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Twelfth Progress Report to the International Joint Commission: Red River

International Red River Pollution Board

John Doneth

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TWELFTH PROGRESS REPORT
TO THE
INTERNATIONAL JOINT COMMISSION

RED RIVER

INTERNATIONAL RED RIVER
POLLUTION BOARD

MARCH 1975

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INTERNATIONAL RED RIVER
TWELFTH PROGRESS REPORT
TO THE
INTERNATIONAL JOINT COMMISSION

March 1975

International Joint Commission
Canada and United States

Gentlemen:

The International Red River Pollution Board met in Denver, Colorado, on February 11, 1975. The deliberations of this meeting constitute the basis for the following Twelfth Progress Report of the Board.

RED RIVER

Respectfully submitted,

R. E. Tell
Chairman
Canadian Section

INTERNATIONAL RED RIVER
POLLUTION BOARD

Carlisle Pemberton, Jr.
Chairman
U. S. Section

MARCH 1975

INTERNATIONAL RED RIVER
POLLUTION BOARD

Members and Alternates

United States

March 1975

Carlisle Pemberton, Jr.
(Chairman)
International Joint Commission

U. S. Environmental Protection Agency
Region V
Chicago, Illinois

Canada and United States
(Alternate)

U. S. Environmental Protection Agency
Region VIII
Denver, Colorado

Gentlemen:

Minnesota Pollution Control Agency
St. Paul, Minnesota

The International Red River Pollution Board met in Denver, Colorado, on February 11, 1975. The deliberations of this meeting constitute the basis for the following Twelfth Progress Report of the Board.

Department of Health
and Human Services
Washington, North Dakota

Respectfully submitted,

Environment Canada
Ottawa, Ontario

R. E. Tait
(Chairman)

Environmental Protection Branch
Department of Mines, Resources and
Environmental Management
Winnipeg, Manitoba

H. R. Ward
J. N. Warren
(Alternate)

R. E. Tait
Chairman
Canadian Section

Carlisle Pemberton, Jr.
Chairman
U. S. Section

INTERNATIONAL RED RIVER
POLLUTION BOARD

Members and Alternates

United States

Carlisle Pemberton, Jr. (Chairman)	U. S. Environmental Protection Agency Region V Chicago, Illinois
Donald P. Dubois (Alternate)	U. S. Environmental Protection Agency Region VIII Denver, Colorado
Homer C. Luick Lovell E. Richie, Jr. (Alternate)	Minnesota Pollution Control Agency Roseville, Minnesota
Willis Van Heuvelen Norman L. Peterson (Alternate)	North Dakota State Department of Health Bismarck, North Dakota

Canada

R. E. Tait (Chairman)	Environmental Protection Service Environment Canada Ottawa, Ontario
W. M. Ward J. N. Warrener (Alternate)	Environmental Protection Branch Department of Mines, Resources and Environmental Management Winnipeg, Manitoba

TWELFTH PROGRESS REPORT

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INTERNATIONAL RED RIVER

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INTERNATIONAL RED RIVER

POLLUTION BOARD

TWELFTH PROGRESS REPORT

MARCH 1975

1.0 POLLUTION ABATEMENT

1.1 Minnesota - Municipal Sources

No changes have occurred in direct discharges to the Red River during the period covered by this report (July - December 1974).

The following is a summary of loadings for sewage treatment plant discharges to the Red River:

Breckenridge - Population 4,2000

No monthly operation reports were filed with the Agency for all twelve months of 1974. The ponds were originally designed as soil absorption and evaporation ponds and were to be discharged only in an emergency.

