN SHOP

About 75% of the time of this shop is devoted to making water coolers, flush tanks, water supply tanks, card holders, toilet chutes, destination sign box panels, car heater magazines, roof flanges, roof jacks and ventilators for the Mechanical Department.

In addition to the foregoing work for the Mechanical Dept. and miscellaneous spot maintenance to heating plants and sheet metal work on buildings, the following was done:

Installed new gutters on Racine Passenger Station and new downspouts on Racine M.D. Station.

Installed housing and piping for blower fan for hot air system at Sheridan Elms.

Renewed hot air furnace in Highwood Section House.

Repaired switch lamps, headlights and marker lamps.

Made garbage and trash cans for stations and concessions.

BRIDGE AND BUILDING DIVISION

MAINTENANCE WORK

BUILDINGS PAINTED

<u>LOCATION</u>	<u>DESCRIPTION</u>
Adams and Wabash Station	Painted interior, refinished all furniture, lockers and signs.
Howard Street, Chicago	Painted interior of station and Trainmen's Room.
Highwood Office Building	Washed and shellacked all floors.
Highwood Annex Building	Painted interior of Transportation Office.
Waukegan Garage	Painted interior of Storeroom and Offices.
Racine M.D. Station	Painted inside and outside.
Racine Station	Painted inside and outside.
Racine	Painted outside of 3 Gate Towers.
Grange Avenue Section House	Painted interior.
Harrison St., Milwaukee	Painted outside of Station, barn and sheds.

CONTRACT PAINTING

The Boiler Room smokestack and the elevated water tank in Highwood Yard were cleaned and painted two coats by Murray Brothers, painting contractors.

SIGNAL AND INTERLOCKING DIVISION

ADDITIONS AND BETTERMENTS

JOINT CROSSING PROTECTION - GLENCOE - A.F.E. 5048

On September 3, 1947, an agreement was signed with the C. & N.W. Ry. Company providing for joint automatic crossing protection at the South Avenue and Green Bay Road crossings in Glencoe. This work, started in 1947, was completed and put in service in 1948.

At South Avenue the C. & N.W. installed standard track circuit operated short arm gates and flashing light signals on both railroads and removed the existing joint manual gates at its expense. North Shore track circuits were installed in 1947. The new automatic protection was put in service on February 18, 1948.

At Green Bay Road the North Shore moved its southwest street gate and northwest sidewalk gate to the west side of the C. & N.W. tracks and installed flasher signals on both railroads, all at its own expense. The C. & N.W. installed its own track circuits and removed its existing manual gates, all at C. & N.W. expense. This installation was put in service on February 6, 1948.

KENOSHA INTERLOCKING PLANT - A.F.E. 5027

On March 15, 1948 a new semi-automatic interlocking plant was put in service and the old mechanical plant retired. The major portion of the work involved in this change was done in 1947 and described in the Annual Report for that year. Work done in 1948 was mainly wiring and testing of relays and control circuits. The old machine and tower have not yet been disposed of.

SIGNAL AND INTERLOCKING DIVISION

ADDITIONS AND BETTERMENTS - CONTINUED

INSTALLATION OF BLOCK SIGNAL FACILITIES THROUGH KENOSHA -
A.F.E. 5028

Transformers were installed on the 2200 volt power line built in 1947. All but 4 have been put in service.

The new aerial signal cable between 73rd Street and the northbound home signal was put in service, replacing existing aerial cables and open line wires. The old lines have not been removed to date.

ADDITIONAL CROSSING PROTECTION - 52nd ST., KENOSHA - A.F.E. 5049

Two flashing light signals were installed to operate in conjunction with the existing automatic gates. Time circuits were installed to delay start of gate operations for 10 seconds after start of flasher signals. The southbound circuit was extended to provide proper time for gate operation.

NEW START AND HOLDING SIGNAL - ROOSEVELT RD., KENOSHA -
A.F.E. 5089

A new track cut was installed in the southbound track at the south end of the southbound platform at Kenosha Station to control start of automatic gate operation at Roosevelt Road and 67th Street. A two-position signal was installed adjacent to the southbound track and approximately 400 feet north of Roosevelt Road. This signal is normally red and goes to green only when the gates are in a fully lowered position.

CROSSING PROTECTION IMPROVEMENTS, WILLOW ROAD, S.V.L.
JOB ORDER #386

Two track circuit controlled flashing light signals, equipped with cast iron crossbuck signs, reflex type "Number of Tracks" signs and "Stop on Red Signal" signs, were installed to operate in conjunction with existing automatic gates. The gate pedestals were re-located on new concrete bases and equipped with new 30 foot arms complete with 3 two-way lights. All costs were paid by Cook County.

SIGNAL AND INTERLOCKING DIVISION

MAINTENANCE WORK

In addition to the routine work of maintaining interlocking plants, block signals and crossing protection devices, the following work was done by Company forces and charged to maintenance accounts:

The southbound annunciator circuit for Howard Street Interlocking Tower was extended to Asbury Avenue and put in service on October 14, 1948.

2 runs of 1 conductor #4 and 1 run of 7 conductor #14 underground cable were laid in a trench on the north shoulder of the track, 7'-6" north of the north rail, between Signal No. 4 and Signal No. 93 on the Howard-Dempster Line, a distance of 2057 track feet. This cable is intended to replace existing signal wires in wooden trunking located between the 2 main tracks. To date the new cable has not been placed in service.

Due to non-operation of the Dempster Street Interlocking Plant, caused by abandonment of C.T.A. operation on the Howard-Dempster Line, several changes were made as follows:

Control circuits for Signals 23 and 136 were jumpered around signal levers and lock controls in the tower.

The northbound control circuit for Dempster Street automatic gates was extended south to Niles Center Road.

A time release circuit was installed to clear the automatic gates at Niles Center Road and Main Street when southbound trains are standing at Dempster Station.

A type N-2 signal head with 10 volt lamps, replacing old style type N head, was installed on R-28 home signal at K.O. Tower to improve aspect of the signal.

A new, precast concrete relay case base was installed at Signal 50-52 at South Upton.

A precast concrete battery box was installed at 16th Street, North Chicago, Main Line.

