EPA Region 5 Records Ctr.
203897

Kalamazoo Gazette
April, 1956

Allied To Close Mill At Otsego

Bardeen Plant Ends Operations May 1.

The Bardeen mill of Allied Paper Mills in Otsego will be closed May 1 in an economy measure, it was announced today by the four-man executive management committee of Allied. The mill in Otsego is a coating operation, employing 230 persons.

All employes were to receive letters today from the committee informing them of the closing.

"During recent years it has become more and more apparent that the coating operation in Otsego is fundamentally uneconomical," the letter declared. "This is true in spite of the best efforts of the supervision and the employes of the Bardeen Mill."

TOO HEAVY A BURDEN

"The distance of the Otsego mill from the papermaking operation in Kalamazoo, plus the high power cost of the mill, are too great a burden for the mill to carry."

A company spokesman explained that the Otsego mill is a coating operation only, with paper stock trucked back and forth between the Kalamazoo mills and Otsego.

Most of the coating operation already is performed in the King and Monarch mills in Kalamazoo and that now being done in Otsego will be absorbed at the Kalamazoo mills by adding a ninth day to coating operations here.

Everything possible to help Otsego employes in the transition will be done, the committee informed employes. Wherever possible, employes will be transferred to King and Monarch mills. Notices relative to job openings and the change are to be posted on the company bulletin boards.

Leo Russell is general superintendent of the mill in Otsego.

REMOVE SOME MACHINERY

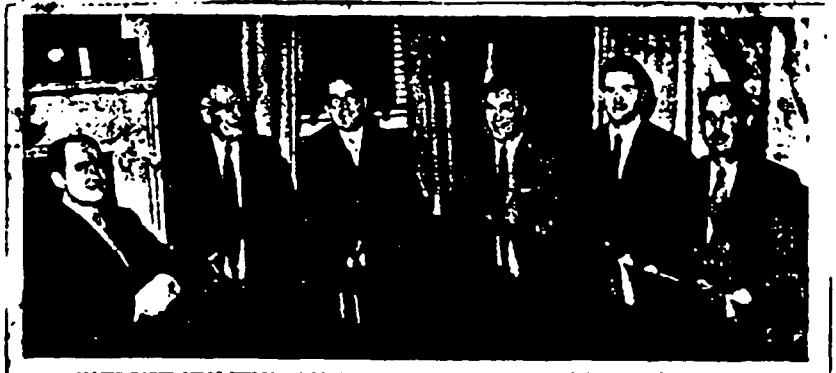
A small amount of the machinery will be brought to Kalamazoo, but present high-speed machinery in the King and Monarch mills will be able to handle most of the coating work.

Plans for disposition of the plant building are uncertain, but it probably will be put up for sale, the spokesman declared. If not sold, it may be used for storage.

The Bardeen mill is one of the oldest in the valley, being founded in 1887 by George L. Bardeen. It became a division of the Allied Paper Mills when that organization was founded in 1932. Bardeen started his paper career with the Kalamazoo Paper Company and was its secretary at the time he founded the Otsego mill. Noah Bryant and John F. King, also papermaking pioneers here, were associated with him in the Otsego mill.

Allied recently was purchased by the Thor Corp., Chicago, and now is a Thor subsidiary.

Kalamazoo Gazette
July 6, 1956



ALLIED PAPER MILLS WELCOMES THOR CORPORATION OFFICIALS TO KALAMAZOO WITH DINNER
Left to Right: H. C. Berwick, Thor Secretary; H. B. Johnston; Arnold H. Maremont, Thor Chairman; C. F. Chaplin; E. J. Gilman and W. A. Kirkpatrick —Gazette photo

BY LEASING ST. REGIS

Allied 8th In Fine Printing Papers

The Allied Paper Mills Division of the Thor Corporation has become the eighth largest fine printing paper manufacturer in the United States since its recent leasing of the Bryant mill of the St. Regis Paper Company.

Current plans for the near future indicate further expansion of the properties to become an even greater factor in the paper business, it was revealed last night by Arnold H. Maremont, Thor chairman.

WELCOMED AT DINNER

Maremont and H. C. Berwick, secretary of the corporation, were guests of honor last night at a dinner at the Park Club welcoming the executives to Kalamazoo were about 40 Kalamazoo leaders in civic, banking, educational and industrial fields, including particularly men who lead the paper industry.

"We have even more ambitious plans for the two paper mills in Kalamazoo," Maremont said. "Paper has become our main business and we are looking toward further acquisitions in this field as well as expanding the properties we have bought and leased in Kalamazoo."

Thor purchased the Allied Paper Mills last December. Only last week, it completed negotiations for leasing the Bryant fine paper mill of the St. Regis Paper Company, with an option to buy the mill later.

With last week's acquisition, Allied now is operating 11 paper machines, most of them large as paper machines go, and 23 coating machines, it was revealed at the dinner.

MAJOR INTERESTS HERE

"We like Kalamazoo very much," the industrialist declared. "and have staked most of the corporation's resources here." Maremont said. He referred to the recent purchases and lease whereby Thor has converted most of its appliance manufacturing facilities to the more stable and growing paper industry.

"We have enjoyed greatly our associations with the Kalamazoo community and particularly those with the very capable Allied management team. They know the paper business and so we are leaving the operation of the paper mills up to these four men."

The management team consists of four Allied vice presidents—W. A. Kirkpatrick, technical director; H. B. Johnston, chief engineer; E. J. Gilman, production manager, and C. F. Chaplin, sales manager.

Kalamazoo Gazette

Littlefield On Allied's Top 'Team'

Comptroller Given Management Post.

George A. Littlefield, comptroller of the Allied Paper Mills Division of the Thor Corp., has been named of the fifth member of Allied's management team, it was announced by the division today.

"We consider Littlefield a very substantial addition to our executive group," other members of the team declared today. "Allied already has benefited greatly from his ability, and we find particularly valuable his experience with the St. Regis Paper Co.

Previously, he had spent six years with the St. Regis Paper Co., of which five were as division comptroller in its Kalamazoo mills. Another year he spent on special projects for top management throughout St. Regis plants in the United States.

Littlefield is a native of Farmington, Maine, and a graduate of Bryant College. He recently purchased a home at 1023 Hazel Ave where he has moved with his wife and two children.

Other members of the management group are E. J. Gilman, production manager; H. B. Johnston, chief engineer; W. A. Kirkpatrick, technical director, and C. F. Chaplin, sales manager.

Littlefield came with the division March 31 this year from the Pomeroy Co., New York City, where he was secretary and treasurer.

SA00045881

Sale of Mill
Up to Bryant
Stockholders

Time, Inc., New York,
Submits $2,300,000 Of-
fer for Local Common.

Time Acquires
Bryant Plant

Stockholders Approve
New York Firm's Offer.

SUNDAY, MARCH 6, 1943.

Milham Named
President of
Bryant Paper

Organization Meeting
Elects Officers After
Sale of Local Plant.

...AY, FEBRUARY 15, 1943.

Sale of Mill
Up to Bryant
Stockholders

Time, Inc., New York,
Submits $2,300,000 Of-
fer for Local Common.

Time President
Inspects Mill

Roy E. Larsen Pays First
Visit to Bryant Plant.

SA00046079

St. Regis Assumes Operation of Bryant Mill

Allin Milham Leaves Office Of President

St. Regis Co. Takes Over 3 Paper Mills

Completion of Purchase to Enable Production of 1,000 Tons Daily

City Pledges Co-operation To St. Regis

SA00046117

BRYANT MILL CHRONOLOGY

1895	Bryant Mill founded as Bryant Paper Co. by John King and Noah Bryant (ultimately named Mill C)
1906	Bryant acquires Imperial Coating Mill (which became Mill E)
1906	Bryant acquires Superior Paper Co. (which became Mill B)
1911	Bryant Paper Co. builds Milham Division (which became Mill D)
1923	Expansion of the central power plant of the Bryant Mill. Addition of a waste paper conversion plant to the Superior Division (which became Mill A)
1926	Paper Machine No. 6 installed in Mill C
1945	Time, Inc. buys Bryant Paper Co. and builds a graphic arts research laboratory nearby (Stryker Office Building)
1946	Time, Inc. builds the Bryant Coating Mill (which ultimately became Panelyte - Division of St. Regis Paper Co.)
1947	St. Regis Paper Co. buys Bryant Mill from Time, Inc.
1956	Bryant Mill sold by St. Regis Paper Co. to Allied Paper Mills Division of Thor Corporation (5 paper machines and 9 coaters - 2000 employees in 3 mills at this time)

SA 022641

SA00022641

Kalamazoo Gazette
June 26, 1956

ALLIED ACQUIRES ST. REGIS MILL

Gets Bryant Plant on Long Lease

Agreement Gives Thor Three Units Here.

Allied Paper Division of Thor Corp. today announced leasing of facilities of the St. Regis Paper Co.'s paper mill in Kalamazoo.

Thor's long-term lease, understood to be for 10 years, includes a purchase option and will become effective next Saturday. Financial terms of the lease were not disclosed.

St. Regis, which has owned the mill, second oldest in the Kalamazoo valley, since 1946, is retaining its Panelyte Division and no change in that operation is contemplated, a St. Regis spokesman said

PLANS FOR EXPANSION

Allied was said to have substantial plans for expansion of its new acquisition. The St. Regis mill was originally known as the Bryant Paper Co., and the new operators will revert to the name of "Bryant" for that plant.

The Allied Paper Division of Thor Corp. will henceforth operate three mills in Kalamazoo — the Bryant, the King mill on Lake street and the Monarch mill on Cork street.

Arnold H. Maremont, Thor board chairman, announced the Bryant mill lease at Chicago, Ill.

He said the operation will add 15 to 18 million dollars to Thor's annual gross sales. He estimated that the addition will bring Thor's total sales in 1956 to approximately $45,000,000, with earnings likely to exceed $1.6 a share after taxes and depreciation.

The St. Regis Kalamazoo mill was acquired as part of a package deal in December, 1946, in which St. Regis also purchased the Maine Seaboard Paper Co., Bucksport, Me.; and the Hennepin Paper Co., Little Falls, Minn.

The Bryant mill produces coated and uncoated book paper, the same products manufactured by Allied Paper Mills, which became a division of Thor Corp. last Dec. 1.

Maremont said the addition of the Bryant mill's production will make the Allied Paper Division "a significant factor" among producers of groundwood-free printing paper.

EMPLOYES 850-900

The St. Regis mill currently employs between 850 and 900 persons; the other Allied plants employ about 1,150.

W. A. Kirkpatrick, Allied division's vice president and technical director, said management will be in the hands of Allied's executive management team consisting of Charles F. Chaplin, vice president and general sales manager; E. J. (Jack) Gilman, vice president, plant and production manager; Herbert B. Johnston, vice president and plant engineer, and Kirkpatrick.

George Epley is currently St. Regis plant manager here.

According to Kirkpatrick, Bryant mill supply and payroll departments will be retained, but the main office for the entire division will be at Allied's headquarters on Lake street. He said some of the present office staff probably would be absorbed into Allied's office force. Operating personnel will remain in most cases, as will a good many supervisory.

The main laboratory for all Kalamazoo operations will be at the King mill, where a new laboratory was recently completed.

Kirkpatrick did not elaborate on plans for expansion, but indicated they would be extensive. The Bryant mill now operates five paper machines, producing lightweight papers such as Bible paper, and has what Kirkpatrick described as "fine coating equipment."

One of the first moves of the new management, he said, will be to put a technical staff to work investigating necessary steps to bring the plant into conformity on Water Resources Commission orders for pollution abatement.

The Bryant and other Allied Paper mills will be shut down next week, over the July Fourth holiday, for inventory.

RESUMES JULY 9

Actual operation of the newest unit of the Allied division will begin the following Monday, July 9.

Acquisition of the St. Regis mill by Allied Paper marks the third major change in control in the last 11 years.

Formerly the Bryant Paper Co., the mill became a wholly owned subsidiary of Time, Inc., publishers of Time and Life magazines, in March, 1945. In December of the following year, St. Regis purchased the Bryant mill and the two other paper mills from Time, Inc.

In the last 10 years St. Regis reportedly has invested over 4½ million dollars in modernizing the Kalamazoo property.

History of the old Bryant Pa-

SA 045880

SA00045880

James A. Wise Appointed on Board of KVP

James A. Wise, president of the Kalamazoo Paper Company, has been appointed to fill a vacancy on the board of directors of Kalamazoo Vegetable Parchment Co., it was announced today by Dwight L. Stocker, president of KVP.

Wise was graduated from Yale University in 1926 with a B.S. degree in mechanical engineering, and has been continuously identified with the paper industry in Kalamazoo ever since.

From 1926 to 1930 he was associated with the Bryant Paper Company, now the Kalamazoo division of the St. Regis Paper Co., in the engineering and production departments.

In 1930, he joined the Kalamazoo Paper Company as assistant general superintendent. He became general superintendent in 1938, vice president in charge of production and a member of the board of directors in 1942.

In 1952, Wise was named executive vice president and general manager and president in 1953.

He has served as chairman of the Michigan Division of the American Pulp and Paper Mill Superintendents' Association and as a member of the executive committee of the Technical Association of the Pulp and Paper Industry.

Two years ago, improved quality and quality control measures were inaugurated at the mill to place St. Regis once again in the position of a leader supplier of this special grade of lightweight paper.

Added brightness and opacity has been added to the St. Regis paper as a result at the time when demand has reached new highs. The revised Standard Protestant Version, released in 1952, is largely printed on St. Regis paper, as are the King James version and many Bibles of Catholic publishing houses. Gideon Bibles, familiar to travelers everywhere, also use St. Regis papers. In addition, a vast amount of the paper is used in dictionaries, encyclopedias, directories, etc.

Pact Ratified, Strike Ends At Panelyte

The strike of Local 433 of the AFL Chemical Workers at the Panelyte Division of the St. Regis Paper Co. is ended.

Horace Howe, president of the local, said he is instructing the 205 production and maintenance workers belonging to the union to return to their jobs on their regular shifts Monday, following ratification of terms for a new contract by the union membership Saturday afternoon.

The union membership voted at a meeting at Carpenters' Hall to accept a new one-year contract providing for an eight cents across-the-board hourly increase, Howe said.

The union called the strike March 30 after rejecting a company proposal for a two-year contract providing for an immediate eight-cent hourly increase, and a five-cent hourly pay boost the second year. The union membership had objected to entering into a two-year contract on those terms

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The Bryant mill produces coated and uncoated book paper, the same products manufactured by Allied Paper Mills, which became a division of Thor Corp. last Dec. 1. MORE

Reject KVP Contract, but Stay on Job

Members of Local 323 of the International Brotherhood of Paper Makers (AFL-CIO) at 12:30 this afternoon voted to continue on their jobs on a day-to-day basis at the KVP Company while further negotiations are carried on after rejecting a new contract to replace the agreement that expired at midnight Sunday.

The union membership gave its negotiating committee specific instructions to seek a higher wage increase than the general hourly wage raise of from 10 to 13 cents an hour that was offered in the proposed contract that was turned down.

The decision to stay on their jobs while further negotiations are carried on was reached only after an extended and heated debate in which a faction advocated that a strike become immediately effective after the contract proposal was rejected.

VOTE AGAINST STRIKE

The majority of the union membership acted on the advice of the union's international officials to make all attempts to obtain further gains before going out on strike.

The rejected contract proposals, according to union officials, amounted to a total "package" of about 21 cents, including the offered 10 to 13 cents hourly wage increase.

OTHER BENEFITS OFFERED

Other terms in the proposed contract provided for a seventh paid holiday on Dec. 24, time and a half for all work on Saturday and for all work after eight hours, and a liberalized vacation plan that would give employes with 10 years of service three weeks vacation, and with all vacation pay based on six per cent of the employe's gross earnings for the previous year.

The union represent 1,450 production and maintenance workers at the local KVP plants.

The union meeting was held this morning in Central High School auditorium. The KVP plants had closed for the morning to permit the union members to attend the meeting.

Paper Makers And KVP Sign New Contract

An agreement for a new contract was reached at 10:10 Friday night by negotiators for Local 323 of the International Brotherhood of Paper Makers (AFL-CIO) and the KVP Company.

The announcement was made in a joint statement issued by Paul Storey, president of the union local, and Frank Southon, assistant general superintendent of the KVP Company.

In the joint statement they said "contract negotiations were completed and a new agreement was signed."

At the same time they instructed that "all employes should report for work Saturday in accordance with their regular schedule."

TWELVE-CENT INCREASE

Storey and Southon said "the new contract provides for a general wage increase of 12 cents an hour in addition to a number of other contract improvements.

The agreement for the new contract was reached at negotiations that had been in session since 3 in the afternoon and as the deadline neared for expiration of the previous agreement at 3 a.m. Saturday.

The new contract covers 1,450 production and maintenance employes. The previous agreement had been extended on a day-to-day basis while further negotiations were held following expiration of the old contract at midnight last Sunday.

KA03900055

Safety Honors Presented to Sutherland

NSC and Paper Group Confer Awards.

The Sutherland Paper Co., yesterday afternoon received two outstanding industrial safety honors —one of them the highest ever given by the National Safety Council.

Highest was the Award of Honor from the NSC, presented on the basis of safety achievements by the firm over a period of four years from 1952 through 1955. This award was given by Frederick R. Braden, vice president of the Kalamazoo Area Safety Council, on behalf of the National Safety Council, and was accepted by Glen Graham, vice president of the Sutherland, in charge of production.

The second award was from the Folding Box Association of America and was presented because the company achieved a million man-hours of work without a lost-time accident. This citation was made by S. L. Nordstrom, executive director of the association, and was accepted by Louis Sutherland Jr., vice president and assistant production manager of the company.

"The record achieved by the Sutherland Paper Co., has halted pain and misery and has prevented possible disaster," Nordstrom stated "Good safety records such as these affect humanity everywhere. Safety, to be successful, must be continuing."

BY CARTON DIVISIONS

Both awards were based on records achieved by the folding carton divisions of the Sutherland Paper Co.

Graham presided over the luncheon meeting at the Hotel Harris. The presentations were followed by a new industrial safety movie.

Sutherland Paper Co. in the last several years has received numerous high safety awards in recognition of its industrial safety program supervised by Forrest Kimmel, safety and medical director for the firm.

FIRM EXPANDS

Allied Paper Getting Mill At Albany

By BYRON TROYER

The Allied Paper Corp. will obtain its third paper mill within eight months through acquisition of paper manufacturing facilities of APW Products Co., Inc., at Albany, N. Y., Arnold H. Maremont, Allied board chairman, announced today in Chicago, Ill.

The acquisition will bring Allied's paper manufacturing capacity to 200,000 tons of paper annually, including production at Allied's mills in Kalamazoo.

ENTERING NEW FIELD

Maremont said that through this transaction, Allied, formerly the Thor Corp., will be able to expand into the important lightweight groundwood paper field for the first time, producing paper for catalogs, magazines and rotogravure printing. Presently, it is concentrating on manufacture of book and specialty papers.

That part of the APW manufacturing and sales facility, heretofore used for production and sales of paper towels, toilet tissues and similar products under the APW trademark, will be continued under its present management and personnel.

ORGANIZATION STAYS

The nationwide distributor organization of APW will remain intact.

Allied, now the eighth largest producer in its field, plans to double the capacity of the APW Albany mill within 24 months, according to Maremont. A new paper machine already is being negotiated for, he said.

The proposed sale will be voted on by APW shareholders and the merger will become effective Jan. 2, through the exchange of one share of Allied stock for 11 shares of APW common.

There are 269,525 shares of APW stock outstanding, with approximately 70 per cent held by Isidore Baum, APW president, and his associates.

The company has nine paper-producing machines and a half-million square feet of production space. MORE

KA03900055

Mill: Monarch Division Location: Kalamazoo, MI

		Year(s) of Initial Startup	Year(s) of Waste Significant Modification or Permanent Shutdown
c.	Paper Machine Rebuild(s)		
d.	Added Stock Prep. System		
e.	Added Broke Storage		
f.	Elimination of Paper Machine(s)		
g.	Other (Please List)		
	Deinking Operation		Shut Down - 1957

SA 033950

SA00033950

loads would be necessary to improve the water quality of the Kalamazoo River. In April 1961, the Water Resources Commission established pro rata shares of allowable use of the Kalamazoo River for disposal of organic oxygen consuming wastes by the paper companies in the Kalamazoo, Parchment, Plainwell, and Otsego areas. A time schedule was established for performance of steps to be taken by the companies to reduce waste loads to their alloted pro rata share. The object of these restrictions was to maintain a minimum dissolved oxygen concentration of 30 percent of the saturation value of the Kalamazoo River from Comstock to Allegan at the once in ten year, thirty day drought flow of 260 cfs. Stipulations were signed by the companies.

The Upjohn Co., Rex Paper Co. (property now owned by the Allied Paper Co.), Hawthorne Paper Co., Kalamazoo Paper Co. (now Georgia-Pacific Corp.) National Gypsum Co., and KVP Sutherland Paper Co. (now Brown Co.) signed contracts with the City of Kalamazoo in July 1964 agreeing to participate in joint wastewater treatment. Kalamazoo agreed to accept complete responsibility for providing the treatment the companies would otherwise be required to provide for themselves. The paper mills continued to maintain their own primary treatment facilities with discharge of final effluents going to the city sewerage system. The City is responsible for metering the volume and strength of the industrial discharges to their sewers. The rates charged to the companies depend on flow volume, BOD concentration, and suspended solids concentration. Any rate changes are to applied uniformly. Industry remained liable for any bypasses of their wastes to the public waters of the State. All of the other paper mills upgraded their wastewater treatment facilities to meet their load restrictions.

Little difficulty has been encountered with the industries which connected to the city sewerage system. Spent beer wastes from the Upjohn Company did cause problems in the primary sludge digestion, but these have been resolved. Some of the companies, particularly the Georgia -Pacific Corporation, had a large number of direct bypasses of untreated wastes to the river. These occurred for a variety of reasons. Increased surveillance and maintenance partially corrected the problem and in June 1972 facilities which diverted all untreated bypasses of Georgia Pacific's to the city sewerage system were completed. The Rex Paper Company ceased all production

MDNR00005297

in May 1968.

A number of the paper mills chose to treat their own wastes. Allied Paper Corporation met their load restrictions by terminating deinking operations at its King and Monarch Divisions. From September 1969 until deinking was terminated in December 1971, the Bryant Division deinking wastes were discharged to the City of Kalamazoo sanitary sewerage system. The King Division permanently terminated all operations in the fall of 1970. Brown Company, Specialty Products Division in Parchment treats white water from all its paper machines by save-all units with process wastes from the one mill receiving additional settling and stabilization in a series of lagoons prior to discharge to the river. Facilities were completed in August 1971 to correct a small volume discharge of highly acidic wastewater. The Plainwell Paper Company met their load restrictions by discontinuing deinking operations in January, 1963, completing save-alls in August 1963, and completing aerated stabilization basins with final clarification in October 1967. The Menasha Corporation changed their pulp cooking process, made a greater reuse of white water, installed submerged combustion units to evaporate pulp mill liquor so that it could be used as road binder and constructed aerated lagoons with final settling to further treat their white water. Production was greatly expanded at this mill. In February 1969 the Water Resources Commission made an Order of Determination on Menasha which, among other restrictions, stated that by July 1971 their discharges would be limited to 5,000 pounds of BOD per day and suspended solids would be limited to 3,000 pounds per day. The Corporation has recently had sulfite waste liquor burning and pulp washing facilities designed with construction scheduled for the near future. The Mead Corporation in Otsego treats their wastes in two primary clarifiers and reuses much of the clarifier effluent with the excess going to aerated lagoons which were constructed in 1967.

Table 2 historically reviews the BOD loads discharged by the paper mills with a comparison to the current load limitations contained in Commission Orders or Stipulations.

Figure 4 shows the location of major municipal and industrial waste discharges to the Kalamazoo River and Portage Creek that were in existance during the 1963 studies.

MDNR00005298

Commission Drops Challenge

Club Zorba License Hearing Off; Wrecker's Is Still On

The owner of a downtown go-go club is off the hook, but wrecker-service operator Clair Worthington still faces a public hearing before the Kalamazoo City Commission Wednesday.

Commissioners apparently decided in a private meeting Monday to forget about challenging the liquor license of Club Zorba, which is operated by Peter Stamos. The decision was reaffirmed on the floor.

Stamos had been scheduled to appear for a hearing at a special 7:30 p.m. Wednesday commission meeting.

Worthington is still scheduled to appear to tell the commission why his license to operate a wrecker service in the city should not be suspended or revoked.

Worthington's license was suspended temporarily in 1975 after he was convicted of violating a city ordinance governing wrecker operations. Commissioners had voted Feb. 23 to hold the special hearings for both Club Zorba and Worthington.

Monday, however, the Club Zorba item was removed from the agenda, a decision apparently made in the private meeting before the regular 8 p.m. public session.

Stamos's liquor license came into question after Police Chief Dean Fox wrote an administrative memo suggesting that the commission ought to recommend revocation of the license or at least a probationary period.

Although only three convictions had resulted, Fox wrote, his department had cited Club Zorba for alleged liquor-law violations 13 times during the 28 months it had been open.

That, Fox wrote, was more violations than the department had recorded against any other licensee in the city. Fox also mentioned 31 other police cases stemming from the bar.

The only public explanation of the reversal of the decision to subject Stamos to a hearing came from City Atty. James Bishop.

Bishop said he recommended that the hearing be cancelled because "we do not have sufficient evidence."

After he reviewed court cases involving licensing, Bishop said, he and Fox "concurred" that the city didn't have a case.

At stake was the city's recommendation to the Michigan Liquor Control Commission, which actually issues liquor licenses.

Also Monday, the received a letter from Stamos's attorney, John Vlachos, asking for an adjournment so that he could research a pair of Michigan Supreme Court decisions that came down in late January.

According to the Liquor Control Commission, the decisions mean local legislative bodies, if they want to request revocation or non-renewal of a license, must serve such a licensee with a "timely written notice detailing the reasons for the proposed administrative action."

In addition, the licensee must have an opportunity to confront anyone testifying against him and to present his own witnesses, evidence and arguments.

The Liquor Control Commission has indicated that it must receive any adverse recommendations from local units by April 1.

In short, the Supreme Court said that there is a property right in a liquor license and that it cannot arbitrarily be taken away without "a full hearing in accordance with due process of law."

City Manager Bruce Brown called the private meeting to discuss the liquor license without explanation, but one commissioner indicated the apparent reason was a fear that some commissioners might object to removing the hearing from Wednesday's agenda. None did, at least publicly.

Besides commenting on various citizen complaints they have received, commissioners haven't indicated specifically why Worthington's license is being reviewed Wednesday.

The first time the wrecker license was the subject of a hearing, the city cited two specific convictions under the ordinance Worthington had signed early in 1975.

Since the license was renewed late last year, the commission has continued to receive complaints about Worthington's treatment of persons whose cars have been towed from private lots where they have been illegally parked.

Communists File For Ballot Spot

LANSING (UPI) — The Communist Party of Michigan has filed 21,600 signatures with the state Elections Division in attempts to get its candidates listed on the November ballot.

About 14,000 signatures must be validated in order for the party to be included on the ballot.

The Community Party's filing brings to seven the number of parties that may be listed this fall.

The Republican, Democratic, Human Rights and American Independent parties will automatically be on the ballot and the Socialist Labor and Socialist Workers parties have filed signatures to have their candidates included.

CITY HALL REPORT

Tavern Requests Tabled For Week

The Kalamazoo City Commission Monday routinely tabled for one week a recommendation on a request from the owners of a tavern to add space for a liquor license and add a permit to show movies.

The request has been made of the Michigan Liquor Control Commission by Nick Mastias and Theodore J. Chumas, who operate Mastias' Bar & Grill, 313 N. Burdick.

Chairmen For Law Day Event Are Announced

Chairmen in charge of this year's Law Day ceremony have been named.

Law Day, with the theme "200 Years Liberty and Law," is set for April 30 in Bronson Park.

A guest speaker will be announced.

Heading the planning for the annual observance are Loyal Eldridge, Kalamazoo County Bar Association; George Bearup, Kalamazoo County Young Lawyers; Mrs. Joseph Mills and Mrs. Richard Craig, Kalamazoo County Lawyers Wives; and Ms. Julie Bosma, Kalamazoo Legal Secretaries Association.

Eastside Block Group To Meet

The Eastside Block Association will meet at 7 p.m. Wednesday at the School for Living, 1618 E. Main.

Representatives of the City of Kalamazoo Community Development Bureau and the Planning Division of the Community Development Department will be present.

In Court

City Seeks To Force King Mill Demolition

By PETER MAAS, Gazette Staff Writer

The City of Kalamazoo has gone to court in an attempt to force a Bay City area wrecking company to speed up the demolition of abandoned King paper mill.

The Lake Street factory was closed by Allied Paper Inc. in 1971.

Instead of tearing the building down, Allied gave the old mill to the Dore Wrecking Co. of Kawkawlin.

Dore has salvaged equipment and fittings from the old building, but has done little in the way of demolition since acquiring the building more than four years ago.

Twice the city building department has revoked wrecking permits because insufficient progress was being made on the demolition.

City Atty. James Bishop has filed suit in Kalamazoo County Circuit Court asking that Dore be ordered to begin demolition "forthwith."

The suit asks the court to determine a "reasonable" timetable for the demolition and clean-up.

The building has stood open and contains a number of situations that have been described as hazardous. Among those situations are a number of holes in floors where equipment has been removed.

In this case the city has not followed its normal procedure of ordering unsafe buildings razed, with the expense being assessed against the property owner.

Bishop has recommended against the conventional procedure because he fears the city could be stuck with a wrecking bill of up to $500,000 if Dore were to decide to abandon the property to the city, along with back taxes and the wrecking expense.

The city's complaint alleges that the building "has deteriorated to the point where it is unsightly and a danger to the public health and safety." Parts of the building are a threat to fall and "injure persons or damage property," the complaint says.

Also mentioned are "several fires" of recent years and that the building "is presently a fire hazard."

Also listed are open doors, broken windows, loose bricks, an uncovered well or cistern, an unfenced pool of water and grounds strewn with "pieces of metal, wood, glass, cans, paper and other refuse."

Further the complaint says, the city "believes that the property may be a place of refuge for rodents and other undesirable forms of animal life."

Last month, the Edison Neighborhood Committee complained to the Kalamazoo City Commission about the abandoned mill.

Commission President Shirley Axenhauer restated the complaints Monday before Bishop announced that the lawsuit had been filed.

Also Monday, the commission heard a letter from the Parish Council of St. Joseph Catholic Church backing the Edison request.

The council called the mill "a hazard to health and safety and an eyesore to the people who live and work in this neighborhood."

According to Bishop, the court has not yet set a hearing on the city's suit.

Named with the Dore corporation as defendants are Arthur P. and Shirley Dore.

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MIGALA'S
SALE ENDS MARCH 14TH

SA 046021
SA00046021

Year	Flow (MGD) Portage Creek	Flow (MGD) Kalamazoo River	Susp Solids #/Day Port Creek	Susp Solids #/Day Kal River	B.O.D (#/Day) Port Creek	B.O.D (#/Day) Ka. River	ALL ALLIED EFFLUENTS Flow	Susp. Solids	B C D.
*1969	4 100	7.213	1968	2387	5379	3029	7 213	2387	
1970	3 338	6 048	470	895	2110	3154	7 612	1643	12,128
**1971	3 676	3 676	497	497	1540	1540	4 980	1499	6,817
***1972	3 095	3 095	282 4	282 4	1080.3	1080 3	4 039	497 4	1,626
1973 to date	3.025	3 025	351	351	883	883	3 914	628	909

* Bryant clarifier effluent to city in 4th quarter

** King clarifier down January 20, 1971 (January averages - Flow 3 271, S S. 425, B O.D 825

*** Mill A shut down December 6, 1971

SA00030611 SA 030611

1-4-57

Allied Paper Net $196,243 For 9 Months

Earnings Amount to 99 Cents a Share.

The Allied Paper Corp today announced net earnings of $196,-243 for the third quarter of 1957

Arnold H Maremont, chairman of the board, said earnings for the period amounted to $277,243 before a provision for taxes of $81,000.

For the nine - month period ended Sept. 30 earnings amounted to 77 cents per share Sales for the period were $28,-449,278 Earnings, before taxes of $451,500 were $1,247,883 Net earnings after taxes amounted to $796,383.

In the comparable nine-month period for 1956 earnings per share were $1.39 on a slightly smaller number of shares after a pro forma adjustment, giving effect to the stock split of April 25. Sales for that period were $23,880,-285 Earnings before taxes amounted to $1,371,295. There was no provision for taxes in that period since there was a loss carryover.

The drop in earnings in the 1957 period resulted from the fact that there were no income taxes payable for the 1956 period and from the current slump in the paper industry, Maremont said

ENLARGES ACTIVITIES

Acquisition and merger of the Osborn Paper Co and Mid West Paper and Envelope Co Sept. 7 will enlarge Allied's activities in the school supply and stationery field on a nationwide basis, Maremont declared

He also declared that the Max Eckardt and Sons Ornament Corp, a wholly - owned Allied subsidiary which manufactures glass Christmas ornaments, continues as a profitable operation. The Phillips Control Corp, a wholly-owned subsidiary, which recently acquired certain assets and manufacturing rights of the Deltronic Corp, is expected to continue its consistent contribution to earnings during the rest of the year Deltronic is a producer of sub-miniature electronic relays.

Efforts will continue to further Allied's integration in the paper business, the chairman said.

Election of four new vice presidents of Phillips Control Corp, Joliet Ill., was announced today by John W. Ayers, president Phillips is a subsidiary of Allied Paper Corp. It manufactures sub-miniature relays, micro-relays and solenoids for military and commercial use.

The new vice presidents are George Urey, sales-engineering; Fred Schwab sales, Hobart Hartong engineering and Stanley McClean controller All are newly created posts.

KG 1-2-57

Allied Paper Holds Sales Convention

The first general sales convention of the Allied Paper Corp to be held here since the company entered new management two years ago went into its second and concluding day today at the Hotel Harris.

The fact that Allied is manufacturing a complete new line of coated papers, which is expected to expand the firm's manufacturing activities, was announced A new sales promotion program, the first such in Allied's history also was launched

INCLUDES SALES AIDS

Charles W (Chuck) Hamilton has been placed in charge of the new sales promotion plans, it was announced. He joined Allied three months ago, coming from the Rudd Manufacturing Co where he had a position in the advertising department.

The program will involve production of sales aids for merchants and distributors, including sample books, brochures and counter advertising material.

E M Bishop Jr., has been added to the department as sales representative for the Midwest, it was announced

SALES PLANS OUTLINED

Clinton J Wainwright, general sales manager, conducted meetings today outlining sales plans for the coming year

W. A. Kirkpatrick, vice president and director of research and development, announced the new coated paper lines President C. F Chaplin, of Chicago, spoke at the opening meeting Friday conducted by George A Littlefield, executive vice president.

Others speaking included James L. Herlihy eastern sales manager, D J Campbell, New York sales manager, and Robert Baughman, western sales manager

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KG 11-5-57

Monarch Book Mill Being Reopened

The Monarch Division book mill of the Allied Paper Corp., which was closed down last February, will start up again Monday, James McClure, Allied vice president in charge of manufacturing announced today. The resumption of operations will re-employ 120 employes, McClure said

The move will place the entire Allied plant here on full production.

The mill operates two paper-making machines, a waste paper conversion mill and finishing department.

After the book mill was closed last February during a slump in demand for book papers, Allied gave considerable study to converting the machinery for the manufacture of newsprint, but the plan was found impractical after test runs.

Create Waste Control Post At Allied

Kenneth Williams has been promoted to the new position of waste control supervisor at the Kalamazoo mills of the Allied Paper Corp., it was announced today.

James McClure, vice president in charge of manufacturing, said Williams will direct the overall waste control program at the King, Bryant and Monarch Mills in Kalamazoo.

Williams has been an employe of Allied for nine years. He started at the King Mill as a paper tester and held the position of machine coating [illegible] at Monarch. Most recently, he was quality control supervisor at the King Mill

His former position at King Mill will be filled by [illegible] Vangieson.

Finger Painting Paper Developed

Development of a new paper for use in finger painting was announced today by Joseph Osborn, president of the Osborn-Midwest Paper Corp., at Marcellus. Osborn-Midwest is a subsidiary of Allied Paper Corp.

Osborn said the development resulted from the cooperative work of W. A. Kirkpatrick, vice president in charge of research and development for Allied, in Kalamazoo.

The new finger painting paper is 70-pound white, coated on two sides. It is similar to [illegible] [illegible] the finger [illegible] coated on [illegible] paper will [illegible] [illegible] tied sheet [illegible] riority in [illegible] [illegible] other se-[illegible]

Allied Yule Party Attended by 1,700

About 1,700 persons attended the Allied Paper Corp.'s second annual children's Christmas party in the Kalamazoo Armory Sunday Gifts were given to the children Master of ceremonies was Philip Krautheimer. Co-chairmen were Mrs. Mary Overholt, Chester Harada and Jane Stanley.

Allied Employe Retires After 44 Year's Service

Charles Litten, who has seen 44 years of service with the Allied Paper Corp. and its predecessor companies, retires today as superintendent of the Monarch Book Mill. He will be retired under the firm's new retirement plan.

Litten has held the superintendent's post since 1953. He joined the Bardeen Paper Co. at Otsego at the age of 16 in 1913. Since then, he has been employed by the Bardeen, King and Monarch Division of Allied.

Litten will be a guest at a special luncheon Thursday noon at the Hotel Harris. It will be attended by company officials and supervisory employes. He plans to travel following retirement, including a trip soon to California.

KG 12-6-57

MEET WITH WRC STORMY

Lee Paper Ordered To Cut Pollution

The state Water Resources Commission moved toward a cleanup of paper mill wastes in Sutton Lake and Gourdneck Creek near Vicksburg in a stormy session with Lee Paper Company officials and area property owners Thursday in Lansing.

In addition to ordering the Lee Paper Company to curtail its wastes going into the lake and creek by May 1, 1958, the WRC also made plans for future meetings with Kalamazoo River valley mill representatives to study purification progress on that body of water

The WRC agreed to review its staff report on a re-survey of the Kalamazoo River, based on data obtained in August of 1956 and still being compiled, at the conservation department's Haven Hill Lodge near Milford March 31-6. The state board will meet May 28-9 in Kalamazoo to present findings to representatives of mill management and decide whether further purification of the stream will be required.

"The Kalamazoo River is not in a satisfactory condition," Loring F. Oeming, chief engineer for the WRC said today "It is not as good as we would like to see it, in spite of orders adopted (in October of 1951) which have resulted in extensive expenditure for pollution control."

MORE TREATMENT?

Kalamazoo Paper Co recently started secondary treatment of waste from one of its mills in the industrial valley. The indication is that others may be required to provide the same degree of treatment to augment primary disposal plants now in operation as the result of WRC orders voted Oct. 24, 1951

In proposing the schedule of future meetings through June, which was adopted, executive secretary Milton P. Adams told the board "it is anticipated that the staff will be ready to brief the commission on the present Kalamazoo River situation and the waste loading there in March, and to answer any questions you may have before the meeting at Kalamazoo two months later."

There was a sharp disagreement between Lee Paper officials and property owners, as well as the WRC secretary, during an appearance session here Thursday which followed a hearing Sept 26 and resulted in adoption of the abatement order

It is required that, after an experimental period, the mill cut its waste loading going into the creek and lake effective May 1, 1958, based on engineering plans to be approved by the WRC staff by Jan. 1, 1958 The maximum for suspended solids was fixed by the state board at 30,000 pounds a month, with a daily limit of 1,500 pounds to which management objected strenuously. The order also prohibits release of any wastes that will cause turbidity or discoloration in the lake.

Present Lee Paper wastes, according to attorney John C. Howard, are from 80,000 to 120,-000 pounds a month. Edward N Ross, company engineer, admitted in response to a question from Adams "we have been under 1,000 pounds a day several times recently, because of a different type of paper being run."

"CLAIM HARDSHIP"

Howard insisted "we have no knowledge of ability to comply with the order at all until we get through the experimental period. We think it is premature and the 1,000-pound daily restriction will create hardship." He, with agreement from Ross, told the WRC "we need five or six days a month to go over 1,500 pounds, with three to be consecutively," but that failed to sway board members.

After Howard charged "you're being ridiculous" Adams retorted "I feel very strongly that this order should be adopted because you're being allowed more waste than any other mill in the state. You are in perhaps a more critical situation. There has got to be better protection than today, or else you people have got to seek a location elsewhere or else find remedies some place else"

When chairman Lynn F Baldwin proposed ponding of wastes to allow release on an average basis, Ross said "we don't have land for that" Russell Blosser of Kalamazoo, district engineer for the National Council for Stream Improvement (of the paper industry) pointed out "there would be odor problems, if Lee tried storing wastes in the summer"

PROPERTY OWNERS HEARD

Clifton Fisher of Route 1, Vicksburg, told the WRC "as a property owner I realize this is a pretty tough thing to stop. In 1937, the company promised that if allowed to expand there would be no more complaints. Its production has doubled since 1950 In my mind, the 1,100-pound daily limit originally proposed by the commission staff was not severe as [illegible] mills in the area are concerned. As I see it, the commission has leaned over backwards to help this mill."

Roy Cooley, also of Route 1, Vicksburg, who owns property along the creek, said "in places Gourdneck is muddied as wide as year ago, because of sediment deposited, and it no longer clears up when the mill is shut down

1985 Water Sampling results from Portage Creek indicate Landfill seeps into Portage Creek containing up to 4389 ng/L (Standard is .012 ng/L).

C. Description of the Polluters Activities:

1. Allied Paper Company
2030 Portage
Kalamazoo, Michigan 49003
616-345-7131

2. PCB's were first marketed in 1929. PCB's were used in the paper industry as plasticizers in inks, pressure sensitive and colored copying paper, and coatings on paper used in thermographic and xerographic transfer processes. In 1957, a new use was developed for PCB in carbonless copy paper. From 1957-71, 41 million pounds of Aroclor 1242 was used in the manufacture of carbonless copy paper. Carbonless copy paper contained an average of 3.4% Aroclor 1242 by weight. Allied Paper, Inc., a subsidiary of SCM Corporation (a Delaware Corporation) owned two paper mills on Portage Creek known as the Monarch and Bryant Mills. The Monarch Mill, which was closed in December 1980, produced primarily carbon tissue. The Bryant Mill produces book paper, commercial printing papers, and coated specialty papers. Both mills used deinked stock at some time. It is suspected that most discharge of PCB's occurred between 1950-1970.

From our present knowledge and past data, we do not believe that other PCB discharges to Portage Creek exist or existed.

D. Evidence

1. Watercourse or Aquifer Involved. The watercourse involved is Portage Creek from Cork Street to the confluence of the Kalamazoo River, then the Kalamazoo River to Lake Michigan.

2. Contaminants. The primary contaminant of concern is PCB. Portage Creek is heavily contaminated with PCB's from Cork Street to its confluence with the Kalamazoo River. Allied Paper is the sole discharge in this reach of the river. PCB contamination of water and sediment begins at the point that Allied Paper's discharge is located. We have measurements of PCB's in the runoff from Allied's from their landfill from 1972-76. We have recent (1985) data which show detectable PCB's in their clarifier discharge (69 ng/l). The contaminated sediments in Bryant Millpond are continuing to release PCB's to the creek and the Kalamazoo River.

0002551

KG 1-12-55

Music Medley

By BYRON TROYER
Gazette Staff Writer

A newcomer to Kalamazoo's business life and frequent visitor to the city, Arnold H Maremont, chairman of the board of the Allied Paper Corp., will be chairman Thursday at a meeting featuring the largest gathering of ambassadors, ministers and other diplomats ever held in Chicago.

Named last week by the mayor of Chicago, Richard J Daley, he holds the position of chairman of the 1959 Festival of the Americas to be held in the Windy City.

The festival, featuring the great musical dramatic and dance groups of both the Americas and the Caribbean Islands, will be held in Chicago's magnificent new Exposition Hall and Soldier Field. It will supplement the 1959 Pan American Games which have been awarded to that city.

Maremont

Maremont says programming already under way indicates it is conservative to predict that this will be the most spectacular and entertaining festival ever held in the United States. It fits perfectly into the St Lawrence Seaway celebration program, he declares.

When the mayor announced that the post was one of the most important civic assignments ever given to a Chicagoan it brought out facets of Maremont's career not generally known.

In addition to being head of four large companies, with assets of more than $35 000 000—including Kalamazoo's Allied Paper Corp — the "tycoon" finds time to follow widely diversified cultural interests.

• • •

He is trustee of the Lyric Opera Theater, of Chicago, the Ballet Theater and Theater, Inc. He is on the finance committee of the Ravinia Music Festival Association and a governing life member of the Art Institute of Chicago.

He has been one of the most consistent "angels" for Broadway plays, an investment which loses for the play's backers oftener than it wins, though the rewards may be handsome indeed if the backer picks an "Abie's Irish Rose" or "Arsenic and Old Lace." Considered an authority in the field, a lengthy article by him on "Investment in the Theater, Business or Philanthropy?" was carried last year by Saturday Review of Literature.

• • •

His home, in Winnetka, Ill., houses a distinguished collection of modern art. It was the subject of the first of a series on Chicago art collectors appearing recently in the Sunday Chicago Tribune, with color photograph illustrations. Picasso, Juan Gris, Dufy, Braque and Leger are among the artists represented. Kalamazoo papermakers will be interested to know that one of the Picassos is a small still-life painting of various forms of paper.

KG 1-8-58

Appointment of John D. Nisbet as Chicago sales representative of Allied Paper Corp was announced today by Clinton E. Wainwright, general sales manager. Nisbet has been with Allied for 21 years, the last 10 years as director of production scheduling at Allied's Kalamazoo mills.

KG 1-18-58

Monarch Mill To Shut Down Saturday

The Monarch division of the Allied Paper Corp will be closed down completely Saturday for an indefinite period in a rearrangement of operations. The 400 workers employed there will be laid off, the Allied management announced today. The layoff was decided on because of current economic conditions in the paper industry, officials reported.

The company will make every effort to absorb in its Bryant and King Divisions, a large number of the laid off employes, the management said.

Manufacturing book and coated papers, the Monarch mill was partly closed during several months of 1957. The book mill was reopened about Nov. 1 after a shutdown of several months, but the coating mill was not affected at that time. However, both operations are being suspended now.

No plans for the future operation of the mill were announced. All employes have been informed of the move.

Detroit Free Press 1-18-58

400 Laid Off At Kalamazoo

KALAMAZOO — (AP) —The Monarch Division of Allied Paper Mills Inc., shut its plant here Friday, laying off 400 workers. Management blamed "current business conditions." It said some employes may be transferred to other Allied divisions. The Monarch mill made book and coating paper.

KG 1-24-58

Urges New Paper Sales Approach

St. Regis Official Advocates Marketing-Management Concept.

Marketing of Kalamazoo paper output on the "marketing management concept" was advocated here Thursday night by Marius Grandbois, market research manager for the St. Regis Paper Co.

Grandbois, formerly of Kalamazoo and now of New York, was the principal speaker at the third Papermakers Get-together at Hotel Harris.

The meeting was sponsored by the Michigan Division of the American Pulp and Paper Mill Superintendents Association and the Kalamazoo Valley Section Technical Association of the Pulp and Paper Industry.

More than 640 persons attended, the largest group ever to turn out for the annual get-together.

ASKS NEW APPROACH

Grandbois stressed the need for a new approach to marketing, pointing out that the paper industry must find a way to use up its vast production potential if machines are to be kept operating safely above the break down point.

"The marketing - management concept," Grandbois said, "means that management accepts the philosophy that every decision in the operation of a business is made in the light of customer needs. Marketing-management starts with customer need, and ends with the satisfaction of that customer need.

"The marketing - management concept guides our marketing effort in developing, producing and selling products that our customers need—it simply means we get more return from our effort expended and dollars invested. And, of most importance today, it helps keep those companies that practice that concept from becoming marginal—the position in which none of us wants to be, but a position in which some of us will be if we just coast along."

Grandbois said he believes that marketing will take its place alongside finance and production, as one of the "big three" of business. This will mean, he said, tying to marketing many of the scientific principles which long have been in use in the other two areas.

He said that a survey of companies which now operate under the marketing-management concept indicates positive benefits in the following order:

Better company-wide effort; improved supervision of marketing function; greater cooperation between departments, increased profit consciousness in the company; more economical use of manpower; greater attention to profitable marketing; better effort and increased sales; better information for management decisions; better cost controls and an improved product line.

He predicted a bright future for the paper industry, as opposed to many other basic industries.

"We live on our interest," he said, "since our major raw material, pulp, is constantly being replaced as new trees grow. And, as good forest management becomes more commonplace, raw material resources will increase accordingly."

OTHER SPEAKERS

Grandbois was introduced by W. A. Kirkpatrick, vice president and director of research and development for the Allied Paper Corp., who presided.

Also speaking briefly was Albert E. Bachman, president of the Missisquoi Corp., Sheldon Springs, Vt., and president of the American Pulp and Paper Mill Superintendents Association. Bachman called for a happy wedding of the technical and practical aspects of papermaking. He called development of the brightness tester as one of the most significant technical advances of the industry.

R. E. Stephenson, vice president of TAPPI here, paid tribute to R. Ray Hall, technical director of the Allied Paper Corp. and chairman of the TAPPI section, who is leaving Kalamazoo to join the Riegel Paper Co.

The next meeting of the local groups will be a joint one on March 13, with "Moisture" as the subject.

KG 1-25-58

Gets New Post At Allied Paper

Appointment of Robert Larsen, 38, to head the new process control department of the Allied Paper Corp. was announced today. He has been technical superintendent of Allied's King Division.

James H. McClure, vice president in charge of manufacturing, announced the appointment.

Larsen

Larsen joined Allied last October, coming here from the National Gypsum Co. He had been superintendent of the Anniston, Ala., plant of National Gypsum for two years before. Prior to that, he was general superintendent of the Kalamazoo mill of the St. Regis Paper Co.

The new process control department will supervise studies of pulp mill production, paper control sheeting, sheet and chemical recovery and other manufacturing methods.

KG 1-23-58

[illegible] Bought [illegible]

[illegible] the [illegible] Paper Co. [illegible] Sacramento, Calif., it was announced today by Arnold H. Maremont, chairman of the board of Allied.

Allied took an option last summer to purchase the California converting plant. This is the fourth converting plant acquired by Allied in the last seven months, including the Osborn Paper Co., Marion, Ind., parent firm of Sharon.

The other two are the Midwest Paper and Envelope Co. of Marion, also acquired in July, and its Mercury Division bought in October. The Mercury Division also is located in California.

Sharon, as well as Osborn, is a manufacturer of tablets, loose leaf fillers and other school supplies. Midwest and Mercury are manufacturers of envelopes and social stationery. The Osborn and Midwest companies since have been merged as the Osborn Midwest Paper Co. and are being operated as a wholly-owned subsidiary of Allied.

KG 1-29-58

Clinton E. Wainwright, general sales manager of the Allied Paper Corp., today announced creation of a sales administration department at the plant in Kalamazoo. It will supervise such administrative functions as price requests, complaints and sample control. The new department will be directed by Michael Maremont, formerly of Allied's New York City office. Maremont's New York duties will be filled by Ramsay Taubert, who has spent three years with the Standard Paper Mfg Co and one year with the Mead Sales Co.

APRIL 16, 1959

Allied Divisions, Union Agree on Two-Year Pact

A new contract providing for a general hourly increase of 13 cents over two years was signed today by Local 78 of the International Brotherhood of Firemen and Oilers (AFL-CIO) and the Bryant and Monarch Divisions of the Allied Paper Corp

The agreement extending for two years beginning March 1 1959 provides for an increase of seven cents the first year and six cents the second year

Provisions are also made to establish a formal training program for positions in the maintenance trades

The contract covers 140 power plant and maintenance employes at the two divisions.

Two Promoted At Allied Mills

Two promotions at the Allied Paper Mills were announced today by Millard C Teague director of quality control for the Allied Paper Corp

Neil Loces an employe of Allied since 1951 and former Mill coating technician and paper tester has been promoted to be supervisor of quality control for the King Mill Duane Knowles an Allied employe since 1947 has been promoted to be quality control supervisor of the Bryant Book Mill.

Full time and part-time enrollment in U S colleges and universities for the 1958-59 scholastic year reached a high of 3 258 556

APRIL 23, 1959

FATHER CATCHES THEM

Children Jump, Flee Fire

All Six Members Of Family in Comstock Unhurt

Three children leaped safely down a roof into their father's arms to escape possible suffocation in their burning home at 6810 Celery St Comstock early this morning

Charles Blades 30 was able to catch each of the youngsters in his arms as they dropped 14 feet from a roof onto which they had crawled They were aroused at 1 a m by smoke and gasses in their second floor bedroom

Both Mr and Mrs Blades and another child who were asleep downstairs escaped through a back door All were unhurt.

• • •

ALICE, 9, MARK, 7, and Ray 5 crawled onto the roof after smoke filled their room. Comstock firemen learned Alice unfastened a tricky storm window catch to allow her and her brothers to reach the roof Mrs. Blades was the first to discover the fire

Once outside Blades ran to the west side and called instructions to the youngsters still in their nightclothing Mrs Blades carried her one-year-old son Ronnie to a neighbor's house and firemen were summoned

Blades said he had some difficulty talking Ray into jumping from the roof but with a little help (above) from Mark the boy jumped.

A discarded cigarette in a davenport in the living room was blamed for flames which were confined to that room Property loss was estimated at $2 000

YOUNGSTERS, DAD RE-ENACT ESCAPE

April 1, 1959

Allied Paper Shows Profit During 1958

Report Outlines New Research Program

Operators of the Allied Paper Corp reflected a favorable profit trend in 1958 as compared with 1957 it was revealed in the annual report issued today Arnold H Maremont chairman of the board said in the report that the corporation looks forward to the future with confidence and optimism

Allied showed earnings to be $520 452 for 1958 as compared to a loss of $192 737 for the previous year Net sales for 1958 amounted to $39 252 720 against $39 462 110 for 1957 the report showed

• • •

MAREMONT EMPHASIZED that an accelerated research program to develop new products and to improve technical processes has been launched

The report stated that a $294 711 gain was realized on the transaction when the West Coast Converting Division was sold last December This sale facilitates Allied's expansion in other directions, Maremont said

Maremont reported sales and profits of the converting operations at Marion Inc as satisfactory Those of Max Eckardt and Sons Ornament Corp of New York and Phillips Control Corp of Joliet Ill, and San Juan P.R were down from the preceding year Gains for both of these subsidiaries were predicted for 1959

APRIL 22, 1959

[illegible] BUNDE has joined the [illegible] engineering department of the Allied Paper Corp as staff engineer it was announced today by H B Johnston vice president in charge of engineering Bunde is a graduate mechanical and electrical engineer and has been in the pulp paper and board industries since 1925 He will have his offices in the Bryant Mill here. Before joining Allied, he was a consulting engineer

APRIL 23 1959

Study Reopening Of Monarch Mill

Allied Considers Lightweight, Specialty Paper Manufacture

Possible manufacture of specialty and lightweight papers at the Monarch Mill of Allied Paper Corp is under study Allied's board chairman Arnold H Maremont said Wednesday

The disclosure concerning future of the now-closed mill on Cork street came at the annual meeting Allied in Chicago Ill. The Monarch mill which formerly produced large quantities of printing photographic and coated papers, has been shut down since January 1958

Maremont reported a much improved first quarter profit-wise for Allied citing particular improvement in the paper mill operations in Kalamazoo First quarter 1959 profits before taxes amounted to $538,532. Of this $390,000 was non-recurrent, resulting from the sale of Osborn-Midwest Paper Co., an Allied subsidiary located in Marion, Ind First-quarter profit contrasted with the 1958 first-quarter loss of $240 759

• • •

"THE REOPENING of the Monarch mill at the earliest possible date is one of our primary objectives," Maremont said "Should we find justification for the reopening of this mill which represents 20 per cent of our total capacity we believe our profit picture will improve to a substantial extent immediately

He also declared that developmental work on the flotation process which [illegible] ordinary paper for re-use is continuing in the Kalamazoo [illegible]

Allied Supervisors Receive Training

A 10-week in-plant training program for the supervisory personnel of the Bryant Division of the Allied Paper Corp, has been launched.

Conducted by Martin Shoemaker, director of the Business and Industrial Management Center at Kalamazoo College the program will be divided into two parts dealing with "Human Relations and Supervisory Management."

Seventeen persons are enrolled in the course, with Philip Kranshaar director of industrial relations for Allied in charge of arrangements for the company.

It was pointed out that the company's small specialty line this year came from selling industrial manufacturing electronic equipment and Christmas tree ornaments and that the paper mill division actually operated at a loss, but is now making a profit.

Dr Harrison was elected as a director and the following were re-elected to their offices Donald E Bright W Vernonson Conwell Maremont, Victor Nemzoff and Herman C Beyaert.

JOHN L. [illegible] has been appointed field sales manager for the Allied Paper Corp, it was announced today by Ward D Harrison president of Allied He will work in an advisory capacity) actively as salesmen in procuring new business and act as contract sales manager [illegible] started with Allied in 1954 became its representative in western territory and in 1957 became eastern sales manager His headquarters will be in Allied's New York office.

APRIL [illegible]

KENNETH [illegible] has been appointed to the new created position general supervisor of the [illegible] department of the Allied Paper [illegible] King mill manager [illegible] new position was [illegible] complete [illegible] ments of the [illegible] duties to coordinate all [illegible] manufacturing requirements [illegible] Mill.

September 1, 1959

Monarch Resuming Production

Mill Operations Beginning Tonight

No. 10 machine at the Monarch Division of Allied Paper Corp. in Kalamazoo is scheduled to fire over tonight for the first time since January of 1958.

The recently-deserted Monarch mill remained silent today but visitors to the rear of the mill could not help but notice the increase of cars of the men who returned to work there this week.

Eighty former Monarch employes have been recalled. They have been engaged primarily in cleaning up following a major modernization program which has been under way for the past six weeks.

* * *

THIS $200,000 project has involved the installation of completely new systems for stock preparation, refining and drying including a new horizontal nine press on the No. 10 machine.

Plans call for operation of the machine on a continuous 24-hour-day seven-day-a-week basis.

Also planned by the first of next month is a start-up of the finishing department on a limited basis.

* * *

ONCE NO. 10 machine is in full production work will begin on a similar modernization program on Machine 11 in the Monarch Mill with hopes of getting it into production early next year. The company previously stated the work force would total about 190 by the first of the year.

The Monarch Mill will turn out five grades of book especially papers of the same type turned out by Allied's Machines No. 1 & 44 in the King Mill and Machines Nos. 8-9 at the Bryant Mill.

Oct 14 1959

EDWARD PAULSON has been named chief maintenance engineer for the Allied Paper Corp. He will work directly under Vice President R. E. Johnson and be responsible for overall general supervision of maintenance functions for the King, Monarch and Bryant divisions in Kalamazoo. A mechanical engineer formerly with Crandon Paper Mills, Ft. Madison, Ia., Paulson will make his home in [redacted]

November 17, 1959

Bloodmobile Visits Bryant

The Red Cross Bloodmobile collected 88 pints—37 less than its goal—Tuesday in the first of a two-day clinic sponsored by the Allied Paper Corp.

Today the clinic is at the Bryant Division. Making blood donations with Allied employes today are workers from the Orthopedic Frame Co., Regis Paper Co.'s Pennsylvania Division, Illinois Envelope Co. and Barnes Printing Co. Today's clinic is open until 8.

Those still be the Bloodmobile's last sessions in Kalamazoo until Nov. 9-11.

One gallon donor pin was awarded Tuesday to Allied's King Division to James Pet[illegible]

Oct 14, 1959

Bloodmobile Gets 262 Pts. In Two Days

Donations of 174 pints of blood at Allied Paper Corp.'s Bryant Division Wednesday boosted the Lansing Regional Red Cross Bloodmobile's two-day total to 262 pints.

The Bloodmobile had been stationed at the King Division Tuesday where 88 pints were taken.

Participating with Allied on Wednesday were employees of four other firms — the Orthopedic Frame Co., St. Regis Paper Co.'s Pennsylvania Division, Illinois Envelope Co. and Barnes Printing Co.

The Bloodmobile was slated to return to Kalamazoo on Nov. 9-11 but the Red Cross announced today that the regional blood center changed the date because of a conflicting appointment. The Bloodmobile will return here on Nov. 17-18 and will be stationed at the Peter Eckrich and Sons Inc. and the National Water Lift Co. Division of Cleveland Pneumatic Industries.

Five persons were given one-gallon donor pins during the two-day clinic: James Peterroll, Richland Route 1; Lyle Baxter, Plainwell Route 3; Leora Drake, 9408 East Shore Drive; Richard L. Wright, 803 Ada; and Lyle S. Eckerer, Schoolcraft Route 2.

October 15 1959

CENTRAL H.S. METAL SHOP GETS SAFETY CHECK
(Left to Right) Instructor John Lucas, Inspector Randall Preston, Student Bill Mauch at Metalwing Lathe

November 2, 1959

ARNOLD MAREMONT
More Dec. 11

Allied Paper Chief to Talk Here Dec. 11

Politics for Men in Business Subject

One of the nation's most controversial spokesmen on the subject will take part in the day long 1959 winter conference on "Practical Politics for the Businessman" at Kalamazoo College Dec. 11.

He is Arnold Maremont of Chicago, Allied Paper Corp. board chairman, who has been outspoken in his warnings against corporate involvement in politics.

* * *

SPONSORED BY the Kalamazoo College Business and Industrial Management Center the conference also will feature discussions of the subject by practical politicians, a college professor and an exponent of the U.S. Chamber of Commerce's popular political education program.

Following registration from 9:30 to 10:15, Wen Chao Chen, Kalamazoo College professor of political science, will speak on "The Business Man in National Policy Determination."

Maremont will talk at 11:15 on "The Individual Business Man in Politics."

Partisan Politics for the Business Man" will be the subject of Robert G. Hewett of Grand Rapids, Kent County Republican committee chairman and Thomas [illegible] Democratic Party national committeeman from Michigan who will speak at 1:30 and 2:15 respectively.

Joseph Buckley, secretary-manager of the Kalamazoo County Chamber of Commerce will speak at 3:30 on "The Local Chamber of Commerce Political Action Program." The conference will conclude with a 4:15 to 4:45 panel discussion.

Registrations are being handled by Martin J. Schoenberger, director Kalamazoo College Business and Industrial Manage[illegible]

School Shops Under Check For Safety

Annual Inspection Started Today

The annual safety inspection of all industrial art shops in the Kalamazoo Public Schools under supervision of the Kalamazoo Safety Engineers Club assisted by the Kalamazoo Area Safety Council was started this morning at Central High School, it was announced by Randall Preston, club president.

Inspection programs, inaugurated in 1936 by the late Dr. Ley Morris, superintendent of schools, has been continued annually through cooperation of Thomas Bowman, superintendent of schools, Herbert Snow, director of vocational education and the Kalamazoo Board of Education. Thorough inspections will be made at [illegible] Hillside Junior High School, Lincoln Junior High School, Northeastern Junior High School and [illegible]

Dec 12 1959

SA 045825

Kalamazoo Gazette March 17, 1967

RETURNED TO KALAMAZOO

Chicago Owners Sell Rex Paper To Allied Paper

By JAMES STOMMEN, Gazette Business Editor

Ownership of the Rex Paper Co., for nine years in the hands of a Chicago-based syndicate, was returned to Kalamazoo today as Allied Paper Corp this morning announced the purchase of all the stock of Rex Paper Co.

It will be operated as a wholly owned subsidiary.

Ernest J Klimczak, president of Allied, said in making the announcement:

"We do not plan to change the Rex business, except to upgrade the product mix wherever possible."

The acquisition, he said, is in line with Allied Paper's program of improving and expanding its operations in the Kalamazoo area, both in present facilities and as other opportunities present themselves.

Dr Ward D Harrison, chairman of the board and chief executvie officer of Allied Paper, said that arrangements for the purchase of Rex Paper from the Butler Co. of Chicago were completed today.

With his wife, Dr. Harrison is the principal stockholder of Allied Paper.

Acquisition of Rex Paper, located on King Highway at the western boundary of Comstock Township was for an undisclosed cash sum.

The company, founded in 1915 by John F King, one of the pioneers in Kalamazoo Valley mill construction, was sold in 1958 to Paul Butler, head of the Butler syndicate.

King was president of Rex until his death in 1922. His son, Merrill B King, then served as president until his death.

Merrill King's widow, Helen King, became president in 1932, and served in that position until the purchase of the company by Butler.

In announcing today's purchase, Dr. Harrison said that "it'll be a challenge for Allied

(Continued on Page 2)

Rex Paper Purchased By Allied

(Continued from Page 1)

Paper to save Rex Paper" which he said has had declining business in recent years under out-of-town management.

He added that it is the intention of Allied to upgrade the quality of the products of Rex.

The Rex mill currently makes lower grades of paper, such as tablet and construction paper, which contains ground wood, much like newsprint.

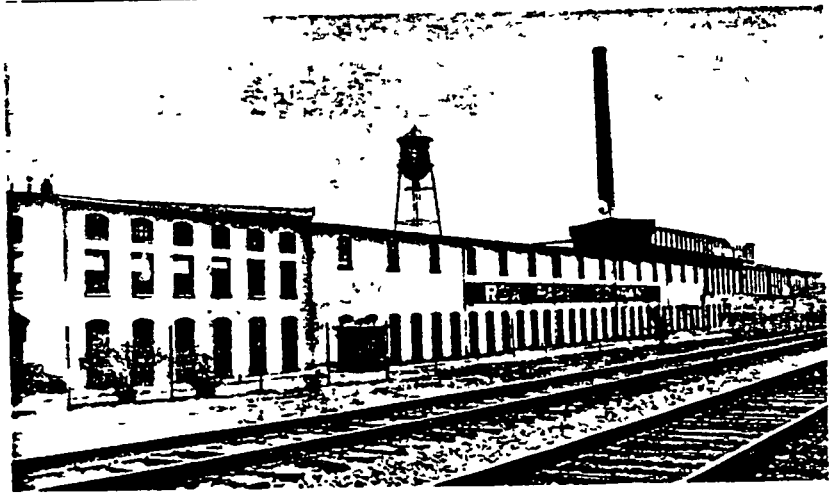
The paper-making machine at the Rex mill is a narrower machine than any of the 11 machines Allied Paper now has, said Dr Harrison.

Approximately 120 persons are employed at Rex Paper, and their addition will bring the total Allied Paper work force in Kalamazoo to 1,370.

In addition to the Rex acquisition, Allied announced that a new department will be added to the Monarch mill to manufacture the company's fast-growing manifold-carbon paper sets.

Manufactured and sold under the trade name of Letterex, the product uses one-time carbon paper and lightweight bond, both manufactured by the company.

Designed to increase the efficiency of the stenographic function in offices, Letterex is reportedly one of Allied's fastest-growing product lines.



REX PAPER CO. MILL, PURCHASED TODAY BY ALLIED PAPER CO.
View Of North Side Of Plant, Taken From East Michigan Avenue —Gazette photo

SA 045909

REPORT

ALLIED PAPER, INC./PORTAGE CREEK/ KALAMAZOO RIVER SUPERFUND SITE

Description of the Current Situation

May 1991

BLASLAND & BOUCK ENGINEERS, P.C.
BLASLAND, BOUCK & LEE
ENGINEERS & GEOSCIENTISTS

The HRDLs were constructed in the mid-1950s with the simultaneous installation of clarifiers. The largest HRDL area is located north of Portage Creek adjacent to the Bryant Clarifier and is referred to as the Bryant HRDL (Figure 11). A separate HRDL is located on the south side of Portage Creek adjacent to the Monarch Clarifier and is referred to as the Monarch HRDL. The Monarch HRDL area has not been an active residuals disposal area since approximately 1960 (Wilkins & Wheaton, 1986). The Bryant HRDL area has been filled and has been inactive for at least the past 10 years. The only recent activity in the HRDLs has been occasional filling activities, maintenance of the perimeter dikes, and construction of new surface berms in the middle of the Bryant HRDL to facilitate the solidification of the residuals (Limno-Tech, January 1990a).

In 1966, Allied began operation of a Type II landfill for solid paper waste. The 7.8-acre Type II landfill was licensed under Act 87, Public Acts of 1965. In 1984, the landfill was classified as Type III. Under this classification, the landfill received paper waste residuals or paper mill sludge.

Allied was issued a Type III landfill license on February 8, 1985, which is by law a two-year license. Allied applied for license renewal on January 29, 1987. On May 1, MDNR issued a "Notice of Denial of Renewal" based on the presence of PCBs in two monitoring wells downgradient from the landfill and based on a determination that there had been some disposal of waste material outside the area covered by

Kalamazoo Gazette
Aug. 22, 1967

August Total Blood Drive Is 560 Pints

Blood donations Thursday at the Allied Paper Co were 129 pints, bringing the August total to 560 pints The Kalamazoo County chapter of the American Red Cross has no other blood drives scheduled until Sept 11. There was one three-gallon donor Thursday, Ulysses Stoeffler, 3615 Bronson, and six one-gallon donors. Dorothy Wagner, 3819 S Burdick; Bernard Miller, 1113 Chrysler, Ruel Mardis, 816 Holly; Donald Jerkema, 811 Bryant; Michael Farrand, 711 Flamingo, Portage, and Warren Tatro, 3620 Ottawa

In July, 328 pints were collected, the July-August average is now 444 pints, 224 pints below a target monthly average of 668 pints necessary to meet the yearly quota However, Red Cross officials hope for greater participation during the fall.

KALAMAZOO GAZETTE
Friday, September 15, 1967 Section 2—Pages 23-38

TO EATON-DIKEMAN

Some Rex Paper Assets Are Sold

Allied Paper Corp. today announced the sale of some of the assets of Rex Paper Co., which it has owned for six months, to a Pennsylvania company.

The sale to Eaton-Dikeman Co., Mount Holly Springs, Pa., included land, buildings and the paper machine at Rex, which is located on King Highway at the western boundary of Comstock Township

Terms of the transaction were not disclosed

Allied also announced that it plans to continue to manufacture and sell the products previously produced in the Rex mill — construction paper, tablet paper and drawing paper.

In order to accomplish that goal, terms of the sale provided that Allied will retain machinery and equipment for the conversion of the papers manufactured at Rex.

The drawing and construction paper consists of a line of 20 different colors The tablet and ruled papers are widely used in schools, offices and homes, and are marketed through Allied's subsidiary, Gates Paper Co

Eaton-Dikeman is a manufacturer of filter papers and industrial specialties and they plan to manufacture such products in their new facility here

No change in the status of the 300 employes at the Rex mill is expected, except that they will now be employed by Eaton-Dikeman

Allied Paper acquired Rex Paper for an undisclosed sum in mid-March of this year.

Prior to then, Rex had been owned by the Chicago-based Butler Co

Founded in 1915 by John F. King, one of the pioneers in Kalamazoo Valley paper mill construction, Rex was held by the King family until its sale to Butler in 1956.

John King's son, Merrill, assumed the presidency of the company when his father died in 1923 Mrs Merrill King became president upon her husband's death in 1932 and served until Paul Butler, head of the Butler syndicate, purchased the mill

loads would be necessary to improve the water quality of the Kalamazoo River. In April 1961, the Water Resources Commission established pro rata shares of allowable use of the Kalamazoo River for disposal of organic oxygen consuming wastes by the paper companies in the Kalamazoo, Parchment, Plainwell, and Otsego areas. A time schedule was established for performance of steps to be taken by the companies to reduce waste loads to their alloted pro rata share. The object of these restrictions was to maintain a minimum dissolved oxygen concentration of 30 percent of the saturation value of the Kalamazoo River from Comstock to Allegan at the once in ten year, thirty day drought flow of 260 cfs. Stipulations were signed by the companies.

The Upjohn Co., Rex Paper Co. (property now owned by the Allied Paper Co.), Hawthorne Paper Co., Kalamazoo Paper Co. (now Georgia-Pacific Corp.) National Gypsum Co., and KVP Sutherland Paper Co. (now Brown Co.) signed contracts with the City of Kalamazoo in July 1964 agreeing to participate in joint wastewater treatment. Kalamazoo agreed to accept complete responsibility for providing the treatment the companies would otherwise be required to provide for themselves. The paper mills continued to maintain their own primary treatment facilities with discharge of final effluents going to the city sewerage system. The City is responsible for metering the volume and strength of the industrial discharges to their sewers. The rates charged to the companies depend on flow volume, BOD concentration, and suspended solids concentration. Any rate changes are to applied uniformly. Industry remained liable for any bypasses of their wastes to the public waters of the State. All of the other paper mills upgraded their wastewater treatment facilities to meet their load restrictions.

Little difficulty has been encountered with the industries which connected to the city sewerage system. Spent beer wastes from the Upjohn Company did cause problems in the primary sludge digestion, but these have been resolved. Some of the companies, particularly the Georgia -Pacific Corporation, had a large number of direct bypasses of untreated wastes to the river. These occurred for a variety of reasons. Increased surveillance and maintenance partially corrected the problem and in June 1972 facilities which diverted all of untreated bypasses to the city sewerage system were completed. The Rex Paper Company ceased all production

MDNR00005297

in May 1968.

A number of the paper mills chose to treat their own wastes. Allied Paper Corporation met their load restrictions by terminating deinking operations at its King and Monarch Divisions. From September 1969 until deinking was terminated in December 1971, the Bryant Division deinking wastes were discharged to the City of Kalamazoo sanitary sewerage system. The King Division permanently terminated all operations in the fall of 1970. Brown Company, Specialty Products Division in Parchment treats white water from all its paper machines by save-all units with process waste from the one mill receiving additional settling and stabilization in a series of lagoons prior to discharge to the river. Facilities were completed in August 1971 to correct a small volume discharge of highly acidic wastewater. The Plainwell Paper Company met their load restrictions by discontinuing deinking operations in January, 1963, completing save-alls in August 1963, and completing aerated stabilization basins with final clarification in October 1967. The Menasha Corporation changed their pulp cooking process, made a greater reuse of white water, installed submerged combustion units to evaporate pulp mill liquor so that it could be used as road binder and constructed aerated lagoons with final settling to further treat their white water. Production was greatly expanded at this mill. In February 1969 the Water Resources Commission made an Order of Determination on Menasha which, among other restrictions, stated that by July 1971 their discharges would be limited to 5,000 pounds of BOD per day and suspended solids would be limited to 3,000 pounds per day. The Corporation has recently had sulfite waste liquor burning and pulp washing facilities designed with construction scheduled for the near future. The Mead Corporation in Otsego treats their wastes in two primary clarifiers and reuses much of the clarifier effluent with the excess going to aerated lagoons which were constructed in 1967.

Table 2 historically reviews the BOD loads discharged by the paper mills with a comparison to the current load limitations contained in Commission Orders or Stipulations.

Figure 4 shows the location of major municipal and industrial waste discharges to the Kalamazoo River and Portage Creek that were in existence during the 1968 studies.

MDNR00005298

February 24, 1972

Bureau of Water Management
Stevens T. Mason Building
Michigan Department of Natural Resources
Water Resources Commission
Lansing, Michigan 48926

Attention: Mr. Gary Guenther

Dear Mr. Guenther,

We are enclosing the remittance of surveillance fee for 1972 in the amount of $2,779.00 including the top portion of the site number 999 form.

We request a credit on this surveillance fee based on the fact that under the strength factor calculation, number 5 category, "critical waste constituents to be monitored", we were given a value of "1" for PCB. In discussing the reason for this critical waste constituent assigned to us with Mr. Kilmer, he said it was because of our deinking plant at our Bryant Division. On December 3, 1971, we closed down our deinking mill at our Bryant Division, and therefore request the removal of this critical waste constituent from the strength factor calculation.

Mr. Kilmer also mentioned that hydraulic fluids and transformer coolants as possible sources of PCB contamination. Our Engineering Department has made a thorough study of the products we used on these two applications. None of our hydraulic fluids contain PCB and the only transformer coolant containing PCB is no hazard.

With this correction, our total surveillance fee would be $2,112.00. We request that the overbalance of $667.00 be credited to our surveillance fee of 1973.

Yours very truly,

ALLIED PAPER INCORPORATED

E.J. Gilman, Vice President of Manufacturing

cc: U.G. Stoeffler

EJG:bn

NATIONAL COUNCIL FOR STREAM IMPROVEMENT
SURVEY OF SETTLEABLE SOLIDS REMOVAL
EQUIPMENT AND WET SOLIDS HANDLING PRACTICES

Date 12/10/63

A. MILL DESCRIPTION

Name of Mill Allied Paper Co. (BRYANT)

Mill Location Kalamazoo, Mich.

Capacity 180 tons

Pulping Process NONE

B. CLARIFIER SIZE AND EQUIPMENT DATA

Diameter 100 ft. Center depth (water level to floor) 22'2 1/4" ft

Sidewall water depth 12'3 3/4" ft. Stilling well 5'5" ft x 16 ft diam

Skimmer provided? NO Collection mechanism mfgr Dorr

Design torque on collecting mechanism AT CENTER 72,000 ft. lb

Sludge collection sump ____ annular ✓ pocket

Sludge draw offlines 8 inches, number 2

Sludge pumping facilities:

Manufacturer Moyno Type Screw

Model TYPE CD 2L10H Rated flow 30-50 @ 15' Hd. gpm

Moyno CDQ 2L10

Actual flow ____ Variable speed Yes

Pumping cycle, continuous ____ intermittent ✓

Is clarifier used as thickener? YES Has thickening been attempted in clarifier? ____ Were there problems? ____

Is overload or breakage of collecting mechanism common? NO

Is sludge line or sludge pump plugging common? NO

Sedimentation system appurtenances:

Effluent screens 1" bar screen (Link Belt "thru-flow" mechanical)

Effluent pumps 3 Allis Chalmers PWFV 3400gpm 73' head

Pump cycle control float

Flow measurement devices 5' rectangular weir

Sampling devices continuous eff. & inf.

Cost data:

Clarifier $160 000 00 Piping _____

Miscellaneous ~~_____~~ Link Belt Effluent $7 000

Remarks: (Describe operating problems and pertinent observations)

C. EFFLUENT AND SLUDGE CHARACTERISTICS

	Mill Effluent	Clarifier Effluent
Flow, MGD	4.5 MGD	4.5 MGD
Total solids, ppm		
Percent ash		
Suspended solids, ppm	42,100 #/d	1,090 #/d
Percent ash		
Settleable solids, ppm		
BOD, ppm	7,125 #/d	1,090 #/d

Sludge Characteristics

Volume 41,000 GPD Solids content 7 to 10 %

Ash content 84 % Fibre content (~~120~~ 200 mesh) 16 % dry solid

Remarks:

D. SLUDGE HANDLING PRACTICE

Dewatering

a) Storage basin with overflow _____ without overflow ✓

b) Drying beds: No._____, Size_____, Soil type_____

How cleaned _____

Sludge solids content _____

c) Mechanical dewatering: Equipment_____ Mfgr_____

No. _____ Size_____ Coagulant dosage _____

Loading rate $lb/ft^2/hr$ or GPM _____

Cake handling facilities _____

Remarks:

Final Disposal

How disposed _____ Where _____

How hauled _____ Problems encountered _____

_____

Sludge Disposal Cost Data

Cover land cost, bed cleaning cost, and trucking cost. Power used in mechanical dewatering, labor cost. Maintenance costs, etc

_____

_____

_____

_____

_____

_____

Remarks:

_____

_____

_____

_____

_____

_____

L. GENERAL REMARKS AND SKETCHES

NATIONAL COUNCIL FOR STREAM IMPROVEMENT, INC.

TO: Bill Carpenter

FROM: H. W. Gehm **DATE** Nov. 13, 1

SUBJECT: Allied Paper Corp.

Ward Harrison was in to see me today and we decided that there is immediate need for a comprehensive effluent survey of the King Division mill, and probably the Bryant Division as well. He told me the Bryant Division will be going off deinking shortly so it might be well to have a before and after picture so that the resulting reduction in the pollution load of this unit can be established.

At the King Division we are primarily interested in the individual waste streams and the possibility of segregating some of them for only primary treatment and secondary treatment of the remaining ones. Please keep this in mind when you lay out the survey.

Ward wants you to get in touch with him within the next week regarding this activity.

HWG:RF

Are there any published references to Kalamazoo Paper Co Activated sludge plant?

Pulp mill production on the days of sewer sampling was combined with the sewer data to calculate the B.O.D. and waste loading reported in Table VII.

A comparison of the pounds of B.O.D. per ton of finished product shows that the data for the three dates in January which averaged 61 percent book and 39 percent ledger correlates with the calculated data at this percentage ratio. (Table VII) The laboratory data is lower than the mill sampling and the calculation values. This can be explained by the difference in batch operation in the lab and continuous operation in the mill and the small sampling used in the lab cook which was representative but limited. The B.O.D., Suspended Solids and Solubles of the lab cooks are consistent in comparison with the mill data. (Table VIII)

There are several ways to reduce the river pollution to the required level, other than complete secondary treatment of waste material, as indicated in the loading concentrations of various inplant waste streams. The pulp mill contributes the majority of the waste loading and the first stage brown stock side hill washers contribute most of the deinking waste loading.

Using the data in Table VI, one possibility for waste reduction in compliance with state water resources recommendation of 14,490 pounds of B.O.D. per day was estimated. With Bryant division waste loading at May 1963 level (no deinking) of 1530 pounds of B.O.D. per day and Monarch at 500 pounds of B.O.D./day King waste could be divided with the paper mill waste flowing directly to the river at a loading of 4000 pounds of B.O.D. per day. The deinking mill waste amounts to 21,500 pounds of B.O.D. per day. This deinking flow would be primary clarified in existing equipment and secondary treated for a combined treatment reduction of at least 60 percent of the deinking mill B.O.D. where present primary treatment of the total King division removes 44 percent of the B.O.D. (Table I)

RESULTS:

Table I	Waste Treatment Data - May 1963
Table II	Calculated B.O.D. at Various Deinking Raw Material Ratios
Table III	King Waste Treatment Data - 1963
Table IV	Laboratory Pulps at Various Raw Material Ratios
Table V	First Stage Brown Stock Side Hill Washer Waste Water
Table VI.	King Mill Sewer Sample Data
Table VII	Pulp Mill Furnishes on Days of Sampling
Table VIII	Comparison of Laboratory Pulps and Mill Data

RECEIVED

G. STOEFFLER

January 8, 1976

Mr. Bud Bender
American Pulp Corporation
2000 Ecology Drive
Kalamazoo, Michigan 49001

Dear Mr. Bender:

On January 4, 1976 there appeared an article in the Kalamazoo Gazette pertaining to PCB pollutants in the Kalamazoo River and Portage Creek. We wish to call to your attention that the 750 KVA unit substation transformer located in your plant, which you purchased from us in August 1972, is filled with this fire retardant chemical. This is a General Electric transformer with a nameplate serial number C862796.

Yours truly,

ALLIED PAPER INCORPORATED

A.E. Vickery
Engineering Manager

elr

Bud Bender brought ~~out~~ our Mill A, which was the Bryant Deinking Mill.

November 8, 1972

Mr. Robert Courchaine
Regional Engineer
Bureau of Water Management
Department of Natural Resources
Stevens T. Mason Building
Lansing, Michigan 48926

file allied

Dear Bob,

We have thoroughly investigated the events which lead up to the power failure which we experienced Monday, November 6. When I talked to you on Monday regarding this, I promised I would send you a letter describing the full details.

First of all, I think that you should know that Allied Paper Incorporated has sold its deinking mill, formerly called Mill A at the Bryant Division, to the American Pulp Corporation who are operating it at present. They have already received permission from the City of Kalamazoo to send any waste water from their operation to the city trunkline.

On some time during Sunday November 5, this mill had two fires set in their waste paper area, causing sprinkler heads to go off creating a humid condition in the mill. This eventually shorted our power cables from the Consumers' substation to Allied's large pumps (just outside of Mill A), which handle the waste water from the Bryant Division to both the Bryant and Monarch clarifiers. Judging from flow charts and watchman reports, the power failure occurred shortly before 7:00 A.M. By the time our Supervisor checked the pump house, the white water was about to overflow the 50,000 gallon collection tank ahead of the aforementioned pumps. As soon as the situation was assessed, supervision took immediate steps to shut down the five paper machines at our Bryant Division, which was accomplished by 7:30 A.M. The only bypass of white water to Portage Creek was as a result of the very sudden shutdown of the paper machines and was of very short duration. The cable damage was repaired and the pumps were back in service by 3:00 P.M. Once this was accomplished, paper machines were started up.

This type of power failure is not likely to occur again, since our maintenance schedule for this coming weekend had already included bringing the power cables directly from the Consumers' substation to the pump house, bypassing our former Mill A building. This new

Demolition has stopped

Will mill become a headache?

By BLAINE LAM
Gazette Business Editor

Has Kalamazoo got another King Mill on its hands?

Demolition has stopped at the Upgrade Co. site, just south of Alcott, between Burdick and Portage.

That's the old Bryant Mill A, which Allied Paper sold in 1972. A company called American Pulp bought it for several hundred thousands of dollars and then turned it over to Upgrade.

An officer in American Pulp was Bernard (Bud) Bender who was the chairman and founder of Upgrade. Bender a Portage resident, had dreams of turning the old de-inking plant into a dream recycling plant.

But those plans, he says now "just didn't work out." He only describes the company as "inactive."

A City of Kalamazoo official says the company is on its way to bankruptcy court and no one is sure who will continue the demolition and who will pay for it.

The old King Mill on Lake Street was long a target of thieves and vandals and even after the City of Kalamazoo took a wrecking company to court, the rubble remained for nearly two years.

The city's administration was criticized by Edison neighborhood residents for lack of action. On this Alcott property, it appears the city will waste little time in seeking action on what will probably be called the "Bryant Mill" case.

The old Bryant Mill was a de-inking station. The main Bryant mills are located north of Alcott street and are still in operation.

Mill A is adjacent to the toxic laden ponds that made news in the early '70s.

(The ponds have since been lowered, leaving a creek bed that acts as a storm-water basin during times of heavy rain. Sediments there hold large amounts of polychlorinated biphenyls — or PCB. Allied stopped using the ponds in 1971 and then sold the property.)

When Bender took over the property he had "a verbal commitment from Arab oil money interests in a two-part money deal.

His plans envisioned agreements with 140 paper mills by the end of a five-year period with "several hundred million dollars" in annual sales.

A few weeks ago, the wrecking contractor Ken Worden, reportedly got a letter that Upgrade was headed for bankruptcy.

Worden reportedly had received only $1,400 to begin the project last summer. His backer in the deal was Hotroyd Co. 1737 Lake which put up the money for a $50,000 performance bond since the job was too big for Worden to handle himself.

That bond is the city's legal assurance that the work will be done one way or the other.

William Hotroyd meanwhile has hired a lawyer and also ordered a stoppage of the demolition work.

The demolition contract was in the $40,000 to $50,000 range with the wrecker having rights to any salvage.

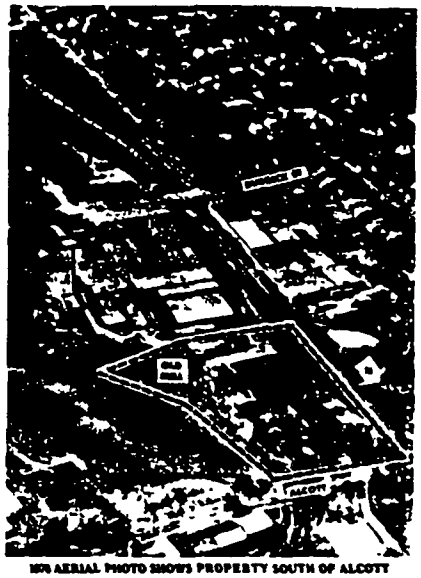
But Hotroyd says there is little good salvage in the old mill.

Meanwhile, the three-and-a-half acre property is up for sale for $38,500. Back taxes, totaling about $7,500, date to 1975 under Michigan law the property is headed for foreclosure.

City Manager Robert Bobo will present facts of the case Monday night to the City Commission which will begin exploring options.

The case hasn't been referred to the city's legal staff yet but condemnation and suit to enforce the performance bond appear to be among the options.

Compounding the problem is that even if a buyer were interested in the site at a price that would pay off the wrecking bill and the back taxes commercial financing a expensive, if it is even available. In other words the deal would probably have to be cash.



MDA AERIAL PHOTO SHOWS PROPERTY SOUTH OF ALCOTT
Good news to the south, bad news north
—Jason Todd earner photo

But to the south . . .

Property between East Alcott Street and Burdick where it bends to the east (see aerial photo) is a mixed bag of news.

Someone it appears is going to get burned financially before the old Bryant Mill A comes all the way to the ground.

But the 24-acre site to the south of that mill which has also gone through some rough years may be just receiving the best news the neighborhood has had in a long time.

New York investors are putting their faith into what is called the Panelvie building by starting up Kesker Young, a recycling concern that is said to have some important patents in the recycling industry.

Headed by Don Hand, the company has begun its work and will deal in "just about every kind of recycling, according to a company worker.

As a court-appointed official J.C. DeBruyn has sold that building twice the first time when the old Reliance Co. went under.

Mail City Containers a corrugated sheet firm, will remain in the building.

WORK HAS STOPPED AT THE OLD BRYANT MILL A, SOUTH OF ALCOTT
Company is in financial trouble, city wants demolition to start up again

HERE'S WHAT THE MILL LOOKS LIKE FROM ALCOTT CROSSING

LEASE A 1979 CUTLASS
CUTLASS SUPREME COUPE

Cutlass Supreme Coupe

ONLY . . . $130.00 Per Month

Price based on 36,000 miles, 36 months. Plus Michigan 4% use tax, maintenance and insurance available at extra cost. Closed end lease — Customer is not responsible for depreciation or resale of the automobile at termination of the lease period.

We Lease All makes and models
Foreign and Domestic Light Trucks.

ORRIN B. HAYES OLDS
"SERVICE SOLD IT" Mercedes-Benz
843 W. MICHIGAN AVE. / KALAMAZOO, MICHIGAN / 616 349-9167
Tues., Thurs., Fri. 8 to 6:30 Mon., Wed. 'til 9 Sat. 'til 4 P.M.

SIT AROUND AND SAVE MONEY!
SOUND APPEALING?

YOU CAN SIT AROUND AND SAVE 20% TO 35% ON NEW AND USED OFFICE CHAIRS IN STOCK AT DOUBLEDAY BROS. & CO. INCREDIBLE SAVINGS SO BUY NOW. SALE ENDS DECEMBER 2, 1978

DOUBLEDAY BROS. & CO.

ALLIED PAPER CORPORATION
Kalamazoo, Michigan

April 19, 1960

To: L. J. Gilman

cc: L. B. Owen
R. M. Levy
G. H. Baldauf

From: Ward Harrison

All in accordance with our conversation this morning, I would like to have you investigate further the purchase of tabulating cards. I would suggest the first step be for you to go to Greencastle, Indiana to visit the IBM plant to see their waste material. You should not go there until you make arrangements with Mr. Richard W. Little, Manager of Purchasing, IBM Supplies Division, 590 Madison Avenue, New York 22, New York. His telephone number is Plaza 3-1900.

While I was in New York last week I discussed this matter with Mr. Little. He had been referred to me by James Manning, Director of Marketing, of the same address. I also, on a previous visit, talked to Mr. J. J. Phillips, Manager of Manufacturing, at the same address.

On my last visit, and in talking to Mr. Little, he indicated to me that the Supplies Division of IBM had seven plants where waste was generated. These are

San Jose, California
Sherman, Texas
Greencastle, Indiana
Washington, D.C.
Dayton, New Jersey
Endicott, New York
Concord, New Hampshire.

The waste at the present time is going to I. V. Sutphin in Cincinnati from all the above points of origin except Washington, D.C. and Endicott, New York. The price to I. V. Sutphin is lower than the market. Market is determined by the price printed in the Paper Trade Journal on the date closest to the 15th of each month.

000147

Some of the above points of generation have more waste than others but the average for the seven points is 100 tons per month each.

There are several different kinds of waste. For example:

Corner cuts
Printed manila tab card
Unprinted tab card
Printed unbleached kraft
Unprinted unbleached kraft
Printed colored tab card
Unprinted colored tab card

The cheapest are the corner cuts and the colored. The most expensive is the unprinted manila tab. The material leaving Dayton and Greencastle are in mixed cars.

It would seem to me, and I am sure this is your impression too, that we should be working in the better classes of waste. This also is the impression that I get in speaking to the laboratory. With this in mind and with the basic fact well established that there will be more tab cards coming on the market, it seems to me that we should gear ourselves to buy these cards in the very best way from our standpoint, and to gear our manufacturing process to use more and more of them if we can prove their use to be economical.

By copy of this memorandum, I am urging Manufacturing and Research & Development to work closely with you in learning to use this material as well as you learning how best to purchase it. I can conceive of our saying to IBM, for example, that we will take all their output just as I. V. Sutphin is now, on a contract basis for not less than one year or more than five years at some price geared, preferably, to pulp but secondarily to waste paper prices as printed in some trade magazine. I like the idea of gearing to pulp better than waste because right now pulp prices actually are depressed but are quoted high.

Ward

WH:elr

ANSWER -

Allied has identified documentation concerning sampling and analysis and will make this information available for inspection and copying at its Kalamazoo facility.

QUESTION - Interrogatory No. 7

With respect to paper recycled at the Bryant, Monarch or King Mills, identify:

Part (a) - The dates of each operation at each mill:

ANSWER -

Paper was recycled to some extent at the King Mill during the time that Allied Paper, Inc. started operating the mill and until it was shut down in 1970. Paper was recycled at the Monarch Mill from the time Allied Paper, Inc. started operating the mill until the de-inking Mill was closed in 1958. Thereafter recycling occurred to a lesser degree until the Monarch Mill was closed. Paper was recycled at Bryant from the time Allied started operating the mill until the present time. The amount of recycle dropped drastically and changed to recycle of only high quality paper after de-inking operations ceased.

QUESTION -

Part (b) - The source of product to be recycled at each mill:

ANSWER -

Materials recycled at the King Mill consisted of ledger and magazine stock. The materials recycled at the Monarch Mill could

SA 021055

SA00021055

not be specifically identified. The materials recycled at the Bryant Mill consisted of ledger and magazine stock until de-inking ceased in 1970 and now consist of high quality paper clippings. There is no way to identify the source of product recycled at each mill by source and time. Vendors of waste paper that may have supplied Allied in the past are discussed in response to Interrogatory No. 7 Part (e).

QUESTION -

Part (c) - The period during which each source contributed product to be recycled:

ANSWER -

As stated in response to Interrogatory 7(b), no method could be identified for determining the sources of waste paper used at each mill and the quantity contributed by each source. The vendors who may have supplied waste paper to Allied are discussed in the response to Interrogatory No. 7 Part (e).

QUESTION -

Part (d) - The quantity of product contributed by each source to any recycling operation:

ANSWER -

Virgin pulp, de-inked waste paper and secondary fiber have all contributed to paper production in various proportions at different times. All three could have been used at a single time. The defendants can only speculate as to the proportion of fiber contributed by each constituent to Allied's paper making operations.

SA 021056

SA00021056

QUESTION -

Part (e) - All documents relating to paper recycling operations at any of these mills:

ANSWER -

Allied has identified documents which concern paper recycling operations at the Kalamazoo mills. These include a list of vendors of wastepaper whose services and products may have been used by Allied. Additionally, documents relating to de-inking, identified in response to Interrogatory 5, also may relate to paper recycling. These documents, and any others identified by Allied which relate to recycling operations, will be made available for inspection and copying at Allied's Kalamazoo facility, upon reasonable notice. With respect to documents being withheld, see our answer to 21, "Request for Production of Documents".

QUESTION - Interrogatory No. 8

Describe all sources known or suspected by Defendants of PCB contamination at the site, stating with particularity:

Part (a) - The nature and location of such source:

ANSWER -

Allied has identified several sources which it suspects of PCB contamination at the site. One potential source of contamination contributed PCBs upstream from Cork Street. Table 8-1 shows the results of PCB sampling and analysis from April 18, 1985 to March 24, 1987 at a sampling station upstream from Cork Street.

SA 021057

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P.C. COPY DO NOT REMOVE

NATIONAL COUNCIL FOR STREAM IMPROVEMENT
SURVEY OF SETTLEABLE SOLIDS REMOVAL
EQUIPMENT AND WET SOLIDS HANDLING PRACTICES

Date 12-10-63

A. MILL DESCRIPTION

Name of Mill Allied Paper Co. (Bryant)

Mill Location Kalamazoo, Michigan

Capacity 180 tons

Pulping Process None

B. CLARIFIER SIZE AND EQUIPMENT DATA

Diameter 100 ft Center depth (water level to floor) 22' 2½"

Sidewall water depth 12'3⅜" ft. Stilling well 5'5" ft x 16 ft dia

Skimmer provided? No Collection mechanism mfgr Dorr

Design torque on collecting mechanism at center 72,000 ft-lbs

Sludge collection sump ____ annular ____ X ____ pocket

Sludge draw offlines 8 inches, number 2

Sludge pumping facilities:

Manufacturer Moyno Type ____ each 15 hp

Model CD 2L10H - CDQ 2L10 Rated flow 30-50 gpm

Actual flow ____ Variable speed yes

Pumping cycle, continuous ____ intermittent X

Is clarifier used as thickener? Yes Has thickening been attempted in clarifier? ____ Were there problems? ____

Is overload or breakage of collecting mechanism common? No

Is sludge line or sludge pump plugging common? No

SA00033416

Sedimentation system appurtenances:

Effluent screens: 1" bar screen(Link Belt "thru-clean" mechanis

Effluent pumps: 3 Allis Chalmers PWFV 3400 gpm 73' head

Pump cycle control: float

Flow measurement devices: 5' rectangular wier

Sampling devices: continuous effluent and influent

Cost data:

Clarifier: $160,000.00 Piping:

Miscellaneous: Link belt Effluent screw $7,000.

Remarks: (Describe operating problems and pertinent observations)

C. EFFLUENT AND SLUDGE CHARACTERISTICS

	Mill Effluent	Clarifier Effl
Flow, MGD	4.5 MGD	4.5 MGD
Total solids, ppm		
Percent ash		
Suspended solids ppm	48,100 #/d	1,090 #/d
Percent ash		
Settleable solids, ppm		
BOD, ppm	7,125 #/d	1,090 #/d

SA00033417

Sludge Characteristics

Volume 41,000 GPD Solids content 7 to 10%

Ash content 84% Fibre content (200 mesh) 16 % dry coli

Remarks:

D. SLUDGE HANDLING PRACTICE

Dewatering

a) Storage basin with overflow _____ without overflow X

b) Drying beds: No. _____, Size _____, Soil type _____

How cleaned _____

Sludge solids content _____

c) Mechanical dewatering Equipment _____ Mfgr _____

No _____ Size _____ Coagulant dosage _____

Loading rate lb/ft^2/hr or GPM _____

Cake handling facilities _____

Remarks:

SA00033418

March 14, 1963

Mr. Thomas B. Henry
Jones, Henry and Williams
Consulting Engineers
2000 W. Central Avenue
Toledo 6, Ohio

Dear Mr. Henry:

Enclosed herewith are the reports for the waste to be considered in the Kalamazoo joint treatment project. This information is for preliminary use as I have not yet run any confirming waste water surveys.

The most critical problem at the moment is the lack of new data for Allied's operation. They have indicated to me that we can recheck the waste when the changeover is completed, but have not indicated any time when this might be done.

I have taken the liberty of enclosing also some thoughts regarding the overall considerations relating to joint treatment. I hope that these will be of some use to you and would be glad to discuss them with you further if you desire. I feel that it is important to consider these points in the preliminary stages of your study.

Yours sincerely,

Anthony J. Palladino

vp
enc.

KA05400756

Palladino
EXHIBIT NO. 58
M. LANTIS 3-3-93

Report on Waste Water for Jones, Henry and Williams Study
March 15, 1963 - A. J. Palladino

ALLIED PAPER CORPORATION

Bryant Division

A significant change in regard to the waste loading discharged by this mill has recently been effected, namely; the deinking operation at the Bryant Division has been terminated. It is possible, therefore, that collection and treatment of the effluent from the Bryant mill clarifier will not now be necessary inasmuch as only white water from the paper machines is now being handled in this unit. As soon as changes, which have been brought about by the termination of the deinking operation, are completed tests to verify the nature of this effluent will be conducted.

The possibility exists, however, of return to deinking or other high BOD operation at this mill in the future.

Monarch Division

BOD loading of 800 lbs/day as assumed in previous reports can be assumed for preliminary purposes until verification by testing. It appears that this waste can be discharged directly to Portage Creek without further treatment.

King Division

The operations of the King Division are being modified. Deinking has been increased at this mill. As soon as the modifications are completed the effluent from the King Division clarifier will be tested and reported on. It is likely that the BOD load has increased.

The suspended solids load from the King and Bryant Divisions as reported in the previous #45 studies is in error. This greatly affects the sludge disposal data.

Preliminary Waste Data*for Jones, Henry and Williams Study

March 15, 1963 - A. J. Palladino

KALAMAZOO PAPER COMPANY

Source	Flow MGD	BOD lbs/day	Suspended Solids lbs/day
40'D Settling Tank Effluent, (No. 2 Mill)	1.3	3,700	8,500
110'D Settling Tank Effluent (No. 1 and No. 3 mills)	7.1	14,900	9,900
Total	8.4	18,600	18,400

*Data from one week survey conducted by the writer, August 1960.

Preliminary Waste Data for Jones, Henry and Williams Study
March 15, 1963 - A. J. Palladino

REX PAPER COMPANY

	Flow MGD	BOD lbs/day	Suspended Solids lbs/day
50' D. Settling Tank Effluent	1.5	2,900	?

30 minute minimum flow rate: 0.6 MGD
30 minute maximum flow rate: 1.8 MGD

Data from surveys by the writer January and December 1961, Michigan W. R. C. June 1961, and additional BOD tests by Rex Paper Co., July-October 1962.

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Preliminary Waste Data for Jones, Henry and Williams Study
March 25, 1963 - A. J. Palladino

HAWTHORNE PAPER CO.

Flow MGD	BOD lbs/day	Suspended Solids lbs/day
0.84	700	300

KA05400760

Preliminary Waste Data for Jones, Henry and Williams Study
March 25, 1963 - A. J. Palladino

KVP-SUTHERLAND PAPER CO.