Moorhead - Population 29,687

Data for June 1974 to January 1975

Flow	3.2 MGD
BOD ₅	535 lbs/day (20 mg/l)
Suspended Solids	255 lbs/day (10 mg/l)
Fecal Coliforms	8 MPN/100 ml

Perley - Population 149

No report of discharge from stabilization ponds has been received for the period June 1974 to January 1975. The quality of the secondary pond was examined during August 1975, and the following results were reported:

BOD	1.5 mg/l	Permit Number
Suspended Solids	5.4 mg/l	
Fecal Coliforms	170 MPN/100 ml	
pH	9.48	

Halstad - Population 598

Data for June 1974 to January 1975

Flow	0.10 MGD	
BOD ₅	7.6 lbs/day (9 mg/l)	
Suspended Solids	18.8 lbs/day (23 mg/l)	
Fecal Coliforms	33 MPN/100 ml	

East Grand Forks - Population 9,607

Stabilization ponds were discharged from November 5 to December 6, 1974. The quality of the discharge was reported as:

Flow	2.8 MGD	
BOD ₅	64 lbs/day (3 mg/l)	
Suspended Solids	487 lbs/day (21 mg/l)	
pH (range)	7.5 - 8.3	

Oslo - Population 417

No discharge was reported during the period June 1974 to January 1975.

NPDES Permits

The following municipal permits were issued by the Agency since the last Board meeting:

<u>Municipality</u>	<u>Date Issued</u>	<u>Permit Number</u>
Breckenridge Wastewater Treatment Facility	12/31/74	MN0022900
Moorhead Water Treatment Plant	11/20/74	MN0002780
Moorhead Wastewater Treatment Facility	12/19/74	MN0024236
Oslo Water Treatment Plant	01/24/75	MN0043575
Oslo Wastewater Treatment Facility	08/28/74	MN0024431

1.2 Minnesota - Industrial Sources

American Crystal Sugar - Moorhead

This plant processes approximately 700,000 tons of beets per year and discharges condenser water and mud pond effluent to the Red River during the spring runoff period. Discharge for the 1973-74 campaign was concluded June 13, 1974, totaling 72 million gallons. The quality of the pond effluent as reported by the company was approximately:

BOD ₅	3000 mg/l
Total Coliforms	1500 MPN/100 ml
Fecal Coliforms	600 MPN/100 ml
pH	7.5

The company submitted final plans on December 31, 1973, and initiated construction on July 7, 1974, to comply with NPDES permit dated November 21, 1973.

American Crystal Sugar - Crookston

This plant processes approximately 660,000 tons of sugar beets per year. Total discharge to the Red Lake River following the 1973-74 campaign was 481 million gallons. Both the mud pond and the condenser pond were emptied during May 1974. There were no further discharges in 1974. The Company was issued a NPDES permit in November 1973. Final plans were submitted on December 31, 1973, and construction was initiated on July 1, 1974, to comply with NPDES permit.

American Crystal Sugar - East Grand Forks

This plant processes approximately 430,000 tons of beets per year. Condenser water and transport water are combined after clarification and held in a lagoon. As of July 16, 1974, 311 million gallons had been discharged to the Red River. Discharge was stopped on July 19, 1974, for seven days because

The following table presents a listing of the municipal of low dissolved oxygen levels (below 5 mg/l) in the river. Discharge for the 1973-74 campaign was completed August 27, 1974, and totaled 332 million gallons. The quality of the combined effluent was approximately:

BOD ₅	1200 mg/l
Suspended Solids	110 mg/l
Fecal Coliforms	700 MPN/100 ml

A NPDES permit was issued to the Company on November 21, 1973. The Company submitted final plans on July 1, 1974, and construction was initiated on September 3, 1974, to comply with NPDES permit.

NPDES Permits

The final effluent limitations contained in the permits (see Tenth Progress Report, March 1974) are so restrictive that, for all practical purposes, compliance can be achieved only by a fully closed waste system. However, under certain circumstances early in the campaign, there may be a need to discharge some of the condenser water to regulate the pond capacity. The quality of the discharge would be within the levels specified by the effluent requirements. Transport water will not be discharged.

1.3 North Dakota - Municipal Sources

The following table presents a listing of the municipal discharges that were approved by the Department last fall. The City of Mayville is the only mechanical plant in the area. The remainder are all waste stabilization lagoon facilities.

During the 1975 construction season, it is anticipated that improvements will be made to the following municipal waste treatment facilities: Drayton, an additional cell to the waste treatment facilities; Grand Forks, a large additional final cell to the waste treatment facility, which will give the city the following sequence of treatment facilities - an anaerobic-aerobic flexible pretreatment facility followed by two primary cells, two secondary cells, and a large final cell lagoon; Minto, lagoon expansion which includes a third cell additon; Thompson, a lagoon expansion which includes a third cell addition.