SIGNAL AND INTERLOCKING DIVISION

MAINTENANCE WORK - CONTINUED

The motor driven autoflag at 18th Street, Zion, was replaced with a magnetic type autoflag.

Air compressors for gates at 22nd Street, North Chicago, West Line, and Kinzie and Osborne, Racine, were replaced with type DH.16 compressors.

Red light signals and reflex type "Stop on Red Signal" signs were installed on the columns of the Middle Road Barrier on the side facing highway traffic. Continuous burning yellow light signals and signs reading "Stop on Red Signal Before Reaching Barrier" were installed facing traffic on the highway both East and West of the Barrier. The faces of the columns were painted aluminum with black stripes.

All mechanical switchmen were inspected and checked for oil level. Units at Oklahoma Avenue and Harrison Street, Milwaukee were taken apart, cleaned and reassembled and the units at Austin Avenue and Rondout were replaced.

Nine automatic gate pedestals were replaced and taken to the shop for overhaul and repair. Locations are:

Glenview Road, S.V.L.	-	2 Gates
County Line Road, S.V.L.	-	1 Gate
Green Bay Road, Glencoe	-	1 Gate
Knollwood	-	1 Gate
60th Street, Kenosha	-	2 Gates
Taylor Avenue, Racine	-	1 Gate
West Nicholson Road	-	1 Gate

During the year, 28 relays were repaired in the C.T.A. Relay Shop, 20 motors were repaired by the Holt Electric Company at Milwaukee and 7 motors were repaired by the Seivert Electric Company of Chicago.

SIGNAL AND INTERLOCKING DIVISION

SIGNAL INSPECTOR

Made monthly inspections, as required by law, of Ryan, Racine, Kenosha, South Upton, K.O. and Dempster Interlocking Plants for the first three months of the year.

This employee resigned during the strike period and the position has not been filled since that time. All tower inspections are being made by the Signal Foreman.

SIGNAL AND INTERLOCKING DIVISION

MAINTENANCE WORK

CROSSING GATE OPERATION

60 Automatic Gate Locations, including Middle Road

	<u>1948</u>	<u>1947</u>
Gates broken by automobiles	106	101
Other interruptions*	328	406

20 Manually Operated Crossing
Gate Locations

Gates broken by automobiles	24	44
Other interruptions*	87	93

*Includes interruptions due
to power failures, blown
fuses, mechanical failures,
frosted contacts, line
trouble, track circuit
trouble, sleet, pedestrians
breaking sidewalk arms, etc.

CROSSING GATES AND SIGNALS MAINTAINED

Automatic Gates	50	53
Automatic Gates & Flashers	10	6
Manual Gates	20	20
Flasher Signals	6	6
Autoflags - Track Circuit	16	16
Autoflags - Manual Control	3	3
Block Signals - S.T. Miles	111.0	111.0
Switch Protection Signals	8	8
Fire Crossing Signals	4	4
Interlocking Plants	4	5
Smash Gates	3	3
Gate Indication Signals	13	12

EQUIPMENT

PURCHASE OF TRACK MOTOR CAR - A.F.E. 5094

A Kalamazoo No. 56 Motor Car, complete with windshield, coupler, canvas cover and rail sweeps, was purchased and assigned to Section 16, Howard-Dempster Line. One Buda 19-L Section Car, 30 years old, was retired.

EQUIPMENT PURCHASED AND CHARGED TO MAINTENANCE

Two Ingersoll-Rand P.B-8- 76 lb. concrete paving breakers for track removal in Waukegan and other work on the system.

Two Pettibone-Muliken Company Hub Safety Automatic Switch stands were purchased and installed in Pettibone Yard on No. 1 and 2 switches.

WAY and STRUCTURES SUMMARY

	<u>1948</u>	<u>1947</u>
<u>*Track Construction - Lineal Feet</u>		
Side Track Constructed	367	1,800
Side Track Retired	-	1,830
<u>*Rail Installed - Single Track Feet</u>		
140#	-	110
100#	1,717	2,700
80#	<u>367</u>	<u>2,100</u>
Total -	2,084	4,910
<u>Rail Renewed in Kind - Single Track Feet</u>		
100#	487	3,050
80#	<u>445</u>	<u>1,386</u>
Total -	932	4,436
<u>*Rail Removed - Single Track Feet</u>		
127#	-	110
91#	18,830	1,885
98#	-	230
80#	1,717	2,600
65#	<u>-</u>	<u>2,000</u>
Total -	20,547	6,825
<u>Tie Plates Installed</u>		
100#	1,936	26,069
80# x 100# Secondhand	<u>-</u>	<u>3,134</u>
Total -	1,936	29,203
<u>Angle Bars Renewed - Pairs</u>		
100#	148	2,250

*Does not include work done on C. & N.W.
right-of-way at Kenosha.

SUMMARY - CONTINUED

	<u>1948</u>	<u>1947</u>
<u>*Special Work</u>		
Crossovers Installed	-	1
Crossovers Removed	1	-
Turnouts Installed	1	5
Turnouts Removed	12	6
Crossings Built Up	4	3
Frogs Repaired	6	15
Switch Points Repaired	5	4
Thermit Welds	89	145

	<u>Ties Renewed</u>	
Main Line	1,107	19,003
Side Track	263	3,054
Switch	251	950
Bridge	233	146
3rd Rail	17	20
Total -	1,871	23,173

	<u>*Ties Installed on New Work</u>	
Side Track - New	-	494
Side Track - Secondhand	145	-
Switch - New	-	290
Switch - Secondhand	36	-

	<u>Ballast - Cars</u>	
Stone	14	135

	<u>Broken Rails</u>	
100#	-	1
80#	2	3

*Does not include work done on
C. & N.W. right-of-way at Kenosha.