	Flow MGD	BOD lbs/day	Suspended Solids lbs/day
Sutherland-Division No. 1	0.75	500	650
*Sutherland-Division No. 4 & 7	7.4	6,115	5,545

KVP- Mills No. 1 & No. 2

*When running Match Stock - 4 hrs/week:

NH_3-N	5 ppm
PO_4	.05 ppm

At other times:

NH_3-N	0.5 ppm
PO_4	trace

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Preliminary Waste Data for Jones, Henry and Williams Study
March 12, 1963 - A. J. Palladino

UPJOHN COMPANY

	Total Wastes	**Spent Beer Only
Volume, g.p.d.	693,000	83,000
BOD, lbs/day	11,500	8,300
Suspended Solids, lbs/day	3,320	690
Chlorine Demand, lbs/day	1,500*	1,400*
NH_3-N, mg/l		100***
Total Solids, mg/l		19,300
Phosphorous, % of total solids		7.6
Protein, % of total solids****		22.2

*According to City of Kalamazoo
**Included in Total Wastes
***Unchlorinated spent beer
****Protein ÷ 6.25 = N

The data for the Volume, BOD, Suspended Solids and Chlorine Demand listed above for the Total Wastes and Spent Beer Only, are average daily data including low weekend flows. The actual flow to be treated during weekdays average 800,000 gpd (with peaks to 850,000). Of this total 100,000 gpd will be spent beer. The daily BOD, Suspended Solids, and Chlorine Demand loads listed above should be modified accordingly to determine treatment requirements.

KA05400762

Preliminary Waste Data for Jones, Henry and Williams Study

March 27, 1963 - A. J. Palladino

[redacted] CO.	DEEP WELL DISPOSAL*
Volume, gpd	55,000
BOD, lbs/day	9,150 (20,000 mg/l)

OTHER CHARACTERISTICS OF WASTE

C.O.D.	30,000 mg/l
Total Solids (after filtration)	10-15,000 mg/l
pH	4.0 - 5.0

*Note: The nature of this waste varies widely.

KA05400763

Report on Waste Water for Jones, Henry and Williams Study
March 16, 1963 - A. J. Palladino

GENERAL CONSIDERATIONS REGARDING WASTE TO BE COLLECTED FOR TREATMENT

Considering that the allowable BOD loading from the paper mills to the river at critical flow is 26,800* lbs/day, this allowable load can be achieved by permiting discharge without further treatment of several mill discharges if the remaining discharges are treated for at least 85% BOD removal. This can eliminate considerable cost of collection facilities. As indicated in the enclosed summary, the discharges from Rex Paper Company, Hawthorne, National Gypsum and Sutherland No. 1 Division on the Kalamazoo River; Allied Monarch Division, and possibly, Allied Bryant Division (in view of the recent change there) on Portage Creek could remain untreated. There is no indication of appreciable deleterious effect of the discharges to the Kalamazoo River above the Kalamazoo Paper Company. Dissolved oxygen concentration and appearance and quality of river water is generally good in this stretch. Kalamazoo Paper Company, which treats river water, reports no appreciable problem by the upstream discharges. I have broached with the Rex Paper Company, the subject of no secondary treatment of effluent, but participation in the cost of joint treatment facilities of downstream effluents to remove the necessary BOD load. There is no objection on the part of Rex Paper Company to this philosophy. Their main concern is the cost of treatment assigned to them. Any measures which can reduce costs would be attractive. The elimination of pipelines upstream of Kalamazoo Paper Company would be a step in this direction. The reaction of the W. R. C. to such an approach should be determined. I believe they would be agreeable to such a procedure as long as the total BOD load in the Kalamazoo area is within the prescribed limit. The reaction of the other paper mills should also be determined. The above procedure has the added advantage of making better use of the natural purification capacity of the Kalamazoo River and Portage Creek.

---

*39% of 1950 W. R. C. declaration of use.

KA05400764

In regard to assessing charges I believe that considerable weight should be given to the lbs. of BOD removal required of each participant. This is not directly related to flow, total BOD discharged or suspended solids, and therefore would not be taken into account by the usual assessment methods. The BOD removal requirements are presented in the following table:

PAPER MILL BOD REMOVAL REQUIREMENTS

Source	BOD LBS/DAY **Actual	*Allowable	Removal Req'd.
Rex Paper Company	2,900	1,050	1,850
Hawthorne	***600	740	none
National Gypsum	2,900***	1,210	1,690
Kalamazoo Paper Co.	18,600	5,300	13,300
Allied Paper Corp.	33,200****	14,600	18,600
KVP-Sutherland - No. 1	1,000***		
No. 4-7	6,900 "		
KVP Mills No. 1-2	1,100 "		
	9,000	3,780	5,220
Total		26,980	

*39% of 1950 Mich. W.R.C. Declaration of Use
**Preliminary load data
***From Hazen and Sawyer Report
****King: 28,400; Bryant: 4,000 (assumed); Monarch: 800.

KA05400765

SUMMARY OF PAPER MILL BOD LOADS -
- NO SECONDARY TREATMENT OF SOME UPSTREAM WASTES

Source	BOD LOAD LBS/DAY Secondary* Treatment	No Secondary Treatment
Rex Paper Company		3,000
Hawthorne		600
National Gypsum		2,900
Kalamazoo Paper Co.	2,800	
Allied Paper Corp:		
King Division	4,250	
Bryant Division		4,000
Monarch Division		800
KVP-Sutherland		
Sutherland No. 1		1,000
Sutherland No. 4 and 7	1,050	
KVP-Mills Nos 1 and 2		1,100
	8,100	13,400

Total: 21,500 vs. Allowable 26,980

*85% BOD removal

KA05400766

CONSIDERATIONS REGARDING SEPARATE TREATMENT PLANT SITES

Some consideration should be given to a separate treatment plant located adjacent to the two major discharges: Allied King Division and Kalamazoo Paper Company. City-owned property of 8 to 10 acres is available in this industrial area. (Area known as Riverview Park) The proposed flood control project would not reduce this area appreciably. In addition, sludge disposal area is available on this site. Odor problems from a prevailing southwest wind would cause less difficulty in regard to residences than sludge disposal on the present sewage treatment plant site. The major advantage to this site is drastic reduction of collector costs. For nutrients at this location sewage from the Area 6 sewer could be utilized. Additional sewage could be supplied from the Red Arrow Pumping Station. Presumably, a primary clarifier for the sewage would be required. Sludge from this clarifier could be discharged in very dilute form to the Red Arrow Pumping Station through a continuation of the Area 6 sewer or through a separate force main. Supplemental nutrients might be necessary until subsequent sewage additions are made. A plant in this location is well located for treating sewage from parts of Kalamazoo Township, Comstock Township, Portage and Pavilion Township, should service be extended to these communities.

Other industrial wastes which could more easily be transported to the existing sewage treatment plant, would be treated in secondary treatment facilities to be provided in that location. If Carrying the philosophy of separate treatment to extreme, separate plants might be built at the Allied King Division and Kalamazoo Paper Company. Land within the city limits is available at each location. Sufficient land for the treatment facilities would have to be deeded to the city. The city would build and operate the facilities. If chemicals were used for nutrient feed rather than sewage the waste secondary sludge could, without question of propriety, be returned to the primary settling tank and removed with the primary sludge. The burden of disposal of secondary sludge would then fall to the individual mill involved.

KA05400767

Using the above scheme transmission line costs would be virtually eliminated, and the sludge disposal problems would be largely assumed by Allied Paper Corporation and Kalamazoo Paper Co.

With secondary treatment plants of the Currie Aerator type the practical upper size limit is in the range required for separate plants at Allied King Division and Kalamazoo Paper Company.

KA05400768

Report on Waste Water for Jones, Henry and Williams Study
March 15, 1963 - A. J. Palladino

APPORTIONING OF CAPITAL AND OPERATING COSTS

Capital Cost

Allocations of the capital cost of the treatment plant and collection facilities should be made to each participant according to their required BOD removal or according to a higher allotment if such is desired by the participant to provide for future load increase. The allotment could be worked out by negotiation with each participant.

The agreement should be flexible to provide for considerable allotment changes (over the period of the bond issue) should these be desired in the future by any participants.

As owner, the city could negotiate the allotment changes, assigning a desired decrease by one participant to another participant desiring an increased allotment or to a new user of the system. A certain holding capacity by the city should also be defined - perhaps 20% of the plant capacity - so that it would be possible to grant some allotment changes immediately.

Capital cost allotments should be assigned to each participant (according to required BOD removal) regardless of whether or not their waste is to be treated in the proposed system (if selective wastes are to be handled to accomplish the necessary BOD removal).

Capital cost should be recovered by a revenue assessment so that capital outlay is not required on the part of industry.

Operating Cost

An account of operating costs for the secondary treatment facilities should be maintained. This cost should be apportioned to the participants in accordance with the actual BOD reduction required by each user during the period in question (not the BOD allotment used for the capital cost assignment).

In order to determine the actual BOD reduction required monitoring of the various discharges will be necessary. The right to sample, measure and analyze these discharges at the discretion of the city should be incorporated into the agreement.(considerable checking would be required to obtain representative data.) The cost of maintaining the monitoring program will be a part of the operating costs.

KA05400769

KALAMAZOO INTER-OFFICE CORRESPONDENCE

ALLIED PAPER CORPORATION

August 11, 1958

To: H. E. Nelson

From: W. E. Kendrick

SUBJECT: Summary of data on a survey of Bryant Mill A, August 12-17, 1957.

This survey was undertaken by J. R. Dam and W. E. Kendrick with the assistance of L. R. Bortolotti, R. J. Willie, U. G. Stoeffler, and H. Krieger. The survey ran from 2:00 p.m. the 12th until 5:00 a.m. the 18th continuously during which time hourly checks were made at designated points.

A summation of the collected data follows:

	High	Low	Average
I. Slusher			
a) furnish (T/day)	145.6	94.1	126.7
b) % book	63	83	67
c) % consistency	6.80	2.18	4.21
II. Heat Recovery System			
a) Water (overflow)			
1) temperature(°F.)	150	130	141
2) pH	11.7	11.3	11.4
3) flow (gpd)	59,100	5,340	32,190
4) susp. solids (#/day)	3,770	260	2,085
5) fiber (200M)(#/day)	5	2	3
6) solubles (#/day)	12,600	488	8,740
b) Water (tank bleed)			
1) temperature(°F.)	150	78	138
2) pH	11.7	11.2	11.4
3) susp. solids (#/day)	1,705	973	1,384
4) fiber (200M)(#/day)	5	3	4
5) flow (gpd)	21,600	21,600	21,600

ALLIED PAPER CORPORATION

	High	Low	Average
III. Brownstock Slide Washers Sewer Losses			
a) 1st stage			
1) flow (gpd)	1,275,000	818,730	1,109,460
2) solids (#/day)	43,700	26,350	32,010
3) fiber (#/day)(200M)	1,800	1,088	1,440
4) solubles (#/day)	14,900	13,670	14,280
5) pH	8.9	8.1	8.6
b) 2nd stage			
1) flow (gpd)	496,000	220,000	354,430
2) solids (#/day)	20,750	8,770	12,540
3) fiber (#/day)(200M)	699	244	454
4) solubles (#/day)	5,680	5,090	5,360
5) pH	9.50	8.65	9.05
c) 3rd stage			
1) flow (gpd)	35,380	0	11,270
2) solids (#/day)	700	0	199
3) fiber (#/day)(200M)	56	0	18
4) solubles (#/day)	9	-	9
5) pH	8.00	7.40	7.60
d) 4th stage			
1) flow (gpd)	821,000	552,000	673,500
2) solids (#/day)	10,600	4,950	6,837
3) fiber (#/day)(200M)	910	538	695
4) solubles (#/day)	7,800	5,610	6,705
5) pH	7.85	7.00	7.40
e) Total			
1) flow			2,148,660
2) solids			51,586
3) solubles			26,354
IV. Brownstock Consistency Reg. to Chlorination System.			
a) % cons. - into	2.60	0.82	1.70
b) % cons. - out of	2.72	0.80	1.68

ALLIED PAPER CORPORATION

	High	Low	Average
V. Chlorine Oliver			
a) % cons. - out of (to tower)	3.73	1.40	2.56
b) sewer losses			
1) flow (gpd)	676,000	177,100	425,600
2) solids (#/day)	1,393	275	654
3) fiber (#/day) (200M)	132	37	81
4) solubles (#/day)	3,620	1,840	2,730
5) pH	4.10	3.30	3.50
VI. White Water Tank Overflows			
a) flow (gpd)	185,000	0	55,650
b) solids (#/day)	1,635	0	392
c) fiber (#/day)(200M)	310	0	56
d) solubles (#/day)	806	-	806
e) pH	7.80	6.45	7.00
VII. Final Bleached Stock			
a) regulator			
1) % cons. - into	6.10	3.20	4.34
2) % cons. - out of	4.95	2.80	3.94
b) Retention	79.3	63.2	71.9

The last monthly waste tank summary showed that at present the B.O.D. in the effluent to the river at King is 37% over W.R.C. order and at Bryant is 91% over W.R.C. order, being 106# B.O.D. per ton and 122# B.O.D. per ton respectively. It was thought advisable to prepare tables showing W.R.C. surveys before treatment in 1946 and 1950, the 1951 W.R.C. orders, the W.R.C. surveys after treatment in 1955 (1956) and 1957, and Allied surveys in 1957 and 1959. Past memos and reports from Wayne Kendrick, especially December 1958, have called attention to violation of W.R.C. orders.

There is some explanation of the increased ~~violate~~ volatile solids and B.O.D. load to the waste treatment plants. First, the bale weight tonnage at King has increased from about 170 T average in September, 1958 to the present 200-220 T. The book tonnage has, especially during this waste paper shortage of the past months, contained a greater percentage of groundwood and the overall quality has degenerated. At Bryant there is some by-passing of the waste to the creek. At King there is some recirculation of effluent water back to the wet well. Recent B.O.D. checks on sewer waters in the paper machine basement at King show an average of 200 ppm on East side to 458 ppm on West side. This is very high.

These are some suggestions to improve our waste treatment tank operations and show the W.R.C. that Allied is making progress towards further abatement.

1. Install the second sludge pump at King to prevent sludge build up in tank and utilize more settleing volume of tank and prevent sludge carryover in the effluent.

2. Proceed with plan to change the tile by-passing the clarifier which will increase head differential between the wet well level and the clarifier effluent tile.

3. Reduce fresh water usage wherever possible. To note any reduction, it is recommended that meters be installed on the well water line and river water line at King. An estimate has been received from engineering on a 20 inch water meter for $900.00. A six (6) inch meter would be $400 (for an individual well line). This 20 inch model would be a saddle type.

Tons of Paper Deinked at King Division

	Tons	Water usage Total flow	BOD lbs
3/12	224.8	8.02	184
3/13	187.9	6.708	199
3/14	201.1	6.549	169
3/18	164.9	6.865	170
4/21	220.7	7.24	
4/22	231.8	7.02	
1/8	241.1	7.4	143
1/18	209.9	6.8	1[illegible]
1/24	232.3	7.9	266

ave 180

ave 177

	Ring I	out
1/8	550	410
1/18	455	250
1/24	960	390
ave	648	350
3/12	616	363
13	668	360
14	593	350
3-18	490	310
ave	626	[illegible]

Bryant

11/25	[illegible]	[illegible]
12/3	[illegible]	[illegible]
ave	720	355
Moran [illegible]		
3/16	210	10
3/17	165	10
3/18	175	75

NCASI 000436

ALLIED PAPER CORPORATION

RESEARCH AND DEVELOPMENT DEPARTMENT

Progress Report No. 1

Project No. 301

Subject: A STUDY OF DEINKING PULP MILL WASTES AND THEIR COMPOSITION IN RELATION TO TOTAL MILL EFFLUENT BY LABORATORY PULPING AND MILL PRODUCTION SAMPLING.

Distribution:

R. M. Levy
E. J. Klimczak
U. G. Stoeffler
E. J. Gilman
J. Galloway

By: Philip Germann
Ray Willie
John Harrison

Date: February 19, 1964

Approved: W.W.S.

KA04800091

SA 028948

OBJECT:

To obtain deinking waste data in order to relate the deinking process to overall mill waste and possible ways to reduce the treatment cost of additional waste removal in view of state water resources requirements.

PROCEDURE:

To obtain a reasonable value for deinking waste in relation to total mill waste three approaches were used. Waste treatment data from 1963 was used to project the change in waste loading from the deinking process at various percentages of book and ledger graded raw materials. Laboratory cooks at various raw material percentages were made to supplement and confirm the calculated data. The various waste streams in the mill were sampled for waste concentration and volume on three different days.

Material balances and biological oxygen demand (B.O.D.) were determined for all samples.

CONCLUSIONS:

Deinking waste at King accounts for 49 percent of the total waste flow, 64 percent of total waste solids, and 84 percent of the total B.O.D. Of this deinking waste, the portion from the first stage brown stock side hill washer is 24 percent of the total mill flow with 44 percent of the solids and 64 percent of the B.O.D.

The operation of the deinking mill with 100 percent ledger graded raw material results in the lowest waste solids and B.O.D. The waste increases in proportion to the increase in book graded raw material.

DISCUSSION:

A comparison of waste treatment data at King and Bryant divisions was made for the time the King pulp mill was supplying the Bryant paper mill with pulp. The waste loading from the King pulp mill was obtained by subtracting the Bryant paper mill data from the King pulp and paper mill data. (Table I) The furnish at the King pulp mill was 75 percent book and 25 percent ledger graded waste paper with an average finished pulp production of 200 tons per day. At 60 percent book retention and 90 percent ledger retention in the deinking process, the retention of mixtures of book and ledger was calculated. The

B.O.D. loading was calculated from the actual 26,700 pounds per day of B.O.D. for an input of 296.2 tons of raw material. The amount of B.O.D. per day was then divided by 200 tons to obtain a value in pounds of B.O.D. per finished ton of pulp. (Table II)

The waste treatment data for the last six months of 1963 from the King division was averaged (Table III) to correlate the data from the laboratory and mill samples.

Laboratory cooks were made at 100 percent book, 100 percent ledger and 50 percent book and ledger. The book grade was a combination of 80 percent magazines and 20 percent sections. The ledger grade was a combination of 75 percent colored and 25 percent white ledger. One pound of material was pulped in 10 liters of water with 21 grams of NaOH at 180 degrees F. for 15 minutes. The cook was then washed for 3 minutes with a total of 18 gallons of water on an 80 mesh sieve. Samples of each cook were taken to complete a material balance of the system and this data is reported in Table IV. The 50-50 cook and 100 percent ledger cook were repeated with a previously determined high yield ledger raw material because of the low yield of the first ledger sampled. The data from the duplicate cooks was averaged for comparison with other data in this report.

Samples in the King mill were taken from the following sewer points:

1. East wing - #1 & 2 paper machines and blenders
2. West wing - #3 & 4 paper machines
3. Pulp mill basement - all deinking and cleaning and screenings except first stage brown stock washers.
4. First Stage Brown Stock Side Hill washer water
5. Load Lugger - Jonnson and Centriffler rejects

The load lugger flow was determined by weir measurements and the first stage side hill waste was calculated as shown in Table V. Sewer flows were determined by the following formula:

$$\frac{\text{Depth of stream x width x 10 ft. length}}{\text{Seconds to traverse 10 feet}} \times 4.49 \times 10^{-3} = \text{MGD}$$

Samples were taken on January 7, 10 and 16, 1964 and material balance and B.O.D. determined and reported in Table VI.

Pulp mill production on the days of sewer sampling was combined with the sewer data to calculate the B.O.D. and waste loading reported in Table VII.

A comparison of the pounds of B.O.D. per ton of finished product shows that the data for the three dates in January which averaged 61 percent book and 39 percent ledger correlates with the calculated data at this percentage ratio. (Table VII) The laboratory data is lower than the mill sampling and the calculation values. This can be explained by the difference in batch operation in the lab and continuous operation in the mill and the small sampling used in the lab cook which was representative but limited. The B.O.D., Suspended Solids and Solubles of the lab cooks are consistent in comparison with the mill data. (Table VIII)

There are several ways to reduce the river pollution to the required level, other than complete secondary treatment of waste material, as indicated in the loading concentrations of various inplant waste streams. The pulp mill contributes the majority of the waste loading and the first stage brown stock side hill washers contribute most of the deinking waste loading.

Using the data in Table VI, one possibility for waste reduction in compliance with state water resources recommendation of 14,490 pounds of B.O.D. per day was estimated. With Bryant division waste loading at May 1963 level (no deinking) of 1530 pounds of B.O.D. per day and Monarch at 500 pounds of B.O.D./day King waste could be divided with the paper mill waste flowing directly to the river at a loading of 4000 pounds of B.O.D. per day. The deinking mill waste amounts to 21,500 pounds of B.O.D. per day. This deinking flow would be primary clarified in existing equipment and secondary treated for a combined treatment reduction of at least 60 percent of the deinking mill B.O.D. where present primary treatment of the total King division removes 44 percent of the B.O.D. (Table I)

RESULTS:

Table I	Waste Treatment Data - May 1963
Table II	Calculated B.O.D. at Various Deinking Raw Material Ratios
Table III	King Waste Treatment Data - 1963
Table IV	Laboratory Pulps at Various Raw Material Ratios
Table V	First Stage Brown Stock Side Hill Washer Waste Water
Table VI.	King Mill Sewer Sample Data
Table VII	Pulp Mill Furnishes on Days of Sampling
Table VIII	Comparison of Laboratory Pulps and Mill Data

TABLE I

WASTE TREATMENT DATA - MAY 1963

Division	Flow (MGD)	Mill Effluent Suspended Solids (#/D)	Mill Effluent BOD (#/D)	Treated Effluent Suspended Solids (#/D)	Treated Effluent BOD (#/D)
King	7.15	165,080	33,830	61,900	19,000
Bryant	4.52	42,100	7,125	1,090	1,530
Difference	2.63	122,980	26,705		

TABLE II

CALCULATED B.O.D. AT VARIOUS DEINKING RAW MATERIAL RATIOS

Raw Material Composition % Book	% Ledger	Product as % of Input Book	Ledger	Process Retention (%)	Raw Material for 200 Tons of Product (Tons/Day)	BOD Mill Effluent (#/D)	BOD #/Ton of Product
75	25	45.0	22.5	67.5	296.2	26,700	133
50	50	30.0	45.0	75.0	266.7	24,100	120
25	75	15.6	67.5	83.1	240.7	21,700	108
0	100	0	90.0	90.0	222.2	20,000	100

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TABLE III

KING WASTE TREATMENT DATA - 1963

Date	Flow (MGD)	Mill Effluent Suspended Solids (#/D)	Treated Effluent Suspended Solids (#/D)	Test Days
July	7.44	166,109	65,285	14
August	7.36	152,469	59,223	6
September	7.07	161,118	38,073	7
October	6.96	163,951	40,095	19
November	6.94	206,831	60,380	14
December	7.00	167,200	45,800	15
Daily Average	7.10	171,800	51,070	(75)

TABLE IV

LABORATORY PULPS AT VARIOUS RAW MATERIAL RATIOS

Cook No.	Raw Material % Book	Raw Material % Ledger	Raw Material Retained (%)	Raw Material for 200 tons of product (Tons/Day)	B.O.D. (#/D)	B.O.D. # Per Ton of Product	Waste Suspended Solids (#/D)	Waste Solubles (#/D)	Permanganate No.
1	100	0	58.7	341	24,600	123	177,000	146,000	20.2
2	0	100	79.0	253	16,700	84	44,500	84,000	1.3
3	50	50	65.7	304	20,800	104	100,000	131,500	11.7
4	0	100	98.0	204	13,900	70	33,200	57,600	1.8
5	50	50	75.0	267	19,600	98	58,800	126,000	12.2

TABLE V

FIRST STAGE BROWN STOCK SIDE HILL WASHER WASTE WATER

$$C_{gal/day} = \frac{K_c \cdot K_f}{B_c} \cdot \frac{B_c - A_c}{A_c - C_c}$$

$$C_{\#/day} = C_{gal/day} \cdot C_c \cdot \frac{8.33}{100}$$

Where

K_c is the consistency of stock to chlorination

K_f is the flow of stock to chlorination in gallons per day

A_c is the consistency of inlet stock to the first stage washer

B_c is the consistency of stock at the bottom of the 1st stage washer

C_c is the consistency of stock wasting from 1st stage washer

Date

1-7-64 $C = \frac{2.54}{7.40} \cdot 1440 \cdot 1400 \cdot \frac{0.566 \cdot 8.33}{100} \cdot \frac{7.40-2.61}{2.61-0.566} = 76{,}600$ #/day

1-10-64 $C = \frac{1.97}{2.02} \cdot 1440 \cdot 1500 \cdot \frac{0.60 \cdot 8.33}{100} \cdot \frac{2.02-1.93}{1.93-0.60} = 71{,}200$ #/day

1-16-64 $C = \frac{2.82}{8.65} \cdot 1440 \cdot 1400 \cdot \frac{0.49 \cdot 8.33}{100} \cdot \frac{8.65-2.74}{2.74-0.49} = 90{,}500$ #/day

TABLE VI

KING MILL SEWER SAMPLE DATA

	Suspended Solids (#/D)	Fiber (#/D)	Total Solids (#/D)	BOD (#/D)	Solubles (#/D)	Flo (M
1-7-64						
E	27,800	14,000	35,800	1,160	8,000	0.7
W	39,400	8,370	67,200	3,980	27,800	3.1
PMB	43,100	24,400	114,000	5,790	70,900	2.7
1st Stage	76,200	1,620	173,000	18,600	96,800	1.6
Total	186,500	48,390	390,000	29,530	203,500	8.2
1-10-64						
E	29,400	14,200	40,300	632	10,900	0.8
W	8,000	2,200	28,400	1,075	20,400	2.0
PMB	15,820	9,900	55,500	2,160	39,680	1.8
1st Stage	71,000	11,350	106,200	8,280	35,200	1.4
LL	880	680	1,500	27	853	0.1
Total	125,100	38,330	231,900	12,174	106,800	6.0
1-16-64						
E	113,000	7,340	139,000	2,830	26,000	1.2
W	20,100	4,020	42,400	2,520	22,300	2.6
PMB	18,600	10,960	74,500	4,500	55,900	2.1
1st Stage	90,500	1,665	202,000	25,100	111,500	2.2
Total	242,200	23,985	457,900	34,950	215,700	8.33
Average	184,600	36,900	359,933	25,551	175,333	7.55

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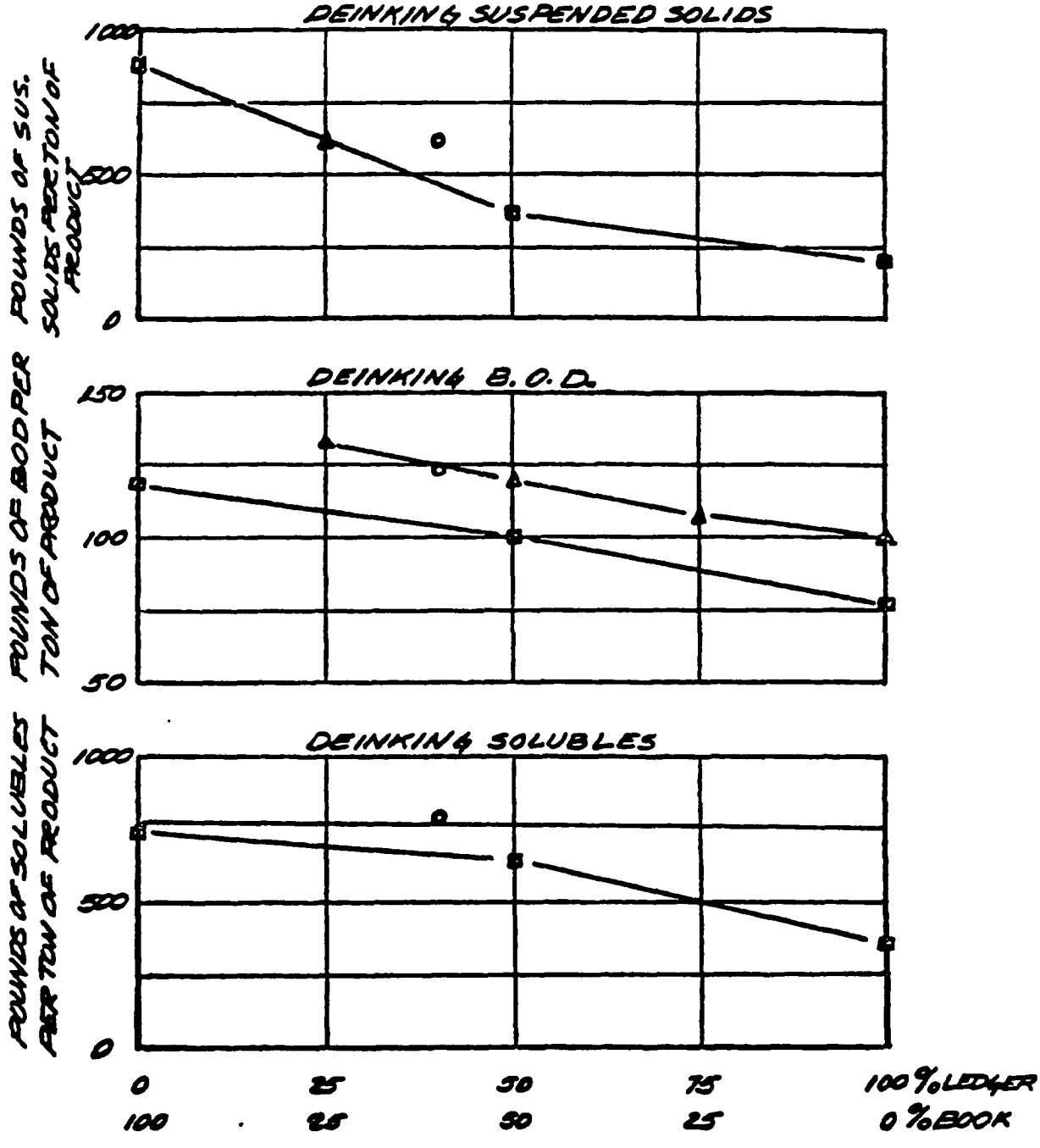
TABLE VII

PULP MILL FURNISHES ON DAYS OF SAMPLING

	Furnish Book %	Furnish Ledger %	Input tons	Retention %	Finished Tons	(#/D BOD) From Sewers	BOI #/Ton Prod
1-7	60	40	251.6	72	181	24,390	135
1-10	64	36	248.1	70	173	10,467	60
1-16	63	37	238.2	70	166	29,600	178
Average	61				173	21,486	124

TABLE VIII

COMPARISON OF LABORATORY PULPS AND MILL DATA



△ TABLE I & II 1963 MILL DATA

□ TABLE III LABORATORY DATA

○ TABLE XII & XIII SEWER SAMPLE DATA

WATER RESOURCES COMMISSION
Memorandum

To: Files

Subject: Allied Paper Co., Kalamazoo

From: L. F. Oeming

Date: September 13, 1965

A telephone call from Dr. Levy on September 2, informed us of developments on the Company's waste controls as follows:

1. King Mill: Deinking operations were eliminated during June 1965, 100% virgin fiber from the Company's pulp mill in Alabama is now being used.

2. Bryant Division: Operations have been modified so as to use less deinked stock and more virgin fiber. Deinking is still being done but with less of the type of waste paper (magazines) that produce the stronger wastes.

3. Monarch Division: No deinking is being done - pulp used is 100% virgin fiber.

Dr. Levy feels that the Company's discharges have been meeting the load requirements on B.O.D. for several months. His opinion is based on regular tests of the effluents being performed periodically. He responded to my inquiry about our making a performance survey by saying that he would prefer postponing this w until some additional water conservation and waste saving programs had gone into effect and had become stabilized.

LFO:S

0002727

NATIONAL COUNCIL FOR STREAM IMPROVEMENT
SURVEY OF SETTLEABLE SOLIDS REMOVAL
EQUIPMENT AND WET SOLIDS HANDLING PRACTICES

Date 12/6/63

A. MILL DESCRIPTION

Name of Mill Allied Paper Co (King Pin)

Mill Location Kalamazoo, Mich

Capacity 900 T/D

Pulping Process 210 ~~450~~ T/D deink

B. CLARIFIER SIZE AND EQUIPMENT DATA

Diameter 110 ft. Center depth (water level to floor) 23'3" ~~20'0"~~ ft

Sidewall water depth ~~12'6"~~ 12'25 ft. Stilling well 11 ft x 16 ft diam

Skimmer provided? no Collection mechanism mfgr Dorr

Design torque on collecting mechanism 72,000# - ~~120,000~~ ft. lb

Sludge collection sump _____ annular ✓ pocket

Sludge draw off lines 8 ~~6~~ inches, number 2

Sludge pumping facilities:

Manufacturer _____ Mayno Type Screw

Model _____ Rated flow 200GPM

Actual flow 200GPM. Variable speed yes

Pumping cycle, continuous ✓ intermittent _____

Is clarifier used as thickener? yes Has thickening been attempted in clarifier? _____ Were there problems? _____

Is overload or breakage of collecting mechanism common? no

Is sludge line or sludge pump plugging common? no

Sedimentation system appurtenances:

Effluent screens 1" bar screen Link-Belt mech cleaned

Effluent pumps 1@ [redacted] PM 6000 GPM

Pump cycle control float

Flow measurement devices 6' rectwier

Sampling devices continuous int & etf

Cost data:

Clarifier [illegible] Piping _____

Miscellaneous _____

Remarks: (Describe operating problems and pertinent observations)

C. EFFLUENT AND SLUDGE CHARACTERISTICS

	Mill Effluent	Clarifier Effluent
Flow, MGD	7.4 MGD	7.4 MGD
Total solids, ppm		
Percent ash		
	169000*	76,000*
Suspended solids, ppm		
Percent ash		
Settleable solids, ppm		
	36000*	- 12,000*
BOD, ppm		

Sludge Characteristics

Volume 288,000 GPD Solids content 7 to 10%

Ash content 45 to 50% Fibre content (~~100~~ 200 mesh) 20 % dry solids

Remarks:

D. SLUDGE HANDLING PRACTICE

Dewatering

a) Storage basin with overflow _____ without overflow ✓

b) Drying beds: No. _____, Size _____, Soil type _____

How cleaned _____

Sludge solids content _____

c) Mechanical dewatering: Equipment _____ Migr _____

No. _____ Size _____ Coagulant dosage _____

Loading rate lb/ft^2/hr or GPM _____

Cake handling facilities _____

Remarks:

Final Disposal

How disposed _____ Where _____

How hauled _____ Problems encountered _____

_____

Sludge Disposal Cost Data

Cover land cost, bed cleaning cost, and trucking cost. Power used in mechanical dewatering, labor cost. Maintenance costs, et

_____

_____

_____

_____

_____

_____

Remarks:

_____

_____

_____

_____

_____

_____

L. GENERAL REMARKS AND SKETCHES

OBJECT:

To determine the chemical costs of producing a deinked pulp of 77-80 Photovolt brightness from a mixture of ledger and groundwood free book stock.

PROCEDURE:

A trial run was made on August 14, 1964 using a special shipment of groundwood free book and ledger. This furnish was fed to the King D.I. plant for a seven hour period utilizing the normal stock and water flow pattern except no bleach was added to the small bleach tower, just enough caustic to neutralize the pulp from chlorination oliver. The chemical usage - chlorine caustic, and bleach - was adjusted to the lower chlorine demand of the pulp and lower brightness specifications of the finished product. Flows of stock and chemicals were recorded and regulated and special tests made. Data was supplied to the Accounting department for a cost analysis. A yield or retention was not calculated but a retention of 80% was assumed based on previous experience.

CONCLUSIONS:

1. The total bale weight input was 136,550#, consisting of 19,800# (14.5%) book, 89,220# (65.5%) colored ledger, 26,560# (19.4%) kraft and 910# (0.6%) broke. Some of the book was not groundwood free and some of the colored ledger was deeply dyed - blue and green - unbleached kraft. This ledger has a permanganate number (K No.) of 26 and raised the K No. of the pulp to chlorination from 7.5 to 10.2, imparting a blue color to the pulp before chlorination.

2. An average permanganate number of 7.5 was achieved, except at the end of the trial when the colored ledger mentioned above raised the K No. to 10.2.

3. The beater evaluation on a composite sample of the finished pulp indicated a higher tear, slightly lower mullen, higher freeness value and greater fiber length index than regular deinked pulp. A fiber analysis indicated 59% softwood and 41% hardwood.

4. Based on these trial results, it was determined that at a stock flow rate to chlorination of 950 gpm, 2 pounds a minute of chlorine and 5 gpm of 40 gram/liter bleach is sufficient to produce a product of 77-80 P.V. brightness. This chemical usage assumed that the book will be primarily groundwood free and the ledger will not contain the type of unbleached kraft found in this trial.

5. The trial was so short that we could not operate for a sufficient amount of time at the lowest bleach flow to reach a state of equilibrium. Therefore a longer trial should be made to determine yield and confirm the chemical cost.

6. The lower chlorine and caustic flows are difficult to control satisfactorily with the present metering equipment.

7. The total chemical usage was as follows:

Caustic		
a)	pulping, 2nd stage bleach, 3rd stage buffer @ 10% = 0.93#/gal.	1449 gals. 1348 #
b)	bleach @ 5 gpm	828 #
		2176 #
Chlorine		
a)	chlorination @ 2#/min.	840 #
b)	bleach @ 5gpm	735 #
		1575 #
Nalco 918		50 #
Nalco 71D5		100 #
SO_2		95 #
Fuel Oil		25 gals.

DISCUSSION:

Beginning at 4 A.M. on August 14, 1964 the special bales of groundwood free book and ledger were furnished to the downstairs hydrapulper of the King D.I. mill. This special furnish of five truckloads, Lot Nos. 2265, 2266, 2267, 2268 and 2269, ran until 11 A.M. for an average feed rate of 19,500 #/hr. A sixth truckload of this furnish did not arrive in time to be included in the trial. Some bales on the five trucks were rejected. The regular control limits of 2.0-2.2# Caustic/ 100 gals. were used. The average caustic flow was 0.75 gpm of 10% caustic. To provide a "break" between the regular furnish and the trial furnish the hydrapulper, slusher and the towers (following the slusher) were emptied before and after the trial.

Samples of input furnish were taken and checked in the laboratory. It was found that some coated and uncoated shavings contained a goodly amount of groundwood. Some bales of kraft were included with the shipment. However some bales

that were marked colored ledger (deep blue and green color) actually were unbleached kraft having a K No. of 26. These bales were used near the end of the trial and a blue color remained in the stock through the final washing stage before chlorination. This "ledger" stock accounted for the increase in K No. to 10.2 at 1 P.M.

The furnish breakdown was as follows:

Colored Ledger	-	89,280#	65.5%
G.W. Free Book	-	19,800#	14.5%
Kraft	-	26,560#	19.4%
Broke	-	910#	0.6%
		136,550#	

The regular washing, cleaning and screening operations of the D.I. plant were used during this trial. The permanganate number (K No.) was very uniform through the run (7.1-7.7) until the 1 P.M. test of 10.2 which was explained previously.

The stock flow to chlorination began at 7 A.M. and was maintained at 950 gpm throughout the trial at consistencies from 2.25% to 3.1%. The initial chlorine flow of 4.0#/min. was reduced to 2.0#/min. to bring the chlorine residual within the control limits of 2.0-3.0. It was difficult to control the flow at this level. The flow was determined from the chlorine flow integrator. A chlorine flow of 2 #/min. was deemed adequate for this pulp. The pH of the stock off the chlorine oliver was 3.7-4.0. Sufficient caustic (1.2 gpm of 10%) was added to the stock going to the small bleach tower to neutralize the acid stock from chlorination. No steam was used at this stage and the temperature on the top of the tower was 75°F. The pH on top of the tower was 9.3-10.5 and on the bottom 6.9-9.9. The bleach flow was started at 10 gals./min. cut to 7.0 gpm and finally to 5 gpm. The flow was raised to 10 gpm when the residual fell to 0.1 at 11:30 A.M. This coincided with time the stock flow was shut off because all the storage tanks were full. It may be advisable on any future trials on this furnish to reduce the bleach tower temperature and thus lengthen the bleaching reaction time. Based on these tests it was assumed that a bleach flow of 5 gpm of 40 gram/liter would be adequate to achieve a 77-80 P.V. brightness product, provided the furnish was groundwood free book and colored ledger. The P.V. brightness of the finished stock did fall to 75 but this again occurred during the time the system was down because of full storage tanks. A longer run is necessary to reach a state of equilibrium in the bleach tower using the lowest amount of bleach necessary to maintain a finished product P.V. brightness of 77-80.

Actually changes in bleach flow were made on this trial before the previous change had enough time to be effective. The retention time in the bleach tower was at least 2 hours at the trial flow rate. The trial ended at 2 P.M. and the inventory of pulp in the system was essentially the same as at the beginning of the trial.

The breakdown of the chemical usage for this trial as reported to the Accounting department was as follows:

Caustic:

Pulping - 0.75 gpm x 420 min.	315 gals.
2nd stage - neutralizer - 1.2 gpm x 420 min.	504 gals.
3rd stage - buffer - 1.5 gpm x 420 min.	630 gals.
	1449 gals.
1449 gals. @ 10% caustic @ 0.93#/gal.	1348 #
Bleach - 5 gpm x 420 min.= 2100 gals. @ 1970#/5000 gal. batch =	828 #
Total caustic	2176 #

Chlorine

Chlorination 2#/min. x 420 min.	840 #
Bleach 2100 gals. @ 1750#/5000 gal. batch	735 #
Total chlorine	1575 #
Nalco 918	50 #
Nalco 71D5	100 #
SO_2	90 #
Fuel Oil	25 gals.

The accounting department also figured the cost at 75% and 85% retention or yield, but it was assumed that the retention for this trial was 80% based on experience from this trial. This retention was not calculated.

The fiber analysis on a composite sample of this pulp showed 59% softwood and 41% hardwood. A beater evaluation was made on a composite sample of wet lap pulp and the results are shown in Table I.

RESULTS:

1. A copy of the D.I. plant log sheet for the trial is attached to this report.

2. Table I lists the results of the beater evaluation on this finished stock together with results of a previous

EASTERN ENGINEERING COMPANY
Consultants. Engineers. Architects
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ATLANTA, GEORGIA 30301
CABLE ADDRESS EECO
70 FAIRLIE ST., N. W.
TEL. 524-4712
TWX. 827-1110
AREA CODE 404

RECEIVED
JUL 15 1964
WATER RESOURCES COMMISSION

July 13, 1964

Water Resources Commission
State of Michigan
Lansing, Michigan

RE: Allied Paper Corporation
Jackson, Alabama
EECO Job No. 63/127

Gentlemen:

We have been advised by Allied Paper Corporation at Kalamazoo, Michigan that they will be restricted by June 1, 1966 to a certain waste flow into the Kalamazoo River.

This letter is to inform you that the Industrial Development Board of the City of Jackson, Alabama is presently building a Kraft Pulp Mill with bleaching facilities to produce high brightness pulps from either pine or hardwood. The pulps produced by this plant will be suitable for use in the Kalamazoo plant of Allied Paper, and the production of the facility will exceed 105,000 tons per year. This new plant will begin operation in late August or early September of this year.

Eastern Engineering Company has designed this mill in its entirety, acted as consultant for the purchase of production equipment and are supervising actual construction.

Allied Paper Corporation has leased this facility for a period of twenty (20) years with an option to renew the lease for an additional twenty (20) years. Under this lease Allied has full control of the operation of the entire plant and the disposition of the pulp produced.

Eastern is not aware of the exact restrictions referred to above, but want to certify that the new facility may replace pulps presently produced in the Kalamazoo plants by de-inking waste papers. This is important since the biggest source of objectionable waste from Allied into the Kalamazoo River is from this source.

9000259

KA05500257

Purdy
EXHIBIT NO. 49
M. LANTIS 10/25/93

KA05500257

Thank you, Phil.

Ladies and gentlemen (25-Year Club members):

It is a real pleasure for me to have the opportunity to talk to you again this year. This is the Second Annual 25-Year Club Meeting and I hope that we will be able to continue these meetings for many years to come. A lot of water has gone over the dam since we last met and I am anxious to tell you about my views of the past, the present, and the future.

But, first let's ask a question. Why are we here tonight? We are here to recognize you. Recognize you for the many years of service you have put in and the quality of work you have put out. I personally want to recognize you and as I told you last year, my experience with 25-year clubs has been a stimulating and inspiring one. I am most sympathetic to this type of get-together. I have never seen a 25-year group that wasn't interested in the company for which it worked. You people are the backbone of the company and are mighty important, (not only to yourselves but also to the younger fellows that work with you,) (to our customers,) (and to our stockholders.) You people are the leaders of our working group.

Last year, I listed some adjectives or phrases to characterize you, like

KA04600492

- the ones who set the example,

- the ones who carry the ball,

- ones who are respected,

- and those who train and stabilize our working force.

It is impossible to conceive the magnitude of the value of the experience that this group of employees represents to Allied. Indeed, I am proud to be associated with a group of employees who have acquired such a wealth of background.

Last year when I talked to you, we had just finished a year that was not too bad. Predictions of the future were rife in their indication of the beginning of the soaring sixties, the golden sixties, and expansion of production and prosperity. These predictions are history now and we have witnessed in the paper industry one of the greatest disappointments in many years. The truth of the situation is simply that we are over-produced as an industry. Howard E. Whitaker, President of APPA and Chairman of the Board of Mead Paper Corporation, speaking at a special salesmen's dinner in his honor recently said that the economic situation in the United States is a puzzle and is hard to figure. He said our production indexes are at a new high level for the last eight or nine months. Consumer spending is as high as it has ever been; Europe has recovered and has an unprecedented boom and in the United States we are producing at a level of 500 billion dollars per year. In spite of this, Mr. Whitaker

KA04600493

says there is a spread of about twenty per cent in white paper between available production capacity and market demand. Furthermore, forecast of demand in the next year or two is unlikely to average at best more than eighty per cent of what the industry can produce on an all-out basis. Mr. Whitaker says that in spite of this, expansion still goes on. Each company has its own reason for building to meet anticipated sales. But the cold figures indicate that it is going to take at least two years for sales to catch up with production and in some lines, it's three years. Now what does this mean to us?

It is true that we have improved our productive capacity, too. We have installed new equipment to make our paper machines run faster. We have installed new equipment to make more tons of D.I. pulp. We have installed equipment throughout our process to make more tons and to finish paper more efficiently. Even though our population is increasing and it would appear that the country would require more paper, it is a fact that orders received in the paper industry for November and December have fallen off very sharply as compared to a similar period last year. Our capacity is increasing because in addition to improving old machines, a number of new machines have been started up recently. Several of these are competing directly with the Allied Paper Corporation. Last year, I told you about Champion's #20 machine at Canton and the new machine at Northwest Paper Company at Brainerd, Minnesota.

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This year I can report two new machines, each 242 inches wide, (at least one of which has started) at the West Virginia Luke, Maryland plant. Believe it or not, each machine has four on-machine trailing blade coaters and is capable of making a very beautiful coated paper right on the paper machine. The second machine is reported to be ready for operation early next year. Furthermore, Fraser Paper Company in Madawaska, Maine had a successful startup of its new Bond paper machine. It is 234 inches wide and capable of making 45,000 tons of paper per year. This is approximately the amount of paper that No. 1, No. 2 and No. 3 paper machines combined will make in 1960. So you see, the new machines are capable of tremendous production and have real low overhead from a labor standpoint.

So much for our competition. Now where do we stand. I am sure that all of you want to know this. In my opinion, we have been through a difficult year. 1961 will be better. We have been in a tremendous profit squeeze. Where we used to have a price advantage over our competition of $20 to $30 a ton minimum just because we used D.I. pulp, since August 24th we have only had $6 a ton. On April 18th we raised all our offset prices but on August 24th we had to cut them back even lower than they were in the beginning of the year. Our competitors were willing to sell at a much lower price. You must believe me when I tell you that this profit squeeze is still on and we expect it to last for some time. We have to be smart enough to make new sheets which can

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sell for less than our competitors and decrease our costs if we are to stay in business. During this last year the Monarch Division has come a long way in developing its efficiency. The orders there have been of reasonable length and better than our average by quite a bit. I feel confident that the Monarch Mill, in making these strides, has earned a position in our industry which will allow it to continue in business for many years, even though at times during this past year the future fortunes of that mill were mighty questionable. The Bryant Mill has been effected less by the price squeeze because of its specialties and lightweight papers. However, the Coating Division at Bryant has not had this good fortune. Coated papers are extremely competitive and I think they will continue to be so for some time to come. The King Mill has been harassed by low prices, short runs and, consequently, high waste, poor efficiency and profitability. As a matter of fact, the overall profitability of the Allied Paper Corporation Kalamazoo Division for the year 1960 is going to show a loss.

In spite of this, I am optimistic about the future. I want to tell you of the things we are planning for 1961. In the first place, I believe that the economic situation in our country is bound to improve this coming year. In the second place, we have new products coming along and third, I am sure that we will be able to make economies not only in our raw materials and in the efficiencies of our processes but also in a more efficient way of handling the manhours expended in the manufacture of our products.

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Before we go to our new products, I would like to tell you about the improvements we expect to make in our raw material costs. Most of you are aware of the work that has been going on in our D.I. plants. I am sure that those of you who work in these departments realize the great strides that have been made. Take for example the matter of chlorine. We all know what a bad situation chlorine can cause when it gets loose. We all know, too, that since the new chlorine mixers were installed and better control placed on handling this chemical, a great improvement in the working conditions has been effected. We also should point out the savings that have been made in the use of chlorine and caustic because of the closer control methods now being used. The caustic usage, for example, has been cut back sharply in both mills due to better methods. Our waste paper prices have decreased recently and this gives us an advantage which we gravely needed. Furthermore, our raw material control is better and we hope to receive better packs than we have in the past. We also have been able to substitute lower cost materials which have reduced our costs. Probably more important than anything else, however, has been our decrease in the use of virgin fiber. As our D.I. pulp has improved not only in quality but in quantity, we have been able to substitute more of it for the chemical fibers which we have to purchase. This will go a long way in decreasing our costs. I could go on and on in the D.I. mills to point out other improvements that have

KA04600497

been made. For example, I could tell about the use of sulfur dioxide to stabilize brightness and decrease alum usage but suffice it to say here that we all can be proud of the work done by our employees in getting these improvements effected. I believe that all our employees in all departments have had their shoulders to the wheel this year in helping and indeed it is a pleasure to recognize this contribution to the betterment of Allied PaperCorporation and the security of all our jobs by the work that has been done.

Now for new products. We have five aims in our planning at Allied. These aims are toward the specialty paper business. Of course, we intend to improve our existing grades as well but we would like to be able to develop new grades to take the place of half the grades we now make which have poor profitability. The five areas in which we have been working are as follows:

1. To improve lightweight papers and widen the grade structure to include even lighter weights.
2. To make better colored papers.
3. To make more specialty coated papers.
4. To enter the photocopying field and
5. To make superior business form papers.

Let's go back to each one of these. As you all know, we have been making Bible paper for many years. This paper has won wide acceptance

KA04600498

in the trade. Until recently, however, 25 lb. was as light as we went. We are now down to 19 lb. or 1600 pages to the inch. This, of course, has given us a greater field in which to work and we have great hopes for a lot of new tonnage.

2. Colored papers have always been made by Allied. We decided to concentrate on colored papers because the big companies don't like to make them. Champion's #20 machine at Canton cannot make a ten ton order. It would get lost in the pipe on that machine between the fan pump and the wire. We have to develop grades suitable to our equipment and it seems to us that concentrating on colored papers to the point that the trade thinks of Allied when it thinks of colored papers is a reasonable goal. By so doing, we will be able to get additional tonnage at good prices.

3. In the past, the Coating Department has largely been directed toward coated papers used in the printing industry. On-machine coaters have caused our coating department great trouble in the market. We want to and have been able to concentrate in the coating department to make more specialties. It is true that the coating department has made it possible for us to get into specialty paper fields which would have been barred to us had we not had the coating equipment available. We have great hopes that this department will be the springboard for us to get a great deal of additional business.

KA04600499

4. Office photocopying is one of the most rapidly growing fields in the paper industry. It would take too long to discuss with you tonight what is going on in this field, not only here at Allied but in the United States generally. It is a dynamic growth industry - and we want to be a part of it. Suffice it to say here that our Research Department has approached this development in three different ways. We have an exclusive contract with the Kalvar Corporation for all the paper they will use in their process. We have a ninety per cent contract with American Photocopy Equipment Company for the requirements of their new photocopying system. Why were we able to get these contracts? We obtained these contracts because we made sheets of paper better than any other company had made. The contracts are for future tonnage, to be sure, but we do have the contracts signed and ready to go when these companies are ready for the paper. This is only the beginning of what we will do in this field. We also have started development of a heat sensitive photocopy paper which should compete with Thermofax and work in Thermofax machines, the biggest user of photocopying paper in the business.

5. We need not discuss to any great length the business forms paper development at Allied. We all know we have bought half a dozen forms companies and are getting all their paper requirements. We have come a long way in the development of this paper and to the best

KA04600500

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

PAPER MILLS DIVISION KALAMAZOO, MICHIGAN 49003 (616) 345-7131

June 14, 1982

APPLICATION UPDATE ACCEPTED

RECEIVED
JUN 15 1982
Water Quality-E & TS

Mr. Brian G. Page, Permits Section
Department of Natural Resources
Box 30028
Lansing, MI 48909

Dear Mr. Page:

Re: Amendment to Allied Paper NPDES Permit Application

Your letter of May 18, 1982 requested additional information relating to Allied Paper Inc. NPDES Permit application, namely "the amount of effluent discharged on a percentage basis to Portage Creek and to the Kalamazoo Waste Water Treatment Plant." We have taken the average daily flows for the months of June 1981 through May 1982 to calculate these percentages which are shown below:

Month	% Portage Creek	% Kalamazoo W.W.T.P.
June 1981	29.8	70.2
July 1981	24.6	75.4
August 1981	24.7	75.3
Sept. 1981	22.2	77.8
Oct. 1981	32.1	67.9
Nov. 1981	40.5	59.5
Dec. 1981	35.8	64.2
Jan. 1982	40.0	60.0
Feb. 1982	27.5	72.5
March 1982	31.3	68.7
April 1982	35.4	64.6
May 1982	22.5	77.5

We trust this data satisfies the requirement.

Very truly yours,

U. G. Stoeffler
Manager, Process Development

br
cc: T.E.Flanagan - Vice President, Allied Paper Inc.

Rex Paper Co.

nd to e at Paper

5-14-63

Continue son Firm

to the 105-day-old ex Paper Co. appeared sight today.

rs of United Papermak- Paperworkers Local vote on a new contract y at 7 p.m., management ion officials announced

aining committees of both nion and company have to the new contract. De- have not been released.

nion officials will conduct iscussion session before ursday evening's vote.

PP Local 1028 members t on strike against Rex May fter negotiations broke down re than 145 union workers ere involved.

Federal and state mediators ere in on the bargaining ses- ons Tuesday.

ELEVENTH-HOUR negotia- ons, meanwhile, are underway etween Gibson, Inc., and Unit- l Steelworkers Association Lo- l 3596 today.

The union's present 2-year ntract expires at midnight to- ight.

Union and management will neet at 7 p.m. tonight in an ttempt to iron out differenc- s. Union officials today said hey are seeking increased wages and benefits and an im- roved incentive program for workers.

If a strike is called, 461 un- n workers will leave their jobs ng with 21 probationary em-

Union OKs Pact at Rex Paper

KG 8/16/63

Ratification Ends 107-Day-Old Strike

The 107-day strike at Rex Paper Co. was ended Thursday night with ratification of a new two-year labor contract by Local 1028 of the United Papermakers and Paperworkers Union.

Production will resume in the near future, it was announced by William Toppan, newly appointed vice president and general manager of Rex.

Toppan and Local 1028 President Chester Harasim said the company plans to revise its operations to produce new grades of paper. Whether employment will be higher or lower than before the strike could not be immediately determined, they said.

The strike began May 1 when negotiations for a new contract broke down over wage issues. The previous contract covering 145 union members expired April 30.

COMPANY AND UNION spokesman declined to disclose terms of the contract, other than to say it provided for wage adjustments rather than an across-the-board wage hike.

However, it was understood the adjustments ranged from 14 to 26 cents an hour over the two-year life of the pact, depending on the employe grade. The average increase was unofficially reported at 17 cents an hour.

Toppan was hired to replace J. E. Lean, president general manager of Rex, after the

sity of Maine and received a B. A. degree in mechanical engineering from the University of Illinois.

Rex Paper Co. is owned by Chicago industrialist Paul Butler.

Rex Paper Co. To Emphasize Colored Products

KG Dec 17, 1964

Rex Paper Co. of Kalamazoo announced this morning that it will specialize in the manufacture of colored papers.

Richard J. Moser, general superintendent, said the change is due to advantages in marketing. However, the company will continue to market white and colored school and business papers.

Moser said the company has installed a new bracket trimmer and that a new banding machine will be installed soon. Two presses and a rebuild paper machine will be installed after the first of the year, he said.

KG 12-17-64

Papermakers Reject Weyerhaeuser Offer

KG 8-19-65

By ROB WARDEN
Gazette Staff Writer

Members of Papermakers Local 1028 voted unanimously Wednesday to accept a new two-year contract at Rex Paper Co., but members of a sister union rejected a similar offer at the Weyerhauser Co. in White Pigeon.

The Weyerhauser employes, represented by UPP Local 1034, reportedly voted 67 to 51 against the first contract offer the company has made in the 23-day-old strike.

Both the Weyerhauser and Rex proposals provided for an immediate 8-cent hourly pay increase and another increase next year.

The second-year increase at Weyerhauser would be figured on a percentage basis, amounting to about 8.3 cents, while the Rex offer in the second year was for a flat 8.

Local 1028 has about 120 members at Rex, and Local 1034 has about 150 members at Weyerhauser.

The Weyerhauser union has been seeking a one-year contract as part of a broad plan to make contracts expire simultaneously at the company's plants throughout the nation.

The Rex contract provides, in addition to the wage increase, an eighth paid holiday, which will be Dec. 31. Provisions for funeral leave were extended, and there were some minor adjustments in wages for certain jobs.

Meanwhile, a strike by 30 members of Teamsters Local 7 entered its fourth day at American Aggregates Corp. in Kalamazoo.

Teamsters members several days ago rejected a company offer for a new three-year contract with a 27¾-cent package increase, including 17 cents in wages. The union reportedly is satisfied with the fringes, but seeks a 30-cent wage increase in addition.

Elsewhere on the Kalamazoo area labor front, no progress was reported today in the 21-day-old strike at Cupples Products Co. in Dowagiac, where United Steelworkers Local 6769 has filed several charges of unfair labor practices against the company.

KG 8-19-65

RETURNED TO KALAMAZOO

K. Kal. Industries. Rex Paper Co.

Chicago Owners Sell Rex Paper To Allied Paper

KG 3/16/67

By JAMES STOMMEN, Gazette Business Editor

Ownership of the Rex Paper Co., for nine years in the hands of a Chicago-based syndicate, was returned to Kalamazoo today.

Allied Paper Corp. this morning announced the purchase of all the stock of Rex Paper.

It will be operated as a wholly owned subsidiary.

Ernest J. Klimczak, president of Allied, said in making the announcement:

"We do not plan to change the Rex business, except to upgrade the product mix wherever possible."

The acquisition, he said, is in

mazoo area, both in present fa cilities and as other opportun ties present themselves.

Dr. Ward D. Harrison, cha man of the board and ch

KG 3-16-67
(Cont. pg.

LIBRA
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[redacted] Rex Paper Co.

HR

executvie officer of Allied Paper, said that arrangements for the purchase of Rex Paper from the Butler Co. of Chicago were completed today.

With his wife, Dr. Harrison is the principal stockholder of Allied Paper.

Acquisition of Rex Paper, located on King Highway at the western boundary of Comstock Township, was for an undisclosed cash sum.

The company, founded in 1915 by John F. King, one of the pioneers in Kalamazoo Valley mill construction, was sold in 1958 to Paul Butler, head of the Butler syndicate.

King was president of Rex until his death in 1922. His son, Merrill B. King, then served as president until his death.

Merrill King's widow, Helen King, became president in 1932, and served in that position until the purchase of the company by Butler.

In announcing today's purchase, Dr. Harrison said that "it'll be a challenge for Allied Paper to save Rex Paper," which he said has had declining business in recent years under out-of-town management.

He added that it is the intention of Allied to upgrade the quality of the products of Rex.

The Rex mill currently makes lower grades of paper, such as tablet and construction paper, which contains ground wood, much like newsprint.

The paper-making machine at the Rex mill is a narrower machine than any of the 11 machines Allied Paper now has, said Dr. Harrison.

Approximately 120 persons are employed at Rex Paper, and their addition will bring the total Allied Paper work force in Kalamazoo to 1,370.

In addition to the Rex acquisition, Allied announced that a new department will be added to the Monarch mill to manufacture the company's fast-growing manifold-carbon paper sets.

Manufactured and sold under the trade name of Letterex, the product uses one-time carbon paper and lightweight bond, both manufactured by the company.

Designed to increase the efficiency of the stenographic function in offices, Letterex is reportedly one of Allied's fastest-growing product lines.

KG 3-16-67

TO EATON-DIKEMAN Kal Gazette

Some Rex Paper Assets Are Sold

KG 9-15-67

Allied Paper Corp. today announced the sale of some of the assets of Rex Paper Co., which it has owned for six months, to a Pennsylvania company.

The sale to Eaton-Dikeman Co., Mount Holly Springs, Pa., included land, buildings and the paper machine at Rex, which is located on King Highway at the western boundary of Comstock Township.

Terms of the transaction were not disclosed.

Allied also announced that it plans to continue to manufacture and sell the products previously produced in the Rex mill — construction paper, tablet paper and drawing paper.

In order to accomplish that goal, terms of the sale provided that Allied will retain machinery and equipment for the conversion of the papers manufactured at Rex.

The drawing and construction paper consists of a line of 30 different colors. The tablet and ruled papers are widely used in schools, offices and homes, and are marketed through Allied's subsidiary, Gates Paper Co.

Eaton-Dikeman is a manufacturer of filter papers and industrial specialties and they plan to manufacture such products in their new facility here.

No change in the status of the 100 employes at the Rex mill is expected, except that they will now be employed by Eaton-Dikeman.

Allied Paper acquired Rex Paper for an undisclosed sum in mid-March of this year.

Prior to then, Rex had been owned by the Chicago-based Butler Co.

Founded in 1915 by John F. King, one of the pioneers in Kalamazoo Valley paper mill construction, Rex was held by the King family until its sale to Butler in 1958.

John King's son, Merrill, assumed the presidency of the company when his father died in 1922. Mrs. Merrill King became president upon her husband's death in 1932 and served until Paul Butler, head of the Butler syndicate, purchased the mill.

KG 9-15-67

Kzoo Gazette 7/02/79

'Suspicious' fire hits old Rex paper mill

By LESLIE GRIFFIN.
Gazette Staff Writer

About 50 firemen battled a blaze at the old Rex Paper mill on King Highway Sunday morning, containing the flames to the top floor of the four-story structure which is being demolished.

Comstock Township Fire Chief William vonZehle said a state fire marshal would inspect the decrepit structure sometime today in an effort to find what caused the sudden blaze.

police officer noticed no flames when he wrote a traffic ticket nearby at 9:50 a.m., but just six minutes later, several nearby residents called to report flames shooting from windows of the old mill, vonZehle said.

Since the mill is being demolished, no heat or electricity is presently hooked up, he said, leading investigators to term the blaze "suspicious." The gates were locked when firefighters arrived, he said, and demolition workers were last at the scene Saturday.

Some plastics were stored in the building, which had been used in a plastic recycling program, firefighters said.

The scores of firemen sped to the scene in 11 trucks from Comstock Township, Galesburg, and the Eastwood and Lakewood departments in Kalamazoo Township.

Founded in 1915 by John F. King, the Rex Paper Company was a major local business interest until it closed several years ago.

Dore Enterprises of Bay City purchased the mill last December and is in the process of leveling it to sell as an industrial site.

During its heyday, the Rex mill employed about 140 persons. The first folding, enameled paper products were produced at the specialty mill. This product later became known as "Rex-Fold." The plant closed down in the mid-1960s.

FOR PICTURES SEE FRONT

MHI-00004

ABOVE, FIREFIGHTERS SPRAY WATER AS FLAMES LEAP FROM OLD REX PAPER MILL
Fire destroyed top floor of the 64-year-old mill, which is currently being demolished

— Photos by John Jordan

FOR TEXT SEE BACK

MHI-00005

LTI-ENVIRONMENTAL ENGIN →→→ KZ002 454 006

LAMINATED
LD PAPERS
O., PARCHMENT, MICH.

and Washing Equipment. One 145-inch and one 167-inch Fourdriniers; widest trimmed sheets, 136 inches and 156 inches. Super Calenders up to 80 inches wide. Steam and Electricity. M. F., English Finish, Super, Offset, Mimeograph, Writing, Label, Music, Drawing, Linings and Hangings. 450,000 lbs 24 hours. MILL NO 4. Fourteen Coaters, Maximum trim, 100 inches. MILL NO 5. Two 64-inch and one 84-inch Coaters. Book, Dull Finish, Folding Enamel Lithograph and Varnish Label and Gloss Ink Label. 250,000 lbs daily. Highway, U. S., 12, 2 miles East. Phone 3-2667.

NATIONAL GYPSUM CO. Main Office, 325 Delaware Ave. Buffalo 2, N. Y. (M. H. Baker, Chairman of Board; L. R. Sanderson, Pres; F. A. Manske, Vice-Pres Operations; W. F. Anderson, Vice-Pres Mfg.; L. L. Hank, Paper Prod. Mgr.; F. Buchanan, Plant Mgr.) Railroad Siding, Mich. Cent. Three 1600-lb. HS Beaters, one 150-ton Pulper, and six Jordans. One 108-inch Eight Cylinder; widest trimmed sheet, 100 inches. Steam and Electricity. Gypsum Liner Board Paper, 270,000 lbs 24 hours. Highway, U. S., 12. Phone. 3-1275.

REX PAPER CO. (H. R. King, Pres., Harry C. Bradford, Vice-Pres and Sec; Arthur W. Cole, Supt.) S. P., Kalamazoo. Five 1200-lb. J. H. Horne & Sons Beaters, two Horne Jordans, two E. D. Jones Co. Paper Washers, one 1200-lb. Rag Washer and one McNeal Rotary. One 113-inch Fourdrinier; widest trimmed sheet, 104½ inches. Steam. Coated Book Papers Offset, English Finish Book. 60,000 lbs 24 hours. Also Six Machine Coating Mills. Highways, U. S., 12; State, 12. Phone 2-0151.

ST. REGIS PAPER CO. Main Office, 230 Park Ave., New York 17, N. Y. KALAMAZOO MILL. (F. C. Goodwill, Res. Mgr.; L. A. Pierce and P. H. Gideon, Asst. Res. Mgrs.; R. D. Bristol, Office Mgr., R. E. Burkhardt, Gen. Supt.; M. J. Killian, Chief Chem.; M. J. Goloff, Plant Engr.; H. L. Smith, Traffic Mgr. (Chicago), J. H. Hartung, Pur. Agt.) One 137-inch, one 139-inch, one 141-inch, one 154-inch, and one 164-inch Fourdriniers, widest trimmed sheet, 152 inches. Width of Super-Calenders 58-60-64-74-84 and 156 inches. Steam and Electricity. Machine Finish, Eggshell, Roto Coated and Supercalendered Book, Litho Label, Music, Offset, Catalog, Bible and Writing. 450,000 lbs. 24 hours. Waste Paper Pulp. Highways U. S. 131, 1 mile; 12, 2 miles; State, 89, 2 miles. Phone, 7131.

SUTHERLAND PAPER CO. Main Office, 243 E. Paterson, 13D. (L. W. Sutherland, Chairman; William Race, Pres.; G. F. Graham, Vice-Pres.; A. L. Sherwood, Vice-Pres.; L. W. Sutherland Jr., Vice-Pres.; E. W. Smith, Sec. Treas.; J. T. Kirkpatrick, Gen. Sales Mgr.; Marvin Galbraith, Tech. Dir. and Chief Chem.; F. F. Bunde, Chief Engr., D. D. Bachelder, Pur. Agt.; C. L. Fenstermaker, Traffic Mgr.) EAST SIDE PLANT. (Arnold Weller, Supt.) Five Refiners. One Seven Cylinder; widest trimmed sheet, 93 inches. Steam and Electricity. Folding Box Boards. 250,000 lbs. 24 hours. NORTH SIDE PLANT. (Glen Sutton, Supt.) Railroad Sidings, C. K. & S., P. R. R. and N. Y. C. R. R. Five 1650-lb. and five 2000-lb. Beaters, one Shattle Breaker Beater, six Hydrapulpers and four Hydrafiners, three Continuous Broke Beaters and seventeen Jordans. One 100-inch Six Cylinder, one 116-inch Seven Cylinder and one 132-inch Seven Cylinder and one 154-inch Eight Cylinder; widest trimmed sheets, 92, 102, 120 and 138 inches. Steam and Electricity. White Patent Coated News, Single Manila Lined, Bleached Manila Lined, Mist Gray Lined, News Vat Lined and Plain Chip, Filled, Solid and Double Manila Lined News, Butter Carton, Ice Cream Pail, Oyster Pail and Butter Dish Stock, Mill Blanks and Specialties. 930,000 lbs 24 hours. Highways U. S., 12 and 131, 1 mile; State, 43, ½ mile. Phone: Kalamazoo 3-1651.

WESTERN MICHIGAN COLLEGE, Curriculum in Paper Technology. (Alfred H. Nadelman, Head of Curriculum, Paul V. Sangren, Pres.; Wynand

MHI-00006

eam and Electricity. Gypsum Liner
er, 270,000 lbs. 24 hours. Highway,
Phone: 3-1275.

APER CO., P. O. Box 751. (Helen
Pres. and Treas.; J. E. Lean, Vice-
and Gen. Mgr.; W. J. Howard, Vice-
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Themins, Traffic Mgr.) S. P., Kala-
Railroad Sidings, two on N. Y. C.
400-lb. J. H. Horne & Sons Beaters,
rne Jordans, two E. D. Jones Co. Paper
s, one 1200-lb. Rag Washer and one
l Rotary, one Bleacher and three Screens.
13-inch Fourdrinier; widest trimmed sheet,
inches. Twenty-six Driers, 48 inches in
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rated Electricity. Electric and Turbine
es. Coal. 200 and 155 p.s.i. Steam Pres-
Coated Book Papers, Offset, English Fin-
Book. 60,000 lbs. 24 hours. Also Six Ma-
e Coating Mills. Highways, U. S., 12;
ne: 2-0151.

ST. REGIS PAPER CO. Main Office, 230
rk Ave., New York 17, N. Y. KALAMA-
OO MILL: (L. A. Pierce, Jr., Res. Mgr.; P.
Gideon, Asst. Res. Mgr.; R. D. Bristol, Office
Mgr.; R. A. Larson, Gen. Supt.; M. J. Killian,
Chief Chem.; B. J. Koziol, Plant Engr.; H. H.
Gilman, Traffic Mgr. (Kalamazoo) H. L. Smith,
Traffic Mgr. (Chicago), J. W. Hartung, Pur.
Agt.) One 137-inch, one 139-inch, one 141-inch,
one 154-inch, and one 164-inch Fourdriniers;
widest trimmed sheet, 152 inches. Width of
Super-Calenders, 60-64-70-90 and 160 inches.
Steam and Electricity. Machine Finish, Eggshell,
Roto, Supercalendered Book, Litho, Coating
Raw Stock, Label, Music, Offset, Catalog, Bible,
Writing and Specialties. 450,000 lbs. 24 hours.
Waste Paper Pulp. Highways, U. S., 131, 1 mile;
12, 2 miles; State, 89, 2 miles. Phone: 5-7131.

SUTHERLAND PAPER CO. Main Office,
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Chairman; William Race, Pres.; G. E. Gra-
ham, Vice-Pres.; A. L. Sherwood, Vice-Pres.;
L. W. Sutherland, Jr., Vice-Pres.; J. T. Kirk-
patrick, Vice-Pres.; E. W. Smith, Sec.-Treas.;
Martin Galbraith, Tech. Dir. and Chief Chem.;
L. F. Bunde, Chief Engr.; D. D. Bachelder,
Pur. Agt.; C. L. Fenstermaker, Traffic Mgr.)
EAST SIDE PLANT. (Arnold Weller, Supt.)
Five Refiners. One Seven Cylinder; widest
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and N. Y. C. R. R. Five 1650-lb. and five
2000-lb. Beaters, one Shartle Breaker Beater, six
Hydrapulpers and four Hydrafiners, three Con-
Beaters and seventeen Jordans.
one 116-inch Seven
Cylinder and
and Electricity. White Patent Coated News,
Single Manila Lined, Bleached Manila Lined,
Mist Gray Lined, News Vat Lined and Plain
Chip, Filled, Solid and Double Manila Lined
News, Butter Carton, Ice Cream Pail, Oyster Pail
and Butter Dish Stock. Mill Blanks and Special-
ties. 930,000 lbs. 24 hours. Highways, U. S.,
12 and 131, 1 mile; State, 43, ½ mile. Phone:
Kalamazoo 3-1651.

WESTERN MICHIGAN COLLEGE, Depart-
ment of Paper Technology. (Alfred H. Nadel-
man, Head of Department; Paul V. Sangren,
Pres.; Wynand Wichers, Vice-Pres.) Five Ex-
perimental Beaters and one Bauer Refiner. One
Noble & Wood Sheet Machine, various Sheet
Molds. Two Experimental Stainless Steel Di-
gesters. Experimental Equipment Used in Pa-
per Making Course and for Commercial Re-
search.

Manistique—Schoolcraft Co.

On Minn., St. Paul & S. Ste. Marie; Manis-
tique and Lk. Sup.; Ann Arbor R. R.

MANISTIQUE PULP & PAPER CO., Man-
istique Div. Main Office, Manistique, Mich.
Owned by Trenton Times Corp., Trenton, N. J.
(Mrs. James Kerney, Pres.; James Kerney, Jr.,
Vice-Pres.; Thomas L. Kerney, Treas.; John E.
Kerney, Asst. Treas.; Mrs. R. G. Kuser, Sec.;
R. G. Hentschell, Gen. Mgr.; R. O. Smith,
Supt.; F. S. Hoholik, Asst. Supt.; M. C. Reid,
Chief Engr.; A. H. Boyd, Pur. Agt.) Railroad
Sidings, Soo and Ann Arbor, R. R. Four 1500-
lb. Beaters. One 166-inch Fourdrinier; widest
trimmed sheet, 155 inches. Water and Electricity.
Groundwood Papers. 170,000 lbs. 24 hours.
GROUND WOOD PULP MILL. Six Maga-
zine Grinders; six Wet Machines. Water and
Electricity. Ground Wood, 124,000 lbs. 24 hours.
Average Daily Consumption of Peeled Pulp
Wood, 60 Cords. Highway, U. S., 2. Phone:
Manistique 160.

Menominee—Menominee Co.

On C. & N. W.; C., M., St. P. & P. R. R.;
Green Bay and Lake Michigan Steamers.

MARATHON CORP., MENOMINEE DIV.
See Corporate Offices, Menasha, Wis. for Cor-
porate Officials. (N. H. Foley, Resident Mgr.;
Ben K. Guenther, Paper Mill Supt.; John A.
Gasperi, Converting Supt.; J. R. Kocha, Plant
Engr.) Six Claflin Refiners, three Jordans and
one Hydrapulper. One 164-inch Black-Clawson
Fourdrinier; widest trimmed sheet, 152 inches; one
136-inch Yankee Fourdrinier; widest trimmed
sheet, 120 inches. Generated Electricity, Coal;
Water Treatment Plant. Bleached Board Special-
ties, Waxing Tissue. 480,000 lbs. 24 hours. High-
ways, U. S., 173 and 41. Phone: Menominee
5596.

MARINETTE PAPER CO. Wholly Owned
Subsidiary of Scott Paper Co. See Exec.
Office, Scott Paper Co., Front and Market Sts.,
Chester, Pa. (Subsidiaries) for Executive Of-
ficers. Principal Office, Marinette, Wis. (Op-
erations Personnel: S. Lang, Supt.; for others
see Marinette Paper Co., Marinette, Wis.) S. P.,
Menominee, Mich. GROUND WOOD MILL.
Three Grinders, four Wet Machines. Ground
Wood. 38,000 lbs. 24 hours. Average Daily
Consumption of Peeled Pulp Wood, 17 Cords.
Highway, U. S., 41, ½ mile. Phone: Marin-
ette 2-6644.

Monroe—Monroe Co.

On N. Y. C.; Penn.; P. M.; D. & T. R. R.

CONSOLIDATED PAPER CO. (Albert H.
Lockwood, Pres. and Treas.; C. Q. Baron, Exec.
Vice-Pres. and Gen. Mgr.; C. H. R. Johnson,
Vice-Pres. in Charge of Mfg.; S. J. Newcomer,
Vice-Pres. and Gen. Sales Mgr.; J. B. Taft,
Vice-Pres.; G. L. Bronson, Vice-Pres.; R. J.
Scheidinger, Sec.) S. P., Railroad Sidings at
Mills. TEST LINER MILL. Two Dilts Beat-
ers, two Continuous Shartle Beaters and twelve
Jordans. Two Machines; widest trimmed sheets,
108 inches and 122 inches. 500,000 lbs. 24 hours.
BOX BOARD MILL. Twenty Dilts Batch Beat-
ers, three Continuous Breaker Beaters and thir-
teen Jordans. Three Machines; widest trimmed
sheets, 103, 112 and 113 inches. 500,000 lbs. 24
hours. STRAW BOARD MILL. Four Jordans,
eleven Washers and sixteen Rotaries. Three Cyl-
inders; widest trimmed sheets, 52, 71 and 88
inches. Steam. Straw Board for Corrugating.
220,000 lbs. 24 hours. PANEL BOARD MILL.
Nine Beaters and four Jordans. Seven Wet Ma-
chines; one 52 inches, four 62 inches and one 96
inches and one 136 inches. Steam. Automobile
Panel. 200,000 lbs. 24 hours. Highways, U. S.,
24, 1 mile East and 25, ½ mile East; State, 56.
Phones: 1200-1204.

MONROE PAPER PRODUCTS CO. Main
Office, 1151 W. Elm Ave. (Burton S. Knapp,
Pres.; Charles E. Raney, Vice-Pres., Gen. Mgr.
and Pur. Agt.; G. A. Blum, Sec.-Treas.; Gene
L. Bennett, Sales Mgr.; Bernard Kirby, Supt.;
Leon Black, Plant Engr.; Robert Harter, Chief
Engr.) Railroad Siding, Pere Marquette R. R.
Seven 1400-lb. Dilts Beaters, two Hydrapulpers,
one Dilts Breaker Beater and ten Jordans. Two
Wet Machines; widest trimmed sheet, 60 inches;
one 68-inch Three Cylinder; widest trimmed
sheet, 60 inches; one 78-inch Three Cylinder;
widest trimmed sheet, 68 inches, and one 124-
inch Seven Cylinder; widest trimmed sheet, 110
inches. Steam and Electricity. Test Liners, Plain
Chip, Set-up Box Board, Automobile Panel
Board, Shipping Containers and Specialties.
270,000 lbs. 24 hours. Highway, U. S., 24
Phone: 2380.

RIVER RAISIN PAPER CO., 1109 E. Elm
Ave. (J. Frank Gray, Board Chairman; Charles
L. Wood, Pres.; J. W. Walter, Vice-Pres. and
Sec.-Treas.; A. J. Goetz, Exec. Vice-Pres.; H.
V. Hodge, Vice-Pres. Sales. Fred B. Attwood,
Vice-Pres. Mfg.; A. W. Schulte, Gen. Sales, Mgr.;
E. F. Hochradel, Dir. of Pur.; Harry L. Lamb,
Dir. of Prod.; M. F. Knack, Mill Mgr.; C. E.
Hanthorne, Chief Engr.; J. Fuko, Chemist; W.
G. Etter, Dir. of Industrial Relations; C. F.
Curson, Traffic Mgr.) S. P., at all mills. MILL
NO. 2. Six 1500-lb. Beaters, one 150-ton Dilts
Hydrapulper, one 112-inch Seven Cylinder Board
Machine; widest trimmed sheet, 100 inches.
MILL NO. 3. Five 1500-lb. Beaters, one 150-
ton (Top Liner) Dilts Hydrapulper and one 150-
ton Dilts Hydrapulper, one 124-inch Seven
Cylinder Board Machine; widest trimmed sheets,
112 inches. MILL NO. 4. Four 1500-lb. Beaters,
one 102-inch Two Cylinder Straw Board Ma-
chine; widest trimmed sheet, 92½ inches. Chip
Boards, Container Boards, Fiber Boards, Solid
Fiber and Corrugated Fiber Shipping Cases and
Corrugated Fiber Packing Materials. 800,000
lbs. 24 hours. Highways, U. S., 24, 2 miles, and
25, 1 mile; State, 56. Phone: Monroe 1300.

Munising—Alger Co.

On L. S. & I., connecting with C. & N. W.
and D. S. S. & A. M. O., Tel. and Ex.

MUNISING PAPER CO., THE. 135 S. La
Salle St., Chicago. (Cola G. Parker, Pres.; John
R. Kimberley, Exec. Vice-Pres.; W. R. Kellett,
Vice-Pres.; O. D. Bast, Sec.-Treas.; E. F. Bar-
tels, Asst. Sec.; J. L. Sensenbrenner, Asst. Sec.-
Treas.; N. J. Niks, Gen. Supt.; J. F. Hechtman,
Res. Dir.; W. Joslin, Pur. and Stores Supr.;
J. H. Hebert, Traffic Mgr.; W. D. Beerman,
Plant Engr.) S. P., at mill. NO. 1 MILL. Ten
1800-lb. Beaters. Two 136-inch Fourdriniers;
widest trimmed sheet, 120 inches. Steam and
Electricity. Bonds, Writing, Mimeograph, Ledger,
Duplicator, Map Paper, Impregnating, Coating
Base Stock and Bleached Specialties. 160,000
lbs. 24 hours. SULPHITE PULP MILL. Three
Digesters; one 84-inch and three 72-inch Wet
Machines. Steam and Electricity. Bleached Sul-
phite Fiber. 180,000 lbs. 24 hours. Highways,
U. S., 41, 30 miles; State, 94 and 28. Phone: 56.

Muskegon—Muskegon Co.

On P. M.; M. R. & Nav. Co.; G. T. P.
R. R.; Muskegon Co. Airport; Greyhound
Bus Lines. M. O., Tel., Bank and Exp.

S. D. WARREN CO., Central Paper Div.,
formerly Central Paper Co., Inc. Office, 2400
Lakeshore Dr. Main Office, 89 Broad St., Bos-
ton, Mass. For Executives, see Main Office.
(Operations Officials: F. W. Roberts, Gen. Mgr.;
Walter E. Woods, Prod. Mgr.; Daniel F. Smith,
Sales Mgr.; H. J. Hotz, Tech. Dir.; W. A.
Wrase, Ch. Engr.; F. W. Eggleston, Pur. Agt.;
D. DeGlopper, Traffic Mgr.; J. N. Fields, Wood-
lands Mgr.) S. P., at mill. Railroad Siding
P. M. R. R. Twenty-six 1200-lb Beaters an

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PARCHMENT • WAXED • LAMINATED
WRAPPING • OFFSET • HOUSEHOLD
THE KVP COMPANY • KALAMAZOO, MICHIGAN

Detroit—Wayne Co.

On M. C.; D. & T. Sh. Line; Det. Ter.; G. T.; N. Y. C.; Penn.; Wabash; D. T. & I.; P. M.; C. P. R. R. M. O., Bank, Exp., Tel. and Air Port.

SCOTT PAPER CO., DETROIT DIV., *formerly Detroit Sulphite Pulp and Paper Co.*, 9125 W. Jefferson Ave., 17. Main Office, Chester, Pa. For executives, see Main Office. At Detroit: G. N. Carleton, Vice-Pres.; R. A. Mills, Asst. Sec.; K. G. Sell, Great Lakes Territorial Sales Mgr.; Roy Davis, Plant Mgr.; M. F. Schnaufer, Plant Engr.; H. B. Randolph, Pur. Agt.) Railroad Siding, Mich. Cent. R. R. DELRAY MILL. S. P., at mill. Twenty-one 1400-lb. Beaters, eleven Refiners, six Jordans and six Paper Machine Ventilator Systems. One 80-inch Fourdrinier and five 120-inch Yankee M. G. Machines; widest trimmed sheet, 120 inches. Purchased and Generated Electricity. Coal. Water Treatment Plant. Toilet Tissue, Mitscherlich Fiber, M. G. Tissue Bleached and Colored, Coating Papers in Bleached, Natural and Colors, Waxing in all Weights, Fourdrinier and Machine Glazed and Specialties. 300,000 lbs. 24 hours. SULPHITE PULP MILL. One Wet Machine and eight Digesters. Steam. Mitscherlich Sulphite Fiber (dry). 300,000 lbs. 24 hours. Phone: Vi 2-0042.

Filer City—Manistee Co.

On M. & N. E.; Pere Marquette R. R. M. O.; nearest Bank and Tel., Manistee, 2½ miles. Nearest Air Port, Manistee-Blacker.

AMERICAN BOX BOARD CO., FILER CITY DIV. Main Office, 470 Market Ave., S. W., Grand Rapids 2, Mich. (Walter S. Goodspeed, Pres., G. B. Bonfield, Vice.-Pres.-Gen. Mgr.; Filer City Div.; Robert K. Stolz, Vice-Pres.-Central Div.; F. W. Oldenburg, Vice-Pres.-Dir. of Sales; Harrison L. Goodspeed, Sec.; C. C. Boyer, Treas.; G. Diesk, Operation Mgr.; M. Nossaman, Prod. Mgr.; F. J. Morrison, Sales Office Mgr.; D. Elliott, Engr. Mgr.; E. Beauvais, Tech. Dept. Mgr.; A. F. Koller, Woodlands Mgr.; W. Linke, Pur. Agt. and Traffic Mgr.) S. P., Manistee. Railroad Siding, M. & N. E. R. R. Two Sutherland Refiners, nine Jordans, one Pulper, one Filter and two Ross Paper Machine Ventilator Systems. One 162-inch and one 176-inch Fourdriniers; widest trimmed sheets, 148 and 156 inches. Eighty-eight Driers, 5 ft. in Diameter, 154 and 168 inches wide. Purchased Electricity, 13,000 k.w., 60 Cycles, 3 Phase, 440 and 4160 v. Motors, Turbine Drives. Coal. 600-lb. Steam Pressure. Water Treatment Plant. .009 Corrugating Medium and Facing Paper. 680,000 lbs. 24 hours. SEMI-CHEMICAL PULP MILL. Four Digesters, two B. K. Continuous Dig. Chemipulpers, and seven Sprout Waldron Grinders. Steam and Electricity. 680,000 lbs. 24 hours. Average Daily Consumption of Peeled Pulp Wood, 470 Cords. Highway, U. S., 31. 2 miles. Phone: Manistee 1500.

Grand Rapids—Kent Co.

On G. T.; M. C.; N. Y. C.; Penn.; P. M. R. R.

AMERICAN BOX BOARD CO. Main Office, 470 Market Ave., S.W., Grand Rapids, 2. (W. S. Goodspeed, Pres.; Robert K. Stolz, Vice-Pres. Central Div.; Gordon B. Bonfield, Vice-Pres. and Gen. Mgr.—Filer City Div.; F. W. Oldenburg, Vice-Pres.—Dir. of Sales.; H. L. Goodspeed, Sec.; C. C. Boyer, Treas.; E. M. Dean, Mgr.; H. Hartman, Supt.; R. P. Aument, Tech. Dir.; I. P. Nicole, Eng. Mgr.; R. D. James, Sales Mgr.; R. L. Hall, Dir. of Pur.; Wm. Glaske, Traffic Mgr.) S. P., at mill. Four Breaker Beaters, twelve Jordans, ten Finishing Beaters and one Pulper. Two 122-inch Six Cylinders; widest trimmed sheet, 112 inches. Generate own power, 3 Phase, 60 Cycle, 440 v. *High Grade Box Boards and Test Liners.* 400,000 lbs. 24 hours. Highways, U. S., 131, 1 mile; State, 50 and 21, 1 mile. Phone: 9-4581.

Groos—Delta Co.

On E. & L. S. R. R. M. O., Tel. and Band at Escanaba, 6 miles.

ESCANABA PAPER CO. P. O. Address, Escanaba. Subsidiary, The Mead Corp., Dayton, Ohio. (Sydney Ferguson, Chairman of Board; E. G. Bennett, Pres.; G. S. Douglas, Vice-Pres. and Gen. Mgr.; Murray Smith, Sec.; Stack Smith, Treas. and Asst. Sec.; F. D. Schnacke, Asst. Sec.; H. L. Belanger, Compt.; O. C. Christiansen, Supt.; G. C. Eastin, Tech. Dir.; R. H. Sogard, Plant Engr.; H. J. Vanlerberghe, Traffic Mgr.) Railroad Siding, Escanaba & Lake Superior R. R. Three 1500-lb. Beaters, one Hydrapulper. Two 166-inch Fourdriniers; widest trimmed sheet, 155 inches. Steam. Electricity and Water. Coated Books, Bleached Groundwood Content Uncoated Book Papers and Specialties. 350,000 lbs. 24 hours. GROUNDWOOD MILL. Seventeen Grinders and four Wet Machines. Hydro-Electric. Ground Wood. 250,000 lbs. 24 hours. Average Daily Consumption of Peeled Pulp Wood, 80 Cords, 160 cu. ft. Unit Basis. Highways, U. S., 2 and 41; State, 35. Phone: Escanaba 348.

Kalamazoo—Kalamazoo Co.

On M. C.; N. Y. C.; Penn.; C. K. & S.; G. T. R. R. Greyhound Bus, 4 miles from Air Port. M. O., Exp., Tel. and Bank.

ECCO CLAYS
FOR COATING and FILLING
CLAYS
English China Clays Sales Corporation
551 Fifth Ave.—New York

MHI-00008

ALLIED PAPER MILLS, 1608 Lake St. (D. R. Curtenius, Pres., Gen. Mgr. and Sales Mgr.; F. C. Fisher, Vice-Pres. and Sec.-Treas.; Herbert Johnston, Vice-Pres. and Chief Engr.; Wm. A. Kirkpatrick, Vice-Pres. and Tech. Dir.; E. J. Gilman, Vice-Pres.; C. F. Chaplin, Vice-Pres.; C. B. Crossley, Asst. Sec.-Treas.; C. A. Yonker, Pur. Agt.; O. V. Mason, Traffic Mgr.) KING DIV. S. P., Kalamazoo, Mich. Four 1200-lb. and nine 2000-lb. Beaters and eight Jordans. Improved Washing System. One 120, one 125, one 134 and one 144-inch Fourdriniers; widest trimmed sheets, 105, 108, 115, and 128 inches. Width of Super Calenders, 35 inches min. to 123 inches max. Steam and Electricity. Also Coating Mill. 400,000 lbs. 24 hours. MONARCH DIV. S. P., Kalamazoo, Mich. Six 2400-lb. Beaters, four Jordans, two Improved Washers and five Rotaries. One 124-inch and one 132-inch Fourdriniers; widest trimmed sheets, 110 and 118 inches. Width of Super Calender, 58 inches. Water, Steam and Electricity. Also Coating Mill. GRADES MADE. Machine Finish, English Finish, Super-Calendered, Catalogue, Bible French Folio, Offset, Map, Eggshell, Bond, Envelope, Writing Tablet, Mimeograph, Poster, Lithograph, Label, Music, Drawing, Box Cover, *Linings*. 200,000 lbs. 24 hours, COATED: Lithographed, Label, Dull Finish, Folding Enamel, Insert, Cover Featherweight, Varnish Label, Blanks, Post Card and Gloss Ink Papers. All divisions, 750,000 lbs. 24 hours. Highway, U. S., 12. Phone: 8101.

HAWTHORNE PAPER CO., P. O. Box 906, King Highway. (William Slavin, Pres., Treas. and Gen. Mgr.; J. L. Slavin, Vice-Pres.; S. R. Zatz, Sec.; Warren Girard, Prod. Mgr. and Pur. Agt.; Fred Hodgmire, Supt.; C. Frederick Young, Tech. Dir.; Elwood Eddy, Chief Eng.; E. M. Betz, Traffic Mgr.) Railroad Siding, M. C. R. R., ¼ mile east of city limits. Twelve Beaters, two Jordans, two Refiners and two Pulpers. Ross Paper Machine Ventilator System. One 92-inch and one 105-inch Fourdriniers; widest trimmed sheets, 82 and 92 inches. Fifty-eight Driers, 42 inches in Diameter, 92 and 105 inches wide. Purchased and Generated Electricity. Coal. 275-lb. Steam Pressure. Water Treatment Plant. Turbine and Other Drives. Rag Bond, Ledger, Bristol, Vellum, Sulphite Text and Cover, Technical Papers, Specialty Papers, Rag Book, Weddings, Papeteries, Photogelatin Paper. 82,000 lbs. 24 hours. Highway, U. S., 12, ¼ mile. Phone: 5-1163.

KALAMAZOO PAPER CO., Main Office, 2210 E. Michigan Ave. (*James A. Wise, Pres.* and Gen. Mgr.; B. H. Cooper, Vice-Pres., Dir. Pur.; J. M. Causey, Vice-Pres. and Sales Mgr.; F. B. Curtenius, Sec.-Treas.; Robert W Polderman, Chief Engr.; M. R. Wilkins, Tech. Dir.; Ralph Nichols, Traffic Mgr.) Railroad Siding, N. Y. C. & G. T. W. MILL NO. 1. Eight 1500-lb. Beaters, four Jordans, five Rotaries and Washing Equipment. One 133-inch and one 142-inch Fourdriniers; widest trimmed sheets, 120 inches and 130 inches. Tub Sizing Equipment on Both Machines. MILL NO. 2. Six 1500-lb Beaters, four Jordans, four Rotaries and Washing Equipment. One 100-inch and one 116-inch Fourdriniers; widest trimmed sheets, 90 inches and 105 inches. Tub Sizing Equipment on both Machines. MILL NO. 3. Four 1500-lb. and four 2000-lb. Beaters, four Jordans, one Hydrapulper and Washing Equipment. One 145-inch and one 167-inch Fourdriniers; widest trimmed sheets, 136 inches and 156 inches. Super Calenders up to 80 inches wide. Steam and Electricity. M. F., English Finish, Super Offset, Mimeograph, Writing, Label, Music, Drawing, Linings and Hangings. 450,000 lbs. 24 hours. Highway, U. S., 12, 2 miles East. Phone: 3-2667.

NATIONAL GYPSUM CO. Main Office, 325 Delaware Ave., Buffalo 2, N. Y. (M. H. Baker, Chairman of Board; L. R. Sanderson, Pres.; F. A. Manske, Vice-Pres. Operations; W. F. Anderson, Vice-Pres. Mfg.; L. L. Hank, Gen. Prod. Mgr.; W. J. Sprau, Prod. Mgr.-Paper; E. M. Baker, Plant Mgr.) Railroad Siding, Mich. Cent. Three 1800-lb. HS Beaters, one 150-ton Pulper, and six Jordans. One 108-inch Eight Cylinder; widest trimmed sheet, 100 inches. Steam and Electricity. Gypsum Liner Board Paper, 270,000 lbs. 24 hours. Highway, U. S., 12. Phone: 3-1275.

REX PAPER CO., P. O. Box 751. (Helen R. King, Pres. and Treas.; J. E. Lean, Vice-Pres. Sec. and Gen. Mgr.; A. K. Parker, Vice-Pres.; W. J. Howard, Vice-Pres.; Arthur W. Cole, Supt.; G. R. Haggerson, Chief Chem.; J. G. Ruimveld, Pur. Agt.; N. F. Themins, Traffic Mgr.) S. P., Kalamazoo. Railroad Sidings, two on N. Y. C. Four 1400-lb. J. H. Horne & Sons Beaters, two Horne Jordans, two E. D. Jones Co. Paper Washers, one 1200-lb. Rag Washer and one McNeal Rotary, one Bleacher and three Screens. One 113-inch Fourdrinier; widest trimmed sheet, 104½ inches. Twenty-six Driers, 48 inches in Diameter and 110 inches Wide. Purchased and Generated Electricity. Electric and Turbine Drives. Coal. 200 and 155 p.s.i. Steam Pressures. Coated Book Papers, Offset, English Finish Book. 60,000 lbs. 24 hours. Also Six Machine Coating Mills. Highways, U. S., 12; Phone: 2-0151.

ST. REGIS PAPER CO., Main Office, 230 Park Ave., New York 17, N. Y. KALAMAZOO MILL: (W. E. Caldwell, Jr., Res. Mgr.; F. H. Pepe, Office Mgr.; R. A. Larson, Gen. Supt.; M. J. Killian, Tech. Dir.; R. S. Welsh, Plant Engr.; H. H. Gilman, Traffic Mgr. (Kalamazoo) H. L. Smith, Traffic Mgr. (Chicago), D. C. Grebe, Pur. Agt.) One 137-inch, one 139-inch, one 141-inch, one 154-inch, and one 164-inch Fourdriniers; widest trimmed sheet, 152 inches. Width of Super-Calenders, 60-64-70-90 and 160 inches. Steam and Electricity. Machine Finish, Eggshell, Roto, Supercalendered Book, Litho, Coating Raw Stock, Label, Music, Offset, Catalog, Bible, Writing and Specialties. 450,000 lbs. 24 hours. COATING MILL. C1S and C2S Enamels, Label, Cover, Inserts, etc. 200,000 lbs. 24 hours. Waste Paper Pulp. High-

James, Sales Mgr.; R. L. Hall, Dir. of Pur.; Wm. Glaske, Traffic Mgr.) S. P., at mill. Four Breaker Beaters, twelve Jordans, ten Finishing Beaters and one Pulper. Two 122-inch Six Cylinders; widest trimmed sheet, 112 inches. Generate own power, 3 Phase, 60 Cycle, 440 v. High Grade Box Boards and Test Liners. 400,000 lbs. 24 hours. Highways, U. S., 131, 1 mile; State, 50 and 21, 1 mile. Phone: GL. 9-4581.

Groos—Delta Co.

On E. & L. S. R. R. Exp., M. O., Tel. and Bank at Escanaba, 6 miles.

ESCANABA PAPER CO. P. O. Address, Escanaba. Subsidiary, The Mead Corp., Dayton, Ohio. (Sydney Ferguson, Chairman of Board; E. G. Bennett, Pres.; G. S. Douglas, Vice-Pres. and Gen. Mgr.; F. D. Schnacke, Sec.; Stack Smith, Treas. and Asst. Sec.; Geo. Robinson, Asst. Sec.; H. L. Delanger, Compt.; O. C. Christiansen, Supt.; G. C. Eastin, Tech. Dir.; R. H. Sogard, Plant Engr.; H. J. Vanderberghe, Traffic Mgr.) Railroad Siding, Escanaba & Lake Superior R. R. Three 1500-lb. Beaters, one Hydrapulper. Two 166-inch Fourdriniers; widest trimmed sheet, 155 inches. Steam. Electricity and Water. Coated Books, Bleached Groundwood Content Uncoated Book Papers and Specialties. 400,000 lbs. 24 hours. GROUND WOOD MILL. Seventeen Grinders and four Wet Machines. Hydro-Electric. Ground Wood. 200,000 lbs. 24 hours. Average Daily Consumption of Peeled Pulp Wood, 90 (128 cu. ft) Cords. Highways, U. S., 2 and 41; State, 35. Phone: Escanaba 348.

Kalamazoo—Kalamazoo Co.

On M. C.; N. Y. C.; Penn.; C. K. & S.; G. T. R. R. Greyhound Bus, 4 miles from Air Port. M. O., Exp., Tel. and Bank.

ALLIED PAPER CORP., Main Office, Prudential Plaza, 140 E. Randolph St., Chicago, Ill., formerly Allied Paper Mills, 1608 Lake St. (Arnold Maremont, Chairman; C. F. Chaplin, Vice-Pres. and Sales Mgr.; W. A. Kirkpatrick, Vice-Pres. and Tech. Dir.; H. B. Johnston, Vice-Pres. and Chief Engr.; E. J. Gilman, Vice-Pres. and Prod. Mgr.; C. J. Wainwright, Asst. Sales Mgr.; V. Weaver, Supt.; C. B. Crossley, Asst. Sec.-Treas.; C. A. Yonker, Pur. Agt.; O. V. Mason, Traffic Mgr.; G. A. Littlefield, Compt.) KING MILL. S. P., Kalamazoo, Mich. Four 1200-lb. and nine 2000-lb. Beaters and eight Jordans. Improved Washing System. One 120-, one 125-, one 134- and one 144-inch Fourdriniers; widest trimmed sheets, 105, 108, 115 and 128 inches. Width of Super-Calenders, 35 inches min. to 123 inches max. Steam and Electricity. Also Coating Mill. MONARCH MILL. S. P., Kalamazoo, Mich. Six 2400-lb. Beaters, four Jordans, two Improved Washers and five Rotaries. One 124-inch and one 132-inch Fourdriniers; widest trimmed sheets, 110 and 118 inches. Width of Super-Calender, 58 inches. Water, Steam and Electricity. Also Coating Mill. BRYANT MILL. One 137-inch, one 139-inch, one 141-inch, one 154-inch, and one 164-inch Fourdriniers; widest trimmed sheet, 152 inches. Width of Super-Calenders, 60, 64, 70, 90 and 160 inches. Steam and Electricity. Also Coating Mill. GRADES MADE (Uncoated). Machine Finish, English Finish, Duplicator, Catalogue, Offset, Map, Eggshell, Writing Tablet, Mimeograph, Poster, Label, Music, Drawing, Box Cover, Linings, Roto, Lith. Coating Raw Stock, Bible and Specialties. 600,000 lbs. 24 hours. COATED: Offset, Label, Dull Finish, Folding Enamel, Cover, Varnish Lake, Post Card, Gloss Ink Papers, C1S and C2S Enamels, Inserts. 400,000 lbs. 24 hours. Highways, U. S., 12 and 131; State, 43 and 96. Phone: Fireside 3-6101.