The City of Fargo is in the process of developing a sewer extension plan to relieve some of the flows in the downtown area. This includes plans to reduce overflows from the downtown sewer system. The total plan for the city includes the elimination of all combined sewers at such time that Federal funds are available for these particular projects.

All municipal NPDES permits have been issued or drafted.

MUNICIPAL DISCHARGES, NORTH DAKOTA

City	Beginning Date	Duration of Discharge (Days)	Average Flow (mgd)	BOD ₅		S.S.		Fecal Coliform MPN/100 ml
				(Lb./Day)	mg/T	(Lb./Day)	mg/l	
Grafton	10/10/74	31	2.5	104	5	854	41	LT 100
Fargo	10/14/74	9	22.2	1,664	9	3,328	18	LT 10
Casselton	10/17/74	6	0.3	26	10.5	25	10	0
Park River	10/23/74	13	0.9	52	7	30	4	LT 100
West Fargo (Old Sec.)	10/28/74	Approved to discharge. No discharge noted on plant records.						
West Fargo (New Sec.)	10/28/74	City verified that no discharge had been made from system although approval had been granted.						
Harwood	10/31/74	10	0.15	9	7	20	16	100
Northwood	11/15/74	8	0.3	32.5	13	67	27	LT 10
Fargo	11/25/74	4	18.75	1,406	9	3,592	23	1
Abercrombie	11/25/74	1.5	0.3	12.5	LT 5	7.5	3	100
Grand Forks AFB	12/4/74	16	2.5	250	12	292	14	Not run
Hatton	12/10/74	5	0.32	40	15	56	21	LT 10
Mayville	12/12/74	Continuous	0.25	40	19	81	39	Not run

LT = Less Than

1.4 North Dakota - Industrial Source

All industrial NPDES permits have been issued or drafted. There have been no other notable recent developments with regard to industrial discharges.

2.0 SURVEILLANCE PROGRAMS

The pollution control agencies of Minnesota, North Dakota, and Manitoba continued their planned surveillance programs. A portion of the water quality data collected was entered in STORET and included in the report of water quality prepared by Region VIII of EPA.

Automatic continuous monitoring continued at the East Grand Forks water works intakes on the Red River and the Red Lake River. Temperature, dissolved oxygen, conductivity and pH are measured at these locations. On January 27, 1975, the automatic monitor on the Red River at East Grand Forks recorded a 0.0 dissolved oxygen. Survey teams from both Minnesota and North Dakota were dispatched to determine the cause. Conclusions were not available, pending completion of the laboratory analysis of the data. The dissolved oxygen had recovered to 2.5 by January 30, 1975. (Note: Minnesota reports that, although zero dissolved oxygen was found in the Buffalo River, a tributary entering the Red River some 60-70 miles upstream from East Grand Forks, no cause could be found. Additional information regarding this incident is contained in Par. 6.2.)

3.0 WATER QUALITY OBJECTIVES

During the last six months of 1974, bacterial levels at the boundary did not exceed the IJC objective of 5,000 total coliform organisms per 100 ml. The highest count for the period was 4,600/100 ml with most values ranging between 240 and 1,100/100 ml.

Dissolved oxygen levels at the boundary held well above the IJC objective of 5 mg/l, with one low value of 5.3 mg/l.

Chloride levels generally were below 50 mg/l during the period.

The annual release from Lake Ardoch was made in November. Releases were made in accordance with the agreed procedure for several days, with little effect on chloride concentration at the boundary.

However, the lake started to freeze over and releases were increased to about 40% in excess of the prescribed amounts, which resulted in an appreciable increase in chloride measured at the boundary.

The Board concluded that the release had been managed satisfactorily, since the maximum level at Emerson reached only 110 mg/l, as compared to levels as high as 300 mg/l associated with earlier releases. It was noted, however, that an improvement in communications is needed, as Manitoba was not informed of the release until about one week after the fact. Procedures will be strengthened to insure proper notification in the future.