SUMMARY - CONTINUED

	<u>1946</u>	<u>1947</u>
<u>Crossings</u>		
Precast Concrete Crossings Installed	1	1
Gumwood Crossings Installed	-	4
Asphalt Crossings Rebuilt	1	1
<u>Bridge Repairs</u>		
Bridges Repaired	5	8
Bridges Painted	-	-
<u>Painting</u>		
Buildings - Painted and decorated	17	32
Company Houses Painted and Decorated	-	3
<u>Crossing Protection</u>		
Automatic Flashers Installed - Locations	1	1
Automatic Gates Damaged by Automobiles	106	101
Manual Gates Damaged by Automobiles	24	44
<u>Fencing</u>		
Right-of-Way Fence Rebuilt - Lin. Ft.	4,700	33,300
<u>Weed Killer</u>		
Two Applications - Single Track Miles	-	200
One Application - Single Track Miles	200	-
Total Solution Used - Gallons	26,400	56,300
(Also used 250 Gal. Dow Contact Weed Killer on Libertyville Line in 1947.)		
<u>Carload Material</u>		
Sand and Stone	23	161
Coal	24	28
Ties	4	69
Cinders	29	132
Miscellaneous	5	28
	85	418

ELECTRIC POWER SERVICE DIVISION

ADDITIONS AND BETTERMENTS

SIDE TRACK CONSTRUCTION - 12th STREET, WEST LINE - A.F.E. 5002

Trolley wire was installed on the new siding built to serve the Phillips Petroleum Company. Pole mounted cut-out switches were installed for this track and also for the switching lead.

RETIRED WAUKEGAN CITY LINES - A.F.E. 5055

All trolley wire, cross spans, feeder cables, cross arms and all trolley poles not required by other utilities were retired by Company Forces. Poles remaining were sold to the utility using them.

UNDERGROUND TELEPHONE CABLE - LAKE BLUFF TO PETTIBONE YARD

A.F.E. 5029

Installed underground telephone cable from Bridge No. 91 at Lake Bluff to Bridge No. 49 at Pettibone Yard Office. Trenching and backfilling were done by others. The existing aerial cable was removed by forces of this division.

BLOCK SIGNAL FACILITIES THROUGH KENOSHA - A.F.E. 5028

Installed transformers on new 2200 volt signal power line which was built in 1947.

ELECTRIC POWER SERVICE DIVISION

MAINTENANCE WORK

In addition to the routine work of this division, the following major items of maintenance work were done:-

Renewed 10 wood poles, 114 - 45,000 volt transmission line insulators, 82 anchors and 577 back guys.

Renewed 267 cross spans, adding 1 wood strain insulator to each end span in addition to the porcelain insulators.

Renewed 2.00 miles of 4/0 trolley wire, including the repair of 4 wire breaks.

Renewed 2,300 - 400,000 C.M. Rail Bonds including those installed on rail renewals.

POWER STATISTICS FOR YEAR 1948

POWER DISTRIBUTION

	1948	1947
Wisconsin, exclusive of Milwaukee City		
Milwaukee City	8,066,061 343,656	10,904,482 503,036
Wisconsin, including Milwaukee City	8,409,717	11,407,518
Milwaukee D.C. furnished by Wisc. Elect. Co.	2,015,840	2,255,556
Wisconsin D.C. furnished by Winthrop Harbor	292,783	409,272
Wisconsin Total	10,718,340	14,072,346
Illinois Total	24,463,787	33,047,509
Total Purchased	35,182,127	47,119,855
Average monthly demand for year in K.W.		
A.C. & D.C. K.W.H. purchased on demand charge basis	11,678.6	12,069.9
Load Factor for year	33,799.592	43,866,640
Car miles operated on North Shore power, including C.M.E. and C.T.A. Skokie	32.9%	42.2%
	5,788,241	9,422,643

ELECTRIC POWER SERVICE DIVISION

COST OF ELECTRICAL ENERGY PER CAR MILE

K.W.H. - C.N.S. & M.Ry. Co. and U. & M.E. Ry. Co.

January	-	4,259,753
February	-	3,708,034
March	-	3,417,790
April	-	1,692,280
May	-	1,746,069
June	-	1,713,268
July	-	2,771,533
August	-	2,912,992
September	-	2,905,071
October	-	3,120,193
November	-	3,262,263
December	-	3,672,881

Total 35,182,127

CAR MILES OPERATED

January	-	747,711
February	-	702,473
March	-	627,283
April	-	234
May	-	138
June	-	18,785
July	-	568,041
August	-	648,918
September	-	598,987
October	-	632,543
November	-	631,744
December	-	630,826

Operated on North
Shore Power including
C.T.A. Miles on Niles
Center Line

5,807,683

Cost of power for year 1918 - Account 59 \$ 551,245.24
Total Car Miles operated on North Shore power 5,607,683
 $\$551,245.24 \div 35,182,127 = 1.567$ cents per KWH
 $35,182,127 \div 5,807,683 = 6.057$ KWH per car mile
 $6.057 \times 1.567 = 9.491$ cents per Car Mile - Account 59 Purchased Power

Cost of Electric Energy per Car Mile at Substation A.C. &
D.C. \$.09491
Cost of Electric Energy per Car Mile at Substation D.C.
Bus \$.108965

NOTE: The above costs do not include interest on investment,
insurance or taxes.