HAWTHORNE PAPER CO., P. O. Box 9, King Highway. (William Slavin, Pres., Treas. and Gen. Mgr.; J. L. Slavin, Vice-Pres.; S. J. Zatz, Sec.; Louis J. Slavin, Asst. Sec. and P. A. Agt.; Fred Hodgmire, Supt.; C. Frederick York, Tech. Dir.; E. M. Betz, Traffic Mgr.) Railroad Siding, M. C. R. R., ¼ mile east of city limits. Twelve Beaters, two Jordans, four Refiners and two Pulpers. Ross Paper Machine Ventilator System. One 92-inch and one 105-inch Fourdriniers; widest trimmed sheets, 82 and 92 inches. Four Driers, 52 inches in Diameter, 92 and 105 inches wide. Purchased and Generated Electricity. Coal. 275-lb. Steam Pressure. Water Treatment Plant. Turbine and Other Drives. Rag Bond, Ledger, Bristol, Vellum, Sulphite Text and Cover, Technical Papers, Special Papers, Rag Book, Weddings, Papeteries, Photogelatin Paper. 90,000 lbs. 24 hours. Highway, U. S., 12, ¼ mile. Phone: 5-1163.

KALAMAZOO PAPER CO. Main Office, 2210 E. Michigan Ave. (James A. Wise, Pres. and Gen. Mgr.; B. H. Cooper, Vice-Pres. and Dir. Pur.; J. M. Causey, Vice-Pres. and Sales Mgr.; F. B. Curtenius, Sec.-Treas.; Robert Polderman, Chief Engr.; M. R. Wilkins, Tech. Dir.; Ralph Nichols, Traffic Mgr.) Railroad Siding, N. Y. C. & G. T. W. MILL NO. 1. Eight 1500-lb. Beaters, four Jordans, Six Rotaries and Washing Equipment. One 142-inch and one 142-inch Fourdriniers; widest trimmed sheets, 120 inches and 130 inches. Tub Sizing Equipment on Both Machines. MILL NO. 2. Six 1500-lb Beaters, four Jordans, Six Rotaries and Washing Equipment. One 124-inch and one 116-inch Fourdriniers; widest trimmed sheets, 90 inches and 105 inches. Tub Sizing Equipment on both Machines. MILL NO. 3. Four 1500-lb. and four 2000-lb. Beaters, four Jordans, one Hydrapulper and Washing Equipment. One 145-inch and one 167-inch Fourdriniers; widest trimmed sheets, 136 inches and 156 inches. Super Calenders up to 80 inches wide. Steam and Electricity. M. F. English Finish, Super Offset, Mimeograph, Writing, Label, Music, Drawing, Linings and Hangings. 450,000 lbs. 24 hours. Highway, U. S., 12, 2 miles East; Old U. S. 12 continues from junction as State 96. Phone: 3-2667.

NATIONAL GYPSUM CO., Main Office, 325 Delaware Ave., Buffalo 2, N. Y. (M. H. Baker, Chairman of Board; F. A. Manske, Pres.; L. L. Hank, Vice-Pres. Mfg.; W. F. Anderson, Vice-Pres. Operations; W. J. Sprau, Prod. Mgr.-Paper; E. M. Baker, Plant Mgr.) Railroad Siding, Mich. Sugar. Three 1800-lb. HS Beaters, one 150-ton Digester, and six Jordans. One 108-inch Eight Drier; widest trimmed sheet, 100 inches. Steam and Electricity. Gypsum Liner Board Paper, 1,000 lbs. 24 hours. Highway, U. S., 12. Phone: 3-1275.

REX PAPER CO., P. O. Box 751. (Helen [illegible] King, Pres. and Treas.; J. E. Lean, Vice-Pres. Sec. and Gen. Mgr.; A. K. Parker, Vice-Pres.; W. J. Howard, Vice-Pres.; Arthur W. [illegible], Supt.; G. R. Haggerson, Chief Chem.; J. [illegible] Rumveld, Pur. Agt.; N. F. Themins, Traffic Mgr.) S. P., Kalamazoo. Railroad Siding, two on N. Y. C. Four 1400-lb. J. H. [illegible] & Sons Beaters, two Horne Jordans, two U. D. Jones Co. Paper Washers, one 2000-lb. Jones Pulpmaster, one Bleacher and three Screens. One 113-inch Fourdrinier; widest trimmed sheet, [illegible] inches. Twenty-six Driers, 48 inches in Diameter and 110 inches Wide. Purchased and Generated Electricity. Electric and Turbine Drives. Coal. 200 and 155 P.S.I. Steam Pressure. Coated Book Papers, English Finish Book. [illegible],000 lbs. 24 hours. Also six Machine Coating [illegible]. Highway, U. S., 12. Phone: 2-0151.

ST. REGIS PAPER CO., Leased on long term [illegible] option to buy to Thor Corp. See report of [illegible] Mill under Allied Paper Corp., Kalamazoo, Mich.

SUTHERLAND PAPER CO., Main Office, [illegible] E. Paterson, 13D. (L. W. Sutherland, Chairman; William Race, Pres.; G. E. Gra[illegible], Vice-Pres.; A. L. Sherwood, Vice-Pres.; [illegible] A. Angotti, Vice-Pres.; L. W. Sutherland, Jr., Vice-Pres.; J. T. Kirkpatrick, Vice-Pres.; [illegible] Galbraith, Vice-Pres.; E. W. Smith, Sec.-Treas.; B. C. White, Cont.; D. D. Bachelder, Pur. Agt.; C. L. Fenstermaker, Traffic Mgr.) EAST SIDE PLANT. (Arnold Weller, Supt.) Five Rotaries. One Seven Cylinder; widest trimmed sheet, 93 inches. Steam and Electricity. Folding Box Boards. 250,000 lbs. 24 hours. [illegible] MILL SIDE PLANT. (Glen Sutton, Supt.) [illegible] Railroad Sidings, C. K. & S. P. R. R. and N. Y. C. R. R. Five 1650-lb. and five 2000-lb. Beaters, one Shartle Beater, six Hydrapulpers and four Hydrafiners, three Continuous Broke Beaters and seventeen Jordans. One 100-inch Six Cylinder, one 116-inch Seven Cylinder and one 132-inch Seven Cylinder and one 154-inch Eight Cylinder; widest trimmed sheets, 92, 102, 120 and 138 inches. Steam and Electricity. White Patent Coated News, Single Manila Lined, Bleached Manila, Mist Gray Lined, News Vat Lined and Plain Chip, Filled, Solid and Double Manila Lined News, Butter Carton, Ice Cream Pail, Oyster Pail and Butter Dish Stock, Mill Blanks and Specialties. 930,000 lbs. 24 hours. Highways, U. S., 12 and 131, 1 mile; State, 43, ½ mile. Phone: Kalamazoo Fireside 3-1651.

WESTERN MICHIGAN COLLEGE, Department of Paper Technology. (Alfred H. Nadelman, Head of Department; Paul V. Sangren, Pres.; Wynand Wichers, Vice-Pres.) Five Experimental Beaters and one Bauer Refiner. One Noble & Wood Sheet Machine, various Sheet Molds. Two Experimental Stainless Steel Digesters. Experimental Equipment Used in Paper Making Course and for Commercial Research.

L'Anse—Baraga Co.

CELOTEX CORP. (See Main Office, 120 S. La Salle St., Chicago 3, Ill., for executives.) $6,000,000 fiberboard mill under construction. Completion scheduled for end of 1957.

Manistique—Schoolcraft Co.

On Minn., St. Paul & S. Ste. Marie; Manistique and Lk. Sup.; Ann Arbor R. R.

MANISTIQUE PULP & PAPER CO. Main Office, Manistique, Mich. Owned by Trenton Times Corp., Trenton, N. J. (Mrs. James Kerney, Pres.; James Kerney, Jr., Vice-Pres.; Thomas L. Kerney, Treas.; John E. Kerney, Asst. Treas.; Mrs. R. G. Kuser, Sec.; F. S. Hoholik, Gen. Mgr.; W. Hampton, Supt.; M. C. Reid, Chief Engr.; C. L. Wedell, Pur. Agt.) Railroad Sidings, Soo and Ann Arbor R. R. Four 1500-lb. Beaters. One 166-inch Fourdrinier; widest trimmed sheet, 155 inches. Water and Electricity. Groundwood Papers. 170,000 lbs. 24 hours. GROUND WOOD PULP MILL. Six Magazine Grinders; six Wet Machines. Water and Electricity. Ground Wood, 124,000 lbs. 24 hours. Average Daily Consumption of Peeled Pulp Wood, 60 Cords. Highway, U. S., 2. Phone: Manistique 160.

Menominee—Menominee Co.

On C. & N. W.; C., M., St. P. & P. R. R. Green Bay and Lake Michigan Steamers.

MARATHON CORP. See Menasha, Wis., for Corporate Officials. (N. H. Foley, Plant Mgr.; Ben K. Guenther, Paper Mill Supt.; John A. Gasperi, Converting Supt.; J. R. Kocha, Plant Engr.) Six Claflin Refiners, three Jordans and one Hydrapulper. One 164-inch Black-Clawson Fourdrinier; widest trimmed sheet, 152 inches; one 136-inch Yankee Fourdrinier; widest trimmed sheet, 120 inches. Generated Electricity, Coal. Water Treatment Plant. Bleached Board Specialties,

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ice-Pres. and Tech. Dir.; H. B. Johnston, Vice-res. and Chief Engr.; E. J. Gilman, Vice-res. and Prod. Mgr.; James McCure, Vice-res.; Herman Bernick, Sec.-Treas.; C. J. Wainright, Sales Mgr.; V. Weaver, Supt.; C. B. rossley, Asst. Sec.-Treas. C. A. Yonker, ur. Agt.; O. V. Mason, Traffic Mgr.) ING MILL. S. P., Kalamazoo, Mich. Four 00-lb. and nine 2000-lb. Beaters and eight rdans. Improved Washing System. One 120-, ne 125-, one 134- and one 144-inch Fourdriniers; idest trimmed sheets, 105, 108, 115 and 128 ches. Width of Super-Calenders, 35 inches min. 123 inches max. Steam and Electricity. Also oating Mill. MONARCH MILL. S. P., Kalamazoo, Mich. Six 2400-lb. Beaters, four Jordans, o Improved Washers and five Rotaries. One 4-inch and one 132-inch Fourdriniers; widest mmed sheets, 110 and 118 inches. Width of per-Calender, 58 inches. Water, Steam and lectricity. Also Coating Mill. BRYANT MILL: ne 137-inch, one 139-inch, one 141-inch, one 4-inch, and one 164-inch Fourdriniers; widest mmed sheet, 152 inches. Width of Super-Calenrs, 60, 64, 70. 90 and 160 inches. Steam and ectricity. Also Coating Mill: GRADES MADE ncoated). Machine Finish, English Finish, uplicator, Catalogue, Offset, Map, Eggshell, riting Tablet, Mimeograph, Poster, Label, Mu-, Drawing, Box Cover, Linings, Roto, Litho, ating Raw Stock, Bible and Specialties. 600,000 s. 24 hours. COATED: Offset, Label, Dull nish, Folding Enamel, Cover, Varnish Label, st Card, Gloss Ink Papers, C1S and C2S Enels, Inserts. 400,000 lbs. 24 hours. SEMI-HEMICAL AND DE-INKING PULP MILL. vo Digesters. Bleached Semi-Chemical Pulp, 0,000 lbs. 24 hours. (Pulp mill under construcn, expected to be in operation, January, 1959.) ghways, U. S., 12 and 131; State, 43 and 96. one: FIreside 3-6101.

HAWTHORNE PAPER CO., P. O. Box 906, ng Highway. (William Slavin, Pres., Treas. and n. Mgr.; Louis J. Slavin, Administrative Vice-es.; Fred M. Hodgemire, Vice-Pres. c/o Proction; S. R. Zatz, Sec.; C. Frederick Young, ch. Dir.; E. M. Betz, Traffic Mgr.) Railroad ling, M. C. R. R., ¼ mile east of city limits. n Beaters, two Jordans, four Refiners and ee Pulpers. Ross Paper Machine Ventilator Sysn. One 92-inch and one 105-inch Fourdriniers; dest trimmed sheets, 82 and 92 inches. Fifty-ht Driers, 42 inches in Diameter, 92 and 105 ches wide. Purchased and Generated Elecity. Coal. 275-lb. Steam Pressure. Water eatment Plant. Turbine and Other Drives. g Bond, Ledger, Bristol, Vellum, Sulphite xt and Cover, Technical Papers, Specialty pers, Rag Book, Weddings, Papeteries, Photelatin Paper. 100,000 lbs. 24 hours. High-y, U. S., 12, ¼ mile. Phone: FIreside 5-1163.

KALAMAZOO PAPER CO., Main Office, 0 E. Michigan Ave. (James A. Wise, Pres. d Gen. Mgr.; B. H. Cooper, Vice-Pres., r. Pur.; J. M. Causey, Vice-Pres. and Sales gr.; F. B. Curtenius, Sec.-Treas.; Robert W lderman, Chief Engr.; M. R. Wilkins, Tech. Dir.; Ralph Nichols, Traffic Mgr.) Railroad Siding, N. Y. C. & G. T. W. MILL NO. 1. Eight 1500-lb. Beaters, four Jordans, five Rotaries and Washing Equipment. One 133-inch and one 142-inch Fourdriniers; widest trimmed sheets, 120 inches and 130 inches. Tub Sizing Equipment on Both Machines. MILL NO. 2. Six 1500-lb Beaters, four Jordans, four Rotaries and Washing Equipment. One 100-inch and one 116-inch Fourdriniers; widest trimmed sheets, 90 inches and 105 inches. Tub Sizing Equipment on both Machines. MILL NO. 3. Four 1500-lb., three 2000-lb. and two 3000-lb. Beaters, one Pulp Master, seven Jordans, one Hydrapulper and Washing Equipment. One 145-inch, one 167-inch and one 180-inch Fourdriniers; tub sizing equipment on 180-inch machine; widest trimmed sheets, 135 inches, 156 inches and 167 inches. Super Calenders up to 80 inches wide. Steam and Electricity. M. F., English Finish, Super Offset, Mimeograph, Writing, Label, Music, Drawing, Linings and Hangings. 600,000 lbs. 24 hours. Highway, U. S., 12, 2 miles East; Old U. S. 12 continues from junction as State 96. Phone: FI. 3-2667.

NATIONAL GYPSUM CO. Main Office, 325 Delaware Ave., Buffalo 2, N. Y. (M. H. Baker, Chairman of Board; F. A. Manske, Pres.; L. L. Hank, Vice-Pres. Mfg.; W. F. Anderson, Vice-Pres. Operations; E. W. Odenwaldt, Gen. Prod. Mgr.; W. J. Sprau, Prod. Mgr.-Paper; E. M. Baker, Plant Mgr.) Railroad Siding, Mich. Cent. Three 1800-lb. HS Beaters, one 150-ton Pulper, and six Jordans. One 108-inch Eight Cylinder; widest trimmed sheet, 100 inches. Steam and Electricity. Gypsum Liner Board Paper, 270,000 lbs. 24 hours. Highway, U. S., 12. Phone: 3-1275.

REX PAPER CO., P. O. Box 751. (Helen R. King, Pres. and Treas.; J. E. Lean, Vice-Pres. Sec. and Gen. Mgr.; A. K. Parker, Vice-Pres.; W. J. Howard, Vice-Pres.; Arthur W. Cole, Supt.; G. R. Haggerson, Chief Chem.; J. G. Ruimveld, Pur. Agt.; N. F. Themins, Traffic Mgr.) S. P., Kalamazoo. Railroad Sidings, two on N. Y. C. Four 1400-lb. J. H. Horne & Sons Beaters, two Horne Jordans, two E. D. Jones Co. Paper Washers, one 2000-lb. Jones Pulpmaster, one Bleacher and three Screens. One 113-inch Fourdrinier; widest trimmed sheet, 104½ inches. Twenty-six Driers, 48 inches in Diameter and 110 inches Wide. Purchased and Generated Electricity. Electric and Turbine Drives. Coal. 200 and 155 p.s.i. Steam Pressures. Coated Book Papers, English Finish Book. 60,000 lbs. 24 hours. Also six Machine Coating Mills. Highway, State, 96. Phone: FI. 2-0151.

ST. REGIS PAPER CO. Leased on long term with option to buy to Thor Corp. See report of Bryant Mill under Allied Paper Corp., Kalamazoo, Mich.

SUTHERLAND PAPER CO. Main Office, 243 E. Paterson, 13D. (L. W. Sutherland, Chairman; William Race, Pres.; G. E. Graham, Vice-Pres.; A. L. Sherwood, Vice-Pres.; S. A. Angotti, Vice-Pres.; L. W. Sutherland, Jr., Vice-Pres.; J. T. Kirkpatrick, Vice-Pres.; Martin Galbraith, Vice-Pres.; E. W. Smith, Sec.-Treas.; B. C. White, Cont.; D. D. Bachelder, Pur. Agt.; C. L. Fenstermaker, Traffic Mgr.) EAST SIDE PLANT. (Arnold Weller, Supt.) Five Refiners. One Seven Cylinder; widest trimmed sheet, 93 inches. Steam and Electricity. Folding Box Boards. 250,000 lbs. 24 hours. NORTH SIDE PLANT. (Glen Sutton, Supt.) Railroad Sidings, C. K. & S. P. R. R. and N. Y. C. R. R. Five 1650-lb. and five 2000-lb. Beaters, one Shartle Beater, six Hydrapulpers and four Hydrafiners, three Continuous Broke Beaters and seventeen Jordans. One 100-inch Six Cylinder, one 116-inch Seven Cylinder and one 132-inch Seven Cylinder and one 154-inch Eight Cylinder; widest trimmed sheets, 92, 102, 120 and 138 inches. Steam and Electricity. White Patent Coated News, Single Manila Lined, Bleached Manila, Mist Gray Lined, News Vat Lined and Plain Chip, Filled, Solid and Double Manila Lined News, Butter Carton, Ice Cream Pail, Oyster Pail and Butter Dish Stock, Mill Blanks and Specialties. 930,000 lbs. 24 hours. Highways, U. S., 12 and 131, 1 mile; State, 43, ½ mile. Phone: Kalamazoo FIreside 3-1651.

WESTERN MICHIGAN UNIVERSITY, Department of Paper Technology. (Alfred H. Nadelman, Head of Department; Paul V. Sangren, Pres.) Five Experimental Beaters and one Bauer Refiner. One Noble & Wood Sheet Machine, various Sheet Molds. Two Experimental Stainless Steel Digesters. Experimental Equipment Used in Paper Making Course and for Commercial Research.

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Manistique—Schoolcraft Co.

On Minn., St. Paul & S. Ste. Marie; Manistique and Lk. Sup.; Ann Arbor R. R.

MANISTIQUE PULP & PAPER CO. Main Office, Box 111, Manistique, Mich. Owned by Trenton Times Corp., Trenton, N. J. (Mrs. James Kerney, Pres.; James Kerney, Jr., Vice-Pres.; Thomas L. Kerney, Treas.; John E. Kerney, Asst. Treas.; Mrs. R. G. Kuser, Sec.; F. S. Hoholik, Gen. Mgr.; W. Hampton, Supt.; M. C. Reid, Chief Engr.; F. J. Kasun, Pur. Agt.) Railroad Sidings, Soo and Ann Arbor R. R. Two 3000-lb. Beaters. One 166-inch Fourdrinier; widest trimmed sheet, 155 inches. Water and Electricity. Groundwood Papers. 170,000 lbs. 24 hours. GROUND WOOD PULP MILL. Six Magazine Grinders; six Wet Machines. Water and Electricity. Ground Wood. 124,000 lbs. 24 hours. Average Daily Consumption of Peeled Pulp Wood, 60 Cords. Highway, U. S., 2. Phone: Manistique 160.

1958

Menominee—Menominee Co.

On C. & N. W.; C., M., St. P. & P. R. R. Green Bay and Lake Michigan Steamers.

MARATHON CORP. See Menasha, Wis., for Corporate Officials. (N. H. Foley, Plant Mgr.; Ben K. Guenther, Paper Mill Supt.; John A. Gasperi, Converting Supt.; Martti Lundstrom, Plant Engr.) Six Claflin Refiners, three Jordans and one Hydrapulper. One 164-inch Black-Clawson Fourdrinier; widest trimmed sheet, 152 inches; one 136-inch Yankee Fourdrinier; widest trimmed sheet, 120 inches. Generated Electricity. Coal. Water Treatment Plant. Bleached Board Specialties. Waxing Tissue. 540,000 lbs. 24 hours. Highways, U. S., 173 and 41. Phone: Menominee 5596.

MARINETTE PAPER CO. Wholly Owned Subsidiary of Scott Paper Co. See Exec. Office, Scott Paper Co., Front and Market Sts., Chester, Pa. (Subsidiaries) for Executive Officers. Principal Office, Marinette, Wis. (Operations Personnel: S. J. Lang, Supt.; for others see Marinette Paper Co., Marinette, Wis.) S. P., Menominee, Mich. GROUND WOOD MILL. Three Grinders, four Wet Machines. Ground Wood. 38,000 lbs. 24 hours. Average Daily Consumption of Peeled Pulp Wood, 17 Cords. Highway, U. S., 41, ½ mile. Phone: Marinette 2-6644.

Monroe—Monroe Co.

On N. Y. C.; Penn.; P. M.; D. & T. and C. & O. R. R. Nearest Air Port, Willow Run.

CONSOLIDATED PAPER CO., P. O. Box 724. (C. Q. Baron, Pres. and Gen. Mgr.; C. H. R. Johnson, Vice-Pres. in Charge of Mfg.; S. J. Newcomer, Vice-Pres., Treas. and Gen. Sales Mgr.; G. L. Bronson, Vice-Pres.; C. J. Phinney, Vice-Pres.; Kramer Verhoeven, Vice-Pres.; F. H. Bock, Sec.; W. O. Manor, Tech. Dir.; J. C. Ainslie, Chief Engr.; W. L. Cook, Pur. Agt.; Harold Martin, Traffic Mgr.) S. P., Railroad Sidings at Mills. TEST LINER MILL. Two Dilts Beaters, three 20-foot Hydrapulpers and twelve Jordans. Two Machines; widest trimmed sheets, 108 inches and 122 inches. 600,000 lbs. 24 hours. BOX BOARD MILL. Eight Dilts Batch Beaters, three Continuous Breaker Beaters and thirteen Jordans. Four 14-foot and three 20-foot Hydrapulpers. Three Machines; widest trimmed sheets, 103, 112 and 113 inches. 750,000 lbs. 24 hours. STRAW BOARD MILL. Six Jordans, eleven Washers and sixteen Rotaries. Three Cylinders; wildest trimmed sheets, 52, 71 and 88 inches. Steam. Straw Board for Corrugating. 250,000 lbs. 24 hours. PANEL BOARD MILL. Nine Beaters and four Jordans. Seven Wet Machines; one 52 inches, four 62 inches and one 96 inches and one 136 inches. Steam. Automobile Panel and Resin Forming Board. 200,000 lbs. 24 hours. Highways, U. S., 24, 1 mile East and 25, ½ mile East; State, 56, ½ mile West 24A. Phones: Cherry 1-9000 and 1-9004.

MONROE PAPER PRODUCTS CO. Main Office, 1151 W. Elm Ave. (Burton S. Knapp, Pres.; Charles E. Raney, Vice-Pres., Gen. Mgr.

driniers; tub sizing equipment on 180-inch machine; widest trimmed sheets, 135 inches, 156 inches and 167 inches. (145-inch Fourdrinier is temporarily idle.) Super Calenders up to 80 inches wide. Steam and Electricity. M. F., English Finish, Super Offset, Mimeograph, Writing, Label, Music, Drawing, Linings and Hangings. 300 tons 24 hours. Highway, U. S., 12, 2 miles East; Old U. S. 12 continues from junction as State 96. Phone: FI. 3-2667.

NATIONAL GYPSUM CO. Main Office, 325 Delaware Ave., Buffalo 2, N. Y. (M. H. Baker, Chairman of Board; F. A. Manske, Pres.; L. L. Hank, Vice-Pres. Mfg.; W. F. Anderson, Vice-Pres. Operations; E. W. Odenwaldt, Gen. Prod. Mgr.; W. J. Sprau, Prod. Mgr.-Paper; E. M. Baker, Plant Mgr.) Railroad Siding, Mich. Cent. Three 1800-lb. HS Beaters, one 150-ton Pulper, and six Jordans. One 108-inch Eight Cylinder; widest trimmed sheet, 100 inches. Steam and Electricity. Gypsum Liner Board Paper, 135 tons 24 hours. Highway, U. S., 12. Phone: 3-1275

REX PAPER CO. P. O. Box 751. (Helen R. King, Pres. and Treas.; J. E. Lean, Vice-Pres. Sec. and Gen. Mgr.; A. K. Parker, Vice-Pres.; Arthur W. Cole, Supt.; G. R. Haggerson, Chief Chem.; J. G. Ruimveld, Pur. Agt.; N. F. Themins, Traffic Mgr.) S. P., Kalamazoo. Railroad Sidings, two on N. Y. C. Four 1400-lb. J. H. Horne & Sons Beaters, two Horne Jordans, two E. D. Jones Co. Paper Washers, one 2000-lb. Jones Pulpmaster, one Bleacher and three Screens. One 113-inch Fourdrinier; widest trimmed sheet, 104½ inches. Twenty-six Driers, 48 inches in Diameter and 110 inches Wide. Purchased and Generated Electricity. Electric and Turbine Drives. Coal. 200 and 155 p.s.i. Steam Pressures. Coated Book Papers, English Finish Book. 30 tons 24 hours. Also six Machine Coating Mills, Highway, State, 96. Phone: FI. 2-0151.

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WESTERN MICHIGAN UNIVERSITY, Department of Paper Technology. (Alfred H. Nadelman, Head of Department; Paul V. Sangren, Pres.) Five Experimental Beaters and one Bauer Refiner. One Jones Midget Jordan and two Pulpers. One Noble & Wood Sheet Machine, various. Sheet Molds. One Pilot Stock Preparation System. One 24-inch Pilot Fourdrinier with Size Press; widest trimmed Sheet, 20 inches. Two Experimental Stainless Steel Digesters. Experimental Equipment Used in Paper Making Course and for Commercial Research. Purchased Electricity. From 25 point Fourdrinier Board to Lightweight Tissue. 2½ tons 24 hours. Phone: FIreside 9-2611.

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Manistique—Schoolcraft Co.

On Minn., St. Paul & S. Ste. Marie; Manistique and Lk. Sup.; Ann Arbor R. R.

MANISTIQUE PULP & PAPER CO. Main Office, Box 111, Manistique, Mich. Owned by Trenton Times Corp., Trenton, N. J. (Mrs. James Kerney, Pres.; James Kerney, Jr., Vice-Pres.; Thomas L. Kerney, Treas.; John E. Kerney, Asst. Treas.; Mrs. R. G. Kuser, Sec.; F. S. Hoholik, Gen. Mgr.) Railroad Sidings, Soo and Ann Arbor R. R. Three 1000-lb. Beaters. One 166-inch Fourdrinier; widest trimmed sheet, 155 inches. Water and Electricity. Groundwood Papers, Newsprint, Novel, Rotogravure, Catalog and Hanging. 85 tons 24 hours. GROUND WOOD PULP MILL. Six Magazine Grinders. Water and Electricity. Ground Wood. 62 tons 24 hours. Average Daily Consumption of Peeled Pulp Wood, 60 Cords. Highway, U. S., 2. Phone: Manistique 160.

Menominee—Menominee Co.

On C. & N. W.; C., M., St. P. & P. R. R Green Bay and Lake Michigan Steamers.

MARATHON DIV., American Can Co. See Menasha, Wis., for Corporate Officials. (N. H. Foley, Plant Mgr.; Ben K. Guenther, Paper Mill Supt.; John A. Gasperi, Converting Supt.; Martti Lundstrom, Plant Engr.) Six Clafin Refiners, three Jordans and one Hydrapulper. One 164-inch Black-Clawson Fourdrinier; widest trimmed sheet, 154 inches. One Yankee Fourdrinier; wid-

MHI-00011

PARCHMENT • WAXED • LAMINATED
WRAPPING • OFFSET • HOUSEHOLD
THE K V P COMPANY • KALAMAZOO, MICHIGAN

Grand Rapids—Kent Co.

On G. T.; M. C.; N. Y. C.; Penn.; P. M. R. R.

AMERICAN BOX BOARD DIV., PACKAGING CORP. OF AMERICA. Main Office, 415 Fulton St., E., Grand Rapids 3, (W. S. Goodspeed, Chairman of Exec. Committee; Wayne Young, Chairman of Board; William D. Carey, Pres.; J. N. Andrews, Exec. Vice-Pres.; Emerson Carey, Jr., Treas.; D. W. Maxon, Sec.; Robert K. Stolz, Sr., Div. Vice-Pres.; Gordon B. Bonfield, Sr., Div. Vice-Pres. and Gen. Mgr.; F. W. Oldenburg, Sr., Div. Vice-Pres. Marketing; G. Diesk; Div. Vice-Pres. and Resident Mgr. Filer City; K. R. Mull, Div. Vice-Pres.; J. L. Wilson, Div. Vice-Pres. Marketing; C. F. Raber, Div. Vice-Pres.-Dir. Ind. Rel.; H. L. Goodspeed, Div. Sec.; C. C. Boyer, Div. Treas.; E. M. Dean, Mgr.; M. Nossaman, Supt.; R. P. Aument, Tech. Dir.; I. P. Nicole, Eng. Mgr.; W. R. Tobin, Sales Mgr.; R. L. Hall, Dir. of Pur.; Wm. Glaske, Gen. Traffic Mgr.) S. P., at mill. Four Breaker Beaters, twelve Jordans, ten Finishing Beaters and one Pulper. Two 122-inch Six Cylinders; widest trimmed sheet, 112 inches. Generate own power, 3 Phase, 60 Cycle, 440 v. High Grade Box Boards and Test Liners. 200 tons 24 hours. Highways, U. S., 131, 1 mile; State, 50 and 21, 1 mile. Phone: GL. 9-4581.

Groos—Delta Co.

On E. & L. S. R. R. Exp., M. O., Tel. and Bank at Escanaba, 6 miles.

MEAD CORP., Escanaba Div. P. O. Address, Escanaba. For Executives, see Main Office, Dayton, Ohio. (G. S. Douglas, Div. Mgr.; O. C. Christiansen, Supt.; G. C. Eastin, Tech. Dir.; R. H. Sogard, Plant Engr.; H. J. Vanlerberghe, Traffic Mgr.; Stack Smith, Pur. Agt.; R. R. McDonough, Office Mgr.) Railroad Siding, Escanaba & Lake Superior R. R. Three 1500-lb. Beaters, one Hydrapulper. Two 166-inch Fourdriniers; widest trimmed sheet, 155 inches. Steam, Electricity and Water. Coated Book Papers, Bleached Groundwood Content Uncoated Book Papers and Specialties. 215 tons 24 hours. GROUND WOOD MILL. Seventeen Grinders and four Wet Machines. Hydro-Electric. Ground Wood. 100 tons 24 hours. Average Daily Consumption of Peeled Pulp Wood, 90 (128 cu. ft.) Cords. Highways, U. S., 2 and 41; State, 35. Phone: Escanaba, ST 6-1660.

Kalamazoo—Kalamazoo Co.

On M. C.; N. Y. C.; Penn.; C. K. & S.; G. T. R. R. Greyhound Bus, 4 miles from Air Port. M. O., Exp., Tel. and Bank.

ALLIED PAPER CORP., 1608 Lake St. Main and Sales Office, 3450 Prudential Bldg., 140 R Randolph St., Chicago 1, Ill. J. D. Nisbet, Chicago Sales Mgr.; D. J. Campbell, New York City Sales Mgr., 655 Madison Ave., 21. (Arnold H. Maremont, Chairman; W. D. Harrison, Pres.; L. B. Owen, Vice-Pres.-Mfg.; H. B. Johnston, Vice-Pres.-Engr.; R. M. Levy, Dir. of Research & Development; M. C. Teague, Dir. of Quality Control; Herman Bernick, Sec.-Treas.; A. M. Mulder, Mgr. King Mill; E. J. Gilman, Bryant Mill Mgr.; C. J. Bos, Coating Mill Mgr.; C. A. Yonker, Dir. of Pur.; O. V. Mason, Traffic Mgr.) KING MILL. S. P., Kalamazoo, Mich. Railroad Sidings: N. Y. C., G. T. W. and P. R. R. Four 1200-lb. and nine 2000-lb. Beaters and eight Jordans. Improved Washing System. Two Screens and six Pulpers. Seven Fourdriniers; widest trimmed sheets, 107, 111, 117 and 130 inches. Width of Super-Calenders, 35 inches min. to 121 inches max. MONARCH MILL, S. P., Kalamazoo, Mich. Six 2400-lb. Beaters, four Jordans, two Improved Washers and five Rotaries. Two Fourdriniers; widest trimmed sheets, 111 and 120 inches. Width of Super-Calender, 58 inches. BRYANT MILL. Fourteen Beaters, ten Jordans, twelve Refiners, six Pulpers and seven Screens. Five Fourdriniers; widest trimmed sheet, 152 inches. Width of Super Calenders, 60 64, 70, 90 and 160 inches. Also Coating Mill. Purchased Electricity: 5000 k.w., Generated: 11,500 k.w., 440-2300 v., 60 Cycles, 3 Phase; 37,000 h.p. Installed; Coal; 300, 400, 600 p.s.i. Steam Pressure. GRADES MADE (Uncoated). Machine Finish, English Finish, Duplicator, Catalogue, Offset; Map Eggshell, Writing Tablet, Mimeograph, Poster, Label, Music, Drawing, Book Cover, Lining, Roto, Litho Coating Raw Stock, Bible and Specialties. 300 tons 24 hours. COATED: Offset, Label, Dull Finish, Folding Enamel Cover, Varnish Label, Post Card, Gloss Ink Papers, C1S and C2S Enamels, Inserts. 200 tons 24 hours. SEMI-CHEMICAL AND DE INKING PULP MILL. Two Digesters. Bleached Semi-Chemical Pulp, 100 tons 24 hours. (Pulp mill under construction, expected to be in operation in 1960.) Highways, U. S., 12 and 131; State, 43 and 96. Phone: Fireside 5-7131.

HAWTHORNE PAPER CO., P. O. Box 906, King Highway. (William Slavin, Pres., Treas. and Gen. Mgr.; Louis J. Slavin, Executive Vice-Pres.; Harley E. Nelson, Vice-Pres. i/c Mfg.; S. R. Zatz, Sec.; C. Frederick Young, Tech. Dir.; E. M. Betz, Traffic Mgr.) Railroad Siding, M. C. R. R., ¼ mile east of city limits. Ten Beaters, two Jordans, four Refiners and four Pulpers. Ross Paper Machine Ventilating System. One 92-inch and one 105-inch Fo

FOR COATING and FILLING
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Anglo-American Clays Corporation
6 East 45th Street; New York 17, N. Y.
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driniers; widest trimmed sheets, 82 and 92 inches. Fifty-eight Driers, 42 inches in Diameter, 92 and 105 inches wide. Purchased and Generated Electricity. Coal. 275-lb. Steam Pressure. Water Treatment Plant. Turbine and Other Drives. Rag and Sulphite Bond, Ledger, Index, Offset, Onion Skin and Manifold, Embossed, Translucent Master, Mimeograph, Duplicator, Vellum, Sulphite Text and Cover, Technical Papers, Wet Suength Map and Chart, Blue Print, Direct Process, Specialty Papers, Rag Book, Weddings, Papeteries, Photogelatin Paper. 50 tons 24 hours. Highway, State 96. Phone: FIreside 5-1163.

KALAMAZOO PAPER CO. Main Office, 2210 E. Michigan Ave. (James A. Wise, Pres. and Gen. Mgr.; B. H. Cooper, Vice-Pres., Dir. Pur.; J. M. Causey, Vice-Pres. and Sales Mgr.; F. B. Curtenius, Sec.-Treas.; Robert W. Polderman, Chief Engr.; M. R. Wilkins, Tech. Dir.; Ralph Nichols, Traffic Mgr.) Railroad Siding, N. Y. C. & G. T. W. MILL NO. 1. Two 2500-lb. and four 1500-lb. Beaters, one Pulper, four Jordans, five Rotaries and Washing Equipment. One 133-inch and one 142-inch Fourdriniers; widest trimmed sheets, 120 inches and 130 inches. Tub Sizing Equipment on Both Machines. MILL NO. 2. Six 1500-lb. Beaters, four Jordans, four Rotaries and Washing Equipment. One 100-inch and one 116-inch Fourdriniers; widest trimmed sheets, 90 inches and 105 inches. Tub Sizing Equipment on both Machines. MILL NO. 3. Four 1500-lb., three 2000-lb. and two 3000-lb. Beaters, one Pulp Master, seven Jordans, one Hydrapulper and Washing Equipment. One 145-inch, one 167-inch and one 180-inch Fourdriniers; tub sizing equipment on 180-inch machine; widest trimmed sheets, 135 inches, 156 inches and 167 inches. (145-inch Fourdrinier is temporarily idle.) Super Calenders up to 80 inches wide. Steam and Electricity. M. F., English Finish, Super Offset, Mimeograph, Writing, Label, Music, Drawing, Linings and Hangings. 300 tons 24 hours. Highway, U. S., 12, 2 miles East; Old U. S. 12 continues from junction as State 96. Phone: FI. 3-2667.

NATIONAL GYPSUM CO. Main Office, 325 Delaware Ave., Buffalo 2, N. Y. (M. H. Baker, Chairman of Board; F. A. Manske, Pres.; E. W. Odenwaldt, Vice-Pres. Mfg. L. L. Hank, Vice-Pres. Operations; S. G. Stapler, Gen. Prod. Mgr.; W. J. Sprau, Prod. Mgr.-Paper; E. M. Baker, Plant Mgr.) Railroad Siding, Mich. Cent. Three 1800-lb. HS Beaters, one 150-ton Pulper, and six Jordans. One 108-inch Eight Cylinder; widest trimmed sheet, 100 inches. Steam and Electricity. Gypsum Liner Board Paper, 135 tons 24 hours. Highway, U. S., 12. Phone: 3-1275

REX PAPER CO., P. O Box 751, King Highway. (J. E. Lean, Pres. and Gen. Mgr.; J. G. Ruimveld, Sec. and Pur. Agt.; J. M. Bireley, Sr., Treas.; H. G. Nendorf, Gen. Supt.; H. E. Warren, Paper Mill Supt.; G. R. Haggerson, Tech. Dir. and Chief Chem.; L. M. Pinkerton, Chief Engr.) S. P., Kalamazoo. Railroad Sidings, two on N. Y. C. Four 1400-lb. J. H. Horne & Sons Beaters, two Horne Jordans, two E. D. Jones Co. Paper Washers, one 2000-lb. Jones Pulpmaster, one Bleacher and three Screens. One 113-inch Fourdrinier; widest trimmed sheet, 104½ inches. Twenty-six Driers, 48 inches in Diameter and 110 inches Wide. Purchased and Generated Electricity. Electric and Turbine Drives. Coal. 200 and 155 p.s.i. Steam Pressures. Coated Book Papers, English Finish Book. 30 tons 24 hours. Also six Machine Coating Mills, Highway, State, 96. Phone: FIreside 2-0151.

ST. REGIS PAPER CO. Leased on long term with option to buy to Thor Corp. See report of Bryant Mill under Allied Paper Corp., Kalamazoo, Mich.

SUTHERLAND PAPER CO. Main Office, 243 E. Paterson. (William Race, Chairman; E. W. Smith, Pres.; A. L. Sherwood, Vice-Pres.; S. A. Angotti, Vice-Pres.; L. W. Sutherland, Jr., Vice-Pres.; J. T. Kirkpatrick, Vice-Pres.; C. W. Walton, Sec.; B. C. White, Treas.; C. W. Lawrence, Asst. Sec.-Treas.; H. R. Luikens, Pur. Agt.; C. L. Fenstermaker, Traffic Mgr.) EAST SIDE PLANT. (Arnold Weller, Supt.) Five Refiners. One Seven Cylinder, widest trimmed sheet, 93 inches. Steam and Electricity. Folding Box Boards. 125 tons 24 hours. NORTH SIDE PLANT. (L. Justice, Supt.) Railroad Sidings, C. K. & S. P. R. R. and N. Y. C. R. R. Five 1650-lb. and five 2000-lb. Beaters, one Shartle Beater, six Hydrapulpers and four Hydrafiners, three Continuous Broke Beaters and seventeen Jordans. One 100-inch Six Cylinder, one 116-inch Seven Cylinder and one 132-inch seven Cylinder and one 154-inch Eight Cylinder; widest trimmed sheets, 92 102, 120 and 138 inches. Steam and Electricity. Machine Clay Coated, White Patent Coated News, Bleached and Single Manila Lined Chip, White and News Vat Lined Chip, Solid News and News Lined Chip, Plain and Bending Chip, Sulphite Line Manilas, Foil Laminating Grades, Specialty Grades, Foil Lamination, Grease and Moisture Resistance Laminations, Polyethylene Coated Boards, Hot Waxed and Cold Water Waxed Grades. 465 tons 24 hours. Highways, U. S., 12 and 131, 1 mile; State, 43, ½ mile. Phone: Kalamazoo, FIreside 3-1651.

WESTERN MICHIGAN UNIVERSITY, Department of Paper Technology. (Alfred H. Nadelman, Head of Department; Paul V. Sangren, Pres.) Five Experimental Beaters and one Bauer Refiner. One Jones Midget Jordan and two Pulpers. One Noble & Wood Sheet Machine, various. Sheet Molds. One Pilot Stock Preparation System. One 28-inch Pilot Fourdrinier with Size Press; widest trimmed Sheet, 24 inches. One 24-inch Universal Coating Machine and one 8-roll Supercalender. Two Experimental Stainless Steel Digesters. Experimental Equipment Used in Paper Making Course and for Commercial Research. Purchased Electricity, 60 cycles, 3 phase. From 25 point Fourdrinier Board to Lightweight Tissue. 3 tons 24 hours. Phone: FIreside 9-2611, Ext. 274.

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PULP MILL. Pulp 100 tons 24 hours. Highways, U. S., 12 and 131; State, 43 and 96. Phone: Fireside 5-7131.

HAWTHORNE PAPER CO., P. O. Box 2858, King Highway. (William Slavin, Pres., Treas. and Gen. Mgr.; Louis J. Slavin, Executive Vice-Pres.; Carl W. Groesbeck, Vice-Pres. i/c Mfg.; S. R. Zatz, Sec.; C. Frederick Young, Tech. Dir.; E. M. Betz, Traffic Mgr.) Railroad siding, M. C. R. R., ¼ mile east of city limits. Ten Beaters, two Jordans, four Refiners and four Pulpers. Ross Paper Machine Ventilator System. One 92-inch and one 105-inch Fourdriniers; widest trimmed sheets, 82 and 92 inches. Fifty-eight Driers, 42 inches in Diameter, 92 and 105 inches wide. Purchased and Generated Electricity. Coal. 275-lb. Steam Pressure. Water Treatment Plant. Turbine and Other Drives. Tag and Sulphite Bond, Ledger, Index, Offset, Onion Skin and Manifold, Embossed, Translucent Master, Mimeograph, Duplicator, Vellum, Sulphite Text and Cover, Technical Papers, Wet Strength Map and Chart, Blue Print, Direct Process, Specialty Papers, Rag Book, Weddings, Tapeteries, Photogelatin Paper. 50 tons 24 hours. Highway, State 96. Phone: FIreside 5-1163.

KVP SUTHERLAND PAPER CO. Phone: FIreside 3-2581 and 3-1651. (Dwight L. Stocker, Pres.; E. Norval Hunter, Senior Exec. Vice-Pres.; J. R. O'Donnell, Exec. Vice-Pres.; Robert D. Cain, Exec. Vice-Pres.; W. Donald Brownell, Vice-Pres.; C. Longford Felske, Vice-Pres. and Treas.; James T. Kirkpatrick, Vice-Pres.; A. L. Sherwood, Vice-Pres.; Harold De Weerd, Sec.; L. C. White, Cont. and Asst. Treas.; Stewart Peelhood, Asst. Vice-Pres. and Asst. Treas.; J. W. Walton, Asst. Vice-Pres.; H. M. Johnson, Asst. Sec.; C. W. Lawrence, Asst. Sec.; H. R. Wilkens, Pur. Agt.; Frank Wotalewicz, Pur Agt.; Melvin Lievense, Traffic Mgr.; C. L. Fensterbaker, Traffic Mgr.) KVP DIVISION: (formerly Kalamazoo Vegetable Parchment Co.) Railroad siding, N. Y. C. and C. K. & S. R. R. MILL NO. 1. Three Fibremasters, five 2000-lb., two 2500-lb. and two 4000-lb. Beaters, and five Majestic Jordans. One 117-inch Horne Harper and one 163-inch Pusey & Jones Fourdriniers; widest trimmed sheets, 104 and 148 inches. Five Parchment Machines; widest trimmed sheets, 80 and 100 inches. MILL NO. 2. Two 6000-lb. and one 1000-lb. Hydrapulpers, six 2500-lb. Horne Beaters, two 4000-lb. Bertram Beaters, four 2000-lb. and one 3500-lb. Jones Beaters, three 2500-lb. Vortex Beaters, ten Majestic Jordans, three Fibremasters, one 2500-lb. Pulpmaster, one 2000-lb. Flushmaker and one Continuous Beater. One 165-inch Bagley & Sewall Fourdrinier; widest trimmed sheet, 148 inches; one 167 inch Beloit Fourdrinier; widest trimmed sheet, 148 inches; two 139-inch Yankee Fourdriniers; widest trimmed sheet, 126 inches. Thirteen Waxing Machines, Steam and Electricity. Waterleaf, Waxing, Waxed, Vegetable Parchment, Bond, Manifold, Offset, Wrappings and Paper Specialties. MILL NO. 1, 87½ tons; MILL NO. 2, 207½ tons 24 hours. For Converting Eqpt., See Converters' Section. Highways, Riverview Dr.; U. S., 31 and 12; State 43.

SUTHERLAND DIV., formerly Sutherland Paper Co., S. P. at mill. Railroad Sidings, N.Y.C., Penn. and C. K. & S. R. R. EAST SIDE PLANT. Two Refiners. One Seven Cylinder, widest trimmed sheet, 93 inches. NORTH SIDE PLANT. Eight 2000-lb. Beaters, one Shartle Breaker Beater, six Hydrapulpers and four Hydrafiners, two Continuous Broke Beaters and seventeen Jordans. One 100-inch Seven Cylinder, one 116-inch Seven Cylinder, one 132-inch seven Cylinder and one 154-inch Eight Cylinder, widest trimmed sheets, 90, 102, 120 and 138 inches. Steam and Electricity. Folding Box Boards, Machine Clay Coated, White Patent Coated News, Bleached and Single Manila Lined Chip, White and News Vat Lined Chip, Solid News and News Lined Chip, Plain and Bending Chip, Sulphite Line Manilas, Foil Laminating Grades, Specialty Grades, Foil Lamination, Grease and Moisture Resistance Laminations, Polyethylene Coated Boards, Hot Waxed and Cold Water Waxed Grades. East Side Plant, 100 tons 24 hours; North Side Plant, 550 tons 24 hours. For Converting Equipt., See Converters' Section. Highways, U. S., 12 and 131, State, 43.

KALAMAZOO PAPER CO. Main Office, 2210 E. Michigan Ave. (James A. Wise, Pres. and Gen. Mgr.; J. M. Causey, Vice Pres. and Sales Mgr.; F. B. Curtenius, Vice-Pres. Prod. and Sec.; N. P. Hahn, Treas.; Robert W. Polderman, Chief Engr.; M. R. Wilkins, Tech. Dir.; R. W. Woodruff, Pur. Agt.; Ralph Nichols, Traffic Mgr.) Railroad Siding, N. Y. C. & G. T. W. MILL NO. 1. Four 2500-lb. Beaters, two Pulpers, four Jordans, Deinking Equipment. One 133-inch and one 142-inch Fourdriniers; widest trimmed sheets, 120 inches and 130 inches. Tub Sizing on Both Machines. MILL NO. 2. Six 1500-lb. Beaters, four Jordans. One 100-inch and one 116-inch Fourdriniers; widest trimmed sheets, 90 inches and 105 inches. Tub Sizing on both Machines. MILL NO. 3. Four 1500-lb., three 2000-lb. and two 3000-lb. Beaters, one Pulp Master, seven Jordans, Deinking Equipment. One 145-inch, one 167-inch and one 180-inch Fourdriniers; tub sizing on 167-inch and 180-inch machines; widest trimmed sheets, 135 inches, 156 inches and 167 inches. (145-inch Fourdrinier is idle.) Super Calenders up to 80 inches wide. Steam and Electricity. M. F., English Finish, Super Offset, Mimeograph, Writing, Register Bond, Label, Music, Drawing, Linings and Hangings. 300 tons 24 hours. Highway, U. S., 12, 2 miles East; Old U. S. 12 continues from junction as State 96. Phone: FIreside 3-2667.

NATIONAL GYPSUM CO. Main Office, 325 Delaware Ave., Buffalo 2, N. Y. (M. H. Baker, Chairman of Board; F. A. Manske, Pres.; E. W. Odenwaldt, Vice-Pres. Mfg. L. L. Hank, Vice-Pres. Operations; S. G. Stapler, Gen. Prod. Mgr.; W. J. Sprau, Prod. Mgr.-Paper; E. M. Baker, Plant Mgr.) Railroad Siding, Mich. Cent. Three 1800-lb. HS Beaters, one 150-ton Pulper, and six Jordans. One 108-inch Eight Cylinder; widest trimmed sheet, 100 inches. Electricity. Gypsum Liner Board Paper, 135 tons 24 hours. Highway, U. S., 12. Phone: FIreside 3-1275.

REX PAPER CO., P. O Box 751, King Highway. (J. E. Lean, Pres. and Gen. Mgr.; J. G. Ruimveld, Sec. and Pur. Agt.; J. M. Bireley, Sr., Treas.; H. G. Nendorf, Gen. Supt.; H. E. Warren, Paper Mill Supt.; H. Dalrymple, Chief Engr.) S. P., Kalamazoo. Railroad Sidings, two on N. Y. C. One Black-Clawson 2000-lb. Hydrabeater, one Black-Clawson Series "O" Hydrafiner, one Black-Clawson No. 2 Jordan, two E. D. Jones Paper Washers, one 2000-lb. Jones Pulpmaster, one Bleacher and three Screens. One 113-inch Fourdrinier; widest trimmed sheet, 104¼ inches. Twenty-six Driers, 48 inches in Diameter and 110 inches Wide. Purchased and Generated Electricity. Electric and Turbine Drives. Coal. 200 and 155 p.s.i. Steam Pressures. Coated Book Papers, English Finish Book, Coated and Enameled Offset, Litho and Cover Papers. 30 tons 24 hours. Also six Machine Coating Mills, Highways, U. S., 94, 1 mile; State, 96. Phone: FIreside 2-0151.

ST. REGIS PAPER CO. Leased on long term with option to buy to Thor Corp. See report of Bryant Mill under Allied Paper Corp., Kalamazoo, Mich.

WESTERN MICHIGAN UNIVERSITY, Department of Paper Technology. (John R. Fanselow, Acting Head of Department; James Miller, Pres.; Russell H. Seibert, Vice-Pres.; Dale L. Faunce, Vice-Pres.; Jack Johnson, Supt.) One Jones Midget Jordan and two Pulpers. Two Noble & Wood Sheet Machines, various Sheet Molds. One Pilot Stock Preparation System. One 30-inch Pilot Fourdrinier with Size Press and Machine Calender; widest trimmed Sheet, 24 inches. One 24-inch Universal Coating Machine. Two Experimental Stainless Steel Digesters. Experimental Equipment Used in Paper Making Course and for Commercial Research. Purchased Electricity, 60 cycles, 3 phase. Paper and Board from 16 to 90 lb. (25 x 38-500). 4 tons 24 hours. Phone: FIreside 9-2611, Ext. 274.

L'Anse—Baraga Co.

On D.S.S. and A. R.R.

CELOTEX CORP. (See Main Office, 120 S. La Salle St., Chicago 3, Ill., for executives.) F. J. Alfeis, Works Mgr.; A. O. Wirtanen, Plant Supt.; R. C. Roberts, Plant Engr.; A. H. Phillipp, Tech. Dir.) Building Board, Roof Insulation, Plank, Perforated and Unperforated Tile, Other Interior Finish Products, Sheathing and Other Exterior Insulation Board Products, 175 tons 24 hours. Phone: L'Anse 600.

Manistique—Schoolcraft Co.

On Minn., St. Paul & S. Ste. Marie; Manistique and Lk. Sup.; Ann Arbor R. R.

MANISTIQUE PULP & PAPER CO. Main Office, Box 111, Manistique, Mich. Owned by Field Enterprises Inc., Chicago, Ill. (Wilbur C. Munnecke, Pres.; F. S. Hoholik, Vice-Pres. and Gen. Mgr.; Burton J. Nelson, Vice-Pres.; George B. Young, Sec.; John F. Cross, Jr., Treas.; Donald F. Skidds, Supt.; Zenon F. Rozycki, Tech. Dir.) Railroad Sidings, Soo and Ann Arbor R. R. Three 1000-lb. Beaters, two Screens, on Jordan, one Refiner and one Pulper. One 166 inch Fourdrinier; widest trimmed sheet, 15 inches. Water and Electricity, Coal, 165 p.s. Steam Pressure. Groundwood Papers, Newsprint, Novel, Rotogravure, Catalog and Hanging. 9 tons 24 hours. GROUND WOOD PULP MILL Six Magazine Grinders and one Refiner. Wate and Electricity. Ground Wood, 85 tons 24 hour DE-INKED PULP MILL. De-inked pulp, 3 tons 24 hours. Average Daily Consumption Peeled Pulp Wood, 75 Cords. Highway, U. S., Phone: Manistique 160.

Menominee—Menominee Co.

On C. & N. W.; C., M., St. P. & P. R. R Green Bay and Lake Michigan Steamers

MARATHON DIV., American Can Co. Se Menasha, Wis., for Corporate Officials. (Marti Lundstrum, Plant Mgr.; A. S. Suminski, Pape Mill Supt.; John A. Gasperi, Converting Supt. G. F. Schreiner, Plant Engr.) Two Claflin Refiners, five Jordans and four Hydrapulpers. On 164-inch Black-Clawson Fourdrinier; wides trimmed sheet, 154 inches. One Yankee Four drinier; widest trimmed sheet, 128 inches. Gen erated Electricity. Coal. Water Treatment Plan Bleached Board Specialties. Waxing Tissue. 28 tons 24 hours. Highways, U. S., 41; State, 17 Phone: Menominee UN. 3-5595.

SCOTT PAPER CO., formerly Marinette Pape Co. See Exec. Office, Front and Market Sts. Chester, Pa. (Subsidiaries) for Executive Officers (Operations Personnel: S. J. Lang Supt.) S. P. Menominee, Mich. GROUND WOOD MILL Three Grinders, four Wet Machines. Ground Wood. 19 tons 24 hours. Average Daily Con sumption of Peeled Pulp Wood, 17 Cords. High way, U. S., 41, ½ mile. Phone: REdwood 5-6644

Monroe—Monroe Co.

On N. Y. C.; Penn.; P. M.; D. & T. an C. & O. R. R. Nearest Air Port, Willow Run

CONSOLIDATED PAPER CO., P. O. Bo 724, 921 E. Elm Ave. (C. H. R. Johnson, Pres and Gen. Mgr.; R. D. James, Vice-Pres. an Gen. Sales Mgr.; K. B. Verhoeven, Vice-Pres Corr. and Automotive Div.; C. J. Phinney, Vice Pres. and Sales Mgr. Container Board Div. F. H. Bock, Sec.-Treas.; James A. Wells, Asst Sec.; V. C. Matthews, Sales Mgr. Corrugate Div.; K. E. Heusman, Sales Mgr. Automotive an Forming Board Div.; N. F. Krueger, Sales Mgr Folding Carton Div.; J. P. Bronson, Sales Mgr Box Board Div.; R. G. Rau, Sales Mgr., Asphal Drum Div.; W. O. Lunsford, Mgr. of Researc and Dev.; T. E. Clark, Pur. Agt.; Harold C Marten, Traffic Mgr.) S. P., Railroad Siding at Mills. TEST LINER MILL. Two Dill Beaters, three 20-foot Hydrapulpers and twelv Jordans. Two Machines; widest trimmed sheets 108 inches and 122 inches. 300 tons 24 hours BOX BOARD MILL. Eight Dills Batch Beaters, three Continuous Breaker Beater and thirteen Jordans. Four 14-foot and three 20-foot Hydrapulpers. Three Machines; wid est trimmed sheets, 103, 112 and 113 inches. 17

King Highway. (William Slavin, Pres., Treas. and Gen. Mgr.; Louis J. Slavin, Executive Vice-Pres.; Carl W. Groesbeck, Vice-Pres. i/c Mfg.; S. R. Zatz, Sec.; C. Frederick Young, Tech. Dir.; E. M. Betz, Traffic Mgr.) Railroad Siding, M. C. R. R., ¼ mile east of city limits. Ten Beaters, two Jordans, four Refiners and four Pulpers. Ross Paper Machine Ventilator System. One 92-inch and one 105-inch Fourdriniers; widest trimmed sheets, 82 and 92 inches. Fifty-eight Driers, 42 inches in Diameter, 92 and 105 inches wide. Purchased and Generated Electricity. Coal. 275-lb. Steam Pressure. Water Treatment Plant. Turbine and Other Drives. Rag and Sulphite Bond, Ledger, Index, Offset, Onion Skin and Manifold, Embossed, Translucent Master, Mimeograph, Duplicator, Vellum, Sulphite Text and Cover, Technical Papers, Wet Strength Map and Chart, Blue Print, Direct Process, Specialty Papers, Rag Book, Weddings, Papeteries, Photogelatin Paper. 65 tons 24 hours. Highway, State 96. Phone: FIreside 5-1163.

KVP SUTHERLAND PAPER CO. Phone: FIreside 3-2581 and 3-1651. (Dwight L. Stocker, Pres.; E. Norval Hunter, Senior Exec. Vice-Pres.; H. R. O'Donnell, Exec. Vice-Pres.; Robert D. Caine, Exec. Vice-Pres.; B. C. White, Financial Vice-Pres. and Cont.; W. Donald Brownell, Vice-Pres.; C. Longford Felske, Vice-Pres. and Treas.; James T. Kirkpatrick, Vice-Pres.; A. L. Sherwood, Vice-Pres.; Harold De Weerd, Sec.; Stewart S. Geelhood, Asst. Vice-Pres. and Asst. Treas.; C. W. Walton, Asst. Vice-Pres.; H. M. Johnson, Asst. Sec.; C. W. Lawrance, Asst. Sec.; Homer Barber, Pur. Agt. Sutherland Div.; Frank Wotalewicz, Pur. Agt. KVP Div.; Melvin Lievense, Traffic Mgr. KVP Div.; C. L. Fenstermaker, Traffic Mgr. Sutherland Div.) KVP DIVISION: (formerly Kalamazoo Vegetable Parchment Co.) Railroad Siding, N. Y. C. and C. K. & S. R. R. MILL NO. 1. Three Fibremasters, five 2000-lb., two 2500-lb. and two 4000-lb. Beaters, and five Majestic Jordans. One 117-inch Horne Harper and one 163-inch Pusey & Jones Fourdriniers; widest trimmed sheets, 104 and 148 inches. Five Parchment Machines; widest trimmed sheets, 80 and 100 inches. MILL NO. 2. Two 6000-lb. and one 1000-lb. Hydrapulpers, five 2500-lb. Horne Beaters, two 2000-lb. Bertram Beaters, four 2000-lb. and one 2500-lb. Jones Beaters, three 2500-lb. Vortex Beaters, ten Majestic Jordans, six Fibremasters, one 2500-lb. Pulpmaster and one 2000-lb. Slushmaker. One 165-inch Bagley & Sewall Fourdrinier; widest trimmed sheet, 148 inches; one 167 inch Beloit Fourdrinier; widest trimmed sheet, 148 inches; two 139-inch Yankee Fourdriniers; widest trimmed sheet, 126 inches. Thirteen Waxing Machines, Steam and Electricity. Waterleaf, Waxing, Waxed, Vegetable Parchment, Bond, Manifold, Offset, Wrappings and Paper Specialties. MILL NO. 1, 87½ tons; MILL NO. 2, 207½ tons 24 hours. For Converting Eqpt., See Converters' Section. Highways, Riverview Dr.; U. S., 131 and 12; State 43.

SUTHERLAND DIV., formerly Sutherland Paper Co., S. P. at mill. Railroad Sidings, N.Y.C., Penn. and C. K. & S. R. R. EAST SIDE PLANT. Two Refiners. One Seven Cylinder, widest trimmed sheet, 93 inches. NORTH SIDE PLANT. Eight 2000-lb. Beaters, one Shartle Breaker Beater, six Hydrapulpers and four Hydrafiners, two Continuous Broke Beaters and seventeen Jordans. One 100-inch Seven Cylinder, one 116-inch Seven Cylinder, one 132-inch seven Cylinder and one 154-inch Eight Cylinder, widest trimmed sheets, 90, 102, 120 and 138 inches. Steam and Electricity. Folding Box Boards, Machine Clay Coated, White Patent Coated News, Bleached and Single Manila Lined Chip, White and News Vat Lined Chip, Solid News and News Lined Chip, Plain and Bending Chip, Sulphite Line Manilas, Foil Laminating Grades, Specialty Grades, Foil Lamination, Grease and Moisture Resistance Laminations, Polyethylene Coated Boards, Hot Waxed and Cold Water Waxed Grades. East Side Plant, 100 tons 24 hours; North Side Plant, 550 tons 24 hours. For Converting Equipt., See Converters' Section. Highways, U. S., 12 and 131, State, 43.

KALAMAZOO PAPER CO. Main Office, 2210 E. Michigan Ave. (James A. Wise, Pres. and Gen. Mgr.; J. M. Causey, Vice Pres. and Sales Mgr.; F. B. Curtenius, Vice-Pres. Prod. and Sec.; N. P. Hahn, Treas.; Robert W. Polderman, Chief Engr.; M. R. Wilkins, Tech. Dir.; R. W. Woodruff, Pur. Agt.; Ralph Nichols, Traffic Mgr.) Railroad Siding, N. Y. C. & G. T. W. MILL NO. 1. Four 2500-lb. Beaters, two Pulpers, four Jordans, Deinking Equipment. One 133-inch and one 142-inch Fourdriniers; widest trimmed sheets, 120 inches and 130 inches. Tub Sizing on Both Machines. MILL NO. 2. Two Pulpers, four 2500-lb. Beaters, four Jordans. One 100-inch and one 116-inch Fourdriniers; widest trimmed sheets, 90 inches and 105 inches. Tub Sizing on both Machines. MILL NO. 3. Four 1500-lb., three 2000-lb. and two 3000-lb. Beaters, two Pulpers, seven Jordans, Deinking Equipment. One 145-inch, one 167-inch and one 180-inch Fourdriniers; tub sizing on 167-inch and 180-inch machines; widest trimmed sheets, 135 inches, 156 inches and 167 inches. (145-inch Fourdrinier is idle.) Super Calenders up to 80 inches wide. Steam and Electricity. M. F., English Finish, Super Offset, Mimeograph, Writing, Register Bond, Label, Music, Drawing, Linings and Hangings. 300 tons 24 hours. Highway, U. S., 12, 2 miles East; Old U. S. 12 continues from junction as State 96. Phone: FIreside 3-2667.

NATIONAL GYPSUM CO. Main Office, 325 Delaware Ave., Buffalo 2, N. Y. (M. H. Baker, Chairman of Board; F. A. Manske, Pres.; E. W. Odenwaldt, Vice-Pres. Mfg. L. L. Hank, Vice-Pres. Operations; J. G. Stapler, Gen. Prod. Mgr.; W. J. Sprau, Prod. Mgr.-Paper; E. M. Baker, Plant Mgr.) Railroad Siding, Mich. Cent. Three 1800-lb. HS Beaters, one 150-ton Pulper, and six Jordans. One 108-inch Eight Cylinder; widest trimmed sheet, 100 inches. Electricity. Gypsum Liner Board Paper, 135 tons 24 hours. Highway, U. S. 12. Phone: FIreside 3-1579.

REX PAPER CO., P. O Box 751, King Highway. (J. E. Lean, Pres. and Gen. Mgr.; J. G. Ruimveld, Sec. and Pur. Agt.; J. M. Bireley, Sr.,

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113-inch Fourdrinier;
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ST. REGIS PAPER CO. Leased on long term with option to buy to Thor Corp See report of Bryant Mill under Allied Paper Corp, Kalamazoo, Mich

WESTERN MICHIGAN UNIVERSITY, Department of Paper Technology (Russell H Savage, Head of Department, James Miller, Pres, Russell H Seibert, Vice-Pres, Dale L Faunce, Vice-Pres, Harley Hartwig, Supt) One Jones Midget Jordan and two Pulpers Two Noble & Wood Sheet Machines, various Sheet Molds One Pilot Stock Preparation System One 30-inch Pilot Fourdrinier with Size Press and Machine Calender, widest trimmed Sheet 30 inches One 30-inch Universal Coating Machine Two Experimental Stainless Steel Digesters Experimental Equipment Used in Paper Making Course and for Commercial Research Purchased Electricity, 60 cycles, 3 phase Paper and Board from 16 to 90 lb (25 x 38-500) 4 tons 24 hours Phone FIreside 9-2611, Ext 274

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MARATHON DIV, American Can Co See Menasha, Wis, for Corporate Officials (Martti Lundstrom, Plant Mgr, A S Suminski, Paper Mill Supt, John A Gaspert, Converting Supt G R Schreiner, Asst Paper Mill Supt, Victor Swanson, Plant Engr) Two Claflin Refiners five Jordans and four Hydrapulpers One 164-inch Black-Clawson Fourdrinier, widest trimmed sheet, 154 inches One Yankee Fourdrinier; widest trimmed sheet, 128 inches Generated Electricity Coal Water Treatment Plant Bleached Board Specialties Waxing Tissue 285 tons 24 hours Highways, U S, 41, State 1[illegible] Phone Menominee UN. 3-5595

SCOTT PAPER CO, formerly Marinette Paper Co For Executives see Scott Paper Co International Airport, Philadelphia 13, Pa (Operating Personnel S J Lang Supt) S P, Menominee Mich GROUND WOOD MILL Three Grinders four Wet Machines Ground Wood 19 tons 24 hours Average Daily Consupmption of Peeled Pulp Wood 17 Cords Highway, U S 41, ½ mile Phone REdwood 5-6644

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CONSOLIDATED PAPER CO, P O Box 724 921 E Elm Ave (C H R Johnson, Pres and Gen Mgr, T J Lopatka Vice Pres Administration R D James Vice Pres and Gen Sales Mgr; K E Verhoeven, Vice-Pres Corr and Automotive Div, C J Phinney, Vice Pres and Sales Mgr Container Board Div F H Bock, Sec-Treas; James A Wells, Asst Sec, V C Matthews Sales Mgr Corrugated Div, K E Heusman, Sales Mgr Automotive and Forming Board Div, N F Krueger, Sales Mgr Folding Carton Div, J P Bronson, Sales Mgr Box Board Div, R G Rau, Sales Mgr, Asphalt Drum Div, W O Lunsford, Mgr of Research and Dev, J T Gleeson, Dir of Pur, Harry D Johnson, Traffic Mgr) S P, Railroad Sidings at Mills TEST LINER MILL Two Dilts Beaters, three 20-foot Hydrapulpers and twelve Jordans Two Machines, widest trimmed sheets, 108 inches and 122 inches 300 tons 24 hours BOX BOARD MILL Eight Dilts Batch Beaters, three Continuous Breaker Beaters and thirteen Jordans Four 14-foot and three 20-foot Hydrapulpers Three Machines, widest trimmed sheets, 103, 112 and 113 inches 375 tons 24 hours STRAW BOARD MILL Six Jor

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dans, eleven Washers and sixteen Rotaries. Three Cylinders; widest trimmed sheets,, 52, 71 and 88 inches. Steam. Straw Board for Corrugating. 125 tons 24 hours. PANEL BOARD MILL. Nine Beaters and four Jordans. Seven Wet Machines; one 52 inches, four 62 inches and one 96 inches and one 136 inches. Steam. Automobile Panel and Resin Forming Board. 100 tons 24 hours. PRODUCTS: Corrugating Straw Board, Corrugated Sheets, Folding Box Board, Cylinder Test Liners, Clay Coated Box Board, Automobile Panel Board, Resin Forming Board, Pasted Boards, Corrugated Shipping Containers, Folding Cartons, Asphalt Shipping Drums, Beverage Containers, Waterproof and Greaseproof Folding Cartons. Highways, U. S., 24, 1 mile East and 25, ½ mile East; State, 56, ½ mile West 24A. Phones: Cherry 1-9000 and 1-9004.

MONROE PAPER PRODUCTS CO. Main Office, 1151 W. Elm Ave. (Lawrence G. Kupkel, Pres.; John P. Kinsey, Vice-Pres.; Robert M. Swaney, Sec. and Gen. Mgr.; Thomas M. Banta, Treas.; Gene L. Bennett, Sales Mgr.; Bernard Kirby, Supt.; Robert Harter, Chief Engr.) Railroad Siding, Pere Marquette R. R. Two Hydrapulpers, and ten Jordans. One 124-inch Seven Cylinder; widest trimmed sheet, 110 inches. Steam and Electricity. Test Liners, Plain Chip, Set-up Box Board, Automobile Panel Board, Shipping Containers and Specialties. 135 tons 24 hours. Highway, U. S., 24. Phone: CHerry 1-3220.

UNION BAG-CAMP PAPER CORP., River Raisin Paper Div., formerly River Raisin Paper Co., 1109 E. Elm Ave. (A. W. Schulte, Vice-Pres. and Gen. Mgr.; Fred B. Attwood, Vice-Pres. Mfg.; H. V. Hodge, Vice-Pres.; F. T. Schultz, Vice-Pres.; W. M. Pellot, Treas.; Gerald H. Schuster, Cont.; J. G. Ladley, Dir. Container Sales) S. P. at all mills. MILL NO. 2. One 150-ton Dilts Hydrapulper, one 112-inch Seven Cylinder Board Machine; widest trimmed sheet, 98 inches. MILL NO. 3. One 150-ton Asphalt Dispersal System and one 150-ton Dilts Hydrapulper, one 124-inch Seven Cylinder Board Machine; widest trimmed sheets, 112 inches. MILL NO. 4. One 70-ton APMEW Top Liner Pulper, one 150-ton Dilts Filler Hydrapulper, one 124-inch Seven Cylinder Board Machine; widest trimmed sheet, 112 inches. MILL NO. 5. One 100-ton Dilts Hydrapulper, one 102-inch Two Cylinder Board Machine; widest trimmed sheet, 90 inches. Chip Boards, Container Boards, Fiber Boards, Solid Fiber and Corrugated Fiber Shipping Cases and Corrugated Fiber Packing Materials. 400 tons 24 hours. Highways, U. S., 24, 2 miles, and 25, 1 mile; State, 56. Phone: Monroe, Cherry 1-7700.

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KIMBERLY-CLARK CORP., Munising Mill. Main Office, Neenah, Wis. (For Executives, see Main Office; W. R. Beerman, Mill Mgr.) S. P. at mill. NO. 1 MILL. Ten 1800-lb. Beaters. Two 136-inch Fourdriniers; widest trimmed sheet, 120 inches. Steam and Electricity. Bonds, Writing, Mimeograph, Ledger, Duplicator, Map Paper, Impregnating, Coating Base Stock and Bleached, Saturated and Coated Specialties. 85 tons 24 hours. SULPHITE PULP MILL. Three Digesters; one 84-inch and three 72-inch Wet Machines. Steam and Electricity. Bleached Sulphite Pulp, 90 tons 24 hours. Highways, U. S., 41, 30 miles; State, 94 and 28. Phone: 56.

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BEMIS BRO. BAG CO., TEKMOLD DIV. 2850 Lincoln Ave., Muskegon, Mich. Main Office, 608 Second Ave., S., Minneapolis 2, Minn. (Judson Bemis, Pres.; C. W. Akin, Exec. Vice-Pres.; F. G. Bemis, Jr., Vice-Pres.; C. C. Hammer, Treas.; J. E. Zeller, Resident Mgr.; John Froelich, Supt.) S. P. at Mill. Railroad Siding, Grand Trunk Western. Four Pulpers. Electricity, Gas. Moulded Pulp Planters, Pots, Growing Containers and Protective Interior Packaging. 50 tons 24 hours. Highways, Interstate, 196, 2 miles from Sherman Blvd.; State, 16 and 31, 2 miles from Sherman Blvd. Phone: PLaza 5-1662.

WARREN, S. D., CO. Central Mill. Office, 2400 Lakeshore Dr. Main Office, 89 Broad St., Boston, Mass. For Executives, see Main Office. (Operations Officials: F. W. Roberts, Vice-President and Mill Mgr.; W. A. Wrase, Ch. Engr.; Gordon Sando, Pur. Agt.; D. DeGlopper, Traffic Mgr.; J. N. Fields, Woodlands Mgr.) S.P. at mill. Railroad Siding. C. & O. R. R. Two 115-inch, one 121-inch and one 165-inch Fourdriniers; widest trimmed sheets, two 96 inches, one 120 inches, and one 144 inches. Purchased and Generated Electricity, 60 Cycles, 3 Phase, 11,000 h.p. Installed, Coal, 475 p.s.i. Steam Pressure. Book, Machine Coated Book, English Finish, Lithographic Papers, Eggshell, Offset and Kraft. 175 tons 24 hours. SULPHATE PULP MILL. Six Digesters. Bleached Sulphate Pulp, 125 tons 24 hours. Average daily consumption of peeled pulp wood, 240 cords. Highways, U. S. 16 and 31, 5 miles; State 46. Phone: PLaza 5-3761.

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Pressures. Kraft Liner Bo
.009 NSSC Corrugating
hours. SULPHATE a
PULP MILL. Five Dig
American Defibrator Un
four Sprout Waldron F
Pulp, 250 tons 24 hours
24 hours. Average daily
birch and maple pulp woo
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Jordans. One 126-inch S
Eight Cylinders; widest t
129 inches. Electricity, ge

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Average Daily Consumption of Peeled Pulp Wood, 90 (128 cu ft) Cords. Highways, U. S. 2 and 41; State 35. Phone: Escanaba, ST 6-1660

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SCOTT PAPER CO., formerly Marinette Paper Co. For Executives see Scott Paper Co., Philadelphia, Pa. 19113. (Operating Personnel: S. J. Lang, Supt.) S. P., Menominee, Mich. GROUND WOOD MILL. Three Grinders, four Wet Machines. Ground Wood. 19 tons 24 hours. Average Daily Consumption of Peeled Pulp Wood, 19 Cords. Highway, U. S. 41, ½ mile. Phone: 906—REdwood 5-6644.

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CONSOLIDATED PACKAGING CORP., P.O. Box 724, 921 E. Elm Ave., 48161. For Executives see Main Office, 72 W. Adams, Chicago, Ill., 60603. (Joseph L. Gidwitz, Pres. and Chairman of Board; William Daniels, Vice-Pres. Monroe Mills; Robert D. James, Vice-Pres. Mill Specialties Div.; David S. Block, Vice-Pres.; T. J. Lopatka, Vice-Pres., Industrial Relations; Hy Sweet, Vice-Pres.; F. H. Bock, Sec.; Charles Herlinger, Treas.; Gerald Friedman, Cont.; George C. Baron, Mgr. North Side Mills; Leslie P. Peck, Mgr. South Side Mills; William Lunsford, Supt Boxboard and Auto Mills) S. P., Railroad Sidings at Mills. TEST LINER MILL. Two Dilts Beaters, three 20-foot Hydrapulpers and twelve Jordans. Two 123-inch Fourdriniers; widest trimmed sheets 108 inches and 122 inches. 300 tons 24 hours. BOX BOARD MILL. Eight Dilts Batch Beate three Continuous Breaker Beaters and thirteen Jordans. Four 14-foot and three 20-foot Hydra pulpers. Three Machines; widest trimmed she. 103, 112 and 113 inches. 375 tons 24 hour STRAW BOARD MILL. Six Jordans, eleven Washers and sixteen Rotaries. Three Cylinde widest trimmed sheets, 52, 71 and 88 inches Steam, Straw Board for Corrugating 125 tons 24 hours. PANEL BOARD MILL Nine Beaters and four Jordans. Seven Wet Machines; one 52 inches, four 62 inches and one 96 inches and one 136 inches. Steam. Automobile Panel and Resin Forming Board. 100 tons 24 hours. PRODUCTS: Corrugating Straw Board, Corrugated Sheets, Folding Box Board, Cylinder Test Liners, Clay Coated Box Board, Automobile Panel Board, Resin Forming Board, Pasted Boards, Corrugated Shipping Containers, Folding Cartons, Asphalt Shipping Drums, Beverage Containers, Waterproof and Greaseproof Folding Cartons. Highways, U.S. 24, 1 mile East and 25, ½ mile East; State 56, ½ mile West 24A. Phone: 313—241-9000.

MONROE PAPER DIV., TIME CONTAINER CORP., 1151 W. Elm Ave., 48161. Main Offi 5300 W. 74th Pl., Chicago, Ill., 60638. (Don Hindman, Pres. and Treas.; Stephen J. Van Cl Vice-Pres.; Howard R. Jones, Sec.; Norm Krueger, Gen. Mgr.; Paul Schaferling, Pr Mgr.; John Spanraft, Supt.; Edward O'Bri Tech. Dir.; Robert Harter, Chief Engr.; W Finn, Pur. Agt.) Railroad Siding, Pere Marque R.R. Two Hydrapulpers, and ten Jordans. O 124-inch Seven Cylinder; widest trimmed she 110 inches. Steam and Electricity. Test Line Plain Chip, Set-Up Box Board, Automobile Pa Board, Shipping Containers and Specialties. 1 tons 24 hours. Highway, U.S. 24. Phone: 313 CHerry 1-3220.

UNION BAG-CAMP PAPER CORP., 1 E. Elm Ave. (For Executives see Main Off 233 Broadway, New York, N. Y., 10007.) S. at all mills. MILL NO. 2. One 150-ton D Hydrapulper, one 112-inch Seven Cylin Board Machine; widest trimmed sheet, 98 inch MILL NO. 3. One 150-ton Asphalt Disper System and one 150-ton Dilts Hydrapulper, 124-inch Seven Cylinder Board Machine; wid trimmed sheets, 112 inches. MILL NO. 4. 70-ton APMEW Top Liner Pulper, one 150- Dilts Filler Hydrapulper, one 124-inch Se Cylinder Board Machine; widest trimmed sh 112 inches. MILL NO. 5. One 100-ton D Hydrapulper, one 102-inch Two Cylin Board Machine; widest trimmed sheet, 90 incl Chip Boards, Container Boards, Solid Fiber Corrugated Shipping Cases and Corrugated Pa ing Materials. 350 tons 24 hours. Highways, 24, 2 miles, and 25, 1 mile; State 56. Pho Monroe 313—Cherry 1-7700.

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On L. S. & I., connecting with C. & N. and D. S. S. & A. M. O., Tel. and Ex.

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PACKAGING CORP. OF AMERICA, 415 Fulton St., E, Grand Rapids, Mich, 49502. General Offices, 1632 Chicago Ave., Evanston, Ill For Executives see General Office. (E. L. Stentz, Vice-Pres Paperboard Div. and Gen Mgr; Robert M. Alspaugh, Plant Mgr.; H E. Castor, Plant Engr.; C. Jakeway, Tech Dir) S P. at mill Four Pulpers, six Jordans, one Refiner. One 122-inch Seven Cylinder; widest trimmed sheet, 112 inches One On-Machine Air Knife Coater. Generate own power, 3 Phase, 60 Cycle, 440 v; Coal High Grade Box Boards and Test Liners and Clay Coated Grades. 135 tons 24 hours Highways, U S. 131, 1 mile; State, 50 and 21, 1 mile. Phone 616—GL 9-4581.

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On Lake Michigan and E. & L S, C. N. W, and Soo R.R. Exp., Tel, Bank and Air Port at Escanaba, 6 miles.

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On M. C., N. Y. C., Penn., C. K. & S., and G. T. R.R. Greyhound Bus, Air Port, Exp. Tel. and Bank.

ALLIED PAPER CORP. Executive and General Sales Office, 1608 Lake St., 49003. Also operate Bleached Sulphate Pulp Mill at Jackson, Ala. Midwestern Sales Office, 1 E. Wacker Dr., Chicago, Ill., Jack Minar, Sales Mgr. Eastern Sales Office: 60 E. 42nd St, New York, N. Y, 10017, John L'Estrange, Sales Mgr. (W. D. Harrison, Chairman; E J Klimczak, Pres; J. D Dailey, Pres-Pulp Div; E J. Gilman, Vice-Pres Mfg; R Levy, Vice-Pres Research and Dev, J D Nisbet, Vice-Pres and Gen Sales Mgr, H Bernick, Sec-Treas; G C Freas, Office Mgr Mill Sales and Services, Fred Fragomeli, Prod Mgr, C. L Russell, Dir of Quality Control, P. Krausshaar, Dir Industrial Rel, H Peeters, Dir Prod Scheduling; L. Stoeffler, Process Dev. Mgr; B Growald, Coating Res. Mgr; A. Vickery, Engrg Mgr; W Buenger, Gen Supt Bryant Div, H Horrocks, Gen. Supt King Div, M. Carl, Gen Supt Monarch Div; C J. Bos, Mgr Coating Div; L R. Scott, Dir. of Pur; J R Bowen, Traffic Mgr) KING MILL. S P, Kalamazoo, Mich. Railroad Sidings: N. Y. C, G T. W. and P. R R Three Rewinders, four Cutters and five Trimmers. Four Fourdriniers, widest trimmed sheets, 107, 111, 117 and 130 inches DEINKED PULP MILL. Three-stage Bleach System Deinked pulp, 200 tons 24 hours MONARCH MILL. S. P, Kalamazoo, Mich Two Carbon Coaters Two Fourdriniers; widest trimmed sheets, 111 and 120 inches. BRYANT MILL—Eight Cutters, nine Trimmers, seven Coaters, seven Supercalenders and three Rewinders Five Fourdriniers; widest trimmed sheets, two 126, 127, 142 and 152 inches. Also have Coating Mill. DEINKED PULP MILL. Two-stage Bleach System. Deinked Pulp, 150 tons 24 hours GRADES MADE: Uncoated Machine Finish, English Finish, Eggshell, Antique and Wove Finish; Book Publishing Papers; Map, Writing Tablet, Duplicator, Bond, Envelope, Index, Mimeograph, Register Bond, Carbonizing Tissue, Poster, Label, Music, Drawing, Box Cover, Litho Coating Rawstock, Bible, Dictionary and Encyclopedia and Specialties. 400 tons 24 hours. COATED: Litho and C2S Offset and Letterpress, Folding Enamel Cover, Varnish Label, Post Card, Gloss Ink Papers, Electrostatic Base Stock, Master Paper, and Specialties, 75 tons 24 hours Highways, U S. 12 and 131; State 43 and 96. Phone: 616—FIreside 5-7131

BROWN CO, Pulp, Paper and Board Mfg Div.; formerly KVP Sutherland Paper Co, 49004. (Dwight L. Stocker, Senior Vice-Pres. and Gen. Mgr.; C. C. Ranney, Mgr. Eng'g-Western; F. Southon, Paper and Board Prod Mgr; W J Redmond, Supt. East Side Mill; A. M Hamilton, Supt. Parchment; P. J Schwartz, Supt. Board Mills #4 and 7; J. M. McCarty, Supt. Material Handling; W. F. Hathaway, Supt Papermaking A. Perlick, Supt. Mill #1; L P. Hill, Supt. Mill #2; A. W. Krogle, Cost Reduction Administrator; H. J. Barker, Pur. Agt; M. Lievense, Traffic Mgr.; D. C. Smith, Mgr. Personnel and Admin Services)

PAPER DIVISION: Railroad Siding, N. Y. C and C. K. & S. R.R. MILL NO. 1 Four Fibremasters, four 2000-lb., two 2500-lb. and two 4000-lb. Beaters, and five Majestic Jordans. One 117-inch Horne Harper and one 163-inch Pusey & Jones Fourdriniers; widest trimmed sheets, 104 and 148 inches. Five Parchment Machines; widest trimmed sheets, 80 and 100 inches. MILL NO. 2. Two 6000-lb. and one 1000 lb Hydrapulpers, three 2500-lb. Horne Beaters, two 2000-lb. Bertram Beaters, four 2000-lb. and one 2500-lb Jones Beaters, three 2500-lb. Vortex Beaters, ten Majestic Jordans, eight Fibre-masters, one 2500-lb. Pulpmaster and one 2000-lb Slushmaker. One 165-inch Bagley & Sewall Fourdrinier, widest trimmed sheet, 148 inches. one 167 inch Beloit Fourdrinier; widest trimmed sheet, 148 inches, two 139-inch Yankee Fourdriniers, widest trimmed sheet, 126 inches Nine Waxing Machines, Steam and Electricity Waterleaf, Waxing, Waxed, Vegetable Parchment, Bond, Manifold, Offset, Wrappings and Paper Specialties. MILL NO 1, 87½ tons; MILL NO 2, 240 tons 24 hours For Converting Eqpt, See Converters' Section Highways, Riverview Dr; U S 131 and 12; State 43; I-94 Phone 616 383-5000

BOARD DIV., formerly Sutherland Div, S P at mill Railroad Sidings, N Y C, Penn and C K & S R R. EAST SIDE MILL. Five Beaters, three Hydrafiners, four Jordans One Seven Cylinder, widest trimmed sheet 93 inches NORTH SIDE BOARD MILL Nine Hydrapulpers, six Beaters, one Shartle Breaker Beater, two Continuous Broke Beaters, eight Hydrafiners, two Morden Stock Makers, two Sprout Waldron Disc Refiners, eighteen Jordans. One 100-inch Seven-Cylinder, one 116-inch Seven-Cylinder, one 132-inch Seven-Cylinder, one 154-inch Eight Cylinder, widest trimmed sheets 90 inches, 102 inches, 120 inches and 138 inches Steam and Electricity Folding Box Boards, Machine Clay Coated, White Patent Coated News, Bleached and Single Manila Lined Chip, White and News Vat Lined Chip, Solid News and News Lined Chip, Plain and Bending Chip, Sulphite Line Manilas, Foil Laminating Grades, Specialty Grades, Foil Lamination, Grease and Moisture Resistance Laminations, Polyethylene Coated Boards, Hot Waxed and Cold Water Waxed Grades. East Side Plant, 100 tons 24 hours, North Side Plant, 550 tons 24 hours For Converting Equipt, See Converters' Section Highways, U S, 12 and 131, State, 43, I-94.

HAWTHORNE PAPER CO, P O Box 2858, King Highway, 49003. (William Slavin, Chairman of Board; Louis J. Slavin, Pres, Carl W. Groesbeck, Vice-Pres i/c Mfg.; S R Zatz, Sec; C. Frederick Young, Tech. Dir.; E. M Betz, Traffic Mgr) Railroad Siding, M. C. R. R., ¼ mile east of city limits. Ten Beaters, two Jordans, four Refiners and four Pulpers. Ross Paper Machine Ventilator System. One 92-inch and one 105-inch Fourdriniers; widest trimmed sheets, 82 and 92 inches Fifty-eight Driers, 42 inches in Diameter, 92 and 105 inches wide. Purchased and Generated Electricity. Coal. 275-lb. Steam Pressure Water Treatment Plant. Turbine and Other Drives Rag and Sulphite Bond, Ledger, Index, Offset Onion Skin and Manifold, Embossed, Translucent Master, Mimeograph, Duplicator, Vellum, Sulphite Text and Cover, Technical Papers, Wet Strength Map and Chart, Blue Print, Direct Process, Specialty Papers, Rag Book, Weddings, Papeteries Photogelatin Paper. 70 tons 24 hours Highway, State 96. Phone: 616—FIreside 5-1163

KALAMAZOO PAPER CO., Main Office, Box 2738, 2425 King Highway, 49001. (James A. Wise, Pres and Gen Mgr; J. M. Causey, Vice-Pres-Sales; W R. Noel, Mgr Prod, R W. Woodruff, Vice Pres-Pur and Asst Sec, N P Hahn, Sec-Treas; L A Stech, Sales Mgr, Vincent D Redmond, Gen Supt; Robert W Polderman, Chief Engr; M R. Wilkins, Tech Dir. and Chief Chem; John Gideon, Pur. Agt; Harley Bowhuis, Traffic Mgr) Railroad Siding, N. Y C & G T. W. MILL NO 1. Four 2500-lb. Beaters, two Pulpers, four Jordans, Deinking Equipment. One 133-inch and one 142-inch Fourdriniers; widest trimmed sheets, 120 inches and 130 inches. Tub Sizing on Both Machines. MILL NO 2 Two Pulpers, four 2500-lb Beaters, four Jordans One 100 inch and one 116-inch Fourdriniers; widest trimmed sheets, 90 inches and 105 inches Tub Sizing on both Machines. MILL NO. 3. Two 2500-lb and two 3000-lb. Beaters, two Pulpers, six Jordans, Deinking Equipment One 167-inch and one 180 inch Fourdriniers; tub sizing on both machines; widest trimmed sheets, 156 inches and 167 inches Super Calenders up to 80 inches wide Steam and Electricity. M F, English Finish, Super Offset, Mimeograph, Writing, Register Bond, Label, Music, Drawing, Linings, Coated Papers and Hangings 320 tons 24 hours Highway, Interstate 94, 2 miles East, Interstate 94 continues from junction as State 96 Phone 616—FIreside 3 2667.

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ayton, Ohio. (G. S Douglas, Div Mgr; G C. stin, Prod. Mgr. and Tech. Dir.; R H. Sogard, int Engr; H. J. Vanlerberghe, Traffic Mgr., E Nelson, Pur. Agt; R R. McDonough, Office gr.; R. E. Schmeling, Woodlands Mgr.) S. P. at ill Railroad Siding, Escanaba & Lake Supe- or R R. Two Hydrapulpers and two Dyna- lpers Four Jordans, seven Refiners and six reens. Two 166-inch Fourdriniers; widest mmed sheet, 155 inches One Blade, one Roll d one Flooded Nip On-Machine Coaters pro- icing 150 tons daily and two 152-inch Off- achine Blade Coaters producing 120 tons daily. eam, Electricity and Water. Coated Book pers, Bleached Groundwood Content Uncoated ook Papers and Specialties; 270 tons 24 hours ROUND WOOD MILL. Seventeen Grinders d two Refiners. Hydro-Electric Power, 5 mil- n k w h/yr purchased and 110 million k w.h generated, 18,000 h p Installed Electric Power d 15,000 h p. Installed Water Power; Coal and l 400 and 175 p.s.i. Steam Pressure Ground ood, 100 tons 24 hours. Average Daily Con- mption of Peeled Pulp Wood, 80 (128 cu ft) rds Highways, U S 2 and 41; State 35, 1 mile one: Escanaba, 906 –786-1660.

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ALLIED PAPER CORP Executive and Gen- l Sales Office, 1608 Lake St., 49003. Also erate Bleached Sulphate Pulp Mill at Jackson, a Midwestern Sales Office, 1 E. Wacker Dr., icago, Ill., Clayton L. Russell, Sales Mgr. stern Sales Office: 60 E. 42nd St., New York, Y. 10017, John L'Estrange, Sales Mgr. (W. D rrison, Chairman; E. J. Klimczak, Pres.; J D. ley Pres.-Pulp Div.; E. J. Gilman, Vice-Pres. g, R. Levy, Vice-Pres. Research and Dev.; J. D bet, Vice-Pres. and Gen. Sales Mgr.; H. Ber- k, Sec.-Treas; G C. Freas, Asst. to Pres; d Fragomeli. Prod Mgr.; Wm. J. Haselow, of Quality Control; P. Kraushaar, Dir lustrial Rel; H Peeters, Dir. Prod. Schedul- , L. Stoeffler, Process Dev Mgr.; A Vickery, grg. Mgr.; W. Buenger, Gen. Supt. Bryant , H Horrocks, Gen. Supt. King Div.; M. l. Gen. Supt. Monarch Div.; R. Slevatz, t Rex Div.; C. J. Bos, Mgr. Coating Div; R. Scott, Dir of Pur.; J. R. Bowen, Traffic r.) KING MILL S. P., Kalamazoo, Mich. lroad Sidings: N. Y. C., G. T. W. and P. R. R. ee Rewinders, four Cutters and five Trim- s Four Fourdriniers; widest trimmed sheets, 111, 117 and 130 inches. REX MILL S. P. Mill. R. R. Siding on N. Y. C. R. R. One inch Fourdrinier, widest trimmed sheet 103 es DEINKED PULP MILL, MONARCH L. S. P., Kalamazoo, Mich. Two Carbon ters Two Fourdriniers; widest trimmed ts, 111 and 120 inches. BRYANT MILL. t Cutters, nine Trimmers, seven Coaters, n Supercalenders and three Rewinders. Fourdriniers; widest trimmed sheets, 126, 127, 142 and 152 inches. Also Save Coating Mill. DEINKED PULP MILL. Two stage Bleach System. Deinked Pulp, 150 tons 24 hours. GRADES MADE: Colored Construction, Uncoated Machine Finish, English Finish, Eggshell, Antique and Wove Finish; Book Publishing Papers; Map, Writing Tablet, Duplicator, Bond, Envelope, Index, Mimeograph, Register Bond, Carbonizing Tissue, Poster, Label, Music, Drawing, Box Cover, Litho Coating Rawstock, Bible, Dictionary and Encyclopedia and Specialties. 450 tons 24 hours. COATED: Litho and C2S Offset and Letterpress, Folding Enamel Cover, Varnish Label, Post Card, Gloss Ink Papers, Electrostatic Base Stock, Master Paper, and Specialties, 75 tons 24 hours Highways, U S 12 and 131; State 43 and 96 Phone. 616—Fireside 5 7131

BROWN CO., formerly KVP Sutherland Paper Co., 49004 For Officers see Main Office 277 Park Ave, New York, N Y. 10017. (Charles Sweitzer, Resident Mgr. Pulp, Paper and Board Mfg. Div.) PULP PAPER AND BOARD DIVISION: Railroad Siding. N. Y. C. and C. K. & S. R.R. MILL NO. 1 Four Fibremasters, four 2000-lb., two 2500-lb. and two 4000-lb. Beaters, and five Majestic Jordans. One 117-inch Horne Harper and one 163-inch Pusey & Jones Fourdriniers; widest trimmed sheets, 104 and 148 inches. Five Parchment Machines; widest trimmed sheets, 80 and 100 inches. MILL NO. 2 Two 6000-lb. and one 1000-lb. Hydrapulpers, three 2500-lb. Horne Beaters, two 2000-lb. Bertram Beaters, four 2000-lb. and one 2500-lb. Jones Beaters, three 2500-lb. Vortex Beaters, ten Majestic Jordans, eight Fibre-masters, one 2500-lb. Pulpmaster and one 2000-lb. Slushmaker. One 165-inch Bagley & Sewall Fourdrinier; widest trimmed sheet, 148 inches: one 167 inch Beloit Fourdrinier; widest trimmed sheet, 148 inches; two 139-inch Yankee Fourdriniers; widest trimmed sheet, 126 inches. Nine Waxing Machines, Steam and Electricity. Waterleaf, Waxing, Waxed, Vegetable Parchment, Bond, Manifold, Offset, Wrappings and Paper Specialties. MILL NO. 1, 87½ tons; MILL NO. 2, 240 tons 24 hours. For Converting Eupt., See Converters' Section. EAST SIDE MILL. Five Beaters, three Hydrafiners, four Jordans. One Seven-Cylinder, widest trimmed sheet 93 inches. NORTH SIDE BOARD MILL Nine Hydrapulpers, six Beaters, one Shartle Breaker Beater, two Continuous Broke Beaters, eight Hydrafiners, two Morden Stock Makers, two Sprout Waldron Disc Refiners, eighteen Jordans. One 100-inch Seven-

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HAWTHORNE PAPER CO., P.O. Box 2858, King Highway, 49003. (William Slavin, Chairman of Board; Louis J. Slavin, Pres.; S. R. Zatz, Sec.; C. Frederick Young, Tech. Dir.; E. M Betz, Traffic Mgr.) Railroad Siding, M. C. R. R., ¼ mile east of city limits. Ten Beaters, two Jordans, four Refiners and four Pulpers. Ross Paper Machine Ventilator System. One 92-inch and one 105-inch Fourdriniers; widest trimmed sheets, 82 and 92 inches. Fifty-eight Driers, 42 inches in Diameter, 92 and 105 inches wide. Purchased and Generated Electricity. Coal. 275-lb. Steam Pressure. Water Treatment Plant. Turbine and Other Drives. Rag and Sulphite Bond, Ledger, Index, Offset, Onion Skin and Manifold, Embossed, Translucent Master, Mimeograph, Duplicator, Vellum, Sulphite Text and Cover, Technical Papers, Wet Strength Map and Chart, Blue Print, Direct Process, Specialty Papers, Rag Book, Weddings, Papeteries, Photogelatin Paper. 70 tons 24 hours. Highway, State 96. Phone: 616—Fireside 5-1163.

KALAMAZOO PAPER CO. Main Office, Box 2738, 2425 King Highway, 49001. (James A. Wise, Pres. and Gen. Mgr.; J. M. Causey, Vice-Pres.-Sales; W. R. Noel, Mgr. Prod.; R. W. Woodruff, Vice-Pres.-Pur. and Asst. Sec.; N. P. Hahn, Vice-Pres., Sec. and Treas.; L. A. Stech, Sales Mgr.; Vincent D. Redmond, Gen. Supt.; Robert W. Polderman, Chief Engr.; M. R. Wilkins, Tech. Dir.; Rex Treece, Chief Chem.; John Gideon, Pur. Agt.; Harley Bowhuis, Traffic Mgr.) Railroad Siding, N. Y. C. & G. T. W. MILL NO. 1. Four 2500-lb. Beaters, two Pulpers, four Jordans. One 133-inch and one 142-inch Fourdriniers; widest trimmed sheets, 120 inches and 130 inches. Tub Sizing on Both Machines. MILL NO. 2. Two Pulpers, four 2500-lb. Beaters, four Jordans. One 100-inch and one 116-inch Fourdriniers; widest trimmed sheets, 90 inches and 105 inches. Tub Sizing on both Machines. MILL NO. 3. Two 2500-lb. and two 3000-lb. Beaters, two Pulpers, six Jordans One 167-inch and one 180-inch Fourdriniers; tub sizing on both machines; widest trimmed sheets, 156 inches and 167 inches. Super Calenders up to 80 inches wide. Two Air Knife Coaters, widest trimmed sheet 80 inches, and one Blade Coater, widest trimmed sheet 90 inches; 150 tons 24 hours. Electricity: 440 v., 60 cycles, 3 phase, 12,000 KW Generated Coal 850 p.s.i. Steam Pressure M. F., English Finish Super Offset, Mimeograph, Writing, Register Bond Label, Music, Drawing, Linings, Coated Papers and Hangings. 320 tons 24 hours DEINKED PULP MILL. 200 tons 24 hours High Way, Interstate 94, 2 miles East, Interstate 94 continues from junction as State 96 Phone 616—Fireside 3-2667

NATIONAL GYPSUM CO., 49099 Main Office, 325 Delaware Ave., Buffalo, N. Y., 14202. For Executives, see Main Office. (J. G. Stapler, Gen. Prod. Mgr.; W. J. Sprau, Prod. Mgr.-Paper; E. M. Baker, Plant Mgr.) Railroad Siding, Mich. Cent. Two Hydrapulpers, two Jordans and three Refiners. One 108-inch Eight Cylinder, widest trimmed sheet, 100 inches. Electricity. Gypsum Liner Board Paper, 135 tons 24 hours Highway, U.S. 12. Phone: 616—Fireside 3-1579

SIMPSON LEE PAPER CO Corporate Office, 125 Pratt Rd., P. O. Box 2168, 49003. Incorporated in State of Washington, July 28, 1959. (Maxwell D. Bardeen, Pres.; James W Winn, Vice-Pres. and Tech Dir.; Albert A Christian, Vice-Pres.; Norman Bardeen, Vice-Pres., Robert Boyle, Vice-Pres.; C. W. Bardeen, Sec., Kenneth A. Warren, Treas. and Asst. Sec; L. R. Klenow, Asst. Treas; Orlin H Roth, Personnel Exec.; Ralph Eichhorn, Sales Exec.) Mills at Ripon, Calif., Vicksburg, Mich.; Everett, Wash. Owns 50% Lee Schoeller Paper Co., Pulaski, N. Y. Phone: 616—345-8681

WESTERN MICHIGAN UNIVERSITY, Department of Paper Technology. (Raymond L. Janes, Head of Department; George E. Kohrman, Dean; James W. Miller, Pres; Russell H. Seibert, Vice-Pres.; Hugh Warren, Plant Dir.) Pilot Stock Preparation System: One Jones 250-lb. Beater, one Jones Midget Jordan and one O1-Claflin. One 24-inch trim Pilot Fourdrinier with Size Press, Creping Doctor and Machine Calender. One Pilot Coater, universal type, 26-inch max. trim, one 30-inch tenroll double-facer Supercalender for roll stock; Laboratory sheet processing equipment. Experimental Stainless Steel Digester. Variety of pulp and paper testing instruments and equipment for educational and research purposes. Purchased Electricity, 60 cycles, 3 phase. Wide variety of developmental grades of paper and paperboard from 10 to 150 lbs. (25 x 38-500). 4 tons 24 hours. Highways, U S 131; State I-94. Phone: 616—383-1804.

L'Anse—Baraga Co.

On D.S.S. and A. R.R.