4.0 WATER QUALITY OBJECTIVES

The Board agreed that Mr. Ward would prepare a list of water quality criteria which would protect desired water uses in Manitoba, together with a rationale for each parameter selected. The list will be furnished to Board members as soon as possible so that recommendations for IJC objectives can be developed at the next Board meeting.

5.0 GARRISON DIVERSION PROJECT

Mr. Steve Lanich, of the Region VIII EPA Office, summarized the recent international meeting on the Garrison Diversion Project. Detailed studies are underway by the Bureau of Reclamation to assess the environmental impact of the project on the Red River. It was noted that the supplemental EIS on the Oakes area of the project should have been completed by January of 1975. Furthermore, since modeling of the project impact on the Red River had not been started, it was not clear how the Oakes area EIS could be completed. The Board concluded that any official position regarding the project was still premature, and it will await further development and information regarding environmental impact on the Red River.

6.0 MISCELLANEOUS SPILLS

6.1 Minnesota

The following oil and hazardous materials spills in the Red River

Basin have been reported to the Minnesota Pollution Control Agency since August 7, 1974:

1. August 11, 1974

Lakehead Pipe Line Company - Marshall County, Minnesota

A farmer detected crude oil seeping into the ground at his Marshall County farm. Lakehead found the leak in its 34-inch line and repaired it.

2. August 16, 1974

Transport, Inc. - Red Lake, Minnesota

A tanker overturned near Red Lake, spilling 4,700 gallons of fuel oil into a contained ditch. 2,500 gallons were pumped back into a recovery tanker and an additional quantity was recovered by area residents. The oil-soaked soil was all removed from the ditch, taken to a gravel pit and burned.

3. August 18, 1974

Standard Oil - Ogema, Minnesota

A total of 2,513 gallons of gasoline spilled after thieves stole gasoline from a truck loading rack and misplaced the hose. No recovery action was taken. The gasoline evaporated as it leaked until it was discovered. No waters were affected.

4. September 16, 1974

Lakehead Pipe Line Company - Kittson County, Minnesota

A weeping weld was discovered in Lakehead's 34-inch line near Mattson. The leak has been repaired with a clamped sleeve. The company estimated the maximum loss at five barrels of crude oil. The oil which was recovered was taken to the Viking station for later injection back into the line.

5. October 2, 1974

Indianhead Truck Lines - Thief River Falls, Minnesota

Two hundred twenty-seven gallons of fuel oil spilled onto the ground when a truck driver opened a valve incorrectly on a loading pipe structure. Sand was used to remove the oil.

6. October 16, 1974

Wold Petroleum - Breckenridge, Minnesota

A fuel storage tank tipped over after the blocks anchoring its legs rotted out. One hundred to one hundred fifty gallons of fuel oil spilled onto the Otter Tail River bank, seeped into the river bed. A containment barrier was devised and straw was used to recover much of the oil.

7. November 26, 1974

Lundeen Oil Co. - Stephen, Minnesota

Lundeen spilled an estimated 600 to 800 gallons of light fuel oil when a valve on an abandoned pipe was left open. Some of the fuel was pumped up from pooled areas immediately, while most of the oil reached a storm sewer leading to the Tamarac River. It was contained by a cofferdam around the outfall and by ice on the river. All the oil found was either pumped up or burned. The pipe has been permanently capped.

8. December 13, 1974

Dan Dugan Transport - Oklee, Minnesota

A Dan Dugan tanker truck driver delivered a load of diesel fuel to the wrong bulk plant and 1,372 gallons of diesel fuel spilled onto the ground at the Oklee Coop Oil Association. Snow contained and soaked up the oil; contaminated snow was hauled to a local landfill and burned.

9. December 16, 1974

Midland Cooperatives, Inc. - Oklee, Minnesota

Oklee Coop Oil Association

A Midland tank truck driver overfilled a Coop Oil Association bulk plant tank, spilling 4,937 gallons of gasoline. It was absorbed by snow and burned along with the diesel fuel spilled

at the plant December 13. The cooperative is installing tank gauges which will allow direct measurement of tank levels by transport drivers, and is planning to construct liquid storage safeguards.