PURCHASED POWER - 1948

	1948			1947			% Inc. or Dec.		
	Amount	Average Rate	Cost	Amount	Average Rate	Cost	Amt.	Rate	Cost
<u>Public Service D.C. Contract</u>									
Demand as Run	68,556	--	--	111,658	--	--	38.6	-	-
Billing Demand	89,091	\$ 2.087	\$ 185,909.25	*111,631	\$ 2.018	\$ 225,354.25	20.2	3.4	17.5
Energy K.W.H.	24,389,875	.9444¢	230,394.43	32,459,122	.8705¢	282,575.16	24.8	8.5	18.5
Total and Average	--	1.707 ¢	\$ 416,303.68	--	1.565 ¢	\$ 507,929.41	-	9.2	18.0
<u>Public Service A.C. Contract</u>									
Demand as Run	9,463	--	--	14,146	--	--	33.1	-	-
Billing Demand	**12,489	\$ 1.50	\$ 18,733.50	**14,846	\$ 1.50	\$ 22,269.00	15.9	-	15.9
Energy K.W.H.	3,339,511	.7051¢	23,546.95	4,232,697	.660 ¢	27,955.44	21.1	6.8	15.9
Total and Average	--	1.266 ¢	\$ 42,280.45	--	1.186 ¢	\$ 50,224.44	-	6.8	15.8
<u>Wisconsin Electric Power A.C.</u>									
Demand as Run	***13,033.7	--	--	18,249.1	--	--	28.6	-	-
Billing Demand	***13,507.6	\$ 1.222	\$ 16,507.57	***18,465.7	\$ 1.216	\$ 22,465.66	26.9	.5	26.5
Emergency Demand	--	--	--	--	--	--	--	--	--
Energy K.W.H.	5,070,206	1.084 ¢	54,963.23	7,174,821	.952 ¢	68,294.09	29.4	13.8	19.5
Total and Average	--	1.410	\$ 71,470.80	--	1.265 ¢	\$ 90,759.75	-	11.5	21.2
<u>W.E.P. Co. Metered D.C.</u>	1,942,376	1.20 ¢	\$ 23,308.51	2,199,285	1.20 ¢	\$ 26,391.42	11.7	-	11.7
<u>W.E.P. Co. Weals St. D.C.</u>	73,464	1.00 ¢	734.61	56,271	1.00 ¢	562.71	30.5	-	30.5
<u>C.T.A. Calvary D.C.</u>	366,695	1.1424 ¢	\$ 4,189.46	997,659	1.0682 ¢	\$ 10,656.89	63.3	7.0	60.9
GRAND TOTAL - Demand DC&AC	115,067.6	\$ 1.922	\$ 221,150.32	144,943	\$ 1.869	\$ 270,083.91	20.6	2.8	18.1
Energy DC&AC	35,182,127	.9582 ¢	337,137.22	47,119,855	.884 ¢	416,435.71	25.3	8.4	19.0
Cost	--	1.588 ¢	\$ 558,287.54	--	1.457 ¢	\$ 686,524.62	-	9.0	18.7

STATISTICS

	Public Service D.C.			Public Service A.C.			Wisconsin Electric Power		
	1948	1947		1948	1947		1948	1947	
Coal Cost per Ton Mo. Avg.	\$5.055	\$4.60		\$5.055	\$4.60		\$7.535	\$6.28	
Load Factor as Run	29.63%	39.8%		27.3%	41.8%		38.4%	53.9%	
	Month	KW	Month	KW	Month	KW	Month	KW	Month
High Monthly Demand	Jan.	9,372	Jan.	10,027	Jan.	1,367	Aug.	1,502.9	Jan.
Low Monthly Demand	May	110	June	8,751	May	53	Apr.	0.0	Apr.
Average Monthly Demand		5,710		7,430		785		1,125.6	

* Meter Correction

** 70% Clause

*** Minimum Demand

POWER SUMMARY - YEAR 1948

1,312,940	No. 30 Skokie	D.C.
879,658	No. 31 Lake Ave.	D.C.
635,543	No. 32 Kotz Road	D.C.
751,993	No. 33 Deerfield Road	D.C.
641,770	No. 34 Old Mill Road	D.C.
343,000	No. 35 Laurel Ave.	D.C.
863,176	No. 36 Libertyville	D.C.
618,122	No. 37 Central St.	D.C.
2,096,580	No. 38 Winnetka	D.C.
2,332,800	No. 39 Ravinia	D.C.
1,718,523	No. 40 Ft. Sheridan	D.C.
<u>9,900</u>	No. 42 North Chicago	D.C.
1,734,025	No. A24 North Chicago	D.C.
1,169,427	No. 43 Waukegan	D.C.
283,029	No. 44 Beach	D.C.
877,352	No. 45 Winthrop Harbor	D.C.
3,746,574	No. 80 Lake Bluff	D.C.
199,620	Highwood Shops	A.C.
38,329	Waukegan Garage	A.C.
199,250	Skokie Shops	A.C.
90,200	Glencoe & Kenilworth Signals	A.C.
87,522	Howard St. Station	A.C.
<u>27,160</u>	Waukegan to State Line Signals	A.C.
24,389,875	Public Service Company Billings	D.C.
<u>366,695</u>	C.T.A. Calvary Billings	D.C.
24,756,570	Total Purchased Illinois	D.C.
<u>292,783</u>	Less Winthrop Harbor to Wisconsin	D.C.
24,463,787	Total Illinois	D.C.
<u>3,339,511</u>	Public Service Company Billings	A.C.
27,803,298	Total Illinois	A.C. & D.C.
5,070,206	Wisconsin Electric Power Company	A.C.
2,015,840	Wisconsin Electric Power Company	D.C.
<u>292,783</u>	Winthrop Harbor to Wisconsin	D.C.
<u>35,182,127</u>	Total A.C. & D.C. Purchased	
<hr/>		
592,600	McKeown Substation	D.C.
679,360	Kenosha Substation	D.C.
458,880	Bose Road Substation	D.C.
820,500	Racine Substation	D.C.
247,230	Quarry Substation	D.C.
236,690	Four Mile Road Substation	D.C.
458,800	Nechuta Substation	D.C.
658,800	Carrollville Substation	D.C.
422,300	College Ave. Substation	D.C.
<u>837,200</u>	Milwaukee Substation	D.C.
5,412,360	Total Converted in Wisconsin	D.C.
2,015,840	Wisconsin Electric Power Company	D.C.
<u>292,783</u>	Winthrop Harbor to Wisconsin	D.C.
7,720,983	Total Wisconsin	D.C.
8,409,717	K.W.H. Wisconsin	A.C.
<u>343,656</u>	Less Milwaukee City	A.C.
8,066,061	K.W.H. A.C. to Wisconsin exclusive of Milw. City	
<u>292,783</u>	K.W.H. D.C. to Wisconsin from Winthrop Harbor	
<u>8,358,844</u>	K.W.H. to Wisconsin exclusive of Milwaukee City	