CELOTEX CORP. See Main Office, 1500 No. Dale Mabry Hwy., Tampa, Fla. 33607, for executives. (A. H. Philipp, Works Mgr.; A. O. Wirtanen, Board Mill Supt.; R. J. Slattery, Fabr Supt.; L. W. Swanson, Plant Engr.; R. J. Thorne, Quality Control Supv.) Building Board, Perforated and Unperforated Tile, Other Interior Finish Products, Sheathing and Other Exterior

PERRY H. KOPLIK & SONS, INC.
654 MADISON AVE. • N.Y.10021 • (212)PL 2-2288
TWX: (710) 581-5392
BLEACHED FLUFF DRIED KRAFT PULP

al Offices, 1632 Chicago Ave., Evanston, Ill. ir Executives see General Office. (Robert M. spaugh, Mgr.) S. P. at mill. Four Pulpers, . Jordans, one Refiner. One 122-inch Seven linder; widest trimmed sheet, 112 inches. ne On-Machine Air Knife Coater. Generate own wer, 3 Phase, 60 Cycle, 440 v.; Coal. High ade Box Boards and Test Liners and Clay ated Grades. 135 tons 24 hours. Highways, S. 131, 1 mile; State, 50 and 21, 1 mile. Phone: 6—GL 9-4581.

lamazoo—Kalamazoo Co.

On M. C., Penn-Central, C. K. & S., and G. T. R.R. Greyhound Bus, Air Port, Exp. Tel. and Bank.

ALLIED PAPER INC., Subsidiary of SCM rp., Executive and General Sales Office, 1608 ke St., 49003. Also operate Bleached Sul- ate Pulp Mill at Jackson, Ala., Midwestern es Office, 1 E. Wacker Dr., Chicago, Ill., yton L. Russell, Sales Mgr. Eastern Sales ice: 60 E. 42nd St., New York, N. Y. 10017, n L'Estrange, Sales Mgr. (W. D. Harrison, ief Exec. Officer and Vice-Pres. SCM Corp.; J. Klimczak, Pres.; H. C. Bernick, Sr. Vice- s.; J. P. Feeley, Sec.-Treas.; E. J. Gilman, e-Pres. Mfg.; R. Levy, Vice-Pres. Research l Dev.; J. D. Nisbet, Vice-Pres. and Gen. es Manager; G. C. Freas, Asst. to Pres.; d Fragomeli, Prod. Mgr.; Wm. J. Haselow, r. of Quality Control; P. Kraushaar, Dir. lustrial Rel.; H. Peeters, Dir. Prod. Schedul- ; L. Stoeffler, Process Dev. Mgr.; A. Vickery, grg. Mgr.; K. Sweet, Gen. Supt. Bryant Div.; Horrocks, Gen. Supt. King Div.; M. Carl n. Supt. Monarch Div.; C. J. Bos, Mgr. ating Div.; L. R. Scott, Dir. of Pur.; J. R. wen, Traffic Mgr.) KING MILL. S. P., Kala- zoo, Mich. R.R. Sidings: Penn-Cent. and G. T. R.R. Three Rewinders, four Cutters and Trimmers. Four Fourdriniers; widest trim- d sheets, 107, 111, 117 and 130 inches. REX LL. Sold to Eaton-Dikeman Co. MONARCH LL. S. P., Kalamazoo, Mich. Four Carbon nters. Two Fourdriniers; widest trimmed ets, 111 and 120 inches. BRYANT MILL. ht Cutters, nine Trimmers, three Single, Double and one Trailing Blade Coaters, en Supercalenders and three Rewinders. Five rdriniers; wid trimmed sheets, two 126 142 and nches. DEINKED PULP LL. Two each System. Deinked 5, 150 . GRADES MADE: ored C ted Machine Finish, lish tique and Wove sh Map, Writing slope, Index, zing Tissue, nary and 4 hours. r Pa- DE g

BROWN CO., formerly KVP Sutherland Paper Co., 49007. For Officers see Main Office 277 Park Ave., New York, N. Y. 10017. (Charles Sweitzer, Resident Mgr. Pulp, Paper and Board Mfg. Div.) PULP PAPER AND BOARD DIVISION: Railroad Siding. N. Y. C. and C. K. & S. R.R. MILL NO. 1. Four Fibre-masters, four 2000-lb., two 2500-lb. and two 4000-lb. Beaters, one 400 h.p. Jones Disc Refiner, and four Majestic Jordans. One 117-inch Horne Harper and one 163-inch Pusey & Jones Fourdriniers; widest trimmed sheets 104 and 148 inches. Five Parchment Machines; widest trimmed sheets, 80 and 100 inches. One Air Knife, one Roll and one Solvent Off-Machine Coaters. MILL NO. 2. Two 6000-lb. and one 1000-lb. Hydrapulpers, three 2500-lb. Horne Beaters, two 2000-lb. Bertram Beaters, four 2000-lb. and one 2500-lb. Jones Beaters, three 2500-lb. Vortex Beaters, ten Majestic Jordans, eight Fibre-masters, one 2500-lb. Pulpmaster and one 2000-lb. Slushmaker. One 165-inch Bagley & Sewall Fourdrinier; widest trimmed sheet, 148 inches; one 167 inch Beloit Fourdrinier; widest trimmed sheet, 148 inches; two 139-inch Yankee Fourdriniers; widest trimmed sheet, 126 inches. Two Trailing Blade Off-Machine Coaters. Steam and Electricity. Waterleaf, Waxing, Waxed, Vegetable Parchment, Bond, Manifold, Offset, Wrappings and Paper Specialties. MILL NO. 1, 95 tons; MILL NO. 2, 245 tons 24 hours. For Converting Eqpt., See Converters' Section. EAST SIDE MILL. Four Beaters, one Hydrapulper, three Hydrafiners, four Jordans. One Seven-Cylinder, widest trimmed sheet 93 inches. NORTH SIDE BOARD MILL. Nine Hydrapulpers, six Beaters, one Shartle Breaker Beater, two Continuous Broke Beaters, eight Hydrafiners, one Morden Slushmaker, two Morden Stock Makers, one Sprout Waldron Disc. Refiner. eighteen Jordans. One 100-inch Seven Cylinder, one 116-inch Seven-Cylinder, one 132-inch Seven-Cylinder, one 154-inch Eight-Cylinder; widest trimmed sheets 90 inches, 102 inches, 120, inches and 138 inches. One 76-inch Beloit and one 55-inch Egan Polyethylene Extrusion Coaters. Generated Electricity, Coal. Folding Box Boards, Machine Clay Coated, White Patent Coated News, Bleached and Single Manila Lined Chip, White and News Vat Lined Chip, Solid News and News Lined Chip, Plain and Bending Chip, Sulphite Line Manilas, Foil Laminating Grades, Specialty Grades, Foil Lamination, Grease and Moisture Resistance Laminations, Polyethylene Coated Boards, Hot Waxed and Cold Water Waxed Grades. East Side Plant, 100 tons 24 hours; North Side Plant, 550 tons 24 hours. For Converting Equipt., See Converters' Section. Highways, U. S. 12 and 131, State, 43; I-94. Phone: 616—383-5000.

EATON-DIKEMAN Co., Kalamazoo Mill., P.O. Box 2551, 49003. For Executives see Mt. Holly Springs, Pa., 17065. (Richard Mendham, Supt.) S. P. at Mill. R.R. Siding on Penn-Central R.R. Two Pulpers, two Refiners, two Jordans. One Fourdrinier; widest trimmed sheet 103 inches. Purchased Electricity, 440 v., 60 cycles, 3 phase. Coal. 200 p.s.i. Steam Pressure. Laboratory and Industrial Filter Papers, Saturating and Absorbent Papers, 18 tons 24 hours. Highway, State 96.

GEORGIA-PACIFIC CORP., KALAMAZOO PAPER DIV., formerly Kalamazoo Paper Co., Box 2738, 2425 King Highway, 49003. For Executives, see Main Office, Commonwealth Bldg., P.O. Box 311, Portland, Ore. (A. C. Dennard, Res. Mgr.; W. R. Noel, Mgr. Prod.; N. P. Hahn, Vice-Pres.; Charles O. Beck, Div. Cont.; L. A. Stech, Sales Mgr.; R. W. Woodruff, Pur. Mgr. North Central; L. Sparks, Mgr.-Cust. Serv.; Vincent D. Redmond, Gen. Supt.-Paper Mills; L. H. Mimms, Gen. Supt.-Coating; Robert W. Polderman, Chief Engr.; M. R. Wilkins, Tech. Dir.; Rex Treece, Chief Chem.; John R. Kennedy, Mgr. Ind'l. Relations; John Gideon, Pur. Agt.; Harley Bowhuis, Traffic Mgr.) Railroad Siding. Penn-Central & G. T. W. MILL NO. 1. Four 2500-lb. Beaters, two Pulpers, four Jordans. One 133-inch and one 142-inch Fourdriniers; widest trimmed sheets, 120 inches and 130 inches. Tub Sizing on Both Machines. 94 tons 24 hours. MILL NO. 2. Two Pulpers, four 2500-lb. Beaters, four Jordans. One 100-inch and one 116-inch Fourdriniers; widest trimmed sheets, 90 inches and 105 inches. Tub Sizing on both Machines. 56 tons 24 hours. MILL NO. 3. Two 2500-lb. and two 3000-lb. Beaters, two Pulpers, six Jordans. One 167-inch and one 180-inch Fourdriniers; widest trimmed sheets, 156 inches and 167 inches. Super Calenders up to 80 inches wide. Tub sizing on both machines; 141 tons 24 hours. COATING MILL. Two Air Knife Coaters, widest trimmed sheet 80 inches, and one Fountain Coater, widest trimmed sheet 90 inches; 114 tons 24 hours. Electricity: 440 v., 60 cycles, 3 phase. 12,000 KW Generated. Coal. 850 p.s.i. Steam Pressure. M.F., English Finish, Super Offset, Mimeograph, Writing, Register Bond. Label, Music, Drawing, Linings, Coated Papers and Hangings. DEINKED PULP MILL. 80 tons 25 hours. Highway, Interstate 94; 2 miles East; Interstate 94 continues from junction as State 96. Phone: 616—382-2890.

HAWTHORNE PAPER CO., P.O. Box 2858, King Highway, 49003. (William Slavin, Chairman of Board; Louis J. Slavin, Pres.; S. R. Zatz, Sec.; C. Frederick Young, Tech. Dir.; E. M. Betz, Traffic Mgr.) Railroad Siding, Penn-Central R.R., ¼ mile east of city limits. Ten Beaters, two Jordans, four Refiners and four Pulpers. Ross Paper Machine Ventilator System. One 92-inch and one 105-inch Fourdriniers; widest trimmed sheets, 82 and 92 inches. Fifty-eight Driers, 42 inches in Diameter, 92 and 105 inches wide. Purchased and Generated Electricity. Coal. 275-lb. Steam Pressure. Water Treatment Plant. Turbine and Other Drives. Rag and Sulphite Bond, Ledger, Index, Offset, Onion Skin and Manifold, Embossed, Translucent Master, Mimeograph, Duplicator, Vellum, Sulphite Text and Cover, Technical Papers, Wet Strength Map and Chart, Blue Print, Direct Process, Specialty Papers, Rag Book, Weddings, Papeteries, Photogelatin Paper. 70 tons 24 hours. Highway, State 96. Phone: 616—FIreside 5-1163.

NATIONAL GYPSUM CO., 49099. Main Office, 325 Delaware Ave., Buffalo, N. Y., 14202. For Executives, see Main Office. (J. B. Proctor, Dir. Mfg. Gypsum and Paper, W. J. Sprau, Prod. Mgr.-Paper; E. M. Baker, Plant Mgr.) Railroad Siding, Mich. Cent. Two Hydrapulpers, two Jordans and three Refiners. One 108-inch Eight Cylinder, widest trimmed sheet, 100 inches. Electricity. Gypsum Liner Board Paper, 135 tons 24 hours. Highway, U.S. 12. Phone: 616—FIreside 3-1579.

SIMPSON LEE PAPER CO. Corporate Office, 125 Pratt Rd., P. O. Box 2168, 49003. Incorporated in State of Washington, July 28, 1959. (Malcolm McVickar, Pres. and Gen. Mgr.; James W. Winn, Vice-Pres. and Tech. Dir.; Albert A. Christian, Vice-Pres.; William G. Reed, Jr., Sec.; Kenneth A. Warren, Treas. and Asst. Sec.; L. R. Klenow, Asst. Treas.; Ralph F. Eichhorn, Sales Mgr.) Mills at Ripon, Calif., Vicksburg, Mich.; Everett, Wash. Owns 50% Lee Schoeller Paper Co., Pulaski, N. Y. Phone: 616—345-8681.

WESTERN MICHIGAN UNIVERSITY, Department of Paper Technology. (Raymond L. Janes, Head of Department; George E. Kohrman, Dean; James W. Miller, Pres.; Russell H. Seibert, Vice-Pres.; Hugh Warren, Plant Dir.) Pilot Stock Preparation System: One Jones 250-lb. Beater, one Jones Midget Jordan and one O1-Claflin. One 24-inch trim Pilot Fourdrinier with Size Press, Creping Doctor and Machine Calender. One Pilot Coater, universal type, 26-inch max. trim, one 30-inch ten-roll double-facer Supercalender for roll stock; Laboratory sheet processing equipment. Experimental Stainless Steel Digester. Variety of pulp and paper testing instruments and equipment for educational and research purposes. Purchased Electricity, 60 cycles, 3 phase. Wide variety of developmental grades of paper and paperboard from 10 to 150 lbs. (25 x 38-500). 4 tons 24 hours. Highways, U.S. 131; State I-94. Phone: 616—383-1804.

L'Anse—Baraga Co.

On D.S.S. and A. R.R.

CELOTEX CORP., 49946. For Executives See Main Office, 1500 No. Dale Mabry Hwy., Tampa, Fla. 33607. (A. H. Philipp, Plant Mgr.; J. L. Dickson, Prod. Mgr.; A. O. Wirtanen, Board Mill Supt.; R. J. Slattery, Fabr. Supt.; L. W. Swanson, Plant Engr.; R. J. Thorne, Quality Control Supv.) Building Board, Perforated and Unperforated Tile, Other Interior Finish Products, Sheathing and Other Exterior Insulation Board Products, Mineral Board Products, 270 tons 24 hours. Phone: 906—524-6101.

Manistique—Schoolcraft Co.

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ALL GRADES, DOMESTIC & IMPORTED
WOOD PULP

e. Water Treatment Plant. Chip Board. 50 is 24 hours. Highway, U. S., 131, 1 mile; liana Toll Road, 8 miles. Phone: 616—435-85.

troit—Wayne Co.

On M. C.; D. & T. Sh. Line; Det. Ter.; G. T.; Penn-Central; Wabash; D. T. & I.; P. M.; C. P. R. R. M. O., Bank, Exp., Tel. and Air Port.

SCOTT PAPER CO., 9125 W. Jefferson Ave., 217. For Executives, see main office at iladelphia, Pa. 19113. (Operating Personnel: . F. Schnaufer, Gen. Mgr.; J. S. Brown, Pro-ction Mgr.; K. G. Sell, Sales Mgr.; R. E. rguson, Jr., Tech. Dir.; F. M. Foster, Plant gr.; H. B. Randolph, Pur. Agt.; J. R. Hulbert, int Traffic Mgr.; D. R. Biren, Personnel Mgr.; J. Krause, Plant Accountant; K. C. Walt-in, Paper Mill Supt.; R. S. Murray, Finishing pt.; E. S. Reese, Chief Consumer Rep.; R. Lake, Power Supt.) Railroad Siding, Mich. nt. R.R. DELRAY MILL. S. P. at Mill. Ten rdans, four Mordens. Three 132-inch Yankee . G. Machines; two 136-inch and one 142-ch Yankees. Generated Electricity. Coal. ater Treatment Plant. Toilet Tissue in Rolls, apkins, Wiper Tissues, Waxing Base Stock, . G. Tissue, Bleached and Colored, Coating pers, Waxing, Fourdrinier and Machine Car-nizing and Glazed Specialties. 270 tons 24 urs. SULPHITE PULP MILL. (Idle) Phone: 3—VI 2-0042.

canaba—Delta Co.

On Lake Michigan and E. & L. S., C. N. W., and Soo R.R. Exp., Tel., Bank and Air Port at Escanaba, 6 miles.

ESCANABA PAPER CO., a Subsidiary of The ead Corp., Escanaba, 49829. For Executives, : Main Office in Dayton, Ohio. (Mill person-l: O. C. Christiansen, Div. Mgr.; G. C. Eastin, od. Mgr. and Tech. Dir.; R. H. Sogard, int Engr.; H. J. Vanlerberghe, Traffic Mgr.; E. Nelson, Purchasing Agent; R. R. Mc-nough, Office Manager.) S. P. at Mill. Rail-ad Siding, Escanaba & Lake Superior and Soo ne R.R.s. Two Hydrapulpers and two Dyna-lpers. Four Jordans, seven Refiners and six reens. Two 166-inch Fourdriniers; widest mmed sheet, 155 inches. One blade and e Flooded Nip On-Machine Coaters pro-cing 165 tons daily and two 152-inch Off-achine Blade Coaters producing 160 tons daily. am. Electricity and Water. Coated Printing d Converting. 280 tons 24 hours. GROUND OOD MILL. Twelve Grinders and two Re-ers. Hydro-Electric Power, 4 million k.w.h./yr. rchased and 110 million k.w.h./yr. generated, .000 h.p. Installed Electric Power and 12,500 . Installed Water Power; Coal and Oil; 0 and 175 p.s.i. Steam Pressure. Ground-od, 100 tons 24 hours. Average Daily Con-nption of Peeled Pulp Wood, 60 (128 cu. ft.) rds. Highways, U. S. 2 and 41; State 35, 1 le. Phone: Escanaba, 906—786-1660.

Filer City—Manistee Co.

On C & O. R.R. M. O.; nearest Bank and Tel., Manistee, 2½ miles. Nearest Air Port, Manistee-Blacker.

PACKAGING CORP. OF AMERICA. 49634 For Executives, see Main Office at Evanston, Ill. (At Mill: C. W. Tasker, Vice-Pres. and Mgr.) S. P. Manistee. Railroad Siding, C. & O. R.R. Six Pressure and Non-Pressure Disc Refiners, ten Jordans, five Bleachers, nine Filters and three Pulpers and three Paper Machine Ventilator Systems. Two 174-inch and one 160-inch Fourdriniers; widest trimmed sheets, 148 158 and 160 inches. One hundred and thirty Driers, 5 ft. in Diameter, 154 and 168 inches. On-machine size press, air knife and trailing blade Coaters and off-machine air knife Coaters. Electricity, 19,000 k.w., 60 cycles, 3 phase; 1,500 k.w. Purchased and 17,500 k.w. Generated. Coal, Oil and Gas, 600,000 lbs. per hr. Steam generated at 610 p.s.i. Water Treatment plant. .009 Corrugating Medium, 400 tons; Bleached Kraft Paper and Board, 200 tons 24 hours. SEMI-CHEMICAL and KRAFT PULP MILLS. Three 3,000 cu. ft. Batch, two Pandia and one Esco Continuous Digesters, six Impco Barkers, one 15-knife 96-inch and one 10-Knife 90-inch Chippers, five Sprout Waldron Grinders. CEHED Bleach Plant. Semi-Chemical Pulp, 400 tons; Unbleached Kraft Pulp, 220 tons and Bleached Kraft Pulp, 202 tons 24 hours. Average Daily Consumption of Peeled Pulp Wood, 750 Cords. Highway, U. S., 31, 1 mile. Phone: PArkview 3-9951.

Grand Rapids—Kent Co.

On G. T.; M. C.; Penn-Central; P. M. R.R.

PACKAGING CORP. OF AMERICA, 415 Fulton St., E., Grand Rapids, Mich., 49502. General Offices, 1632 Chicago Ave., Evanston, Ill. For Executives see General Office. (Robert M. Alspaugh, Mgr.) S. P. at mill. Four Pulpers, six Jordans, one Refiner. One 122-inch Seven Cylinder; widest trimmed sheet, 112 inches. One On-Machine Air Knife Coater. Generate own power, 3 Phase, 60 Cycle, 440 v.; Coal. High Grade Box Boards and Test Liners and Clay Coated Grades. 135 tons 24 hours. Highways, U.S. 131, 1 mile; State, 50 and 21, 1 mile. Phone: 616—GL 9-4581.

Kalamazoo—Kalamazoo Co.

On M. C., Penn-Central, C. K. & S., and G. T. R.R. Greyhound Bus, Air Port, Exp. Tel. and Bank.

ALLIED PAPER INC., Subsidiary of SCM Corp., Executive and General Sales Office, 1608 Lake St., 49003. (W. D. Harrison, Chief Exec. Officer and Vice-Pres. SCM Corp.; E. J. Klimczak, Pres.; H. C. Bernick, Sr. Vice-Pres.; J. P. Feeley, Sec.-Treas.; E. J. Gilman, Vice-Pres. Mfg.; R. Levy, Vice-Pres. Research and Dev.; J. D. Nisbet, Vice-Pres. Sales; G. C. Freas, Vice-Pres. Admin.; J. H. L'Estrange, Gen. Sales Mgr.; Wm. J. Haselow, Dir. of Quality Control; P. Kraushaar, Vice-Pres., Ind. Rel.; H. Peeters, Dir. Prod. Scheduling; L. Stoeffler, Process Dev. Mgr.; A. Vickery, Engrg. Mgr.; K.

40# Finch Textbook EF Cream White manufactured by Finch, Pruyn & Co., Inc.

PERRY H. KOPLIK & SONS, INC.
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BLEACHED FLUFF DRIED KRAFT PULP

Sweet, Gen. Supt. Bryant Div.; H. Horrocks, Gen. Supt. King Div.; M. Carl, Gen. Supt. Monarch Div.; C. J. Bos, Mgr. Coating Div.; L. R. Scott, Dir. of Pur.; J. R. Bowen, Traffic Mgr.) KING MILL, S. P., Kalamazoo, Mich. R.R. Sidings: Penn-Cent. and G. T. W. R.R. Three Rewinders, four Cutters and five Trimmers. Four Fourdriniers; widest trimmed sheets, 107, 111, 117 and 130 inches. MONARCH MILL, S.P., Kalamazoo, Mich. Four Carton Coaters. Two Fourdriniers, widest trimmed sheets, 103 and 108 inches. BRYANT MILL. Four Cutters, four Trimmers, three Single, one Double and one Trailing Blade Coaters, seven Supercalenders and three Rewinders. Five Fourdriniers; widest trimmed sheets, two 126, 127, 142 and 152 inches. DEINKED PULP MILL. Two stage Bleach System. Deinked Pulp, 150 tons 24 hours. GRADES MADE: Adding Machine, Bible, Black, Bond (Air Mail, Cotton Fibre, Sulphite) Coated and Uncoated Book, End Leaf, Box Covering, Bristol, Carbonizing, Coating Base, Construction, Cover, Direct Process, Drawing, Duplicator, Envelope, Foil Mounting, Folder, Gift Wrapping, Greeting Card, Cumming, Label, Ledger, Manifold, Manila, Map, Mimeo, Offset, Onionskin, Opaque, Papeterie, Place-Mat, Post Card, Poster, Register, Sensitizing, Shelf, Tablet, Text, Vellum, Xerographic. 450 tons 24 hours. COATED: Electrostatic Base Stock, Master Paper, and Specialties, 75 tons 24 hours. BLADE COATED: C2S Matte Finish Book Publishing Papers, 100 tons 24 hours. Highways, I-94 and 131; State 43 and 96. Phone: 616—Fireside 5-7131.

BROWN CO., Board and Specialty Papers Division, 49007. Formerly KVP Sutherland Paper Co. For Officers see Main Office at New York, N. Y. (D. I. MacCalman, Vice-President and General Manager; C. Cooper, General Manager Sales and Marketing-Specialty Papers; W. McCarthy, General Manager Sales and Marketing-Board; A. T. Muha, General Manager of Manufacturing; W. Hathaway, General Superintendent Papermaking; C. W. Holloman, Mgr. Manufacturing Services; J. Giambrone, Production Manager-Board; D. Chapin, Chief Engineer) Railroad Siding Penn-Central and C. K. & S. R.R. MILL NO. 1.—One Vortex Beater, three Fibermasters, four Majestic Jordans, one 20" Sprout Waldron Disc Refiner, one 400 HP Jones Disc Refiner, two 4,000 lb. Morden Slushmakers, one Barracuda Pulper, one 117" Horne Harper, and one 163" Pusey & Jones Fourdriniers, widest trimmed sheets 104 and 148 inches. Five Parchment Machines; widest trimmed sheets 80 and 100 inches. One Air Knife, one Roll and one Solvent Off-Machine Coaters. MILL No. 2. ... 6,000 lb. and one 1,000 lb. Hydrapulpers, three 2,500 lb. Horne Beaters, two 2,000 lb. Bertram Beaters, four 2,000 lb. and one 2,500 lb. Jones Beaters, three 2,500 lb. Vortex Beaters, ten Majestic Jordans, eight Fibermasters, one 2,500 lb. Pulpmaster and one 2,000 lb. Slushmaker. One 165 inch. Bagley & Sewall Fourdrinier; widest trimmed sheet, 148 inches; one 167 inch Beloit Fourdrinier; widest trimmed sheet, 148 inches; two 139 inch Yankee Fourdriniers; widest trimmed sheet, 126 inches. Two Trailing Blade Off-Machine Coaters. Steam an Electricity. Waterleaf, Waxing, Waxed, Veg table Parchment, Bond, Manifold, Offset, Wra pings and Paper Specialties. Mill No. 1, 95 ton Mill No. 2, 245 tons 24 hours. For Convertin Eqpt., See Converters' Section.

BOARD MILLS: Nine Hydrapulpers, on Morden Slushmaker, one Continuous Brok Beater, eight Hydrafiners, two Morden Stock makers, ten Jordans. One 132 inch seven-Cy inder, and one 154 inch eight-Cylinder ma chine, widest trimmed sheets, 120 inches an 138 inches. One 76-inch Beloit and one 5 inch Egan polyethylene extrusion coaters. On Waldron 76-inch, one Inta-Roto 56 inch, on Mercury 56 inch Laminators. Generated elec tricity, coal. Folding box boards, machine cla coated, white patent coated news, bleached an single manila lined chip, white and news va lined chip, solid news and news lined chip, plai and bending chip, sulphite lined manilas, foi laminating grades, specialty grades, foil lami nation, grease and moisture resistant lamina tions, polyethylene coated boards, hot waxed an cold water waxed grades. 300 tons per 24 hours For Converting Equipt. See Converters' Sec tion. Highways, U.S. 12 and 131, State 43 I-94. Phone: 616—383-5000.

EATON-DIKEMAN Co., Kalamazoo Mill. 49003. For Executives see Mt. Holly Springs Pa., 17065. S. P. at Mill. R.R. Siding on Penn Central R.R. Two Pulpers, two Refiners, tw Jordans. One Fourdrinier; widest trimmed shee 103 inches. Purchased Electricity, 440 v., 6 cycles, 3 phase. Coal. 200 p.s.i. Steam Pressure Laboratory and Industrial Filter Papers, Satura ing and Absorbent Papers, 18 tons 24 hour. Highway, State 96. Idle.

GEORGIA-PACIFIC CORP., KALAMAZOO PAPER DIV., formerly Kalamazoo Paper Co. Box 2738, 2425 King Highway, 49003. For Executives, see Main Office, Commonwealth Bldg. P.O. Box 311, Portland, Ore. (N. P. Hahn Res. Mgr.; W. R. Noel, Mgr. Prod.; Charle O. Beck, Cont.; R. W. Woodruff, Pur. Mgr North Central; L. Sparks, Mgr.-Cust. Serv.; Vin cent D. Redmond, Gen. Supt.-Paper Mills; L. H Mimms, Gen. Supt.-Coating; Robert W. Polder man, Chief Engr.; M. R. Wilkins, Tech.; Re Treece, Tech. Dir.; John R. Kennedy, Mgr Ind'l. Relations; John Gideon, Pur. Agt.; Joh Cutler, Traffic Mgr.) Railroad Siding. Penn.-Cen tral & G. T. W. MILL NO. 1. Four 2500-lb. Beat ers, two Pulpers, four Jordans. One 133-inch an one 142-inch Fourdriniers; widest trimmed sheets 120 inches and 130 inches. Tub Sizing on Boti Machines. 94 tons 24 hours. MILL NO. 2. Tw Pulpers, four 1500-lb. Beaters, four Jordans. On 100-inch and one 116-inch Fourdriniers; wides trimmed sheets, 90 inches and 105 inches. Tu Sizing on both Machines. 56 tons 24 hours MILL NO. 3. Two 2500-lb. and two 3500-lb Beaters, two Pulpers, six Jordans. One 167 inch and one 180-inch Fourdriniers; widest trim med sheets, 156 inches and 167 inches. Tu sizing on both machines; 141 tons 24 hours COATING MILL. Two Air Knife Coater

40# Finch Textbook EF Cream White manufactured by Finch, Pruyn & Co., Inc.

MHI-00023

Industries Asked to Join

City Okays Contract For Survey on Costs

Invitations are going out to six Kalamazoo area industries to become partners with the City of Kalamazoo in a multi-million-dollar sewage treatment plant.

The City Commission Monday night awarded an engineering contract for preliminary plans and a survey of how the cost could be divided among the city and these companies:

Allied Paper Corp., Kalamazoo Paper Co., KVP Sutherland Paper Co., Rex Paper Co., Upjohn Co. and National Gypsum Co.

The engineering contract was awarded to the Toledo firm of Jones, Henry and Williams.

The preliminary phase will take about six months and will cost between $25,000 and $30,000, City Manager Clarence H. Elliott reported. The money will come from the city's 1963 budget.

Elliott said letters will go out within a few days to the proposed industrial participants.

IN OTHER ACTION, the commission formally approved an addition to the compromise annexation agreement with the Portage Township Board.

The original Dec. 15 agreement called for the city to annex Upjohn Co. property in Portage while the rest of the township in return would receive $3 million worth of sewer lines.

Last night's additional provisions clarified several points in the agreement, which was drafted as a compromise in the 11-month Kalamazoo-Portage annexation controversy.

The additions were approved after Elliott read a telegram from Herbert Larkin of the State Health Department, giving the city support in its proposal to extend sewer service to Portage Township in exchange for Upjohn's tax base.

The agreement, Larkin said, "provides a satisfactory basis for issuance of permits by the department for sewers in Portage Township, the same as for er lines. Annual maintenance and operating costs were estimated at $524,000.

Tentative estimates in the Hazen and Sawyer report indicated that Allied Paper Co. would be charageable for 42 to 52 per cent of the construction cost.

Next would be Kalamazoo Paper Co., 16 to 19 per cent; the city, 10 to 13 per cent; KVP Sutherland Paper Co., 7 to 9 per cent; Rex Paper Co. and the Upjohn Co., both 6 to 8 per cent, and National Gypsum Co., 2 to 3 per cent.

The Hazen and Sawyer study, which was financed through a $50,000 Kalamazoo Foundation grant, will be expanded and refined in the current study by Jones, Henry and Williams.

JONES, HENRY and Williams will carry out preliminary planning, only, under terms of the contract approved last night. Further commission action would be necessary to continue with detailed plans and specifications for the sewage plant.

The firm, which designed the city's existing plant about nine years ago, would be paid on a fee schedule recommended by professional engineering groups.

Elliott said the engineering cost for detailed plans and specifications would be in the neighborhood of $200,000.

The $25,000 to $30,000 cost for the preliminary phase now under way represents out-of-pocket costs to the engineers.

INDIVIDUAL COSTS to the city and six industries will hinge on how many take part. The fewer the participants, the greater the cost to each.

The concept of a joint plant won encouragement last night from Lawrence [illegible]eming, executive sec[illegible] the Water Resources Co[illegible].

In a telegram [illegible] Mayor Paul E. Morrison, O[illegible] said the city's study "to define conditions by which municipal sewage, area paper mills and other industrial wastes can be combined and treated to meet estab-

ment with Portage Township provided that:

- The $3 million sewer lines into Portage must be spent entirely within unincorporated areas of the township. But if an area which received sewers later incorporated, sewer service would not be cut off.
- Sewer services would be provided for 50 years starting when the Upjohn property is

2-5-63

Allied Paper Earnings Dip

Allied Paper Corp. today reported a decline in earnings for 1962 despite a 5.4 per cent increase in sales.

Sales rose $2.5 million from $45,774,890 in 1961 to $48,272,011 last year, the company said. Earnings in 1962 amounted to $885,205, or 71 cents a share, compared to 1961 earnings of $1,269,730.

3-29-63

Sales Up, Earnings D[illegible] Allied Paper Report

A decline in earnings despite an increase in sales was reported by Allied Paper Corp. in its 1962 annual report distributed last week.

The report, issued by board chairman Arnold H. Maremont and President Ward D. Harrison, showed a 5.2 per cent increase in net sales to $48,272,011.

Net earnings in 1962 amounted to $885,205, or 71 cents a share, compared to 1961's earnings of $1,269,730, or $1.09 a share.

Harrison expressed optimism for 1963's sales and said Allied/Egry Business Systems, a division of Allied, is expected to increase its sales by 25 per cent.

Allied/Egry, located at Dayton, Ohio with 10 branch plants in the U.S., accounted for about 40 per cent of the company's 1962 sales.

The division is the fourth largest business forms company in the U.S., Harrison said, and uses more than 20 per cent of the paper produced at Allied mills in Kalamazoo. Paper required for the Allied/Egry expansion will be made here.

J. D. Bailey, executive vice president of Allied reported that **a new 30,000 square foot building and pulp mill equipment built at the King Mill last year are now operating at full capacity.**

COMPLETION of the project has made it possible to ship de-inked pulp from the King Division to paper machines at the Bryant De-inking operations at the Bryant site have been suspended, resulting in a 25 per cent reduction in de-inked pulp and a layoff of 25 employes.

Company officials said the market for office copying papers is expanding. The company recently introduced its "All-Dri" copying paper, developed by the Allied research department headed by Dr. Robert M. Levy.

Previous copying papers developed included a base paper for the electrostatic process and a thermographic paper for use in copying machines.

During 1962 the company

4-21-63

Sho[illegible]

[illegible] increas[illegible] weight boo[illegible] according to E. [illegible] president in ch[illegible] facturing, have b[illegible] popularity becaus[illegible] postage rates.

MHI-00024

Kalamazoo got their first look today at the Kalamazoo exhibit which will be sent to the Berlin Industrial Fair in September

The look was confined to a four foot long scale model of the preliminary plan as submitted to the United States Information Agency by Will Burtin New York designer

Burtin, who also designed the Kalamazoo exhibit now touring England, brought the model of his Berlin display to Kalamazoo this morning.

It will be on exhibit at a luncheon at noon Friday at the Hotel Harris The luncheon, arranged by the Kalamazoo Chamber of Commerce, will provide the city's industrial leaders with an idea of the scope and planning of the exhibit so they may determine which of their products can be best displayed as a part of the exhibit Burtin will describe his design at the luncheon Reservations for the "Dutch Treat" luncheon may be secured by calling the Chamber of Commerce Friday morning

* * *

"THIS Berlin show is going to be the major effort by the United States at that important international fair," Burtin said this morning

"The Berlin exhibit is many, many times larger and more complete than the Kalamazoo exhibit now touring England. The hall alone offers more than [illegible] square feet of exhibit space

"We expect this exhibit on Kalamazoo to draw more than a quarter of a million visitors, many of whom will be from East Germany. This is the group we particularly hope to reach

"For that reason we are emphasizing the place of American labor in a typical middlewestern city. We will attempt to show the workers of both East and West Germany that the American working man and woman work at jobs which pay well and ho

ican labor

* * *

THE UNITED STATES Department of Labor, which is working on the Kalamazoo exhibit with the United States Information Agency, has had representatives in Kalamazoo this week also They have been conferring with local labor leaders relative to the part to be played by actual Kalamazoo workers, several of whom are expected to be sent to Berlin to take a "live" part in the display

Kalamazoo's paper industry will comprise the backbone of the exhibit, Burtin said. In fact, the visitor will tour through the two-floor hall by following a gleaming sheet of unwinding paper which will carry pictures and stories of life and work in Kalamazoo.

"But in addition to meeting the paper industry the German visitor will also see pictures and products from many of our other plants and firms, large and small In case where it is impossible to ship actual products because of their size we hope to use large blow up pictures Burtin said

* * *

"THROUGH the building will be large glass enclosed display cases devoted to almost every phase of life and work in Kalamazoo This will include your new downtown plan for 1980 education, city government, religion, art, music, homes and so on

"We are just beginning to get into the assembling phase of this project after months of planning both in the United States and in Germany. The United States Information Agency people are hard at work in Berlin now.

"We feel that we will be able to present to the people of both East and West Germany a picture of an American city in which the people live well, work hard and enjoy the rewards of their freedom"

9, 1958

Saturday

"Inasmuch as Allied is one of the largest consumers of waste paper in the book paper producing industry," Nelson said, "one of our major steps was to provide ourselves with constant and dependable sources of waste paper Therefore, we have devised separate specifications for each type of waste paper that could be used in our process."

As a result, he said, Allied now receives from suppliers waste paper packs that are quite uniform in fiber contents and free of offending materials.

Another major step is establishment of technical control over chemical processes required in de inking operations, with the goal of cleaner pulp with more uniform brightness and color.

In the paper mills all beaters, measuring tanks and chests have been recalibrated and restandardized during the past six months

The program for the future at Allied calls for establishment of automatic controls on chlorination and hypochlorite bleaching stages in the de-inking mills. Exact metering of chemicals to each paper machine also is planned

August 31, 1958

Sept 2, 1958

MH-00025

Kalamazoo Gazette
Dec. 2, 1955

NEW EXECUTIVE TEAM TAKES CHARGE OF ALLIED PAPER MILLS
W. A. Kirkpatrick, Herbert B. Johnston, E. J. Gilman, C. F. Chaplin
—Gazette photo

Thor Corp. New Owner Of Allied

Mills' Stockholders to Receive $46 per Share.

Completion of the transaction whereby Allied Paper Mills were purchased by the Thor Corporation, Chicago, was announced today by Arnold H Maremont chairman of the Thor board of directors

A new executive team of four Allied men has been named by the Thor management to control operations of the three mills of Allied, Maremont announced at the same time. They will operate the mills as a division of Thor. The mills are known as the King and Monarch in Kalamazoo and Bardeen in Otsego

NEW EXECUTIVE TEAM

Members of this team are:

Charles F. Chaplin, former Chicago sales manager, named vice president and general sales manager.

E. J. (Jack) Gilman, vice president and plant manager.

W. A. Kirkpatrick, vice president and technical director.

Herbert B. Johnston, vice president and plant engineer.

Maremont said today "The new executive team will usher in a new spirit at Allied, based on increased service to customers and a search for new technical developments which we hope will be of aid not only to the company, but to the paper industry in general."

RETAINED AS CONSULTANT

The Thor chairman also said D R Curtenius, former Allied president, will be retained by the new division in a consulting capacity.

He declared the transaction means that Thor has acquired a business of a net worth of $10,600,000 Allied sales in recent years have ranged between $20,000,000 and $22,000,000, he declared.

Maremont and other Thor officials were in Kalamazoo all day Thursday concluding details of the complicated financial deal. A letter was mailed to stockholders today detailing provisions of transfer of the stock by shareholders to the Thor Corp This will be accomplished through transfer to the Allied Paper Mills Co., which has been set up to meet legal requirements of the transfer.

SHARE PRICE $46

The agreement calls for a price of $46 per share to be paid to shareholders for their common stock, although the price to be paid by Thor to the "dummy" company will be $48.50 per share The $2.50 difference is accounted for by the fact that the 1955 income taxes of Allied must be paid and other expenses prior to the transaction must be provided for

Through a misunderstanding it previously had been announced that $52 per share was to be paid for the stock.

The estimated purchase price paid for the local paper concern is approximately $5,500,000. The aggregate purchase price of nearly $9,000,000 was reduced to this figure since cash, bank deposits, life insurance, bonds and preferred stock were retained for Allied stockholders.

Kalamazoo Gazette
Jan. 15, 1956

P. Kraushaar Joins Allied Paper Staff

Allied Paper Mills, a division of Thor Corporation, today announced the appointment of Philip F. Kraushaar as director of industrial relations for Allied

Kraushaar comes to Allied from the Paper Mill and Panelyte Division of St. Regis Paper Company, where he was personnel manager.

Previously, Kraushaar was director of personnel for the city of Battle Creek During World War II, he was in charge of the personnel assignment division at Army Air Force Base, Keesler Field, Miss

He served as a member of the 1954 Bureau of National Affairs' Personnel Policy Forum and is a member of the Midwest Employes Relations Conference of the National Association of Manufacturers and a member of the Kalamazoo Personnel Association

Kraushaar is a graduate of Tri-State College Angola Ind He took his master's degree in business administration at the University of Denver in 1948.

SA 045879

ALLIED PAPER MILLS CHRONOLOGY

1875	Monarch Mill was built
1895	John King and Noah Bryant built the Bryant Mill of Bryant Paper Co. splitting off from Bardeen Paper Co. of Otsego, MI.
1901	King starts King Paper Co. in Kalamazoo
1922	Allied Paper Corp. was formed by merger of Bardeen, King and Monarch mills
1955	Allied Paper becomes part of Thor Corp.
1956	Allied Paper buys Bryant Mill from St. Regis Paper Co.
1960	Allied Paper Co. establishes its Business Forms Div. by acquiring Egry Register Co.
1967	Allied is acquired by SCM
1985	SCM acquired by Hanson Industries

SA00022642

THE ALLIED STORY

In the year 1921 the King Paper Company, the Monarch Paper Company of Kalamazoo and the Bardeen Paper Company of Otsego were consolidated into a new Company called the Allied Paper Company of Otsego.

Number 1 and 2 paper machines at the Allied Paper Mills.

Later in 1911, Number 3 and 4 paper machines at the King Mill were built in 1901.

there were nine coating machines at this mill. Years ago four of the coating machines were taken out. In their place we added the Photographic Department which makes an entirely new product.

The Monarch Mill was built in 1875. At that time there was only one paper machine which was 60" wide. It was the first paper machine in Kalamazoo. Now our Monarch Mill has two paper machines and nine coating machines.

On December 1, 1955, the Assets of the Allied Paper Mills were purchased by the Thor Corporation. The mill continued to operate as Allied Paper Mills Division, Thor Corporation. On October 4, 1956 me of our company was changed to Allied Paper Corporation. Our the eighth largest producer of book papers in the United States. Bryant Mill was acquired by a Lease-Purchase Agreement from the Paper Company July 1, 1956. In this mill there are five paper d nine coating machines. The mill was built originally in 1895. utive Offices are located on Lake Street across from the ilding also houses the Manufacturing, Sales, Traffic, Billing Relations Offices. The Purchasing, Cost Accounting, General nnel, Sample, Insurance, Payroll and Medical Offices are ce building on Portage Street adjacent to the Bryant

SH 022650

Interrogatory No. 20

Larry Espel - Popham, Haik, Schnobrich, & Kaufman, Ltd.,- Attorney, 4344 IDS Center, Minneapolis, Minnesota 55406 (612) 333-4800.

QUESTION - Interrogatory No. 2

With respect to the Bryant, Monarch or King Mills, identify:

Part a - The period of operation of each mill by Allied or SCM:

ANSWER -

Allied Paper, Inc. ("Allied") has operated the Bryant Mill from July of 1956 to the present. Allied Paper, Inc. operated the Monarch Mill from December 1955 until October of 1980, with an interruption for a short period in approximately 1959. Allied Paper, Inc. operated the King Mill from December of 1955 until January of 1971.

QUESTION -

Part b - The period of ownership of each mill by Allied or SCM:

ANSWER -

Allied Paper, Inc. leased the Bryant Mill from the St. Regis Paper Company from July of 1956 until June of 1966. Allied Paper, Inc. purchased the Bryant Mill in 1966 and has owned the Bryant Mill since July of 1966. Allied Paper, Inc. owned the Monarch Mill from December of 1955 until 1980 when parts of the Monarch property were sold. Small parcels of the property used in the past for the Monarch Mill are still owned by Allied. Allied

SA 021038

SA00021038

Paper, Inc. owned the King Mill from December of 1955 until 1971 when the King Mill was abandoned to the Dorr Wrecking Company.

QUESTION -

Part c - The products produced at each mill and the materials used to produce these products:

ANSWER -

Over the period during which Allied Paper, Inc. operated the King, Bryant and Monarch Mills production consisted primarily of the following categories of paper:

(A) Uncoated Offset
Uncoated Letterpress

(B) Blade Coated Offset
Brush Coated Offset
Air Knife Coated Offset
Roll Coated Specialties
Rod Coated Specialties

(C) Cut Sized Papers
Tinted Business Papers

(D) One Time Carbon Paper
Carbon Paper

(E) Groundwood Containing Papers

The uncoated papers of Group A were made essentially with:

(1) Cellulose Fibers (either virgin market pulp used alone or in mixture with deinked fiber)

(2) Clay (standard paper industry Kaolin)

SA 021039

SA00021039

Remember?

Bryant's beginning dates back to 1865 when it was the second mill to be set into operation in the Kalamazoo Valley. The original buildings were of brick and if placed end to end would extend over 800 feet.

In the beginning Bryant made a specialty of "plate and lithographic papers, white and tinted supers, matrix, interleaving blotting, map, coupon folder and railroad papers, woven and laid subscription book papers and printings" — when in full operation the plant employed about 150 people. It turned out 75 tons of paper per week.

Many changes have taken place since Bryant's fine start. A year after its beginning plans for a second machine were completed. Bryant continued to grow and July 1, 1906 it acquired the Imperial Coating Mill that had been built and operated west of the original Bryant Plant. Also in 1906 on August 1st the Superior Paper Company was acquired by Bryant. Another step forward for Bryant was taken in 1910 when real estate was acquired adjacent to the northwest boundaries of Bryant's original properties where the Milham Division was constructed. The paper machines were started the following year—1911.

Bryant's capacity continued to grow until in 1925 the company operated 10 paper machines, 24 coating machines and gave employment to over 1,200 men and women. The annual production grew to 75,000 tons of book and coated paper—enough to make 50 trainloads of 75 loaded cars each. By this time the original stock of $125,000 had grown to an authorized capital of $6,000,000 of which $5,000,000 common had been issued. There was also at this time, 1925, $300,000 preferred outstanding while $500,000 of the $5,000,000 bond issue had been sold.

During the following years a large reconstruction job was done at Bryant. The major projects were the building of a new power plant, the installation of a new paper machine and the rebuilding of others, the installation of a new converting plant in the Superior division, the building of the new Bryant finishing and machine rooms, and the completion of our present fine office building.

These projects when completed brought Bryant to an all-time peak of production. Its eleven paper machines operating at capacity soon placed Bryant in the top ranking position of the world's largest book paper mill.

Bryant's history has not all been covered with glory — it, too, had its bad years. After breaking with a major account in 1930 that took nearly 65% of Bryant's production, the real test as to whether the company was worthy of its fine record was at stake. A real struggle occurred. Bryant weathered the storm and pulled through the depression and is now on its way to better times again.

In the years just prior to the war, considerable rehabilitation throughout the mill was done. However, the greatest impetus Bryant has received was last March 5 when it became a wholly owned subsidiary of TIME Inc. Already many major projects have been started under the new regime, that will be speeded up as fast as manpower and materials are available. The new progressive spirit that now exists will before long make Bryant "tops" again in the field of paper manufacturers.

SA 046078

SA00046078

of my knowledge, we are satisfying the requirements of our subsidiaries. We have not gone as far in the manufacture of one-time carbon as we had hoped but this, too, will develop in the future.

So much for our five objectives - I think they are good ones and we will succeed with at least four of the five. Now, I would be remiss in talking to you tonight if I did not bring up the subjects of customer service, quality, efficiency and waste. In our business the most important thing we have to sell is service. The finest paper we know how to make can be worthless to a customer if it is not received when the customer wants it; if it is not adequately protected for shipment; if it is improperly identified or labeled, or if it is trimmed or slit to the wrong size; or if it has torn or short sheets hiding in a skid to foul up a printing press. In other words, if the entire transaction does not completely satisfy the customer, we are inviting our competitors to take over the account. Thus, in this respect, we are all salesmen attempting to sell a satisfactory service to our customers. We should never forget that our customers are also our competitors best prospects.

I don't think we need to talk much about quality. We all know our quality is better and we must guard jealously the quality improvements we have made. We must never send anything to the customer we are not sure is correct in the first place.

KA04600501

Now, about waste. Of all the elements of cost that we control in the mill, I believe waste is the most important. Waste can be many things to many people. In the Maintenance Department, it has to do with salvage and not using new materials except when necessary. For machine crews, it can mean running water hoses unnecessarily - the waste of compressed air, cutting too deep in a roll to remove bad paper, or bumping a roll with an electric truck. In the Finishing Room, waste can be using too much wrapping or accidental gouging of rolls or skids. I could go on and on on this subject but I am not here to preach to you tonight. I know all of you know waste is everyone's problem. Furthermore, I am smart enough to know you don't want me to waste your time so,

In conclusion, I want to assure you that in my opinion the opportunity at Allied is great. True, we are making products from waste material. But we can be proud to practice this conservation when waste, generally speaking, in these great United States is staggering. But believe me, the future of Allied is dazzling if you consider everything and as an example, I show you the new Budget Offset we made this very afternoon at King out of 50% pulp which used no chemical at all in the Pulp Mill.

My sincere congratulations and thanks to everyone of you who have obtained membership in the Quarter Century Club. It indicates the type of stability upon which American industry is built and you can all be proud of the advancement you have made. The future should be of still greater

KA04600502

satisfaction if we are all determined to hold our present advancements, keep pace with the changing times and do at least a little better than our competition. That is a big order because our competition is keen. I am convinced that working together we can do it.

KA04600503

NCASI
1950 56
93 - 1584

ALLIED PAPER COMPANY
MONARCH DIVISION
KALAMAZOO, MICHIGAN

Survey No. 1	1st Shift	April 27, 1950
Survey No. 2	2nd Shift	May 18, 1950
Survey No. 3	3rd Shift	April 27, 1950

Type: Book Conversion Mill

Mill Water Supply

Portage Creek.

Waste Sources

There are three sources of waste in the mill, two paper machines and a de-ink mill. Both paper machines are save-alled. One machine with a Bird type save-all and the other with an Oliver vacuum filter. White water from the paper machines is used in the de-ink mill pulp washer except when a machine is running colored stock. All waste from the de-ink washer passes through an Oliver vacuum filter before discharge to the sewer.

STORAGE
BRO 479

Waste Measurement

All waste from this mill is discharged to a channel leading from the north side of the mill to Portage Creek. A previously constructed 6.0 foot rectangular metal edged weir in the west side of the twin box culvert under Cork Street was used to measure waste flow. The flow to the opposite half of the culvert was blocked off with sand bags to divert all waste through the weir.

Survey Procedure

A recording head meter was installed to obtain a continuous record of the flow during the three surveys. Composite samples during each survey were taken

42067-B-7.3/001

HOLLY
03/13/01

Sample Analysis

	Mill Waste	Settled Mill Waste	Percent Reduction	Raw Water
5-Day B.O.D.	156	111	28.9	2.5
Total Solids	1,094	858		255
Total Volatile Solids	494	334		98
Suspended Solids	424	174	58.9	7
Suspended Volatile Solids	214	60	72	2
pH	8.00			8.0
Settleable Solids	243			

All values in p.p.m. except pH

B.O.D.

Mill Waste (3.315 x 8.34 x 156) = 4,310 lbs.

Raw Water (3.315 x 8.34 x 2.5) = 69 lbs.

Net Total to River 4,241 lbs.

Pounds of B.O.D. per Ton Product

(4,241 ÷ 54,350) x 2,000 = 156 lbs.

Suspended Solids

Mill Waste (3.315 x 8.34 x 424) = 11,720 lbs.

Raw Water (3.315 x 8.34 x 7) = 193 lbs.

Net Total to River 11,527 lbs.

Pounds of Suspended Solids per Ton Product

(11,527 ÷ 54,350) x 2,000 = 424 lbs.

NCASI 000509

Suspended Volatile Solids

Mill Waste (3.315 x 8.34 x 214) = 5,910 lbs.

Raw Water (3.315 x 8.34 x 2) = 55 lbs.

Net Total to River 5,855 lbs.

Pounds of Suspended Volatile Solids per Ton Product

(5,855 ÷ 54,350) x 2,000 = 215 lbs.

Percent Fibre Loss

[215 ÷ (2,000 x 0.95)] x 100 = 11.33%

Population Equivalent

(4,241 ÷ 0.167) = 25,400 people per 8 hours

Gallons Waste Per Ton Product

(2,355,000 ÷ 54,350) x 2,000 = 86,600 gallons

SURVEY NO. 3

April 27, 1950 - 3rd Shift

Production: 62,750 lbs.

Flow: 2.80 mg. Total Mill Waste

0.96 mg. Condenser Water

1.84

Sample Analysis

	Mill Waste	Settled Mill Waste	Percent Reduction	Raw Water
5-Day B.O.D.	150	128	14.7	2.9
Total Solids	1,244	966		224
Total Volatile Solids	524	446		99
Suspended Solids	504	304	39.7	10
Suspended Volatile Solids	184	92	50	0
pH	9.55			
Settleable Solids	224			

All values in p.p.m. except pH

B.O.D.

Mill Waste (2.80 x 8.34 x 150) = 3,500 lbs.

Raw Water (2.80 x 8.34 x 2.9) = 68 lbs.

Net Total to River 3,432 lbs.

Pounds of B.O.D. per Ton Product

(3,432 ÷ 62,750) x 2,000 = 109.2 lbs.

Suspended Solids

Mill Waste (2.80 x 8.34 x 504) = 11,780 lbs.

Raw Water (2.80 x 8.34 x 10) = 234 lbs.

Net Total to River 11,546 lbs.

Pounds of Suspended Solids per Ton Product

(11,546 ÷ 62,750) x 2,000 = 369 lbs.

Suspended Volatile Solids

Mill Waste (2.80 x 8.34 x 184) = 4,300 lbs.

Raw Water (2.80 x 8.34 x 0) = 0 lbs.

Net Total to River 4,300 lbs.

Pounds of Suspended Volatile Solids per Ton Product

(4,300 ÷ 62,750) x 2,000 = 137 lbs.

Percent Fibre Loss

[137 ÷ (2,000 x 0.95)] x 100 = 7.21%

Population Equivalent

(3,432 ÷ 0.167) = 20,500 people per 8 hours

Gallons Waste Per Ton Product

(1,840,000 ÷ 62,750) x 2,000 = 58,700 gallons

Summary

	Survey No.1	Survey No.2	Survey No.3	Total
Production-Tons	32.46	27.18	31.38	91.02
Flow-Million Gallons	1.86	2.355	1.84	6.055
Pounds of B.O.D. (Net)	2,447	4,241	3,432	10,120
Pounds of B.O.D. Per Ton Product	75.5	156	109.2	113.6 *
Pounds of Dry Solids (Net)	8,795	11,527	11,546	31,868
Lbs. of Dry Solids Per Ton Prod.	271	424	369	354.7 *
Lbs. of Vol. Solids (Net)	3,290	5,855	4,300	13,445
Lbs. of Vol. Solids Per Ton Prod.	101.4	215	137	151.1 *
Gallons Waste Per Ton Product	57,300	86,600	58,700	67,533 *
Fibre Loss - Percent	5.33	11.33	7.21	7.96 *
Population Equivalent	14,680	25,400	20,500	60,580

* Average of three surveys.

Remarks

All chemical analyses were made in the Water Resources Laboratory at the Health Department in Lansing. Samples were immediately transported to this laboratory and were iced during transit. The dilution water used to determine the biochemical oxygen demand of the waste waters was Lea-Nichols water and one per cent Plainwell settled sewage was used for seeding each dilution. All other analyses were made according to the Ninth Edition of "Standard Methods for the Examination of Water and Sewage."

When figuring per cent fibre loss the pounds of mill production is converted to a dry basis. For uniformity a product with five per cent moisture is assumed for all of the mills.

R. W. Purdy
W. S. Springer
W. E. Abbott
J. R. Couchois

SURVEY NO. 1

June 22 1950 - 1st Shift

Production: 112,325 lbs.

Flow Data: 2.39 mg.

Sample Analysis

	Mill Waste	Settled Mill Waste	Percent Reduction
5-Day B.O.D.	246	160	34.9
Total Solids	2,043	1,340	
Total Volatile Solids	806	436	
Suspended Solids	1,038	398	61.7
Suspended Volatile Solids	448	120	73.2
pH	7.1		
Settleable Solids	673		

All values in p.p.m. except pH

B.O.D.

Mill Waste (2.39 x 8.34 x 246) = 4,900 lbs. Net to River

Pounds of B.O.D. Per Ton Product

(4,900 ÷ 112,325) x 2,000 = 87.2 lbs.

Suspended Solids

Mill Waste (2.39 x 8.34 x 1,038) = 20,700 lbs. Net to River

Pounds of Suspended Solids per Ton Product

(20,700 ÷ 112,325) x 2,000 = 368 lbs.

NCASI 000515

Suspended Volatile Solids

Mill Waste (2.39 x 8.34 x 448) = 8,930 lbs. Net to River

Pounds of Suspended Volatile Solids per Ton Product

(8,930 ÷ 112,325) x 2,000 = 158.9 lbs.

Percent Fibre Loss

[158.9 ÷ (2.000 x 0.95)] x 100 = 8.35%

Population Equivalent

(4.900 ÷ 0.167) 29,350 people per 8 hours

Gallons of Waste Per Ton of Product

(2,390,000 ÷ 112,325) x 2,000 = 42,500 gallons

SURVEY NO. 2

June 13, 1950 - 2nd Shift

Production: 121,430 lbs.

Flow Data: 2.38 mg.

Sample Analysis

	Mill Waste	Settled Mill Waste	Percent Reduction
5-Day B.O.D.	270	220	18.5
Total Solids	1,952	1,690	
Total Volatile Solids	726	710	
Suspended Solids	686	251	63.4
Suspended Volatile Solids	260	74	71.5
pH	7.3		
Settleable Solids	398		

All values in p.p.m. except pH

NCASI 800516

B.O.D.

Mill Waste (2.38 x 8.34 x 270) = 5,360 lbs. Net to River

Pounds of B.O.D. per Ton Product

(5,360 ÷ 121,430) x 2,000 = 88.2 lbs.

Suspended Solids

Mill Waste (2.38 x 8.34 x 686) = 13,620 lbs. Net to River

Pounds of Suspended Solids per Ton Product

(13,620 ÷ 121,430) x 2,000 = 224.5 lbs.

Suspended Volatile Solids

Mill Waste (2.38 x 8.34 x 260) = 5,160 lbs. Net to River

Pounds of Suspended Volatile Solids per Ton Product

(5,160 ÷ 121,430) x 2,000 = 85 lbs.

Percent Fibre Loss

$[85 \div (2{,}000 \times 0.95)] \times 100 = 4.47\%$

Population Equivalent

(5,360 ÷ 0.167) = 32,100 people per 8 hours

Gallons of Waste Per Ton of Product

(2,380,000 ÷ 121,430) x 2,000 = 39,200 gallons

SURVEY NO. 3

June 15, 1950 - 3rd Shift

Production: 124,865 lbs.

Flow Data: 2.705 mg.

Sample Analysis

	Mill Waste	Settled Mill Waste	Percent Reduction
5-Day B.O.D.	270	230	14.8
Total Solids	2,066	1,656	
Total Volatile Solids	816	664	
Suspended Solids	860	394	54.2
Suspended Volatile Solids	350	114	67.4
pH	7.7		
Settleable Solids	438		

All values in p.p.m. except pH

B.O.D.

Mill Waste (2.705 x 8.34 x 270) = 6,080 lbs. Net to River

Pounds of B.O.D. per Ton Product

(6,080 ÷ 124,865) x 2,000 = 97.4 lbs.

Suspended Solids

Mill Waste (2.705 x 8.34 x 860) = 19,400 lbs. Net to River

Pounds of Suspended Solids per Ton Product

(19,400 ÷ 124,865) x 2,000 = 311 lbs.

Suspended Volatile Solids

Mill Waste (2.705 x 8.34 x 350) = 7,890 lbs. Net to River

Pounds of Suspended Volatile Solids per Ton Product

(7,890 ÷ 124,865) x 2,000 = 126.4 lbs.

Percent Fibre Loss

[126.4 ÷ (2 000 x 0.95)] = 6.65%

Population Equivalent

(6,080 ÷ 0.167) = 36,450 people per 8 hours

Gallons of Waste Per Ton Product

(2,705.000 ÷ 124.865) x 2,000 = 43,300 gallons.

Summary

	Survey No.1	Survey No.2	Survey No.3	Total	
Production-Tons	56.16	60.72	62.43	179.31	
Flow-Million Gallons	2.39	2.38	2.705	7.475	2.49*
Pounds of B.O.D. (Net)	4,900	5,360	6,080	16,340	
Pounds of B.O.D. Per Ton Product	87.2	88.2	97.4	90.9 *	
Pounds of Dry Solids (Net)	20,700	13,620	19,400	53,720	
Lbs. of Dry Solids Per Ton Prod.	368	224.5	311	301.2 *	
Lbs. of Vol. Solids (Net)	8,930	5,160	7,890	21,980	
Lbs. of Vol. Solids Per Ton Prod.	158.9	85	126.4	123.4 *	
Gallons Waste Per Ton Product	42,500	39,200	36,450	39,383 *	
Fibre Loss - Percent	8.35	4.47	6.65	6.49 *	
Population Equivalent	29,350	32,100	36,450	97,900	

* Average of three surveys

Remarks

All chemical analyses were made in the Water Resources Laboratory at the Health Department in Lansing. Samples were immediately transported to this laboratory and were iced during transit. The dilution water used to determine the biochemical oxygen demand of the waste waters was Lea-Nichols water and one per cent Plainwell settled sewage was used for seeding each dilution. All other analyses were made according to the Ninth Edition of "Standard Methods for the Examination of Water and Sewage."

When figuring per cent fibre loss the pounds of mill production is converted to a dry basis. For uniformity a product with five per cent moisture is assumed for all of the mills.

R. W. Purdy
W. S. Springer
W. H. Abbott
J. R. Couchois

NCASI 000520

ALLIED PAPER CORPORATION

RESEARCH AND DEVELOPMENT DEPARTMENT

Progress Report No. 1

Project No. 301

Subject: A STUDY OF DEINKING PULP MILL WASTES AND THEIR COMPOSITION IN RELATION TO TOTAL MILL EFFLUENT BY LABORATORY PULPING AND MILL PRODUCTION SAMPLING.

Distribution:

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E. J. Klimczak
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E. J. Gilman
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By: Philip Germann
Ray Willie
John Harrison

Date: February 19, 1964

Approved: W.O.S.

OBJECT:

To obtain deinking waste data in order to relate the deinking process to overall mill waste and possible ways to reduce the treatment cost of additional waste removal in view of state water resources requirements.

PROCEDURE:

To obtain a reasonable value for deinking waste in relation to total mill waste three approaches were used. Waste treatment data from 1963 was used to project the change in waste loading from the deinking process at various percentages of book and ledger graded raw materials. Laboratory cooks at various raw material percentages were made to supplement and confirm the calculated data. The various waste streams in the mill were sampled for waste concentration and volume on three different days.

Material balances and biological oxygen demand (B.O.D.) were determined for all samples.

CONCLUSIONS:

Deinking waste at King accounts for 49 percent of the total waste flow, 64 percent of total waste solids, and 84 percent of the total B.O.D. Of this deinking waste, the portion from the first stage brown stock side hill washer is 24 percent of the total mill flow with 44 percent of the solids and 64 percent of the B.O.D.

The operation of the deinking mill with 100 percent ledger graded raw material results in the lowest waste solids and B.O.D. The waste increases in proportion to the increase in book graded raw material.

DISCUSSION:

A comparison of waste treatment data at King and Bryant divisions was made for the time the King pulp mill was supplying the Bryant paper mill with pulp. The waste loading from the King pulp mill was obtained by subtracting the Bryant paper mill data from the King pulp and paper mill data. (Table I) The furnish at the King pulp mill was 75 percent book and 25 percent ledger graded waste paper with an average finished pulp production of 200 tons per day. At 60 percent book retention and 90 percent ledger retention in the deinking process, the retention of mixtures of book and ledger was calculated. The

B.O.D. loading was calculated from the actual 26,700 pounds per day of B.O.D. for an input of 296.2 tons of raw material. The amount of B.O.D. per day was then divided by 200 tons to obtain a value in pounds of B.O.D. per finished ton of pulp. (Table II)

The waste treatment data for the last six months of 1963 from the King division was averaged (Table III) to correlate the data from the laboratory and mill samples.

Laboratory cooks were made at 100 percent book, 100 percent ledger and 50 percent book and ledger. The book grade was a combination of 80 percent magazines and 20 percent sections. The ledger grade was a combination of 75 percent colored and 25 percent white ledger. One pound of material was pulped in 10 liters of water with 21 grams of NaOH at 180 degrees F. for 15 minutes. The cook was then washed for 3 minutes with a total of 18 gallons of water on an 80 mesh sieve. Samples of each cook were taken to complete a material balance of the system and this data is reported in Table IV. The 50-50 cook and 100 percent ledger cook were repeated with a previously determined high yield ledger raw material because of the low yield of the first ledger sampled. The data from the duplicate cooks was averaged for comparison with other data in this report.

Samples in the King mill were taken from the following sewer points:

1. East wing - #1 & 2 paper machines and blenders
2. West wing - #3 & 4 paper machines
3. Pulp mill basement - all deinking and cleaning and screenings except first stage brown stock washers.
4. First Stage Brown Stock Side Hill washer water
5. Load Lugger - Jonnson and Centriffler rejects

The load lugger flow was determined by weir measurements and the first stage side hill waste was calculated as shown in Table V. Sewer flows were determined by the following formula:

$$\frac{\text{Depth of stream x width x 10 ft. length}}{\text{Seconds to traverse 10 feet}} \times 4.49 \times 10^{-3} = \text{MGD}$$

Samples were taken on January 7, 10 and 16, 1964 and material balance and B.O.D. determined and reported in Table VI.

Pulp mill production on the days of sewer sampling was combined with the sewer data to calculate the B.O.D. and waste loading reported in Table VII.

A comparison of the pounds of B.O.D. per ton of finished product shows that the data for the three dates in January which averaged 61 percent book and 39 percent ledger correlates with the calculated data at this percentage ratio. (Table VII) The laboratory data is lower than the mill sampling and the calculation values. This can be explained by the difference in batch operation in the lab and continuous operation in the mill and the small sampling used in the lab cook which was representative but limited. The B.O.D., Suspended Solids and Solubles of the lab cooks are consistent in comparison with the mill data. (Table VIII)

There are several ways to reduce the river pollution to the required level, other than complete secondary treatment of waste material, as indicated in the loading concentrations of various inplant waste streams. The pulp mill contributes the majority of the waste loading and the first stage brown stock side hill washers contribute most of the deinking waste loading.

Using the data in Table VI, one possibility for waste reduction in compliance with state water resources recommendation of 14,490 pounds of B.O.D. per day was estimated. With Bryant division waste loading at May 1963 level (no deinking) of 1530 pounds of B.O.D. per day and Monarch at 500 pounds of B.O.D./day King waste could be divided with the paper mill waste flowing directly to the river at a loading of 4000 pounds of B.O.D. per day. The deinking mill waste amounts to 21,500 pounds of B.O.D. per day. This deinking flow would be primary clarified in existing equipment and secondary treated for a combined treatment reduction of at least 60 percent of the deinking mill B.O.D. where present primary treatment of the total King division removes 44 percent of the B.O.D. (Table I)

RESULTS:

Table I	Waste Treatment Data - May 1963
Table II	Calculated B.O.D. at Various Deinking Raw Material Ratios
Table III	King Waste Treatment Data - 1963
Table IV	Laboratory Pulps at Various Raw Material Ratios
Table V	First Stage Brown Stock Side Hill Washer Waste Water
Table VI.	King Mill Sewer Sample Data
Table VII	Pulp Mill Furnishes on Days of Sampling
Table VIII	Comparison of Laboratory Pulps and Mill Data

TABLE I

WASTE TREATMENT DATA - MAY 1963

Division	Flow (MGD)	Mill Effluent Suspended Solids (#/D)	Mill Effluent BOD (#/D)	Treated Effluent Suspended Solids (#/D)	Treated Effluent BOD (#/D)
King	7.15	165,080	33,830	61,900	19,000
Bryant	4.52	42,100	7,125	1,090	1,530
Difference	2.63	122,980	26,705		

TABLE II

CALCULATED B.O.D. AT VARIOUS DEINKING RAW MATERIAL RATIOS

Raw Material Composition % Book	% Ledger	Product as % of Input Book	Ledger	Process Retention (%)	Raw Material for 200 Tons of Product (Tons/Day)	BOD Mill Effluent (#/D)	BOD #/Ton of Product
75	25	45.0	22.5	67.5	296.2	26,700	133
50	50	30.0	45.0	75.0	266.7	24,100	120
25	75	15.6	67.5	83.1	240.7	21,700	108
0	100	0	90.0	90.0	222.2	20,000	100

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TABLE III

KING WASTE TREATMENT DATA - 1963

Date	Flow (MGD)	Mill Effluent Suspended Solids (#/D)	Treated Effluent Suspended Solids (#/D)	Test Days
July	7.44	166,109	65,285	14
August	7.36	152,469	59,223	6
September	7.07	161,118	38,073	7
October	6.96	163,951	40,095	19
November	6.94	206,831	60,380	14
December	7.00	167,200	45,800	15
Daily Average	7.10	171,800	51,070	(75)

TABLE IV

LABORATORY PULPS AT VARIOUS RAW MATERIAL RATIOS

Cook No.	Raw Material % Book	Raw Material % Ledger	Raw Material Retained (%)	Raw Material for 200 tons of product (Tons/Day)	B.O.D. (#/D)	B.O.D. # Per Ton of Product	Waste Suspended Solids (#/D)	Waste Solubles (#/D)	Permanganate No.
1	100	0	58.7	341	24,600	123	177,000	146,000	20.2
2	0	100	79.0	253	16,700	84	44,500	84,000	1.3
3	50	50	65.7	304	20,800	104	100,000	131,500	11.7
4	0	100	98.0	204	13,900	70	33,200	57,600	1.8
5	50	50	75.0	267	19,600	98	58,800	126,000	12.2

TABLE V

FIRST STAGE BROWN STOCK SIDE HILL WASHER WASTE WATER

$$C_{gal/day} = \frac{K_c \cdot K_f}{B_c} \cdot \frac{B_c - A_c}{A_c - C_c}$$

$$C_{\#/day} = C_{gal/day} \cdot C_c \cdot \frac{8.33}{100}$$

Where

K_c is the consistency of stock to chlorination

K_f is the flow of stock to chlorination in gallons per day

A_c is the consistency of inlet stock to the first stage washer

B_c is the consistency of stock at the bottom of the 1st stage washer

C_c is the consistency of stock wasting from 1st stage washer

Date

1-7-64 $C = \frac{2.54}{7.40} \cdot 1440 \cdot 1400 \cdot \frac{0.566 \cdot 8.33}{100} \cdot \frac{7.40-2.61}{2.61-0.566} = 76,600$ #/day

1-10-64 $C = \frac{1.97}{2.02} \cdot 1440 \cdot 1500 \cdot \frac{0.60 \cdot 8.33}{100} \cdot \frac{2.02-1.93}{1.93-0.60} = 71,200$ #/day

1-16-64 $C = \frac{2.82}{8.65} \cdot 1440 \cdot 1400 \cdot \frac{0.49 \cdot 8.33}{100} \cdot \frac{8.65-2.74}{2.74-0.49} = 90,500$ #/day

TABLE VI

KING MILL SEWER SAMPLE DATA

	Suspended Solids (#/D)	Fiber (#/D)	Total Solids (#/D)	BOD (#/D)	Solubles (#/D)	Flo (M
1-7-64						
E	27,800	14,000	35,800	1,160	8,000	0.7
W	39,400	8,370	67,200	3,980	27,800	3.1
PMB	43,100	24,400	114,000	5,790	70,900	2.7
1st Stage	76,200	1,620	173,000	18,600	96,800	1.6
Total	186,500	48,390	390,000	29,530	203,500	8.2
1-10-64						
E	29,400	14,200	40,300	632	10,900	0.8
W	8,000	2,200	28,400	1,075	20,400	2.0
PMB	15,820	9,900	55,500	2,160	39,680	1.8
1st Stage	71,000	11,350	106,200	8,280	35,200	1.4
LL	880	680	1,500	27	853	0.1
Total	125,100	38,330	231,900	12,174	106,800	6.0
1-16-64						
E	113,000	7,340	139,000	2,830	26,000	1.2
W	20,100	4,020	42,400	2,520	22,300	2.6
PMB	18,600	10,960	74,500	4,500	55,900	2.1
1st Stage	90,500	1,665	202,000	25,100	111,500	2.2
Total	242,200	23,985	457,900	34,950	215,700	8.33
Average	184,600	36,900	359,933	25,551	175,333	7.55

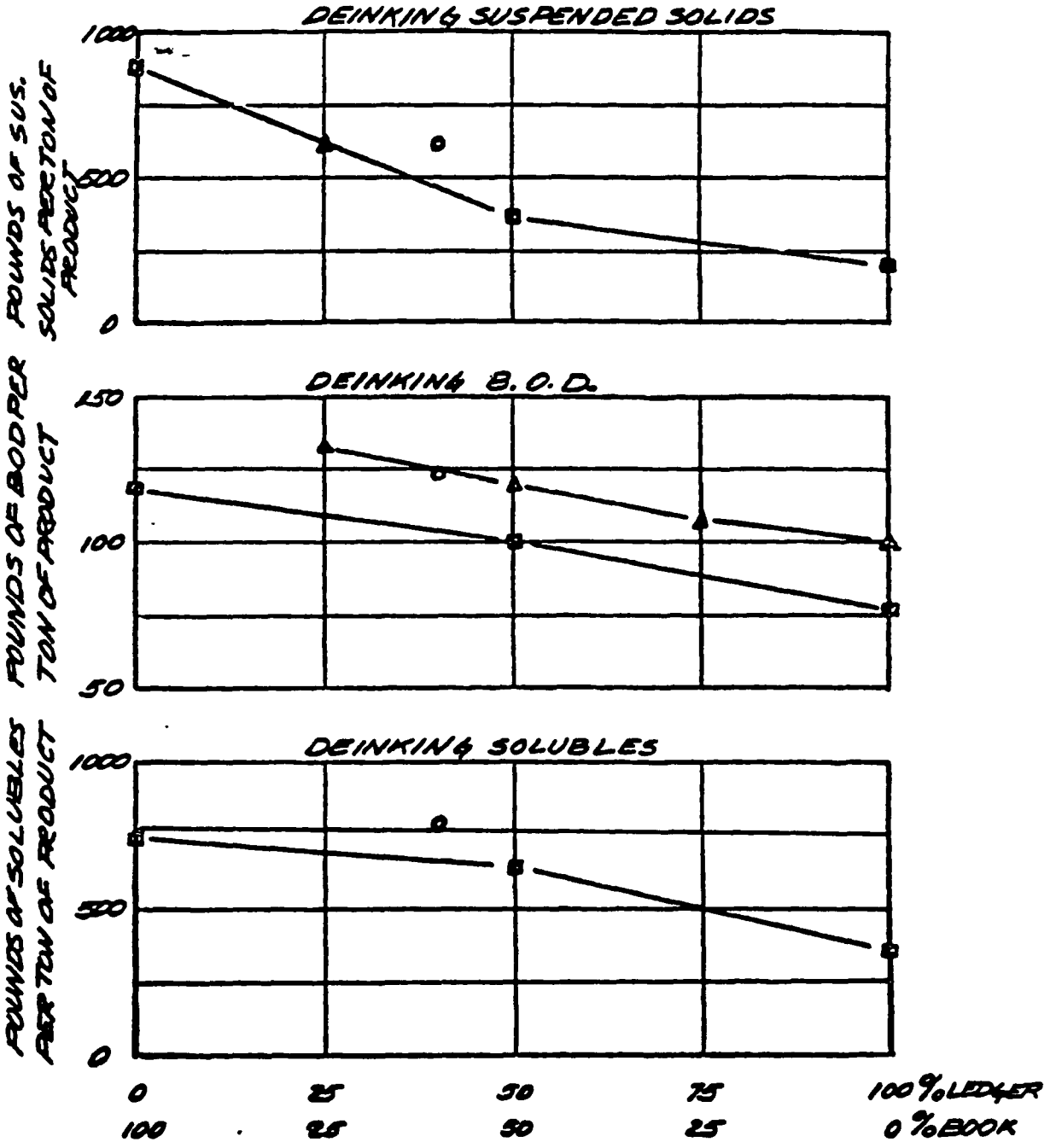
TABLE VII

PULP MILL FURNISHES ON DAYS OF SAMPLING

	Furnish Book %	Furnish Ledger %	Input tons	Retention %	Finished Tons	(#/D BOD) From Sewers	BOI #/Ton Prod
1-7	60	40	251.6	72	181	24,390	135
1-10	64	36	248.1	70	173	10,467	60
1-16	63	37	238.2	70	166	29,600	178
Average	61				173	21,486	124

TABLE VIII

COMPARISON OF LABORATORY PULPS AND MILL DATA



△ TABLE I & II 1963 MILL DATA

□ TABLE III LABORATORY DATA

○ TABLE XII & XIII SEWER SAMPLE DATA

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

INTER-OFFICE MEMO

TO: Ernest J. Klimczak

FROM: Fred Harrison

OFFICE:

OFFICE:

SUBJECT: Deinked Pulp Replacement Analysis

DATE: October 25, 1971

SCM CONFIDENTIAL

The purpose of this report is to provide a basis for decision to continue to run or shut down the Kalamazoo deinked pulp mill.

Three alternatives were considered in developing the cost analysis:

a. Continue operation of the D.I. mill and purchase pulp from Jackson and outside, as necessary.

b. Shut down the D.I. mill and purchase Jackson pulp (approximately 20,000 tons per year) to replace the lost D.I. tonnage.

c. Shut down the D.I. mill and purchase outside market pulp to replace the D.I. pulp.

The economics of these alternatives are outlined on the attached cost summary sheet and supporting notes. Since there is some question as to what Jackson softwood/hardwood mix will be required to replace D.I., an analysis is made both for a 70% hardwood 30% softwood and a 50:50 mix. I believe that on average, a 70:30 mix would work. The cost analysis shows that although there is no advantage to replacing D.I. with outside purchased pulp, there is an economic advantage in replacing D.I. with Jackson pulp amounting to $18.37 per ton currently (70:30 mix replacement) to $10.54 per ton a year from now. If the D.I. plant is shut down now and 20,000 tons per year is replaced, the first year saving should be approximately $250,000.

If, however, our current forecasts are incorrect, the market price of hardwood becoming $145.00 per ton a year from now instead of the $125.55 which we predict, the special market situation shown on the cost analysis sheet for the first quarter FY 73 would prevail. In this case, there is an advantage of $8.26 per ton in running the D.I. plant if 20,000 tons per year of D.I. pulp can be consumed.

SA 88154

Current accounting problems in connection with D.I. retention have not been brought into this analysis; the normal 80% retention has been assumed.

There are various non-economic considerations which must also be weighed in reaching a run or shut down decision. The most important of these is the question of difficulty of making grades currently containing D.I. without D.I. and with good quality for the end use. Important grades which are in question from this standpoint are as follows:

Gum Wrap
Encyclopaedia Britannica
Bible Grades
Paperback Offset
Forester Offset

A grade of lesser importance which might be in question is Cap Gum Stock. There is no question that tablet and register bond can be made without D.I. Another very important consideration is that we are now faced with making Gum Wrap, our largest single D.I. using grade, with a D.I. free furnish. This will result in lower than current total D.I. consumption and therefore higher D.I. unit cost. This, however, is not reflected in the economic analysis in this report.

In view of all the evidence, my recommendations are as follows:

1. Initiate a high priority program to make the necessary machine runs to learn how to replace D.I. with virgin fiber or a virgin fiber-pulp substitute mix in important grades where the possibility of replacement is questionable. Every day we lose now costs $18.37 per ton (20,000 tons per year/365 days per year) = $1,007 per day. If serious difficulties arise in furnish replacement, an analysis should be made comparing the potential business value of the grades involved to the potential savings in D.I. plant shut down. These runs should also be watched carefully to determine whether additional sizing materials, opacifying materials and/or refining costs are required in substituting virgin fiber. If so, the analysis should be adjusted before carrying out recommendation 2.

SA 88155

2. After Item 1 problems are resolved, shut down the D.I. plant and make reasonable efforts to "mothball" it. With this decision, it must be recognized that there will be various undesirable effects such as the loss of our position as a purchaser of waste paper, personnel shifting and layoffs at Bryant, equipment losses, etc. We should be sure to protect our present capacity to send clarifier overflow to the city sewage system. This may mean that we will have to continue to use most or all of this capacity.

3. Make an engineering study to determine what process changes (improvements) should be made and what startup costs will be incurred in the event of a future decision to resume production. The costs anticipated in this study will be useful in future economic analyses and to expedite getting back into production if that decision is made.

4. Make specific plans to get part or all of the 40,000 tons per year freight break which is worth in excess of $150,000. Our pulp substitute program should be temporarily curtailed, if necessary, to make this savings possible unless it can be shown that this program generates more savings during the same period. D.I. plant shutdown alone, if done soon enough, may be sufficient to allow the full rate break.

FH/elr
attachments

SA 88156

EXPLANATION NOTES FOR ALTERNATIVE COST COMPARISON DATA

Notes (1), (2), and (3)

These costs were taken directly from E.C. Kowall's study of 8/26/71. These are based on a 2 shift operation, 610 shifts/year and Bryant machines running full. This results in D.I. production of 20,740 tons/year and includes 4% filler.

Note (4)

There is no freight penalty if we meet our 40,000 T minimum for the period November 1, 1970 to May 1, 1972. This was set up as an annual minimum but we received a 6 month extension. For this period through September we shipped 22,442 T, 1800 T being shipped in August and 1413 T in September. We must average 2509 T/month through April to get the full rate break. We will get a partial rate break if we exceed 30,200 T during the period. Since we may be able to get the full advantage of the lower rate, no penalty is shown in the Analysis. A new $14.00/ton rate with a 20,000 Ton annual minimum has been proposed and will probably go into effect in May 1972. The various effective rates are as follows:

Quantity	Rate per Gross Ton	Rate per Ton @ 87% AD
under 40,000 tons/year	$17.60	$20.25
over 40,000 tons/year	$13.31	$15.16
over 20,000 tons/year	$14.00	$15.55

These rates at 87% AD are used in the analysis. 87% AD was chosen as an estimate for shipments of hardwood and softwood pulps to Kalamazoo.

Note (5)

Cost of sales figures are calculated for the particular mix from budget forecast data except in the case of the first quarter of FY 72 where actual cost data is used. Also cost of sales data for FY 73 does not reflect a major recovery shutdown reserve set up for that year. Adjusted cost of sales is $8.00 lower than that forecasted. Cost of sales figures used are shown below.

Period	SW	HW	70:30 Mix	50:50 Mix
FY 72	107.80	102.54	104.12	105.17
FY 73 (adjusted)	110.70	105.35	106.95	108.03

SA 88157

Note (6)

The profit figures are calculated by subtracting cost of sales from selling price. Selling prices are based on forecast estimates for the lowest priced 1660 Tons/month which would be sold outside if the DI plant remains in operation, except that first quarter FY 72 figures are based on actual performance. The forecasted low end prices per ADT are as follows.

		SW	HW	70:30 Mix	50:50 Mix
FY 72	2nd quarter	$108	$ 98	$101	$103
	3rd quarter	110	100	103	105
	4th quarter	110	100	103	105
FY 73	1st quarter	120	110	113	115
	2nd quarter	120	110	113	115

Calculation of actual profit for the first quarter FY 72 (average of July, August and September) is detailed below.

Current DI budgeted production = 20,000 T/yr. or 1660 T/mo.

to replace this with a 70 AHW : 30 ASW mix requires
1160 T AHW/mo. and 500 T ASW/mo.

to replace this with a 50 AHW : 50 ASW mix requires
830 T AHW/mo. and 830 T ASW/mo.

for July 71, the lowest net yield on outside pulp sales was as follows:

Hardwood	70:30 Mix		50:50 Mix	
Central National	1160 T	$94.58/T	830 T	$94.5[illegible]/T
Softwood				
Romar Tissue	426 T	$90.09/T	426 T	$90.[illegible]/T
Lincoln Pulp	74 T	$94.63/T	283 T	$94.6[illegible]/T
Fox Paper			121 T	$95.1[illegible]/T
	500 T		830 T	
Weighted Average net yield	1660 T	$93.50/T	1660 T	$93.5[illegible]/T

Cost of sales was $98.29 for HW and $101.82 for SW. This yields $99.30 for a 70:30 mix and $100.06 for a 50:50 mix.

SA 88158

	70:30 Mix	50:50 Mix
Net yield on sales	$93.50	$ 93.50
Cost of sales	99.30	100.06
Profit	(5.80)	(6.56)

For August '71 the lowest net yield on outside pulp sales was as follows:

Hardwood	70:30 Mix		50:50 Mix	
Central National	1160 T	$98.04/T	830 T	$98.04/T
Softwood				
Stevens & Thompson	114 T	$94.82/T	144 T	$94.82/T
Romar Tissue	299 T	$95.53/T	299 T	$95.53/T
Lincoln Pulp	57 T	$99.39/T	291 T	$99.39/T
Tileston & Hollingsw.			96 T	$102.24/T
	500 T		830 T	
Weighted Average net yield	1660 T	$97.40/T	1660 T	$97.80/T

Cost of sales was $102.87 for HW and $101.67 for SW. This yields $102.50 for a 70:30 mix and $102.27 for a 50:50 mix.

	70:30 Mix	50:50 Mix
Net yield on sales	$97.40	$97.80
Cost of sales	102.50	102.27
Profit	(5.10)	(4.47)

For September '71 the lowest net yield on outside pulp sales was as follows:

Hardwood	70:30 Mix		50:50 Mix	
Central National	162 T	$94.11/T	162 T	$94.11/T
Container Corporation	324 T	$100.26/T	324 T	$100.26/T
Gulf States	180 T	$103.23/T	180 T	$103.23/T
Keyes Fiber	216 T	$108.47/T	164 T	$108.47/T
W.R. Grace	54 T	$121.64/T		
	936 T*		830 T	
Softwood				
Stevens & Thompson	426 T	$97.84/T	426 T	$98.84/T
Romar	74 T	$98.86/T	262T	$98.86/T
Fox Paper			142 T	$102.22/T
	500 T		830 T	

SA 88159

	70:30 Mix		50:50 Mix	
Weighted average net yield	1660 T	$101.00/T	1660 T	$100.20/T

*The fact that 1160 T of Hardwood was not sold outside in September is taken into consideration in the weighted average calculation.

Cost of sales was $100.91 for HW and $107.48 for SW. This yields $102.85 for a 70:30 mix and $104.20 for a 50:50 mix.

	70:30 Mix	50:50 Mix
Net yield on sales	$101.00/T	$100.20/T
Cost of sales	102.85	104.20
Profit	(1.85)	(4.00)

The average profits for the quarter are as follows:

	70:30 Mix	50:50 Mix
July	(5.80)	(6.56)
August	(5.10)	(4.47)
September	(1.85)	(4.00)
Average	(4.25)	(5.01)

Note (7)

This is the current cost of slurry filler clay per ton. It is assumed that this cost will increase 5% between the 3rd and 4th quarters of FY 72.

Note (8)

Fixed and pulp slushing costs will probably be less than $10.00 in the event of DI plant shutdown but this figure is used to be conservative. All elements of the $14.90 DI plant continuing cost other than pulper labor will be reduced if deinking operations are shut down. City waste disposal costs amount to $253/ton and are carried as a direct cost in Gene Kowall's analysis. I feel that the $10 fixed and slushing estimate is conservative enough to include this cost if it must be continued.

Note (9)

Current and forecasted purchased pulp costs are as shown below.

SA 88160

		SW	HW	70:30 Mix
	1st quarter	135	125	128
	2nd quarter	135	125	128
FY 72	3rd quarter	140	130	133
	4th quarter	140	130	133
FY 73	1st quarter	145	135	138
	2nd quarter	150	140	143

SA 88161

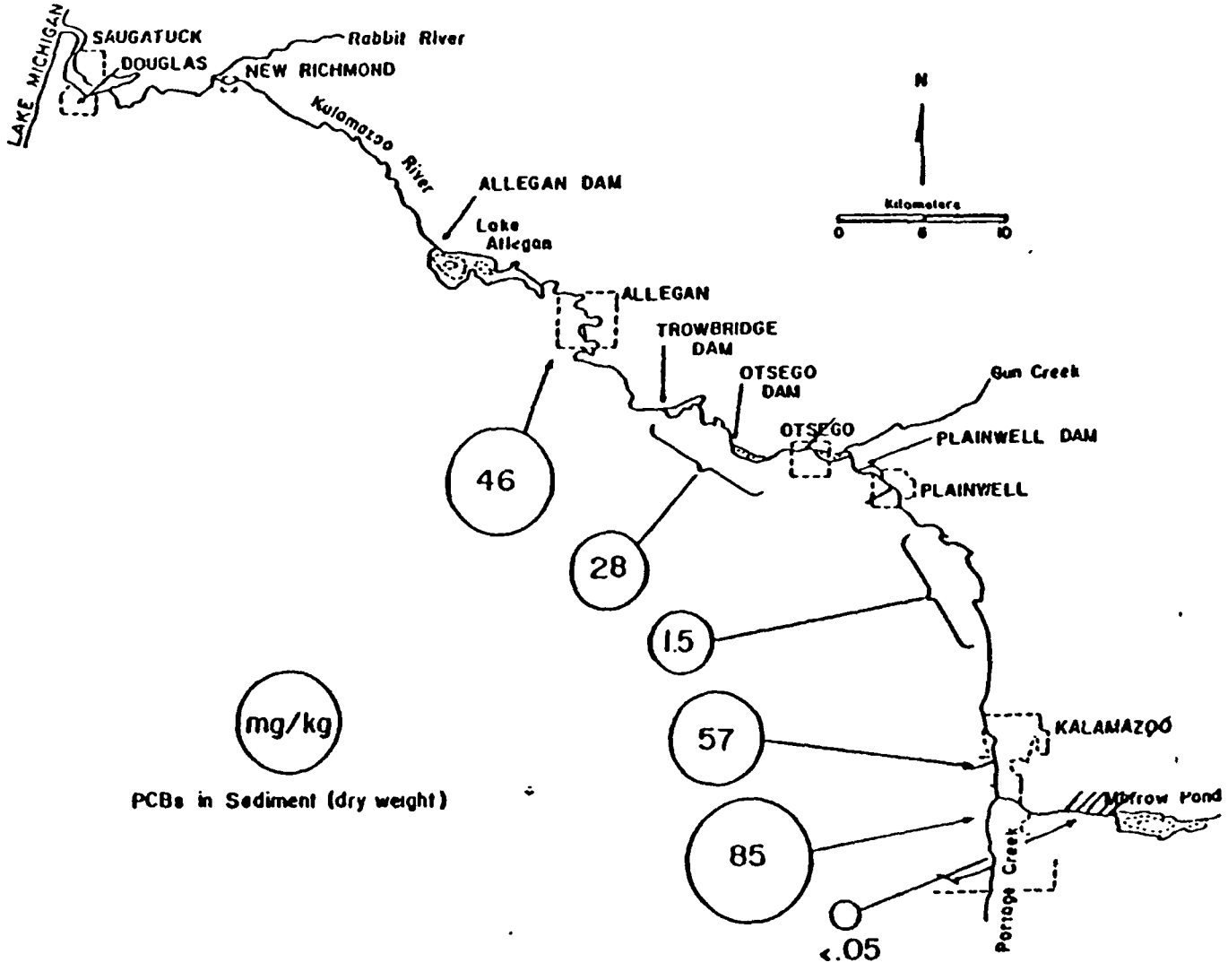


Figure 7 - Distribution of PCBs in surficial sediments in the Kalamazoo River upstream of Allegan Dam, 1982-83 (from various studies -- see text).

SA00088162

SCM® ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

INTER-OFFICE MEMO

TO: Distribution

FROM: Dick Eaton

OFFICE:

OFFICE:

SUBJECT: PCB Project Review Meeting

DATE: September 24, 1986

There will be a review meeting on Friday, October 3, 1986

at 1:00 P.M. in the R&D Library at the mill.

/deo
Distribution

T. Flanagan
D. Kirk
S. Oakleaf
M. Smith
J. DeWitt
P. Rogers - LTI
B. French - W&W

PRIVILEGED AND CONFIDENTIAL

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

INTER-OFFICE MEMO

TO: W.H. Ames

FROM: Thomas E. Flanagan

OFFICE: Dayton

OFFICE: Kalamazoo

SUBJECT:

DATE: October 22, 1986

SCM CONFIDENTIAL

The additional environmental problems of liquidation involve the continuing responsibility for managing the sludge beds which consist of 51 acres of manufacturing residuals accumulated over 30 years of operating. They must be treated constantly in a manner that meets all lega equirements as well as satisfying all governmental authorities regarding the acceptability of the property to the community. A continuing operation will be a "good neighbor." An empty plant will invite public controversy. We have designed and submitted such a plan based on continuing the operation. It has not as yet been approved. We have now requested an opinion from our consultants as to the differing requirements of the management plan which would result from the decision to shut down and liquidate.

/ea
attachments
cc: P. Harvey

Fax'd

SA00088164

→ John Cosens

MICHIGAN WATER RESOURCES COMMISSION
Waste Water Survey
Allied Paper ~~Corporation~~ Inc.
Bryant, Monarch, & King Divisions
~~May~~ June 13, 14, 15, 1967

0012640

A 40 hour waste water survey was conducted at the Bryant, Monarch & King Divisions of the Allied Paper Corporation in Kalamazoo on May 13-15, 1967. The purpose of the survey was to determine the quality and quanity of waste water being discharged to the Kalamazoo River by the company and to determine the extent of compliance with an agreement between the company and the Water Resources Commission dated November 30, 1961 and the Final Order of Determination adopted by the Commission October 24, 1951.

Operations

Bryant Division

The Bryant Division employs 900 people in a 6-day operation. This plant has 5 paper machines and a de-inking mill. Book printing paper from bleached kraft and de-inked stock is produced on the 5 paper machines. The water supply is from Portage Creek and a private well in the proportion of 6:1. The waste water consists of waste from the de-inking mill and excess white water from the paper machines. The waste control devices are saveralls on each paper machine and a clarifier 100 feet in diameter.

Monarch Division

The Monacch Division employs 200 people on a 7-day schedule. The plant has two paper machines which produce carbon tissue and book printing paper. The raw materials are bleached and unbleached kraft and de-inked stock. The waste water treatment consists of a clarifier 90 feet in diameter which discharges to Portage Creek.

King Division

The King Division employs 400 people and operates on a 6 day schedule. The main product is book printing material which is produced on 4 paper machines. The plant water supply is a private well for processing and the Kalamazoo River water for cooling. The waste water treatment consists of save-alls on each paper machine and a 110 feet in diameter clarifier. At this division, a large part of the clarified water is re-used.

Survey Procedure

All the clarifiers had existing weirs on the discharges. We installed automatic samplers and water level recorders at each clarifier discharge. The automatic sampler took samples proportial to the instantaneous flow at 15 minute intervals. The water level recorder measured the head over the weir on a time chart from which we computed the flow.

Flow Data & Survey Periods

Survey Period #1 Starting ~~May~~ June 13, 1967 at 8:00 a.m. EST
Ending May 14, 1967 at 9:00 a.m. EDST

Survey Period #2 Starting May 14, 1967 at 9:00 a.m. EDST
Ending May 15, 1967 at 9:00 a.m. EDST

	Period #1	Period #2
King Division	.972 MGD	.571 MGD
Bryant Division	4.79 MGD	3.43 MGD
Monarch Division	2.128 MGD	1.86 MGD
Total	7.89 MGD	5.86 MGD

TABLE 1 Laboratory analysis of composite samples

	King		Bryant		Monarch	
Parameter Survey Period	1	2	1	2	1	2
Concentration	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
5 day BOD	120	170	280	240	32	13
Suspended solids	72	46	204	214	28	16
Suspended volatile solids	29	32	74	62	13	12
Settleable solids	37	16	17	16	22	11
pH	6.9	7.3	6.6	7.1	7.3	7.5

TABLE 2 Pounds per day to Kalamazoo River

Period #1	King	Bryant	Monarch	Total
5 day BOD	972	11,200	568	12,740 #/day
Suspended solids	583	8,140	496	9,219 #/day
Suspended volatile solids	235	2,960	231	3,426 #/day
Settleable solids	299	679	390	1,368 #/day
Period #2				
5 day BOD	810	6,860	202	7,872
Suspended solids	220	6,120	248	6,588
Suspended volatile solids	153	1,775	186	2,114
Settleable solids	76.4	457	171	704.4

Pound per day was computed using following formula:

Flow (MGD) x concentration (mg/l) x unit wt. of water (8.34 lbs/gal) = lbs/day

TABLE 3 Paper production in tons during survey period

	King	Bryant	Monarch	Total
Period #1	234	211.5	82.5	528
	De-inking mill input 114 tons			
	output 91.6 tons			
Period #2	145.8	216.0	51.5	413.3
	De-inking mill input 109 tons			
	output 87 tons			

TABLE 4 Gallons of waste water discharged per ton of paper products

Period #1	4,154	22,650	25,790	14,940
Period #2	2,640	23,530	36,200	14,120

0012641

TABLE 5 Suspended solids discharged per ton of paper produced

	King	Bryant	Monarch	Ave. of Total
Period #1	2.49	38.6	6.04	17.45
Period #2	.973	42.0	4.81	15.95

TABLE 6 Pounds of BOD discharged per ton of paper produced

	King	Bryant	Monarch	Ave. of Total
Period #1	4.15	53.0	6.9	24.2
Period #2	3.85	47.0	3.99	19.05

Limits set forth in agreement between the company and the Water Resources Commission of November 30, 1961 and the Order of Determination of October 24, 1951 are as follows:

1. Total pounds of BOD 14,490 lbs/day
2. Suspended solids not to exceed 10 lbs/ton of paper produced.
3. No freely settleable solids

Discussion

During the first period of the survey the BOD load was 12,740 lbs/day with a production load of 528 tons. The second survey period the production was reduced by 22% and the BOD was reduced by 38%.

The King and Monarch plants seem to have adequate solids control to meet the order but the Bryant Division is in excess of the order by 30 lbs to the ton of paper produced. The average pounds of suspended solids per ton from all three plants exceeds the 10 pounds stipulated in the Order by 7.45 and 5.95 pounds per ton.

Survey by: G. Kilmer, Sanitary Engineer
J. Rydquist, Sanitary Engineer
R. Caltrider, Sanitary Engineer
L. Vuhovick, Water Pollution Investigat

Laboratory analyses by: R. Krueger, Chemist

Report by: G. Kilmer

0012642

pb

MICHIGAN WATER RESOURCES COMMISSION
Wastewater Survey
Bryant Division
Allied Mills, Kalamazoo
6-4,5,&6-68

Two consecutive twenty-four-hour wastewater surveys were conducted at the Bryant Division of the Allied Mills in Kalamazoo. The purpose of these surveys was to determine the quality and quantity of waste water being discharged to Portage Creek by the company.

Operation and Waste Treatment

The Bryant Division of the Allied Mills in Kalamazoo has five paper machines and a de-inking mill. The excess white water and a portion of the waste water from the de-inking mill is collected at a pump station near the de-inking mill and pumped to the 100-foot clarifier which is located further south (between Cork and Alcot Streets). The waste water from the clarifier is discharged to Portage Creek. Other waste waters are from the chlorine operation of the de-inking mill and are discharged to the mill pond on Portage Creek. The pumping station at the de-inking mill receiving the raw waste to be pumped to the clarifier occasionally by-passes. The influent rate to the wet well exceeds the pump rate. The Bryant Division employs approximately 600 people.

Survey Procedure

The waste water from the clarifier was measured and sampled at the weir on the clarifier. A weir box was constructed to intercept the waste water from the chlorine process at the de-inking mill. The quantity of waste water being by-passed was measured at the overflow baffle in a manhole by the pump station.

Automatic samplers and water level recorders were installed at the effluent weir of the clarifier and at the box intercepting the waste from the chlorine process at the de-inking mill. The automatic samplers took samples proportional to the instantaneous flow at fifteen-minute intervals and deposited them in clean glass containers to make up twenty-four-hour composite samples. The water level recorders provided a continuous account of the liquid level passing over the weirs on head-time charts from which the total flows could be computed.

The company has a water level recorder to measure the head of liquid passing over the baffle in the manhole at the point of by-pass. The water passing over the baffle by-passes the clarifier and goes directly to Portage Creek without treatment. The baffle is constructed diagonally across the corner of a square vault. The length of the baffle is 46" inches on the short side; therefore, it was considered to be equivalent to a 44" sharp crested weir. Since the baffle is constructed of 4" lumber and has worn rounded on the upstream side, this assumption should be conservative. The float line of a WRC water level recorder was attached to the float line of the company's recorder to provide an account of the head over the baffle.