10. January 7, 1975

Standard Oil - Marshall County, Minnesota

A tanker truck overturned four miles west of Newfolden, spilling 75 gallons of fuel oil and 15 gallons of gasoline into the snow. The snow and oil were removed.

11. January 7, 1975

Land O'Lakes, Inc. - Polk County, Minnesota

A Land O'Lakes transport truck overturned three miles west of Fosston, spilling 3,000 gallons of skim milk. The milk was contained in the snow, which was removed and placed in an agricultural lagoon. No waters were affected.

6.2 North Dakota

A problem occurred on the Red River during the last few days of January and the first part of February. Briefly, a spill occurred at the new sugar beet plant at Hillsboro. The spill, reportedly molasses, was found to be frozen in a ditch leading from the plant by investigators from this Department. A

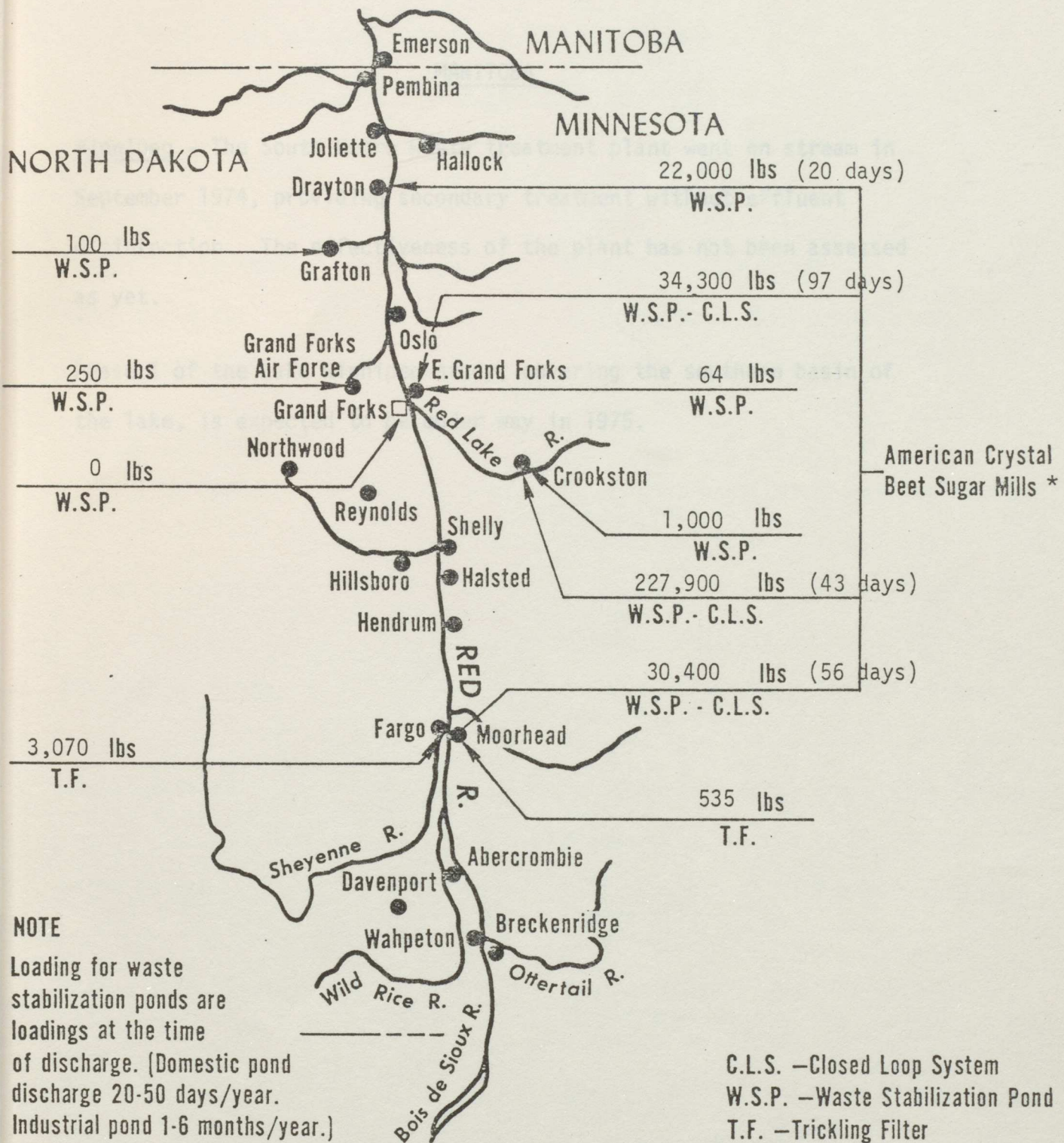
snowstorm with accompanying winds filled the ditch with snow. Either the snow acted as adequate insulation or an additional spill of materials from the plant caused the material to move under the snow and enter the Goose River east of Hillsboro. Unfortunately, at the same time, Minnesota reported some problems on the east side of the Red River and, probably due to the combined circumstances, the dissolved oxygen content of the Red River at Grand Forks dropped to zero. The Department immediately notified the company by telephone to take all the necessary steps needed to intercept the flow in the ditch and prevent it from reaching the Goose River. The company reported back early in February that this had been done. The Department notified the company by letter of the violations of the State's Water Pollution Control Law and Water Quality Standards and requested company officials to meet with the Department on February 27 relative to this spill and the steps which will be necessary to prevent further occurrence. (Note: North Dakota reports that clean-up is progressing and the company has instituted a training program directed toward prevention of spills in the future.)