K.W.H. PURCHASED - YEAR 1948

	<u>P.S. Co. D.C.</u>	<u>P.S. Co. A.C.</u>	<u>D.C. C.R.T. Co.</u>
Jan.	2,867,489	455,540	64,500
Feb.	2,507,478	339,620	57,511
Mar.	2,270,495	323,420	57,421
April	1,455,328	206,425	4,975
May	1,505,930	213,602	6,791
June	1,457,352	206,712	4,707
July	1,851,527	223,652	23,794
Aug.	1,885,133	233,680	34,539
Sept.	1,932,549	222,500	28,624
Oct.	2,066,767	248,440	30,488
Nov.	2,148,372	277,280	29,163
Dec.	2,441,455	388,640	24,182
	<u>24,389,875</u>	<u>3,339,511</u>	<u>366,695</u>

	<u>Wisc. Elect. Power Co. A.C.</u>	<u>Wisc. Elect. Power Co. D.C.</u>	<u>Wells St. D.C.</u>	<u>Wisc. Elect. Total D.C.</u>
Jan.	585,334	278,475	8,415	286,890
Feb.	553,728	241,750	7,947	249,697
Mar.	547,004	212,250	7,200	219,450
April	52	25,500	--	25,500
May	621	19,125	--	19,125
June	25,971	18,250	276	18,526
July	504,708	159,500	8,352	167,852
Aug.	584,636	166,625	8,379	175,004
Sept.	550,694	162,625	8,079	170,704
Oct.	571,390	194,750	8,358	203,108
Nov.	571,828	227,526	8,094	235,620
Dec.	574,240	236,000	8,364	244,364
	<u>5,070,206</u>	<u>1,942,376</u>	<u>73,464</u>	<u>2,015,840</u>

Total D.C. K.W.H. Wisconsin Electric Company	2,015,840
Total A.C. K.W.H. Wisconsin Electric Company	5,070,206
Total D.C. K.W.H. Calvary	366,695
Total D.C. K.W.H. Public Service Company	24,389,875
Total A.C. K.W.H. Public Service Company	<u>3,339,511</u>
Grand Total System A.C. & D.C.	<u>35,182,127</u>

MILWAUKEE CITY LINE

Kilowatt Hours - D.C.

	<u>N.S. Feeder</u>	<u>Wisc. Elect. Co.</u>	<u>Wells St.</u>	<u>Total</u>
Jan.	30,240	278,475	8,415	317,130
Feb.	21,330	241,750	7,947	271,027
Mar.	23,900	212,250	7,200	243,350
April.	---	25,500	---	25,500
May	---	19,125	---	19,125
June	1,000	18,250	276	19,526
July	24,200	159,500	8,352	192,052
Aug.	30,250	166,625	8,379	205,254
Sept.	30,250	162,625	8,079	200,954
Oct.	20,710	194,750	8,358	223,818
Nov.	24,330	227,526	8,094	259,950
Dec.	36,620	236,000	8,364	280,984
	242,830	1,942,376	73,464	2,258,670

Kilowatt Hours - A.C.

Jan.	42,058
Feb.	29,666
Mar.	36,103
April	---
May	---
June	1,437
July	35,277
Aug.	45,082
Sept.	42,704
Oct.	30,367
Nov.	28,648
Dec.	52,314
	343,656

Total D.C. K.W.H. to Milwaukee City - 242,830
Total A.C. K.W.H. to Milwaukee City - 343,656
Wisconsin ratio of conversion 70.6%

POWER STATISTICS FOR YEAR - 1948

Illinois Substations D.C. Output in K.W.H.

	<u>Calvary</u>	<u>Niles No. 30</u>	<u>Lake Ave. No. 31</u>	<u>Kotz Rd. No. 32</u>	<u>Beerfield Pd. No. 33</u>
Jan.	64,500	213,279	127,028	85,930	100,299
Feb.	57,511	195,569	110,438	74,664	89,909
Mar.	57,421	166,209	89,088	73,750	72,429
April	4,975	00	150	3,370	70
May	6,791	10	00	3,580	50
June	4,707	4,399	3,938	3,730	3,479
July	23,794	98,889	84,978	59,590	66,162
Aug.	34,539	110,559	81,688	73,190	80,619
Sept.	28,624	116,089	81,288	69,600	78,429
Oct.	30,488	117,609	103,990	57,810	85,509
Nov.	29,163	131,969	97,538	53,629	82,199
Dec.	24,182	158,359	99,534	76,700	92,909
	<u>366,695</u>	<u>1,312,940</u>	<u>879,658</u>	<u>635,543</u>	<u>751,993</u>

	<u>Old Mill Rd. No. 34</u>	<u>Laurel Ave. No. 35</u>	<u>Liberty. No. 36</u>	<u>Central St. No. 37</u>	<u>Winnetka No. 38</u>
Jan.	88,710	49,418	138,729	110,000	280,418
Feb.	78,700	44,458	123,049	71,039	264,618
Mar.	73,330	38,498	111,969	68,420	239,118
April	7,110	2,010	150	1,150	100
May	6,000	190	00	100	200
June	8,910	2,580	3,159	2,170	7,918
July	64,590	30,438	61,037	57,850	212,718
Aug.	60,750	32,808	62,539	55,943	207,318
Sept.	60,480	31,358	69,287	57,820	213,818
Oct.	62,330	33,958	84,259	56,180	219,818
Nov.	54,790	34,488	90,729	58,970	224,118
Dec.	76,070	42,796	118,269	78,480	226,418
	<u>641,770</u>	<u>343,000</u>	<u>863,176</u>	<u>618,122</u>	<u>2,096,580</u>

POWER STATISTICS FOR YEAR - 1948

Illinois Substations D.C. Output in K.W.H.