MDNR 003597

Table 1
Survey Periods and Flow Data

Period	Starting	Ending	Hours Monitored	Gallons Monitored	Projected Flow for 24 hours
Bryant Division By-pass					
	Monday, 6-3-68, @ 1800	Tuesday, 6-4-68, @ 0800	14	114,000	196,000 gal
1	Tuesday, 6-4-68, @ 0800	Wednesday, 6-5-68, @ 0800	24	14,600	14,600 gal
2	Wednesday, 6-5-68, @ 0800	Thursday, 6-6-68, @ 0800	24	96,000	96,000 gal
	Thursday, 6-6-68, @ 0800	Thursday, 6-6-68, @ 1945	11.75	28,000	60,000 gal
De-inking Mill--chlorine process discharge		28-inch full channel weir			
1	Tuesday, 6-4-68, @ 2000	Wednesday, 6-5-68, @ 0830	12.5	282,300	542,100 gal
2	Wednesday, 6-5-68, @ 0900	Thursday, 6-6-68, @ 0830	23.5	504,600	515,300 gal
3	Thursday, 6-6-68, @ 0900	Friday, 6-7-68, @ 0900	24	458,600	458,600 gal
Bryant Division clarifier effluent		48" weir ½ rectangular ½ full channel			
1	Tuesday, 6-4-68, @ 0830	Wednesday, 6-5-68, @ 0815	23.75	2,815,000	2,845,000 gal
2	Wednesday, 6-5-68, @ 0830	Thursday, 6-6-68, @ 0800	23.5	2,944,000	2,991,000 gal

DENIS BANKS

Table 3
Laboratory Analyses and Computed Pounds Per Day of Various Constituents
to
Portage Creek from the Bryant Division of Allied Paper Corporation, Kalamazoo

First Survey Period -- Tuesday, 6/4/68, @ 0800 - Wednesday, 6/5/68, @ 0800

Parameter	Clarifier effluent conc.*	Clarifier effluent lbs/day**	Chlorine process conc.*	Chlorine process lbs/day***	By-pass conc.****	Lbs/day**	Lbs/day to Portage Creek from Bryant Division
Five-day BOD	300	7,005	74	334	840	102.0	7,441
COD	500	11,676	330	1,490	2,000	243	13,410
Suspended Solids	90	2,101	228	1,060	2,180	265	3,426
Suspended Volatile Solids	45	1,050	96	434	1,120	136	1,620
Settleable Solids	10	233	148	668	2,100	255	1,156
Chloroform Extractables	18	420	18	81.4			500
Total PO_4-P	0.9	21	2.6	12.2			33.2
Soluble Ortho PO_4-P	0.0	0	1.4	6.3			6.3
Organic N-N	4.5	105	1.9	8.6			114
Ammonia N-N	0.0	0	0.0	0.0			0.0
Nitrate N-N	0.0	0	0.3	1.4			1.4
Turbidity	270		550				
pH	7.4		3.0		10.7		
Total Solids			1,230	5,550			

*Concentrations expressed as mg/l except pH and Turbidity
**Pounds per day computed from the following formula:
lbs/day = flow (mgd) x conc. (mg/l) x unit weight of water (8.34 lbs/gal)
***Lbs/day computed using the projected 24-hour flow
****Concentrations based on a grab sample obtained while the sewer was overflowing 6-5-68 @ 1715

MDNR 003699

Table 2

Production at Bryant Mill

Paper Machines		De-inking Tons In	(80% In) Tons Out
First Survey Period	209.2 Tons	137	109.9
Second Survey Period	172.9 Tons	118	94.5

DEPOSITION EXHIBIT
Randall 4
11-16-92 tp

ALLIED PAPER CORPORATION

RESEARCH AND DEVELOPMENT DEPARTMENT

Progress Report No. 1

Project No. 200T

Subject: TRIAL RUN OF GROUNDWOOD FREE BOOK AND COLORED LEDGER FROM THOMAS PAPER STOCK IN KING D.I. PLANT ON AUGUST 14, 1964.

Distribution:

R. M. Levy
H. A. Price
U. G. Stoeffler
B. Growald
R & D File

E. J. Klimczak
E. J. Gilman
H. Roxborough

Date: August 24, 1964

By: U. G. Stoeffler
R. J. Willie
R. Randall

Approved: RMH 9/1/64

KA05500915

SA 027717

OBJECT:

To determine the chemical costs of producing a deinked pulp of 77-80 Photovolt brightness from a mixture of ledger and groundwood free book stock.

PROCEDURE:

A trial run was made on August 14, 1964 using a special shipment of groundwood free book and ledger. This furnish was fed to the King D.I. plant for a seven hour period utilizing the normal stock and water flow pattern except no bleach was added to the small bleach tower, just enough caustic to neutralize the pulp from chlorination oliver. The chemical usage - chlorine caustic, and bleach - was adjusted to the lower chlorine demand of the pulp and lower brightness specifications of the finished product. Flows of stock and chemicals were recorded and regulated and special tests made. Data was supplied to the Accounting department for a cost analysis. A yield or retention was not calculated but a retention of 80% was assumed based on previous experience.

CONCLUSIONS:

1. The total bale weight input was 136,550#, consisting of 19,800# (14.5%) book, 89,280# (65.5%) colored ledger, 26,560# (19.4%) kraft and 910# (0.6%) broke. Some of the book was not groundwood free and some of the colored ledger was deeply dyed - blue and green - unbleached kraft. This ledger has a permanganate number (K No.) of 26 and raised the K No. of the pulp to chlorination from 7.5 to 10.2, imparting a blue color to the pulp before chlorination.

2. An average permanganate number of 7.5 was achieved, except at the end of the trial when the colored ledger mentioned above raised the K No. to 10.2.

3. The beater evaluation on a composite sample of the finished pulp indicated a higher tear, slightly lower mullen, higher freeness value and greater fiber length index than regular deinked pulp. A fiber analysis indicated 59% softwood and 41% hardwood.

4. Based on these trial results, it was determined that at a stock flow rate to chlorination of 950 gpm, 2 pounds a minute of chlorine and 5 gpm of 40 gram/liter bleach is sufficient to produce a product of 77-80 P.V. brightness. This chemical usage assumed that the book will be primarily groundwood free and the ledger will not contain the type of unbleached kraft found in this trial.

Rex Paper Purifier Put Into Service

System Meets State's Anti-Pollution Code

The Rex Paper Company is now purifying all waste water from its plant on King Highway, east of Kalamazoo, with completion last week of its 50-foot settling tank, Mrs. Merrill B. King, president, said Saturday.

The purifying system, which initial tests have shown to have more than met all state requirements, incorporates several new features in anti-river pollution installations for the Kalamazoo River Valley.

Aided by the mill's location as the highest above the river in Kalamazoo, gravity is used for part of the operations which require pumping in other locations.

PADDLES FOR SLUDGE

Heart of the sysetm is a concrete tank 50 feet in diameter and 11 feet deep, equipped with a Hardinge Sludge Separator. Connected to the catwalk shown in the accompanying photograph is a shaft extending to the bottom of the tank where it operates giant paddles equipped with fins. These extend across the width of the tank and rotate slowly.

The movement of the paddles has two functions. It speeds up the settling of solid wastes in the water. It also prevents piling of the sediment, and speeds its movement into the pumps which force it out of the tank into nearby sludge pits.

The tank will care for 1,200 gallons of waste water per minute. Initial tests last week showed 840-960 gallons per minute were going into the tank.

Three sludge pits have been dug each large enough to hold solid wastes extracted during a 90-day period. Surrounding areas owned by the mill provide space for pits to take care of the waste for several years.

Mill officials hope that research in the paper industry will provide a solution during that time whereby the clay, pulp fiber and chemicals contained may be used economically to form other products. Some boxboard plants have found that they can be incorporated in their boards, but no process has been found yet to use them in the high grade white papers made by the Rex company.

9-5-54

'54

KB22501869

gust 15, 1957

To: W. A. Kirkpatrick
From: J. R. Dam

cc: G. A. Littlefield
E. J. Gilman
H. B. Johnston
J. H. McClure
H. E. Nelson
G. A. Towne

Subject: Progress report on Paper Machine losses at the King Mill.
These losses are being studied by U.G. Stoeffler and L.R. Bortolotti.

Conclusions: The losses from the inadequate savealls alone on #1 and #2 Paper Machines show losses of $116.00 and $206.00 per day respectively. For a 300 day year #1 = $34,800 and #2 = $61,800.

On the basis of the recent cost of $55,000 installed for a Svean Pederson unit on #6 machine at Bryant one of these units could be paid off in less than two (2) years for #2 and in less than a year on #2.

Present indications are that the PIE unit which will be tried the week of August 26, will result in capital savings of about 50% compared to the Svean Pederson.

Results: I. Schematic Flow diagrams of all four paper machines have been completed. These diagrams include pipe sizes and shows volumes. The engineering department now is redrawing them to a larger scale. We hope to have them ready by August 16.

II. A Weir, and automatic sampler were installed to measure the flow and sample the effluents from the savealls on #1 and #2 Paper Machines.

Observation indicated that losses might be relatively high at this point. This is substantiated by the data shown in Tables I & II.

III. No 3 and 4 machines are operating without savealls so that all wet trim and pit breaks are lost from the machine. We are not set up to measure these actual losses as yet. Some of this stock may be recovered in the deinking plant. (See under discussion)

IV. Machine white water tanks are constantly over-flowing directly to the sewer, particularly on #1, 2 and 3 paper machines. A weir has been installed to measure the direct loss to sewer from #1 & 2.

SA00027187

September 1, 1959

Monarch Resuming Production

Mill Operations Beginning Tonight

No 10 machine at the Monarch Division of Allied Paper Corp in Kalamazoo is scheduled to turn over tonight for the first time since January of 1958

The recently deserted Monarch mill remained silent today, but visitors to the rear of the mill could not help but notice the lineup of cars of the men who returned to work there this week.

Eighty former Monarch employes have been recalled They have been engaged primarily in cleaning up, following a major modernization program which has been under way for the past six weeks.

* * *

THIS $300,000 project has involved the installation of completely new systems for stock preparation refining and drying, including a new horizontal size press on the No 10 machine

Plans call for operation of the machine on a continuous 24 hour-day, seven day week basis.

Also planned by the first of next month is a start up of the finishing department on a limited basis

* * *

ONCE NO 10 machine is in full production, work will begin on a similar modernization program on Machine II in the Monarch Mill with hopes of getting it into production early nex year The company previously stated the work force would total about 100 by the first of the year.

The Monarch Mill will turn out five grades of book special ty papers of the same type turned out by Allied's Machines No [illegible] the King Mill and Ma[illegible] No 5-9 at the Bryant Mill

Oct 14, 1959

Bloodmobile Visits Bryant

The Red Cross Bloodmobile collected 88 pints—37 less than its goal—Tuesday in the first of a two day clinic sponsored by the Allied Paper Corp

Today the clinic is at the Bryant Division Making blood donations with Allied's employes today are workers from the Orthopedic Frame Co St Regis Paper Co's Panelyte Division Illinois Envelope Co and Barnes Printing Co Today's clinic is open until 5.

These will be the Bloodmobile's last stations in Kalamazoo until Nov. 9-11

One gallon donor pin was awarded Tuesday at Allied's King Division to James Fetterolf of Richland Route 1.

Oct 14, 1959

Bloodmobile Gets 262 Pts. In Two Days

Donations of 174 pints of blood at Allied Paper Corp's Bryant Division Wednesday boosted the Lansing Regional Red Cross Bloodmobile's two day total to 262 pints

The Bloodmobile had been stationed at the King Division Tuesday, where [illegible] pints were taken

Participating with Allied on Wednesday were employes of four other firms — the Orthopedic Frame Co, St Regis Paper Co's Panelyte Division, Illinois Envelope Co and Barnes Printing Co.

The Bloodmobile was slat

November 2, 1959

ARNOLD MARFMONT
Here Dec 11

Allied Paper Chief to Talk H[illegible] Dec 11

[illegible] popular [illegible]ucation program [illegible]gistration from [illegible] Chao Chen [illegible]sor of [illegible]

J. D. DAILEY
Banquet Speaker

10-1-61

To Discuss Bleaching

More than 150 U.S. and Canadian paper industry research and production executives will gather in Kalamazoo this week for a two-day program on 'Bleaching of De-inked Stock."

The occasion will be the Sixth De-inking Conference of the Technical Association of the Pulp and Paper Industry (TAPPI) at the Harris Motor Inn.

Meeting jointly with the national group at the conference banquet Thursday at 6 p m reception and 7:30 p m banquet will be the Kalamazoo section of TAPPI.

Banquet speaker will be J. D. Dailey, senior vice president of Allied Paper Corp. Dailey, who before coming to Kalamazoo was manager of the Reigel Paper Corp.'s Wilmington, N.C., mill, turning out more than 1,000 pounds of bleached products daily, will speak on 'Bleaching of Stock."

The De-inking Conference will be preceded by steering and de-inking committee meetings Wednesday afternoon and evening, with the first conference session slated for 9 a m Thursday.

Session moderator will be H E Stevens, Ward Paper Co, Merrill, Wis. Panelists will be P. J. Schmitt, P. H. Glatfelter Co., Spring Grove, Pa.; Alfred P. Nadelman, Kalamazoo paper industry consultant and former Western Michigan University Paper Technology Department head; G. H. Baldauf, Allied Paper Corp.; Kalamazoo; and J. D. Allen, Bergstrom Paper Co., Neenah, Wis.

* * *

PLANT TOURS of the Allied Paper Corp. and Pioneer Paper Stock Co. are scheduled Wednesday afternoon.

The second conference session at 9 a.m. Friday will be moderated by M. R. Wilkins, Kalamazoo Paper Co. Panelists will be A. D. Harbin Jr., Diamond Alkali Co., Painesville, Ohio; R. R. Kindron and F. J Rosebush, Food Machinery & Chemistry Corp., Princeton, N. J.; R. W. Barton, Virginia Smelting Co, West Norfolk, Va; and W. C. Martin, Kimberly-Clark Corp, West Carrollton, Ohio.

A plant tour of the Kalamazoo Paper Co. is scheduled Friday afternoon as the final item on the conference program.

A. J. Felton, The Black-Clawson Co, Middleton, Ohio, chairman of TAPPI's De-inking Committee is conference chairman and will serve as banquet toastmaster S. J. Stetz of Allied Paper Corp. is in charge of local arrangements.

lied Paper ds 22 to ear List

ıbership in the Allied Paorp.'s 25-year Club rose to ith the induction of more a score of new members annual service awards ıet Thursday night at the s Motor Inn.

Harrison, presicorporation adroup on corporaduring the past ast goals for fu

as assisted in of service Dailey, senior president, and toastmaster ıst night's program.

FOLLOWING presentawere made ear Awards: Lawrence ain and David Palmer. ear: Robert Pratt, James pers, Dale Betok and Thiel.

ear: Clare White, Henecker, Eura McClain, Glen John Tries, Peter Percy Jr., Julia Kosa, ny Lemmens and Walter any.

ear: Leo Paddock, Roscoe h, Nena Geren, Harold euw and Peter Pikkaart.

year: John Nisbet, Ilah pp, Millard Bowerson, a VanDeMortel, Asa att, Joseph Swik, Millard in, Jean Colvin, Harold or, Mae Dewitt, Burton ll, Beatrice Tyler, Roy Mertaugh, Gary Garo, Edward Cook, Clifford Lintlan, Abbott Carolus,

ALSO 9-MONTH GAIN

Allied Paper Earnings, Sales Up for Quarter

Allied Paper Corp. today reported significant improvements in sales and earnings for both the third quarter and first nine months of 1961 as compared with 1960 and announced the start-up of two rebuilt paper machines here.

Third quarter totals this year showed sales of $10.8 million and net profit of $106,614, or 9 cents per share, as compared with sales of $10.1 million and a loss of $43,938, or 4 cents per share, for the same period a year ago.

For the nine months ended Sept. 30 sales totaled $33.3 million and net profit equaled $942,284, or 82 cents per share, up from 1960 figures of $27.3 million and $188,937 or 17 cents a share for the nine-month period.

* * *

THE REPORT to stockholders noted that Allied, through the activities of its business forms subsidiary, Allied Kalamazoo, is now among the top four business forms producers in the country, and said efforts to continue the coordination of activities of the business forms division's various units with one another and with the paper mills here in Kalamazoo are still in process.

The start-up of two paper machines, one in the Bryant mill and one in the Monarch mill, also was reported, with the activity at Monarch representing completion of the rebuilding of that mill begun over a year ago.

The No. 6 machine at Bryant was shut down and completely rebuilt during the third quarter, and the No. 11 machine at Monarch has just been specially equipped for specialty paper, including carbonizing tissue used by the business forms division.

* * *

ALLIED is now in a position, the report said, to supply all the paper requirements of the business forms division. Before the start-up of the two machines, Allied was supplying the division with registered bond paper only, according to the report.

It reported that research and development in the business paper field is being followed, with photocopying types of paper getting an ever-increasing share of Allied's research dollar.

"We continue optimistic not only about the Kalvaar type of papers we are making," Arnold H. Maremont, board chairman, said, "but also with encouraging results obtained on the Ditto fax and thermal grades."

11-13-61

WRC to Study Area Mills' Timetables

LANSING (AP) — Pollution of the Kalamazoo River by three paper mills will be discussed at a meeting of the Water Resources Commission scheduled for Nov. 30.

Two of the mills, the commission reported, have submitted written commitments for approval. They are the Allied Paper Corp., and National Gypsum Co.

* * *

BUT THE commission said one company—the Hamilton Paper Co. of Plainwell—has failed to submit an acceptable program for abating pollution in the river.

A notice of determination and hearing against the Hamilton Co. will be considered, the commission said.

* * *

"THE NOTICE," it said, "will cite the specific violations charged against the mill, list the restrictions on waste disposal, set June 1, 1965, as the final date for abating pollution and establish the date, time and location for a hearing before the commission."

In testifying before the commission in Kalamazoo in March Hamilton vice president, stressed his company's interest in a possible joint treatment of industry waste and municipal waste with the City of Plainwell.

* * *

NICOLSON SAID at that time that he anticipated his firm would be able to submit a program voluntarily which would meet commission requirements for waste treatment. He pointed out, however, that because of the recent acquisition of Hamilton by Weyerhauser Corp. he was unable to state exactly what his firm's position would be on this matter.

Also scheduled for the day-long meeting is a continuation of the Aug. 30 hearing with the City of Yale and Yale Woolen Mills.

11-28-61

Paper Co. Gives Christmas Party

Allied Paper Co. entertained more than 1,500 for the firm's sixth annual children's Christmas [illegible] Central High [illegible] Sunday aft-

KALAMAZOO GAZETTE
SPORTS SLANTS

ALLIED NEWS

ALLIED PAPER CORPORATION

VOLUME II No 9 KALAMAZOO, MICHIGAN SEPTEMBER 1964

ALLIED PAPER CORPORATION SPONSORS BLOOD CLINIC

BLOOD DONORS NEEDED

Once again the Allied Paper Corporation will sponsor its annual Red Cross Blood Clinic at two locations On Wednesday October 7 1964, the Red Cross Mobile Unit will be located at the King Mill in the Engineer's Conference Room The unit will then move to the Office Auditorium at the Bryant Mill on Thursday, October 8 1964

Last year 238 people registered as donors and the Red Cross collected 201 pints of blood at our clinic However only 147 pints were donated by employees of the Allied Paper Corporation

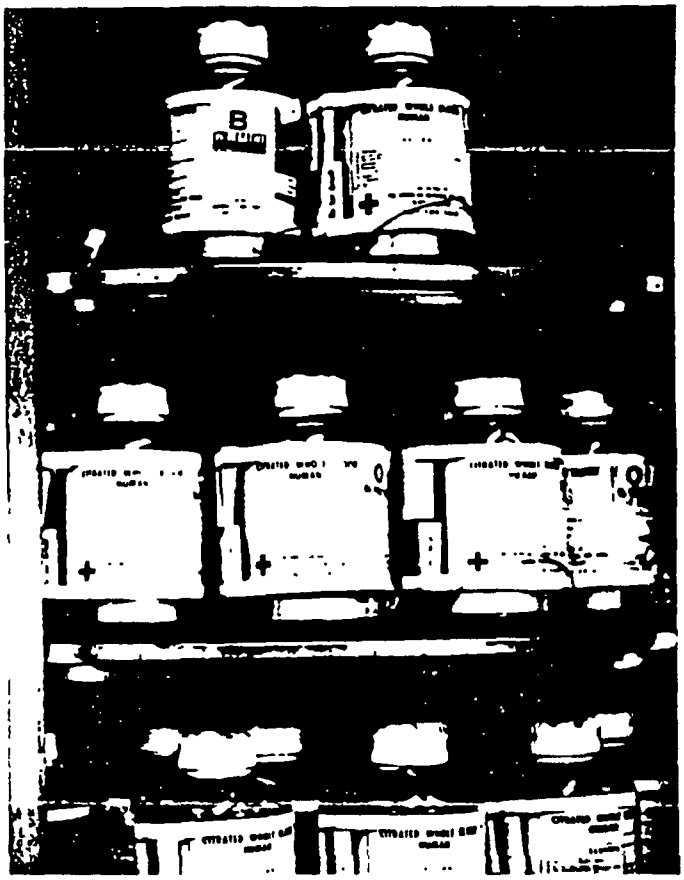
Each and every Allied Paper employee will have the opportunity to donate a pint of blood during the two days October 7th and October 8th The Monarch Division employees will donate their blood at the Bryant Office unit Each donor will be scheduled if possible to donate his blood during working hours without any loss of pay The solicitation of donors will be done by your fellow employees Please be courteous to them since they are volunteering their time and blood

The local Red Cross blood donor program supplies blood free of charge to any Kalamazoo County resident who needs it Blood can't be given away, in fact it can't be acquired for any price unless it is first donated by someone

Please give your blood during the blood clinic at Allied The blood you give helps someone live Blood cannot be mined or manufactured – it must come from the veins of healthy men and women who feel concern for the suffering of others and know that blood alone can make them whole and well again

The availability of blood and blood products is of increasing importance to the health and welfare of every resident and worker of this community A healthy person could donate blood every two months but if everyone who is able would donate just once each year the program would be able to meet the needs of Kalamazoo County

You can save a life with the blood you can spare!



The Blood You Give Helps Someone Live!

MONARCH PAPER MACHINE #11 AGAIN INCREASES PRODUCTION RECORD

The A C and D Four Crews of #11 Paper Machine at the Monarch Division jointly increased the daily production record for that machine on September 5 1964 During the 24 hour period of 7 00 a m to 7 00 p m the three crews under the able guidance of Machine Tenders Joe Peacock, Joe Gabb and Ed Johnson produced a total of 12,470 pounds of 9# Carbon Tissue This new record replaces a record of 11,275 pounds established on February 16 1964

Congratulations!

ANOTHER CENTRI-SCREEN ADDED AT KING

Recently a new Bird Centri-Screen was started up on #1 Paper Machine at the King Division The primary purpose of this equipment is to improve quality by removing the dirt from the stock furnished to the head box This unit on #1 Paper Machine is a duplicate of the Center Screen installed on #3 Paper Machine in May, 1964, and is a continuation of Allied Paper's efforts to improve quality

The installation was completed at the end of August by the King Maintenance Department personnel under the supervision of Maintenance Supervisor Bill Gates and Project Engineer Bill Herbert

KING PAPER MACHINE #4 CREW SETS 8-HOUR RECORD

On August 17 1964 the King Division Paper Machine #4 crew of Machine Tender Pearl Gillespie Reel Tender Bob Allen 3rd Hand Mike Moran 4th Hand Paul Munson and 5th Hand Jake Klepper established a new 8 hour record by producing 12,140 pounds of 50# Government Manual Paper The old record of 10,940 was established by Machine Tender Cecil Bland screw November 29, 1963

Congratulations!

MONARCH MACHINE TENDER PROMOTED

Dan Crawford

Effective September 11, 1964 General Superintendent Morris Carl announced the promotion of Machine Tender Daniel Crawford to Foreman Superintendent at the Monarch Division Dan will replace Harvard "Buck" Mendham who retires October 1

Dan began his employment at the Monarch Mill in 1950 He transferred to the Paper Machines early in 1958 He moved up the Paper Machine progression to become a Machine Tender on 10 30 61

Congratulations to Dan!

KA0400469

Valmont Times
Valmont, Colo.
September, 1966

SPORTS

Harper and Tatro Win Golf Championship

Left to right Gerald Harper Bill Tatro Phil Kraushaar and Buck Weaver

In a head to head battle for first place on the last night of the season, Gerald Harper and Bill Tatro defeated Phil Kraushaar and Virgil "Buck" Weaver for the championship of the Eastern Golf League. The season saw the lead change hands several times with the outcome in doubt until the final hole on the final night. Season honors went to Earl Price who had an excellent 38 for low gross and Harold Derksen who had 31 for low net. The two top substitutes who were determined on a percentage basis were Ed Stoner and Bud Stockwell. The golf outing at Orchard Hills concluded the season and Stu Reger took honors by shooting a 124 for the high gross prize.

FINAL STANDINGS

		Points
1	G Harper-B Tatro	35
2	P Kraushaar-B Weaver	32
3	E Price-B Slater	31½
4	W Tatro-J Simmons	31
5	J Price-G Squires	31
6	O Stoner-A Lacey	25½
7	H Derksen-B DeBoer	21½
8	J Holt P Vestal	21½
9	R Wolchina A Schero	21
10	B Cochran-T Garbacik	22½
11	B Slater-W Howard	22
12	W Thomas-C Root	17
13	L Marvin-F Roberts	16½
14	J Ellis-J McDonald	16½
15	J Connors-P Weaver	14
16	S Reger B Raab	11

DEFENDING CHAMPIONS FALTER AS KING-MONARCH BOWLING SEASON OPENS

The defending champion Stingers were rudely treated on the first night of bowling in the King-Monarch League as they dropped all four points to the O-SO Five. Dick Boven of the King's Men, started where he left off last season with a fine opening night performance of 601.

This year's league will again bowl at Westside Lanes on Friday nights and the captains and teams are as follows. Mixed Five — Jim Baker, Five Strikes — Clarence Commissaris, King's Men — Dick Boven, Five Spares — Ted Zimmerman, Powerhouse Five — Stewart Reger, Do Dads — Jim Abbott, Stingers — Jr Shearer, and the O-SO Five — Wendell Lee. The League Secretary is Ray Wilhe.

Standings — Sept 2, 1966

	Won	Lost	Pts
1 O-So Five	3	0	4
2 Mixed Five	2	1	3
3 King's Men	2	1	3
4 Powerhouse Five	2	1	3
5 Five Spares	1	2	1
6 Five Strikes	1	2	1
7 Do Dads	1	2	1
8 Stingers	0	1	0

NO. 8 PAPER MACHINE SIZE PRESS REPLACED

On September 4th and 5th 1966, the size press drive on No 8 paper machine was replaced. The old wood cog gear unit and mechanical clutch were removed along with two sections of basement lineshaft.

A Falk right angle gear unit and Fawick clutch was installed upstairs at the size press. Two new sections of lineshaft, pulley and anti-friction bearings were installed in the basement. Also the old style jaw clutch between the above mi drive and size press was eliminated in favor of a flex rigid coupling to eliminate backlash on the driven size press roll.

This is another step in the rebuilding of the drive for No 8 paper machine to improve the operation, reduce downtime and cut maintenance costs on the unit.

All work was performed by the Bryant Maintenance Department personnel. Bill Herbert was Project Engineer responsible for this installation.

WILLIE'S TEAM WINS

Left to right in front Bill Farrow, Dick Willie, Les Stoeffler In back Tom Stong Don Falvey Bob Thiessen Chuck Stanski

BEAT YALE'S TEAM TWICE

Team #2 lead by Captain Dick Willie with the help of Don Falvey, Bob Thiessen and Charles Stanski beat Captain Bob Yale's team #5 twice in succession to win the Championship of Allied Paper's Oakland Golf League. Team #5 won the third round over Team #3 which placed them in a commanding position for the play-off.

On the first night of the play-off players Bob Thiessen and Chuck Stanski lead Team #2 to victory by shooting 41 and 44 to win three big points. Don Falvey chipped in with a good point over Ted Zimmerman to make the final margin four to two.

On the second night Team #2 soundly trounced Team #5, five to one, to win the Championship. In this showdown for the Championship Captain Dick Willie pulled out of a slump to shoot his best round of the year in the league, a sparkling 37. Bob Thiessen again shot an excellent round of 42 with Don Falvey and Chuck Stanski chipping in with 46 and 47 respectively. The other members of the Championship team that helped throughout the season are Tom Stong, Les Stoeffler and Bill Farrow.

CHAR-STEAK TEAM HITS 1006

On the first night of the 1966 bowling season in the Big Twelve Handicap League at Sunset, the Char Steak team burned up the alley with a tremendous 1006 actual game. The scores of the individual members were as follows:

Tony Giambrone	200
Ben DeBoer	196
Phil Kraushaar	198
Stew Reger (Capt.)	176
Carl Shuster	236

Carl Shuster's 236 game enabled him to celebrate his birthday with a 605 series.

MONARCH DEFEATS BRYANT DAYS FOR TOURNAMENT TITLE

Inter-Department Softball play ended with Monarch winning a 9-6 decision over the season champs, Bryant Days. It was sweet revenge for Monarch as the Bryant team had defeated Monarch for the season championship. A seven run first inning sealed victory for Monarch with Barry Kitzmiller, Jr Shearer, Dick Bresson, Dave Newhouse and Herb Felthoff, the hitting stars with two hits each. John Harrison led the losers with two hits including a long home run.

The battle for third place was won by the Office which defeated King by a score of 11-9. Rich Warmbold, Bill Outman, Dennis Bowersox and Don Rand led the hitting parade with two hits. King made a strong bid for victory with a three run rally in the seventh, but fell two runs short.

TOP 10 HITTERS — 1966

(Based on 20 times at bat)

1	J Harrison (Bryant)	15	28	.546
2	Bill Outman (Office)	12	23	.522
3	J Cutler (Office)	11	27	.518
4	J Lovell (Bryant)	12	24	.500
5	Jr Shearer (Mon'ch)	12	25	.480
6	N Randolph (Bryant)	11	24	.458
7	B Gray (Office)	10	21	.476
8	J Barkenbus (Office)	16	34	.470
9	B Kitzmiller (Mon'ch)	15	32	.469
10	J Olvitt (Monarch)	12	26	.462

BRYANT LEAGUE MOVES TO BLUE CRYSTAL FOR 1966-67 SEASON

League Secretary, George Vickery announces the opening of the Allied Bryant League at Blue Crystal Lanes. This year's league will bowl Wednesdays at 4:00 P.M. and will consist of six teams. The teams and captains are as follows. Valiant 5 — Lonie Taylor, Twirlers — George Vickery, Rockets — Nate Randolph, Traffic — Oscar Dikerts, Pinbusters — John Hohmeier, Wildcats — Wilbur Falcon.

KA04400451

Volume III, No 9
November, 1965

ALLIED NEWS
ALLIED PAPER CORPORATION

Editor	Charles Stanski
Local No 426	Stalley Van Lester
Local No 78	Robert Glaspie
Local No 667	Richard Lather
Local No 649	Harry Speers
King Mill	Jim Holt, Adeline Fleck
Office	Roy Willie
Monarch Mill	Don Sand
Bryant Mill	Juanita Loftus, Dale Kennedy, Bob Bohrer, Grace Holt, John Hohlemer, Sr

TO RECEIVE SERVICE AWARDS

(Continued from Page 1)

FIFTEEN YEARS

Bryant

Ray E Cronkhite
Andrew Oros
Frieda Eaton
Mildred Emmons
Grace Powers
William L Homan
Adeline Stinnett
Roy Kennedy
Joseph R Peck
Charles A Westveer
John Bodnar
James Argo
Don Guess
Edwin Flora
Kenneth Stonebarner
Jane Wilson
Lyle Smith
Fred Zabonick
George Vickery
Holt Cochran
Robert E Greenwood
R L Bover
Jimmie D Bailey
Lester M Haywood
Karlis Melos (Retired)
Orrie Kiel
Leslie G Young
Alice Decambra
Leo Terpening
Aline Waldrop
Norman Lentz
Lammert Visker
Norman O Harvey
Theodore Zimmerman
Jekabs Grotens
Gordon Thorpe
Verla Munson
Robert Huskey

King

William Price
Lawrence Perkins
Dale Motter
Arthur Ford
Paul Gillespie
Garritt Korteweg, Sr
Robert Waber
Pat Bland
Lyle Baker
Henry Axenbauer
Kendall Bagley
Andrew Lapekas
Russell Terry
John Polny
Charles Short
Bernard Miller
Neely Huey

Monarch

Daniel Crawford
James Dunning, Jr
Theodore Stoneburner
Sherman Woodall

Salary

Dorothy VanLandegent
William Ellis
Dorothy J Morrison
Pauline Pickett
Al Dam (Retired)
Howard McGehee
Earl Vogler
Mary Prouty
Augusts Abolins

TEN YEARS

Bryant

Bernard Kolinske
Hermnio Delgadillo
Dean Mann
Clarence Pio
Donald E Stoddard
Dallas Lanthan
Paul D Davis
John D Ulam
Manuel Orta
Vincent Barone
Elbert Heighton
Roel S Mardis
Donald Moon
R Franklin Fornoff
Irwin Hendricks
Farmer White
Robert Grimm
Robert Sootsman
Allen R Holder
Jack Zabonick

King

Raymon Roden
William Geuze
Harold Woldendorp (Retired)
Edward Homan
Hollis Roden
Kenneth Brinkert
Elbert Hogg
James Holt
James Dean

Monarch

Harold Disbrow

Salary

Margaret Rowe
Jack Minar
Herman Bernick

FIVE YEARS

Bryant

Mark Gross
Charles Carpentier
Louis Eaman
James Lamphear
Robert Snyder
Larry Brownell
Lawrence Stoken
Duane Kellogg
John Hohlemer, Sr
Leon Smith
Wilbur Falcone
Albert Neahs
Willard Draper
Robert Lackey
Alfred Baskens
John Lewis, Jr

King

Mike Kulikowski
Talvaldis Strautkalns
Omer Hensley
Cornelius Vandebiezen, Jr
Glen Guthrie
James Merkle
Homer Wagner
Howard Morrison

Monarch

Charles Sutton
James Parker
Michael Strobel
Jack McCoy
Douglas L Hresson, Sr
Paul Munson
Benny Henson

Salary

David Meadows
Jeannette Liefbroer
John J Wright
J D Bailey
Kathy VanPeenen

NEW CENTRISCREEN INSTALLED ON NO. 6

On Sunday, October 31st a new Bird Centriscreen and stainless steel piping was installed on No 6 Paper Machine

Three obsolete Bird Rotary Screens, drives, wooden flow boxes and piping were replaced by the Bird screen

Replacement of the Rotary Screens was made to improve screening, reduce maintenance costs and shorten wash-up time

The screen was installed by Bryant Maintenance Department personnel with no loss of production Project Engineer from central engineering was Bill Herbert

This installation is the 3rd such screen installed at the Bryant Mill this year

NEW PRESS INSTALLED ON NO. 7

A new suction first press was installed on No 7 Paper Machine on Sunday and Monday October 17th and 18th Work was begun Sunday morning and the paper machine returned to service at 8 00 p m Monday evening Machine tenders were able to take the sheet across machine without difficulty the first try

The suction roll is a new 26 inch O D rubber covered roll built by the Black-Clawson Company The roll is equipped with air loaded seal strips and teflon end deckles The box opening for vacuum is 4 inches wide

A new Black-Clawson right angle gear unit with Fawick air flex clutch and taper cone pulley were installed to drive this press The tapered pulley on the basement lineshaft was moved to line up with the new drive pulley

The supporting framework for the top roll was scrapped and new framework was installed to permit lowering the press nip Also one felt roll and one paper carrying roll were relocated

Installation was done by the Bryant maintenance forces under supervision of Howard Starbuck and Howard McGehee Bill Herbert was project engineer on the job from Central Engineering

Personal Notes

After waiting for fifteen years Howard Livingston and his wife were two of the happiest people in Kalamazoo when their first child was born, a baby girl

Joe Siwik and family flew by jet to Tompox, California to attend the wedding of his son, Lt Joe Siwik, who is a Navy pilot Joe's son is now stationed in Hawaii His youngest son is with the U S Army in Germany

Clare Coffman, King Roll Grinding, took the big fatal step November 6, 1965, when he married Goldie Barton

Paul Giambrone, Bryant Yards was married to Judy McGuire in Portage, November 6 1965

Stew Reger, King Power got himself a big stationwagon to bring back *his game from up north*

Ray Willie R & D, was seen around Ft Wayne, Indiana one Thursday night, Was he go-go ing?

A certain restaurant on Shaver Road has a certain attraction for quite a few Allied employees

Ivan Randall Bryant R & D had a 'bear box' mounted on top of his car so mother would have a place for the bear she is going to shoot

Lillian Kinch Sample Department, has a new car

Welcome to Joyce Kimble who is now working in Personnel, and to Kurt Bennett, Cost Accountant trainee

Congratulations to Henry DeVries (Monarch Power Plant retiree) and his wife who recently celebrated their 50th Golden Wedding Anniversary!

As pictured above Superintendent Ken Sweet and fellow employee LeRoy Essery congratulated retirees Francis Norton and Albert Pichron at their retirement break fast which was held in the Mill C Finishing Department

SUPERVISORY CLUB HOLDS MEETING

After a lapse of several months, the Allied Paper Corporation Supervisory Club held a meeting on November 10, 1965 Manufacturing Vice President E J Gilman addressed the group He drew a picture of the composite Allied Paper Corporation supervisor

President Bill Herbert announced that the election of officers for 1966 will be held at the next meeting

KA0440045

ALLIED NEWS

ALLIED PAPER CORPORATION

VOLUME II, No. 9 KALAMAZOO, MICHIGAN SEPTEMBER, 1964

ALLIED PAPER CORPORATION SPONSORS BLOOD CLINIC

BLOOD DONORS NEEDED

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Each and every Allied Paper employee will have the opportunity to donate a pint of blood during the two days October 7th and October 8th. The Monarch Division employees will donate their blood at the Bryant Office unit. Each donor will be scheduled, if possible, to donate his blood during working hours without any loss of pay. The solicitation of donors will be done by your fellow employees. Please be courteous to them since they are volunteering their time and blood.

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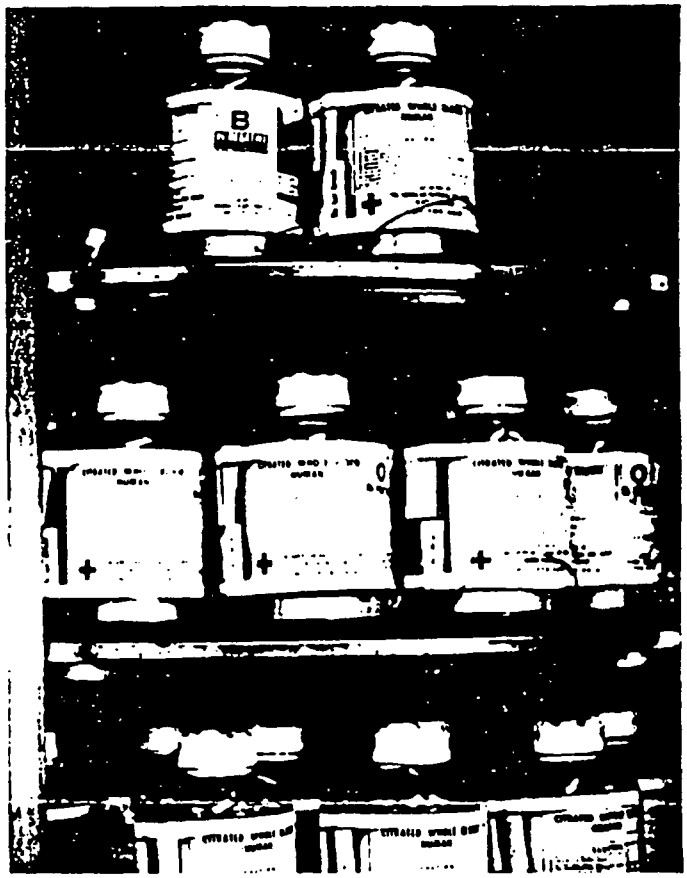


The Blood You Give Helps Someone Live!

MONARCH PAPER MACHINE #11 AGAIN INCREASES PRODUCTION RECORD

The A, C, and D Tour Crews of #11 Paper Machine at the Monarch Division jointly increased the daily production record for that machine on September 5, 1964. During the 24-hour period of 7:00 a.m. to 7:00 p.m. the three crews, under the able guidance of Machine Tenders Joe Ptacek, Joe Gabb, and Ed Johnson, produced a total of 42,470 pounds of 9# Carbon Tissue. This new record replaces a record of 41,275 pounds established on February 16, 1964.

Congratulations!

ANOTHER CENTRI-SCREEN ADDED AT KING

Recently a new Bird Centri-Screen was started up on #1 Paper Machine at the King Division. The primary purpose of this equipment is to improve quality by removing the dirt from the stock furnished to the head box. This unit on #1 Paper Machine is a duplicate of the Centri-Screen installed on #3 Paper Machine in May, 1964, and is a continuation of Allied Paper's efforts to improve quality.

The installation was completed at the end of August by the King Maintenance Department personnel under the supervision of Maintenance Supervisor Bill Gates and Project Engineer Bill Herbert.

KING PAPER MACHINE #4 CREW SETS 8-HOUR RECORD

On August 17, 1964, the King Division Paper Machine #4 crew of Machine Tender Paul Gillespie, Back-tender Bob Allen, 3rd Hand Mike Moran, 4th Hand Paul Munson, and 5th Hand Jake Klepper established a new 8-hour record by producing 12,140 pounds of 50# Government Manual Paper. The old record of 10,930 was established by Machine Tender Cecil Bland's crew November 29, 1963.

Congratulations!

MONARCH MACHINE TENDER PROMOTED

Don Crawford

Effective September 11, 1964, General Superintendent Morris Carl announced the promotion of Machine Tender Daniel Crawford to Tour Superintendent at the Monarch Division. Dan will replace Harvard "Buck" Mendham who retires October 1.

Dan began his employment at the Monarch Mill in 1950. He transferred to the Paper Machines early in 1958. He moved up the Paper Machine progression to become a Machine Tender on 10-30-61.

Congratulations to Dan!

KA0400469

Allied News
Volume 11, No 9
September 1964

ALLIED NEWS
ALLIED PAPER CORPORATION

Associate Editors	Charles Stanski Peter Barrett
Reporters	
Local No 426	Grace Holt
Local No 78	Paul Waldron
Local No 667	Don Rand
Local No 649	Dave Hamilton
King Mill	Martha Steele Jim Holt
Office	Ray Willis
Monarch Mill	John Alton
Bryant Mill	Juanita Loftus Florence Fawley Jose Escamilla William Atkins Dale Kennedy

Personal Notes

Welcome to Barbara McKane in the Sales Department

Congratulations to Mr and Mrs Earl Gustin Bryant Coating on the birth of their first grandchild

Mill E Shipping Room held a luncheon for 'Gus' Arndt who retired September 1 They gave Gus some wonderful fishing gear and other gifts

On August 28 the employees of Mill C Finishing gave a luncheon in honor of Florence Fawley who retired September 1 This was a day that Florence will always remember since August 28 was also her birthday and wedding anniversary She received many gifts from the employees of Mill C Finishing Some of the retired employees who came back to wish her well were Cora Curtiss Ruth Kilgore Libbie Dewey Teresa Spaulding Jeanette Vermeulen Reno Randall Jake Meyers Maynard Gilmore, Orie Curtiss Orval Burnsworth, John Corryn John DeVries Warner McGee and Alford Krumms

Jim Holt, King Machine Room is mighty proud that he beat "Hole in one" Buck Weaver in a golf match

Jerry Squires, Brooks has a new addition to his family, an Apaloosa filly

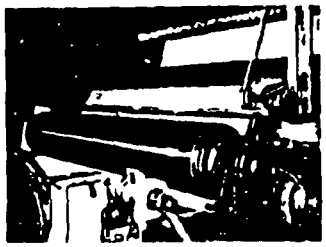
King retired employee Jessie Swan is recovering from a broken hip at the Ridgeview Manor Nursing Home She would like to hear from her friends

Terry Morris Brooks is the father of a baby daughter

Larry Bos son of Coating Mill Manager Claude Bos will soon become Assistant Dean of Students at the American International College, Springfield, Massachusetts

Mr and Mrs Mike Moran (King Machines) have another baby This makes number three

"HOMEMADE" SIZE PRESS IS SUCCESS



King s "Homemade" Size Press

The need was immediate, the challenge apparent fabricate a replacement size press unit at No 1 Paper Machine at the King Division embodying the improved features of a horizontal press at a lower material cost than would be involved in repairing the existing vertical size press

The above requirements became evident when signs of failure appeared in the bearings of our old vertical size press unit An additional problem to be overcome consisted of starch size accumulating on the carrying ropes from which it 'spattered' on the sheet surface causing objectionable dark spots Correction of this problem required that the configuration of the existing vertical press be changed Finally the need existed for locating the size press roll in such a manner that the sheet would contact either roll immediately after leaving the size press nip this feature is mandatory where certain coatings are applied to the sheet which will produce a mottled effect on the surface if contact occurs between the size press rolls and the sheet after the application of the coating at the nip

Time would not permit the fabrication and delivery of a new unit by an outside vendor Our King Maintenance Department employees felt confident that by salvaging material on hand they could fabricate a size press unit of improved design while purchasing only hydraulic control valves and piping The brass top roll for the new unit was found at the Monarch Division while bearing housings were taken from the old coating unit formerly at #2 Paper Machine The bottom roll of the old press was adapted to the new unit Sole plates that formerly existed with the old winder at #3 Paper Machine were used in constructing the support stands for the size press rolls Pneumatic cylinders were salvaged from the former coating unit at #2 Paper Machine

All in all, most of the skills involved in the King Maintenance group contributed toward the installation of this unit Since its start up on Tuesday September 8 1964, its operation has been satisfactory in every respect This type of achievement speaks for itself in demonstrating the effectiveness of the King Maintenance employees in accomplishing a precision project in a very short period of time at minimum cost 'Congratulations are in order for all who played a part in this important step forward at #1 Paper Machine, stated General Superintendent Harry 'Bud' Horrocks

KING MAINTENANCE EMPLOYEES BUILD SIZE PRESS

Left to right: Wayne Dunkleberger, Roy Hill, Bill Wilson, Ken Bagley Bill Gates, Bert Courtney, Jerry Lorie

Left to right Ben Boden Bernard Covey Gerald McLaughlin Perle Van Der Meer Ford Granger Horace Trout, John De Salvo, Frank Means Albert Brinkert Bill Price

KING MILL GETS NEW ELECTRIC SUBSTATION

Electric substation

A new 1000 KVA substation was installed at the King Mill along Lake Street It is energized from a 1800 volt line recently erected between this 1000 KVA substation and the Consumers High Voltage substation just east of the Mill on Lake Street

The purpose of this installation is to transfer some of the electrical load from the former plant and also to permit the removal of a bank of temporary transformers from the east heater room dock Erection of the platform and installation of the transformer and switchgear was performed by our King Mill Maintenance personnel under the direction of Master Mechanic Gail Olvitt and Master Electrician Gus Abolins

KA0400470

Footage Counter on Paper Machine Winder

A. E. Vickery, Allied Paper Corporation, described a new footage counter which consists of a reluctance type tachometer driven from the winder drum. Its installation involved adding a small shaft extension with timing belt sheave to the end of the motor and mounting the timing belt driven tachometer separately.

The problem of threading and the occurrence of a paper break was met by the use of a paper break detector using a photoelectric unit which uses a signal to stop the count even though the winder is running. After the machine is rethreaded, the operator pushes a button which starts the counting again. Since a paper break entails the removal of already counted footage of paper, the operator must raise the already dialed setting by the estimated or measured footage of paper removed.

The development of this counter was the result of customer demand for accurately measured rolls that would run out at the same time on multi-web presses.

ALLIED NEWS

ALLIED PAPER CORPORATION

VOLUME IV No 3 KALAMAZOO, MICHIGAN MARCH 1966

TO ALLIED EMPLOYEES

Most of you know that very soon now the Allied Paper Corporation must comply with an order from the Michigan Water Resources Commission to limit the amount of biochemical oxygen demand (pollution) we put into Portage Creek and the Kalamazoo River We have had five years to comply with that order and we feel we are ready Shutting down the King de-inking plant was the most important step we took This decreased our load substantially We have done other things to help but they are too technical and involved to discuss here The important thing is that they have been done or are being done and we are about ready for the big day

Now we want and need your help to make sure everything goes off as planned You can help by *saving water* ' I know that sounds like a little thing but let me assure you it isn't If we all work to '*save water*" we can cut our pollution load still further and our settling basins won't have to carry the load they have had The less water we use, the less we will have to treat and the more water we reuse the less chemicals like size, alum, clay and starch we will use We must not use any more fresh water than is absolutely necessary to do the job We don't have to cut back so far as to hurt our sanitation or our product but we do have to keep hoses turned off when not in use, we have to keep shower and bearing cooling water valves open only as far as needed to do the job and we all should keep in mind that '*water can be saved*" and look for ways and means of helping You would be surprised how much can be done just by taking care of the little things How well we do in satisfying the State will determine whether we grow or shrink in Kalamazoo We want to grow In the past, the paper industry has polluted its rivers beyond reason Now it is time for us to stop it

Saving water will help I know we can count on you

Sincerely,
Ward Harrison
Chairman of the Board

BROOKSHIRE MOORE NAMED MANAGER OF PAPER AT JACKSON, ALABAMA

Pulp Mill Division President, J D iley, has announced the appointment of Brookshire Moore to the position of Manager of Paper Operations for the new Jackson Alabama per Mill

immediately prior to his employment by Allied Mr Moore held the ition of Manager #19 Machine Champion Paper s Canton North rolina Paper Mill Champion's #19 Paper Machine, as a single paper manufacturing unit, produced up to 800 tons of paper dai y

In his announcement, Mr Dailey stated "Mr Moore brings to Allied over 30 years of outstanding papermaking experience We are indeed fortunate in having him join our organization"

Brookshire Moore

SWEET AND SHOCKLEY ARE PROMOTED

Bryant Book Mill General Superintendent William Buenger announced effective March 1st, the promotion of Kenneth Sweet to the position of Superintendent, Mill D and the promotion of Jack Shockley to the position of Superintendent, Mill C

Mr Buenger also announced the transfer of Tour Superintendent Raymond Gantt from Mill D to Mill C and the transfer of Tour Superintendent John Yonker from the Monarch Mill to Mill D

Ken Sweet

As noted above, Ken has moved from the two machine unit at Mill C to the three machine unit at Mill D He began his career with Allied Paper in 1946 working his way up through the paper machine progression Ken became a Machine Tender in 1957 Two and one half years later, Ken was appointed Tour Superintendent at the King Division A year later he was transferred to the Monarch Division as Mill Superintendent, where he remained until September 1, 1962, when he was promoted to the position of Mill C Superintendent at the Bryant Division

Jack Shockley

Jack started his career with Allied Paper in 1945 at the Bryant Division Having been a Machine Tender for five years in Mill C, Jack took the promotion to Tour Superintendent of Mill C in September of 1962

NO. 4 PAPER MACHINE WATER SAVING PROJECT COMPLETED

A King Mill project to save water which has been going on, in one form or another, for many months is starting to give real results The drive to decrease the amount of purchased water at this mill has now progressed to its ultimate where all water other than for drinking purposes has been eliminated This has made appreciable savings

The most recent work has been carried out on No 4 Paper Machine The first part of the program involved elimination of fresh water in headbox showers The number of showers was decreased and eventually changed to white water The decrease in the number of showers was made possible by making the headbox showers oscillate and the white water usage evolved after experimenting with various types of nozzle construction

Still later, a white water filter was installed which made it possible to not only use white water on the headbox showers but also on the wire return roll showers Even the breast roll is now using white water

The need for saving fresh water helps in many ways For example

1 It decreases the amount of water that has to be treated
2 By reusing white water, some of the fibers and fillers which normally get lost in the process are retained
3 The overall quantity of water handled in the waste treatment plant is reduced by the amount of fresh water reduction thus giving better efficiency there as well

The above are the obvious advantages There are many other benefits too numerous to list here The King program on No 4 Paper Machine is another of the many ways Allied is approaching its water conservation program All of us must do whatever we can to save water You would be surprised how much water can be saved just by doing the little things

MEDICARE

One last reminder to all retirees to enroll for Plan A and Plan B of Medicare The deadline for enrollment is March 31 1966

KA 0440459

Volume IV, No 3
March, 1966

Personal Notes

Our congratulations to Monarch Welder, Jr Shearer, who has been appointed Vice President for the Board of Directors of the Allied Paper Corporation Credit Union, replacing Cliff Odell

Gary Root

Congratulations to Gary Root, Bryant C - Finishing, who did an outstanding day's work recently by baling 42 skids in an eight hour period

George Hopkins, Monarch Tester, is the proud owner of a 1966, fire engine red, Chevy Impala

Helen Gerard wife of Mill D Tour Boss George Gerard, has been named head of the women's division of the 1966 cancer crusade in Kalamazoo which will be held in April Mrs Gerard has worked as a marcher, captain, and section captain in past cancer crusades, and last year served as cochairman of the women's division She has served as a Cub Scout den mother, and has been active in PTA, Mothers Study, and Little League work

Monarch Tour Boss Bob Demans is telling all his friends about the birth of his second grandchild He doesn't look like a grandfather

General Accounting's secretary, Dorothea Gelbaugh, posted an excellent 619 bowling series in the Air way All Star League She had games of 191 221 and 201 Her top series helped lead her team, the Ironhoes, to a 987 game and a 2779 actual series

Ben DeBoer, King Shipping, and wife Nettie just celebrated 23 years of wedded bliss

Carl Wiegand, R & D is sporting a brand new Pontiac LeMans

Tony Giambrone, Brooks, is still not able to eat steak

Jim Ellis, King Machines, says that if anyone wants to know how much fish are by the inch to get in touch with him

Clarence White, Q C just returned from a vacation in Texas and Mexico complete with a ten gallon cowboy hat

August (Gus) Abalos King Electrical Supervisor is in the hospital at Lakeview and would like to get some cards or mail

William Martin, Monarch Tour Boss is still in the hospital at Borgess

---

He "Well, you can't say I made any noise coming in last night"

She "No but the men carrying you sure did"

NO. 8 DRYER DRIVE REBUILT

On January 8 and 9, 1966 the small section dryer drive on No 8 Paper Machine was rebuilt at the Bryant Division, Mill D No 8 Paper Machine had the old wooden cog gears for driving from the basement line-shaft The old cog gears and mechanical clutch were worn out and causing excessive downtime

A Helnot right angle gear unit and clutch, removed from No 11 paper machine at Monarch, was rebuilt and installed to drive the small section dryers

All work was accomplished by the Bryant Maintenance Department personnel Bill Herbert from Central Engineering was project engineer

BRYANT CHIMNEY GETS NEW COAT OF PAINT

The Bryant Power Plant received a new coat of paint on its power plant chimney This chimney was erected in 1924 by Chicago Bridge and Iron This stack is 13 feet in diameter and 105 feet high above the power plant roof Painting was done with the chimney in service

SAFE PRACTICES FOR ALL EMPLOYEES

1 All injuries no matter how slight, must be reported to the First Aid Room immediately

2 When an individual is not breathing due to drowning, electrical shock or being overcome by gas fumes, call a doctor Start artificial respiration immediately Do not wait for a doctor to arrive

3 First aid in emergencies is the only occasion when anyone should render aid to an injury, even then, be certain you know what to do

4 Every workman should consider it a part of his duties to take an active part in all safety work

5 Every employee should insist on the observation of the safety rules by fellow workers

6 Where walkways are provided, employees shall use them When necessary to use the roads, men shall keep on the left side in order to face any approaching vehicle

7 Exercise care in walking and in moving about your work Avoid slipping, tripping or falling Do not attempt major work while standing on lines or fittings Avoid running during normal operations

8 Care against slipping or falling should be taken while walking and mounting or descending stairs, especially in wet weather

9 Use stairways, never climb equipment

10 Never take unnecessary risks

Avoid walking on pipelines or defective roofs

11 Avoid strains when lifting by keeping the back as nearly upright as possible, using the leg muscles instead of the back or stomach muscles Do not attempt to lift more than can be safely handled See that there are sufficient men for the load Many of our employees suffer injury each year for failing to observe these simple rules

12 Do not attempt to move large heavy objects by hand Use a hoist

13 Falling objects have caused many serious injuries Handle material with care Keep feet in the clear

14 Do not leave tools or material on scaffolds or other elevations where they may become dislodged and fall

15 When work is carried on from scaffolds or overhead, see that no one working underneath or passing by is likely to be hit by something falling Do not throw or drop material from above

16 Keep clear of suspended loads at all times There is no absolute guarantee that equipment will not break or slings slip

17 Exercise every effort to prevent anyone from walking in the vicinity of lines holding a strain

18 No employees other than supervisors or other authorized persons are allowed in the vicinity of the refiners units that are being put into operation, brought up on temperature or while having the feed tank or feed line changed

19 Visiting or loitering around operating units is prohibited at all times

20 Before starting any work on lines or equipment which is in acid, caustic or hot oil service, request specific instructions from the supervision of the equipment involved

21 Employees should be on the watch for oil leaks defective ladders railings cables, and all unsafe conditions or absence of safeguards Report such defects to your supervisor or to the Safety Department

22 Conduct which may be termed "fooling" or "horseplay" is strictly forbidden Apply your thoughts to safety and thorough workmanship

23 The practice of climbing to pass between cars that are standing close together on the same track, except at loading racks, is forbidden

24 Never use makeshift apparatus of your own design involving the use of compressed air, steam or electricity, without your foreman's approval

25 Employees shall never use compressed air to clean their clothing and such use must not be pointed toward anyone

26 Do not use defective equipment of any kind

27 Should an employee get his clothing saturated with gasoline kerosene or chemicals, he must change his clothing wash the the affected body parts with water Do not work in oily clothing A flash might prove fatal Have work clothes washed frequently

28 Employees having a satisfactory knowledge of correct emergency first aid will be called on for assistance, should their services be needed

— o —

DID YOU KNOW that your heart beats about 61,801 times during a normal work day During an ordinary 8-hour sleep period it breathes down to about 50 375 beats You can see why it is so important to get the proper rest every night and not force this amazing machine to work overtime Neglecting safety It can be fatal

SAFETY REPORT, JANUARY-FEBRUARY 1966

Allied Paper Corporation
2 Lost Time Injuries
429 636 Man Hours Worked
4 7 Injury Frequency Rate

Monarch Mill
1 Lost Time Injury
69 143 Man Hours Worked
14 5 Injury Frequency Rate

King Mill
0 Lost Time Injuries
146 301 Man Hours Worked
0 Injury Frequency Rate

Bryant Mill
1 Lost Time Injury
214 192 Man Hours Worked
4 7 Injury Frequency Rate

ALLIED NEWS
ALLIED PAPER CORPORATION

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ALLIED NEWS
ALLIED PAPER CORPORATION

Editor — Charles Stanski
Local No 426 — Stalley Van Lester
Local No 78 — Robert Glaspie
Local No 667 — Richard Locker
Local No 649 — Harry Speers
King Mill — Jim Holt, Adeline Hoch
Office — Roy Willie
Monarch Mill — Don Rand
Bryant Mill — Juanita Lottes, Dale Kennedy, Bob Rohrer, Grace Holt, John Hohsomer Sr

KING POWER PLANT INSPECTED AND REPAIRED

The King Mill was shutdown Friday, September 2nd for four days to permit inspection of main steam boiler in power plant for state license purposes Repairs to the fire side namely burner tile replacement and patching of circulation baffles was made The inside of all boiler tubes were turbined out to remove any deposits accumulated The removal of such deposits improves boiler efficiency and also thwarts a possible boiler tube failure

The accumulated deposit of fly ash on the top of the chimney was removed and the outside tile joints were repointed as necessary Inspection of the inside of the chimney was also made by representatives of International Chimney Co of Detroit

A much needed coal elevator belt was replaced This belt is a vital link in carrying coal up to the boiler bunkers above the boiler This is a two day job which has been difficult to schedule since it requires the boiler to be out of service

The Power Plant repair crew under the direct supervision of a General Electric turbine engineer replaced the main hydraulic oil piston and cylinder on the #1 paper machine turbine during this shutdown Although the job was completed before startup Tuesday morning, it was necessary to make final adjustment to the control after the machine was running

Roy Garrison, King Power Plant Superintendent was responsible for scheduling these and many other important jobs which affect the efficiency and continuity of operation of the Power Plant throughout the year Al Vickery, Manager of Engineering also gave assistance where needed in scheduling some of the outside specialists on several of the jobs and in making the final control adjustments on the #1 paper machine turbine.

Much credit and thanks is extended to each individual from the Power Plant repair crew, boiler firemen, operating engineers and King Maintenance who worked together to make this a successful shutdown repair period

NEW CONTROL SYSTEM INSTALLED ON NO. 6 PAPER MACHINE

A new stock consistency regulator and basis weight control system was installed on No 6 paper machine on August 7, 1966 The drawings and system changes were prepared by the Engineering Department in consultation with Wm Buenger, General Superintendent for the Bryant Division

The new system required changing of piping to and from the chests, refiners regulator and fan pump

Stock is pumped from the beater chest to the machine chest through a constant level control system which holds a constant level in the machine chest This is necessary to avoid fluctuations of pumping rate to the refiners

A new De Zurik inline consistency regulator was installed between the machine chest pump and refiners to control the stock consistency This assures optimum control of the refining due to constant flow rate and consistency As a result of a system of piping and valving installed The stock can be sent through any combination of the refiners available to No 6 paper machine by selection of port openings on the 3-way hand valves

From the refiners the stock goes to a constant level box with controlled overflow back to the machine chest The stock drops from the level box to the fan pump through a De Zurik basis weight valve The basis weight valve is used to select the correct volume of stock to be admitted to fan pump for paper being run on the machine

The controls are all located on the operating floor at the headbox for operator convenience

To date the production people report that the system holds basis weight right on scale as long as the stock does not come light to the regulator

The system was installed by the Bryant Maintenance Department personnel under the direction of Bill Herbert our Bryant Maintenance Superintendent who also acted as Project Engineer on the design of the installation while he was still in his former job in engineering

King Safety Committee Promotes "Safety First" in Improving Record

Front left to right D Bennett W Wilson E Trainer E Homan J Conrad
Back, left to right: V Weaver, E Hensley, H Lum J Vest T Strawthaine

PLAN TO DO BETTER

Members of the King Safety committee have worked hard this year in improving the King Safety Record Last year, at this time, King had the unenvious distinction of having the most lost time accidents with a figure of 17 This year (although the record is not what we would like to see) this figure has been reduced to 7 lost time injuries

Many new improvements have been made by the committee with the new Safety bulletin board in the vending machine area being one of the most popular At one stretch, from August 1965 to March 1966, the King Mill went seven months without a lost time injury

Current members of this year's committee are Ed Homan, James Vest William Wilson Harry Lum, Earnest Hensley Earnest Trainer, Talivaldis Strautkalns Bud Horrocks, Bill Outman, Dick Bennett, Virgil Weaver, Roy Garrison, Bill Gates and Charles Kennedy Our goal is to reduce our lost time injury rate to zero, and by promoting "Safety First" to make Allied Paper a safe and prosperous place to work

SWITCH GEAR INSTALLATION AT KING COMPLETED

Left to right W Lee W Sparks H Bollard
E Siel D Hamilton J Yonkers

During the Labor Day weekend, the King Mill Electricians completed installation of the last section of 480 volt switchgear in the power plant The first phase included a 3000 ampere 3 phase 480 volt bus and three columns of switchgear This installation was done during the 1964 Labor Day weekend

This electrical switchgear costing approximately $18 000 replaces obsolete equipment originally installed approximately 40 years ago which was no longer safe to operate The available fault current which these breakers could have been called on to interrupt was almost 6 times greater than the equipment rating There was always the possibility of one of these breakers failing, causing excessive damage in the power plant and a mill shutdown

Al Vickery Manager of Engineering, engineered this installation which included specifications and purchase of the switchgear Wendell Lee, Electrical Working Foreman at the King Mill with the help of his electricians completed the installation within the scheduled time given them

KING CUTTER CREW SETS RECORD

Left to right Neeley Huey Gloria Hill
Homer Wagner Bob Durnell Ethel Hodges
Charles Hensley Larry Marvin

135,000 POUNDS IN EIGHT HOURS

The Cutter crew pictured above established a new production high for a Cutter during an eight hour period On Saturday, September 10, 1966 this crew cut 135 000 pounds of paper which is approximately 35,000 pounds more than the record this same crew established on August 2 1966 The old record had been 95 000 pounds Congratulations to all who did their part in producing this fine record

KA0400450

Allied News
Jan. 1967
Vol. V, No. 1

BROTHERS TAKE TOP OFFICES

Joseph "Joe" Escamilla

Once again the same two brothers at the Bryant Division have been elected to the top positions for Bryant Local 426, United Papermakers and Paperworkers, AFL-CIO. This time, however, brother Joe is the President while brother Ray is the Vice President. The other offices for 1966 will be filled by:

Recording Secretary: Staley Van Lester
Financial Secretary: Frieda Alger
Treasurer: Grace Holt
Trustees: Stan Palasinski, Don A. Merriam, Lyle Percival

The Committee members for 1967 will be elected late in January.

BRYANT LOCAL 78 ELECTS NEW CHAIRMAN

Ken Hartman

The members of Bryant Local 78 elected Ken Hartman as the Union Committee Chairman for the year 1967. They re-elected Robert Glaspie to the position of Committeeman. The new Committeemen that were elected are Charles Tabbin, James Argo, and Jim Stone.

TALI STRAUTKALNS RE-ELECTED

Tali Strautkalns was elected to serve as the President of King Local 649, United Papermakers and Paperworkers, AFL-CIO for the year of 1967. Alex Raab was elected Financial Secretary. Listed below are the other officers and Bargaining Committee members:

Vice President: Tony Garbacik
Recording Sec'y: John Simmons

Divisional Stewards:
Machine Room: Jim Ellis
Power: Gerald Harper
Finishing: Jim Key
Finishing: Olinna Hill
Maintenance: Charles Root

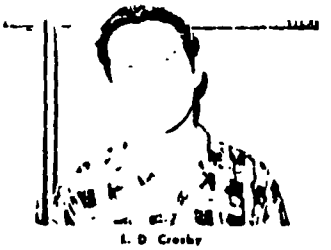
LOCAL 667's OFFICERS RETAIN POSITIONS

Richard Locker

The officers of Monarch Local 667 of the United Papermakers and Paperworkers, AFL-CIO will retain their positions for the year of 1967 because they were elected for two year terms last year. Two new Committee Members will be elected in January. Also at this meeting on January 21, 1967, nominations for Trustee will be accepted.

The officers for 1967 are:
President: Richard Locker
Vice President: John Alton
Recording Secretary: David Newhouse
Chief Steward: Gary Korteway
Treasurer: Owen Horton
Financial Sec'y: Harlow Steffey

NEW CHAIRMAN AT MONARCH



L. D Crosby

The members of Local 78 at the Allied Monarch Division, Firemen and Oilers, elected L. D. Crosby as their chairman for the year of 1967. To serve with him as Committee Members they re-elected Dewey "Ed" Hensley and elected Russell Newton.

ATTENTION, MEMBERS OF LOCAL 667

We wish to announce that an election for the position of Trustee for a three year term to serve the members of Local 667 will be held on February 28, 1967 at the Joseph P. Westnedge Post. The polls will be open from 1:00 to 7:00 p.m. Let's have a good turn-out.

RESULTS OF LOCAL #78 ELECTION

Listed below are the results of the elections for the Executive Offices of the International Brotherhood of Firemen and Oilers, Local Union #78 for a term of three years. These men will assume their offices January 1, 1967. President: James Waldron, Allied Paper Corp., Bryant Div.; Vice-President: Donald Markus, Kalamazoo Paper Co.; RECORDING SECRETARY: John Roundhouse, Kalamazoo Paper Co.; Financial Secretary-Treasurer: Anthony Godisak, National Gypsum Co.; Business Representative: David Horton, Allied Paper Corp., Monarch Division; Guide: Robert Pritchard, Allied Paper Corp., Bryant Div.; Sergeant-at-Arms: James Farrington, Kalamazoo Paper Co.; Trustees: Robert Glaspie, Allied Paper Corp., Bryant Div.; Dewey Hensley, Allied Paper Corp., Monarch Div.; Richard Jones, National Gypsum Co.

Local #78 consists of approximately 350 members. They represent employees in the following companies: Monarch and Bryant Divisions, Allied Paper Corp.; Kalamazoo Paper Co.; National Gypsum Co.; Kalamazoo Rendering Works; and the Brown Paper Company.

HUYCK FOILS INSTALLED ON NO. 9 FOURDRINIER

On January 8, a Huyck Foil System was installed on No. 9 paper machine fourdrinier. Removal of the old equipment was handled by the machine crew, while the maintenance personnel installed the new equipment.

All of the existing table rolls and support brackets between the headbox and the suction boxes were removed. The new Huyck foil assemblies were then set on the table rails and adjusted to their correct position.

A second and final step in this improvement to No. 9 fourdrinier will be the installation of a Formex fabric to replace the present metal wire. The operating life of the fabric is expected to be three to four times the metallic wire life.

Among the many benefits to be gained from this improvement are the following: longer wire life, increased forming table drainage, improved sheet formation, improved basis weight profile, reduced tray water consistencies, easier installation of the fabric, and increased production.

This is another of the many improvements which Allied is making to upgrade its equipment and improve its position in the paper industry.

Bill Hunter, senior staff engineer, handled the engineering design, application and liaison with maintenance and machine crews during the installation.

NO. 10 PAPER MACHINE CENTERWIND REEL

A Modern Static Centerwind Control for the #10 paper machine reel at the Monarch Division was placed in service the week of December 12, 1966. This equipment replaces several pieces of rotating equipment and control cabinets which comprised the old equipment.

This replacement was made to make available to the machine tender a reel tension control which was dependable, accurate and which he could use with ease and confidence. The tension control at the reel enables the operator to observe how his calendars are set and working. It helps him to build a uniform density reel and has control of the stretch in the sheet coming into the reel log.

This new centerwind control on #10 reel was engineered by Al Vickery, Manager of Engineering, and installed by Ted Petersen and Jerry McMartin, electricians in the Monarch Mill.

CENTRISCREEN ADDED TO NO. 5 MACHINE

During the month of December, 1966, a Model 10 Bird Centriscreen was installed on No. 5 Paper Machine in Mill C, Bryant Division. This is the same basic size centriscreen installed on all of the Allied Paper Machines excepting No. 8. This screen, fabricated of type 316 stainless steel, is installed ahead of the headbox. All the connecting piping required was prefabricated, leaving several of the critical pipe lengths for field determination during installation. The improvement in the stock screening and the results of this on the efficiency of the previous paper machines justified this installation.

The removal of the old screening equipment and installation of the new was completed over a Sunday shutdown of the paper machine.

Our maintenance group at Bryant, under the supervision of Bill Herbert, Maintenance Superintendent, are to be commended for the successful installation. Engineering designed and purchased the installation, including piping. Ron. Rousch was engineering draftsman on this job and was responsible for liaison during installation

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ALLIED PAPER CORPORATION

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ALLIED NEWS

ALLIED PAPER INCORPORATED

VOLUME VI, No 4 KALAMAZOO, MICHIGAN MAY, 1968

SPEAKS AT T.A.P.P.I. COATING CONFERENCE

Fred Fragomeli, Allied Paper Production Manager, who at present also holds the position of Vice-Chairman of P.I.M.A. for Michigan, spoke on May 15th and 16th, 1968, at the recent T.A.P.P.I. Coating Conference. Fred's topic was "Operational Aspects of a Fountain Blade Coater."

This 19th Annual Coating Conference was held May 12th through 16th, 1968, in Miami Beach, Florida. It was attended by hundreds of members of P.I.M.A. and T.A.P.P.I. from all parts of the United States. Some of the speakers came from such far places as Toronto, Canada, Cornwall, England, Veendam, Holland and Aalst, Belgium.

Some highlights of Fred's excellent presentation were: ". . . . In September of 1967, Allied put into production its first trailing blade coater. The new coater, supplied by Black Clawson, is designed to produce a full range of two-side double clay-coated papers, ranging in basis weights from 30 to 90 lbs. (25" x 38" x 500 sheets).

These grades include C2S sheet fed and web offset, and letterpress papers as well as C1S label and matte finish grades.

The coater is geared in to operate at speeds up to 2000 FPM, but at present, we are running at 1500 FPM due to machine producing capabilities. The maximum trim is 126", minimum 70. . . . ."

The base stock at present is being made on two of the three paper machines in our Bryant Mill D, where the coater is located. Eventually the total production from all three of these machines will be utilized.

The base sheet is prime coated on both sides on the paper machine. The prime coat weights range from two to four pounds per side. The rolls of paper, wound on six inch (inside diameter) iron cores are delivered either directly to the coater or to one of two roll storage areas via an overhead electric hoist . . . .

The coater is equipped with a Black Clawson autoflyte horizontal reel. It is capable of building a reel to a maximum of 72" in diameter, 126" wide.

The main body of the coater is driven by a line shaft, with a 150 horsepower motor.

The speeder belts, calender stack and horizontal reel are driven by in-

(Continued on page 2)

PROMOTED TO FINISHING SUPERVISOR

Richard Cox

King Division General Superintendent, H. "Bud" Horrocks has announced the promotion of Richard Cox to the position of Finishing Supervisor at the King Division to be effective Monday, April 29, 1968. Richard will be responsible for the operation of the entire Finishing Department and will report directly to the General Superintendent.

"Bud" also announced the transfer of Earl Vogler from the Bryant Coating Mill to the position of Finishing Foreman at King. Earl will report to Richard Cox and will be in charge of the Rewinder and Super Calender. Finishing Foreman, C. Bagley, will assist R. Cox on the 7-3 shift, while Finishing Foreman, Robert Waber, will be in charge of the 3-11 shift in the Finishing Department.

Richard Cox has been with Allied Paper Incorporated since 1941. He worked in the Monarch Division in the Shipping Department and in the Finishing Department for thirteen years. He left Monarch and he came to the Bryant Division as the Scheduling Clerk for the Coating Mill November 1, 1958. His most recent position has been Sr. Production Scheduling Clerk.

Congratulations!

LEMMEN PRESIDENT OF ROA HERE

Henry Lemmen has been installed as President of the Kalamazoo Chapter of the Reserve Officers Association. He succeeds Lt. Col. Dorman Duncan.

Lemmen is a Lieutenant Colonel in the Air Force Reserve. Of course, as everyone knows, Henry Lemmen is our Payroll Supervisor.

(See picture of Hank on p. 2).

SAFETY RECORD IMPROVES

The overall safety record at Allied Paper has steadily improved during the year 1968. All three divisions have worked the last two months — March and April — without a disabling injury.

The Monarch Division continues to lead the way by completing their 26th consecutive month and 1,132,249 man hours without a lost time injury.

Slowly, but surely, they intend to reach their 2,000,000 target.

The King Division has more employees than the Monarch Division so naturally they accumulate more man hours each month. With the addition of the Brooks employees who became part of Allied late in 1967, the King Division as of May 1, 1968, has completed eight consecutive months and 742,019 man hours without a lost time injury.

The Safety Committee for 1968 at the King Division is made up of the following employees:

Harry Lum	Al Siel
Harry Spears	Frank West
Lyle Baker	Bill Gates
Andy Schero	Dick Bennett
Bill Wilson	Bill Outman
Wendell Lee	H. Horrocks

The Bryant Division which is the largest of the three divisions has worked 214,161 consecutive man hours during the two month period without a lost time injury.

The members of the Bryant Safety Committee for 1968 are:

Wes Mulligan	Joe Escamilla
M. Reschner	Ger Visker
Leroy Essery	Ray Steadmon
Lee Coder	Floyd Hyet
Lyle Percival	Ken Sweet
Dean Mann	Claude Bos
Chuck Westveer	Bill Outman
Jim Argo	George Gerard
Les Rohm	

FELT SEMINAR HELD ON APRIL 30th AND MAY 1st

The Albany Felt Company conducted a Felt School Seminar in the Bryant Mill Auditorium for members of our machine crews at the three divisions — Bryant, King and Monarch. Approximately fifty supervisors and hourly employees attended the Seminar. After the Seminar, our employees were guests of the Albany Felt Company for dinner.

MONARCH EMPLOYEE RETIRES

Henry DeRyke

After 42 years and 5 months of consecutive service, Monarch Division Shipper Leader will retire June 1, 1968. As the second most senior employee on the Monarch Local #667 seniority roster, Henry is looking forward to a life of well earned rest. Naturally, he is a charter member of the Allied Paper Twenty-five Year Club and he never misses our annual meeting.

Except for a short period of time in 1925, Henry has worked 47 years for Allied Paper. He started in 1920, worked for approximately four years, then quit. He came back to stay on December 21, 1925. During his career he has worked at a variety of positions including rewinder helper, trimmer operator for about ten years, Shipper A, Shipper Leader, etc.

Henry will continue to reside in Kalamazoo. When he is not fishing or watching TV — or rooting for the Tigers and Lions — he will be driving to Muskegon to visit relatives and other places in the Kalamazoo area to play with his other grandchildren.

Good Fishing!

APC FOUNDERS HOLD MEETING

On April 27, 1968, a dinner was held at the Southgate Restaurant honoring the A.P.C. Credit Union Founders. Attending were U. G. Stoeffler, M. Frank Mease, Zada Stoner, Martha Steele, Harold Derksen, Neil Locey, Clifton Odell and Richard Cox. Unable to attend were Cora Snyder, Wilma (Stanford) Quarry, Paul Reimert, William Madden, Dwight Stocker, Jr., Lee Titus and Donald Falvey.

After a very enjoyable dinner, President Waldo Koth introduced the present day officers and stated how after the first month the assets of the Credit Union were $42.00, and as of now, 12 years later, our assets are $1,500,000.

KA04400389

ALLIED NEWS

ALLIED PAPER INCORPORATED

Editor	Charles Stanish
Sports Editor	William Oatman
Local No 426	Stalley Van Lester
Local No 78	Robert Glaspie
Local No 667	Richard Locker
Local No 649	John Simmons
King Mill	Jim Hall Bob Hunter
Office	Ray Willis
Monarch Mill	Don Bond
Bryant Mill	Maint Jack Stone C Norman Teetz E Ray Ketchum D Lee Coder

TAPPI COATING CONFERENCE

(Continued from page 1)

dependent drive motors The drive it self shows a maximum speed variation of 1 to 3 feet/MM which on 1500 fpm is a maximum of 0.2 of 1%

All paper carrying rolls are driven with the exception of five rolls on the unwind

The coater is equipped with trim slitters located just ahead of the calender stack

In discussing the operational aspects of this coater we would like to approach it starting with the wet end of the paper machine It is our opinion that the coater will operate only as well as the base stock supplied to it therefore major changes were made on our No 9 machine

These were

1 Installation of a new Jones Double Disk Refiner This disk refiner was designed within the concept we would be producing a 22 to 25 pound 25 x 38 x 500 basis weight sheet, pinhole free with a high internal strength as measured by the Scott internal bond tester in the 100 to 150 range To accomplish this refining, the plates were redesigned

Upon start up of the coater, we were fortunate enough to be able to send the entire crew to Blandin Paper in Grand Rapids Wisconsin, for crew training This along with intensified training program at Allied overcame many of the normal problems of startup

It must be remembered this crew had never worked on a coater of this type nor had Allied produced coated paper in this weight range previously

One very good aspect of this coater is the rapidity in which a blade can be changed The average time involved is approximately 5 minutes Blade life cannot be assessed easily, at this particular point in time The crews are trained to react quickly to a break We have had very few breaks which permitted the sheet to wind the backing roll, thus damaging the blades In this manner, we have experienced exceptional blade life Most blade loss is usually due to damage rather than wear

At present, we are using only teflon coated blades These are supplied by both Ledding and Portland Saw and Knife The purpose is to determine over an extended period, the results on blade scratches To date, we can report minimizing scratches but not elimination of these We experience very little scratching on lightweights, but have run into them occasionally on extreme heavy weights We feel our coating formulation, screening and use of these teflon blades have permitted very little coating scratches to occur, plus the fact that the fountain concept recirculates 100% of the rejected coating

We run our blades 1/4 to 1/2 inch in on the sheet and use the deckle bar on the fountain blade to control coating deckle to correspond with the blade width Further, on the backing roll is an edge air-vapor shower to prevent backing roll wear, dry edges, edge cracks and to prevent any coating beads from forming This has worked exceptionally well not only from a runnability standpoint but also from a housekeeping standpoint

In summary of this presentation, we are very pleased with the speed and draw control arrangement, the simplicity of design the uniformity of the coating coverage, the ease of operating and the remarkable ease of cleaning up this coater We are also pleased with the minimal coating losses that have occurred

One real advantage, which perhaps we have covered before but should again stress is that all the loading mechanisms are enclosed and protected Both the fountain and blade assemblies retract quickly for easy cleaning and we do not have the problem of a bulky coating pan or coating reservoir inside a pan to clean up Positive edge deckle control simplified by the key type deckle provides an excellent and close control of deckle without the resulting problems of coating splash, splatter or grooving of the applicator roll by scrapers of other type coaters

At this time we would like to acknowledge the fine work of Lyle Renner, our Blade Coating Superintendent and Ulysses Stoeffler, Manager of Process Development, in helping to prepare this presentation"

It takes two to make a marriage a single girl and an anxious mother

---

A gossip is one who can keep a swivel tongue in her head

Sometimes the best thing to get off your chest is your chin

Too many people quit looking for work when they find a job

The only thing more expensive than education is ignorance

LENOX CUTTER PRODUCTION RECORD

Back row, left to right Lenox Operator, Charles Mast 3-11 Foreman Robert Weber Middle row left to right Ralph Spears Dwight Sweetland Gilbert Molson Willard Plug Front row left to right Lois Spears Mona Vandebelzen Casey Vandebelzen

The Lenox Cutter crew established a new production record on the 3-11 shift on April 30, 1968 During the eight-hour period the crew cut 24,250 lbs of 88 lb White Drawing Paper The Lenox Cutter is a new unit at King Finishing and the crews should show further improvement in the near future

MONARCH BOILER INSPECTED

The #3 Monarch Power Plant (Wickes) boiler was taken out of service the last week of March for its annual State-required inspection Extensive cleaning was done with the Aerotec dust collectors to assure their efficient operation During this outage of the #3 Boiler, the #1 and #2 boilers continued to carry the Monarch Mill steam load without mill operation interruption

HERO'S AWARD

Pfc Roger Hearns

James Hearns Bryant Division, Mill C Finishing, displays medals and pendants awarded posthumously to his son Pfc Roger Hearns, who was killed in action last October in Vietnam The awards include Top row, from left, the U S Vietnam Service Medal the Purple Heart and the National Defense Service pendant, bottom row, the Military Merit Medal, the Gallantry Cross, with palm, from the Republic of Vietnam, and the Republic of Vietnam Service Medal

YOUNG PHIL KRAUSHAAR — SCIENCE FAIR WINNER

For the third consecutive year young Phil Kraushaar, son of our Corporate Director of Industrial Relations, has won an award at the Science Fair This year he won the award for Physics in the senior division (Grades 10 to 12) He also won the "Navy Cruiser Award" This award qualifies young Phil for a week's visit with the Atlantic Fleet this summer The honor will include visits aboard several warships and tours of naval installations on the seaboard Phil's exhibit was "Research into the use of a liquid as a Laser Medium"

ONE-HALF MILLION DOLLAR BABY

As pictured above, our Payroll Supervisor, Henry Lemmen, is shown holding his "ONE-HALF MILLION DOLLAR BABY" the vacation payroll for the production employees at our three divisions, Bryant, Monarch and King

KA04400390

June 27 1966

$1 Million Expansion By Allied

Corporation Orders Coating Machine

Allied Paper Corp today announced a $1 million expansion project for the manufacture of lightweight grades of coated paper

The corporation reported that a trailing blade coater is being built for the firm by Black Clawson Co in Fulton N Y

The machine and its components cost a million dollars will be installed in the Bryant Mill Division at 2030 Portage Estimated starting date for its operation is April 1 1967 A spokesman for Allied said additional personnel will be needed for the new production.

The trailing blade coater will be the first of its kind used by the corporation.

The equipment was described as a 126-inch wide blade coating machine, capable of operating at more than 2 000 feet per minute The papers from this new coater will be available both for sheet fed presses and web offset multicolor presses

Paper which will be manufactured on the coater will be primarily for the book publishing industry and will be for coated thin papers as well as paper used in textbooks, the firm reported "The lightweight papers will be suitable for four color process work as used in encyclopedias dictionaries Bibles and other types of reference books

7-6-66

Ex-Local Paper Firm Official Dies

Word has been received here of the death of William J Garrity 67 former vice president and general sales manager of Allied Paper Co

Garrity died Monday evening in Hartsdale N Y where he had made his home since leaving Kalamazoo He was an Allied vice president from 1959-63.

Funeral services will be held Thursday at 2 p m in the McGrath Funeral Home Bronxville N Y

Among his survivors are his wife Marjorie

From 1953-59, Garrity had been in sales for Riegel Paper Co in the East and before that had been with Munising Paper Co for 18 years

Clayton RUSSELL — Midwest Sales Manager, ALLIED PAPER CORPORATION, Kalamazoo Michigan — Dir of Quality Control, King Bryan & Monarch [illegible]

Allied Stock Sold By Chicagoan

Buyers Include Board Chairman

Dr Ward Harrison of Kalamazoo, board chairman of the Allied Paper Co said today that he and several other investors have purchased all of the Allied stock formerly held by Arnold Maremont and several Maremont associates.

Maremont, a Chicago industrialist, has been director and chairman of the executive committee of Allied

The number of shares involved and the sale price were not disclosed

Harrison said the company would continue to operate here in the same manner and under the present management as before the sale

Maremont, also president and a director of the Maremont Corp said in a prepared release that he viewed the sale as an opportunity to reduce the scope of his active interests

A proxy statement for Allied's annual meeting on May 25 listed Maremont's holdings as 47 029 shares Harrison reportedly held 56 106 shares

Currently Allied stock is selling on the American Stock Exchange at about midway between its 1966 high of $20 625 and its 1966 low of $14 The stock closed at $17 25 Tuesday

At the Tuesday closing price for 47 000 shares the total would slightly exceed $800 000

Fire Hits Paper Company Here

Fire broke out this morning in a basement compressor room at the Monarch Division of Allied Paper Corp , 1608 Lake

According to firefighters who extinguished the flames despite heavy smoke which hindered their efforts by reducing visibility, the burning started in stored combustibles in the room, such as rags, resins and grease

The cause was laid to a ruptured hot air line which apparently raised the temperature of the materials enough to set them aflame

A damage estimate was not immediately available

Dem Candidate Raps Portage Creek Pollution

The Allied Paper Co was blamed for pollution problems in Portage Creek and residents were urged to petition against the situation Tuesday night by Donald Holt Democratic State Senate candidate

Holt speaking during a coffee at the home of Mr and Mrs Alfred Gemrich said he sent a letter of protest to the Michigan Water Resources Commission about the paper company waste

He said the Kalamazoo Coun is making rapid progress toward cleaning up the Kalamazoo River and added that he applauded the cooperation of the city and paper mills and the expense to which they have gone to improve this aspect of the Kalamazoo.

Portage Creek remains a heavily polluted stream polluted largely by the waste of the Allied Paper Co the only paper company in our area which refused to cooperate with the city and other paper mills in establishing the secondary sewage treatment plant, the candidate said This non-cooperating company continues to dump its effluent into the creek

"A private citizen he said does not have the right to dump his garbage in a public street neither does a private company have the right to dump its garbage in a public stream

Holt asked those present to help in circulating petitions to the Michigan Water Resources Commission

SA 045876

Allied News
Volume VI, No 6
June, 1968

ALLIED NEWS
ALLIED PAPER INCORPORATED

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Local No 649	John Simmons
King Mill	Jim Holt / Bob Hunter
Office	Ray Willie
Monarch Mill	Don Bond
Bryant Mill	Maint Jack Stone / C Norman Leetz / E Roy Ketchum / D Lee Coder

SALES MANAGER FOR GATES

Ralph Seeler Jr

Russ Gates President of the Gates Paper Division of Allied Paper has announced the employment of Ralph C Seeler Jr as Sales Manager of Gates effective May 28 1968 Ralph will direct the sales activities of the sales force for the Gates Division and will report directly to Russ Gates

Ralph attended C C N Y in New York City for two years where he majored in Advertising After two years in the Air Force he became a salesman Since that time he has acquired thirteen years experience in the sales field

ATTEND EMPLOYMENT CONFERENCE

(Continued from page 1)

provide an 'outreach' service to seek out jobless who are 'often not even on the rolls of the Michigan Employment Security Commission'

The clearing house would be a central source of jobs that are open and provide follow up attention to employees that fail to stick with their new jobs

NAMED SENIOR ENGINEERING DRAFTSMAN

Ronald Rousch

Manager of Engineering Al Vickery has announced the promotion of Ronald Rousch to the position of Senior Engineering Draftsman As Senior Engineering Draftsman, Ron will be responsible for the supervision of the physical properties of the Drafting Department, in addition to his primary responsibilities as an Engineering Draftsman His promotion became effective June 1, 1968

Ron is a ten-year veteran of the Engineering Department and the Company having joined Allied as an Engineering Draftsman in 1918

Congratulations!

"BUD" HORROCKS CATCHES RECORD CANADIAN NORTHERN PIKE

King Mill General Superintendent and ardent fishing enthusiast, "Bud" Horrocks celebrated his birthday by landing a record-breaking twenty plus pound Northern Pike at Lake Obakamiga in northcentral Ontario, Canada during the Memorial Day weekend

Bud's northern was reported by the Oliver Living Service as the largest northern caught at Lake Obakamiga in 1968

Allied employees George Brooks and Phil Kraushaar were fishing with Bud" when his record catch was made A fine catch of walleyes, northerns and whitefish were also reported by this group

SCOTT ELECTED VICE PRESIDENT OF PURCHASING GROUP

Recently the Southwestern Michigan Association of Purchasing Management, formerly known as the Kalamazoo Valley Association of Purchasing Agents, held their Annual election David Gauss, Jr of the Upjohn Company was elected President Ray Scott, our Director of Purchasing was elected first Vice President and will probably succeed David Gauss as President

NURSE ATTENDS CONFERENCE

Bryant nurse, Shirley VanRhee, recently attended a three-day training conference at the University of Michigan, Ann Arbor, Michigan This three-day meeting was the third Annual Conference on "The Initial Management of the Acutely Ill or Injured Patients" Shirley reports that this training conference will be most helpful to her

JULY FIRST RETIREMENT DATE

'Art' Davies

Having spent slightly more than 25 years at the Bryant Division, Arthur "Art" Davies has set July 1, 1968 as his retirement date He has worked his entire career at Mill "C" Finishing on various positions, such as Trimmer Operator, Finisher, Mule Driver, etc

Art has an interesting history he was born in England and then moved to the United States of America at age 20 After spending some time in California and Illinois, he came to Kalamazoo Michigan, to work for the American Sign Company When this plant shut down, he came to work for Allied Paper in 1942

After becoming a member of Allied Paper's Twenty-five Year Club last December Art plans to attend his second meeting this December, 1968

His wife Evelyn and Art are proud of their seven grandchildren who live in Kalamazoo and Kankakee, Illinois Besides visiting them often, they are looking forward eagerly to 1969 when they plan to return to England Art will be able to see his relatives for the first time since 1923

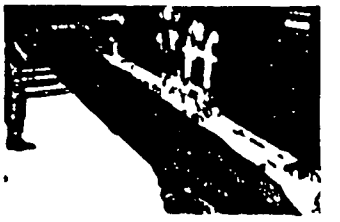
What else will Art do? He loves baseball and cheers for both the Tigers and White Sox He likes to go fishing in nearby lakes He has a stamp collection which he has been collecting for the past thirty years If you wish to play cribbage, just call Art any time and he will come running

"Good Health!"

FABRIC WIRES USED AT BRYANT

For the past six months the Bryant Division as pictured below has been experimenting with the use of fabric wires on the paper machines in place of the usual metallic wires

This new type of wire is roped like a wet felt as shown below by No 7 Paper crew The advantages of the fabric wire are longer wire life, no forming of ridges and less two sidedness of the paper



FORM BENEFIT ASSOCIATION

The Monarch employees recently formed the Allied Mill Monarch Division Employees Benefit Association The Executive Board consists of the following employees

President	Jim Colter
Vice President	John Tuft
Secretary	Dave Newhouse
Treasurer	Harlow Steffes
Board Member	Dewey Hensley

Every employee of the Monarch Division is eligible for membership The purpose of the Association is to give benefits to those employees who are unable to work because of accident or sickness

— —

Some people speak without stopping to think, others without thinking to stop

— —

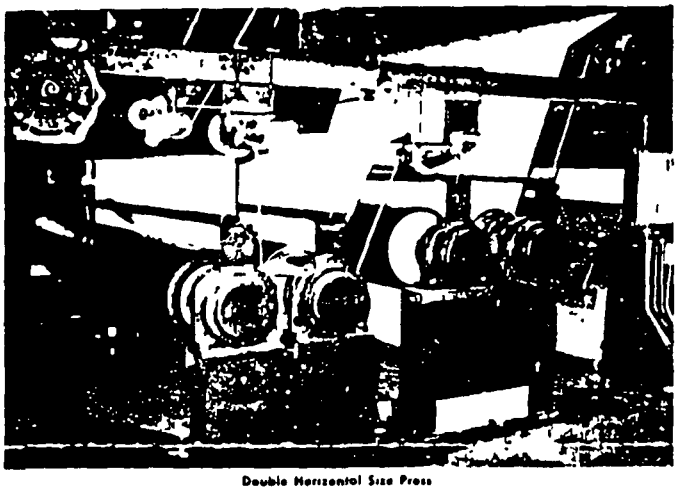
People who get down to brass tacks usually use sharpls

———

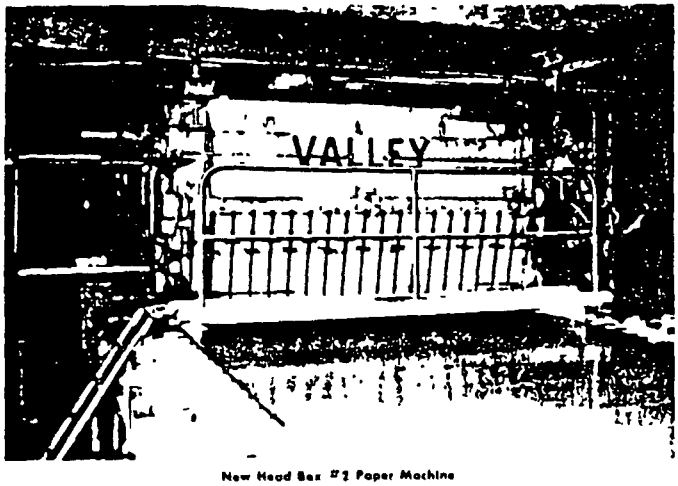
KA0400475

Volume VII, No 1
January, 969

AL VICKERY ANNOUNCES NEW INSTALLATIONS AT KING, BRYANT AND MONARCH



Double Horizontal Size Press



New Head Box #1 Paper Machine

Manager of Engineering Al Vickery announced that a double horizontal size press was installed on #8 paper machine in December 1968 for test purposes

Al further announced that a Valley Iron Works (Allis Chalmers) air-loaded inlet -- headbox and flow manifold combination was recently installed on the King #2 Paper Machine. Due to the size of the equipment it was necessary to schedule the machine down on Sunday morning for two days. Removal of the old headbox from #2 and some equipment on #1 paper machine was necessary before the headbox could be moved into place. All of the work was accomplished by the maintenance people at the King under the direct supervision of Bill Gates Maintenance Supervisor, and Bud Horrocks General King Mill Superintendent. It was possible to return the machine to production the following Monday afternoon. The Engineering Department coordinated all of the preliminary work and material procurement to assure assembly of the associated piping and other equipment thus helping to keep machine downtime to a minimum. This headbox will enable better sheet formation and higher relative sheet speeds

ELECTRONIC AUTOMATION HAS COME TO THE KIDDER SLITTER WINDERS AT THE MONARCH MILL, CARBON DEPARTMENT

Electronic counters were recently installed on the Kidder Slitter rewinder machines. The counters measure the lineal footage of paper run through the machine, and automatically shuts down the machine at a preset footage selected by the operator. Our customers are demanding repeatable footage rolls, which has dictated the installation of this equipment. Also this enables Allied to control closer the repeatable footage on every roll rewound on the Kidder slitters for our internal use, thus enabling better control of sheet shrinkage within the mill. Max Heckelman from Engineering has worked with the Monarch electricians and machine operators installing the rewinder equipment and setting up its operation

DR. HARRISON ADDRESSES WMU PULP AND PAPER CONFERENCE

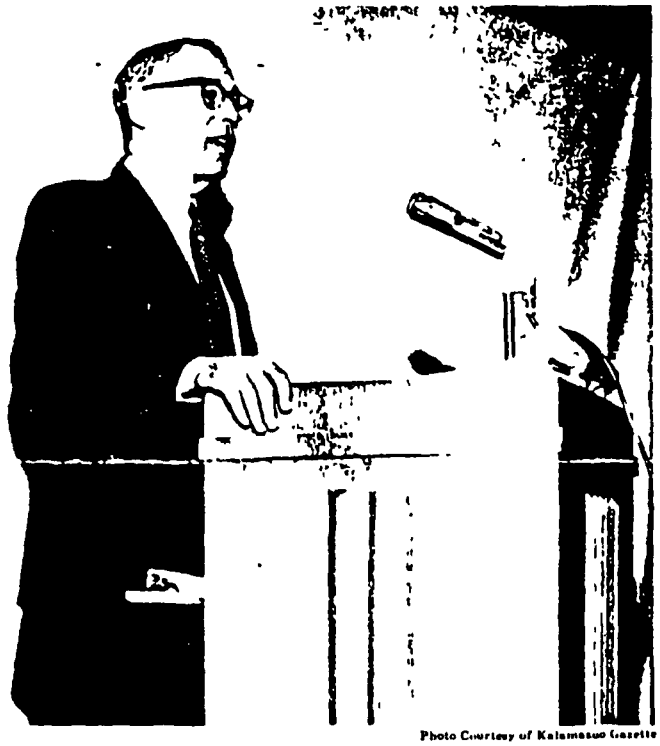


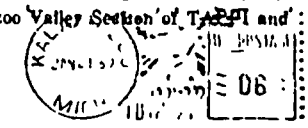
Photo Courtesy of Kalamazoo Gazette

Dr Ward Harrison, Chairman of the Board of Allied Paper Incorporated, delivered the opening address to approximately 250 paper industry management representatives at the 13th Annual Western Michigan University Pulp and Paper Conference at Kalamazoo on January 9, 1969. The Conference theme was "Specialty Papers & Boards for Tomorrow's Market."

Dr Harrison spoke on the subject "MANUFACTURE OF LIGHT-WEIGHT PAPERS." In his presentation he pointed to the continued rapid growth in most of the lightweight grades. He identified lightweight papers as those 12 pounds and under folio basis, 30 pounds and under book basis, and 44 grams and under per square meter.

Dr Harrison stressed Fourdrinier wire characteristics, fiber characteristics and the refining of those fibers as the three most important facets of thin paper manufacture. In presenting these concepts, tables, diagrams and fiber models were used to illustrate his talk. Dr. Harrison also drew on personal experiences to illustrate the challenge of lightweight paper manufacture.

The Pulp and Paper Conference is an annual event at Western Michigan University and is jointly sponsored by the Western Michigan University Department of Paper Technology, the Kalamazoo Valley Section of TAPPI and the Michigan Division of PIMA.



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KA04400387

Allied News
Volume VII, No 7
July, 1969

HOBBIES

As shown above, Dave C McNees, on left and friend, demonstrate Uechi Ryu, Okinawan Karate, a style of defense and a good sport for all people of all ages This style trains the mind as well as the body Dave, a machine room helper in the King machine room has studied for 3 years in order to obtain his instructors rank of Shodan (first black belt) He is now an instructor at the Kalamazoo Oriente Club and has taught folks from ages 6 to 54 years of age Dave is planning on giving demonstrations with some of his students at the Hobby Show

Larry Marvin started work in King finishing December of 1962 He has always liked drawing of any type since school days He started painting about 2½ years ago He wanted to try many times before but with the expense of the materials or the lack of time he just didn't get around to it However, now that he has started he's making up for lost time The two paintings in the above photo are those he likes best One is a Bengal Tiger, taken from the front of the schedule of the Detroit Tigers ball team last year — remember He calls the painting "The Big Cat" The painting of the Coon Hound was done from a photo of a dog named "Trouble" owned by Dave Granger Two years ago the dog was stolen He calls this one "In Trouble With Trouble" Larry has derived many hours of pleasure from this hobby and is sure he will improve in the future

Let's hear from Bryant King Monarch, and from some of the retired employees about your hobbies

• • •

If the job doesn't mean more than the pay it will never pay more

• • •

A kiss that speaks volumes is seldom a first edition

KING EMPLOYEE RETIRES

Lawrence J Willin, who has spent 42 years of service at Allied will retire August 1, 1969 Lawrence, who has spent most of his time at the Bryant Mill as a Calander and Cutter Foreman, transferred to King about 3 years ago and has been there ever since His plans for the future are somewhat indefinite but he hopes to be able to spend more time working on his home and being with his family He enjoys fishing with his prize possession being his roses at home

Come back and see us!

YOUR SOCIAL SECURITY

The first article on the Social Security program appeared last month For those of you reading this article we hope it was not only informative, but that it also started you thinking about how the Social Security program affects you

As we stated in last month's article, now is the time to ask questions about Social Security Don't wait until you are ready to retire to find out the proof of age you have will not be good enough, that you will need something better Now is the time to learn how much you can expect to receive from Social Security when you retire, or how much your family will receive if you should become disabled or die

If you have questions that you would like answered, just write to Patrick Hassett, District Manager, Social Security Office, Kalamazoo, Michigan

The following are typical of the questions the Social Security Office is often asked

Question I am 63 and receiving Social Security widow's benefits If I should remarry, would my monthly payments stop?

Answer No, since you are over 60, your remarriage would not stop your payments, but the amount you get may change You would receive whichever benefit of your deceased husband, or benefits as the wife of your new husband

Question I have 3 young children I understand that if my husband should die, the children could get Social Security coverage If I should die, would the children receive anything?

Answer Yes If you have worked long enough to be insured, your children could receive monthly benefits on your record, just as they could in case your husband died

MONARCH PIPEFITTER RETIRES

Elmer Padgett, after 33 years of service at the Monarch Division, will officially retire August 1, 1969 Elmer started at the Monarch Mill in the Color Room and after 17 years advanced to the Pipefitting Crew where he has remained since 1954

Elmer's plans for the future include lots of traveling as he hopes to go west to California and then possibly in the winter, south to Florida He enjoys TV, all sport programs and follows the Tigers Elmer plans to spend more time with his family and hopes that his friends will come and visit him and his step-daughter at her restaurant in Otsego

Good Health!