NOTE
Loading for water stabilization and loadings at the point of discharge (chemical and discharge to the water body) industrial plant (1970-74 campaign)

C.L.S. - Closed Loop System
W.S.P. - Waste Stabilization Pond
I.F. - Incubating Filter

RED RIVER MAJOR WASTE DISCHARGES

lbs of BOD/Day



* Total discharge since 1973-74 campaign

INTERNATIONAL RED RIVER POLLUTION BOARD
DENVER, COLORADO
MANITOBA

Winnipeg - The South Metro waste treatment plant went on stream in September 1974, providing secondary treatment without effluent disinfection. The effectiveness of the plant has not been assessed as yet.

Phase I of the Lake Winnipeg study, covering the southern basin of the lake, is expected to be under way in 1975.

- Patrick J. Conall U. S. Environmental Protection Agency
Region VIII
Denver, Colorado
- Steve V. Parsons U. S. Environmental Protection Agency
Region I
Chicago, Illinois
- Harold L. Payne U. S. Environmental Protection Agency
Region VIII
Denver, Colorado
- Clarence U. S. Environmental Protection Agency
Region I
Minneapolis, Minnesota
- Steve U. S. Environmental Protection Agency
Region VIII
Denver, Colorado
- Harold Environmental Protection Service
Environment Canada
Winnipeg, Manitoba
- Tom Environmental Protection Service
Environment Canada
Winnipeg, Manitoba
- Leslie Minnesota Pollution Control Agency
St. Paul, Minnesota

ATTENDANCE

INTERNATIONAL RED RIVER POLLUTION BOARD

DENVER, COLORADO - FEBRUARY 11, 1975

Board Members Present

United States

Carlisle Pemberton, Jr. (Chairman)

Homer C. Luick

Norm Peterson (Alternate)

Canada

R. E. Tait (Chairman)

J. N. Warrener (Alternate)

Others in Attendance

Patrick J. Godsil

U. S. Environmental Protection Agency
Region VIII
Denver, Colorado

Stasys V. Rastonis

U. S. Environmental Protection Agency
Region V
Chicago, Illinois

Marshall L. Payne

U. S. Environmental Protection Agency
Region VIII
Denver, Colorado

Clarence Oster

U. S. Environmental Protection Agency
Region V
Minneapolis, Minnesota

Steve Lanich

U. S. Environmental Protection Agency
Region VIII
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Hamish C. R. Gavin

Environmental Protection Service
Environment Canada
Winnipeg, Manitoba

Tom DaFoe

Environmental Protection Service
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Lovell E. Richie

Minnesota Pollution Control Agency
Roseville, Minnesota