	<u>Ravinia</u> <u>No. 39</u>	<u>Ft. Sheridan</u> <u>No. 40</u>	<u>L. Bluff</u> <u>No. 80</u>	<u>No. Chicago</u> <u>No. 42</u>
Jan.	306,390	295,490	466,720	1,000
Feb.	283,890	231,754	413,900	900
Mar.	253,290	200,790	391,015	1,000
April	100	00	42,331	00
May	00	00	49,901	00
June	10,490	7,590	62,270	1,000
July	234,490	130,749	370,710	1,000
Aug.	225,990	133,690	360,510	1,000
Sept.	237,290	147,890	368,710	1,000
Oct.	243,890	170,590	392,637	1,000
Nov.	246,690	186,390	392,550	1,000
Dec.	290,290	213,590	435,320	1,000
	<u>2,332,800</u>	<u>1,718,523</u>	<u>3,746,574</u>	<u>9,900</u>

	<u>No. Chicago</u> <u>No. A24</u>	<u>Waukegan</u> <u>No. 43</u>	<u>Beach</u> <u>No. 44</u>	<u>W. Harbor</u> <u>No. 45</u>
Jan.	197,480	170,700	36,440	112,343
Feb.	169,130	145,250	34,010	96,976
Mar.	157,830	127,097	30,870	95,900
April	140	1,550	00	300
May	50	370	00	00
June	4,420	4,230	90	2,800
July	110,430	108,590	25,750	83,158
Aug.	119,850	114,460	25,751	90,800
Sept.	126,980	106,840	25,458	92,200
Oct.	137,340	117,450	29,410	97,828
Nov.	145,753	127,530	35,490	98,347
Dec.	164,622	145,360	39,760	106,700
	<u>1,334,025</u>	<u>1,169,427</u>	<u>283,029</u>	<u>877,352</u>

POWER STATISTICS FOR YEAR 1948

Auxiliary Power Furnished Under
D.C. Power Contract in K.W.H.

	<u>Highwood Shops</u>	<u>Waukegan Garage</u>	<u>Skokie Shops</u>	<u>Winnetka Signals</u>	<u>Howard St. Station</u>	<u>Signals No. Chgo. State Line</u>
Jan.	24,580	9,687	26,680	11,300	8,878	8,060
Feb.	22,500	8,842	22,740	10,400	8,302	7,240
Mar.	22,450	8,922	23,690	9,900	8,950	7,980
Apr.	5,060	1,121	15,920	600	6,410	1,280
May	8,380	1,253	13,580	600	4,050	760
June	5,170	1,746	10,000	700	5,058	1,440
July	14,410	6,758	9,160	7,500	7,130	6,440
Aug.	15,860	-	9,980	8,700	7,368	7,760
Sept.	15,420	-	10,950	9,100	6,882	7,660
Oct.	19,900	-	12,290	9,300	7,998	7,680
Nov.	22,040	-	18,010	11,000	8,132	8,140
Dec.	<u>23,850</u>	<u>-</u>	<u>26,250</u>	<u>11,100</u>	<u>8,358</u>	<u>7,720</u>
	199,620	38,329	199,250	90,200	87,522	72,160
	Highwood Shops				199,620	
	Waukegan Garage				38,329	
	Skokie Shops				199,250	
	Winnetka Signals				90,200	
	Howard Station				87,522	
	No. Chgo. State Line Signal				<u>72,160</u>	
					687,081	

POWER STATISTICS FOR YEAR - 1948

Wisconsin Substations D.C. Output in K.W.H.

	<u>McKeown</u>	<u>Kenosha</u>	<u>Bose Rd.</u>	<u>Racine</u>	<u>Quarry</u>	<u>4 Mile Rd.</u>
Jan.	80,000	102,970	49,890	121,100	45,150	32,750
Feb.	69,000	91,490	49,450	99,900	34,050	26,150
Mar.	63,600	78,840	54,680	88,900	27,750	20,800
Apr.	00	00	00	200	00	00
May	00	00	00	00	00	00
June	6,100	2,540	2,690	3,100	200	600
July	49,100	66,000	45,000	65,500	21,125	24,300
Aug.	63,400	58,510	56,370	82,900	18,695	29,360
Sept.	57,200	62,560	46,540	74,400	31,312	22,100
Oct.	64,800	65,120	47,410	85,000	22,227	25,220
Nov.	63,100	74,040	55,380	91,500	23,237	27,270
Dec.	<u>76,300</u>	<u>77,290</u>	<u>51,470</u>	<u>108,000</u>	<u>23,484</u>	<u>28,140</u>
	592,600	679,360	458,880	820,500	247,230	236,690

	<u>Nechuta</u>	<u>Carrollville</u>	<u>College</u>	<u>Milwaukee</u>	<u>D.C. Wisconsin Elect.Co.</u>	<u>W.Harbor To Wisconsin</u>
Jan.	43,100	97,600	49,900	126,200	286,890	37,448
Feb.	51,200	86,900	44,000	89,700	249,697	32,658
Mar.	41,500	73,600	38,800	88,300	219,450	31,967
Apr.	00	00	00	00	25,500	100
May	00	00	00	00	19,125	00
June	1,200	5,400	5,200	4,300	18,526	933
July	52,100	59,500	41,200	75,700	167,852	27,719
Aug.	57,200	54,400	50,100	78,200	175,004	30,267
Sept.	46,700	63,500	47,400	88,700	170,704	30,733
Oct.	50,100	72,900	45,600	80,400	203,108	32,609
Nov.	50,300	65,300	46,400	95,300	235,620	32,782
Dec.	<u>65,400</u>	<u>79,700</u>	<u>53,700</u>	<u>110,400</u>	<u>244,364</u>	<u>35,567</u>
	458,800	658,800	422,300	837,200	2,015,840	292,783

Grand Total Converted in Wisconsin - 7,720,983 K.W.H.

POWER STATISTICS FOR YEAR 1948

A.C. Power Furnished in Wisconsin in K.W.H.