BRYANT EMPLOYEE RETIRES

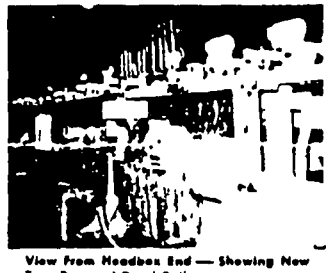
Effective August 1, 1969 Gerhard Fechner will retire Gerhard, who started his employment at the Bryant Division in September of 1942, will have completed almost 27 years of service in the Paper Machine area He makes note that he started out at 45¢ per hour

Gerhard's plans for the future are somewhat indefinite but he likes to travel and hopes to visit Germany to see his brother He lives at West Lake and plans on lots of fishing to keep him busy

"Happy Traveling"

ENGINEERING ANNOUNCES #10 PAPER MACHINE FOURDRINIER REBUILD

View from Couch Roll to Headbox showing length of forming area (wire) and new stands

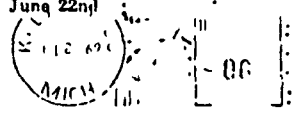


View From Headbox End — Showing New Tray Pan and Dead Rolls

On June 16th, #10 machine was shut down for an extensive rebuild of the Fourdrinier section The work force was furnished by an outside contractor working two 12 hour shifts The machine was extended approx 23 feet making the new wire length 124 feet 11 inches long, by far the longest wire at Allied A new special slotted plexiglass manifold with a tapered inlet header, furnished by Allis - Chalmers was installed as the inlet to a modified headbox designed and manufactured locally The new manifold was designed to impact the correct flow and velocity to the machine wire

New dead rails and stands of stainless steel construction were designed by Allied Engineering and manufactured locally

An additional four suction boxes were added for a total of nine boxes The new units were fully equipped with new Broughton control equipment The wire crew was called in at 7 00 P M Saturday, June 21st and a sheet was across the machine at 9 :30 A M , June 22nd



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ALLIED NEWS
ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

369-03-3514
Frederick E. Kelsling
1216 E. Alcott Ave.
Kalamazoo, Mich. 49001

KA04400382

MICHIGAN DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION BUREAU
POINT SOURCE MONITORING SECTION

Report of an
[redacted]
Conducted at
ALLIED PAPER
All Outfalls No. 290222
NPDES Permit No. MI0000779
Kalamazoo County
Kalamazoo, Michigan
[redacted]

Survey Summary

Wastewater monitoring was performed during one twenty-four hour survey period starting Monday, October 25, 1982.

The results of this survey met the final limitations in the facility's National Pollutant Discharge Elimination System (NPDES) Permit, No. MI0000779. (Table 3)

The survey results were compared to the plant's Monthly Operating Report (MOR) results. The results compare well except for settleable solids. (Table 3)

One grab sample from outfall 390006 (002) was split for comparison of analytical results. These results also compare well. (Table 4)

The results from this survey are presented along with those of the previous survey conducted in March 1982 in Table 5.

Survey Comments

A small amount of groundwater seepage from the old Monarch Mill area was observed entering the Monarch clarifier inlet. This seepage was sampled and analyzed for organic chemicals. Only trace amounts of chlorinated hydrocarbons were detected. (Table 2)

A 96-hour flow-through bioassay was conducted encompassing the survey period. Results will be forthcoming in a separate report.

Plant Processes

The Allied Paper Corporation produces bible paper, light weight printing papers and other specialty papers at its Bryant Mill in Kalamazoo. The mill operates 5 fourdrinier paper machines and one off-machine coater. The normal production of the mill is approximately 220 tons of product per day and actual production figures are given in the appendix. The mill employs about 390 people and operates 24 hours per day, 7 days per week.

The mill uses bleached kraft pulps manufactured at other locations. Both softwood and hardwood pulps are used. Clay, titanium dioxide and calcium carbonate are used as fillers. Very small amounts of direct dyes are used for tinting some grades of paper. Rosin and alum are used for sizing. On some grades of paper small amounts of melamine formaldehyde is used to improve wet strength. No bleaching is done in the normal process of making paper.

On the coater polymeric synthetic latices and/or natural water soluble polymers are used as binders. Styrene-butadiene, vinyl acetate and acrylics are all used from time to time. Of the five paper machines three have flotation type save-alls and two have disc-type save-alls.

Water Supply, Wastewater & Treatment

Process water used at the Bryant Mill is obtained from the Portage Creek and is chlorinated and passed through sand filters prior to use. Potable water for the mill is obtained from the City of Kalamazoo. Domestic wastes are discharged to the city's sanitary sewer system. Boiler water is softened by a hot lime-soda process.

Process wastewaters from excess white water, coating machine water, filter backwash, softener backwash and boiler blowdown are discharged to the 100 ft. diameter Bryant clarifier. A polymer is added to improve settling. A portion of the Bryant clarifier effluent is discharged to the City of Kalamazoo sanitary sewer system via outfall 390004 (001). The remainder of the Bryant clarifier effluent is discharged to the 90 ft. diameter Monarch clarifier. Flow is automatically apportioned by a computerized system utilizing a total organic carbon analyzer. Some of the Monarch clarifier effluent may be recycled for process water, but this was not being done during this survey. The remaining Monarch clarifier effluent is discharged to Portage Creek via outfall 390006 (002).

Sludge from both clarifiers is pumped to drying lagoons on plant property adjacent to the clarifiers.

Survey Procedure

The flows and samples were obtained as follows:

Sampling Location	Flow Measurement	Sampling Methods
390004 (001)	Company totalizer	Automatic air activated sampler, 4 portion grab composite and individual grabs.
390006 (002)	Staff installed water level recorder on a company 36" rectangular weir.	Automatic air activated sampler, 5 portion grab composite and individual grabs.
Manhole near 002	none	Individual grab.

SA 033485
SA00033485

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

INTER-OFFICE MEMO

TO: Ernest J. Klimczak

FROM: Thomas E. Flanagan

OFFICE:

OFFICE:

SUBJECT: Weekly Activity Report
KALAMAZOO MILL

DATE: July 26, 1984

PRODUCTION

	Shifts Run		3 Wk. Backlog Days		Efficiency*	
	Budget	Actual	Last Wk	This Wk	Budget	July
Paper Machines	57	57	14-19	5-19	100	96
Blade Coater	30	28	18	13	95	104

*Through 3rd week of July

Efficiencies held steady on the paper machines during the week and the blade coater improved.

The A.M. curl problem mentioned last week responded to some operating changes and production improved. The new moisture and basis weight monitoring equipment, which is being installed at present, will help minimize drying and coating irregularities which cause many of the Electrostatic quality problems. The work of installing this equipment is about eighty percent completed. Electrical hook-ups will be made upon completion of the gear - and operation should commence about mid-August.

A.M. is in the midst of their annual two-week shutdown so we are not producing and shipping their product currently.

We are studying the PCB question introduced by the DNR in preparation for our response, which we will make in approximately ten days.

/jlo

SA00087903

MICHIGAN DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION BUREAU
POINT SOURCE STUDIES SECTION

RECEIVED
MAR 18 1985
SWQD-Plainwell

Report of an
Industrial Wastewater Survey
Conducted at

ALLIED PAPER COMPANY
All Outfalls No. 390222
NPDES No. MI 0000779
Kalamazoo County
1608 Lake Street, Kalamazoo, MI
September 18 and 19, 1984

Survey Summary

Wastewater monitoring was performed during one twenty-four hour survey period starting Tuesday, September 18, 1984.

The results of this survey are compared to the numerical limitations in the facility's National Pollutant Discharge Elimination System (NPDES) Permit, No. MI 0000779. The survey loading for BOD was slightly greater than the daily maximum (Table 3).

The survey results are compared to the self-monitoring results reported in the company's Monthly Operating Report (Table 3).

A grab sample was split with the company for comparison of laboratory results. The comparison is presented in Table 4. The flow monitored during the survey period was about 20 M^3/day less than the company's monitored flow for the same period (Table 4).

The last survey performed at this facility was in October, 1982. The comparison of survey results is presented as Table 5.

Plant Process

The Allied Paper Corporation produces bible paper, light weight printing papers and other specialty papers at its Bryant Mill in Kalamazoo. The mill operates 5 fourdrinier paper machines and one off-machine coater. The normal production of the mill is approximately 220 tons of product per day. The mill employs about 390 people and operates 24 hours per day, 7 days per week.

The mill uses bleached kraft pulps manufactured at other locations. Both softwood and hardwood pulps are used. Clay, titanium dioxide and calcium carbonate are used as fillers. Very small amounts of direct dyes are used for tinting some grades of paper. Rosin and alum are used for sizing. On some grades of paper small amounts of melamine formaldehyde is used to produce wet strength. No bleaching is done in the normal process of making paper.

SA00030433

On the coater polymeric synthetic latices and/or natural water soluble polymers are used as binders. Styrene-butadiene, vinyl acetate and acrylics are all used from time to time. Of the five paper machines one has flotation type save-alls and four have disc-type save-alls. The company plans to convert the remaining flotation type save-all to a disc type save-all in the future.

Final product is shipped from the plant on rolls. No finishing of the paper is done at the plant.

The location of the plant is shown in Figure 1.

Water Supply & Wastewater Treatment

Process water used at the Bryant Mill is obtained from the Portage Creek and is chorinated and passed through sand filters prior to use. Potable water for the mill is obtained from the City of Kalamazoo. Domestic wastes are discharged to the city's sanitary sewer system. Boiler water is obtained from company owned wells and is softened by a hot lime-soda process prior to use.

Process wastewaters from excess white water, coating machine water, filter backwash, softener backwash and boiler blowdown are discharged to the 100 foot diameter Bryant clarifier. A copolymer is added to improve settling. A portion of the Bryant clarifier effluent is discharged to the City of Kalamazoo sanitary sewer system via outfall 390004 (001). The remainder of the Bryant clarifier effluent is discharged to the 90 foot diameter Monarch clarifier. Flow is automatically apportioned by a computerized system utilizing a total organic carbon analyzer. Some of the MOnarch clarifier effluent may be recycled for process water. Recycled water is treated with alum. The remaining Monarch clarifier effluent is discharged to Portage Creek via outfall 390006 (002).

Sludge from both clarifiers is sprayed onto drying lagoons on plant property adjacent to the clarifiers.

SA00030434

ALLIED PAPER CORP.
KALAMAZOO

DAILY PRODUCTION REPORT — PAPER MACHINE

MACHINE 8
DATE 9-6-85
TOUR 7-3

ORDER NO.	GRADE	BASIS 25 x 38 500	SET NO.	FILL	A 22"	B 22"	C 22"	D 22"	E 22"		Void TOTAL WT.	DEFECTIVE WT.	GOOD WT.	BROKE WT.	SPEED FPM	START	STOP	ELAPSED	EXPLANATION
08-8665	K Ant	55	3	114/110	29522 700	23 700	24 700	25 700	26 700		0		3500		700			1.1	258 QA77
08-8665	7123		4		29527 [illegible]	28 [illegible]	29 720	30 720	31 720		1		3600	7100		8 35	8 05	30 min	~~Ch. orders~~ (wait for color)
08-8654	Custom Ant	50	1	120"/116"	29532 1720	32 1720					1		3440		750				
08-8654	1208		2		29534 1750	35 1750					3		3500						0.5 D106
			3		29536 1830	37 1830					2		3660						
			4		29538 1840	37 1840					0		3680			11 00	10 45	15 min	0.3 D104 Wrap Small Sec
			5		29540 1800	41 1800					1		3600						Scrap Dryers 859 QA77
			6		29542 1800	43 1800					0		3600						
			7		29544 1710	45 1710					1		3420	24900				3.9	Ch. Order 12 45
					A 35"	B [illegible]	C 172"	D [illegible]							750	1 40	1 00	40 min	Wrap Small Dryer (Wire Grind Breaks)
09-H-5301	White Lincoln Copeague	35	1	109"/105"	29546	47	48	49					[illegible]						0.7 D416
09-H-5301	1805		2		29550	51	52	53						0				1.5	

32000

ORDER NO.	08-8665	08-8654	09-H-5301	
AMT. ON ORDER	14,500	24,000	30,000	
BALANCE TO DATE	7,540	24,000	30,000	
MADE ON THIS TOUR	7,100	24,900	[illegible]	0
BALANCE TO MADE	440	—	[illegible]	20,000

REMARKS:
Trim 3663
Stubs —
Rejects 14130
17793

21.3
2.7
24.0

84690

CF 900 for 120 Hor

M.T. G.E
C.T. JS
3 NO. LB
CL. NO.
4 NO. PF
5 NO.
OILER 1
APPROVED: RJ
TOUR FOREMAN: RJ
SUPT. DD

SA 048398

SA00048398

ID-NO.	RAW MATERIAL	PHYS. FORM	% SOLIDS ACT.	% SOLIDS PUR.	DENS. #/GAL.	COST. $/CWT WET	COST. $/CWT DRY	RECEIVED AS		PRODUCT TYPE	APPLICATIONS	SUPPLIER	DATE
12110	CATOSIZE 69	S	90	90	13.33	25.50	28.33	BAGS	100	CATIONIC STARCH	DIAZO - SURFACE SIZING	NATIONAL STARCH	85/08/12
12921	STRIP AID 76-5625	L	40	40	8.20	115.00	287.50	DRUM		WAX	SATURATION	NATIONAL STARCH	84/10/30
12911	CURITE ZN	L	50	50	13.25	48.50	97.00	DRUM		ZINC NITRATE CATALYST	DUR-O-SET CATALYST	NATIONAL STARCH	85/07/26
12920	NADEX 772	S	90	90	13.33	30.27	33.63			LOW VISCOSITY DEXTRIN	PREPASTE	NATIONAL STARCH	85/03/04
12701	SAT.:DUROSET (151)	L	13	13	8.39	15.39	119.89			DUR-O-SET VARIETY	SATURATED GRADES	NATIONAL STARCH	85/10/28
12910	DUR-O-SET, E-669	L	52	52	8.70	50.25	96.63	DRUM		ETHYLVINYL-ACETATE	SATURATION	NATIONAL STARCH	85/07/26
12157	KAYASOL BLACK	S	100	100	.00	320.33	320.33	DRUM	132	DYE	PH	NIPPON KAYAKU CO.	85/10/22
12140	SODIUM NITRATE	S	90	90	28.40	16.13	17.92	BAGS	50	SALT	COATINGS, PH	OLIN	85/02/26
12939	HYDROCARB 30	S	100	100	35.70	14.40	14.40	BAGS	50	GROUNDED LIMESTONE	COATINGS	OMYA INC.	84/10/31
12122	HYDROCARB 65	S	100	100	35.70	10.29	10.29	BAGS	50	GROUNDED LIMESTONE	COATINGS	OMYA INC.	84/10/31
12133	PENFORD GUM 280	S	89	89	13.33	23.10	25.67	BAGS	100	ETHYLATED CORN STARCH	LOW VISCOSITY	PENICK & FORD	84/10/31
12135	PENFORD GUM 286	S	89	89	13.33	25.81	29.00	BAGS	100	ETHYLATED CORN STARCH		PENICK & FORD	84/10/31
12957	PENFORD GUM 290	S	90	90	13.33	.00	.00	BAGS		LOW VISCOSITY		PENICK & FORD	85/06/04
12955	ALBAGLOS (CACO3)	S	100	100	33.00	.00	.00	BAGS	50	CACO3, 0.75 MICRONS	COATINGS	PFIZER MPM	85/05/29
12919	POLYSAR LATEX 958	L	51	51	8.40	39.78	78.00	DRUM		CARBOXYL.STYRENE-BUTADIENE	SATURATION	POLYSAR	84/12/11
12963	NEOCRYL A-1054	L	45	45	8.70	54.00	120.00	DRUM		ACRYLIC COPOLYMER	SATURATION	POLYVINYL CHEMICALS	85/03/04
12154	CAUSTIC SODA	S	100	100	17.70	25.00	25.00	DRUM	500	PH MODIFIER	COATINGS ETC.	PPG INDUSTRIES	85/04/18
12176	PROCOTE 200-LV	S	90	90	10.50	88.50	98.33	BAGS	50	SOYBEAN PROTEIN	COATINGS	RALSTON PURINA	85/01/10
12198	R&H TRITON GR-7M	L	64	64	8.70	105.74	165.22	DRUM	460	WETTING AGENT	COATINGS	ROHM & HAAS	84/10/30
12915	R&H RHOPLEX P-554	L	47	47	8.00	60.00	127.66	DRUM	475	ACRYLIC CLAY REACTIVE	COATINGS	ROHM & HAAS	85/07/26
12199	R&H POLY EM-48	L	48	48	8.10	59.75	149.38	DRUM	450	POLY ETHYLENE WAX	COATINGS	ROHM & HAAS	84/10/31
12197	R&H ASE-60	L	28	28	8.70	56.00	200.00	DRUM	475	ACRYLIC EMULSION	COATINGS	ROHM & HAAS	85/10/22
12916	R&H RHOPLEX P-376	L	50	50	8.70	54.75	1.3.50	DRUM	475	ACRYLIC COPOLYMER	COATINGS	ROHM & HAAS	84/10/31
12956	LEUCOPHOR B-30C	L	100	100	9.00	.00	.00	DRUM		OPTICAL BRIGHTENER		SANDOZ CHEMICALS	85/06/04
12818	SEQUOYA	S	90	90	.00	25.00	27.76			GIVES HIGHER TENSILE		SIMPSON	85/07/22
12109	STAYCHE GA	S	98	98	13.33	12.41	13.79	BAGS	100	ENZYME CONVERTED STARCH	ASE-60 PREPASTE, PH	STALEY	85/10/22
12736	ETHYLEX 2015	S	88	88	13.33	15.50	17.61	BAGS	100	ETHYLATED CORN STARCH	LOW VISCOSITY	STALEY	85/02/21
12958	SUNSIZE 134	L	50	50	8.15	87.00	174.00	DRUM		STEARYLATED MELAMINE/WAX	WATER REPELLANT-RELEASE	SUN CHEMICAL CORP.	85/04/10
12951	SUNSIZE 133	L	50	50	8.15	117.00	234.00	DRUM		STEARYLATED MELAMINE	WATER REPELLANT	SUN CHEMICAL CORP.	85/04/10
12134	BORAX	S	95	95	14.40	25.83	27.19	BAGS	100	BORAX	COATINGS	U.S. BORAX	84/11/06
12929	CARBOWAX 400	L	100	100	9.42	72.00	72.00	DRUM		PLASTICIZER	SATURATION	UNION CARBIDE	85/01/15
12142	AMSCO-RES P-931	L	61	61	11.10	68.00	111.48	DRUM	600	POLYVINYLIDENE CHLORIDE	ELECTROSTATIC COATINGS	UNION 76	85/01/15
12195	AMSCO-RES 6107	L	50	50	9.10	42.14	84.28	DRUM	400	VINYL ACETATE TERPOLYMER	COATINGS	UNION 76	84/10/31
12958	STAFOR 50	L	50	50	9.50	26.00	52.00	BULK		POTASSIUM RESINATE	INTERNAL SIZE	WESTVACO	85/06/17
12137	FC-807	L	33	33	9.50	888.18	2449.83	DRUM		FLUORO-CARBON	GREASE PROOF PAPER	3 M	85/05/15

178 RECORDS IN FILE

Range: 12100-299= Established, 600-699= Water Treatment, 700-799= Precoats, 800-899= Fibers, 900-998= Experimental

NOTIFY ANDERS BERGH (EXT. 333) OF ANY ERRORS

SA00051919 SH 851919

ID-NO.	RAW MATERIAL	PHYS. FORM	% SOLIDS ACT.	% SOLIDS PUR.	DENS. #/GAL.	COST, $/CWT WET	COST, $/CWT DRY	RECEIVED AS		PRODUCT TYPE	APPLICATIONS	SUPPLIER	DATE
12177	CALCIUM CHLORIDE	S	100	100	17.90	12.25	12.25				SUPPLY		84/10/15
12832	SOUTHERN SOFTWOOD	S	90	90	.00	14.75	16.39						85/04/10
12583	SOUTHERN HARDWOOD	S	90	90	.00	13.50	15.00						85/05/30
12184	FILLER CLAY	L	70	100	14.58	3.51	5.02	BULK		PIGMENT	PM		85/04/10
12185	CLAY BAGS	S	95	95	21.50	8.69	9.15	BAGS	50	PIGMENT	PM		85/03/01
12186	ROSIN SIZE	L	78	78	9.00	28.00	48.00	BULK		INTERNAL SIZING	PM		85/06/17
12193	SEPARAN CP-7 HS	L	8	8	8.40	39.35	491.88	DRUM		RETENTION AID	DUPONT		85/01/15
12809	COTTON LINTERS	S	90	90	.00	42.00	46.67				ENVELOPE GRADES		85/02/21
12930	METHYL CELLULOSE	S	95	95	.00	.00	.00				COATINGS		84/07/20
12152	U.M. BLUE	S	100	100	.00	217.00	217.00			DYE	PM		83/23/84
12932	TALC	S	100	100	23.74	10.99	10.99	BAGS		PIGMENT	PM		85/03/24
12933	SYLOID 244	S	100	100	22.87	147.00	147.00			SILICA			84/10/12
12788	SCRUBWATTE FORMULA	L	61	61	8.63	20.73	33.98				CIS FORMULATION		85/07/25
12680	CHLORINE	G	100	100	.00	17.55	17.55				WATER TREATMENT		84/09/27
12710	PREPASTE ASE-60	L	31	31	9.42	29.52	95.23				PREPASTE FORMULA		85/10/28
12908	nARVAC PULP	S	90	90	.00	21.55	23.94				DUPONT GRADES		85/08/12
12117	RETEN 304	L	30	30	9.00	46.40	154.67	DRUM	475	RETENTION AID	PM		84/11/06
12161	DIRECT RED TOL	S	100	100	.00	410.00	410.00			DYE	PM		84/07/25
12119	NOVASPERSE	L	33	33	9.00	36.00	105.14	DRUM		SIZE			85/10/28
12120	MAPICO YELLOW	S	100	100	.00	63.78	63.78			DYE	PM		84/07/25
12121	AMMONIA	L	0	0	7.50	7.56	7.56	DRUM	375	PH MODIFIER	COATINGS		84/10/31
12708	SATURANT: BERSOND	L	19	19	8.50	22.86	120.31			BERSOND 23	SATURATED GRADES		85/10/28
12912	ALUM LIQ.-FE FREE	L	28	28	11.12	28.83	102.96	DRUM			DIAZO		84/11/06
12126	COATING CLAY	L	70	100	14.58	4.15	5.98	BULK		#2 HT CLAY	COATINGS		85/04/10
12131	RA-21	L	13	13	9.00	43.05	430.50			RETENTION AID	PM		84/11/06
12705	ARP-1 (39-3145)	L	28	28	9.00	24.93	89.02			RELEASE SATURANT	USED ON 85-3149		85/01/02
12706	3# SURFACE SIZE	L	31	31	9.93	8.22	26.53						85/05/09
12707	3# THERMO (S.F.)	L	37	37	10.33	7.48	20.00				SIZE PRESS SOLUTION		85/10/22
12959	GROUND CALC.CARB.	S	100	100	33.00	7.50	7.50	BAGS	50	FILLER (PM)			85/09/25
12709	GROUNDCOAT P-554	L	64	64	13.51	22.53	35.20				WALLPAPER GROUNDCOAT		85/10/28
12837	BRINE	S	95	95	.00	12.75	13.42						85/07/26
12166	SODA ASH	S	90	90	21.10	10.28	11.42	BAGS	100	SODIUM CARBONATE	PM		84/10/31
12381	CANADIAN SOFTWOOD	S	90	90	.00	17.50	19.44						85/10/22
12999	WATER	L	0	0	8.33	.00	.00						84/05/30
12811	CROFTON KRAFT	S	90	90	.00	18.15	20.17			WESTERN RED CEDAR	HIGH TENSILE ETC.		85/10/22
12584	CANADIAN HARDWOOD	S	90	90	.00	20.32	22.77						85/01/30
12805	MISC. PULP	S	90	90	.00	13.50	15.00						85/05/30
12686	PULP SUBSTITUTE	S	90	90	.00	12.75	14.17						85/07/26
12703	HSC: LOW GRAPHSIZE	L	16	16	9.04	5.16	32.27						85/08/12
12703	HSC:SIZEPRESS SOL.	L	15	15	9.10	6.34	42.25			WITH GRAPHSIZE	HOT SPOT CARBON		85/10/28
12156	ASP-9	L	39	38	9.00	31.31	82.39	DRUM		SULFURIC ACID + SURFACT.	REFLPING		85/08/12
12192	BLEACHED JUTE	S	100	100	.00	38.81	38.81				SCHOOL PAPER		84/07/25
12186	AIRFLEX 4530	L	58	58	9.16	51.60	102.88	DRUM		VINYL CHLORIDE-ETHYLENE	SATURATION	AIR PRODUCTS C	85/01/15
12187	AIRFLEX 132	L	52	52	8.78	53.78	103.27			VINYL ACETATE-ETHYLENE	SATURATION	AIR PRODUCTS	84/10/15
12196	AIRFLEX 120-HS	L	55	55	8.80	52.61	95.65	DRUM	475	VINYLACETATE-ETHYLENE	COATINGS	AIR PRODUCTS	84/10/31

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ID-NO.	RAW MATERIAL	PHYS. FORM	% SOLIDS ACT.	% SOLIDS PUR.	DENS. #/GAL.	COST. $/CWT WET	COST. $/CWT DRY	RECEIVED AS	PRODUCT TYPE	APPLICATIONS	SUPPLIER	DATE
12947	GRAPHSIZE HB	L	21	21	8.42	69.00	328.57	DRUM 400	POLYURETHANE-ETHYLENE COP	SURFACE SIZING-FILM FORM.	AKZO CHEMIE AMERICA	85/03/28
12935	GRAPHSIZE A	L	20	20	8.76	59.50	297.50	DRUM 400	POLY URETHANE	SURFACE SIZING - ALKALINE	AKZO CHEMIE AMERICA	85/10/22
12940	GRAPHSIZE C	L	15	15	8.76	46.00	306.67	DRUM 400	POLYURETHANE	SURFACE SIZING-ACIDIC	AKZO CHEMIE AMERICA	85/03/28
12101	ALUM DRY - FE FREE	S	50	50	.00	39.00	67.24	BAGS 100		DIAZO - IRON FREE	ALLIED CHEM./HOLLAND CORP	85/10/22
12103	ALUM DRY	S	50	50	.00	14.00	24.14	BAGS 50		PH	ALLIED CHEMICALS	85/04/18
12102	ALUM LIQUID	L	28	28	10.99	6.59	23.54	BULK		PH	ALLIED CHEMICALS	85/03/06
12115	PARAMEL	L	8	100	8.48	6.93	86.65	BULK	MELAMINE-FORMALDEHYDE	WET STRENGTH	AMERICAN CYANAMID	85/08/12
12944	ACCOSTRENGTH 85	L	22	22	8.95	176.00	800.00	DRUM	SYNTHETIC POLYMER	INCREASES TENSILE ETC.	AMERICAN CYANAMID	84/10/31
12107	ALPHASIZE	L	35	35	8.60	28.60	81.71	DRUM 400	MODIFIED ROSIN SIZE	DIAZO ETC.	AMERICAN CYANAMID	85/10/22
12191	ACCURAC 39	L	5	5	8.47	31.50	630.00	DRUM	RETENTION AID	MACHINE #5+6	AMERICAN CYANAMID	85/07/30
12923	SOLVITOSE H	S	94	94	13.33	69.00	73.40	BAGS 44	PREGEL.POTATO STARCH	PREPASTE	AMERICAN KEY PRODUCTS	84/12/31
12924	SOLVITOSE HCT-11	S	94	94	13.33	78.00	82.98	BAGS 44	PREGEL.POTATO STARCH	PREPASTE	AMERICAN KEY PRODUCTS	84/10/30
12922	ELVICOTE ZN	S	90	90	13.33	55.00	61.11	BAGS 44	PREGEL.POTATO STARCH	PREPASTE	AMERICAN KEY PRODUCTS	84/10/31
12949	AMAIZO 1895 DEXTR.	S	93	93	13.33	15.56	16.67	BAGS	LOW VISC.WAXY MAIZE DEXT.	ADHESIVES	AMERICAN MAIZE CO	85/03/29
12981	AMAIZO 710	S	90	90	13.33	31.00	34.44	BAGS 100	PROPYLENE OXIDIZED CORN	PREPASTE	AMERICAN MAIZE CO	85/03/04
12937	AMAIZO 789-0	S	60	60	13.33	15.50	17.61	BAGS 100	ETHYLATED CORN STARCH	PREPASTE	AMERICAN MAIZE CO.	85/03/04
12946	AMAIZO 839 STARCH	S	90	90	13.33	13.50	17.21	BAGS 100	THIN-BOILING WAXY. CORN	REMOISTENABLE ADHESIVES	AMERICAN MAIZE CO.	85/03/25
12938	AMAIZO 843	S	90	90	13.33	35.92	39.91	BAGS 100	MODIF.WAXY-MAIZE STARCH	LOW VISC. - REMOISTENABLE	AMERICAN MAIZE CO.	85/04/22
12989	EUCALUPTUS	S	99	99	.00	17.01	18.90		EUCALUPTUS FIBERS	SATURATED BASE	ARACRUZ	85/10/22
12954	PINE OIL	L	100	100	7.84	48.00	48.00	DRUM 425	TERPENE ALCOHOL	COATINGS	ARIZONA CHEMICAL COMPANY	85/05/29
12941	FASTUSOL-C BLUE 49	L	14	14	9.98	240.00	1757.14	DRUM	DYE	DUPONT	BASF	85/07/26
12943	CATIOFAST TURQUOIS	L	15	15	9.27	300.00	2000.00	DRUM 132	DYE	DUPONT	BASF ?	85/10/16
12942	POLYMIN 50	L	20	20	8.83	67.00	335.00	DRUM 500	RETENTION AID RESIN	DUPONT	BASF	85/07/26
12178	BERSOND Z3	L	50	50	8.88	65.74	131.48	DRUM 460	LATEX EMULSION	SATURATION	BERCEN	85/01/14
12167	BERSET 84-325	L	76	76	10.20	57.14	75.18	DRUM 500		COATINGS	BERCEN	84/10/30
12988	BERSIZE 6400 (239)	L	50	50	8.20	89.00	178.00	DRUM	PAPER SIZE	SATURATION	BERCEN	85/10/22
12143	BERSET 39	L	47	47	11.40	43.01	91.50	DRUM 500	BUFF.GLYOXAL BASE RESIN	COATINGS	BERCEN	85/01/15
12913	HYCAR 26120	L	50	100	8.91	53.50	107.00	DRUM	ACRYLIC	SATURATION	BF GOODRICH	85/07/26
12179	BUSAN 30-MD	L	30	30	9.25	339.60	1132.00	DRUM 500	MILDEWCIDE	COATINGS	BUCKMAN LABORATORIES	84/10/30
12682	CALGON H-2500	L	100	100	8.48	211.51	211.51	DRUM 450	BIOCIDE	WATER TREATMENT	CALGON	84/10/31
12982	CALGON 261-LV	L	40	40	9.05	135.00	337.50	DRUM 450		COATINGS	CALGON	85/04/18
12684	METASOL J-26	L	100	100	9.50	366.56	366.56	DRUM 450	BIOCIDE	WATER TREATMENT	CALGON	84/11/06
12681	CALGON L-675	L	100	100	8.32	132.20	132.20	DRUM 465	POLYMER	WATER TREATMENT	CALGON	84/10/31
12687	HYDRAID WT-7392	L	100	100	8.68	77.63	77.63	DRUM 450	POLYMER	WATER TREATMENT	CALGON	84/11/06
12159	CALGON T	S	100	100	10.00	98.56	98.56			COATINGS	CALGON	85/01/15
12683	CALGON CB-210	L	100	100	8.50	295.00	295.00	DRUM 250	BIOCIDE	WATER TREATMENT	CALGON	84/10/31
12926	NITROL 6ST	S	100	100	.00	149.00	149.00	DRUM 100	BACTERIA CONTROL	PREPASTE	CHAPMAN CHEMICAL COMPANY	85/02/07
12984	CLINSIZE 753	S	90	90	13.33	19.25	21.39	BAGS 100	CORN STARCH	PH	CLINTON	83/10/22
12153	INTRAWITE PHA	L	100	100	9.10	68.13	68.13	DRUM	FLOURECENT WHITENER	DIAZO, COATINGS ETC.	CROMPTON & KNOWLES	85/04/18
12163	INTRALITE BLUE 2BL	S	100	100	.00	1260.00	1260.00	DRUM 270	DYE	PH	CROMPTON & KNOWLES	85/06/12
12960	COPY COAT	L	30	100	11.66	19.25	27.50		CHEM.MODIFIED CALC.CARB.	COLOR DEV.FOR NCR PAPER	CYPRUS	85/09/27
12178	STRIDEX PK-90	L	85	85	9.56	135.00	158.82	DRUM 490	WETTING AGENT	PRECOATS + COATINGS	DEXTER	84/10/31
12144	FOAMASTER DF-122NS	L	100	100	7.60	95.14	95.14	DRUM 400	DEFOAMER	COATINGS	DIAMOND-SHAMROCK	84/10/30
12166	NOPCOTE C-104	L	50	50	10.90	60.35	120.70	DRUM 450	CALCIUM STEARATE	COATINGS	DIAMOND-SHAMROCK	84/11/06
12146	NOPCOSANT K	L	34	34	10.90	56.53	166.26	DRUM 550	DISPERSANT	COATINGS	DIAMOND-SHAMROCK	84/10/30

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ID-NO.	RAW MATERIAL	PHYS. FORM	% SOLIDS ACT.	% SOLIDS PUR.	DENS. #/GAL.	COST, $/CWT AS	COST, $/CWT DRY	RECEIVED AS	PRODUCT TYPE	APPLICATIONS	SUPPLIER	DATE
12175	CHOLINE CHLORIDE	L	70	70	9.10	63.45	90.64	DRUM 500		COATINGS	DIAMOND-SHAMROCK	84/10/30
12147	NOPCOCIDE 121-B	S	100	100	.00	161.00	161.00	DRUM 1+200	MILDEWCIDE	COATINGS	DIAMOND-SHAMROCK	85/01/15
12173	FOAMASTER VF	L	100	100	7.80	90.34	90.34	DRUM 400	DEFOAMER	COATINGS	DIAMOND-SHAMROCK	84/10/30
12145	NOPCOCIDE 120	L	10	10	8.40	74.89	740.90	DRUM	MILDEWCIDE	COATINGS	DIAMOND-SHAMROCK	85/01/15
12141	AQUAQUEST 2120	L	43	43	10.70	57.00	132.56	DRUM 525	DISPERSANT	COATINGS	DIAMOND-SHAMROCK	85/01/15
12172	PRIMACOR 4983	L	25	100	8.22	47.27	189.09	DRUM 430	ADHESIVE	COATINGS	DOW	84/10/30
12194	LATEX DPP-722	L	48	100	8.70	45.70	95.20	DRUM 450	SYNTHETIC PIGMENT	COATINGS	DOW	84/10/31
12192	DOW LATEX 620	L	50	100	8.55	37.50	75.00	BULK	STYRENE-BUTADIENE	COATINGS	DOW	85/04/10
12139	GLYCERINE	L	100	100	10.51	90.30	90.30	DRUM 570	PLASTICIZER	COATINGS	DOW	84/11/06
12680	DREW 272	L	100	100	9.00	99.40	99.40	DRUM	BIOCIDE	WATER TREATMENT	DREW AMEROID INT'L	84/10/31
12685	DREW 258	L	100	100	8.60	203.40	203.40	DRUM	BIOCIDE	WATER TREATMENT	DREW AMEROID INT'L	84/10/31
12158	ELVANOL 7130	S	95	95	10.30	100.00	113.66	BAGS 50	POLYVINYL ALCOHOL	FILM FORMER IN HSC ETC.	DUPONT	85/10/22
12928	NALAN GN	L	30	30	8.50	97.00	323.33	DRUM	WATER REPELLANT	SATURATION	DUPONT	84/11/14
12112	ANSILEX	S	95	95	.00	21.77	22.92	BAGS 50	HIGH BRIGHT KAOLIN	PM - EXTENDER	ENGELHARD	85/08/12
12113	ULTRA COTE	S	95	95	21.50	10.81	11.38	BAGS 50	HIGH BRIGHT CLAY	HSC, COATING ETC.	ENGELHARD	84/10/31
12123	CAMELWHITE	S	100	100	22.50	8.39	8.39	BAGS 50	GROUNDED LIMESTONE	COATINGS	FLINTKOTE STONE PRODUCTS	84/10/31
12948	GEN-FLO 537	L	50	50	8.50	82.72	165.44	DRUM	STYRENE-BUTADIENE	COATINGS	GENERAL TIRE	85/01/15
12111	TITANIUM DIOXIDE	S	100	100	32.50	65.00	65.00	BAGS 50	ZOPAQUE RGH	COATINGS, PM	GLIDDEN	85/10/26
12935	DIETHYLENE GLYCOL	L	100	100	9.45	48.00	48.00	DRUM 530	PLASTICIZER	SATURATION	HAVILAND	85/02/18
12908	KYMENE 557-H	L	12	12	8.26	31.45	262.08	DRUM 500	WET STRENGTH -SOFTER HAND	SATURATED GRADES	HERCULES	85/10/22
12132	PARACOL 880N	L	50	50	8.80	24.75	49.50	DRUM 420	WAX EMULSION	SATURATION, PM	HERCULES	85/08/12
12169	CMC	S	95	95	13.33	13.68	14.32	BAGS 50	CARBOXY-METHYL-CELLULOSE	VISC.MODIFIER IN COATINGS	HERCULES	84/10/31
12116	AQUAPEL 360-XC	L	6	6	8.50	22.00	366.67	DRUM 460	EMULSION SIZING	PM	HERCULES	84/11/06
12953	HERCON 48	L	15	15	8.66	28.95	193.00	DRUM 460	REACTIVE SIZE-NEUTRAL	PAPER MACHINE	HERCULES	85/05/17
12171	CMC-B	S	95	95	13.33	183.86	193.53	BAGS 50	VISCOSITY MODIFIER (LOW)	VISC.MODIFIER IN COATINGS	HERCULES	84/10/30
12962	AQUANIL YELLOW II	L	100	100	.00	535.00	535.00	DRUM	DYE	CHICOPEE	HILTON-DAVIS	85/10/21
12155	INTERLUB 4825	L	50	50	9.00	51.51	103.02	DRUM 450	ACID-BASE CLEANER	PM	INTERLUBE CORPORATION	85/10/22
12934	HYDRAPRINT	S	95	95	21.50	6.75	7.11	BAGS 50	DELAMINATED CLAY	COATINGS	J.M. HUBER	84/10/30
12963	HERCULES 831	L	100	100	8.00	66.00	66.00	DRUM	DEFOAMER	COATINGS	KALAMAZOO CHEMICALS	85/10/30
12931	BERCHEM CATALST JJ	L	46	46	11.38	48.00	104.35	DRUM	MODIFIED ZINC NITRATE	SATURATION	KALAMAZOO PAPER CHEMICALS	85/02/19
12927	KELGIN HV	S	95	95	13.33	376.00	395.79	DRUM 100	SODIUM ALGINATE	VISC.MODIFIER IN COATINGS	KELCO	85/03/04
12148	KELGIN OL	S	95	95	13.33	488.14	425.63	DRUM 150	SODIUM ALGINATE	VISC.MODIF. IN COATINGS	KELCO	84/10/31
12169	DF-1 DEFOAMER	L	100	100	9.00	182.57	182.57	DRUM 500	DEFOAMER	PM	KOCHEM INC.	85/10/22
12174	BACOTE 20	L	20	20	11.35	185.46	527.30	DRUM 530	BINDER INSOLUBILIZER	COATINGS	MAGNESIUM-ELECTRON	84/10/31
12917	MICHELUBE 162	L	25	25	8.30	60.50	242.00	DRUM	CARNAUBA MICROWAX	COATINGS	MICHELMAN	84/10/31
12918	MICHELUBE 160	L	25	25	8.40	61.50	246.00	DRUM	#1 CARNAUBA	COATINGS	MICHELMAN	84/10/31
12901	MOBAY RED NS-20	L	100	100	.00	300.00	300.00	DRUM	DYE	CHICOPEE	MOBAY	85/10/16
12105	PONTAMINE GREEN ZN	S	100	100	.00	1182.78	1182.78	DRUM 220	DYE	PM	MOBEY CHEMICAL CORP.	85/05/20
12118	SCRIPTSET 720	L	25	100	10.41	45.00	180.00	DRUM +96	COPOLYMER SALT	SURFACE SIZING	MONSANTO	85/01/14
12952	SCRIPTSET 540	S	90	90	13.33	175.20	194.00	BAGS	POLYMERIC ESTER/LOW VISC.	SURFACE SIZING	MONSANTO	85/04/25
12151	TSPP	S	95	95	10.00	52.90	55.68	BAGS 100	TETRA-SOD.-POLY-PHOSPHATE	DISPERSANT IN COATINGS	MONSANTO	85/10/22
12914	SCRIPTSET 786	L	30	100	11.97	31.12	103.74	DRUM	COPOLYMER SALT	SURFACE SIZING	MONSANTO	85/03/04
12114	NALCO 680	S	100	100	.00	39.90	39.90	DRUM 300	SODIUM ALUMINATE	PM	NALCO	84/10/30
12987	RESYN 1872 (PROM)	L	63	63	9.60	54.25	86.11	DRUM	POLYVINYL ALCOHOL	COATINGS	NATIONAL STARCH	85/03/04
12186	CATOSERE 16	S	90	90	13.33	45.75	50.83	BAGS 100	CATIONIC STARCH	DIAZO - INTERNAL SIZING	NATIONAL STARCH	85/10/22

SA00051922 SH 851922

Report on Waste Disposal at Allied Paper Company Kalamazoo, Michigan 1963

Gilman
EXHIBIT NO. 168
2.9.93
SHERYL BUSSINGER

Introduction

At the request of Dr. Ward Harrison, President of Allied Paper Company, National Council engineers conducted a survey of water usage and waste disposal at Kalamazoo, Michigan.

The objective of the program were the following:

1. To determine the source and intensity of the major pollutional loads as discharged from the present operation.
2. To determine the performance of the existing waste disposal facilities.
3. To indicate ways and means of reducing waste loads and increasing water use efficiency.
4. To make recommendations concerning a program for additional pollution abatement to coincide with requirements of the Michigan Water Resources Commission.

This report is intended to summarize the results of the survey. In view of the magnitude and complexity of the problem, the report is presented in two sections. Parts 1 and 2 will cover the results of the survey at the Bryant and King Division, respectively.

Part 1 Bryant Division

Description of Mill Processes

The Bryant Divison produces approximately 200 tons per day of specialty papers on five Fourdrinier machines. Furnish

for the operation consists of 40-150 tons of pulp prepared at the mill by an alkaline cook of waste papers consisting of book and ledger. Fifty to sixty tons of purchased unbleached sulphite pulp is also re-pulped and blended with the reclaimed pulp. Approximately 50% of the digester liquor is recycled for heat recovery and the remaining 50% is combined with other mill waste for discharge to a primary treatment facility and thence to Portage Creek, the receiving stream. The pulping process is located in Mill A.

Mill C provides facilities for two of the five machines, and the remaining three machines are located in Mill D. The coating operation is completed in Mill E. The location of the above mills may be seen by referring to Figure 1.

All machines are equipped with Bird Screens and Sveen-Pedersen save-all devices. All screen shower waters pass through the saveall devices. Saveall effluents are discharged to storage tanks for re-use, except when colored papers are being produced. White water tank overflows and colored waters are discharged through sewers directly to Portage Creek.

Survey Procedures

To accomplish the objectives previously cited, a three day survey was conducted. The survey consisted of collecting eight, hour composite samples at the major mill waste streams to be indicated later. The composite samples were analyzed for BOD, and suspended solids content according to methods outlined in the 11th edition of "Standard Methods for Water and Waste Water". All laboratory test data is appended to this report.

KA04800444

Sampling Points and Flow Sheets

Major water use and re-use practices are indicated on flow sheets one through three. The major streams and respective sampling points are indicated by circled numbers on the appropriate flow sheets. A description of these points are as follows:

1. Clarifier Influent. The constituent of this sewer contains a portion of the waste from Mill A, C, and D.

2. Clarifier Effluent. The characteristic constituent of this sewer is basically that of the above but weaker in content. This sewer is equipped with a 5 foot rectangular weir and flow recorder.

3. Chlorine Bleach. The waste water in this sewer is composed of bleach water from the Oliver following the chlorine bleach tower in Mill A.

4. Number 1 Sewer Mill C. This waste water is composed of machine waters, floor drains, and roof drains from Mill C.

5. Number 2 Sewer Mill C. This waste water is composed of Sveen-Pedersen effluent, white water chest overflows, and other machine waters directly sewered.

6, 7, & 8. Mill D. The waste water in these sewers is composed of condensate water, machine waters, and drinking fountain waters. These waters combine into one rectangular sewer which is equipped with three ports for discharge into Portage Creek. Parts 6 and 8 are equipped with a 18" rectangular weir.

9. Mill D. The waste water in this sewer is composed of white water chest overflows, rich white water and saveall effluent. This port is equipped with an 18" rectangular weir.

10. Mill D. The waste water in this sewer is composed of excess saveall effluent, and the discharge is intermittent.

11. Mill E. The waste water in this sewer is composed of coating tank dumps, tank rinse water, and machine bearing water.

A. Mill A. The waste water in this sewer is composed of brown stock oliver and side hill water. It also contains screen reject from the pulping process. It is discharged into the wet well prior to final pumping to the clarifier.

Flow Measurement

Flows for No. 1, 2, 6, 8, 9 and 10 samples were computed from average flow height values observed during collection of samples. Flows for samples 3,4, 5, 7 and 11 were determined according to the following formula:

$$Q = VA$$

A = Cross sectional area of liquid in pipe in square feet.
V = Velocity of fluid in feet/second.
Q = Flow in cubic feet per second.

Under the existing conditions at the mill, measurement of flows by the above procedures are somewhat difficult. However, the observed flows are believed to be reasonably accurate. The collection and discharge of all flows through one outfall sewer is desirable both for accuracy of flow measurement and simplicity of sampling.

Discussion of Results

The data collected during the survey are summarized in Tables 1 and 2. The suspended solids and BOD after 1 hour settling refers to samples that were settled in the laboratory under quiescent conditions. By reference to Tables 1 and 2 it is observed

Table 1
Allied Paper Company
Test Data
Bryant Division

Summary of Suspended Solids Removal

Sample	11/28/62 Total lbs/day	% Reduction	12/3/62 Total lbs/day	% Reduction
3-11	120,984	0	71,408	0
Clarifier Influent	116,000		82,500	
Clarifier Effluent	43,750	62	15,200	82
Clarifier Influent After 1 hr. Settling	1,765	98	15,200	82
3-11 After 1 hr. Settling	6,856	95	2,976	96
Clarifier Effluent After 1 hr. Settling	5,500	87	5,140	70
lbs/Ton Production	1,180		765	

Table 2
Allied Paper Company
Test Data
Bryant Division

Sample	12/28/62 Total lbs/day	% Reduction	12/3/62 Total lbs/day	% Reduction
3-11	21,695	0	13,966	0
Clarifier Influent	29,300		25,600	
Clarifier Effluent	14,400	51	12,600	50
3-11 After 1 hr. Settling	5,163	78	1,463	89
Clarifier Influent After 1 hr. Settling	14,650	50	7,560	70
Clarifier Effluent After 1 hr. Settling	12,500	57	12,400	51
Sludge Bed Decant (lbs/day)	790		75	
Total BOD produced by Bryant Div.	51,985		39,556	
Total BOD discharged to Portage Creek	37,085		26,631	
Total BOD now being removed	14,900		12,600	
%Removed	29.2		42.5	
lbs BOD/Ton prod.+	260		197	

+ Based on 200 ton/day

197
457
229

230
200
46000
6000
160)40000
400
1000

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that the greater proportion of the solids and BOD is found in the clarifier influent. The majority of this flow is shown to emanate from the deinking process.

For comparative basis, reference is made to rules and regulations relating to waste from pulp and paper mills in Pennsylvania. These regulations were established in 1950 and the values are considered average for the process assuming reasonably well operated mills. The effluent standards for the deinking process are as follows:

Pounds of suspended Solids/Ton product	Pounds of BOD per Ton of product
600	85

Where primary treatment is required the State has set the following standards regarding reductions from raw waste levels:

Suspended Solids Removed	70%
Settleable Solids Removed	98%
BOD Removed	35%

By reference to Tables 1 and 2 it is observed that the average total suspended solids of the combined sewers produced by the process at the Bryant Division is 972 lbs/ton. This is higher than the average 600 for the deinking process. The BOD is also shown to be higher than the average 85 lbs/ton for the deinking process, showing an average 228 lbs per ton of paper produced.

A well designed primary treatment facility for the removal of suspended and settleable solids in deinking waste should provide detention periods in the order of four hours with an overflow rate of 500-600 gallons per square foot per day. Under the present conditions of flow (average 4.6 mgd.), hydraulic loading provides 3.7 hours detention time and 590 gallons per square foot per day overflow rates. Under these circumstances an average of 72% and 50 % of the settleable solids and BOD are

removed respectively. It is further observed that 58% of the suspended solids now being discharged directly to Portage Creek are settleable. The efficiency of removal of these materials if subsequently routed through the clarifier will be dependent on the hydraulic loading changes induced by the added flow.

The BOD removal from the flow presently passing through the clarifier is higher than would be expected from a facility of this type. By reference to Table 2 it is observed that approximately 36% of the applied BOD is removed by primary treatment. It is further observed that 53% of the BOD now being discharged directly to Portage Creek is removable by a good job of settling. It is premature to anticipate what percentage BOD removal could be accomplished should all the waste flow be directed through the clarifier. Again, this would be dependent on the hydraulic characteristics.

Internal Water Usage

Fresh water and recirculated white water usages are shown on Flow Diagrams 1-3.

Fresh water is used for all showers on oliver savealls, Bird Screens, machine showers, and vacuum pump seal water. Fresh water is also used for make-up and dilution in white water storage tanks and Sveen-Pederson savealls.

White water is used for dilution in oliver savealls, centri cleaners, Flat screens, Jonsson screens, consistency regulators, pulpers, and beaters. Fresh water is used in pulpers and beaters at start-up only. Brown stock saveall water is returned to the pulper for chemical and heat recovery. Approximately 50% of this flow is also sewered. All machine white water is designed to pass

through the Sveen-Pederson savealls. However, numerous occasions occur in which machine seal pit waters overflow directly to the sewers resulting in high losses of usable fibre.

By reference to Tables 3 and 4 it is observed that the Sveen-Pederson savealls are doing an excellent job of fibre recovery, providing effluents of re-usable quality.

In consideration of the flow values observed during the survey there is little indication of very much water conservation. This factor is borne out by observations of continuous fresh water flows into white water storage tanks, and flotation savealls. There were also instances of fresh water hoses running for no apparent reason. This would simply be a matter of good housekeeping. These flows while singularly minor, can add up to considerable volume during the course of 24 hours.

Fibre analysis of the clarifier underflow indicate 11-15% 100-mesh fibre content. The recovery in this respect is reasonably good but losses could be reduced further. However, the origin of most of this sludge is the pulping process in Mill A, and does not include fibre losses which are directly sewered in Mills C and D.

The re-use of white water has been successful with some mills and unsuccessful with others. It is generally accepted that white waters containing 0.5 lbs solids/1000 gals. or less can be re-used satisfactorily with present shower equipment. The re-use of flotation saveall effluents on all oliver saveall showers, Bird Screen showers and vacuum pump seal water will substantially reduce fresh water usage. The higher solids content machine waters should be re-used for make-up and dilution at the pulpers, beaters, side hill screens, centri cleaners, mixing

Table 3
Allied Paper Company
Bryant Division
Test Data

November 28, 1962 - Sveen-Pederson Saveall Solids Recovery Efficiency. 10:30 A. M.

Machine Number	Influent lbs/M gal.	Effluent lbs/M gal.	Percent Recovered
5	15.0	0.25	98
6	10.3	1.50	86
7	10.0	0.25	97
8	5.0	0.08	98
9	31.0	0.16	99
Maximum	31.0	1.50	99
Minimum	5.0	0.08	86
Average	14.2	0.45	95

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Table 4
Allied Paper Company
Bryant Division
Test Data

December 3, 1962 - Sveen-Pederson Saveall Solids Recovery Efficiency. 10:30 A. M.

Machine Number	Influent lbs/M gal	Effluent lbs/M gal	Percent Recovered
5	7.3	0.75	90
6	20.2	0.21	99
7	7.2	2.31	68
8	3.9	1.29	67
9	45.7	0.83	98
Maximum	45.7	2.31	99
Minimum	3.9	0.21	67
Average	16.8	1.07	84

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chests, and stock chests.

Fresh water consumption could be substantially reduced by the installation of high pressure low volume headers on all machine wire showers. Felt conditioner showers could be converted to traveling steam jets and vacuum pump seal water converted to white water.

A general program of water economy should be initiated to reduce fresh water usages and return white waters to the most appropriate re-usable phase of the process. With the present laxity in water conservation it appears that additional white water storage is needed, however, it is believed that if water consumption is reduced as outlined in this report, present storage facilities may be adequate for the future.

White water storage and seal tank overflows should be regulated or controlled by adequate pumping or warning systems so as to prevent overflow into the sewers.

Conclusions

1. Fresh water usage for a mill of this type is excessively high.

2. Fibre recovery is reasonably good. However, present fibre losses could be further reduced with better control of the process.

3. The clarifier is not overloaded at this time. Solids removal is slightly lower than would be expected under these conditions. However, if present volumes of waste discharges of the Bryant Division were passed through the clarifier, it would be overloaded hydraulically, and present levels of efficiency would be lowered.

4. Means for accurate measurement of flow should be provided for all outfall sewers, or all sewers flows combined into a single discharge including an appropriate means of flow measurement.

5. Increased solids recovery within the individual mills is possible with better regulation of waste flows.

4. Extension of existing water re-use practices should definitely be considered in a long-range plan to recover and retain the highest quality solids in the highest quality furnish and reduce the pumping costs involved in waste disposal.

Recommendations

1. Convert vacuum pump seal water to white water seal.

2. Convert oliver saveall and Bird Screen showers to white water.

3. Convert machine wire shower headers to high pressure low volume headers.

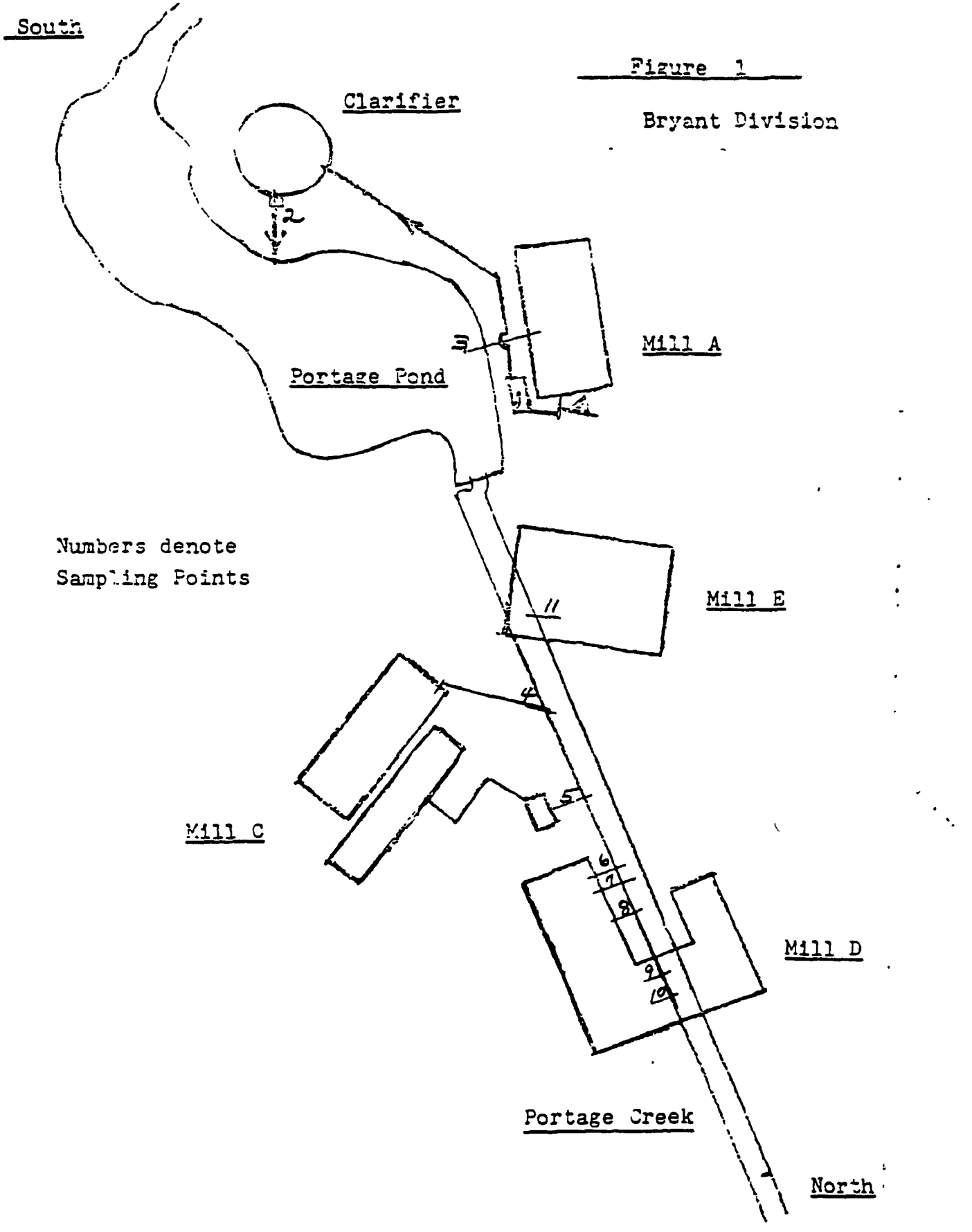
4. Convert felt conditioner showers to traveling steam jets.

5. Provide better control of white water and seal tank overflows by adequate pumping or warning systems to prevent overflows into the sewer.

6. Re-use white water at all possible locations suggested in the body of this report where quality of product is not diminished by its re-use.

7. Reduce fresh water usage to minimum required flows at all possible phases of the process.

Emphasis should be placed on a program to exercise better in-plant control and to reduce waste flows now discharged. Concentration of waste into minimum volumes by reduction in fresh water use and increased re-use of white water is necessary prior to development of final treatment plant designs. This procedure is desirable so that final treatment costs may be minimized and evidence to date indicates that the biological process itself will be more efficient with concentrated waste.


South
Clarifier
Figure 1
Bryant Division
Mill A
Portage Pond
Numbers denote
Sampling Points
Mill E
Mill C
Mill D
Portage Creek
North

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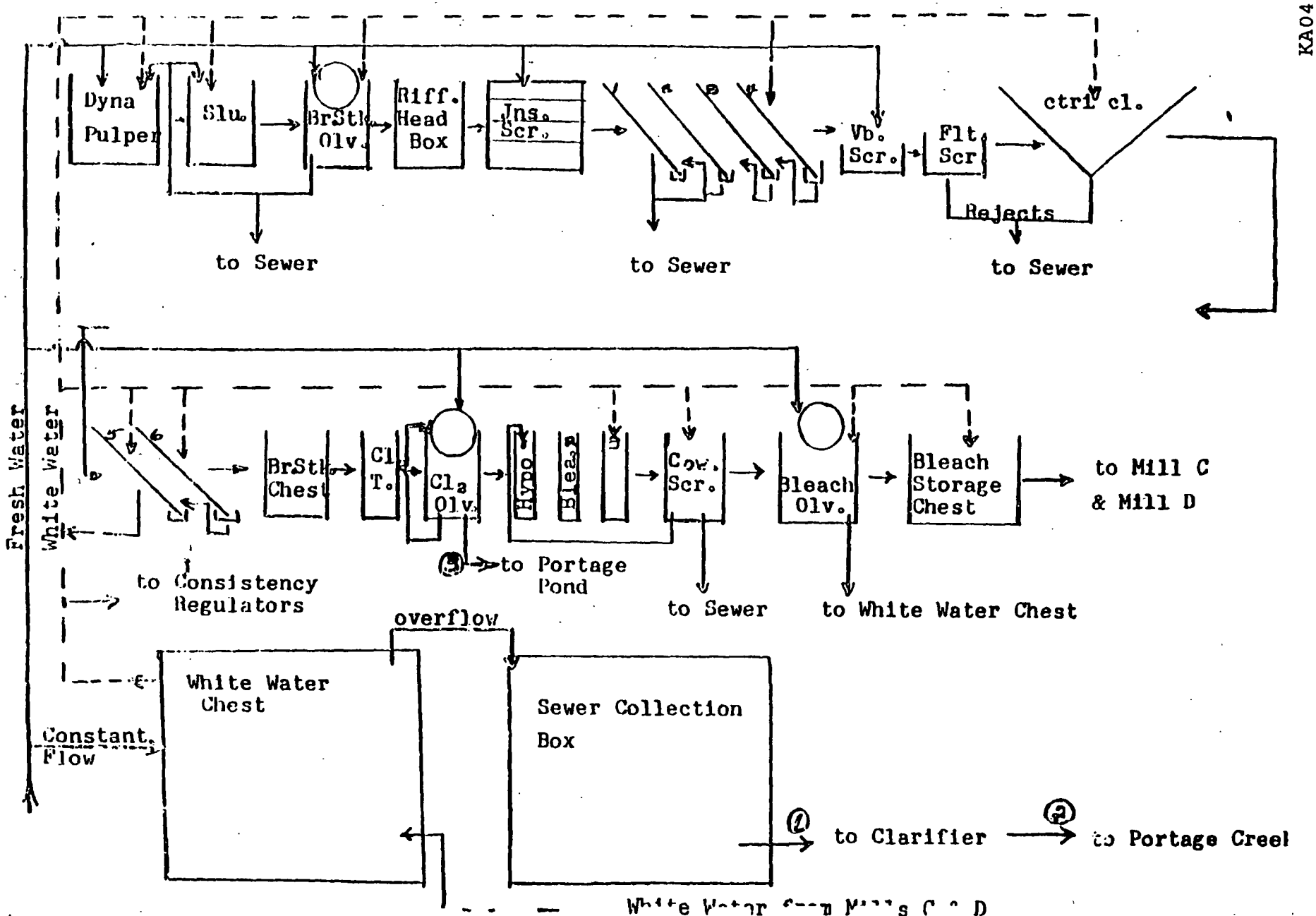
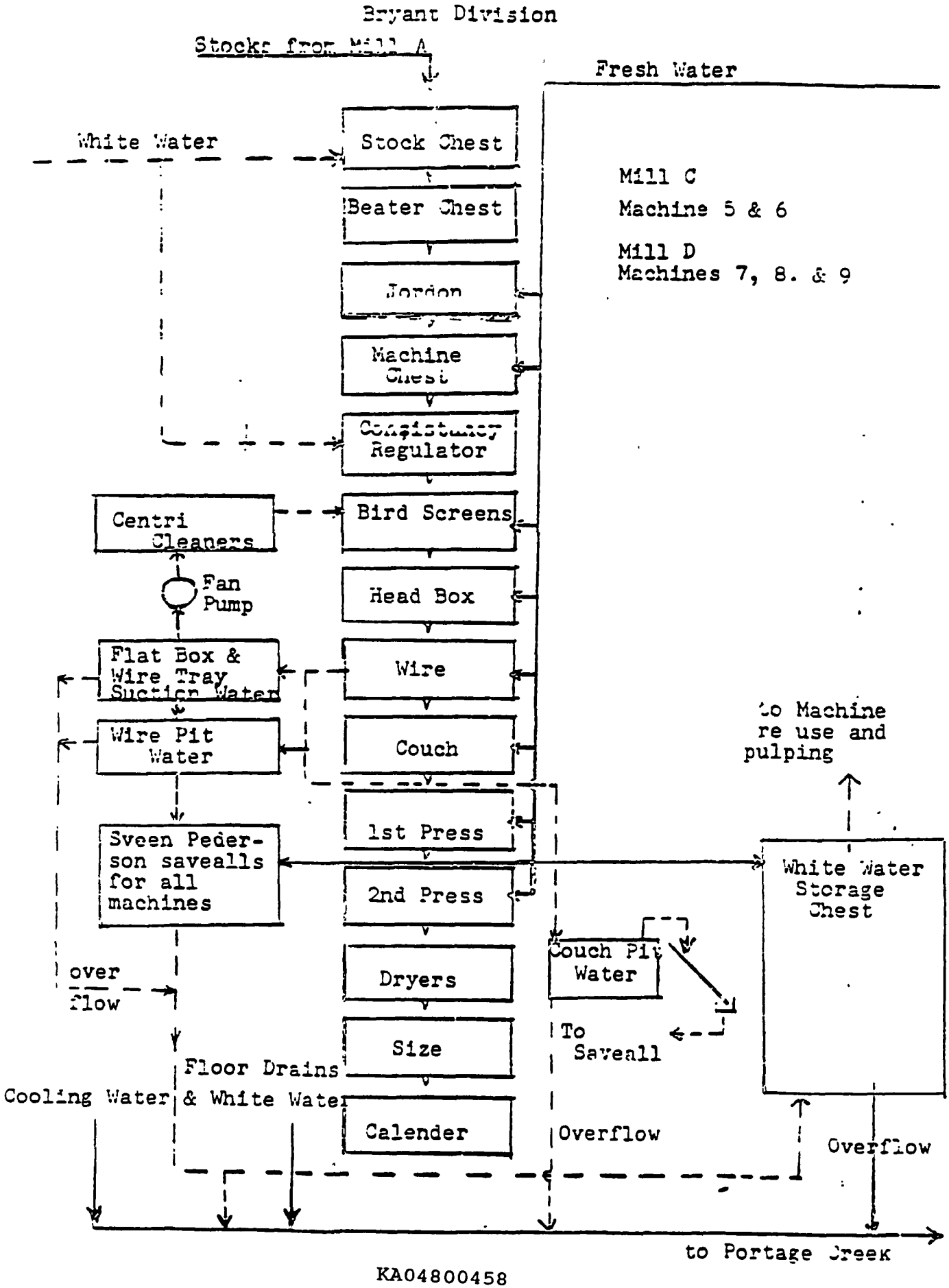
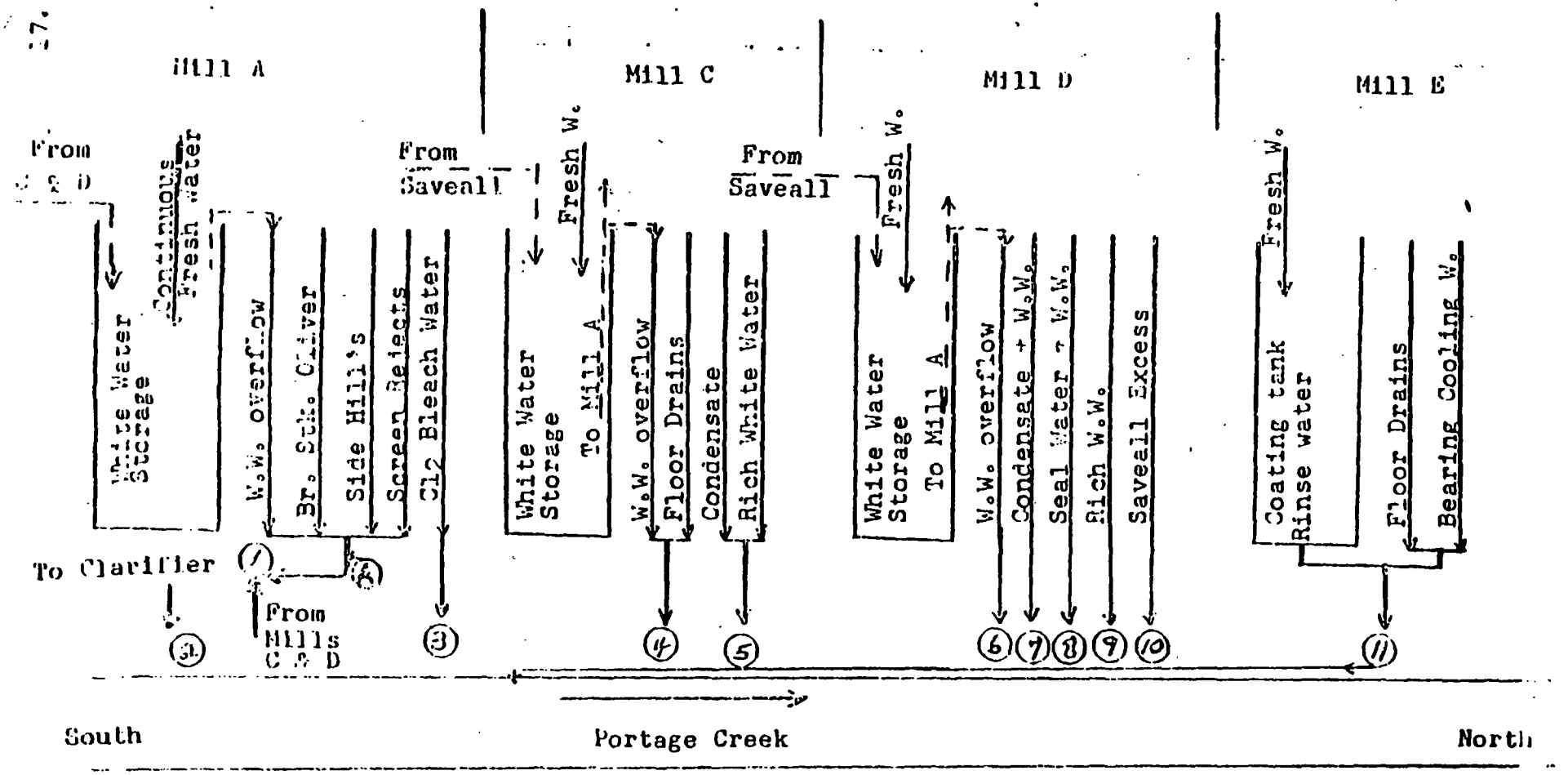
Allied Paper Company, Bryant Division

Pulping Flow, Diagram 1




Bryant Division
Stocks from Mill A
Fresh Water
White Water
Stock Chest
Beater Chest
Jordan
Machine Chest
Consistency Regulator
Centri Cleaners
Fan Pump
Flat Box & Wire Tray Suction Water
Wire Pit Water
Sveen Pederson saveall for all machines
over flow
Cooling Water
Floor Drains & White Water
Bird Screens
Head Box
Wire
Couch
1st Press
2nd Press
Dryers
Size
Calender
Couch Pit Water
To Saveall
Overflow
Mill C
Machine 5 & 6
Mill D
Machines 7, 8. & 9
to Machine re use and pulping
White Water Storage Chest
Overflow
to Portage Creek

KA04800458



Bryant Division

Flow Diagram 3

Sewer Composition, Sampling points and Discharge locations

Test Data
Bryant Division

November 28, 1962 - 8-hour Composite Sample

Suspended Solids

Sampling Point	Flow Mgd.	Before Settling ppm	Before Settling lbs/day	After Settling, 1 hr. ppm	After Settling, 1 hr. lbs/day	% Settleable
1	4.4	3600	116,000	40	1,465	98
2	4.4	1200	43,750	150	5,500	87
3	.9	60	450	50	375	16
4	.65	680	3,268	120	650	82
5	1.14	680	6,500	120	1,140	82
6	1.50	1120	14,000	60	750	94
7	-----	1600		40		
8	1.35	2040	23,000	120	1,350	94
9	.85	8200	58,000	60	425	99
10	.02	400	66	40	6	90
11	.65	3000	16,200	400	2,160	87

Biochemical Oxygen Demand

						% Removed
1	4.4	800	29,300	400	14,650	50
2	4.4	390	14,400	340	12,500	13
3	.9	70	525	70	525	0
4	.65	360	1,940	32	173	91
5	1.14	90	850	25	236	72
6	1.50	275	3,450	120	1,510	56
7	----	260		100		
8	1.35	390	4,400	5	55	99
9	.38	940	6,650	30	212	97
10	.02	60	10	10	2	83
11	.65	750	4,070	300	2,450	40

Clarifier underflow 3.5% Solids 15% 100-mesh fibre

Sludge bed decant (continuous flow to Portage Creek approximately 20,000 gals/day.)

Suspended Solids - 4,200 ppm, 700 lbs/day
B.O.D. - 4,720 ppm, 790 lbs/day

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Allied Paper Company

Test Data

Bryant Division

December 3, 1962 - 8 hour Composite Sample

Sampling Point	Flow Mgd.	Before 1 hr. Settling ppm	Before 1 hr. Settling lbs/day	After 1 hr. Settling ppm	After 1 hr. Settling lbs/day	% Settleable
1	4.80	2,060	82,500	378	15,200	80
2	4.80	378	15,200	156	5,140	59
3	.90	4	30	2	15	50
4	.20	152	257	16	27	89.5
5	1.27	766	8,100	24	243	97
6	1.27	1,174	12,400	86	930	92.5
7	----	1,032		36		
8	1.85	1,570	24,200	62	970	96
9	.63	4,994	26,100	160	784	97
10	.02	520	87	2	nil	99.5
11	.20	140	234	4	7	97
A	2.20	2,800	51,000	100	1,830	97
			Biochemical Oxygen Demand			% Removed
1	4.80	640	25,600	190	7,560	70
2	4.80	320	12,600	310	12,400	3
3	.9	55	410	45	338	18
4	.2	100	167	10	17	90
5	1.27	200	2,120	19	202	91
6	1.27	260	2,750	20	210	93
7	----	100	-----	7	----	
8	1.35	210	3,250	22	340	90
9	.63	1,000	5,250	55	278	94
10	.02	55	9	16	3	21
11	.20	120	200	45	75	62
A	2.20	880	16,100	290	5,320	67

Clarifier Underflow 3.2% Solids 11.5% 100 mesh-fibre

Sludge Bed Decant (Continuous flow to Portage Creek approximately 20,000 gals/day)

Suspended Solids 46 ppm 7.5 lbs/day

BOD 460 ppm 75 lbs/day

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Allied Paper Company
Test Data
Bryant Division

November 21, 1962 - Grab samples were collected at major mill discharge points excluding clarifier influent and effluent. These sample results are listed below.

Sampling Point	Flow Mgd	Before Settling ppm	Before Settling lbs/day	After Settling, 1 hr. ppm	After Settling, 1 hr., lbs/day	% Settleable
			Suspended Solids			
3	.90	25	187	4	3	96
4	.64	320	1700	50	266	84
5	1.13	680	6400	110	1030	84
6	1.30	500	5400	75	935	83
8	1.50	1940	24,200	295	3700	88
9	.40	5160	17,200	750	2500	85
10	.02	40	6	4	----	90
11	.64	140	750	21	112	85
			Biochemical Oxygen Demand			% Removed
3	.90	120	985	100	750	24
4	164	37	200	15	80	60
5	1.13	87	830	38	360	56
6	1.30	75	820	38	420	49
8	1.50	390	4700	190	2380	49
9	.40	470	1570	170	565	64
10	.02	66	14	64	12	14
11	.64	38	210	30	165	21

Total Suspended Solids Before Settling	55,843
Total Suspended Solids After Settling 1 hour	8546
Average Suspended Solids Removed by Additional Settling	85.0%
Total B.O.D. Before Settling	9829
After Settling, 1 hour	4722
Average B.O.D. Removed by Additional Settling	49%

Report on Waste Disposal at
Allied Paper Company
Kalamazoo, Michigan

Part II King Division

Description of Mill Processes

The King Division produces approximately 200 tons per day of specialty papers on four Fourdrinier machines. Furnish for the operation consist of 170-180 tons of pulp prepared at the mill by an alkaline cook of waste papers consisting of magazines, books, and ledger. Twenty to thirty tons of purchased unbleached sulphite pulp is also re-pulped and blended with the reclaimed pulp. The digester liquor is recycled for heat recovery and dilution in the centrifflers and Johnson screens from whence it is discharged to the sewer.

All paper machines are equipped with Bird Screens and Sveen-Pederson saveall devices. All Machine shower and Bird Screen shower waters pass through the saveall devices. Saveall effluents are discharged to storage tanks for re-use except when colored papers are being produced. White Water tank overflows and colored waters are discharged through sewers directly to a primary treatment facility and thence to Kalamazoo River, the receiving stream.

Survey Procedures

To accomplish the objectives previously cited in Part I, a three day survey was conducted. The survey consisted of collecting 6-hr. composite samples at major mill waste streams. In addition to these samples, grab samples were collected at individual waste sources throughout the mill. Location of all sampling points are presented in Figure 1. All samples were analyzed for BOD, and

suspended solids content according to methods outlined in the 11th edition of "Standard Methods for Water and Waste Water". All laboratory data is appended to this report.

Sampling Points and Flow Sheets.

Major water use and re-use practices are indicated on Figures 1, 2, and 3. The major streams and respective sampling points are indicated by circled numbers on the appropriate flow sheets. A description of these points are as follows:

1. Clarifier Influent. The constituent of this sewer contains the total waste flow from the King Division.

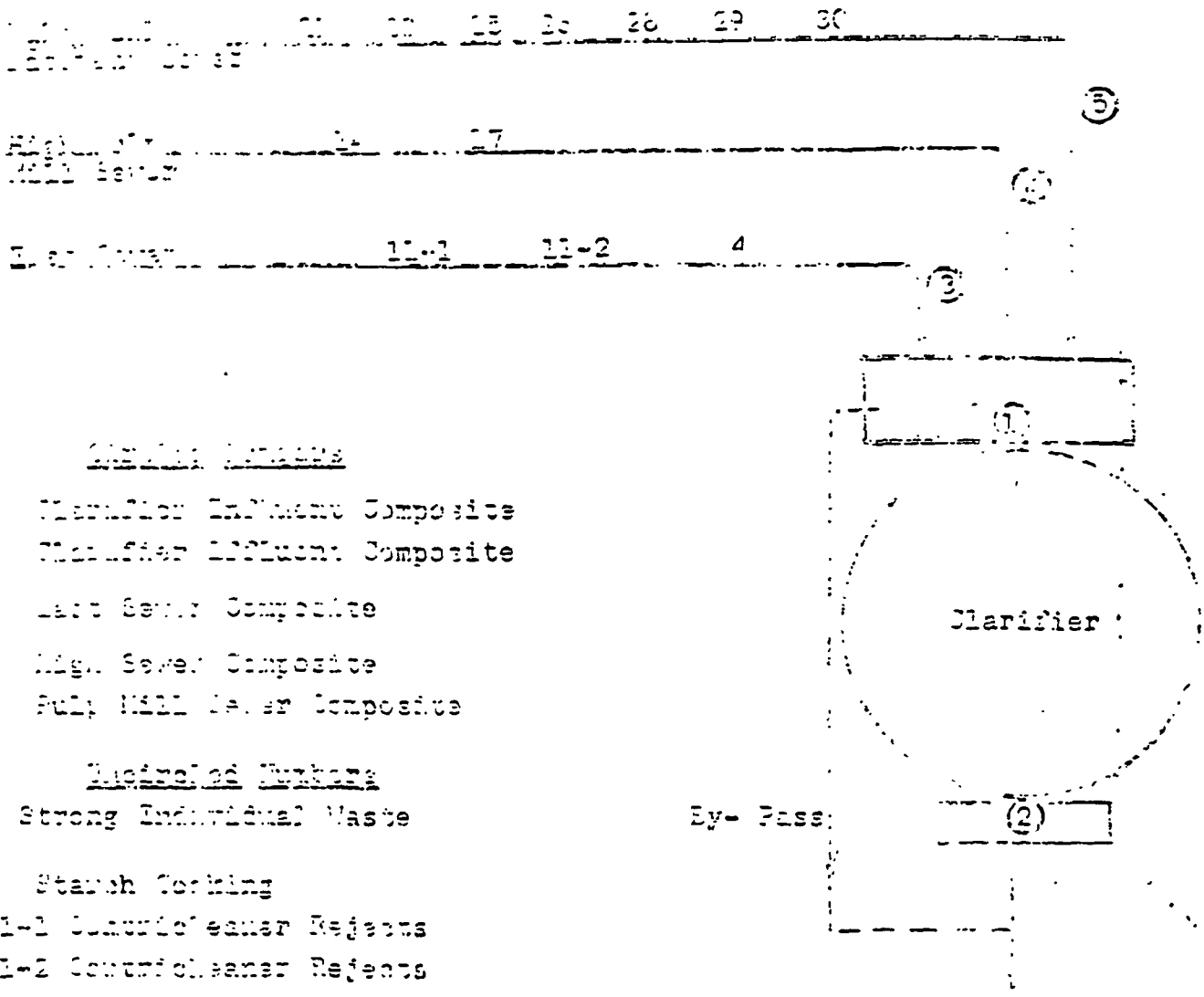
2. Clarifier Effluent. The characteristic constituent of this sewer is basically that of the above but weaker in content. This sewer is equipped with a 6 foot rectangular Weir and flow recorder.

3. East Sewer. The waste water in this sewer is composed of floor drains, centricleaner rejects, starch cooking, beater room, and No. 1 and 2 paper machines white water and white water tank overflows.

4. High Pulp Mill Sewer. The waste water in this sewer is composed of rich white water tank overflows, flat and cowan screen rejects, 1st and 2nd stage brown side hill wash water, 1st stage washer seal water overflows, No. 3 and 4 paper machine white water, East sewer and Pulp mill basement sewer overflow water.

5. Pulp Mill Basement Sewer. The waste water in this sewer is composed of Johnson screen rejects, 6th stage side hill water, Brown side hill room drains, vibrotor shower water, centricleaner rejects, 2nd and 3rd stage washer water, brown stock washer water and hypo bleach water.

Figure 1



Circled Numbers

1 Clarifier Influent Composite
2 Clarifier Effluent Composite
3 Last Sewer Composite
4 High Sewer Composite
5 Pulp Mill Sewer Composite

Uncircled Numbers

Strong Individual Waste

4 Starch Cooking
11-1 Centricleaner Rejects
11-2 Centricleaner Rejects
14 Rich White Water
17 Flat and Cowan Screen rejects
21 5th Stage Side Hill Water
23 Jannson Screen Rejects
25 Vibrator Shower Water
26 Centricleaner Rejects
28 Brown Stock Washer seal water
29 3rd stage washer seal water
30 2nd stage washer seal water

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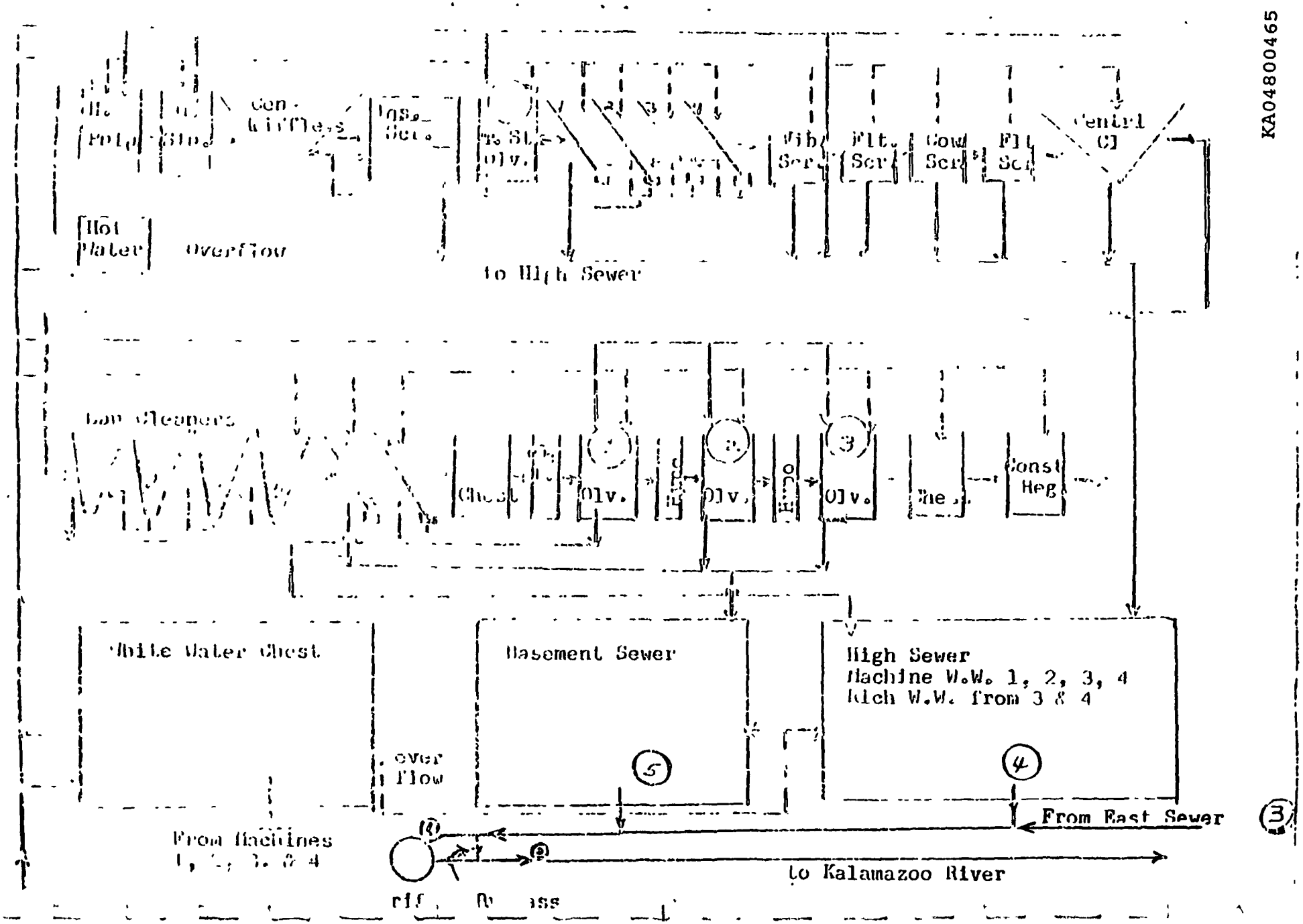
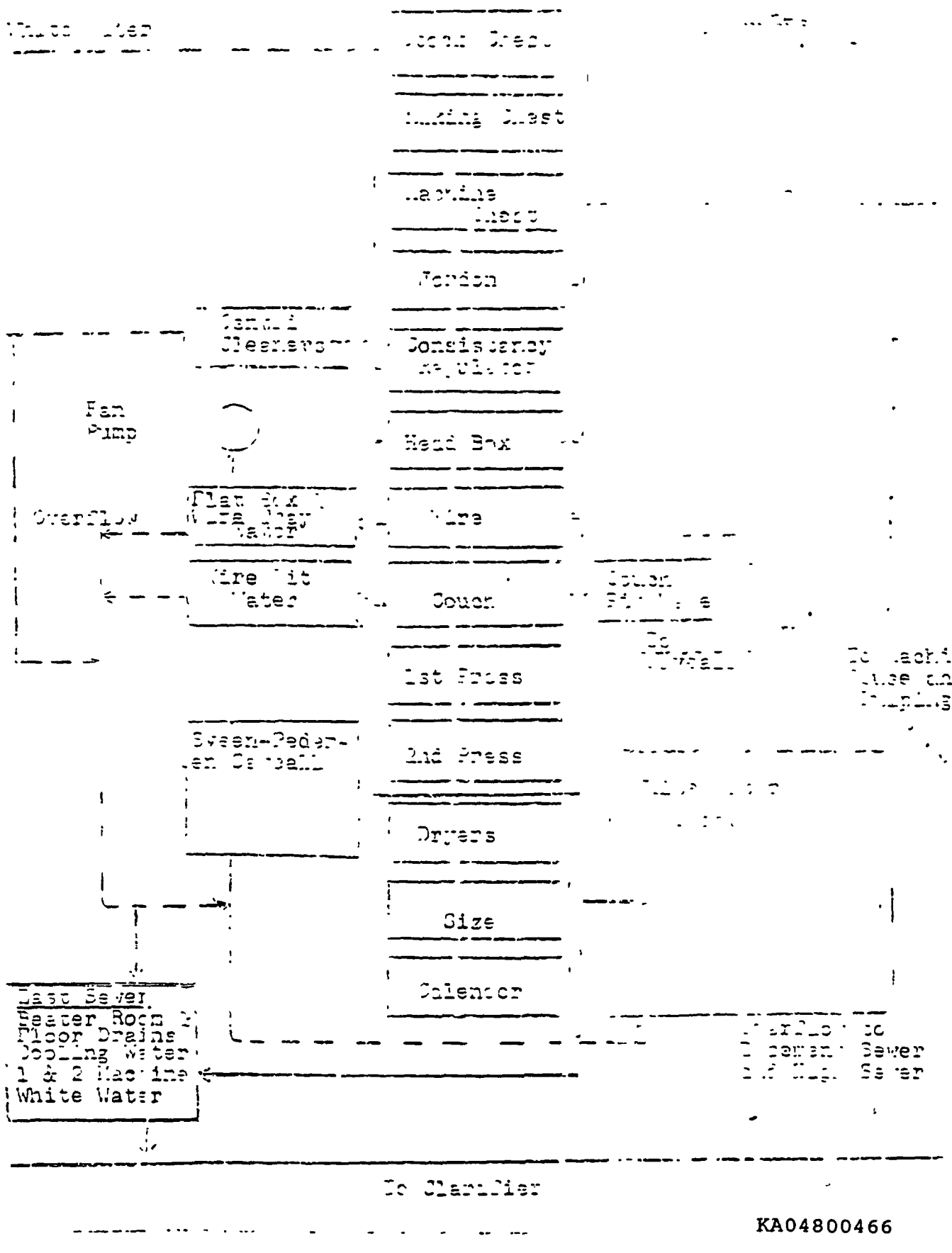
Figure 2

[illegible] Paper Company, Kling Division

Pulping Flow Diagram




Fan Pump
Overflow
Head Box
Wire
Couch
1st Press
2nd Press
Dryers
Size
Calender
To Chemical Sewer
To Clarifier
KA04800466

Flow Measurements

Flows for No. 1, and 3 were computed from average flow weir values observed during collection of samples. Flows for samples No. 2 and 5 were determined according to the following formula.

$$Q = VA$$

A= Cross sectional area of liquid in pipe in sq. ft.
V= Velocity of fluid in ft./sec.
Q= Flow in cubic feet per second.

Flow values for sample No. 4 was computed by difference of No. 1 and the sum of flows for No. 3 and 5. Under the existing condition at the mill, measurement of individual sewer flows by the above procedure are somewhat difficult.

Discussion of Results

The data collected during the survey are summarized in Tables 1, 2, and 3. The suspended solids and BOD after one hour settling refers to samples that were settled in the laboratory under quiescent conditions.

By reference to Tables 1 and 2 it is observed that the average total suspended solids of the combined sewers produced by the process at the King division is 816 lbs/ton. This is higher than the average of 600 lbs/ton for the deinking process. The BOD is known to average 186 lbs/ton at the King division, which is also higher than the average of 65 lbs/ton for the deinking process.

As previously stated in Part I, a well designed primary treatment facility for the removal of suspended and settleable solids in deinking waste should provide detention periods in the order of four hours with an overflow rate of 500-600 gallons per square foot per day. Under the present conditions of flow (average 7.4 mgd.) hydraulic loading provides 2.7 hours detention time and

Table 1

Allied Paper Company
Test Data
[illegible] King Division

Summary of Suspended Solids Removal

Sample	1/8/63 Total lbs/day	1/8/63 Percent Reduction	1/16/63 Total lbs/day	1/16/63 Percent Reduction	1/24/63 Total lbs/day	1/24/63 Percent Reduction
Clarifier Influent	221,700		107,400		162,050	
Clarifier Effluent	118,700	46.5	22,800	79.6	24,230	85.0
Clarifier Influent After 1-hr Settling	5,240	97.7	2,320	97.8	1,230	99.2
Clarifier Effluent After 1-hr Settling	6,680	94.3	6,800	70.0	815	96.7
lbs/ton Production	1,275		640		635	

Average lbs/ton 816

Table 2

Allied Paper Company
Test Data
King Division

Summary of BOD Removal

Sample	1/8/63 Total lbs/day	1/8/63 Percent Reduction	1/18/63 Total lbs/day	1/18/63 Percent Reduction	1/24/63 Total lbs/day	1/24/63 Percent Reduction
Clarifier Influent	34,420		25,800		61,850	
Clarifier Effluent	25,300	26.0	14,175	45.0	21,600	58.5
Clarifier Influent After 1-hr Settling	25,300	26.0	13,850	46.3	23,600	61.8
Clarifier Effluent After 1-hr Settling	18,500	46.2	14,175	45.0	19,700	68.0
Tons Produced	173		199		255	
lbs/ton Production	199		116		242	

Average lbs/ton 186
Average water usage gals/ton = 38,200

Table 3

Allied Paper Company
King Division

Data Summary of Grab Samples

Sample Source	1/6/63 BOD PPM	1/6/63 Sus. Solids PPM	1/24/63 BOD PPM	1/24/63 Sus. Solids PPM
1 Saveall Influent	240	408	370	3146
2 " "	140	6960	300	2452
3 " "	260	3483	240	2592
4 " "	190	1076	130	1466
1 Saveall Effluent	95	8	58	54
2 " "	60	32	55	20
3 " "	75	64	45	1080
4 " "	110	4	28	3
11-1 Centricleaners	420	30,448	730	28,144
11-2 Centricleaners	230	12,856	470	9424
4 Starch Cooking	2960	2470	320	20
14 Rich W.W. Overflow	205	8028	320	6872
17 Flat and C. Scr. Rejects	330	1748	730	2932
21 6th Stage Side Hill	230	1792	710	2080
23 Jns. Scr. Rejects	2560	7000	3280	8290
25 Vibrotor Shower	3040	3690	400	1048
26 Centricleaners	580	17,172	650	19,940
28 Brn. Stb. Seal W.	760	6330	1360	8610
29 3rd Stage Seal W.	160	320	210	236
30 2nd Stage Seal W.	310	576	-	-

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775 gallons per square foot per day overflow rates. Under these conditions an average of 70.4% and 43.2% of the settleable solids and BOD are removed respectively. It is further observed that 67% of the suspended solids now being discharged directly to Kalamazoo River are settleable.

The average BOD removal effected by the primary clarifier is observed to be 43.2%. It is further observed that 53.2% of the applied BOD may be removed by a good job of settling. Hence, under conditions of reduced hydraulic loading and additional 10% removal of BOD may be expected. Due to fluctuations in waste flows, direct by-passing of the clarifier to the river occurs intermittently throughout the day. Better regulation of these flows are needed to prevent future by-passing.

Internal Water Usage

Fresh water and recirculated white water usages are indicated in Figures 1, 2, and 3.

Fresh water is used for all showers on oliver saveralls, Bird Screens, machine showers, and vacuum pump seal water. Fresh water is also used for make-up and dilution in white water storage tanks, and Sveen-Pederson saveralls. Treated fresh water storage tanks often overflow into the sewers adding to the hydraulic loading to the primary clarifier.

White water is used for dilution in oliver saveralls, centri-cleaners, flat and cowan screens, Jonnson screens, consistency regulators, pulpers, and beaters. Fresh water is used in pulpers and beaters at start-up only. Brown stock saveall water is returned to the centrifflers and Jonnson screens for dilution and heat recovery. All machine white water is designed to pass through the Sveen-Peder-

tion curtain. On occasion machine seal pit waters overflow directly into the sewers.

By reference to Table 4 it is observed that the Sveen-Pederson saveall recovery is excellent, providing effluents of re-usable quality.

Observations of continuous overflow of fresh water supply tanks into the sewers and laxity in fresh water usage indicate some reduction in water usage could be accomplished. The resultant reduction in waste water flow volumes would be expected to improve BOD removal by 10% in the primary treatment facility. Existing fresh water usage at the King division averages 10-15,000 gallons per ton of product higher than the average usage for the deinking process. Although improved water economy would only moderately improve the efficiency of the primary clarifier, the reduction in waste flows would significantly reduce unit area requirements for secondary treatment.

Fibre analysis of the clarifier underflow indicate 20% 100-mesh fibre content. The recovery in this respect could be improved resulting in reduction of fiber losses and improved economy of operation.

The general observations and recommendations as specified in Part I, Bryant Division, may also be applied to the existing conditions at the King Division.

Consideration has been given to the possibility of segregation of some individual waste streams for primary treatment only, while others will require complete treatment. Reference to the data appended to this report indicate an average of 64% BOD removed in the east sewer by a well designed and operated primary clarifier.

Table -
Allied Paper Company
King Division
Test Data

Sveen-Pederson Saveall Solids Recovery Efficiency

1/8/63 - 11:30 A. M.

Machine No.	Influent lbs/m gal.	Effluent lbs/ m gal.	Percent Recovered
1	3.4	0.06	98.0
2	62.3	0.27	99.5
3	29.0	0.53	98.2
4	9.0	0.03	99.6
Maximum	62.3	0.53	99.2
Minimum	3.4	0.03	99.0
Average	25.9	0.22	99.0

1/24/63 - 9:30 A. M.

1	26.2	0.45	98.3
2	20.4	0.16	99.2
3	21.6	9.00	58.4
4	12.2	0.03	99.7
Maximum	26.2	9.00	65.6
Minimum	12.2	0.03	99.7
Average	20.1	2.41	12.0

[illegible] suggest that all flows into the East sewer may be [illegible] for primary treatment only. Optimum settling conditions for the pulp mill basement and High pulp mill sewers indicate [illegible] removal. Secondary treatment for these flows is [illegible] to provide high BOD removals. The segregation of waste streams for specified treatment at both the Bryant and King divisions appears to be possible. An investigation into the effects of hydraulic characteristics and other factors affecting waste flow segregation may indicate feasability of this plan, prior to formulation of secondary treatment plant designs.

A general program of water economy should be initiated to reduce fresh water usages and return white waters to the most appropriate re-usable phase of the process. White water storage and seal tank overflows should be regulated or controlled by adequate pumping or warning systems so as to prevent overflow into the sewers.

Conclusions:

1. Fresh water usage at this mill is moderately high.
2. Fibre recovery is only average and could be further reduced with better control of the process.
3. The clarifier is not overloaded at this time. Solids and BOD removal is average under the present conditions.
4. Increased solids recovery is possible with better regulations of waste flows.
5. Extension of existing water re-use practices should definitely be considered in a long range plan to recover and retain the highest quality solids in the highest quality furnish and reduce pumping cost in waste disposal.

Recommendations:

1. Convert vacuum pump seal water to white water seal.
2. Convert oliver saveall and Bird screen showers to white water.
3. Convert machine wire showers headers to high pressure low

vacuum headers

4. Provide better control of white water and seal tank overflows by adequate storage or warning systems to prevent overflows into the sewers.

5. Re-use white water at all possible locations suggested in the body of this report where quality of product is not diminished by its re-use.

6. Reduce fresh water usage to minimum required flows at all possible phases of the process.

7. Regulate waste flows so as to prevent by-passing of clarifier directly to the river.

Emphasis should be placed on a program to exercise better in plant control and to reduce waste flows now discharged. Concentration of waste into minimum volumes by reduction in fresh water use and increased re-use of white water is necessary prior to development of final treatment plant designs.

Allied Paper Company
[illegible] Division
Test Data

January 5, 1963 - 6-hr. composite sample
Fresh Water Usage 7.87 mgd.
Tons Produced 173

Suspended Solids

Sampling Point	Flow mgd.	Before Settling ppm	Before Settling lbs./day	After Settling 1-hr. ppm	After Settling 1-hr. lbs/day	Percent Settleable
East Sewer	1.19	4264	38,500	40	404	99.4
Pulp M. Bas.	2.18	3466	64,100	36	650	99.0
High Sewer	4.00	3572	119,100	36	1200	99.0
C. Influent	7.40	3600	221,700	65	5240	97.7
C. Effluent	7.40	1916	118,000	108	6680	94.3
		Biochemical Oxygen Demand				% Removed
East Sewer	1.19	290	2,680	50	495	83
Pulp M. Bas.	2.18	150	2,740	100	1820	33
High Sewer	4.03	860	28,800	140	4700	84
C. Influent	7.40	550	34,420	410	25300	26
C. Effluent	7.40	410	25,300	300	18500	26

lbs BOD/Ton produced 199

lbs Sus. Solids/Ton produced 1175

Sludge 5.1% Solids 19% Fiber

Allied Paper Company
Mill Division
Test Data

January 16, 1963 - 8-hr. composite Sample
Fresh Water Usage 7.1 mgd.
Tons Produced - 199

Sampling Point	Flow Mgd.	Suspended Solids Before Settling ppm	Before Settling lbs/day	After Settling 1-hr. ppm	After Settling 1-hr. lbs/day	Percent Settleable
East Sewer	1.14	2486	23,700	43	408	98.7
Pulp M. Bas.	2.65	1768	39,100	89	1960	95.0
High Sewer	3.01	1784	44,600	129	3230	91.3
C. Influent	6.80	1900	107,400	42	2380	97.8
C. Effluent	6.80	404	22,800	120	6800	70.0
		Biochemical Oxygen Demand				% Removed
East Sewer	1.14	350	3,340	75	710	97.9
Pulp M. Bas.	2.65	620	13,680	245	5400	60.0
High Sewer	3.01	350	8,780	200	5000	47.0
C. Influent	6.80	455	25,800	245	13850	46.0
C. Effluent	6.80	250	14,175	250	14175	00.0

lbs BOD/Ton produced 116

lbs Sus. Solids/Ton produced 540

Sludge 5.0% Solids 20% Fiber

Allied Paper Company
King Division
Test Data

January 24, 1963 - 6-hr composite Samples
Fresh Water usage. 8.55 mgd.
Tons Produced - 255

Suspended Solids

Sampling Point	Flow Mgd.	Before Settling ppm	Before Settling lbs/day	After Settling 1-hr. ppm	After Settling 1-hr. lbs/day	Percent Settleable
East Sewer	1.26	1578	16,550	59	620	95.8
Pulp M. Bas.	2.37	2434	48,000	182	3600	92.5
High Sewer	4.27	2740	97,500	102	3620	96.3
C. Influent	7.90	2463	162,050	20	1230	99.2
C. Effluent	7.90	368	24,200	10	615	96.7

Biochemical Oxygen Demand

						% Removed
East Sewer	1.26	355	3,730	110	1160	70.0
Pulp M. Bas.	2.37	1400	27,600	820	16150	41.5
High Sewer	4.27	700	24,800	480	17100	31.0
C. Influent	7.90	940	61,830	360	23600	61.8
C. Effluent	7.90	390	25,600	300	19700	23.0

Gals/Ton 33.5

lbs BOD/Ton produced 242

lbs Sus. Solids/Ton produced 635

Sludge - 5.2% Solids 22% Fiber

Allied Paper Company
King Division
Test Data

January 24, 1963 - 8-hr composite Samples
Fresh Water usage. 8.55 mgd.
Tons Produced - 255

Suspended Solids

Sampling Point	Flow Mgd.	Before Settling ppm	Before Settling lbs/day	After Settling 1-hr. ppm	After Settling 1-hr. lbs/day	Percent Settleable
East Sewer	1.26	1578	16,550	59	620	95.8
Pulp M. Bas.	2.37	2434	48,000	182	3600	92.5
High Sewer	4.27	2740	97,500	102	3620	96.3
.C. Influent	7.90	2463	162,050	20	1230	99.2
.. Effluent	7.90	368	24,200	10	615	96.7

Biochemical Oxygen Demand

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Pulp M. Bas.	2.37	1400	27,600	820	16150	41.5
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.als/Ton 33,500

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.bs Sus. Solids/Ton produced 635

.ludge - 5.2% Solids 22% Fiber

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SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

PAPER MILLS DIVISION KALAMAZOO MICHIGAN 49 03 (616) 345 7131

August 18, 1978

PRIVILEGED AND CONFIDENTIAL

Ms. Martha Woodward
Environmental Research Group, Inc.
117 N. First
Ann Arbor, MI 48104

Dear Martha:

As per our telephone conversation of August 17, I am enclosing four (4) samples of paper (20 gms. each) labeled sample A, B, C and D on which I would like PCB analysis. The results can be expressed either in PPM or PPB.