	<u>W. Harbor</u>	<u>Beach</u>	<u>Nechuta</u>	<u>Milwaukee</u>
Jan.	117,700	337,840	50,400	534,934
Feb.	111,700	227,920	54,000	499,728
Mar.	93,500	229,920	57,600	489,404
Apr.	200	4,000	---	52
May	100	400	---	620.6
June	800	9,360	2,400	23,571.2
July	69,412	154,320	62,400	442,508
Aug.	67,200	166,480	66,000	518,636
Sept.	70,900	151,600	55,200	495,494
Oct.	72,200	176,240	63,600	507,790
Nov.	78,400	198,880	57,600	514,228
Dec.	<u>94,800</u>	<u>293,840</u>	<u>70,800</u>	<u>503,440</u>
	776,912	1,950,800	51,000	4,530,205.8
			Nechuta A.C.	<u>540,000</u>
As Billed	3,339,511		Total A.C.	5,070,205.8

<u>Wisconsin</u>		<u>Nechuta</u>	
Input A.C.	K.W.H. 8,409,717	Input A.C.	K.W.H. 540,000
Output D.C.	K.W.H. 5,412,360	Output D.C.	K.W.H. 458,800
Efficiency	64.3%	Efficiency	84.9%

POWER STATISTICS FOR YEAR - 1948

Monthly K.W. Demand - Illinois Stations

	<u>No. 30</u> <u>Skokie</u>	<u>Power</u> <u>#31</u>	<u>Power</u> <u>#32</u>	<u>Signals</u> <u>#32</u>	<u>Power</u> <u>#33</u>	<u>Power</u> <u>#34</u>
Jan.	783.3	406.7	406.7	18.7	480	443.3
Feb.	820	446.7	400.3	19.3	490	443.3
Mar.	760	393.3	550	16	163.3	626.7
Apr.	-	-	-	-	-	-
May	-	-	-	-	-	-
June	96.7	53.3	60.0	1.0	140.0	86.7
July	473.3	266.7	316.7	8.3	166.7	280.0
Aug.	473.3	346.7	313.3	11.7	340	283.3
Sept.	533.4	403.4	330	11.7	336.7	263.3
Oct.	520	350	283.3	18.4	283.3	283.4
Nov.	543.3	370	313.3	18.3	360	340
Dec.	536.6	311.6	303.4	17	386.7	320
	5,539.9	3,348.4	3,277.0	140.4	3,146.7	3,360.0

	<u>Signals</u> <u>#34</u>	<u>Power</u> <u>#35</u>	<u>Libertyville</u> <u>#36</u>	<u>Central</u> <u>St. #37</u>	<u>Winnetka</u> <u>#38</u>	<u>Ravinia</u> <u>#39</u>
Jan.	21.7	350	423.3	326.7	950	893.3
Feb.	21.3	323.3	413.3	274.6	990	896.6
Mar.	17.6	316.7	466.6	273.3	976.7	903.3
Apr.	-	-	-	-	-	-
May	-	-	-	-	-	-
June	19.3	116.7	160	56.7	226.7	253.3
July	15.0	163.3	186.6	223.3	683.3	640.0
Aug.	11.7	193.3	196.7	213.3	670	613.3
Sept.	12.3	200	260	216.7	720	670
Oct.	18.3	200	246.6	213.3	723.4	650
Nov.	18	230	283.4	226.6	696.6	640
Dec.	17	226.7	303.4	213.3	683.4	680
	172.2	2,320.0	2,759.9	2,237.8	7,320.1	6,839.8

POWER STATISTICS FOR YEAR - 1948

Monthly K.W. Demand - Illinois Stations

	Fort Sheridan #40	North Chicago #42	North Chicago #A24	Waukegan #43	Beach #44	W. Harbor #45	L. Bluff #80
Jan.	776.7	-	746.7	496.7	146.7	293.3	1,286.6
Feb.	789.3	-	726.6	513.3	120.	323.4	1,226.7
Mar.	786.6	-	746.6	463.3	126.7	340.	1,279
Apr.	-	-	-	-	-	-	-
May	-	-	-	-	-	-	-
June	220.0	-	150.	116.6	-	73.3	313.3
July	320.0	-	286.7	356.6	33.3	306.6	790.0
Aug.	346.7	-	363.3	376.7	36.7	293.3	786.7
Sept.	376.7	-	390.	343.4	66.7	286.7	813.3
Oct.	466.6	-	436.6	370.	80.	330.	843.3
Nov.	520.	-	530.	396.7	80.	340.	963.3
Dec.	563.4	-	547.7	396.7	120.	240.	920.
	5,166.0	-	4,924.2	3,830.0	810.1	2,826.6	9,222.2

	Highwood Shops	Waukegan Garage	Oakton Shops	Kenilworth Glencoe Signals	Howard Street	Zion Waukegan Signals
Jan.	28	13	43.3	10.3	15	12
Feb.	32.7	12	46.6	8.7	15	12
Mar.	24.3	6	40.7	7.3	14	12
Apr.	-	-	-	-	-	-
May	-	-	-	-	-	-
June	17	6.7	24.7	3.3	11.0	9
July	9.0	6.6	3.0	4.0	11.0	12
Aug.	13.3	-	4.3	4.7	14	11
Sept.	14	-	2.4	5.3	12	12
Oct.	27.4	-	9.3	19	15	12
Nov.	23.6	-	27.6	17.7	15	12
Dec.	32.4	-	33.7	15	15	12
	221.7	44.3	235.6	95.3	137	116

POWER STATISTICS FOR YEAR - 1948

Monthly K.W. Demand As Run

	Beach A.C.	Winthrop Harbor A.C.	P.S. A.C. Total	Milw. A.C.	Total A.C.	P.S. Co. D.C.	Total System
Jan.	996.7	370	1,367	1,504.7	2,894.7	9,372	12,266.7
Feb.	896.7	333.3	1,230	1,423.5	2,663.5	9,365	11,992.5
Mar.	790	383	1,173	1,406.2	2,586.2	9,310	11,896.2
Apr.	-	-	130	-	13.0	177	307
May	-	-	53	1.6	6.9	110	116.9
June	360	40	400	66.8	466.8	2,215	2,681.8
July	443.3	210	653	1,297.4	1,950.4	5,562	7,497.4
Aug.	646.7	210	857	1,502.9	2,359.9	5,917	8,276.9
Sept.	516.7	260	777	1,415.7	2,192.7	6,280	8,472.7
Oct.	636.6	180	817	1,468.9	2,285.9	6,397	8,582.9
Nov.	660	283.3	943	1,470	2,413	6,966	9,373
Dec.	797.6	266.6	1,063	1,476	2,539	6,885	9,424
	6,744.3	2,536.2	9,463	13,033.7	22,372.0	68,556	90,888.0

Monthly K.W. Demand as Billed

	Beach A.C.	Winthrop Harbor A.C.	P.S. A.C. Total	Milw. A.C.	Total A.C.	P.S. Co. D.C.	Total System
Jan.	996.7	370	1,367	1,504.7	2,871.7	9,372	12,243.7
Feb.	896.7	333.3	1,230	1,500	2,730	9,329	12,059
Mar.	790	383	1,173	1,500	2,673	9,310	11,983
Apr.	-	-	957	-	957	6,747	7,704
May	-	-	957	-	957	6,747	7,704
June	360	40	957	-	957	6,747	7,704
July	443.3	210	957	1,500	2,457	6,747	9,204
Aug.	646.7	210	957	1,502.9	2,459.9	6,747	9,206.9
Sept.	516.7	260	957	1,500	2,457	6,747	9,204
Oct.	636.6	180	957	1,500	2,457	6,747	9,204
Nov.	660	283.3	957	1,500	2,457	6,966	9,423
Dec.	796.7	266.6	1,063	1,500	2,563	6,885	9,448
	6,743.4	2,269.6	12,489	13,507.6	25,996.6	89,091	115,087.6

Average Monthly Demand

	As Run	As Billed
Public Service Co.	D.C.	7,424.3
Public Service Co.	A.C.	1,040.7
Wisc. Elect. Co.	A.C.	1,101
System A.C. & D.C.	7,587.7	9,566.0

POWER STATISTICS FOR YEAR - 1948

	<u>Substation</u>	<u>Installed Capacity</u> <u>K.W.</u>	<u>Cycle</u>	<u>Number of Units</u>
	No. 30 Skokie	2,000	60	1
	No. 31 Lake Ave.	1,500	60	1
	No. 32 Kotz Rd.	1,500	60	1
	No. 33 Deerfield Rd.	1,500	60	1
	No. 34 Old Mill Rd.	1,500	60	1
x	No. 35 Laurel Ave.	1,000	60	2
	No. 36 Libertyville	1,000	60	1
	No. 37 Central St.	2,000	60	2
	No. 38 Winnetka	1,500	60	1
	No. 39 Ravinia	2,000	60	2
	No. 40 Ft. Sheridan	1,500	60	1
	No. 42 No. Chicago	1,300	25	2
	No. A24 No. Chicago	1,500	60	1
x	No. 43 Pine St.	1,900	60	1
	No. 44 Beach	1,000	25	1
	No. 45 Winthrop Harbor	1,200	60	1
x	No. 80 Lake Bluff	<u>1,900</u>	60	<u>1</u>
		25,800		21
	McKeown Rd.	1,000	25	2
	Kenosha	1,000	60	1
	Bose Rd.	1,000	25	1
	Racine	1,000	25	2
	Quarry	1,000	25	1
	4 Mile Rd.	500	25	1
x	Nechuta Rd.	1,500	60	2
	Carrollville	1,000	25	2
	College Ave.	500	25	1
	Harrison St., Milw.	<u>2,000</u>	25	<u>2</u>
		10,500		14

NOTE: All substations are rotary converters except No. 35, No. 43 and No. 80 and Nechuta which are Mercury Arc Rectifier Stations

ELECTRIC POWER SERVICE DIVISION

<u>Summary</u>	<u>1948</u>	<u>1947</u>
<u>Crossing Protection</u>		
Autoflag with Bell - Locations	12	12
Autoflag - No Bell - Locations	4	4
Bell and Light Signal - Locations	4	4
600 Volt Bell on Gate - Locations	14	14
Electric Lighted Crossings	57	57
<u>Overhead Trolley</u>		
Catenary Construction - D.T. Miles	32.04	32.04
Wood and Steel Poles - Main Line - D.T. Miles	69.94	69.94
Steel Poles - Milwaukee - D.T. Miles	3.35	3.35
Wood Poles - Yards & Sidings - S.T. Miles	42.26	42.26
Wire Renewed - Miles	2.0	5.81
Wire Breaks	4.	17.
<u>Lighting</u>		
Passenger Stations	37	37
Freight Stations	9	9
Shelters	62	62
Shops and Car Houses	4	4
Substations	10	10
Office Buildings	2	2
Miscellaneous Buildings	31	31
Station Platforms	222	222
Yards	7	8
<u>Substations</u>		
Manual	4	4
Automatic	7	7
<u>Transmission Line - Miles</u>		
60 cycle - 33,000 volt - 3 wire	34.9	34.9
25 cycle - 33,000 volt - 3 wire	48.1	48.1
60 cycle - 2,300 volt - 2 wire	45.5	45.5
25 cycle - 13,200 volt - 3 wire	2.4	2.4
<u>Feeder Cable - Single Wire Miles</u>		
Copper Feeder Cable	173.87	177.32
<u>Bonding</u>		
Bonds Renewed	2,300	5,444

COMMUNICATIONS DIVISION

INSTALLATION OF UNDERGROUND TELEPHONE CABLE - A.F.E. 5029

A 26 pair, 19 gauge underground telephone cable was installed in a trench on the east side of the Skokie Valley Division tracks from Bridge No. 91 at Scranton Avenue, Lake Bluff to Bridge No. 49 at the Pettibone Yard Office, a distance of 11,875 feet. Trenching was done by Sobey Brothers, cable was installed by Company forces and backfilling partly by Jenkins and Boller and partly by Company forces. Crossings of Scranton and Mawman Avenues are made in 3" steel pipe, jacked through the streets by Company forces. The existing aerial cable between these points was removed by Company forces.

FACILITIES MAINTAINED

	<u>1948</u>	<u>1947</u>
Aerial Cable - Miles	12.14	12.18
Underground Cable - Miles	26.66	24.37
2-Wire Open Line - Miles	143.64	143.66
Cable Terminals - All Classes	119	119
XYZ Cable Terminal Protections	20	20
Cable Houses	37	33
Telephone Booths	58	58
Telephone Boxes on Poles	9	9
Telephone Stations	188	188
Interlocking Plant Telephones	14	14
Dispatch Boards - 20 Line	2	2

NOTE: 2.25 miles of aerial cable from East Prairie Road to Howard Street taken over from C.T.A. in 1948.