I would appreciate getting these results by August 25.

Thank you.

Yours very truly,

U. G. Stoeffler
Manager Process Development

br
Enclosures

bcc: P.Harrison
D.C.Kirk
M.Smith

SAMPLE IDENTIFICATION
A - 21.5# Cork Tipping O.N. 11-0943
B - 38 gm White Tipping O.N. 05J-1383
C - 646 Plug Wrap O.N. 11-0832
D - Rely Tampon O.N. 11-0951

SEP 5 1978

erg

To: Allied Paper Incorporated
2030 Portage St.
Kalamazoo, MI 49001

Attn: Les Stoeffler

Date: August 31, 1978

Subject: PCB Analysis

Certified by: Cynthia Crean Carl
Cynthia Crean Carl, Organic Laboratory Manager

Sample Date: August 21, 1978

Results reported in parts per million

ERG#	Sample ID	PCB Aroclor 1242	PCB Aroclor 1254	PCB Aroclor 1260
24498	A	Non Detectable	Non Detectable	Non Detectable
24499	B	Non Detectable	Non Detectable	Non Detectable
24500	C	Non Detectable	Non Detectable	Non Detectable
24501	D	Non Detectable	Non Detectable	Non Detectable
Detection Limit		0.10	0.20	0.15

ENVIRONMENTAL RESEARCH GROUP, INC. • 117 N. FIRST • ANN ARBOR, MICHIGAN 48104 • 313/662-3104

RECEIVED
APR 22 1976
U.G. STOEFFLER

THE KAR LABORATORY
1711 Merrill St.
KALAMAZOO MICHIGAN 49008
Telephone 381 9666

ANALYTICAL REPORT

Date: April 21, 1976

P.O. Number: 15057
4073-K-4-ALL

To: Mr. U. G. Stoeffler
Allied Paper Company
P.O. Box 2528
Kalamazoo, Michigan 49003

Re: Two (2) paper samples submitted on March 30, 1976 for Polychlorinated Biphenyls analysis.

Method: AOAC, 12th Ed., 1975, Art. 29.029ff.

Results:

	Polychlorinated Biphenyls
White Paper Tipping 10-0642	9.3 ppm
Yellow Paper Tipping 11-0729	3.5 ppm

Respectfully submitted,

THE KAR LABORATORY

John N. Karnemaat
John N. Karnemaat
Director

JNK:mro

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SA00043766

COPY

ST. REGIS PAPER COMPANY

2030 Portage Street

Kalamazoo 29, Michigan

COPY

April 10, 1956

Water Resources Commission
State of Michigan
P. O. Box 87
Lansing 1, Michigan

Attention: Loring F. Oeming, Chief Engineer

Re: Waste Treatment
Your Letter of February 17, 1956

Dear Mr. Oeming:

I was requested to answer your letter of February 17, 1956, as to what our action would be to comply with the original 1951 orders. As I understand it, this complaint is comprised of the following items:

1. All deink waste is not treated.
2. Increased B.O.D.
3. Low clarifier efficiency.

To correct Item No. 1. <u>All deink waste is not treated</u>, we propose the following:

(a) It was found after investigation that our final pumping station to our 100 ft. dia. clarifier was not handling its original rated capacity, thus allowing overflow directly to Portage Creek. These same pumps being three (3) in number have recently been supplied with maximum impellers and are now taking care of waste water without any overflow, with this exception, there are occasions when our trash racks become clogged with debris backing up to overflow. This happens very rarely and steps are being taken to correct this.

(b) In our investigations we find that a substantial amount of fresh water make-up now used in our deink mill can be eliminated probably in the range of 700,000 gals/day. This reduction would come from the utilization of excess white water from the paper mills, which is presently by passing our deink plant and being pumped directly to the final waste pumping station. To accomplish this will require substantial funds, funds which are obtainable only with executive approval from our New York office. The request has been submitted and approval should be forthcoming in the very near future. Completion date of this portion of project would be estimated for the end of June or middle of July. Our benefits from re-routing this water would be reduction of gallonage load on final pumping station, higher solids concentration to clarifier and longer retention time.

(c) As you will remember all waste waters from our paper mills and deink plant are pumped to our treatment plant. We feel that much of the

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water now sent on to the treatment plant from the paper mills would be sufficiently free of solids to permit sewering directly to Portage Creek, and stay within our 10#/ton of product or based on the survey of 1950, 1500#/day. We are planning to do this and feel that another 500,000 gallons/day would be removed from our current waste treatment load. This should be accomplished by May 30th.

(d) We feel that the sweep arm in our clarifier is rotating too fast and is detrimental to good settling. We have an inquiry out to the supplier to furnish a new gear reducer unit, and plan to install it as soon as a purchase and delivery can be made. Time of completion unknown, dependent upon manufacturer.

Item No. 2. Increased B.O.D.

At this time I am in no position to comment on this portion of our troubles, but we certainly expect some improvement with increased clarifier efficiency.

Item No. 3. Low Clarifier Efficiency.

This should show quite a bit of improvement due to forementioned corrective steps, such as reduced flow to clarifier, increased solids content, longer detention time and slower peripheral speed on sweep.

We trust this will give you some idea as to the way we are approaching our problem, and as time goes on and I am more familiar with our system, I hope we will be able to make further improvements. If you have any questions, please let me know.

At this time I would like to thank you for the courtesy extended by having your Mr. Purdy call on us last week.

Very truly yours,

S/ Robert S. Welch
Resident Engineer

RSW/ga

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SA 010989

INTER-OFFICE CORRESPONDENCE

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

CONFIDENTIAL

TO: Les Stoeffler **WRITTEN BY:** Jack Gilman

OFFICE: Kalamazoo **OFFICE:** Kalamazoo

SUBJECT: Portage Creek **DATE:** October 2, 1969

Our next goal in the clarification of Portage Creek should be to pick up the Chlorine Oliver drop leg water, which is now going directly into the Creek, and send it to the Monarch clarifier by way of the collection tank. Furthermore, it should be our aim to do this without increasing the present flow to the Monarch clarifier, which is about 3 MGD.

To accomplish this step, we need to pick up additional fresh water in "C", "D", and Monarch, totaling about 500,000 GPD, which is the approximate flow from the Chlorine Oliver. One such possibility occurred to me yesterday, and I mentioned it to Bob Dennany and Ray Willie; it is to put the size press water from Numbers 10 and 11 into the fresh water sump under No. 11 and thence directly into the Creek. This could give us a good start toward the half-million GPD that we are looking for.

I would like Engineering to come up with a proposal for pumping the drop leg water into the collection tank, with estimated cost. I believe that this could be included in the overall $100,000 project for Portage Creek clarification.

I would like Les Stoeffler to tell us of the effect this water would have on our pumps and pipes, and also how it would effect the operation of the Monarch clarifier.

Jack

Jack

EJG:jl

cc: Bob Dennany
Al Vickery
Ken Sweet
Dick Bennett

Bennett
EXHIBIT NO. 11
M. LANTIS 7/24/92

SCM CONFIDENTIAL

KA04500135

1K

April 29, 1963

Dr. Ward Harrison, President
Allied Paper Company
1608 Lake Street
Kalamazoo, Michigan

Dear Ward:

Please find enclosed results of samples recently submitted to this office for analysis.

The results of April samples from the King clarifier are inconsistent with previous data. An answer to this inconsistency may be found in the manner of sample collection and storage prior to analysis which is unknown to me since they were collected by mill personnel.

The results from the Bryant Clarifier reportedly represent the total flow from Bryant Division excluding mill E. Estimated flow reported to me was approximately 6 mgd. If these values are correct, a drastic reduction in BOD has been made possible by curtailment of deinking operations at Bryant division.

Due to my schedule of meetings and other work I will not be able to make a detailed re-survey of Bryant and King division operations until mid-June or last of June. At that time I hope all flows from Bryant division will be going through the clarifier.

Very truly yours,

William L. Carpenter
Regional Engineer

WLC/jh
cc. H.W. Gehm
Dr. Robert M. Levy
V.G. Stoeffler

NCASI 001145

ALLIED PAPER CORPORATION

RESEARCH AND DEVELOPMENT DEPARTMENT

Progress Report No. 8

Project No. 900

Subject: Bryant sewer loadings and determination of B.O.D. and solids removal by screening of Bryant wastes as well as Bryant machine centricleaner rejects.

Distribution

R. M. Levy
G. H. Baldauf
U. G. Stoeffler
H. R. Hall
B. Growald
R & D File

W. D. Harrison
J. D. Dailey
E. J. Gilman
W. Buenger

Date: January 24, 1963

By: P. H. Germann
R. J. Willie

Approved:

000777

Object:

1. To determine the components of Bryant waste streams.

2. To determine the reduction in B.O.D. and solids by screening Bryant waste.

3. To determine the machine centricleaner reject fraction of the total paper mill sewer loading and the reduction in loading by screening.

Procedure:

The individual sources of sewer loading were traced and designated on a plan of the mill sewers.

Composite samples were taken and tested for B.O.D. and solids. The screened solids was determined by pouring 500 ml. of sample through a 200 mesh sieve and filtering the component that passed through the screen.

Conclusions:

By screening Bryant sewer loadings were reduced 60 to 64 percent in B.O.D. and 22 to 76 percent in solids.

The sewer loading from the machine cleaners was 6000 to 15000 pounds per day or 7 to 17 percent of the total solids and 163 to 226 pounds per day or 1 to 1 5 percent of the total B.O.D.

The centricleaner loading by screening was reduced 50 percent B.O.D. and 48 percent in solids.

Discussion:

Sampling points at Mill "D" are designated as follows:

#5 Mill C waste.

#6 lateral sewers under machines at "D"
#7
#8

#9 sewers under beater room at "D"
#10

Samples were taken at each point each hour for four hours and combined for testing. All tests were run following standard laboratory procedure.

Centricleaner reject flows were measured with a pint cup and stop watch.

Results:

1. Attached to file copy.

   A. Drawing of Mill D sewer components.

   B. Drawing of Mill C sewer components.

2. Tables

   I Bryant machines waste solids and B.O.D.

   II Bryant machines centricleaner rejects.

   III Bryant machines waste reduction.

   IV Bryant machines centricleaner waste reduction.

gw

BRYANT MACI

12/18/62

SAMPLING POINT	pH	SOLIDS SUSPENDED #/M Gal.	SOLIDS SCREENED #/M Gal.	SOLIDS FIBER #/M Gal.	SOLUBLES (#/M Gal)	PPM BOD SUSPENDED	PPM BOD SCREENED	PPM BOD FILTERED	PH
#5	7.2	10	5	3	1	230	110	90	7.5
#6	7.4	3	2	1	1	120	80	56	7.6
#7	7.4	10	5	4	1	270	55	40	7.3
#8	6.6	17	2	14	2	512	240	122	4.7
#9	7.1	23	5	10	2	235	60	0	7.5
#10	7.6	1	0.5	0.5	1	0	0	0	7.6

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TABLE II

BRYANT MACHINES CENTRICLEANER REJECTS

MACH.	GRADE	1/8/62 ASH (%)	FLOW (Gal/Day)	BOD (#/Day) Raw	BOD (#/Day) Screened	SUSPENDED SOLIDS (#/Day)	FIBER (#/Day)
5	28#C# Bond 24# D.Bond	13 6.4	2,400	7	2	605	124
6	41# Union Bond	14.5	21,600	53	29	1100	470
7	30# E.B.	17	5,400	12	4	-	503
8	60# Church Bul.	12.6	5,400	22	9	3770	412
9	30# Imp. Bible	17	47,000	132	6	5760	1440

MACH	GRADE	1/10/63 ASH (%)	FLOW Gal/Day	BOD #/DAY RAW	BOD #/DAY SCREENED	BOD #/DAY FILTERED	SOLIDS #/Day SUSPENDED	SOLIDS #/Day SCREENED	FIBER #/Day	SOLUBLES #/Day
6	42# Custom	16	21,600	14	13	0	2020	942	348	7
7	25# Imp Bible	21	4,320	4	2	0	1342	771	423	7
8	45# Solar	15.4	10,800	20	16	0	1460	1340	390	18
9	50# Velour	2.4	36,400	125	54	40	1595	152	1320	91

SA 028991

TABLE III

BRYANT MACHINES WASTE REDUCTION

	ALLIED R & D			N.C.S.I. *	
BOD (ppm)	12/18/62	12/19/62	12/20/62	11/28/62	12/3/62
Total	1367		1081	2015	1825
After Screening	545		300		
% Reduction	60		64		
Solids (#/M Gal.)					
Total	64	112	62	110	66
After Screening	20	88	15		
% Reduction	69	22	76		

TABLE IV

BRYANT MACHINE CENTRICLEANER WASTE REDUCTION

N.C.S.I.* values for total amount from Mill "C" & "D".

	1/8/63	1/10/63		
BOD (#/Day)				
Total	226	163	17,825	13,546
After Screening		85		
% Reduction		48		
% of total loading	1.5	1.0		
Solids (#/Day)				
Total	15,235	6,400		
After Screening		3,200		
% Reduction		50		
% of total loading	17	7.0		

* N.C.S.I.

National Council for Stream Improvement Engineering Report.

KALAMAZOO INTER-OFFICE CORRESPONDENCE

ALLIED PAPER CORPORATION

Falvey
EXHIBIT NO. 5
M. LANTIS 9/1/92

April 22, 1960

To: R.A.Larson ✓

From: U.G.Stoeffler
R.J.Willie

101 T
403 T
701 T

cc: R.M.Levy
L.B.Owen
E.J.Gilman
T.Kayhart
D.Falvey
P.Hargard
W.Herbert

SUBJECT: Improvements and Repairs Needed on the Waste Treatment Plants. (Project No. 900)

With the advent of warmer weather and the approaching day of reckoning with the W.R.C. it is imperative that the present waste treatment plants and sampling equipment be put in first class condition so that they are operating at their best efficiency and that the sampling and testing equipment present the true condition of treatment. The following repairs should be made to improve the operation of the plants at King, Monarch and Bryant Divisions:

MONARCH DIVISION

1) Better methods of influent and effluent sampling is needed. Formerly this tank handled a greater influent. With the present lower flow of around 1 M.G.D. true composite influent and effluent samples are not obtained. It is recommended that for the influent, the bleed line from the pump be piped to the influent sample box. It is recommended that the effluent sample wheel be taken out of its present location behind the discharge weir plate and that part of the effluent be piped to an outside race and that the sampler wheel be placed on it.

2) Install a new weir plate on the effluent discharge from the clarifier. The present one was not replaced when the clarifier was put back in service during November, the plywood is delaminated.

3) Build up the ground level for a walk-way from the pump house around the West side of the tank to the effluent discharge. Water stands in this area making it difficult to reach the effluent sampler and recorder.

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4) Repipe all discharge from toilets in the mill to city sewers. Eliminating this waste from the waste system would reduce the B.O.D. and make some parts of mill waste, upon filtering or screening, reuseable in other parts of the mill.

BRYANT

1) Make sure that both sewer pulps from Mill C and Mill D located between the garage and Mill D are in working order at all times. As it is now, when one pulp is out for repairs, the other pump cannot handle all the waste water when one of the machines is on colors, consequently the colored water goes to the creek directly.

2) A new effluent sampler is needed. The sampler works only when the flow is high and quite often the tubing gets plugged from one day to the other. It is recommended a sampler wheel be placed in a new smaller outside race.

3) The stilling well for the effluent flow recorder needs a valved drain line on the bottom. After a time the settled solids build up to the point where the float rests on this sludge and gives incorrect readings.

KING

1) Repair and recondition the bar grates so that they are not continually causing shutdowns of the waste treatment system. During shutdown all the waste water is by passed directly to the river.

2) Complete the installations of the second Moyno sludge pump. The sludge level has built up too high in the clarifier thus reducing the settling volume, materially reducing the efficiency of the clarifier and resulting in higher solids tests in the effluent than the influent on many occasions. The second sludge pump will increase the pulping capacity and thus reduce the sludge level in the tank to the optimum level. However, if the dilution water to the Moynos is not closely controlled even two sludge pumps will not have sufficient capacity and of course, will increase the sludge volume to the lagoons unnecessarily.

3) Repipe all discharge from toilets in the mill to city sewers. Eliminating this waste from the waste system would reduce the B.O.D. and make some parts of mill waste, upon filtering or screening, reuseable in other parts of the mill.

4) Make new influent and effluent sampling devices. When a hydrapulper or stock chest is dumped to the sewer a greater amount of this fiber is found in the composite influent sample than should be to be representative of the time that this high fiber content was flowing into the clarifier. The influent sample is not representative in regards to solids either in many cases. The effluent sampler does not give a true composite sample because it doesn't turn at a rate varying with the flow rate due to eddy currents created with high flow. It is recommended that

a bleeder line from the pump be piped to the influent sample box instead of the present inlet. For the effluent sampler it is recommended that a sampler wheel be placed in a small new race outside the discharge chamber or possibly in the overflow launder near the effluent discharge.

NOTE: Please check with the writer before making effluent sampler wheels for further details.

At the King plant the Dorr-Oliver activated sludge pilot model also must be put into operational condition so that it can be operating before May 2, 1960.

KALAMAZOO INTER-OFFICE CORRESPONDENCE

ALLIED PAPER CORPORATION

May 13, 1963

TO: R. M. LEVY

cc: W. D. Harrison
J. D. Dailey
E. J. Gilman
J. Galloway
R. J. Willie

FROM: U. G. STOEFFLER
P. H. GERMANN

Project 301

RE: W. L. CARPENTER'S LETTER OF APRIL 29, AND PERFORMANCE OF ALLIED CLARIFIERS

In Bill Carpenter's letter of April 29, to Ward Harrison there are some statements which should be clarified and the B.O.D. results listed on the second page should include additional data to give the complete picture. Tables I, II and III are attached to this memo to cover the latter point.

In answer to Bill Carpenter's letter the following comments are made:

1. There has been a drop in influent B.O.D. from March to April though not necessarily indicating any inaccuracy as implied by Carpenter. The samples were collected by an automatic sampler over a 24 hour period and stored in the refrigerator until analysed in accordance with Carpenter's suggestions. The range of B.O.D. levels, namely bout 2 to 1 is within the variation encountered in the past.

2. The samples from the Bryant clarifier given to Carpenter were collected April 22, the first full day that all the waste streams from Mills C and D went to the clarifier. The flow was not 6 m.g.d. but as can be seen from Table II was 4.5 m.g.d. The results in Table II certainly indicate that; (1) the B.O.D. influent level has been drastically reduced, (2) the percent removal of both suspended solids and B.O.D. has increased, and (3) the flow is much less than predicted in Carpenter's earlier report on Waste Disposal at Bryant Division

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Previous work (Progress Report No. 8 - Project No. 900 - January 24, 1963) had shown that when treating paper machine white waters 60 - 64% of the B.O.D. could be removed by screening out the fiber on 100 mesh wire. The results on Table II show 100% fiber removal by settling which partly explains the increased percent of B.O.D. removal The other reasons for this excellent percent of B.O.D. removal is; (1) the lower hydraulic loading, (2) the higher percent of solids removal, (3) the lower soluble solids level, and (4) the lower pH of influents. One disturbing result is the wide range of fiber content of the influent samples. The high figure of 18,900#/day is 70% of the average of King's influent fiber content.

It should be pointed out that the two sewer lines from Mill E have not been connected to the sump going to the clarifier, but this work is in progress. The pump recently installed at the collection sump outside of Mill D is not adequate to handle the waste water from Mills C & D when two machines are on colored orders.

Progress has been made to conserve fresh water and reuse white water. However, further reuse of white water at the machines especially at Bryant is necessary, such as using white water for clay dilution. The sludge at Bryant is about 15% fiber and this fiber is fairly clean. The possibility of pumping the Bryant influent over the slide washers at Mill A before going to the clarifier should be investigated. The removal of most of the fiber by this way would reduce the B.O.D., increase the clarifier settling efficiency and improve the sludge dewatering in the lagoons.

Table III contains the B.O.D. results in Carpenter's letter and also some test results from the 24 hour composite samples taken at the Monarch clarifier April 3, 4 and 5. The B.O.D. content of the effluent on March 18, was high as well as the suspended solids level. The reason for this is the carry over into the effluent launder of the sludge blanket which in this case is nearly 100% fine unbleached fiber. This accounts for the low percent removal of B.O.D. and solids. At Monarch Division also it would be advisable to investigate the recovery of the fiber by putting the influent over a slide washer. All these results at Monarch were taken while running 100% One Time Carbon.

gw

SA 028971

SA00028971

TABLE I

KING DIVISION WASTE TREATMENT

TO: U. G. STOEPPLER

FROM: P. H. GERMANN

1963	NCSI BOD (PPM) INF	NCSI BOD (PPM) EFF	FLOW (MGD)	BOD (#/DAY) INF	BOD (#/DAY) EFF	SUSPENDED SOLIDS (#/DAY) INF	SUSPENDED SOLIDS (#/DAY) EFF	FIBER (# INF
3/12	616	363	8.0	41,000	24,200	154,000	84,000	27,400
3/13	668	364	6.7	37,400	24,300	181,000	60,300	25,100
3/14	593	350	6.5	39,600	23,400	196,000	92,000	31,400
3/18	490	310	6.5	26,800	16,800	124,000	70,500	21,100
4/21	305	300	7.2	18,300	18,000	189,000	104,000	35,000
4/22	320	290	7.0	18,700	16,900	168,000	60,800	24,500
	R & D BOD (PPM)							
4/23	410	248	7.1	24,200	14,565	144,500	71,000	21,300
4/24	405	354	7.0	23,600	20,600	180,000	134,500	34,200
4/25	412	317	7.0	24,000	18,500	173,000	73,800	26,900

SA00028972

TABLE II

BRYANT DIVISION WASTE TREATMENT

TO: U. G. STOEFFLER

FROM: P. H. GERMANN

CC: W. D. Harrison, Wm. Buenger, J. D. Dailey, G. H. Baldauf, E. J. Gilman, R. M. Levy

[illegible]	BOD (PPM)		FLOW	BOD #/DAY		SUSPENDED SOLIDS #/DAY		FIBER #/DAY		% REMOVAL		
	INF	EFF	MGD	INF	EFF	INF	EFF	INF	EFF	BOD	SUS SOLIDS	FIBER
4/22	120#	[illegible]	4.5	4,520	1,695	3,100	377	655	-0-	62.7	88.0	100
4/23	237	[illegible]	[illegible]	[illegible]	907	55,500	1,000	8,700	-0-	89.8	98.3	100
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1,370	3,600	-0-	83.7	97.7	100
	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	18,900	-0-	79.4	94.3	100

[illegible] NCSI

SA 028973

SA00028973

MONARCH WASTE TREATMENT - 1963

TABLE III

TO: J. G. STOEFFLER

CC: W. D. Harrison, R. M. Levy, J. D. Dailey, G. H Baldauf, E. J. Gilman, M. Carl

FROM: P. E. GERMANN

DATE	FLOW	SUSPENDED SOLIDS #/DAY		*BOD #/DAY		% REMOVAL	
		INF	EFF	INF	EFF	SOLIDS	BOD
3/16	1.6	5,860	-0-	2,800	134	100	95.2
3/17	1.5	4,250	500	2,060	125	89	93.9
3/18	1.5	3,750	1,750	2,190	937	53.4	.57
				FIBER			
4/3	1.4	3,500		1,050			
4/4	1.45	3,390		725			
4/5	1.45	4,120		1,210			

*NCSI

SA00028974

Kalamazoo, Michigan, . eside 5-7131

ALLIED PAPER CORPORATION

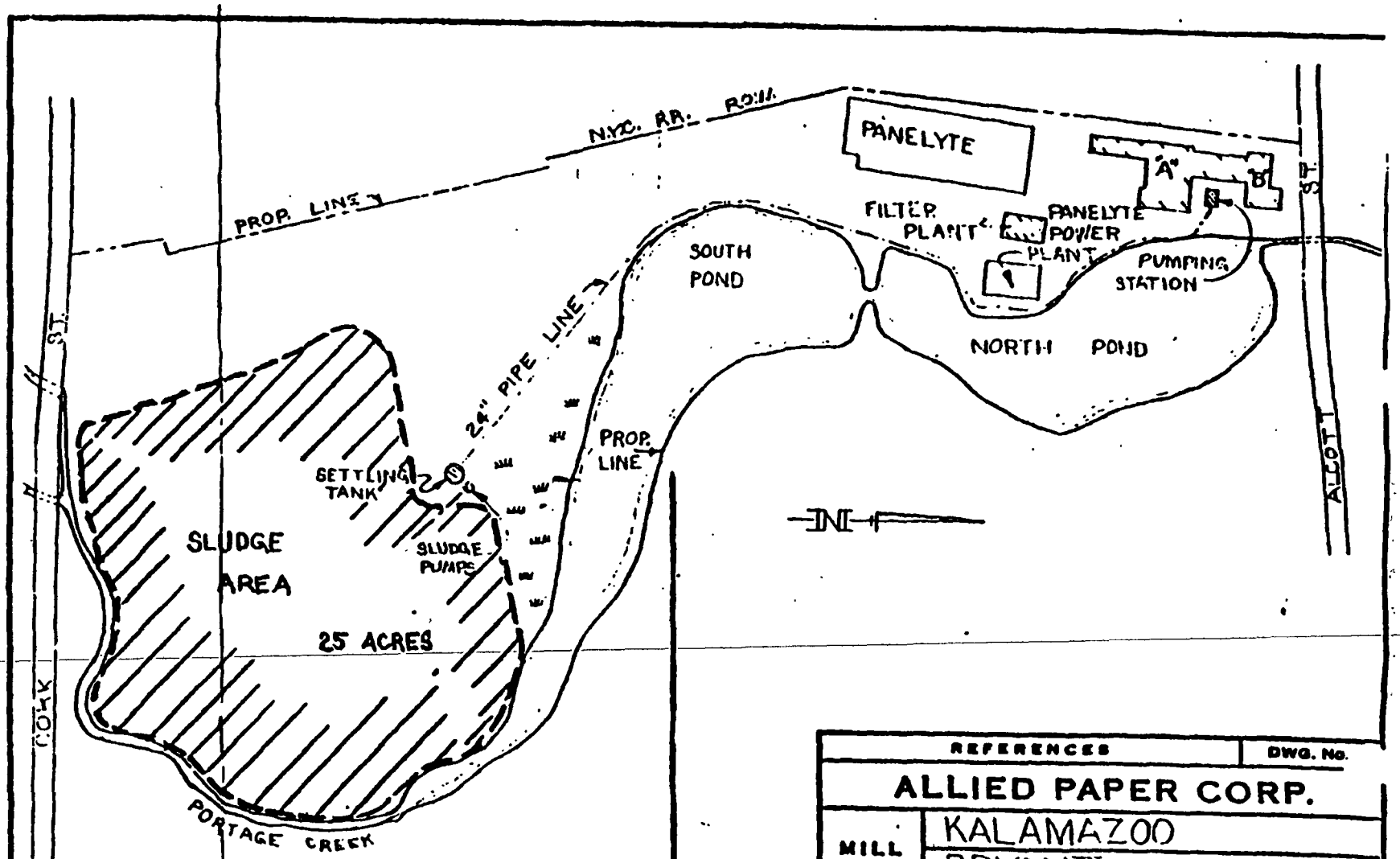
March 1, 1967

BRYANT DIVISION

The Bryant Division's water pollution control system consists of a 100 foot Dorr Oliver Clarifier with an initial capacity of 700,000 gallons. The average daily flow through this is 4,000,000 gallons. All process waters that are not re-used at Bryant Mill C are pumped to a sump at Mill D. Together with the process water that is not re-used at Mill D, the sump pumps the waste water about 1,000 feet to a larger sump at Mill A. The waste process waters from Mill A joins the other waters at this sump. This sump has three large pumps which alternate with the influent flow and pump the waste water about 5,000 feet through a 20-inch line to the clarifier. The waste water (influent) enters the center ring of the tank where a "settling out" process takes place.

As the solids (clay, fiber, etc.) settle out, the rotating scraper arms move the solids to a pit in the bottom center of the tank. Here a moyno pump removes the solids to one of several drying beds adjoining the clarifier area. These beds cover an area of about 25 acres. The clear water (effluent) overflows into the laundering ring and then through a weir to a pipe running about 1,000 feet to the Bryant Pond (Portage Creek). The weir also has a recorder attached to measure all flow to the pond.

MDNR00004502



REFERENCES	DWG. No.

ALLIED PAPER CORP.

MILL: KALAMAZOO / BRYANT

TITLE: BRYANT SLUDGE BEDS

REVISIONS		

SCALE 1" = 400' Approx	NO.	DAY	YR.	DWG. No.
DRAWN R.A.P.	12	29	58	F-937
TRACED				
CHECKED RR	2	27	66	
CHECKED				
APPROVED				

MDNR0004503 MDNR 004503

April 4, 1990

To: R. M. Levy
E. J. Gilman

From: U. G. Stoeffler

Re: Errant Streams in Portage Creek

Since the Water Resources Commission is going to be placing focus on Portage Creek in the near future, I think it would be advisable to clean up some errant streams in the Portage Creek from Mill C, Mill D and the Power Plant. There is some leakage of white water near the East side of Portage Creek just beyond the Bryant Street overpass next to the regular Mill C white water line. The continuous blowdown from the hot lime soda softener in the power plant flows through a pipe under Mill D and enters the Portage Creek just beyond the overpass to the Blade Coater. While this is not a large stream, it is light brown in color and is very evident when the creek level is low. When the creek level is high, the discharge pipe is covered and cannot be seen. Down the creek another 50 feet is a goose-neck vent pipe from the white water line from Mill D which flows into the creek spasmodically whenever the load on the pump is too great. When #8 is running color this stream is particularly obvious.

I mentioned these streams to Pete Dekker and Ken Sweet in the past and again this morning and told them of the importance of correcting them at this time.

/deo

cc File 300

COPY

Gilman
EXHIBIT NO. 640
8-12-97
T. SPARKMAN

Gilman
EXHIBIT NO. 51
1-19-93
P. MORETTI

000801

KA04800141

SA 828950

INTER-OFFICE CORRESPONDENCE

SCM. ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

TO: A. E. Vickery

OFFICE:

WRITTEN BY: B. Herbert

OFFICE:

SUBJECT: Waste Water System - Bryant Division

DATE: March 9, 1970

A brief recap of our present system seems to be required in order to fully evaluate any changes or additions required. I will endeavor to bring you up to date on our present system.

At Mill "A" all the waste water is collected in the pumping station going to the Bryant Clarifier. The only exception is the excess chlorine seal box water which goes to the steel tank at Mill "A" and then to the Monarch Clarifier. To date we have not experienced trouble with Mill "A" overflowing to the creek.

At Mill "C" we have a gravity system to the collection station at the south end of Mill "D". It is not a problem at Mill "C" with any waste water going directly to the creek. The only possible exception is with the oil that goes out with the "clear" water system. If we overload the gravity line it would result in flooding in the Beater Room basement

The one exception in Mill "C" is the 50 ton D.I. storage chest or an accident causes a leak in the piping, pumps, etc. this goes directly to the creek thru the storm sewer system at the west side of the Mill "C" buildings.

Mill "E" has none of the waste water collected at the present time. Everything flows directly to Portage Creek.

Mill "D" is the complex system. The Machine Room is divided into two basic systems. The clear fress water is collected and goes directly to the creek.

The waste water goes into basement sewers to a pumping station in the N-W corner of the Machine Room. We have a single pump to handle the water to the pumping station at the south end of Mill "D". We have three gates in the Machine Room that go directly to the creek. If the sump pump fails the gates are raised and the waste water goes directly to Portage Creek.

The Beater Room area is in three systems. The east side of the Beater Room is two systems. Clear water is collected and sent to the creek directly. All waste water goes to the sewers and is collected in a sump This is then pumped to the collection station at the south end of Mill "D". Again we have only one pump to handle the waste at the Beater Room sump.

Gilman
EXHIBIT NO. 22
1-30-93
P. MORETTI

KA04800197

SH 0309

In the event of a pump failure we have a gate to remove letting the sewers dump into Portage Creek.

All the sewers and both Sveen Savealls for #8 and #9 Paper Machines dump into sewers on the west half of the Beater Room and go directly to Portage Creek.

The waste water from the Blade Coater and Color Prep system is collected in sumps and is sent to the collector station at the south end of Mill "D".

The waste water from the Power Plant water softeners is collected in a sump at the basement level of the Shipping Department and pumped to the collector station.

We have two pumps in the collector station at the south end of Mill"D" to send the water to the steel collector tank at Mill "A". These two pumps have a rating of 1500 GPM at 85' Head when new. Both pumps have to pump into a common line to Mill"A". These pumps will not keep up with the volume of water now sent to the collector station. This is especially true during wash-up on the weekends.

The origional line from these two pumps was a 12" pipe. In the fall of 1965 approximately 700 feet of the pipe in Portage Creek was replaced A 10" pipe was installed rather than the 12" existing. This has increas the head on the pumps thereby lowering the gallonage the pumps will handle.

Please set up a meeting with interested personnel to discuss what we are planning to do to correct and protect the system.

cc: D. A. Falvey
D. Krueger
K. Sweet
E. J. Gilman
File 900

WATER RESOURCES COMMISSION

Memorandum

Kalamazoo R

TO: R. J. Courchaine

FROM: Karl Zollner, Jr.

DATE: May 22, 1968

During the river sampling survey of May 21, 1968 the following industrial waste bypasses and other problems were noted:

1. Kalamazoo Paper Company #1 and #3 - As on all of our previous visits a small amount (approximately 10 gpm) of waste was seeping from the clarifier directly to the river. This is a maintenance problem. We did not sample this bypass this month.

2. Kalamazoo Paper Company #2 - We may have been looking at the wrong location to determine if this installation was bypassing directly to the river. It did not appear as if there were a bypass from the spot we have been looking at but a discolored area in the river was the same color as the influent to the clarifier. We collected a sample in the influent sump pit.

3. We collected another sample from Schippers Creek (the ditch that would carry any bypass from the Brown Company). Again the Creek did not appear to have paper mill wastes in it but did appear to contain fecal material. A sample was collected for analysis.

4. Auto-Ion Chemicals and Engineering Company - It appeared as if there had been a fairly recent spill of liquid material in the unloading area. The owner told us that this was due to the carelessness of truckers when they uncoupled their hoses. He had spread caustic on the ground in an attempt to neurtralize the acids that had been spilled. When asked about the sludges and oils in the open holding tank he said that eventual disposal would be to a landfill in Allegan County.

5. Allied Paper Company - Monarch or Bryant Division - We looked over the sludge holding ponds and found one area where sludge had spilled right down to the banks of Portage Creek. A photograph of this area was taken.

6. City of Kalamazoo Wastewater Treatment Plant - The plant was still experiencing difficulty with foam in their final effluent.

KZ:kn

cc: C. Harvey

MDNR 002488

MDNR00002488

R & E COPY DO NOT REMOVE

NATIONAL COUNCIL FOR STREAM IMPROVEMENT
SURVEY OF SETTLEABLE SOLIDS REMOVAL
EQUIPMENT AND WET SOLIDS HANDLING PRACTICES

Date 12-10-63

A. MILL DESCRIPTION

Name of Mill Allied Paper Co. (Bryant)

Mill Location Kalamazoo, Michigan

Capacity 180 tons

Pulping Process None

B. CLARIFIER SIZE AND EQUIPMENT DATA

Diameter 100 ft Center depth (water level to floor) 22' 2½"

Sidewall water depth 12'3¾" ft. Stilling well 5'5" ft x 16 ft dia

Skimmer provided? No Collection mechanism mfgr Dorr

Design torque on collecting mechanism at center 72,000 ft

Sludge collection sump ____ annular X pocket

Sludge draw off lines 8 inches, number 2

Sludge pumping facilities:

Manufacturer Moyno Type ____ each 15' dia.

Model CD 2L10H - CDQ 2L10 Rated flow 30-50 gpm

Actual flow ____ Variable speed yes

Pumping cycle, continuous ____ intermittent X

Is clarifier used as thickener? Yes Has thickening been attempted in clarifier? ____ Were there problems? ____

Is overload or breakage of collecting mechanism common? No

Is sludge line or sludge pump plugging common? No

SA00033416

Sedimentation system appurtenances:

Effluent screens 1" bar screen(Link Belt "thru-clean" mechanism

Effluent pumps 3 Allis Chalmers PWFV 3400 gpm 73' head

Pump cycle control float

Flow measurement devices 5' rectangular wier

Sampling devices continuous effluent and influent

Cost data:

Clarifier $160,000.00 Piping

Miscellaneous Link belt Effluent screw $7,000.

Remarks: (Describe operating problems and pertinent observations)

C. EFFLUENT AND SLUDGE CHARACTERISTICS

	Mill Effluent	Clarifier Effl
Flow, MGD	4.5 MGD	4.5 MGD
Total solids, ppm		
Percent ash		
Suspended solids ppm	48,100 #/d	1,090 #/d
Percent vol		
Settleable solids ppm		
BOD, ppm	7,125 #/d	1,090 #/d

Sludge Characteristics

Volume 41,000 GPD Solids content 7 to 10%

Ash content 84% Fibre content (200 mesh) 16 % dry coli

Remarks:

D. SLUDGE HANDLING PRACTICE

Dewatering

a) Storage basin with overflow _____ without overflow X

b) Drying beds: No. _____, Size _____, Soil type _____

How loaded _____

Sludge solids content _____

c) Mechanical dewatering Equipment _____ Mfgr _____

No _____ Size _____ Coagulant dosage _____

Loading rate lb/ft^2/hr or GPM _____

Cake handling facilities _____

Remarks:

Final Disposal

How disposed

How hauled

Where

Problems encountered

Sludge Disposal Cost Data

Cover land cost, bed cleaning cost, and trucking cost. Power used in mechanical dewatering, labor cost, Main enance costs

Remarks:

GENERAL INFORMATION AND SITE DATA

SA00033419 SA 033419

R&D FILE COPY DO NOT REMOVE

NATIONAL ADVISORY FOR STREAM IMPROVEMENT
SURVEY OF SETTLEABLE SOLIDS REMOVAL
EQUIPMENT AND WET SOLIDS HANDLING PRACTICES

Date 12-6-63

A. MILL DESCRIPTION

Name of Mill Allied Paper Co. (Monarch)

Mill Location Kalamazoo, Michigan

Capacity 48 tons/day average

Pulping Process None

B. CLARIFIER SIZE AND EQUIPMENT DATA

Diameter 90 ft. Center depth (water level to floor) 10' 1"

Sidewall water depth 12' 2¾" ft. Stilling well 9'6" ft. x 12 ft.

Skimmer provided? No Collection mechanism mfgr. Dorr

Design torque on collecting mechanism 72,000 ft.

Sludge collection sump annular X pocket

Sludge draw offlines 8 inches, number 2

Sludge pumping facilities:

Manufacturer Moyno Type Screw

Model Rated flow 100 gpm

Actual flow Variable speed X

Pumping cycle, continuous Intermittent X

Is clarifier used as thickener? Yes Has thickening been attempted in clarifier? Were there problems?

Is overload or breakage of collecting mechanism common? No.

Is sludge line or sludge pump plugging common? No

SA 033412

SA00033412

Sedimentation system appurtenances:

Effluent screens 1" bar screen

Effluent pumps 1 @ 4300 gpm shartle fan pump

Pump cycle control float

Flow measurement devices rectangular 4' wier

Sampling devices Yes

Cost data:

Clarifier $204,000.00 Piping

Miscellaneous

Remarks: (Describe operating problems and pertinent observations)

C. EFFLUENT AND SLUDGE CHARACTERISTICS

	Mill Effluent	Clarifier Effluent
Flow, MGD	1.5	1.5
Total solids, ppm		
Percent ash		
Suspended solids, ppm	4500 #/d	300 #/d
Percent ash		
Settleable solids, ppm		
BOD, ppm	2000	125

Sludge Characteristics

Volume 8,000-10,000 GPD Solids content 5%

Ash content _____ Fibre content (200 mesh) 25 % dry solid

Remarks:

D. SLUDGE HANDLING PRACTICE

Dewatering

a) Storage basin with overflow _____ without overflow _____

b) Drying beds: No. _____ Size _____ Soil type _____

How cleaned _____

Sludge solids content _____

c) Mechanical dewatering: Equipment _____ Mfgr _____

No _____ Size _____ Coagulant dosage _____

Loading rate lb/ft² hr or GPM _____

Cake handling facilities _____

Remarks:

SA00033414

Final Disposal

How disposed same lagoon landfill Where _____

How hauled _____ Problems encountered _____

_____

Sludge Disposal Cost Data

Cover land cost, bed cleaning cost, and trucking cost. Power used in mechanical dewatering, labor cost. Maintenance costs, etc.

_____

_____

_____

_____

_____

_____

Remarks:

_____

_____

_____

_____

_____

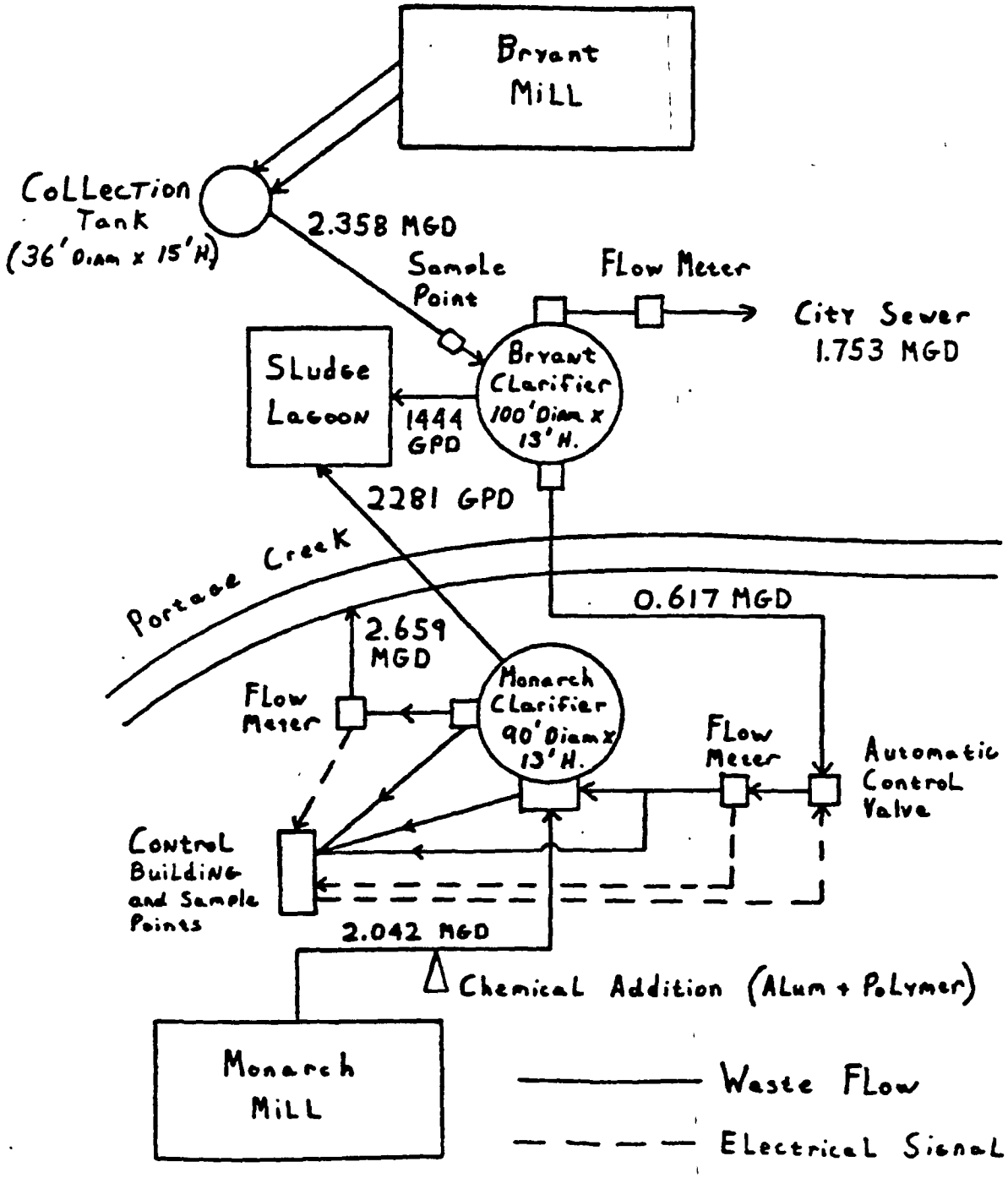
_____

_____

b. GENERAL REMARKS AND SKETCHES

SA00033415

ALLIED'S WASTE TREATMENT FLOW SCHEMATIC



☆ ALL Flow Figures Are For The Period of July 1, 1997 to Oct. 1, 1977.

			Allied Paper Co. King	Allied Paper Co. Monarch	Kalamazoo Paper Co.	Michigan Paper Co.	Rex Paper Company	St. Regis	Mac S… Bar
Production, tons	1950	Avg.	179.31	91.02	214.16	73.86	31.74	149.36	261.0
		Max.	207.78	113.28	259	101.62	28.15	196.21	287.5
	1955	Min.	156.66	83.02	210	83.38	12.96	171.35	211.0
		Avg.	192.32	100.21	237.25	93.51	20.86	181.33	268.0
Waste Flow, Million gallons per day	1950	Avg.	7.475	6.055	9.544	3.591	1.475	5.042	4.840
		Max.	7.6780	4.047	8.543	1.4105	1.305	7.044	3.017
	1955	Min.	5.5127	3.4319	7.549	1.3215	1.095	6.375	2.009
		Avg.	6.5381	3.660	8.087	1.3737	1.178	6.771	2.378
5-Day B.O.D., pounds per day	1950	Avg.	16,340	10,120	13,612	3,294	2,727	11,116	5,420
		Max.	19,210	12,106	18,789	4,409	2,426	18,897	6,254
	1955	Min.	9,474	6,476	14,083	2,870	1,953	12,337	3,229
		Avg.	15,501	9,140	16,422	3,722	2,140	16,837	4,770
Total Suspended Solids, pounds per day	1950	Avg.	53,720	31,868	78,313	22,098	10,340	76,544	15,69
		Max.	44,136	21,256	57,888	19,287	8,053	68,371	6,301
	1955	Min.	28,965	14,936	13,016	11,892	5,085	37,642	1,040
		Avg.	34,970	17,558	33,258	14,645	6,953	53,475	2,801
Population Equivalents	1950	Avg.	97,900	60,580	81,500	19,720	16,330	66,530	32,47
		Max.	115,029	72,491	112,508	26,401	14,527	113,155	37,44
	1955	Min.	56,731	38,778	84,329	17,185	11,694	73,874	19,33
		Avg.	92,820	54,731	98,335	22,287	12,814	100,820	28,56

064086

NCASI 1950-56 93-1585

REX PAPER COMPANY
KALAMAZOO, MICHIGAN

Survey No. 1	1st Shift	April 25, 1950
Survey No. 2	2nd Shift	May 9, 1950
Survey No. 3	3rd Shift	May 3, 1950

Type: Book Conversion Mill

Mill Water Supply

Well water is used as process water.

Waste Sources

All waste from the de-ink mill and also the waste water from the one paper machine is discharged through the one sewer. White water from the paper machine is used as make-up water in the de-ink washers before it is discharged.

Waste Measurement

Sewer No. 1 is an open earth channel directly south of the west end of the main mill building. A previously constructed weir box was reconditioned and a 2.0 foot rectangular metal edged weir (Weir No. 1) used to measure the flow.

Survey Procedure

A recording head meter was installed at the weir to obtain a continuous record of the flow during the three surveys. Samples were taken at half-hour intervals proportional to the flow at the weir and composited during each survey.

SURVEY NO. 1

April 25, 1950 - 1st Shift

Production: 21,160 lbs. (Average daily production)

Flow: 0.509 mg. Weir No. 1 (Total flow)

(Box # 6 & 12 STORAGE)

9206. B-7.3/002

Sample Analysis

	Total Waste	Settled Waste	Per Cent Reduction
5-Day B.O.D.	314	162	48.4
Total Solids	1,868	1,166	
Total Volatile Solids	802	460	
Suspended Solids	1,040	314	69.8
Suspended Volatile Solids	520	156	70.0
pH	8.50		
Settleable Solids	714		

All values in p.p.m. except pH

B.O.D.

Total Waste (0.509 x 8.34 x 314) = 1,332 lbs. Net to River

Pounds of B.O.D. Per Ton of Product

(1,332 ÷ 21,160) x 2,000 = 126.0 lbs.

Suspended Solids

Total Waste (0.509 x 8.34 x 1,040) = 4,410 lbs. Net to River

Pounds of Suspended Solids Per Ton of Product

(4,410 ÷ 21,160) x 2,000 = 417.0 lbs.

Suspended Volatile Solids

Total Waste (0.509 x 8.34 x 520) = 2,210 lbs. Net to River

Pounds of Suspended Volatile Solids Per Ton of Product

(2,210 ÷ 21,160) x 2,000 = 209.0 lbs.

NCASI 000541

Per Cent Fibre Loss

[209.0 + (2.000 x 0.95)] x 100 = 11.00%

Population Equivalent

(1,332 + 0.167) = 7,980 people per 8 hours

Gallons Waste Per Ton Product

(509,000 + 21,160) x 2,000 = 48,200 gallons

SURVEY NO. 2

May 9, 1950 - 2nd Shift

Production: 21,160 lbs. (Average daily production)

Flow: 0.472 mg. Weir No. 1 (Total flow)

Sample Analysis

	Total Waste	Settled Waste	Per Cent Reduction
5-Day B.O.D.	145	130	10.4
Total Solids	1,502	980	
Total Volatile Solids	700	362	
Suspended Solids	676	141	79.1
Suspended Volatile Solids	388	49	87.4
pH	8.60		
Settleable Solids	528		

All values in p.p.m. except pH

B.O.D.

Total Waste (0.472 x 8.34 x 145) = 571 lbs. Net Total to River

Pounds of B.O.D. Per Ton of Product

(571 + 21,160) x 2,000 = 54.0 lbs.

Suspended Solids

Total Waste (0.472 x 8.34 x 676) = 2.665 lbs Net Total to River

Pounds of Suspended Solids Per Ton of Product

(2,665 ÷ 21,160) x 2,000 = 252.0 lbs.

Suspended Volatile Solids

Total Waste (0.472 x 8.34 x 388) = 1,529 lbs. Net Total to River

Pounds of Suspended Volatile Solids Per Ton of Product

(1,529 ÷ 21.160) x 2,000 = 144.5 lbs.

Per Cent Fibre Loss

$[144.5 \div (2,000 \times 0.95)] \times 100 = 7.61\%$

Population Equivalent

(571 ÷ 0.167) = 3,420 people per 8 hours

Gallons Waste Per Ton Product

(472,000 ÷ 21,160) x 2,000 = 44,600 gallons

SURVEY NO. 3

May 3, 1950 - 3rd Shift

Production: 21,160 lbs. (Average daily production)

Flow: 0.494 mg. Weir No. 1 (Total flow)

Sample Analysis

	Total Waste	Settled Waste	Percent Reduction
5-Day B.O.D.	200	175	12.5
Total Solids	1,650	1,408	
Total Volatile Solids	772	676	
Suspended Solids	792	528	33.3
Suspended Volatile Solids	422	313	25.8
pH	8.05		
Settleable Solids	253		

All values in p.p.m. except pH

B.O.D.

Total Waste (0.494 x 8.34 x 200) = 824 lbs. Net Total to River

Pounds of B.O.D. Per Ton of Product

(824 ÷ 21,160) x 2,000 = 77.9 lbs.

Suspended Solids

Total Waste (0.494 x 8.34 x 792) = 3,265 lbs. Net Total to River

Pounds of Suspended Solids Per Ton of Product

(3,265 ÷ 21,160) x 2,000 = 308.5 lbs.

Suspended Volatile Solids

Total Waste (0.494 x 8.34 x 422) = 1,740 lbs. Net Total to River

Pounds of Suspended Volatile Solids Per Ton of Product

(1,740 ÷ 21,160) x 2,000 = 164.5 lbs.

Fibre Loss

$[164.5 \div (2.000 \times 0.95)] \times 100 = 8.65\%$

Population Equivalent

(824 ÷ 0.167) = 4,930 people per 8 hours

Gallons Waste Per Ton of Product

(494,000 ÷ 21,160) x 2.000 = 46,700 gallons

Summary

	Survey No.1	Survey No.2	Survey No.3	Total
Production-Tons	10.58	10.58	10.58	31.74
Flow-Million Gallons	0.509	0.472	0.494	1.475
Pounds of B.O.D. (Net)	1,332	571	824	2,727
Pounds of B.O.D. Per Ton Product	126.0	54.0	77.9	86.0 *
Pounds of Dry Solids (Net)	4,410	2,665	3,265	10,340
Lbs. of Dry Solids Per Ton Prod.	417.0	252.0	308.5	325.8 *
Lbs. of Vol. Solids (Net)	2,210	1,529	1,740	5,479
Lbs. of Vol. Solids Per Ton Prod.	209.0	144.5	164.5	172.7 *
Gallons Waste Per Ton Product	48,200	44,600	46,700	46,500 *
Fibre Loss-Percent	11.00	7.61	8.65	9.09 *
Population Equivalent	7,980	3,420	4,930	16,330

* Average of three surveys.

Remarks

All chemical analyses were made in the Water Resources Laboratory at the Health Department in Lansing. Samples were immediately transported to this laboratory and were iced during transit. The dilution water used to determine the biochemical oxygen demand of the waste waters was Lea-Nichols water and one per cent Plainwell settled sewage was used for seeding each dilution. All other analyses were made according to the Ninth Edition of "Standard Methods for the Examination of Water and Sewage."

When figuring per cent fibre loss the pounds of mill production is converted to a dry basis. For uniformity a product with five per cent moisture is assumed for all of the mills.

R. W. Purdy
W. S. Springer
W. H. Abbott
J. R. Couchois

NCASI 000546

1946
1950 1956

TABLE III MONARCH DIVISION

	W.R.C. Surveys Before Treatmont 1946	1950	W.R.C. Orders 1951	W.R.C. Surveys After Treatment Jan 1956
Paper Machine Production Tons/day	81.21	91.02		100.21
Waste Flow Million Gal/day	2.49	6.055		3.66
Gallons Waste/ton	30,700	67,533		36,580
Suspended Solids #/Day out	30,180	31,868	31,900	17,558
Suspended Solids #/ton Production	371.5	354.7		175.0
5 Day B.O.D. #/day	16,635	10,120	10,100	9,140
B.O.D. #/ton Prod.	131.0	113.6		91.3

KA0550091O
SA 028999

1946 1957
1950

TABLE II BRYANT DIVISION

		W.R.C. Surveys Before Treatment 1946	1950	W.R.C. Order 1951	W.R.C. Surveys After Treatment Fall 1955	May 1957	Allied Surveys Nov. 1957 To Jan 1958	Mar 31 to Apr 30, 1959
Paper Machine Production Tons/day		187.85	149.36			168.4		
Waste Flow Million gals/day		3.25	5.042		6.77	5.58	7.124	6.57
Gallons Waste/Ton		33,200	39,383			30,200		
Total Suspended Solids Pounds	in							
	out	67,535	76,544	76,500	53,475	34,844	54,270	57,645
Suspend Solids #/Ton Production	out	360	514			207		
% Susp. Solids Removal						64.0	47.1	52.6
5 Day B.O.D. Pounds	in							
	out	12,395	11,116	11,100	16,837	12,391	15,710	21,000
B.O.D. #/ton out Production		66.0	74.6			73.6		
% B.O.D. Removal						39.9	10.9	26.2
Volatiles #/day	in					42,400	41,795	85,450
	out					11,618	21,370	

KA0500909
59 028938

1946, 1950
1956,

TABLE I KING DIVISION

		W.R.C. Surveys Before 1946	Treatment 1950	W.R.C. Order 1951	W.R.C. Surveys After Treatment Jan 1956	May 1957	Allied Surveys Nov. '57 To Jan '58	Mar 31 - Apr 30, 1959
Paper Machine Production Tons/day		138.4	179.3		192.36	166.0		
Waste Flow Millions gallons/day		4.59	7.48		6.54	8.03	7.15	5.93
Gallons waste/ton		33,200	39,383		33,950	48,300		
Total Suspended Solids Pounds	in					137,100	113,670	105,560
	out	25,130	53,720	53,700	34,900	43,885	36,750	34,455
Suspended Solids #/ton production	out	181.6	301.2		181.7	264.5		
% Susp. Solids Removal						67.0	67.5	67.5
5 Day B.O.D. Pounds	in					25,050	23,150	34,700
	out	8,220	16,340	16,300	15,501	15,948	17,410	22,365
B.O.D. #/ton Production		59.4	90.9		80.7	96.2		
% B.O.D. Removal						36.8	20.5	32.7
Volatiles #/day	in					41,250	49,670	
	out					10,670	9,550	99,750

KA0550908

54 028997

Report of Survey

Allied Paper Company
Monarch Division
Kalamazoo, Michigan

Survey Periods:

November 3rd, 7:00 a.m. to November 4th, 7:00 a.m., 1953
November 4th, 7:00 a.m. to November 5th, 7:00 a.m., 1953

Type:

Book conversion mill

Mill Water Supply:

Portage Creek and well water

Production:

November 3rd	186,335 lbs.	93.17T
November 4th	239,290 lbs.	119.65T

Survey Procedure:

Effluent from the de-ink waste treatment plant is discharged through a four foot full channel weir. A record of the head over this weir was obtained by a continuous water level recorder. Influent and effluent twenty-four hour composite samples were obtained through the use of company installed equipment.

A portion of the bleach water was discharged directly to Portage Creek without treatment. This was discharged through a three foot full channel weir. A record of the head over this weir was obtained by a continuous water level recorder. A twenty-four hour composite sample of this waste was obtained through the use of a W.R.C. automatic sampler.

SA 039024

COMMISSION

Report of Waste Surveys

at

1955

St. Regis Paper Company
Kalamazoo, Michigan

Survey Periods: (24 hours for each)

July 20, 1955
July 21, 1955
July 22, 1955
July 23, 1955
July 24, 1955
July 25, 1955
July 26, 1955

Summary of Results

te	7-20	7-21	7-22	7-23	7-24	7-25	7-26
ow, million gallons per day	6.908	6.741	6.883	6.676	3.099	7.044	6.375
oduction, tons	196.21	174.53	171.35	173.32		189.66	183.00
Day B.O.D., pounds	18,897	17,709	18,771	18,373	4,730	12,337	14,940
Day B.O.D., pounds per ton paper	96.31	101.46	109.54	106.00		65.04	81.63
tal Suspended Solids, pounds	61,414	41,602	66,589	68,371	5,272	45,234	37,642
tal Suspended Solids, pounds per ton paper	313.00	238.36	388.61	394.47		238.50	205.69
tal Suspended Vol. Solids, pounds	20,740	12,818	22,502	23,384	1,396	9,047	7,443
tal Suspended Vol. Solids, pounds per ton paper	105.70	73.44	131.32	134.92		47.70	40.67
llons Waste per ton paper	35,207	38,624	40,169	38,518		37,140	34,836
opulation Equivalent	11[illegible]5	106,041	112,401	110,017	28,323	73,874	89,461
ettleable Solids Removal, per cent	[illegible].50	73.77	60.86	[illegible]c.23	113.74	71.42	86.38
hite Water Susp. Solids, pounds	0.0	0.0	0.0	0.0	0.0	0.0	0.0
hite Water Susp. Solids, pounds per ton paper.	0.0	0.0	0.0	0.0		0.0	0.0

Type of Mill Production

De-ink Mill

Mill Water Supply

Portage Creek above Allied Monarch Division augmented with city water. Creek water is filtered before it is used.

Waste Control

De-ink waste flows by gravity to the main pump house. White water is pumped from various collection points to the main pump house and then both de-ink waste

SA 039003

1967

	Period #1	Period #2
King Division	.972 MGD	.571 MGD
Bryant Division	4.79 MGD	3.43 MGD
Monarch Division	2.128 MGD	1.86 MGD
Total	7.89 MGD	5.86 MGD

TABLE 1 Laboratory analysis of composite samples

	King		Bryant		Monarch	
Parameter Survey Period	1	2	1	2	1	2
Concentration	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
5 day BOD	120	170	280	240	32	13
Suspended solids	72	46	204	214	28	16
Suspended volatile solids	29	32	74	62	13	12
Settleable solids	37	16	17	16	22	11
pH	6.9	7.3	6.6	7.1	7.3	7.5

TABLE 2 Pounds per day to Kalamazoo River

Period #1	King	Bryant	Monarch	Total
5 day BOD	972	11,200	568	12,740 #/day
Suspended solids	583	8,140	496	9,219 #/day
Suspended volatile solids	235	2,960	231	3,426 #/day
Settleable solids	299	679	390	1,368 #/day
Period #2				
5 day BOD	810	6,860	202	7,872
Suspended solids	220	6,120	248	6,588
Suspended volatile solids	153	1,775	186	2,114
Settleable solids	76.4	457	171	704.4

Pound per day was computed using following formula:

Flow (MGD) x concentration (mg/l) x unit wt. of water (8.34 lbs/gal) = lbs/da

TABLE 3 Paper production in tons during survey period

	King	Bryant	Monarch	Total
Period #1	234	211.5	82.5	528
	De-inking mill input 114 tons			
	output 91.6 tons			
Period #2	145.8	216.0	51.5	413.3
	De-inking mill input 109 tons			
	output 87 tons			

TABLE 4 Gallons of waste water discharged per ton of paper products

Period #1	4,154	22,650	25,790	14,940
Period #2	2,640	23,530	36,200	14,120

0012641

1967
1968

4056 Plainfield, N. E.
Grand Rapids, Michigan 49505

September 4, 1968

Mr. Lee Stoeffler, Manager
Process Development
Allied Paper Corporation
Kalamazoo, Michigan 49001

Dear Mr. Stoeffler:

Enclosed you will find a copy of a waste survey report in reference to the King and Monarch Divisions of the Allied Mills. These surveys covered two consecutive 24-hour periods at each of the mills and were conducted June 4, 5, and 6, 1968. The tables included in each report give pertinent data related to volume and pounds on a per-day basis as well as expressing the information on per ton of paper produced basis.

The following table compares our May 1967 with June 1968 surveys:

	KING DIVISION		MONARCH DIVISION	
	1967	1968	1967	1968
Flow mgd.	.972 .571	2.33 2.72	2.12 1.86	2.12 1.89
Pounds of B.O.D.	972	1234	568	583
Per Day	810	1973	202	709
Pounds of Susp.	583	349	496	388
Solids/Day	220	408	248	535
Paper Production	234	209	82.5	35.5
Tons/Day	145.8	159	51.5	64.7
Pounds of	4.15	5.9	16.4	6.9
B.O.D./Ton	3.85	12.4	10.9	3.9
Pounds of Susp.	2.49	1.67	10.9	6.04
Solids/Ton	0.97	2.56	8.3	4.81

MDNR 003714

MDNR00003714

1968

Table 2

Production at Bryant Mill

Paper Machines		De-inking Tons In	(80% In) Tons Out
First Survey Period	209.2 Tons	137	109.9
Second Survey Period	172.9 Tons	118	94.5

MDNR 003700

1976

This survey was conducted in conjunction with an intensive water quality study of the Kalamazoo River conducted by the Comprehensive Studies Section.

Plant Processes

Allied Paper, Inc. currently operates two mills in Kalamazoo, the Monarch Mill and the Bryant Mill (Figure 1). A third mill, the King Mill, is no longer in operation.

A total of 275 tons of paper products are produced at the mills under normal production. Both mills use virgin pulp in a standard papermaking operation.

The Monarch Mill utilizes two Fourdrinier paper machines to produce bible paper and carbon tissue for "one-time" carbon paper. Both machines were operating during the survey.

The Bryant Mill produces bible paper and other specialty papers using five Fourdrinier paper machines. One of the machines was out of service at the beginning of the survey.

The mills employ about 475 people. Both mills were shut down during the weekend prior to the survey, but production had resumed on the first day of the survey. Production is on a twenty-four hour a day basis, averaging six days per week.

Water, Wastewater and Treatment

Potable water for the mills is obtained from the City of Kalamazoo. Domestic wastewater is discharged to the Kalamazoo Wastewater Treatment System. Process water for the Monarch Mill is obtained from Portage Creek upstream of the Monarch dam and is treated using sand filters before being used in the mill. Process water for the Bryant Mill is obtained from Portage Creek near Cork Street and is also passed through sand filters prior to use.

A 90-foot circular clarifier at the Monarch Mill and a 110-foot circular clarifier at the Bryant Mill are used to treat process wastewater. All process wastewater from the Monarch Mill, consisting mainly of excess white water from paper machines, goes directly to the Monarch clarifier. Backwash water from the sand filters at the Monarch Mill is also discharged to the Monarch clarifier.

The Bryant clarifier receives a portion of the process waste from the Bryant Mill along with wastes from the zeolite and lime-soda ash softeners. The Bryant clarifier discharges to the Kalamazoo Wastewater Treatment System. The remainder of the flow from the Bryant Mill is then diverted to the Monarch clarifier for treatment.

Alum and a coagulation agent are added to the Monarch clarifier to increase settling and flocculation. The effluent from the clarifier discharges to

SA 029821

SA00029821

MICHIGAN DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION BUREAU
POINT SOURCE STUDIES SECTION

Report of an
Industrial Wastewater Survey
Conducted at
ALLIED PAPER, INC.
All Outfalls No. 390222
Kalamazoo County
Kalamazoo, Michigan
July 18-19, 1977

Survey Summary

Wastewater monitoring was performed during one twenty-four hour survey period starting Monday, July 18, 1977.

The results of this survey did not meet the final limitations in the facility's National Pollutant Discharge Elimination System (NPDES) Permit, No. MI0000779. The BOD_5 loading from outfall 390006 (002) was from 11 percent to 23 percent over limitations specified in the permit (Table 3).

Comparison of the results from the composite sample split between the company and the Environmental Protection Bureau (EPB) Laboratory show EPB concentrations higher for all parameters measured, except for settleable solids on outfall 002 (Table 4).

Comparison of the results of this survey with the survey performed on August 16-18, 1976 show that flow has decreased and TOC has increased slightly. (Table 5)

Underdrainage of the sludge disposal area, which is not covered in the permit, continues to discharge into Portage Creek (Table 1).

Survey Comments

Samples were collected from the Bryant clarifier discharge to the City of Kalamazoo sanitary sewer system (Table 1).

Purpose of Survey

The purpose of the survey was to determine the quality and quantity of wastewater being discharged by Allied Paper, Inc., to Portage Creek and to check for compliance with the NPDES Permit No. MI0000779.

Plant Processes

Allied Paper, Inc. operates two mills in Kalamazoo. The Monarch Mill utilizes two Fourdrinier paper machines to produce bible paper and carbon tissue for "one time" carbon paper. The Bryant Mill also produces bible paper and other specialty papers using five Fourdrinier paper machines. All the machines were in operation during the survey (Figure 1).

Under normal production 275 tons of paper products can be produced a day. Pulp utilized at both mills has previously been treated in the Kraft process at other locations.

Both mills together employ approximately 475 people. The mills operate on a 5 or 6 day a week schedule depending on demand. The week previous to the survey the mills operated for 6 days. Production when the mills are operating is 24 hours a day.

Water, Wastewater & Treatment

Process water used at both the Monarch and Bryant Mills is obtained from Portage Creek. Water for the Monarch Mill is obtained upstream from the Monarch Dam and water for the Bryant Mill is obtained across from Cork Street. Water for both mills is passed through sand filters prior to its use.

Wastewater generated at both mills is treated as depicted in Figure 2. Wastewater received at the 110-foot circular Bryant clarifier originates from the excess white water and from the zeolite and lime soda ash softening process used for boiler feed water. Treatment provided at the Bryant clarifier consists of settling with the effluent going to either the City of Kalamazoo treatment system or the Monarch clarifier. The split of the flow depends on how much additional loading can be placed on the Monarch clarifier without exceeding its discharge limitations into Portage Creek.

Wastewater loadings on the 90-foot circular Monarch clarifier, in addition to the flows from the Bryant clarifier, are excess white water and zeolite waste from the boiler feed water system. Alum and a coagulation agent are added in the Monarch clarifier to increase settling characteristics. The effluent from the clarifier discharges to Portage Creek through outfall 390006 (002).

Sludge from both clarifiers is disposed of on plant property across Portage Creek from the Monarch clarifier. The sand filter backwash from the Bryant Mill is discharged directly to Portage Creek. This discharge is not covered in the NPDES Permit.

Potable water for both mills is obtained from the City of Kalamazoo. Domest wastewater is discharged into the city's treatment system.

000241

SA00030602

MICHIGAN DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION BUREAU
POINT SOURCE STUDIES SECTION

Report of an
Industrial Wastewater Survey
Conducted at
ALLIED PAPER, INC.
All Outfalls No. 390222
Kalamazoo County
Kalamazoo, Michigan
February 27-28, 1978

RECEIVED
APR 3 1978
DISTRICT 3
WATER QUALITY DIV.

Survey Summary

Wastewater monitoring was performed during one twenty-four hour survey period starting Monday, February 27, 1978.

The results of this survey were compared to the final limitations in the facility's National Pollutant Discharge Elimination System (NPDES) Permit, No. MI0000779. Based on that comparison, outfall 390006 (002) did not meet permit limitations for BOD loading (see Table 3).

The results of this survey were also compared to the company's Monthly Operating Report (MOR) results for February 1978. The survey results were not similar to the MOR values for the survey period for BOD or suspended solids loadings (see Table 3).

A portion of the composite sample was split with the company for analysis in their laboratory. The company results for BOD did not agree favorably with Environmental Protection Bureau results (see Table 4).

A survey was previously conducted at this company in July 1977. Since that survey, the flow rate and the concentrations of BOD, COD, and TOC have increased (see Table 5).

Purpose of Survey

The purpose of the survey was to determine the quality and quantity of wastewater being discharged by Allied Paper, Inc., to Portage Creek and to check for compliance with NPDES Permit No. MI0000779.

Plant Processes

Allied Paper, Inc. operates two mills in Kalamazoo. The Monarch Mill utilizes two Fourdrinier machines to produce bible paper and carbon tissue for "one time" carbon paper. The Bryant Mill produces bible paper and other specialty papers on five Fourdrinier machines. The fourdrinier machines were all operating during the survey.

Under normal production, the mills produce 275 tons of product per day. Pulp utilized at the mills has previously been treated by the Kraft process at other locations.

The mills employ a total of approximately 475 people. Operation is on a 24-hour per day, 5 or 6 day per week schedule depending on demand. Production during the survey was considered normal.

Water, Wastewater & Treatment

Portage Creek supplies the process water used at both mills. That water is passed through sand filters prior to its use. Potable water for the mills is obtained from the City of Kalamazoo. Domestic wastes are discharged to the city's sanitary sewer system.

A schematic of wastewater treatment is shown in Figure 1. Wastewater received at the 100-foot circular Bryant clarifier originates from excess white water and from the soda ash softening process used for boiler feed water. A coagulation agent is added to the Bryant clarifier to improve settling. The Bryant clarifier effluent is either discharged to the city sanitary sewer system or to the Monarch clarifier. The split of flow depends on how much additional loading can be placed on the Monarch clarifier without exceeding permit limitation for discharge to Portage Creek.

Wastewater entering the 90-foot circular Monarch clarifier, in addition to effluent from the Bryant clarifier, is excess white water and zeolite waste from the boiler feed water system at the Monarch Mill. Alum and a coagulation agent are added to the Monarch clarifier to improve settling. Monarch clarifier effluent discharges to Portage Creek via outfall 390006 (002).

Sludge from both clarifiers is disposed of on plant property. The sand filter backwash from the Bryant Mill is currently discharged directly to Portage Creek. Although the filter discharge is not covered in the NPDES permit, efforts are being made to connect it to the city sanitary sewer.

The outfall locations are shown in Figure 2.

Survey Procedure

The flow and composite sample were obtained as follows:

Outfall	Flow Measurement	Sampling
390006 (002)	48" company's full channal weir.	Automatic air activated sampler.

The water level recorder at 390006 (002) provided a continuous account of the liquid level or head above the crest of the weir on a head versus time graph

MDNR 00599

MICHIGAN DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION BUREAU
POINT SOURCE STUDIES SECTION

Report of an
Industrial Wastewater Survey
Conducted at
ALLIED PAPER COMPANY
All Outfalls No. 390222
Kalamazoo County
Kalamazoo, Michigan
March 27-28, 1979

Survey Summary

Wastewater monitoring was performed during one twenty-four hour survey period starting Tuesday, March 27, 1979.

The results of this survey were compared to the final limitations in the facility's National Pollutant Discharge Elimination System Permit, No. MI00779. Based on this comparison, the company exceeded their daily average permit limitations for BOD_5 loading at outfall 390006 (002), but met the daily maximum permit limitations (Table 3).

The results of this survey were also compared to the company's Monthly Operating Report (MOR) results for March, 1979. Flows reported by the company on the survey dates were approximately 19% lower than the reported monthly average flow. Suspended solids and BOD_5 loading rates reported by the company on the survey dates did not agree favorably with Environmental Protection Bureau results (Table 3).

A portion of the composite sample collected at outfall 390006 (002) was split with the company for analysis in their laboratory. The company's BOD_5 results were lower than Environmental Protection Bureau results (Table 4).

Results obtained in this survey were compared to the results of the previous survey conducted in February, 1978 (Table 5). Dissolved solids and BOD_5 concentrations are lower than previous survey results, while COD is higher. Flow during the present survey was approximately one-half the rate computed for the previous survey.

Plant Processes

Allied Paper Company operates two mills in Kalamazoo. The Monarch Mill uses two Fourdrinier machines to produce bible paper and specialty grades. The Bryant Mill produces bible paper and other specialty papers on five Fourdrinier machines. The Fourdrinier machines were all operating during the survey.

Under normal production, the mills produce 313 tons of product per day. Pulp utilized at the mills has previously been treated by the Kraft process at other locations.

The mills employ a total of 485 people. Bryant Mill operation was on a 24-hour per day, 6 day per week schedule during the survey, while the Monarch Mill operated 7 days per week. Production was considered normal during the survey.

Water, Wastewater & Treatment

Portage Creek supplies the process water used at both mills. That water is passed through sand filters prior to its use. Potable water for the mills is obtained from the City of Kalamazoo. Domestic wastes are discharged to the city's sanitary sewer system.

Schematics of the wastewater treatment system and plant configeration are shown in Figure 1 and 2. Wastewater received at the 100-foot circular Bryant clarifier originates from excess white water, filter backwash, and from the lime-soda ash softening process used for boiler feed water. Alum and a polymer are added to improve settling in the Bryant clarifier. The Bryant clarifier effluent is either discharged to the city sanitary sewer system or to the Monarch clarifier. The company maximizes the loading which can be placed on the Monarch clarifier without exceeding permit limitations for discharging to Portage Creek. Flow is automatically appurtioned via a computerized system utilizing a total organic carbon analyzer.

The 90-foot circular Monarch clarifier receives Bryant clarifier effluent, as well as excess white water, filter backwash, and zeolite waste from the boiler feed water system at the Monarch Mill. Alum and a coagulation agent are added to the Monarch clarifier to improve settling. Monarch clarifier effluent discharges to Portage Creek via outfall 390006 (002).

Sludge from both clarifiers is disposed of on plant property.

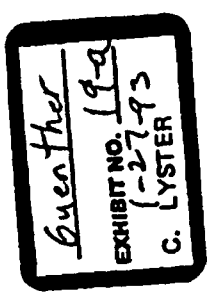
Survey Procedure

The flows and samples were obtained as follows:

Outfall	Flow Measurement	Sampling
390006 (002) Process	Flow was obtained using an existing 48-inch full channel weir and Stevens water level recorder.	A proportional automatic air-activated composite sampler + 2 grabs. Sample for phenols was grab composited.

A water level recorder provides a continuous account of the liquid level or head above the crest of a weir or through a flume. A head versus time graph is obtained for the duration of the survey period. The total volume of wastewater over the weir or through the flume during the survey period is computed from the graph.

KA04800841



9001457

Under normal production, the mills produce 285 tons of product per day. Pulp utilized at the mills has previously been treated by the Kraft process at other locations.

The mills employ a total of 485 people. Monarch Mill operation was on a 24-hour per day, 6 days per week schedule during the survey, while the Bryant Mill operated 7 days per week. Production was considered normal during the survey.

Water, Wastewater & Treatment

Portage Creek supplies the process water used at both mills. Water used at the Bryant Mill is chlorinated and passed through sand filters prior to its use. Water used at the Monarch Mill is passed through sand filters and then chlorinated prior to its use. Potable water for the mill is obtained from the City of Kalamazoo. Domestic wastes are discharged to the city's sanitary sewer system.

Schematics of the wastewater treatment system and plant configeration are shown in Figure 1 and 2. Wastewater received at the 100-foot circular Bryant clarifier originates from excess white water, filter backwash, and from the lime-soda ash softening process used for boiler feed water. Alum and a polymer are added to improve settling in the Bryant clarifier. The Bryant clarifier effluent is either discharged to the city sanitary sewer system or to the Monarch clarifier. The company maximizes the loading which can be placed on the Monarch clarifier without exceeding permit limitations for discharging to Portage Creek. Flow is automatically apportioned via a computerized system utilizing a total organic carbon analyzer.

The 90-foot circular Monarch clarifier receives Bryant clarifier effluent, as well as excess white water, filter backwash, and zeolite waste from the boiler feed water system at the Monarch Mill. Alum and a coagulation agent are added to the Monarch clarifier to improve settling. Monarch clarifier effluent discharges to Portage Creek via outfall 390006 (002).

Sludge from both clarifiers is disposed of on plant property.

Survey Procedure

The flows and samples were obtained as follows:

Outfall	Flow Measurement	Sampling
390004 (001) Bryant Mill	Company installed 46.5" rectangular weir. Staff installed water level recorder.	Scoop type composite, individual grabs.
390006 (002) Monarch Mill	Company installed 47.75" full channel weir. Staff installed water level recorder.	Scoop type composite, individual grabs.
Sludge Leachate	None	Individual grab.

March 1-2, 1982

Plant Processes

Allied Paper Corporation now operates one mill in Kalamazoo. This is known as the Bryant Mill. Another mill, known as the Monarch Mill, has been permanently shut down and is being demolished. The Bryant Mill produces bible paper and other specialty papers on five Fourdrinier machines.

Under normal production the mill produces approximately 220 tons of product per day. The mill uses bleached kraft pulp manufactured at other locations.

The mill employs 33[illegible] people and operates 24 hours per day [illegible] week. Production was considered normal during the survey.

Water, Wastewater & Treatment

Portage Creek supplies the process water. Water used at the Bryant Mill is chlorinated and passed through sand filters prior to its use. Potable water for the mill is obtained from the City of Kalamazoo. Domestic wastes are discharged to the city's sanitary sewer system.

Schematics of the wastewater treatment system and plant configeration are shown in Figures 1 & 2. Wastewater received at the 100-foot circular Bryant clarifier originates from excess white water, filter backwash, and from the lime-soda ash softening process used for boiler feed water. A polymer is added to improve settling in the Bryant clarifier. Alum is available but wasn't used during the survey. A portion of the Bryant clarifier effluent is discharged to the city sanitary sewer system. The rest is discharged to the 80-foot circular Monarch clarifier. The company maximizes the loading which can be placed on the Monarch clarifier without exceeding permit limitations for discharging to Portage Creek. Flow is automatically apportioned via a computerized system utilizing a total organic carbon analyzer. Some of the Monarch clarifier effluent is recycled for process water. The remaining portion is discharged to Portage Creek via outfall 390006 (002).

Sludge from both clarifiers is disposed of on plant property.

File Copy

MICHIGAN DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION BUREAU
POINT SOURCE MONITORING SECTION

Report of an
Industrial Wastewater Survey
Conducted at
ALLIED PAPER
All Outfalls No. 390022
NPDES Permit No. MI0000779
Kalamazoo County
Kalamazoo, Michigan
October 25-26, 1982

Survey Summary

Wastewater monitoring was performed during one twenty-four hour survey period starting Monday, October 25, 1982.

The results of this survey met the final limitations in the facility's National Pollutant Discharge Elimination System (NPDES) Permit, No. MI0000779. (Table 3)

The survey results were compared to the plant's Monthly Operating Report (MOR) results. The results compare well except for settleable solids. (Table 3)

One grab sample from outfall 390006 (002) was split for comparison of analytical results. These results also compare well. (Table 4)

The results from this survey are presented along with those of the previous survey conducted in March 1982 in Table 5.

Survey Comments

A small amount of groundwater seepage from the old Monarch Mill area was observed entering the Monarch clarifier inlet. This seepage was sampled and analyzed for organic chemicals. Only trace amounts of chlorinated hydrocarbons were detected. (Table 2)

A 96-hour flow-through bioassay was conducted encompassing the survey period. Results will be forthcoming in a separate report.

Plant Processes

The Allied Paper Corporation produces bible paper, light weight printing papers and other specialty papers at the Bryant Mill in Kalamazoo. The mill operates 5 fourdrinier paper machines and one off-machine coater. The normal production of the mill is approximately 220 tons of product per day and actual production figures are given in the appendix. The mill employs about 330 people and operates 24 hours per day, 7 days per week.

The mill uses bleached kraft pulps manufactured at other locations. Both softwood and hardwood pulps are used. Clay, titanium dioxide and calcium carbonate are used as fillers. Very small amounts of direct dyes are used for tinting some grades of paper. Rosin and alum are used for sizing. On some grades of paper small amounts of melamine formaldehyde is used to improve wet strength. No bleaching is done in the normal process of making paper.

On the coater polymeric synthetic latices and/or natural water soluble polymers are used as binders. Styrene-butadiene, vinyl acetate and acrylics are all used from time to time. Of the five paper machines three have flotation type save-alls and two have disc-type save-alls.

Water Supply, Wastewater & Treatment

Process water used at the Bryant Mill is obtained from the Portage Creek and is chlorinated and passed through sand filters prior to use. Potable water for the mill is obtained from the City of Kalamazoo. Domestic wastes are discharged to the city's sanitary sewer system. Boiler water is softened by a hot lime-soda process.

Process wastewaters from excess white water, coating machine water, filter backwash, softener backwash and boiler blowdown are discharged to the 100 ft. diameter Bryant clarifier. A polymer is added to improve settling. A portion of the Bryant clarifier effluent is discharged to the City of Kalamazoo sanitary sewer system via outfall 390004 (001). The remainder of the Bryant clarifier effluent is discharged to the 90 ft. diameter Monarch clarifier. Flow is automatically apportioned by a computerized system utilizing a total organic carbon analyzer. Some of the Monarch clarifier effluent may be recycled for process water, but this was not being done during this survey. The remaining Monarch clarifier effluent is discharged to Portage Creek via outfall 390006 (002).

Sludge from both clarifiers is pumped to drying lagoons on plant property adjacent to the clarifiers.

Survey Procedure

The flows and samples were obtained as follows:

Sampling Location	Flow Measurement	Sampling Methods
390004 (001)	Company totalizer	Automatic air activated sampler, 4 portion grab composite and individual grabs.
390006 (002)	Staff installed water level recorder on a company 36" rectangular weir.	Automatic air activated sampler, 5 portion grab composite and individual grabs.
Manhole near 002	None	Individual grab.

1984

MICHIGAN DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION BUREAU
POINT SOURCE STUDIES SECTION

RECEIVED
MAR 18 1985
SWQD-Plainwell

Report of an
Industrial Wastewater Survey
Conducted at

ALLIED PAPER COMPANY
All Outfalls No. 390222
NPDES No. MI 0000779
Kalamazoo County
1608 Lake Street, Kalamazoo, MI
September 18 and 19, 1984

Survey Summary

Wastewater monitoring was performed during one twenty-four hour survey period starting Tuesday, September 18, 1984.

The results of this survey are compared to the numerical limitations in the facility's National Pollutant Discharge Elimination System (NPDES) Permit, No. MI 0000779. The survey loading for BOD was slightly greater than the daily maximum (Table 3).

The survey results are compared to the self-monitoring results reported in the company's Monthly Operating Report (Table 3).

A grab sample was split with the company for comparison of laboratory results. The comparison is presented in Table 4. The flow monitored during the survey period was about 20 M^3/day less than the company's monitored flow for the same period (Table 4).

The last survey performed at this facility was in October, 1982. The comparison of survey results is presented as Table 5.

Plant Process

The Allied Paper Corporation produces bible paper, light weight printing papers and other specialty papers at its Bryant Mill in Kalamazoo. The mill operates 5 fourdrinier paper machines and one off-machine coater. The normal production of the mill is approximately 220 tons of product per day. The mill employs about 390 people and operates 24 hours per day, 7 days per week.

The mill uses bleached kraft pulps manufactured at other locations. Both softwood and hardwood pulps are used. Clay, titanium dioxide and calcium carbonate are used as fillers. Very small amounts of direct dyes are used for tinting some grades of paper. Rosin and alum are used for sizing. On some grades of paper small amounts of melamine formaldehyde is used to produce wet strength. No bleaching is done in the normal process of making paper.

SA00030433

On the coater polymeric synthetic latices and/or natural water soluble polymers are used as binders. Styrene-butadiene, vinyl acetate and acrylics are all used from time to time. Of the five paper machines one has flotation type save-alls and four have disc-type save-alls. The company plans to convert the remaining flotation type save-all to a disc type save-all in the future.

Final product is shipped from the plant on rolls. No finishing of the paper is done at the plant.

The location of the plant is shown in Figure 1.

Water Supply & Wastewater Treatment

Process water used at the Bryant Mill is obtained from the Portage Creek and is chorinated and passed through sand filters prior to use. Potable water for the mill is obtained from the City of Kalamazoo. Domestic wastes are discharged to the city's sanitary sewer system. Boiler water is obtained from company owned wells and is softened by a hot lime-soda process prior to use.

Process wastewaters from excess white water, coating machine water, filter backwash, softener backwash and boiler blowdown are discharged to the 100 foot diameter Bryant clarifier. A copolymer is added to improve settling. A portion of the Bryant clarifier effluent is discharged to the City of Kalamazoo sanitary sewer system via outfall 390004 (001). The remainder of the Bryant clarifier effluent is discharged to the 90 foot diameter Monarch clarifier. Flow is automatically apportioned by a computerized system utilizing a total organic carbon analyzer. Some of the MOnarch clarifier effluent may be recycled for process water. Recycled water is treated with alum. The remaining Monarch clarifier effluent is discharged to Portage Creek via outfall 390006 (002).

Sludge from both clarifiers is sprayed onto drying lagoons on plant property adjacent to the clarifiers.

SA00030434

Report on Waste Disposal at
Allied Paper Company
Kalamazoo, Michigan

Introduction

At the request of Dr. Ward Harrison, President of Allied Paper Company, National Council engineers conducted a survey of water usage and waste disposal at Kalamazoo, Michigan.

The objective of the program were the following:

1. To determine the source and intensity of the major pollutional loads as discharged from the present operation.

2. To determine the performance of the existing waste disposal facilities.

3. To indicate ways and means of reducing waste loads and increasing water use efficiency.

4. To make recommendations concerning a program for additional pollution abatement to coincide with requirements of the Michigan Water Resources Commission.

This report is intended to summarize the results of the survey. In view of the magnitude and complexity of the problem, the report is presented in two sections. Parts 1 and 2 will cover the results of the survey at the Bryant and King Division, respectively.

Part 1 Bryant Division

Description of Mill Processes

The Bryant Divison produces approximately 200 tons per day of specialty papers on five Fourdrinier machines. Furnish

Report on Waste Disposal at
Allied Paper Company
Kalamazoo, Michigan

Part II King Division

Description of Mill Processes

The King Division produces approximately 200 tons per day of specialty papers on four Fourdrinier machines. Furnish for the operation consist of 170-180 tons of pulp prepared at the mill by an alkaline cook of waste papers consisting of magazines, books, and ledger. Twenty to thirty tons of purchased unbleached sulphite pulp is also re-pulped and blended with the reclaimed pulp. The digester liquor is recycled for heat recovery and dilution in the centrifflers and Johnson screens from whence it is discharged to the sewer.

All paper machines are equipped with Bird Screens and Sveen-Pederson saveall devices. All Machine shower and Bird Screen shower waters pass through the saveall devices. Saveall effluents are discharged to storage tanks for re-use, except when colored papers are being produced. White Water tank overflows and colored waters are discharged through sewers directly to a primary treatment facility and thence to Kalamazoo River, the receiving stream.

Survey Procedures

To accomplish the objectives previously cited in Part I, a three day survey was conducted. The survey consisted of collecting 8-hr. composite samples at major mill waste streams. In addition to these samples, grab samples were collected at individual waste sources throughout the mill. Location of all sampling points are presented in Figure 1. All samples were analyzed for BOD, and

Allied Paper Company
Ming Division
Test Data

January 8, 1963 - 6-hr. composite sample
Fresh Water Usage 7.87 mgd.
Tons Produced 173

Suspended Solids

Sampling Point	Flow Mgd.	Before Settling ppm	Before Settling lbs/day	After Settling 1-hr. ppm	After Settling 1-hr. lbs/day	Percent Settleable
East Sewer	1.19	4264	38,500	40	404	99.4
Pulp M. Bas.	2.18	3466	64,100	36	650	99.0
High Sewer	4.00	3572	119,100	36	1200	99.0
C. Influent	7.40	3600	221,700	85	5240	97.7
C. Effluent	7.40	1916	118,000	108	6680	94.3
		Biochemical Oxygen Demand				% Removed
East Sewer	1.19	290	2,880	50	495	83
Pulp M. Bas.	2.18	150	2,740	100	1820	33
High Sewer	4.03	860	28,900	140	4700	84
C. Influent	7.40	550	34,420	410	25300	26
C. Effluent	7.40	410	25,300	300	18500	26

lbs BOD/Ton produced 199

lbs Sus. Solids/Ton produced 1275

Sludge 5.1% Solids 19% Fiber

Allied Paper Company
Ming Division
Test Data

January 16, 1963 - 9-hr. composite Sample
Fresh Water Usage 7.1 mgd.
Tons Produced - 199

Sampling Point	Flow Mgd.	Suspended Solids Before Settling ppm	Before Settling lbs/day	After Settling 1-hr. ppm	After Settling 1-hr. lbs/day	Percent Settleable
East Sewer	1.14	2486	23,700	43	408	98.7
Pulp M. Bas.	2.65	1768	39,100	89	1960	95.0
High Sewer	3.01	1784	44,600	129	3230	91.3
C. Influent	6.80	1900	107,400	42	2380	97.8
C. Effluent	6.80	404	22,800	120	6800	70.0
		Biochemical Oxygen Demand				% Removed
East Sewer	1.14	350	3,340	75	710	97.9
Pulp M. Bas.	2.65	620	13,680	245	5400	60.0
High Sewer	3.01	350	8,780	200	5000	47.0
C. Influent	6.80	455	25,800	245	13850	46.0
C. Effluent	6.80	250	14,175	250	14175	00.0

lbs BOD/Ton produced 116

lbs Sus. Solids/Ton produced 540

Sludge 5.0% Solids 20% Fiber

Allied Paper Company
King Division
Test Data

January 24, 1963 - 8-hr composite Samples

Fresh Water usage. 8.55 mgd.

Tons Produced - 255

Suspended Solids

Sampling Point	Flow Mgd.	Before Settling ppm	Before Settling lbs/day	After Settling 1-hr. ppm	After Settling 1-hr. lbs/day	Percent Settleable
East Sewer	1.26	1578	16,550	59	620	95.8
Pulp M. Bas.	2.37	2434	48,000	182	3600	92.5
High Sewer	4.27	2740	97,500	102	3520	96.3
C. Influent	7.90	2463	162,050	20	1230	99.2
C. Effluent	7.90	368	24,200	10	615	96.7
		Biochemical Oxygen Demand				% Removed
East Sewer	1.26	355	3,730	110	1160	70.0
Pulp M. Bas.	2.37	1400	27,600	820	16150	41.5
High Sewer	4.27	700	24,800	480	17100	31.0
C. Influent	7.90	940	61,830	360	23600	61.8
C. Effluent	7.90	390	25,600	300	19700	23.0

Gals/Ton 33.5

lbs BOD/Ton produced 242

lbs Sus. Solids/Ton produced 635

Sludge - 5.2% Solids 22% Fiber

Allied Paper Company
King Division
Test Data

January 24, 1963 - 8-hr composite Samples
Fresh Water usage. 8.55 mgd.
Tons Produced - 255

Suspended Solids

Sampling Point	Flow Mgd.	Before Settling ppm	Before Settling lbs/day	After Settling 1-hr. ppm	After Settling 1-hr. lbs/day	Percent Settleable
East Sewer	1.26	1578	16,550	59	620	95.8
Pulp M. Bas.	2.37	2434	48,000	182	3600	92.5
High Sewer	4.27	2740	97,500	102	3620	96.3
C. Influent	7.90	2463	162,050	20	1230	99.2
C. Effluent	7.90	368	24,200	10	615	96.7

Biochemical Oxygen Demand

						% Removed
East Sewer	1.26	355	3,730	110	1160	70.0
Pulp M. Bas.	2.37	1400	27,600	820	16150	41.5
High Sewer	4.27	700	24,800	480	17100	31.0
C. Influent	7.90	940	61,850	360	23600	61.8
C. Effluent	7.90	390	25,600	300	19700	23.0

Gals/Ton 33,500

Lbs BOD/Ton produced 242

Lbs Sus. Solids/Ton produced 635

Sludge - 5.2% Solids 22% Fiber

February 4, 1969

Mr. Karl Zollner, Jr., Sanitary Engineer
Comprehensive Studies Section
Department of Natural Resources
Stevens T. Mason Building
Lansing, Michigan 48926

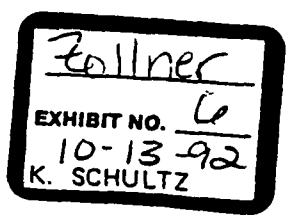
Dear Mr. Zollner:

We are herewith transmitting the questionnaire's submitted with your letter of January 20 for our King, Bryant and Monarch Divisions. We trust this will provide the information you require.

Sincerely,

Ward Harrison

elr
attachments



Zollner
EXHIBIT NO. 6
10-13-92
K. SCHULTZ

000380

KA05800412

Bryant

Company Allied Paper Incorporated

Subsidiary of SCM Corporation

Location -

Bryant Division
Street: 2030 PortageSt

City: Kalamazoo

County: Kalamazoo

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Products			Quantity
Brand Names or Other (by-products)	1.	Book Paper	148 tons per day
	2.	Commercial printing papers	42 tons per day
	3.	Coated specialties	10 tons per day

Raw Materials Utilized -

1. Kind of pulp (softwood, coniferous, rags, old newspapers, etc.)
   Hard and softwood sulphate pulp
   and deinked pulp

2. Other:

   a. bleach? Bleach is used in the manufacture of deinked pulp.

   b. fillers? Clay, calcium carbonate and titanium are used in the papermaking process.

   c. finishes? Starch and coatings are used in the papermaking and coating processes.

003381

KA05800413

SA 029323

Manufacturing Processes -

1. pulping mill? No

2. deinking mill? Yes

3. soda, sulfate (kraft), sulfate process? No

4. other? 5 Fourdrinier paper machines and 5 paper coating machines. The papermaking process and coating operations are standard in the industry.

Please describe briefly, process employed
(P.S. you do not have to divilge trade secrets)

Production - (all)	Daily (Quantity)	Yearly (Quantity)
Deinking	110 tons	33,000 tons
Paper	200 tons	60,000 tons

Plant Operation -

Seasonal? 300 days per year

Weekly Schedule 6 days per week

Daily Shifts 3 shifts

Water Supply:	Process (gal/day)	Cooling (gal/day)
Well: Reed Street (2)	570,000	-
River:	-	-
Stream: Portage Creek	3,500,000	-
City: only for drinking & showers	-	-

KA05800414

Employees:	Full Time	Part Time
Supervisory:	35	-
Labor:	430	-

Waste Outfalls:	Gal/day	Location
River:	3,300,000	Portage Creek at Bryant Pond
County drain:	-	
City sewer system:	Sanitary waste only	
Seepage lagoon:	-	
Tile Fields:	-	
Spray Irrigation:	-	

In addition, 630,000 gallons per day cooling water goes to the creek.

Type of Waste:		Volume of Waste
Solids:	Slurry of clay and waste cellulose fiber @ 10% solids underflow from thickener	3,000 gal. per day
Liquid:	Clarified effluent from thickener plus chlorine drop leg water.	3,300,000

Type of Waste Treatment:

Primary clarification in a 100' diameter Dorr-Oliver thickener.

Problems encountered:

None

KA05800415

Planned expansion: production and/or waste treatment

1.5 million gallons per day of deinked process waste to go to city trunk after clarification in Bryant thickener. This to be completed in 1969.

Signed by: Wm D Harrison

Title: Chairman of the Board

KA05800416

Company Allied Paper Incorporated

Subsidiary of SCM Corporation

Location -

Street: Monarch Division
Cork Street

City: Kalamazoo

County: Kalamazoo

Products		Quantity
Brand Names or Other (by-products)	1. Carbon tissue	42 tons/day
	2.	
	3.	

Raw Materials Utilized -

1. Kind of pulp (softwood, coniferous, rags, old newspapers, etc.)

   Coniferous unbleached

2. Other: None

   a. bleach?

   b. fillers?

   c. finishes?

KA05800417

Manufacturing Processes -

1. pulping mill? no

2. deinking mill? no

3. soda, sulfate (kraft), sulfate process? no

4. other? 2 Fourdrinier paper machines
Standard papermaking procedures employed.

Please describe briefly, process employed
(P.S. you do not have to diviluge trade secrets)

Production - (all)	Daily (Quantity)	Yearly (Quantity)
Paper	42 tons	14,700 tons

Plant Operation -

Seasonal? 350 days per year

Weekly Schedule 7 days per week

Daily Shifts 3 shifts

Water Supply:		Process (gal/day)	Cooling (gal/d
Well:	None	-	-
River:	-	-	-
Stream:	Portage Creek	2,000,000	4,320,000
City:	Drinking & shower only	-	-

KA05800418

Employees:	Full Time	Part Time
Supervisory:	12	
Labor:	160	

Waste Outfalls:	Gal/day	Location
River:	1,875,000	Portage Creek near clarifier
County drain:	-	-
City sewer system:	sanitary waste only	
Seepage lagoon:	-	
Tile Fields:	none	
Spray Irrigation:	none	

In addition, we have 4,445,000 gallons per day cooling water going to the creek.

Type of Waste:		Volume of Waste
Solids:	Slurry of waste unbleached cellulose fiber @ 5% solids underflow from thickener.	800 gal/day
Liquid:	Clarified effluent from thickener	1.875 MGD

Type of Waste Treatment:

Primary clarification using 90' Dorr-Oliver thickener.

Problems encountered:

None

KA05800419

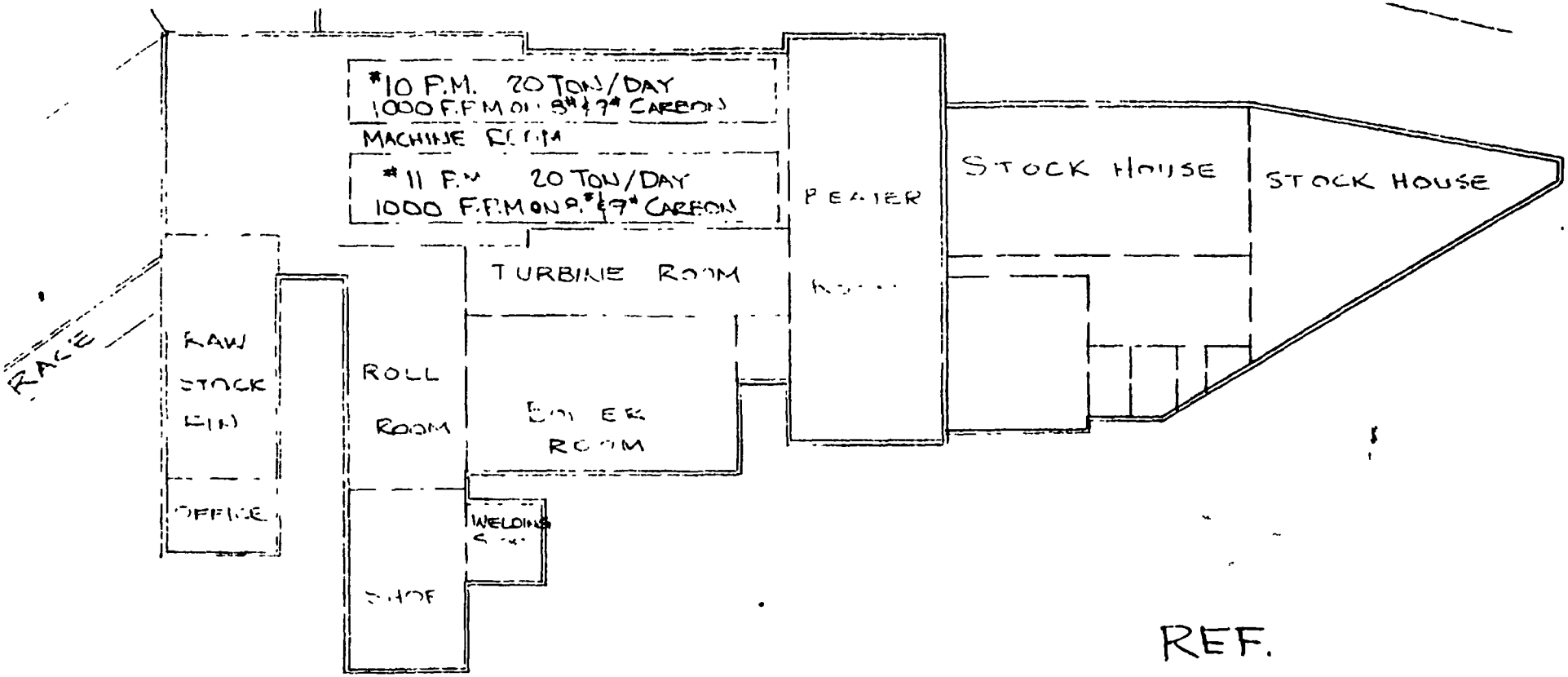
Planned expansion: production and/or waste treatment

a 1.5 MGD of process white water from Bryant Division to Monarch thickener - to be completed during 1969.

Signed by: W. P. Harrison

Title: Chairman of the Board

KA05800420



WAS EM-203

LETTEREX MACHINES (VERTEX CO)

VERTEX NO.	NO OF WEBS	TONNAGE PER DAY	SHIFTS (PER DAY)	SERIAL NO.
3	2	1 TON	(2)	#390
2	4	3½ TONS	(2)	#395
1	10	4 TONS	(1)	#580

¾	430	(2)
TONS	450	(3)
½ TONS	700	(2)
TONS	1000	(3)
TONS	1050	(3)
ANGE DAY	SPEED (F.P.M)	SHIFTS PER DAY

REVISIONS	

REFERENCES	DWG. No.

ALLIED PAPER CORP.

MILL: KALAMAZOO
MONARCH

TITLE: LAYOUT OF CONVERSION EQUIPTMENT MONARCH

SCALE DO NOT	MO.	DAY	YR.	DWG. No.
DRAWN FLR	4	16	70	
TRACED				
CHECKED				E-11245
CHECKED				
APPROVED				

SA 46157 /

File - Allied Paper Co. File

Harvey MI KP

RECEIVED
SEP 14 1972
WATER MANAGEMENT

Refer to:

NCECO-O Permit No. 71-52-9D
Process No. 71359
Application No. MI 070 0X5 2 710100

12 September 1972

Mr. Urban W. Boresch, Chief
Operations and Maintenance Branch
Construction-Operations Division
Department of the Army
Detroit District, Corps of Engineers
P.O. Box 1027
Detroit, Michigan 48231

Dear Mr. Boresch,

In response to your letter 17 August 1972 we would like to rebut the letter of objection which you received in response to the public notice of our permit application.

In response to page 7 under B, The Condition of the Kalamazoo River and Allied Paper, second paragraph, it is incorrect to assume that the 824 pounds per day reported by us as total suspended solids, 00530, is composed of 100% fibers. In fact, our daily clarifier effluent testing shows no fiber content. We determine fiber content by washing the effluent sample through a 200 mesh screen. The material retained on the screen is the fiber content of the sample.

Page 7, B, General Description, second paragraph. At the time of the permit application, a portion (1.43 mgd) of Bryant Mill process white water went to our deinking mill, also in the Bryant complex, for process water at this operation, and from this deinking mill then to the Bryant clarifier. The effluent from this clarifier then, as now, went to the Kalamazoo City Treatment Plant. Since the effluent from the Bryant clarifier was not discharged to a stream, it was not necessary to file the permit for this discharge. Now that the deinking operation has closed down, a portion of Bryant process water continues to go to the Bryant clarifier, and all the Bryant clarifier effluent still goes to the City of Kalamazoo Treatment Plant. This explanation will also clarify points brought up on page 8 under C - Present Discharge to Outfall 002.

Page 9, the third paragraph starting on this page. There is no lignin in chemical bleached pulp. Furthermore, as we have stated previously, our clarifier effluent doesnot contain any fiber. Therefore, we feel five-day BOD reflects the total oxygen depleting potential of our clarifier effluent, outfall 002.

MDNR00004848

In answer to paragraph 4, page 9, our weekly Portage Creek survey, taken from April through November of each year, above and below our discharge, has never shown septic conditions. Samples from all stations of the survey show a dissolved oxygen content.

Page 10, D, Observations and Summary, third paragraph. The 30,000 gallons per day of boiler feed as reported under water usage is the amount of makeup that is required for boiler feed water and reflects the losses that are due to exhausts and steam use where the condensate is not collected. No boiler discharge goes to outfall 001. In our description of this discharge, we emphasize the fresh water goes directly from Monarch Mill Pond, an impoundment of Portage Creek, through the condenser tubes and directly through a 20" pipe to its discharge into Portage Creek. No waters other than this condenser cooling water make up the 001 discharge. Any boiler blowdown goes through the regular waste treatment system.

The average BOD discharge to Portage Creek by Allied Paper for the past six months, as reported to the Water Resources Commission in the Monthly Operating Report, is 1133#/day. The Environmental Protection Agency's Recommended Effluent Limitations for the pulp and paper processing industry, as applied to our production process, is six pounds of BOD per ton of product. [redacted] we are well within these guidelines. Our six month average of 262#/day of suspended solids discharged to Portage Creek is dramatically below the same EPA Recommended Effluent Limitations for suspended solids per ton of product.

Sincerely yours,

E.J. Gilman
Vice President of
Manufacturing

cc: Mr. Manzardo/Mr. Stethers
United States Environmental Protection Agency
1 North Wacker Drive
Chicago, Illinois

Mr. Ralph Purdy
Executive Secretary
Michigan Water Resources Commission
Lansing, Michigan

EJG:bn

1976
1977

Mill: Bryant Division Location: Kalamazoo, MI

B. Products (continued) **	Average Daily Air Dry* Tons/day	Maximum Day Air Dry* Tons/day	Maximum Month Air Dry* Tons/day
c. Groundwood Specialties			
d. Other			
13. Wood Free Printing, Writing and Related			
a. Uncoated Free Sheet Printing	134(151)	160(180)	145(160)
b. Clay (50% or more Kaolin) Coated Free Printing	87(85)	91(90)	90(87)***
c. Uncoated Writing and Related			
d. Uncoated Solid Bleached Bristols			
e. Clay (50% or more Kaolin) Coated Solid Bleached Bristols			
f. Other			
14. Cotton Fiber Papers NOT APPLICABLE			
a. Writing and Related			
b. Technical			
c. Other			
15. Thin Papers NOT APPLICABLE			
a. Carbonizing			
b. Cigarette			
c. Other			
16. Packaging and Industrial Converting NOT APPLICABLE			
a. Unbleached Kraft			
b. Bleached Kraft			
c. Other			

*Measured at the winder or pulp dryer.

**Numbers in ( ) are for period July 1-Oct. 1, 1977. Other figures are for year of 1976.

***Note this is off machine coaters production. The raw stock is included in (a)

SA00033982

1976 (1977)

Mill: Monarch Division Location: Kalamazoo, MI

B. Products (continued) **	Average Daily Air Dry* Tons/day	Maximum Day Air Dry* Tons/day	Maximum Month Air Dry* Tons/day
c. Groundwood Specialties			
d. Other			
13. Wood Free Printing, Writing and Related			
a. Uncoated Free Sheet Printing	16 (18)	20 (20)	18 (20)
b. Clay (50% or more Kaolin) Coated Free Printing			
c. Uncoated Writing and Related			
d. Uncoated Solid Bleached Bristols			
e. Clay (50% or more Kaolin) Coated Solid Bleached Bristols			
f. Other Cigarette tipping	9 (7)	15 (13)	11 (8)
14. Cotton Fiber Papers NOT APPLICABLE			
a. Writing and Related			
b. Technical			
c. Other			
15. Thin Papers			
a. Carbonizing	10 (9)	13 (13)	12 (10)
b. Cigarette			
c. Other Crimping	1 (3)	3 (5)	2 (3)
16. Packaging and Industrial Converting NOT APPLICABLE			
a. Unbleached Kraft			
b. Bleached Kraft			
c. Other			

*Measured at the winder or pulp dryer.
**Numbers in ( ) are for period July 1-Oct.1, 1977. Other numbers are for year 1976.

SA00033954

KALAMAZOO COUNTY, MICHIGAN

ECONOMIC FEASIBILITY OF JOINT WASTE DISPOSAL IN KALAMAZOO COUNTY

DECEMBER 1961

MALCOLM PIRNIE ENGINEERS
25 West 43rd Street
New York 36, N.Y.

SA 033288

Table 4

Summary of Major Industrial Waste Discharges
(Data Obtained from Mills)

Source	Flow mgd 1960	Flow mgd 1980	Susp. Solids ppm	Susp. Solids % Vol.	B.O.D. ppm
Included in Joint Treatment Plant					
1. Allied Paper Co.					
Bryant Division	5.00	6,00	1,380*	27	440*
King Division	7.40	9.00	1,670*	41	460*
Monarch Division	1.50	1.50	17*	59	62*
2. Kalamazoo Paper Co.	8.36	10.00	243*	52	251
3. KVP-Sutherland #4 & #7					
Without deinking	7.50	7.50	96*	55	110*
With deinking	9.30	9.30	667*	45	833*
4. National Gypsum	0.75	0.75	216	67	470
5. Rex Paper Co.	1.58	2.00	1,300*	42	230*
6. Upjohn	0.71	0.71	2,100	68	1,080
Total: (with Sutherland Deinking)	34.60	39.26			
Not Included in Joint Treatment Plant					
7. KVP Mills #1 & #2	11.00	11.00	19*	27	12*
8. KVP-Sutherland #1	1.00	1.00	87	55	118
9. Hawthorne	1.00	1.00	39	55	66
Total:	13.00	13.00			

* After primary treatment

SA00033305

Table 5

Summary of Major Industrial Waste Discharges Considered in Joint Treatment Plant - Present and Future

Mill	Production, T/D Present	Production, T/D Future	Solids, #/D Present	Solids, #/D Future	B.O.D. #/D Present	B.O.D. #/D Future
1. Allied Paper Company						
Bryant Division	175	210	58,000	64,000	18,000	20,000
King Division	200	240	103,000	124,000	28,400	34,000
Monarch Division	40	40	214	200	780	800
2. Kalamazoo Paper Company	240	288	16,700	20,000	17,600	23,500
3. KVP Sutherland * #4 and #7	440	440	6,000	6,000	6,900	7,000
4. National Gypsum Company	150	150	1,340	1,300	2,910	3,000
5. Rex Paper Company	20	26	17,200	22,400	3,040	4,000
6. The Upjohn Company	-	-	12,485	12,500	6,400	6,400
Total			205,574	257,400	84,030	98,600

T/D = Tons per Day
#/D = Pounds per Day

* KVP - Sutherland #4 and #7	With deink		10,000	10,000	19,400	20,000

SA00033306

DEPARTMENT OF NATURAL RESOURCES

WATER RESOURCES COMMISSION

IN THE MATTER OF
Allied Paper, Inc.
Monarch Mill

NPDES PERMIT NO. MI 0000779

WRC No.: NC-12-77-03-2658

NOTICE OF NONCOMPLIANCE AND ORDER TO COMPLY

TO: Allied Paper, Inc.
Monarch Mill
P.O. Box 2528
Kalamazoo, MI 49003

Attention: Mr. Ernest J. Gilman, Vice President

PLEASE BE ADVISED that we have sufficient information to believe that your facility has failed to comply with the terms and conditions of your National Pollutant Discharge Elimination System Permit issued on December 20, 1974.

PURSUANT to the terms of the aforementioned permit (Part I, Section A.2), any discharge from Outfall 002 at your facility is limited to the following:

	Discharge Limitations			
	lbs/day		mg/l	
Effluent Characteristics	Daily Average	Daily Maximum	Daily Average	Daily Maximum
BOD_5		385		

The monthly monitoring report submitted for the month of October, 1977 shows that your facility exceeded its authorized discharge limits according to the following:

Date Sampled	BOD_5 (lbs/day)
~~10/6/77~~	~~417~~
~~10/15/77~~	~~573~~
10/17/77	534
~~10/18/77~~	~~611~~
10/20/77	533
10/21/77	603
10/22/77	628
10/27/77	480
10/29/77	412
10/30/77	396

IT IS THEREFORE ORDERED that a written explanation for these unauthorized and excessive discharges and a written proposal for abating further occurrences of such discharges be submitted to the Commission by not later than January 15, 1978 or further administrative remedies will be instituted.

WATER RESOURCES COMMISSION
MICHIGAN DEPARTMENT OF NATURAL RESOURCES

Date Issued: December 21, 1977

by Robert J. Courchaine
Robert J. Courchaine
Executive Secretary

ADDRESS FOR FURTHER CORRESPONDENCE

Karl Zollner, Jr., Regional Engineer
Michigan Water Resources Commission
Water Quality Division
P. O. Box 30028
Lansing, Michigan 48909
Telephone: (517) 373-1947

WATER QUALITY DIVISION
State of Michigan Office Building
350 Ottawa Avenue, N. W.
Grand Rapids, Michigan 49503

October 24, 1977

Mr. U. G. Stoeffler, Manager
Process Development
Allied Paper, Inc.
2030 Portage Street
Kalamazoo, Michigan 49003

Dear Mr. Stoeffler:

Enclosed are two copies of the "Report of An Industrial Wastewater Survey" conducted at Allied Paper's Monarch Mill on July 18-19, 1977. The report includes the volume of wastewater discharged and results of the chemical analyses performed on the composite of the collected effluent. In addition, grab samples were obtained for certain determinations.

Results of the survey indicate Allied Paper's discharge to Portage Creek from the Monarch Mill clarifier did not meet the final effluent limitations contained in N.P.D.E.S. Permit No. MI 0000779 at the time of this survey. The survey report states that 220 kg/day of B.O.D. were discharged during the survey period which exceeds the daily maximum permit limitation of 177 kg/day. An examination of the company's July 1977 operating report shows a monthly maximum of 334 kg/day of B.O.D. The August 1977 operating report also shows that the maximum B.O.D. loading was exceeded fifteen (15) days during the month. In addition, the July operating report shows a monthly maximum suspended solids loading of 380 kg/day which is in excess of the daily maximum permit limitation of 230 kg/day.

The survey staff also reported that the sand filter backwash from the Bryant Mill is still discharging directly to Portage Creek. This unpermitted discharge was called to your attention in my letter of June 21, 1976, at which time I enclosed permit application forms. To date, our office has not received any application for this discharge.

Drainage from the southwest corner of the sludge disposal site was again sampled during the survey (Table 1). The results show a drop in the waste constituents previously reported in the August 1976 survey report. Although this drainage is attributed to springs in the area, because of its close proximity to the sludge site, monitoring of this drainage to Portage Creek may be required to assure that no leachate is reaching Portage Creek.

MONE 803954

COMMISSION
IRVING H RONK, Chairman
For JOHN C MACKIE
State Highway Commissioner
GERALD E EDDY, Vice Chairman
Director of Conservation
ALBERT I HEUSTIS M D
State Health Commissioner
GEORGE S McINTYRE
Director of Agriculture
JIM GILMORE, JR., Kalamazoo
Industrial Management Groups
GEORGE F LIDDLE, Muskegon
Municipal Groups
VACANCY
Conservation Groups

STATE OF MICHIGAN
WATER RESOURCES COMMISSION
GEORGE W ROMNEY, GOVERNOR

STAFF OFFICES
200 Mill Street
Tel. 373-2360
STATION D
LANSING, MICHIGAN 48913

LEGAL COUNSEL
FRANK J KELLEY
Attorney General

STAFF
LORING F. OEMING
Executive Secretary
NORMAN BILLINGS
Asst Executive Secretary
Chief, Hydrology Division
RALPH W PURDY
Chief Engineer
JOHN L DESMOND
Office Manager

March 2, 1964

REGISTERED MAIL

Dr. Ward Harrison, President
Allied Paper Corporation
Kalamazoo, Michigan

Dear Dr. Harrison:

The following is an extract from the minutes of the February 27, 1964 meeting of the Water Resources Commission referring to your Company:

"Allied Paper Corporation, Kalamazoo: Mr. Purdy reported that contact with the Company indicates that it is planning to comply with the Commission's requirement to submit plans by August 1, 1964 whereby it will control its waste within the limits specified by the Commission. Treatment facilities for removal of settleable solids from the wastes at the Bryant Division were found by staff inspection on February 13, 1964 and again on February 19, to be out of operation. Failure of one of three waste pumps was given as the reason for suspension of operations commencing about ten days prior to the first inspection. By letter of February 19, Mr. Robert Levy, Vice President, reported that the pump would be repaired and treatment operations restored by February 20. Executive Secretary has notified Dr. Ward Harrison, Company President, that with three pumping units available in the installation no explanation has been given as to why failure of one pump should result in a complete shutdown, and in addition, the Company's performance does not carry out the assurances given the Commission following a similar bypass of waste in November, 1961. Following discussion, Mr. Pierce made a motion, supported by Mr. Gilmore, that the Executive Secretary be directed to notify the Company that failure to maintain treatment of wastes, as required by the terms of the October 24, 1951 Order, is of grave concern to the Commission and that everything possible be done through negotiations between Company officials and Commission staff to establish measures that will prevent recurrence of bypassing incidents; and further, that the Company's appearance is requested at the March 26, 1964 meeting of the Commission to report on the circumstances surrounding the recent bypassing and action being taken to insure against further interruptions in treatment. Motion unanimously carried."

MDNR 003618

MDNR00003618

S. Harvey

RECEIVED

JUN 6 1978

June 5, 1978

Mr. E. J. Gilman, Vice President
Allied Paper Incorporated
Paper Mills Division
P.O. Box 2528
Kalamazoo, MI 49003

Re: Surveillance Fee
Monarch Mill
Bryant Mill

Dear Mr. Gilman:

I have reviewed the pollution control status rating for your Monarch Mill for 1977 and concur with the rating of "I" (inadequate) for the following reasons:

1) The monthly operation reports submitted by your company showed noncompliance with effluent limitations during July, August, September and October, 1977.

2) A 24 hour wastewater survey conducted by our staff on July 18-19, 1977 showed noncompliance with final effluent limitations.

3) Notice of Noncompliance No. NC-11-77-02-2606 was issued on November 3, 1977 for the July and August noncompliance.

Further a 24 hour wastewater survey conducted at the Monarch Mill on February 27-28, 1978 shows that the plant is still in noncompliance with final effluent limitations.

I have checked the Bryant Mill file and find that your company has failed to submit a 1977 Surveillance Fee Report Form and the 1976 form is in error in that the filter backwash discharge to Portage Creek was not reported. Our records show that the illegal unpermitted discharge of sand filter backwash from the Bryant Mill was brought to your attention during 1973, on January 17, 1974, June 21, 1976 and again in a letter dated October 24, 1977.

Based upon the information mentioned, you are requested to submit the $5,874. fee within 30 days.

You are hereby directed to either eliminate the sand filter backwash discharge within 30 days or make the necessary arrangements to obtain an NPDES permit and further, you are hereby directed to submit a 1977 Surveillance Fee Report Form on the Bryant Mill showing the unpermitted discharge to Portage Creek within 30 days of receipt of this letter.

If you have any questions regarding this letter please feel free to contact this office.

Very truly yours,

WATER QUALITY DIVISION

Wayne E. Denniston, P.E.
Chief
Pollution Control Branch

WED/ras

cc: R. Parker
C. Harvey
K. Zollner

L Johnston 9/13/87

United States Environmental Protection Agency
Washington, D C. 20460

EPA NPDES Compliance Inspection Report

Form Approved
OMB No 2040-0003
Approval Expires 7-31-85

Section A: National Data System Coding

Transaction Code	NPDES	yr/mo/day	Inspection Type	Inspector	Fac Type
1 N	2 5 3 M I 0 0 0 0 7 7 9 11	12 8 7 0 1 1 3 17	18 R	19 S	20 2

Remarks
21 E L I M I N A T E D T W O U N P E R M I T T E D D I S C H A R G E S 66

Reserved	Facility Evaluation Rating	BI	OA	Reserved
67 69	70 2	71 N	72 N	73 74 75 80

Section B: Facility Data

Name and Location of Facility Inspected	Entry Time / Exit Time/Date	Permit Effective Date / Permit Expiration Date
Allied Paper, Inc. 2030 Portage Street Kalamazoo, Mi 49001	Entry Time ☐ AM ☒ PM 4:00 Exit Time/Date 4:30/1-13-87	Permit Effective Date Jan. 17, 1985 Permit Expiration Date March 31, 1989

Name(s) of On-Site Representative(s)	Title(s)	Phone No(s)
Martin L. Smith	Manager, New Product development	(616) 345-7131

Name, Address of Responsible Official	Title	Phone No	Contacted
Richard Eaton	Manager, Utilities Maintenance & Engineering		☒ Yes ☐ No

Section C: Areas Evaluated During Inspection

(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)

N	Permit	N	Flow Measurement	N	Pretreatment	S	Operations & Maintenance
N	Records/Reports	N	Laboratory	N	Compliance Schedules	N	Sludge Disposal
S	Facility Site Review	S	Effluent/Receiving Waters	S	Self-Monitoring Program	N	Other.

Section D: Summary of Findings/Comments (Attach additional sheets if necessary)

1.0 Met with Richard Eaton and Martin Smith. They assured me that they could not determine the exact source of either of their two unpermitted discharges that I had been working on since Jan. 2, 1987, but they plugged them both to eliminate any future discharge.

2.0 Site Inspection with Martin Smith:

2.1 Broken concrete pipe near Cork Street was not discharging. Company plugged manhole with concrete; thereby eliminating discharge (picture #1).

2.2 Outfall 002 - Temp. 80°F (thermometer), clear. Picture #2.

2.3 Unpermitted discharge via ditch to Portage Creek enar Allied Water Filter Plant was reported to me as being plugged with a blow-up plug.

2.3.1 Allied promised to cut and plug this drain in the Spring when the weather improved.

2.3.2 I noticed fresh tracks leading down the steep ravine indicating someone worked on this discharge. Top pipes were not discharging. Picture #3. Bottom pipe had small flow of clear water (likely groundwater).

Name(s) and Signature(s) of Inspector(s)	Agency/Office/Telephone	Date
Linda Koivuniemi	MDNR/Plainwell/616-685-9886	1-28-87
Signature of Reviewer	Agency/Office	Date

Regulatory Office Use Only

Action Taken	Date	Compliance Status
		☐ Noncompliance ☐ Compliance

EPA Form 3560-3 (Rev. 3-85) Previous editions are obsolete

United States Environmental Protection Agency
Washington, D. C. 20460

EPA NPDES Compliance Inspection Report

Form Approved
OMB No. 2040-0003
Approval Expires 7-31-85

Section A: National Data System Coding

Transaction Code	NPDES	yr/mo/day	Inspection Type	Inspector	Fac Type
1 N	2 5 3 MI0000797 11	12 870106 17	18 R	19 S	20 2

Remarks: TWO UNPERMITTED DISCHARGES (21–66)

Reserved	Facility Evaluation Rating	BI	QA	Reserved	
67 69	70	71 N	72 N	73 74	75 80

Section B: Facility Data

Name and Location of Facility Inspected	Entry Time / Exit Time/Date	Permit Effective Date / Permit Expiration Date
Allied Paper, Inc. 2030 Portage Street Kalamazoo, Mi 49001	Entry Time ☐ AM ☒ PM 2:30 Exit Time/Date 4:00/1-6-86	Permit Effective Date Jan. 17, 1985 Permit Expiration Date March 31, 1989

Name(s) of On-Site Representative(s)	Title(s)	Phone No(s)
Martin L. Smith	Manager, New Product Development	(616) 345-7131

Name, Address of Responsible Official	Title	Phone No.	Contacted
Richard Eaton	Manager, Utilities Maintenance & Engineering		☒ Yes ☐ No

Section C: Areas Evaluated During Inspection

(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)

N	Permit	U	Flow Measurement	N	Pretreatment	U	Operations & Maintenance
N	Records/Reports	N	Laboratory	N	Compliance Schedules	N	Sludge Disposal
U	Facility Site Review	U	Effluent/Receiving Waters	U	Self-Monitoring Program		Other:

Section D: Summary of Findings/Comments (Attach additional sheets if necessary)

TWO UNPERMITTED DISCHARGES

1.0 Had a meeting with Richard Eaton and Martin Smith concerning two unpermitted discharges to Portage Creek from Allied Paper.

1.1 The first unpermitted discharge, the broken concrete pipe next to Cork Street and the Monarch Clarifier. I was told during the meeting between Richard Eaton, Martin Smith, and myself that this discharge was just groundwater collecting in the wet well near Monarch Clarifier and the white material must be residual left in the wet well from the old abandoned plant.

I explained to Messrs. Smith and Eaton, that this discharge did not appear to be groundwater because of its large volume and white color. Also, because of the white sludge build up at the base of the discharge just before entering Portage Creek, this is not just groundwater. They assured me it was not from their current processes or Monarch Clarifier. Continued . . .

Name(s) and Signature(s) of Inspector(s)	Agency/Office/Telephone	Date
Linda Koivuniemi	MDNR/Plainwell/616-685-9886	1-23-87
Signature of Reviewer	Agency/Office	Date

Regulatory Office Use Only

Action Taken	Date	Compliance Status
		☐ Noncompliance ☐ Compliance

EPA Form 3560-3 (Rev. 3-85) Previous editions are obsolete.

NATURAL RESOURCES COMMISSION
THOMAS J. ANDERSON
MARLENE J. FLUHARTY
STEPHEN V. MONSMA
O. STEWART MYERS
DAVID D. OLSON
RAYMOND POUPORE
HARRY H. WHITELEY

STATE OF MICHIGAN

JAMES J. BLANCHARD, Governor

DEPARTMENT OF NATURAL RESOURCES
GORDON E. GUYER
District 12 Headquarters
P.O. Box 355, Plainwell, Michigan 49080

RECEIVED
FEB 04 1987
ENVIRONMENTAL ENFORCEME
DIVISION

February 3, 1987

CERTIFIED MAIL

NL-2-87-01-012P

Allied Paper, Incorporated
Richard Eaton, Manager
Utilities Maintenance & Engineering
2030 Portage Street
Kalamazoo, MI 49001

RE: Two Unpermitted Discharges
Written Response Due July 1, 1987

Dear Mr. Eaton:

FIRST UNPERMITTED DISCHARGE:

On January 2, 1987, a citizen in Kalamazoo reported to me that Portage Creek was white. I traced the source of the white contamination to two discharges on Allied's property near Cork Street next to your Monarch clarifier. One discharge point was your permitted discharge 002. The second discharge originated from a 30-36" broken concrete pipe. This is an unpermitted discharge. After several meetings and tours with you and Martin Smith, and your January 9, 1987 letter, it appears you have plugged this discharge with concrete.

SECOND UNPERMITTED DISCHARGE:

A second unpermitted discharge to Portage Creek is located next to your water filter plant. You stated this was plugged with a blow-up plug, but that you planned to permanently eliminate (cut and plug) this discharge this spring when the weather improved.

Continued...

R1026-1
5/85

DEPOSITION EXHIBIT
Allied # 521
4/23/97 CC

WRITTEN RESPONSE:

Each of these unpermitted discharges is an apparent violation of Section 7 of the Michigan Water Resources Commission Act, Act 245, P.A. of 1929 as amended.

Please submit your written confirmation to this office by July 1, 1987 that you have permanently eliminated the unpermitted discharge located next to your water filter plant.

If you have any questions, please contact this office.

Sincerely,

SURFACE WATER QUALITY DIVISION

Linda Koivuniemi

Linda Koivuniemi
Plainwell District
(616) 685-9886

LK/pb

cc: P. Blakeslee, SWQD
S. Knowlen, EED
W. Creal, SWQD

United States Environmental Protection Agency
Washington, D. C. 20460

EPA NPDES Compliance Inspection Report

Form Approved
OMB No. 2040-0003
Approval Expires 7-31-85

Section A: National Data System Coding

Transaction Code	NPDES	yr/mo/day	Inspection Type	Inspector	Fac Type
1 N	2 5 3 M I 0 0 0 0 7 7 9 11	12 8 7 0 1 0 6 17	18 R	19 S	20 2

Remarks: TWO UNPERMITTED DISCHARGES

Reserved	Facility Evaluation Rating	BI	QA	Reserved
67 69	70	71 N	72 N	73 74 75 80

Section B: Facility Data

Name and Location of Facility Inspected	Entry Time	Permit Effective Date
Allied Paper, Inc. 2030 Portage Street Kalamazoo, Mi 49001	☐ AM ☒ PM 2:30	Jan. 17, 1985
	Exit Time/Date: 4:00/1-6-86	Permit Expiration Date: March 31, 1989

Name(s) of On-Site Representative(s)	Title(s)	Phone No(s)
Martin L. Smith	Manager, New Product Development	(616) 345-7131

Name, Address of Responsible Official	Title	Phone No.	Contacted
Richard Eaton	Manager, Utilities Maintenance & Engineering		☒ Yes ☐ No

Section C: Areas Evaluated During Inspection
(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)

N	Permit	U	Flow Measurement	N	Pretreatment	U	Operations & Maintenance
N	Records/Reports	N	Laboratory	N	Compliance Schedules	N	Sludge Disposal
U	Facility Site Review	U	Effluent/Receiving Waters	U	Self-Monitoring Program		Other:

Section D: Summary of Findings/Comments *(Attach additional sheets if necessary)*

TWO UNPERMITTED DISCHARGES

1.0 Had a meeting with Richard Eaton and Martin Smith concerning two unpermitted discharges to Portage Creek from Allied Paper.

1.1 The first unpermitted discharge, the broken concrete pipe next to Cork Street and the Monarch Clarifier. I was told during the meeting between Richard Eaton, Martin Smith, and myself that this discharge was just groundwater collecting in the wet well near Monarch Clarifier and the white material must be residual left in the wet well from the old abandoned plant.

I explained to Messrs. Smith and Eaton, that this discharge did not appear to be groundwater because of its large volume and white color. Also, because of the white sludge build up at the base of the discharge just before entering Portage Creek, this is not just groundwater. They assured me it was not from their current processes or Monarch Clarifier. Continued . . .

Name(s) and Signature(s) of Inspector(s)	Agency/Office/Telephone	Date
Linda Koivuniemi	MDNR/Plainwell/616-685-9886	1-23-87
Signature of Reviewer	Agency/Office	Date

Regulatory Office Use Only

Action Taken	Date	Compliance Status
		☐ Noncompliance ☐ Compliance

EPA Form 3560-3 (Rev. 3-85) Previous editions are obsolete.

1.2 The second unpermitted discharge to Portage Creek was near Allied's water filter plant. I never witnessed any discharge from this location, but William Creal witnessed it during the summer of 1986 during one of his PCB sampling trips.

Messrs. Smith and Eaton claimed to not have any knowledge of this discharge, so I told them I would show them the discharge location during my site inspection after this meeting.

2.0 SITE INSPECTION WITH MR. MARTIN SMITH (Two unpermitted discharge points):

2.1 Broken concrete pipe near Cork Street was still discharging when Martin Smith and I checked the concrete pipe. The discharge was still warm to touch but relatively clear - not white like previous inspections on January 3, and 5, 1987.

2.1.1 Twice, I asked Mr. Smith if I could take pictures to fairly and accurately document the discharge, but each time I was not given permission.

2.1.2 I convinced Mr. Smith to touch the discharge coming from the concrete pipe and note the warm temperature. He admitted that groundwater in the area is not warm, therefore, Allied would try to find the source. Note: I did not have a thermometer.

2.1.3 After my inspection with Mr. Smith, I came back to Cork Street and took pictures from outside Allied property through or under Allied's fence on Cork Street.

PICTURES: #1 #2 Each picture shows Monarch Clarifier, 30-36" broken concrete pipe and white sludge build up.

#1

Michigan Department of Public Health
Engineering Division

SOLID WASTE DISPOSAL
VALUATION REPORT
Inspection Date June 9, 1966

Name of Disposal Facility Bryant Mill

Location East of 2500 Block of south Burdick St. behind Bryant Mill, Kalamazoo, Mich.
(street address) (city) (township) (county)

Name of Operator Allied Paper Corporation Address 1608 Lake St., Kalamazoc, Michigan

Property Owner Allied Paper Corporation Address 1608 Lake St., Kalamazoo, Michigan

Municipalities from which refuse received

Type of Facility: [ ] Incinerator [ ] Hog Feeding
[X] Sanitary Landfill [ ] Other (spec

( ) indicates compliance (x) noncompliance (–) does not apply

GENERAL REQUIREMENTS

Origin of Waste:
generated on premises ✓ delivered to site
Type of Waste:
general residential
commercial ✓ solid liquid
Plans and Specifications:
plan on file X layout operation conforms to plan

SANITARY LANDFILLS

protection of ground and surface water
equipment emergency equipment
nuisance control responsible director
fire control on-site roads ✓
restricted access ✓ attendant X
dust control paper confined X
spreading of refuse compaction
cell volumes period of cover
final cover ✓ cover maintenance
equipment maintenance burning
salvaging vermin control
surface water drainage ✓ completion of area
handling and control of hazardous materials

REFUSE BURNERS

employee safety design
air pollution operation
disposal of ash fly ash
general sanitation of plant and surroundings

OTHER FACILITY

specify type None
isolation (nearest residence) miles
vermin control operation
maintenance air pollution
fire control impervious feeding area
disposal of days material nuisance control
employee safety written approval when required
concurred by Michigan Department of Public Health when required

Remarks

1. Cover each day
2. Prepare plan
3. Control blowing paper
4. Keep the mill pond from backing up into the area of the dump.

October 12, 1966
Doesn't appear to be covering daily.

DEPOSITION EXHIBIT
BROOKS #601
6/13/97 CC

BROOKS
EXHIBIT NO. 4
2-12-98
S. GERGER

KA04500258

Approved Not Approved

Person interviewed A. E. Vickery Inspected by Fred Weaver, R. S.

Title Manager of Engineering Department Representing Kalamazoo County Health D

[illegible] 9000254

3a

E. FREEMAN HERSEY, M.D., F.A.C.O.G.
DIRECTOR

AREA CODE 616
TELEPHONE 71 [illegible]

KALAMAZOO COUNTY HEALTH DEPARTMENT

418 West Kalamazoo Avenue

KALAMAZOO, MICHIGAN 49006

November 26, 1968

COPY

Mr. A. E. Vickery
Allied Paper Corporation
1608 Lake Street
Kalamazoo, Michigan

Re: Allied Landfill adjacent to
Bryant Mill Pond

Dear Mr. Vickery:

While conducting a survey of the dumping operation at the above mentioned landfill for licensing purposes, it was noted that compacting or covering was not being practiced on a daily routine basis and the use of river flood plains was being utilized. The use of river flood plains is now controlled by the Water Resources Commission, Hydrology Division, under powers granted them by Act 167 of 1968.

Please be advised that Act 167, Public Acts of 1968, requires that a permit be obtained from the Water Resources Commission before filling or otherwise occupying the flood plain of any river or stream in the State. The purpose of this control is to assure that the channels and that portion of the flood plains that are the floodways are not inhibited and are kept free and clear of interference or obstruction which will cause undue restriction of the capacity of the floodway. Fill placed in flood plain areas without the necessary permit may be required to be removed at the company's expense. It will be necessary for you to contact that office located at 200 Mill Street, Lansing, Michigan and request of them their determination of the status of your facility.

After approval has been obtained and a permit issued, if such is necessary, we can then meet with you to review the approved location and determine the various design and operational criteria necessary for this facility to meet the requirements of Act 87, P.A. of 1965.

If you have any question relative to this matter, feel free to contact this department at any time.

Yours very truly,

0002634

Walter E. Ash, R.S.
Sanitary Engineer
Environmental Health Division

WEA:rd
cc: Richard Hadfield
Mich. Dept. of Public Health

DEPOSITION EXHIBIT
Brooks #602
6/13/97 CC

KA04500259

Brooks
EXHIBIT NO. 5
2-12-92
S GERGER

SA 011327

March 5, 1969

Mr. E. J. Gilman, Vice President
Allied Paper Corporation
1608 Lake Street
Kalamazoo, Michigan 49001

Subject: Bryant Mill Disposal Area - Kalamazoo County

Dear Mr. Gilman:

An inspection of your landfill operation on February 27, 1969, revealed that this operation is an open dump and not a sanitary landfill as required by Act 87, P.A. of 1965.

You are hereby notified to cease operating this site as a dump and close the operation, or to immediately change this disposal operation to a sanitary landfill in compliance with the law. If you decide to operate a sanitary landfill, you must submit the enclosed application with a bond and a check for $25.00, license fee, to the Kalamazoo County Health Dept.

It is requested that this site be in complete compliance one way or another within 30 days to avoid legal action by this department.

Very truly yours,

Lahue L. Miller, Chief
Section of Environmental Health
Division of Engineering

By: R. L. Hadfield, Sanitarian
Environmental Health Planning Unit

RLH:LS

Enc.

CC: Walter Ash, Kalamazoo County Health Department

0002383

SH 009857

SA00009857

Michigan Department of Public Health
Engineering Division

Dyt Mill Site

SOLID WASTE DISPOSAL
EVALUATION REPORT
Inspection Date 8/21/69

Name of Disposal Facility Allied Paper Company

Location S. Burdick St. (street address) Kalamazoo (city) (township) Kalamazoo (county)

Name of Operator Allied Address

Property Owner Address

Municipalities from which refuse received

Type of Facility: ☐ Incinerator ☐ Hog Feeding ☒ Sanitary Landfill ☐ Other (spec

(✓) indicates compliance (x) noncompliance (–) does not apply

GENERAL REQUIREMENTS

Origin of Waste:
generated on premises ____ delivered to site ✓
Type of Waste:
general ____ residential ____
commercial ✓ solid ____ liquid ____
Plans and Specifications:
plan on file ____ layout operation conforms to plan ____

SANITARY LANDFILLS

protection of ground and surface water X
equipment ✓ emergency equipment ____
nuisance control ✓ responsible director ✓
fire control ✓ on-site roads ✓
restricted access ✓ attendant ____
dust control ✓ paper confined ✓
spreading of refuse X compaction X
cell volumes ____ period of cover ✓
final cover X cover maintenance X
equipment maintenance ✓ burning ✓
salvaging ✓ vermin control ✓
surface water drainage ✓ completion of area ✓
handling and control of hazardous materials ✓

REFUSE BURNERS

employee safety ____ design ____
air pollution ____ operation ____
disposal of ash ____ fly ash ____
general sanitation of plant and surroundings ____

OTHER FACILITY

specify type ____
isolation (nearest residence) ____ miles
vermin control ____ operation ____
maintenance ____ air pollution ____
fire control ____ impervious feeding area ____
disposal of days material ____ nuisance control ____
employee safety ____ written approval when required ____
concurred by Michigan Department of Public Health when required ____

Remarks

1. Open lip
2. Dumping into flood plain

0002380

Approved (Not Approved) under present conditions

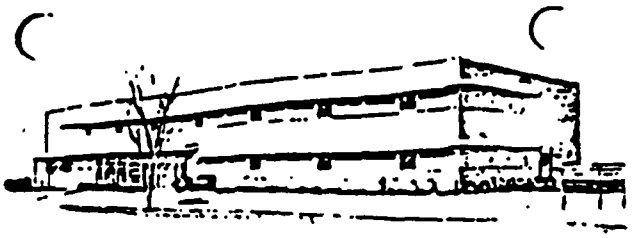
Person interviewed ____ Inspected by Walter Ash & Goldsmith

Title ____ Representing Kal. Co. Health Dept.

D-65.3 6M 6/66

SA00009854

Vickery
EXHIBIT NO. 6
M. LANTIS 11/13/92



File Bryant Mtg
K. Entry

KALAMAZOO COUNTY HEALTH DEPARTMENT

418 WEST KALAMAZOO AVE. PHONE AC 616 342-0204 KALAMAZOO, MICH. 49006
Frederick J. Margolis, M.D., Acting Director

January 21, 1970

Mr. A. E. Vickery
Manager-Engineering
Allied Paper Corporation
Kalamazoo, Michigan

Dear Mr. Vickery:

A visit was made to your Sanitary Landfill on January 21, 1970 with Mr. Hadfield of the Michigan Department of Health.

We were disappointed to note that the operation had retrogressed in that the open site of uncompacted refuse is constantly exposed on the site. We are sure that you remember the meeting we held with Mr. Hadfield, Mr. Ash, and Mr. Brooks during which the operation was changed to comply with the State Regulations to allow licensing of this site.

Before requesting a show cause hearing to remove your present license, we would appreciate it if you would inform us of your intentions toward the proper operation of your solid waste disposal site.

Very truly yours,

Walter E. Ash, R.S.
Sanitary Engineer
Environmental Health Division

Marjorie Goldsmith, R.S.
Sanitarian

MG:rd
cc: Richard Hadfield,
Mich. Dept. of Health

DEPOSITION EXHIBIT
Vickery #631
7/7/97 cc

9000462

KA05700207

3a

SEP 15 1977

RECEIVED

SEP 23 1977

DISTRICT 3
WATER QUALITY DIV.

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Corporation Company
Registered Agent for
SCM Corporation
615 Griswold
Detroit, Michigan 48226

RE: ~~SPCC Notice of Violation~~
~~SCM Corporation~~
Kalamazoo, Michigan

Dear Sir:

Enclosed please find a Notice of Violation citing SCM Corporation for violation of Oil Pollution Prevention Regulations promulgated pursuant to Section 311 of the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1321(j)(1)(C).

As specified in the Notice, you have the right to request a hearing on the violation cited therein. Should this Agency not receive a written request for a hearing within thirty (30) days of your receipt of the enclosed Notice, you will have waived your right to a hearing and the proposed penalty will be assessed and collected.

You may also request an informal settlement conference by contacting ~~Mr. Ronald Rothschild, Attorney on my staff, at (312) 353-2134.~~ It is the policy of the United States Environmental Protection Agency to encourage resolution of these matters in informal conferences. As detailed in the Notice of Violation the penalty proposed in the Notice may be mitigated during such an informal conference.

We suggest that you read the enclosed Notice of Violation carefully and notify this Agency within the allotted time period of the course of action you intend to take. In the event you have any questions, in the meantime, please do not hesitate to contact Mr. Rothschild.

Very truly yours,

[illegible] Director
James D. McDonald, Director
Enforcement Division

Enclosure

COPY

REGION V
230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604

SEP 15 1977

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Corporation Company
Registered Agent for
SCM Corporation
615 Griswald
Detroit, Michigan 48226

RE: SPCC Notice of Violation
SCM Corporation
Kalamazoo, Michigan

Dear Sir:

Enclosed please find a Notice of Violation citing SCM Corporation for violation of Oil Pollution Prevention Regulations promulgated pursuant to Section 311 of the Federal Water Pollution Control Act, as amended, 33 U.S.C. §321(j)(1)(C).

As specified in the Notice, you have the right to request a hearing on the violation cited therein. Should this Agency not receive a written request for a hearing within thirty (30) days of your receipt of the enclosed Notice, you will have waived your right to a hearing and the proposed penalty will be assessed and collected.

You may also request an informal settlement conference by contacting Mr. Donald Rothschild, attorney on my staff, at (312) 353-2094. It is the policy of the United States Environmental Protection Agency to encourage resolution of these matters in informal conferences. As detailed in the Notice of Violation the penalty proposed in the Notice may be mitigated during such an informal conference.

We suggest that you read the enclosed Notice of Violation carefully and notify this Agency within the allotted time period of the course of action you intend to take. In the event you have any questions, in the meantime, please do not hesitate to contact Mr. Rothschild.

Very truly yours,

James O. McDonald, Director
Enforcement Division

Enclosure

42,000 gallons of oil and/or an above ground storage capacity of greater than

003955
NONE

UNITED STATES

ENVIRONMENTAL PROTECTION AGENCY

REGION V

IN THE MATTER OF:	)	DOCKET NO. SPCC-77-V-114
	)	
SCM CORPORATION	)	PROPOSED CIVIL PENALTY
	)	AND
Kalamazoo, Michigan	)	OPPORTUNITY FOR HEARING

NOTICE OF VIOLATION

NOTICE IS HEREBY GIVEN that you are in violation of the Oil Pollution Prevention Regulations, 40 CFR 112.3, promulgated pursuant to 33 U.S.C. §1321(j)(1)(C).

NATURE OF VIOLATION

On July 28, 1977, Mr. Ross E. Powers, a representative of the United States Environmental Protection Agency, visited the SCM Corporation facility, the Allied Paper, Inc. in Kalamazoo, Michigan, located near the Portage Creek, a navigable water of the United States, for the purpose of inspecting the Spill Prevention Control and Countermeasure (SPCC) Plan for the facility in which #6 fuel oil is stored. The facility has an above ground storage capacity 550,000 gallons. Upon Mr. Powers' request, Mr. E. J. Gilman, Vice President of the company, was unable to produce an SPCC Plan as required by Federal Regulations.

40 CFR §112.3 requires that the owners or operators of non-transportation related facilities that have an underground storage capacity of greater than 42,000 gallons of oil and/or an above ground storage capacity of greater than 1,320 gallons of oil must prepare SPCC plans as to those facilities. The SCM Corporation's failure to prepare a plan, in this instance, constitutes a violation of that regulation.

II

PROPOSED CIVIL PENALTY

Section 311(j)(2) of the Federal Water Pollution Control Act, as amended, [33 U.S.C. 1321(j)(2)] and the regulations promulgated thereunder, 40 CFR 112.6 and 40 CFR 114.1 et seq. authorize a civil penalty of up to $5,000 per day for each violation of these regulations. A proposed penalty of $2,500 is deemed appropriate for the above listed violation. Payment may be made by certified or cashier's check, payable to the United States of America, and remitted to:

Regional Hearing Clerk
Region V, U.S. Environmental Protection Agency
230 South Dearborn Street
Chicago, Illinois 60604

III

MITIGATION OF CIVIL PENALTY

You are hereby notified of your right to present written explanations, information, or any other materials in answer to the violation cited in item I above, or in mitigation of the penalty assessed in item II. This Office will also consider in mitigation a written commitment, signed and certified by you or on your behalf by a duly authorized officer or director, to comply within a stated reasonable time with all Spill Prevention Control and Countermeasure regulations applicable to the above referenced facility. Any written explanations, information, or any other materials in answer to the charges or in mitigation of the penalty shall be submitted to the Director, Enforcement Division, Region V, U.S. Environmental Protection Agency, 230 South Dearborn, Chicago, Illinois 60604, no later than thirty (30) days following your receipt of this proposed penalty assessment.

MONE 883957

IV

OPPORTUNITY TO REQUEST A HEARING

You have the right to request a hearing on this violation or upon the proposed assessment. You have the right to be represented by counsel at such hearing. In order to obtain a hearing, you must submit a written request, signed by you or on your behalf by a duly authorized officer, director, agent, or attorney-in-fact, within thirty (30) days of the receipt of this Notice of Violation. Please address any such request to Director, Enforcement Division, Region V, U.S. Environmental Protection Agency, 230 South Dearborn Street, Chicago, Illinois 60604.

A request for hearing must meet the requirements of 40 C.F.R. 114.5 and shall:

(1) State the name and address of the person requesting the hearing;

(2) Enclose a copy of this Notice of Violation; and

(3) State with particularity, the issues to be raised by such person at the hearing.

All hearings will be scheduled at the earliest practicable date.

V

SETTLEMENT CONFERENCE

Regardless of whether you request a hearing, you are extended an opportunity to request an informal conference. A request for an informal conference does not stay the 30-day period during which you must submit a written request for a hearing if a hearing is desired.

To request a settlement conference please write to Mr. Donald Rothschild Legal Support Section, Enforcement Division, Region V, U.S. Environmental Protection Agency, 230 South Dearborn Street, Chicago, Illinois 60604, or telephone Mr. Rothschild, at (312) 353-2094.

MDNR 003959

It should be noted that each day of the violation cited above constitutes a new violation and you may be liable for additional penalties. Therefore, your immediate commitment to correct deficiencies and comply with 40 C.F.R. 112 is to your advantage both to protect you from additional liability and as a factor in mitigation of the proposed penalty.

Your failure to respond to this assessment as prescribed above or to request a hearing as herein provided will result in an action being commenced by the United States to collect the full amount of the original assessment for this violation.

Dated this 15th day of September, 1977.

James O. McDonald
Director, Enforcement Division
U.S. Environmental Protection Agency
Region V

DEPARTMENT OF NATURAL RESOURCES
RESOURCE RECOVERY DIVISION

EVALUATION REPORT

SANITARY LANDFILL: ☒ TYPE II ☐ TYPE III ☐ OTHER _____

NAME OF FACILITY: ALLIED LANDFILL

FACILITY NO.: 39-0000011

LOCATION: Main Roads — Section No. — Township — City — County: CORK ST. 27 KAL.

NAME OF OPERATOR: ALLIED PAPER COMP.

NAME OF LICENSEE: SAME

STATUS: ☒ Open & Licensed ☐ Closed & Inspecting ☐ Unlicensed

RESTRICTIONS/STIPULATIONS TO CONSIDER DURING INSPECTION

(C) = Compliance (N) = Noncompliance (—) = Does Not Apply

C	A. Protection of Surface Waters
C	B. Hazardous Material/Liquids/Sewage Materials Prohibited for Disposal
C	C. Surface Water Drainage
N	D. Period and Adequacy of Cover
C	E. Completion of Area/Final Coverage
C	F. Compaction
C	G. Leachate Control/Management
C	H. Engineering Plans, Hydrogeologic Evaluation & Construction Certification
C	I. Operations Conform to Plan & License Stipulations
C	J. Vermin Control/Bird Control
N	K. Blowing Debris, Dust & Odor Control
C	L. Gas Migration
C	M. Fire Protection and Restriction of Burning
C	N. Equipment Adequacy
C	O. Restricted Access/Attendant
C	P. Traffic Flow
C	Q. Salvaging/Scavenging
C	R. Noise Level
C	S. Fence/Screening Maintenance

REMARKS:

D.) SOME ERROSION ON NORTH ZIP

K.) NEED SOME PAPER PICKED UP ON NORTH WEST SIDE.

0002340

Inspection item definitions are on back of this form.

PERSON INTERVIEWED:

DATE: Y Y M M D D 8 2 1 2 1 7

TIME OF INSPECTION: 4:04

INSPECTED BY: [signature]

REPRESENTING: Kal. Co. Health Dept.

DISTRIBUTION: Original to Dept. of Natural Resources; 1 copy — Licensee, 1 copy — Certified Health Dept.

R5509 Rev 7/82

SA 009814

SA00009814

CERTIFIED MAIL,
RETURN RECEIPT REQUESTED

August 29, 1986

NOTICE OF SUIT

TO: SCM Corporation
c/o The Corporation Company
615 Griswold
Detroit, Michigan 48226

Allied Paper, Incorporated
c/o The Corporation Company
615 Griswold
Detroit, Michigan 48226

Allied Paper, Incorporated
Ernest J. Klimezak, CEO
2030 Portage Street
Kalamazoo, MI 49001

Stryker Corporation
c/o John W. Brown, CEO
420 E. Alcott Street
Kalamazoo, MI 49001

Joseph A. & Dolores Cekola
9039 West End Drive
Portage, Michigan 49081

Lee Thomas
Administrator
U.S. Environmental Protection Agency
410 M Street, S.W.
Washington, DC 20460

Valdas V. Adamkus
Administrator for Region V
U.S. Environmental Protection Agency
230 S. Dearborn Street
Chicago, Illinois 60604

RECEIVED
SEP 0[illegible] 1986
SWQD-Plainwell

Re: Releases of Hazardous Substances Into and From Portage Creek Between Cork and Alcott Streets in the City of Kalamazoo, Kalamazoo County. See Attachment A.

The State of Michigan, by its Attorney General, Frank J. Kelley, hereby gives notice of its intent to file a civil action

0011251

SH 006700

SA00006700

clarifiers and sludge disposal areas in that vicinity, from which there has been a release or a threat of release of hazardous substances, polychlorinated biphenyls (PCBs), into the environment. The surface waters actually or potentially effected by those releases include Portage Creek, the Kalamazoo River and Lake Michigan. The following real properties identified by Kalamazoo City Assessor parcel number are the facilities:

Parcel No.	Owner/Operator
070390	SCM/Allied (Attachment B)
070380	SCM/Allied (Attachment C)
070425	SCM/Allied (Attachment D)
330160	SCM/Allied (Attachment E)
330140	SCM/Allied (Attachment F)
330120	SCM/Allied (Attachment G)
330180	SCM/Allied (Attachment H)
070320	Stryker Corp. (Attachment I)
070420	Joseph A. and Dolores Cekola (Attachment J)

(b) SCM and Allied have contributed or are contributing to the handling, storage, and/or disposal of solid waste (PCBs) in that area which may present an imminent and substantial endangerment to health or the environment.

(c) SCM and Allied have and are discharging pollutants (PCBs) into the waters of the United States from that area without a permit.

0011253

SA 006702

SA00006702

(d) These actual or threatened releases of hazardous substances from these facilities have caused the State of Michigan to incur response costs in excess of $250,000 to date and will cause the State to incur additional response costs in the future.

(e) The migration of PCBs from this area into the waters of Portage Creek constitutes an uncontrolled discharge and disposal of in-service PCBs contrary to 40 CFR Part 761, Subpart D, and contrary to TSCA, 15 USC 2614, actionable under 15 USC 2616 and 2619.

Under applicable law, SCM and Allied are liable for damages for injury to, destruction of, or loss of the natural resources of this State resulting from such releases of hazardous substances. SCM and Allied are also liable for all response costs incurred and to be incurred by the State of Michigan as a result of such releases, including but not limited to the costs of investigating, monitoring, testing and enforcement. The full amount of such damages and future costs cannot be ascertained at this time. SCM and Allied may be subject to fines and penalties and may also be restrained from further violations and may be ordered to take such actions as may be necessary to protect the public health, safety, welfare, or the environment. Stryker Corporation and Joseph A. and Dolores Cekola may also be subject to injunctive relief, and will be made parties to the action for the purpose of gaining access to real estate for necessary removal and/or remedial activity.

0011284

SA 006703

SA00006703

The civil action to be filed by the State of Michigan will seek injunctive relief to abate and remedy the release of hazardous substances into the environment, declaratory relief, damages, civil penalties, costs of ligitation including reasonable attorney and expert witness fees, reimbursement of state response costs, and all other appropriate relief pursuant to, among other laws: CERCLA, 42 USC 9601 et seq; RCRA 42 USC 6901 et seq; FWPCA, 33 USC 1251 et seq; TSCA, 15 USC 2601 et seq; the Michigan Water Resources Commission Act, 1929 PA 245; MCL 321.1 et seq; the Michigan Environmental Protection Act, 1970 PA 127; MCL 691.1201 et seq; the Hazardous Waste Management Act, 1979 PA 64; MCL 299.501 et seq; the Michigan Environmental Response Act, 1982 PA 307, MCL 299.601; and Michigan's Common Law of Nuisance.

The State of Michigan will file suit against SCM, Allied, Stryker Corporation, Joseph A. Cekola and Dolores Cekola ninety (90) days after receipt of this letter unless a full resolution of these issues is reached prior to that time.

STATE OF MICHIGAN

FRANK J. KELLEY
Attorney General

Business Address:
Environmental Protection Division
720 Law Building
Lansing, Michigan 48913
Telephone (517) 373-7780

cc Donald Inman, Chief MDNR Environmental Enforcement
Delbert Rector, Chief MDNR Hazardous Waste
Paul Zugger, Chief MDNR Surface Water Quality
Jon F. Dewitt, Esquire

0011285

SA 006704

SA00006704

KALAMAZOO COUNTY GOVERNMENT

HUMAN SERVICES DEPARTMENT

418 WEST KALAMAZOO AVENUE•KALAMAZOO, MICHIGAN 49007
PHONE (616) 383-8888

RECEIVED
APR 2 1987
R. R. EATON

March 31, 1987

Mr. R. Richard Eaton
Manager, Utilities, Maintenance & Engineering
Allied Paper Incorporated
P.O. Box 2528
Kalamazoo, MI 49003

Dear Mr. Eaton:

Enclosed you will find a copy of the evaluation report for the Allied Paper Landfill. As indicated on the report, our inspection of March 24, 1987 revealed the following:

1) Ponding of water was taking place on the west side of the fill area. This area needs to be graded to eliminate any standing water.
2) We noted that piles of fly ash had been deposited on the site. This fly ash was being blown around the site by the wind. Further, we noted leachate seeping from these piles on the ground below. As noted on the evaluation report, this fly ash needs to be mixed with paper mill sludge and used as cover material or removed from the property.

We will await notification from you as to when these items have been corrected. If you have any questions, please feel free to contact me at 383-8942.

Sincerely,

Patrick Krause, R.S.
Assistant Director of Environmental Health Section,
Health Protection Bureau
Kalamazoo County Department of Human Services

cc: Richard Sadowski

PK/blb

000225

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
RESOURCE RECOVERY DIVISION

RECEIVED
APR 2 1987
R. R. EATON

EVALUATION REPORT

SANITARY LANDFILL: ☐ TYPE II ☒ TYPE III ☐ OTHER _____

NAME OF FACILITY	FACILITY NO.
Allied Paper Landfill	39-000001

LOCATION: Main Roads — Section No. — Township — City — County
Cork St. Section 27 Kalamazoo - Kalamazoo

NAME OF OPERATOR	NAME OF LICENSEE
Allied Paper Co.	Same.

STATUS: ☒ Open & Licensed ☐ Closed & Inspecting ☐ Unlicensed

RESTRICTIONS/STIPULATIONS TO CONSIDER DURING INSPECTION

(C) = Compliance (N) = Noncompliance (—) = Does Not Apply

C	A. Protection of Surface Waters
C	B. Hazardous Material/Liquids/Sewage Materials Prohibited for Disposal
N	C. Surface Water Drainage
N	D. Period and Adequacy of Cover
C	E. Completion of Area/Final Coverage
C	F. Compaction
C	G. Leachate Control/Management
N	H. Engineering Plans, Hydrogeologic Evaluation & Construction Certification
C	I. Operations Conform to Plan & License Stipulations
C	J. Vermin Control/Bird Control
C	K. Blowing Debris, Dust & Odor Control
C	L. Gas Migration
C	M. Fire Protection and Restriction of Burning
C	N. Equipment Adequacy
C	O. Restricted Access/Attendant
C	P. Traffic Flow
C	Q. Salvaging/Scavenging
C	R. Noise Level
C	S. Fence/Screening Maintenance

REMARKS:

C) ponding of water noted on west side of fill adjacent to railroad tracks - provide grading to eliminate such an occurrance.

D, H) noted piles of flyash - ~~blowing all over~~ contents of piles blowing all over. Flyash was to be mixed with sludge and used as cover - continue with this plan, or cease collection of flyash and remove piles now present. - Further noted leachate on ground from flyash due to inadequate cover.

Inspection item definitions are on back of this form.

PERSON INTERVIEWED	DATE (Y Y M M D D)	TIME OF INSPECTION
	87 03 24	1 15/PM

INSPECTED BY: Patrick Kramer, Jim Akers

REPRESENTING: Health Protection Bureau, Kal. Co. Dept of Human Services

SA 030627

SA00030627

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
RESOURCE RECOVERY DIVISION

RECEIVED
MAY 28 1987
R. R. EATON

EVALUATION REPORT

SANITARY LANDFILL: ☐ TYPE II ☒ TYPE III ☐ OTHER _____

NAME OF FACILITY	FACILITY NO.
Allied Paper Landfill	39-00000.01

LOCATION Main Roads — Section No. — Township — City — County
Cork St, Section 27, Kalamazoo Kalamazoo

NAME OF OPERATOR	NAME OF LICENSEE
Allied Paper Co.	Same

STATUS: ☑ Open & Licensed ☐ Closed & Inspecting ☐ Unlicensed

RESTRICTIONS/STIPULATIONS TO CONSIDER DURING INSPECTION

(C) = Compliance (N) = Noncompliance (—) = Does Not Apply

C	A. Protection of Surface Waters
C	B. Hazardous Material/Liquids/Sewage Materials Prohibited for Disposal
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C	F. Compaction
C	G. Leachate Control/Management
C	H. Engineering Plans, Hydrogeologic Evaluation & Construction Certification
C	I. Operations Conform to Plan & License Stipulations
C	J. Vermin Control/Bird Control
C	K. Blowing Debris, Dust & Odor Control
C	L. Gas Migration
C	M. Fire Protection and Restriction of Burning
C	N. Equipment Adequacy
C	O. Restricted Access/Attendant
C	P. Traffic Flow
C	Q. Salvaging/Scavenging
C	R. Noise Level
C	S. Fence/Screening Maintenance

REMARKS:

Operation confined to currently licensed ~~area~~ AREA. Disposal of paper mill sludge must be confined to this area and not be deposited in an unlicensed area on this site.

Inspection item definitions are on back of this form

PERSON INTERVIEWED	DATE (Y Y M M D D)	TIME OF INSPECTION
	8 7 0 5 1 2	10 15 AM.

INSPECTED BY	REPRESENTING
PATRICK KRAUSE	Kalamazoo County
LYNN SPURR, TOM LEEP	MDNR.

SA 018640

SA00018640

KALAMAZOO COUNTY GOVERNMENT

HUMAN SERVICES DEPARTMENT

418 WEST KALAMAZOO AVENUE•KALAMAZOO, MICHIGAN 49007
PHONE (616) 383-8888

RECEIVED
MAY 28 1987
R. R. EATON

May 27, 1987

Mr. R. Richard Eaton
Manager, Utilities, Maintenance & Engineering
Allied Paper, Inc.
P.O. Box 2528
Kalamazoo, MI 49003

Dear Mr. Eaton:

Enclosed you will find the inspection report for the inspection made of the Allied Paper Landfill. If you have any questions, please feel free to contact me at 383-8942. Thank you for your cooperation.

Sincerely,

Patrick Krause, R.S., M.P.A.
Manager of Environmental Health Section,
Health Protection Bureau
Kalamazoo County Department of Human Services

Enclosure

cc: Lynn Spurr, Michigan Department of Natural Resources

PK/blb

DEPARTMENT OF NATURAL RESOURCES
RESOURCE RECOVERY DIVISION

EVALUATION REPORT

SANITARY LANDFILL: ☐ TYPE II ☒ TYPE III ☐ OTHER _____

NAME OF FACILITY: Allied Paper	FACILITY NO: 39-00000
LOCATION: Main Roads — Section No. — Township — City — County: Cork St, Section 27, Kalamazoo, Kalamazoo	
NAME OF OPERATOR: Allied Paper Co	NAME OF LICENSEE: SAME.

STATUS: ☐ Open & Licensed ☐ Closed & Inspecting ☒ Unlicensed

RESTRICTIONS/STIPULATIONS TO CONSIDER DURING INSPECTION

(C) = Compliance (N) = Noncompliance (—) = Does Not Apply

C	A. Protection of Surface Waters
C	B. Hazardous Material/Liquids/Sewage Materials Prohibited for Disposal
X	C. Surface Water Drainage
C	D. Period and Adequacy of Cover
C	E. Completion of Area/Final Coverage
C	F. Compaction
X	G. Leachate Control/Management
C	H. Engineering Plans, Hydrogeologic Evaluation & Construction Certification
C	I. Operations Conform to Plan & License Stipulations
C	J. Vermin Control/Bird Control
C	K. Blowing Debris, Dust & Odor Control
C	L. Gas Migration
C	M. Fire Protection and Restriction of Burning
C	N. Equipment Adequacy
C	O. Restricted Access/Attendant
C	P. Traffic Flow
C	Q. Salvaging/Scavenging
C	R. Noise Level
C	S. Fence/Screening Maintenance

REMARKS:

(C) (G) Two areas ~~[illegible]~~ were observed on fill area where ponding of leachate was occurring - fill should be graded to eliminate ponding and divert leachate to sentimentation basins

Fill was being deposited within boundaries of licensed ~~[illegible]~~ landfill area.

0002317

Inspection item definitions are on back of this form.

PERSON INTERVIEWED	DATE	TIME OF INSPECTION
George Brooks.	8 7 1 2 0 8	10 00/AM

INSPECTED BY	REPRESENTING
Patrick Krause William Speeter.	

DISTRIBUTION. Original to Dept. of Natural Resources; 1 copy — Licensee; 1 copy — Certified Health Dept.

R6000
Rev 7/82

SA 001758

SA00001758

KALAMAZOO COUNTY GOVERNMENT

Lee Ann LB
Rich RS
File SA

HUMAN SERVICES DEPARTMENT

418 WEST KALAMAZOO AVENUE • KALAMAZOO, MICHIGAN 49007
PHONE (616) 383-8888

June 23, 1989

Performance Paper Company
ATTN: Mr. Richard Eaton
Manager, Utilities, Maintenance & Engineering
P. O. Box 2528
Kalamazoo, Michigan 49003

RE: Performance Paper Company Type III Landfill

Dear Mr. Eaton:

On June 19, 1989, I visited your facility to evaluate compliance with Michigan's Solid Waste Management Act (P.A. 641, 1978, as amended).

Based upon the inspection, it has been determined that the facility was not operating in compliance with the following requirements:

> This landfill site appeared to be in good operating condition as of June 19, 1989; however, heavy rains have eroded an area of the Northwest corner of this landfill. Eroded area's adjacent to the landfill indicate possible surface water drainage from off the landfill site into the adjoining wetlands. Our office would like information regarding your plans for eliminating this problem.

It is requested that you make arrangements to correct this problem. If you have questions regarding this matter, please feel free to contact me at 383-8863.

Written under the direction and supervision of Patrick Krause, Manager of Environmental Health Section.

Sincerely,

Wm T. Speeter

William Speeter, R.S.
Environmental Health

RECEIVED
JUN 27 1989
WMD-PLAINWELL

encl.

cc: Lynn Spurr Michgian Dept. of Natural Resources

WS:gjd

Providing Mental Health, Public Health, Substance Abuse, Job Training, Transportation and Serves as the Community Action Agency.

0002294

SA 001740

SA00001740

GROUNDWATER QUALITY DIVISION

EVALUATION REPORT

SANITARY LANDFILL: ☐ TYPE II ☒ TYPE III ☐ OTHER _____

NAME OF FACILITY: PERFORMANCE PAPER COMPANY — FACILITY NO: 39-10CD0001

LOCATION Main Roads — Section No — Township — City — County

NAME OF OPERATOR: Allied Paper Company — NAME OF LICENSEE: Allied Paper.

STATUS: ☐ Open & Licensed ☐ Closed & Inspecting ☒ Unlicensed

RESTRICTIONS/STIPULATIONS TO CONSIDER DURING INSPECTION

(C) = Compliance (N) = Noncompliance (—) = Does Not Apply

C	A. Protection of Surface Waters	REMARKS:
C	B. Hazardous Material/Liquids/Sewage Materials Prohibited for Disposal	HEAVY RAINS HAVE ERODED AN AREA OF THE NW CORNER OF THIS LANDFILL SITE. GROOED AREA'S ADJACENT TO THE LANDFILL INDICATE POSSIBLE SURFACE WATER DRAINAGE FROM OFF THE LANDFILL SITE INTO THE WETLANDS
C	C. Surface Water Drainage	
C	D. Period and Adequacy of Cover	
C	E. Completion of Area/Final Coverage	
C	F. Compaction	
C	G. Leachate Control/Management	
C	H. Engineering Plans, Hydrogeologic Evaluation & Construction Certification	
C	I. Operations Conform to Plan & License Stipulations	
C	J. Vermin Control/Bird Control	
C	K. Blowing Debris, Dust & Odor Control	
C	L. Gas Migration	
C	M. Fire Protection and Restriction of Burning	
C	N. Equipment Adequacy	
C	O. Restricted Access/Attendant	
C	P. Traffic Flow	
C	Q. Salvaging/Scavenging	
C	R. Noise Level	
C	S. Fence/Screening Maintenance	

Inspection item definitions are on back of this form.

PERSON INTERVIEWED	DATE	TIME OF INSPECTION
Wm French	8,9 M 10,6 M 11,9 D	2:PM

INSPECTED BY	REPRESENTING
Wm T. Sackett	KAI Human Services 0002295

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SA 001741

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INTER-OFFICE CORRESPONDENCE

SCM. ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

TO: U.C. Stoeffler **WRITTEN BY:** Ray Willis

OFFICE: **OFFICE:**

SUBJECT: Check of Overflow Tube at Bryant Sludge Bed **DATE:** June 7, 1971

LOCATION	DATE	FLOW RATE	TURBIDITY JTU	pH	B.O.D. PPM	SMELL
South	4/21	2 gpm	160	6.2	450	NO
East	4/22	12 gpm	585	6.3	340	H_2S
South	4/27	1 gal-5 min.	150	6.6	330	NO
East	4/27	5 gpm	1,000+	6.5	355	H_2S
South	4/29	1 gal.5 min.	400	6.0	260	NO
East	4/29	5 gpm	750	6.4	235	H_2S
South	5/4	1 gal-4 min.	135	6.2	720	NO
East	5/4	5 gpm	1,000+	6.3	635	H_2S
South	5/6	1 gal/m	160	6.1	750	NO
East	5/6	10 gpm	1,000+	6.1	555	H_2S
South	5/18	½ gpm	600	6.7	1,050	NO
East	5/18	5 gpm	725	6.4	565	H_2S
South	5/20	1 gp. 4 min.	600	6.2	1,320	NO
East	5/20	2 gpm	550	6.3	560	H_2S
South	5/25	1 qt./min.	590	6.1	1,120	NO
East	5/25	20 gpm	950	6.5	700	H_2S
South	5/27	1 qt./min.	350	6.1	1,170	NO
East	5/27	10 gpm	750	6.5	670	H_2S

cc: R.H. Levy
E.J. Gilman
FILE 301

bu

TABLE 6-2

Results of the Allied Paper, Inc.
Program to Monitor for PCBs
in the Monarch Clarifier Effluent
1985-1986

Survey Date	Total PCBs (ng/l)	TSS (mg/l)
7/10/85	ND	--
11/14/85	ND	6
12/17/85	ND *	67
1/22/86	ND	28
2/19/86	ND	80
6/24/86	ND *	35
8/06/86	ND *	49
10/1/86	ND *	29
12/10/86	ND *	90

ND - Not Detected. Detecton limit = 10 ng/l

* Interferences in these samples precluded reaching the 10 ng/l detection limit, and therefore the detection limit for these samples was 100 ng/l.

COMMISSION

Report of Waste Surveys

at

St. Regis Paper Company
Kalamazoo, Michigan

Survey Periods: (24 hours for each)

July 20, 1955
July 21, 1955
July 22, 1955
July 23, 1955
July 24, 1955
July 25, 1955
July 26, 1955

Summary of Results

te	7-20	7-21	7-22	7-23	7-24	7-25	7-26
ow, million gallons per day	6.908	6.741	6.883	6.676	3.099	7.044	6.375
oduction, tons	196.21	174.53	171.35	173.32		189.66	183.00
Day B.O.D., pounds	18,897	17,709	18,771	18,373	4,730	12,337	14,940
Day B.O.D., pounds per ton paper	96.31	101.46	109.54	106.00		65.04	81.63
tal Suspended Solids, pounds	61,414	41,602	66,589	68,371	5,272	45,234	37,642
tal Suspended Solids, pounds per ton paper	313.00	238.36	388.61	394.47		238.50	205.69
tal Suspended Vol. Solids, pounds	20,740	12,818	22,502	23,384	1,396	9,047	7,443
tal Suspended Vol. Solids, pounds per ton paper	105.70	73.44	131.32	134.92		47.70	40.67
llons Waste per ton paper	35,207	38,624	40,169	38,518		37,140	34,836
opulation Equivalent	11[illegible]5	106,041	112,401	110,017	28,323	73,874	89,461
ettleable Solids Removal, per cent	[illegible].50	73.77	60.86	[illegible]c.23	113.74	71.42	86.38
hite Water Susp. Solids, pounds	0.0	0.0	0.0	0.0	0.0	0.0	0.0
hite Water Susp. Solids, pounds per ton paper.	0.0	0.0	0.0	0.0		0.0	0.0

Type of Mill Production

De-ink Mill

Mill Water Supply

Portage Creek above Allied Monarch Division augmented with city water. Creek water is filtered before it is used.

Waste Control

De-ink waste flows by gravity to the main pump house. White water is pumped from various collection points to the main pump house and then both de-ink waste

SA 039003

[redacted] white water are pumped to a 100 foot diameter sedimentation basin with a 12 foot sidewater depth. Effluent is discharged to Portage Creek. Sludge is discharged to a large lagoon.

Survey Procedure

Effluent from the sedimentation basin is discharged through a weir box. A recording head meter was installed at the weir to obtain a continuous daily record of the flow. Samples were taken of the flow at fifteen minute intervals by an automatic sampler and composited for each survey period.

An influent sample was obtained by continuously bleeding a small portion of the influent flow from the pump house discharge line through a small box equipped with an automatic sampler.

Survey Data:

Influent

Date	7-20	7-21	7-22	7-23	7-24	7-25	7-26
5-Day B.O.D., p.p.m.	420	590	495	455	205	390	525
Suspended Solids, p.p.m.	1,888	1,944	2,124	2,040	1,048	1,880	2,104
Suspended Vol. Solids, p.p.m.	760	824	780	812	456	772	840
2-hour Settleable Solids, p.p.m.	1,236	1,632	1,584	1,444	742	1,554	1,616
pH	7.2		6.9	7.6	7.8		7.0

Effluent

5-Day B.O.D., p.p.m.	328	315	327	330	183	210	281
Suspended Solids, p.p.m.	1066	740	1160	1228	204	770	708
Suspended Vol. Solids, p.p.m.	360	228	392	420	54	154	140
pH		7.2	7.2	7.3	7.5	7.3	7.2
Production, Tons	196.21	174.53	171.35	173.32		189.66	183.00
Flow, million gallons per day	6.908	6.741	6.883	6.676	3.099	7.044	6.375

Survey Calculations

Pounds of 5-Day B.O.D. to River

							INFLUENT (Raw)
7-20	6.908	x	8.34	x	328	= 18,897	24,200 lbs./day
7-21	6.741	x	8.34	x	315	= 17,709	33,160
7-22	6.883	x	8.34	x	327	= 18,771	28,400
7-23	6.676	x	8.34	x	330	= 18,373	25,310
7-24	3.099	x	8.34	x	183	= 4,730	—
7-25	7.044	x	8.34	x	210	= 12,337	22,800
7-26	6.375	x	8.34	x	281	= 14,940	27,900

Pounds of 5-Day B.O.D. per ton of paper

7-20	18,897	/ 196.21	= 96.31
7-21	17,709	/ 174.53	= 101.46

7-22	18,771 / 171.35 =	109.54
7-23	18,373 / 173.32 =	106.00
7-25	12,337 / 189.66 =	65.04
7-26	14,940 / 183.00 =	81.63

Population Equivalent

7-20	18,897 / 0.167 =	113,155
7-21	17,709 / 0.167 =	106,041
7-22	18,771 / 0.167 =	112,401
7-23	18,373 / 0.167 =	110,017
7-24	4,730 / 0.167 =	28,323
7-25	12,337 / 0.167 =	73,874
7-26	14,940 / 0.167 =	89,461

Total Pounds of Suspended Solids to River

7-20	6.908	x 8.34	x 1066	=	61,414
7-21	6.741	x 8.34	x 740	=	41,602
7-22	6.883	x 8.34	x 1160	=	66,589
7-23	6.676	x 8.34	x 1228	=	68,371
7-24	3.099	x 8.34	x 204	=	5,272
7-25	7.044	x 8.34	x 770	=	45,234
7-26	6.375	x 8.34	x 708	=	37,642

Total Pounds of Suspended Solids per ton paper

7-20	61,414 / 196.21 =	313.00
7-21	41,602 / 174.53 =	238.36
7-22	66,589 / 171.35 =	388.61
7-23	68,371 / 173.32 =	394.47
7-25	45,234 / 189.66 =	238.50
7-26	37,642 / 183.00 =	205.69

Total Pounds of Suspended Volatile Solids to River

7-20	6.908	x 8.34	x 360	=	20,740
7-21	6.741	x 8.34	x 228	=	12,818
7-22	6.883	x 8.34	x 392	=	22,502
7-23	6.676	x 8.34	x 420	=	23,384
7-24	3.099	x 8.34	x 54	=	1,396
7-25	7.044	x 8.34	x 154	=	9,047
7-26	6.375	x 8.34	x 140	=	7,443

Total Pounds of Suspended Volatile Solids per ton of paper

7-20	20,740 / 196.21 =	105.70
7-21	12,818 / 174.53 =	73.44
7-22	22,502 / 171.35 =	131.32
7-23	23,384 / 173.32 =	134.92
7-25	9,047 / 189.66 =	47.70
7-26	7,443 / 183.00 =	40.67

Gallons of Waste per ton of paper

7-20	6,908,000 / 196.21 =	35,207
7-21	6,741,000 / 174.53 =	38,624
7-22	6,883,000 / 171.35 =	40,169

7-23	6,670,000 / 173.32 =	38,516
7-25	7,044,000 / 189.66 =	37,140
7-26	6,375,000 / 183.00 =	34,836

Treatment Plant Efficiency

B.O.D. Removal

7-20	(420 - 328) x 100 / 420 =	21.90%
7-21	(590 - 315) x 100 / 590 =	46.61%
7-22	(495 - 327) x 100 / 495 =	33.93%
7-23	(455 - 330) x 100 / 455 =	27.47%
7-24	(205 - 183) x 100 / 205 =	10.73%
7-25	(390 - 210) x 100 / 390 =	46.15%
7-26	(525 - 281) x 100 / 525 =	46.47%

Suspended Solids Removal

7-20	(1888 - 1066) x 100 / 1888 =	43.54%
7-21	(1944 - 740) x 100 / 1944 =	61.93%
7-22	(2124 - 1160) x 100 / 2124 =	45.39%
7-23	(2040 - 1228) x 100 / 2040 =	39.80%
7-24	(1048 - 204) x 100 / 1048 =	80.53%
7-25	(1880 - 770) x 100 / 1880 =	59.04%
7-26	(2104 - 708) x 100 / 2104 =	66.35%

Suspended Volatile Solids Removal

7-20	(760 - 360) x 100 / 760 =	52.63%
7-21	(824 - 228) x 100 / 824 =	72.33%
7-22	(780 - 392) x 100 / 780 =	49.74%
7-23	(812 - 420) x 100 / 812 =	48.27%
7-24	(456 - 54) x 100 / 456 =	88.15%
7-25	(772 - 154) x 100 / 772 =	80.05%
7-26	(840 - 140) x 100 / 840 =	83.33%

Settleable Solids Removal

7-20	(1888 - 1066) x 100 / 1236 =	66.50%
7-21	(1944 - 740) x 100 / 1632 =	73.77%
7-22	(2124 - 1160) x 100 / 1584 =	60.86%
7-23	(2040 - 1228) x 100 / 1444 =	56.23%
7-24	(1048 - 204) x 100 / 742 =	113.74%
7-25	(1880 - 770) x 100 / 1554 =	71.42%
7-26	(2104 - 708) x 100 / 1616 =	86.38%

Remarks

On the 7-20 survey and again during the 7-25 survey the by-pass sewer from the pump house was discharging untreated waste to Portage Creek even though all three pumps were in operation. This condition was again observed on August 24. From the flow charts obtained at the effluent weir it is possible to pick off the flows with one, two, and three pumps in operation. The discharge over the weir with one pump in operation is approximately 2,900 gallons per minute, with two

pumps 4,250 gallons per minute and with three pumps 5,000 gallons per minute.

According to a letter of October 19, 1953, the clarifier is 100 feet in diameter and has a sidewater depth of 12 feet. The three pumps in the main pump house are each of 3,000 gallons per minute capacity.

The following is the theoretical detention time in the clarifier for the average daily flow on each of the survey dates:

7-20	2.44 hours
7-21	2.51 hours
7-22	2.45 hours
7-23	2.53 hours
7-24	5.45 hours
7-25	2.40 hours
7-26	2.65 hours

Survey written and supervised by
Ralph W. Purdy

Field Work by
H. Liechti

Chemical Analyses by
R. Krueger

COPY

ST. REGIS PAPER COMPANY

2030 Portage Street

Kalamazoo 29, Michigan

COPY

April 10, 1956

Water Resources Commission
State of Michigan
P. O. Box 87
Lansing 1, Michigan

Attention: Loring F. Oeming, Chief Engineer

Re: Waste Treatment
Your Letter of February 17, 1956

Dear Mr. Oeming:

I was requested to answer your letter of February 17, 1956, as to what our action would be to comply with the original 1951 orders. As I understand it, this complaint is comprised of the following items:

1. All deink waste is not treated.
2. Increased B.O.D.
3. Low clarifier efficiency.

To correct Item No. 1. <u>All deink waste is not treated</u>, we propose the following:

(a) It was found after investigation that our final pumping station to our 100 ft. dia. clarifier was not handling its original rated capacity, thus allowing overflow directly to Portage Creek. These same pumps being three (3) in number have recently been supplied with maximum impellers and are now taking care of waste water without any overflow, with this exception, there are occasions when our trash racks become clogged with debris backing up to overflow. This happens very rarely and steps are being taken to correct this.

(b) In our investigations we find that a substantial amount of fresh water make-up now used in our deink mill can be eliminated probably in the range of 700,000 gals/day. This reduction would come from the utilization of excess white water from the paper mills, which is presently by passing our deink plant and being pumped directly to the final waste pumping station. To accomplish this will require substantial funds, funds which are obtainable only with executive approval from our New York office. The request has been submitted and approval should be forthcoming in the very near future. Completion date of this portion of project would be estimated for the end of June or middle of July. Our benefits from re-routing this water would be reduction of gallonage load on final pumping station, higher solids concentration to clarifier and longer retention time.

(c) As you will remember all waste waters from our paper mills and deink plant are pumped to our treatment plant. We feel that much of the

0002800

SA 010988

1958												
11/24	66,500	7,630	58,700		4.69	13,300	0		79.8	79.7	12	
11/25			58,100		4.65	26,000	0	18,450		54.0	1:	
					4.69					--	1[illegible]	
					4.69						2	
					4.49						1'	
					4.49						2[illegible]	
	66,500	7,630	58,400		4.62	19,650	0	18,450	79.8	66.8	174.3	69.7
			Note: Bypassing as usual!									
	141,100	14,820	94,800		7.11	31,950	0		77.3		181.0	75.2
11/25	82,300	6,910	50,970	23,900	5.10						181.2	72.3
11/26					5.80						162.1	72.7
11/27					5.80						182.9	75.3
11/28					5.56						163.6	71.2
11/29					5.56						162.4	75.6
	111,700	10,865	72,885	23,900	5.82	31,950	0		77.3		172.2	73.7

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SA00035113

SH 035113

1958

11/17	115,300	10,600	103,500		7.7±	31,350	0		67.5		47.6	
					5.05						52.7	
	71,500	6,660	70,±00	24,000	±.83	29,000	0	1±,650	59.4	39.2	6.7	
	58,900	5,230	76,700	22,350	±.±9	20,950	0	11,790	6±.4	±5.0	79.7	
	107,600	6,075	51,±00		±.50							
					±.36							
	76,320	7,1±1	77,000	25,180	5.27	27,100	0	15,220	65.8	±1.1	±6.7	

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Bypassing - King - A lot continually
Bryant - Occasionally

.7	106,200	9,910	76,500		5.40						189.6	73.6
11/18	11±,600	9,040	118,700	33,750	6.19	±4,000	0	28,800	70.2	14.6	165.1	73.4
11/19	112,000	7,760	94,900	28,250	6.00	46,100	1,500	25,900	59.0	8.5	184.1	72.5
11/20	103,200	9,210	98,±00	34,300	5.90	42,300	1,965	23,500	59.2	31.5	176.4	75.0
11/21	127,100	9,830	103,000		5.89	36,300	1,225				190.3	75.7
11/22					6.00						226.9	71.1
	112,650	9,150	98,300	32,100	5.90	39,700	1,172	26,070	62.8	18.1	188.±	74.0

SA00035114

W. D. Harrison

1958												
12/8	90,600	9,860	116,000		6.46	60,300	0		28.0			
12/9	[illegible]	[illegible]	107,200	[illegible]	[illegible]	55,500	0	[illegible]	[illegible]	0.3		
8	[illegible]	[illegible]	138,500	27,100	[illegible]	48,800	0	26,800	[illegible]	[illegible]		
1					[illegible]							
2					6.8[illegible]							
13					[illegible]							
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		

Note: Bypassing at both mills. Effluent samples are spot samples.

8	119,000	8,350	70,800		5.66	12,500	0		63.3		182.5	7[illegible]
12/9	120,500	9,500	100,000	25,000	6.50	16,500	1,250	21,700	81.7	12.8	180.1	7[illegible]
12/10	[illegible]	[illegible]	82,500	25,050	6.53	13,050	~~[illegible]~~ 0	16,400	80.3	[illegible]	189.3	[illegible]
12/11	109,300	10,200	79,500		5.96						189.0	7[illegible]
12/12					5.96						156.3	72.
12/13					5.95						157.8	7[illegible]
	114,500	9,700	83,220	[illegible]	5.92	24,670	417	19,050	[illegible]	23.7	175.9	74.

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SA 035111

SA00035111

1958												
12/					--							
					--							
					5.12							
	114,500	7,630	120,800	48,000	7.6	62,400	0	26,700	15.5	42.5		
5	100,900	6,930	129,900		7.07	52,500	0		47.9			
6					7.07							
	107,700	7,280	125,850	48,000	6.72	57,450	0	26,700	46.7	42.5		

Note: Mill waste bypassing at each waste tank.

1	112,500	13,450	75,700		5.67						151.6	74.9
12/2	124,200	8,010	82,400	40,600	5.82	11,650	0	26,100	90.6	65.6	166.8	74.0
12/3	131,200	11,270	98,500	54,000	6.21	44,000	779	30,000	66.6	11.8	175.9	72.2
12/4	107,300	10,420	85,400	38,400	6.25	65,950	1,820	18,100	66.6	52.7	173.9	72.2
12/5	108,900	6,860	109,000		6.22						174.1	73.3
12/6					6.28						196.0	74.3
	116,820	10,005	89,800	57,670	6.08	30,530	866	24,730	74.6	53.4	173.0	73.5

SCM CONFIDENTIAL

SA00035112

SH 035112

KALAMAZOO INTER-OFFICE CORRESPONDENCE

Kendrick
EXHIBIT NO. 9
6.22.92
S. BUSSINGER

DEPOSITION EXHIBIT
KENDRICK #554
4/24/97 cc

ALLIED PAPER CORPORATION

January 20, 1958

To: H. E. Nelson

cc: E. J. Gilman
G. A. Littlefield
H. B. Johnston

From: W. E. Kendrick

SUBJECT: Operation and efficiency of the Bryant Mill waste treatment system.

The waste settling tank at the Bryant mill is operating at a lower than desirable efficiency. There are three noticeable things that occur that show the waste treatment inefficiency. They are:

1. Overloading (gallonwise) of the settling tank (7.040 MGD average since November 1, 1957.)
2. Mill "A" effluent bypassing settling tank.
3. Channeling of sludge which is very thin through the sludge bed to the overflow returning to the creek.

Although the treatment tank tests on the effluent show that our solids removal is sufficient, these results are misleading due to the amount of Mill "A" waste that bypasses treatment periodically. During a Mill "A" survey during August 1957, the amount bypassing amounted to a 1.305 MGD average over the six day test. This waste, of course, is very high in solids and BOD. The BOD efficiency of the tank is very poor, especially on days of high flow.

Another indication of poor settling tank efficiency is the low sludge consistency leaving the tank. This is especially bad during the winter months when the sludge bed freezes. Channeling of the sludge, when very thin, is much more prominent than with a thick sludge. During the colder days, the sludge bed effluent is very high in solids and the flow out is about the same as the flow into the bed. This situation, of course, lowers even further the overall tank efficiency and could cause a good deal of trouble with the state WRC authorities.

Since November 1957 the efficiency figures for the settling tank have dropped. Following are [illegible] that give Bryant [illegible] and comparisons with the King and Monarch mills. [illegible] of the sludge bed [illegible] the data are given below.

EXHIBIT
8202
ALL-STATE LEGAL SUPPLY CO

KA05001183

KALAMAZOO INTER-OFFICE CORRESPONDENCE

ALLIED PAPER CORPORATION

TABLE I

Date	Average Suspended Solids Efficiency - %			Sludge Consistency Average - %		
	Bryant	King	Monarch	Bryant	King	Monarch
Nov. 1957 - Jan. 58	47.1*	67.5	59.2	2.99**	6.20	7.82
July 1957 - Oct. 57	59.7			7.12		

* High - 78.1%, Low - 11.4%
** High - 4.27%, Low - 0.40%

TABLE II

Date 1958	Sludge Bed Influent %Cons.	% Fiber (200 M)	%Ash	Sludge Bed Effluent %Cons.	% Fiber (200 M)	%Ash	#/M Gal. Suspended Solids	#/M Gal. Fiber (200 M)
1/7	2.82	13.1	44.2	0.92	16.3	58.8	181.8	13.6
1/9	1.38	10.9	47.4	1.79	13.4	46.2	126.5	16.7
1/10	3.98	11.5	58.5	1.72	11.6	50.0	103.5	16.5
1/11	4.27	15.2	44.8	0.63	7.9	47.0	43.5	6.7
Average	3.11	-		1.26			33.8	13.3

Note: All spot samples

[redacted]

KA05001184

[illegible] Wilson

[illegible] D. Harrison, [illegible] M. [illegible], H. B. Johnston, [illegible] H. Baldauf, [illegible] B. [illegible], [illegible] Gilman, A. M. Mulder, D. Mendham, S. Stein, U. C. Stoeffler, R. Bell, B. Buenger, D. [illegible], V. Weaver

[illegible] DIVISION

1959	INFLUENT (#/day) [illegible]	Fiber*	Soluble	BOD	EFFLUENT (#/day) Flow (MGD)	Sus Solids	Fiber*	BOD	Removal % Efficiency Solids	BOD	Waste Paper Input Regular Tons	% Book
3/16	---------no samples**----------				6.50	----no sample**----					232.3	73.5
3/17	94,500	10,100	130,000		6.50	22,700	0				224.2	69.5
3/18	88,200	9,850	71,700		6.16	10,250	0				210.7	67.5
3/19	133,000	15,300	66,700		5.70	44,700	0					
3/20	98,700	11,400	115,000		5.75	33,500	0					
3/21	101,000	12,900	104,000		5.93	no sample	0					
	103,080	11,910	97,480		6.09	27,787	0					
	[illegible]					51,700		16,300				

[illegible] DIVISION

[illegible]/16	78,500	9,400	75,500		8.25	17,900	0					
3/17	130,500	16,200	130,900		8.36	30,500	0					
3/18	113,000	13,700	62,700		8.37	4,000	0					
3/19	116,000	12,800	91,000		8.43	47,300	0				128.8	60.5
3/20	142,000	13,200	145,000		8.73	111,000	0				165.3	62.4
3/21	146,000	19,000	131,000		8.75	no sample	0				184.0	63.8
	121,000	14,050	106,017		8.48	42,140	0				157.1	64.2
						[illegible]		[illegible]				

**bar grates plugged - bypassing settling tank.

SCM CONFIDENTIAL

SA 035435

SA00035435

KALAMAZOO INTER-OFFICE CORRESPONDENCE

ALLIED PAPER CORPORATION

December 31, 1958

To: R. M. Levy
H. E. Nelson

cc: W. D. Harrison
H. B. Johnston
J. H. McClure
A. M. Mulder
E. J. Gilman

From: W. E. Kendrick

SUBJECT: Performance of the waste treatment settling systems at the King and Bryant mills.

King: We are in flagrant violation of our Michigan Water Resources Commission orders on the amount of waste that we may discharge into the Kalamazoo River. Presently and for some time now, we have done little or no effective settling of our mill wastes. The system has been in physical operation with the only thing happening being power usage.

The major bottleneck is our sludge withdrawal. Additional sludge pumps are now available, but have not been installed. The system is not run through shutdown periods to insure sludge removal rather than buildup. This should be an automatic operation when the power source is switched during shutdown. During the week of December 15th, as the weekly data sheet shows, the level of the sludge blanket in the tank was so high that there was a sludge carryover in the effluent resulting in a higher concentration of solids leaving the tank than entering it. The tank drain valve has been open the past week, as it is this week, running the sludge [illegible] to the river.

Bypassing of mill waste, although not as much since the Denver system has been down, has occurred from time to time.

Bar grate clogging is still a problem, although it has been operating effectively since the first of the month.

The amount of fresh water that gets into the [illegible] is another disadvantage in more ways than one, as everyone knows. It is my understanding that a float level control valve has been [illegible] but still hasn't been installed. [illegible] check a short time ago [illegible]

SA 029192

SA00029192

KALAMAZOO INTER-OFFICE CORRESPONDENCE

ALLIED PAPER CORPORATION

sewer at a time when the deinking system and all paper machines were in full operation. This means about 3/4 million gallons a day with a higher rate loss when the system or part of the system goes down.

Bryant: The Bryant system is operating much more effectively than the King system. The main problem in operation is the periodic bypassing of the highly loaded deinking waste directly to Portage Creek. The settling tank itself has been operating very well except when it is hydraulically overloaded.

There are undoubtedly times when we are not in conformation with our orders from the WRC with regards to solids. We are rarely in line with regards to BOD.

Conclusions: Both mills' waste treatment systems are not now doing the job for which they were intended due to various causes. The systems, particularly King, have been and are being operated only because we are required to operate a primary treatment system with little or no regard for performance and efficiency. Due to the fact that performance has not seemed important, the money spent on power, maintenance, manpower, etc. is wasted. Because this operation is strictly a non-profit one, it should be run as economically and as efficiently as possible; economy and efficiency, of course, go together.

We are required to keep within the limits of the WRC at all times; this we haven't done or tried hard to do. Within the next 5-10 years we can expect additional restrictions which means secondary or other additional treatment. The pollution load "finger" is on the valley deinking mills, of which we are the biggest offender.

Recommendations: The following recommendations are necessary for us to keep our present waste treatment system in efficient operation, which will in turn keep us in good graces with the state authorities. This is essential!

1. Get our complete waste treatment facilities in economical and efficient operating condition.

2. Harness our fresh water supplies.

3. Reuse any reuseable water to the [illegible]

4. Do pilot studies on [illegible] low volume, highly loaded wastes. [illegible] small amounts in [illegible] treatment unit.

To: R. A. Larson

From: R. J. Willie
R. Kremer

cc: W. D. Harrison, R. M. Levy, H. B. Johnston, G. H. Baldauf, L. B. Owen, E. J. Gilman, A. M. Mulder, D. Mendham, S. Stetz, U. G. Stoeffler, R. Bell, B. Buenger, D. Falvey, V. Weaver

BRYANT DIVISION

1960 Date	INFLUENT (#/day) Sus. Solids	Fiber*	Soluble	BOD	EFFLUENT (#/day) Flow (MGD)	Sus. Solids	Fiber*	BOD	Removal % Efficiency Solids	BOD	Waste Paper Input Regular Tons	% Book
T 11/1	98,700	5,130	67,000	26,400	4.72	7,100	0	14,600	92.8	44.7	168.3	64.0
W 11/2	80,000	5,370	71,400	-	4.28	2,900	0	-	96.4	-	187.4	65.8
T 11/3	53,000	2,570	38,600	-	3.08	4,100	0	-	92.2	-	16[illegible]	
T 11/8	NO	SAMPLE		-	5.30	55,800	0	-	-	-	18[illegible]	
W 11/9	158,000	9,400	85,400	30,100	5.38	18,900	0	25,500	88.0	15.3	15[illegible]	
T 11/10	170,000	10,100	96,400	-	5.50	55,900	0	-	66.0	-	16[illegible]	
T 11/15	202,500	15,800	66,700	-	4.98	5,000	0	-	97.5	-	17[illegible]	
W 11/16	## NO	SAMPLE		-	-	NO SAMPLE		-	-	-	19[illegible]	
T 11/17	## NO	SAMPLE		-	-	NO SAMPLE		-	-	-	18[illegible]	
T 11/22	## NO	SAMPLE		-	-	NO SAMPLE		-	-	-	15[illegible]	
W 11/23	NO	SAMPLE		-	2.40	NO SAMPLE		-	-	-	15[illegible]	-
T 11/24	NO	SAMPLE		-	-	NO SAMPLE		-	-	-	-	-
T 11/29	275,000	24,700	76,000	-	5.70	37,100	0	-	86.5	-	172.3	62.2
W 11/30	150,800	16,000	71,300	37,500	5.34	17,000	0	18,300	88.7	51.2	179.6	67.4
T												
Ave.	148,500	11,130	71,600	31,300	4.67	22,600	0	19,500	88.5	37.1	172.3	64.7
WRC Order						76,500		11,100				

*200 Mesh ## Tanks down; bypassing

SCM CONFIDENTIAL

SA00035344

035344

To: R. M. Levy & R. A. Larson

Date: May 25, 1959

From: U. G. Stoeffler ✓

cc: H. B. Johnston
L. B. Owen
E. J. Gilman
A. Mulder
D. Falvey
R. Bell
R. J. Willie

Subject: Waste Treatment Program

Now that a Kalamazoo meeting of the Water Resources Commission for late September (changed from June by request of the Kalamazoo River Improvement Company) is now definite, it becomes imperative that we make the very best effort to make a good showing. We must show progress and intent so that we will have sufficient time to complete studies and prepare plans for what is thought to be an inevitable ruling by the W. R. C. for further pollution abatement which will mean secondary treatment.

A letter of April 9, 1958 from W. R. C. contains "possible potential future obligations". The letter listed "two schemes of allocations (a) Require 61.4% reduction of all waste loads from the 1950 level, (b) Require a 75% reduction of the 1950 de-ink mill waste loads with all other waste sources limited to their 1955-56 level. Under these two schemes your share of this allocation would be either"

King Division

(a) 6,293# of 5-day B.O.D.
(b) 4,075# of 5-day B.O.D.

Monarch Division

(a) 3,900# of 5-day B.O.D.
(b) 2,526# of 5-day B.O.D.

Bryant Division

(a) 4,288# of 5-day B.O.D.
(b) 2,776# of 5-day B.O.D.

falvey
EXHIBIT NO. 4
M. LANTIS 9/4/12

DEPOSITION EXHIBIT
KENDRICK #563
4/24/97 CC

000778

KA04600378

The last monthly waste tank summary showed that at present the B.O.D. in the effluent to the river at King is 37% over W.R.C. order and at Bryant is 91% over W.R.C. order, being 106# B.O.D. per ton and 122# B.O.D. per ton respectively. It was thought advisable to prepare tables showing W.R.C. surveys before treatment in 1946 and 1950, the 1951 W.R.C. orders, the W.R.C. surveys after treatment in 1955 (1956) and 1957, and Allied surveys in 1957 and 1959. Past memos and reports from Wayne Kendrick, especially December 1958, have called attention to violation of W.R.C. orders.

There is some explanation of the increased ~~violate~~ volatile solids and B.O.D. load to the waste treatment plants. First, the bale weight tonnage at King has increased from about 170 T average in September, 1958 to the present 200-220 T. The book tonnage has, especially during this waste paper shortage of the past months, contained a greater percentage of groundwood and the overall quality has degenerated. At Bryant there is some by-passing of the waste to the creek. At King there is some recirculation of effluent water back to the wet well. Recent B.O.D. checks on sewer waters in the paper machine basement at King show an average of 200 ppm on East side to 458 ppm on West side. This is very high.

These are some suggestions to improve our waste treatment tank operations and show the W.R.C. that Allied is making progress towards further abatement.

1. Install the second sludge pump at King to prevent sludge build up in tank and utilize more settleing volume of tank and prevent sludge carryover in the effluent.

2. Proceed with plan to change the tile by-passing the clarifier which will increase head differential between the wet well level and the clarifier effluent tile.

3. Reduce fresh water usage wherever possible. To note any reduction, it is recommended that meters be installed on the well water line and river water line at King. An estimate has been received from engineering on a 20 inch water meter for $900.00. A six (6) inch meter would be $400 (for an individual well line). This 20 inch model would be a saddle type.

4. Consider diverting the Chlorine Oliver drop leg water at King from the present sewer and piping it directly to the river. Comparative tests were run on the chlorine water at King and Bryant and the respective clarifier effluents. The B.O.D. of the King Chlorine water is 173 ppm as compared to 262 ppm of the Bryant chlorine water -- this water is now being sent to the creek directly. This would reduce the waste water in the clarifier by at least 1,300,000 gals/day based on a 2% consistency going into the chlorine Oliver and 7.5% consistency going out. Table is attached to this report showing the waters together with other sewer waters.

5. Segregate paper machine sewer waters with low B.O.D. (lower than B.O.D. content of present effluent from clarifier) and low solids, remove solids on a slide washer or in a Sveen Pedersen and either reuse this water or send it directly to river. The East sewer from the paper machines has a B.O.D. of 200 ppm and a solids content of 17#/M gals is the most desirable for this use. This flow is from 500,000-600,000 gal per day. This flow is from vacuum pumps primarily and overflow from white water boxes.

   The retention time in the King Clarifier at 6 million gallons is 4.28 hours; at 5 million gallons is 5.14 hours; and at 4 million gallons is 6.70 hours.

6. Proceed with plans to store concentrated D.I. waste water overflowing from heat recovery Oliver at Bryant and pump to new lagoon on weekend. This would reduce our B.O.D. load to the clarifier by about 6%. A survey is now under way to determine the weekly flow of this waste.

7. To participate in the reaeration study of Portage Creek to be conducted by the Kalamazoo River Improvement Company this July or August.

8. To consider installing and operating a pilot model of an activated sludge plant at King to evaluate this secondary method of treatment. A pilot model from Dorr-Oliver is available and could be installed and operated for about $800-$900.

These last three suggestions would certainly show the W.R.C. that studies are continuing to study further pollution abatement.

It is further suggested that a meeting of manufacturing, engineering and technical people be held to chart a course which the company will follow to implement improvement in our present waste treatment program.

TABLE I KING DIVISION

		W.R.C. Before 1946	Surveys Treatment 1950	W.R.C. Order 1951	W.R.C. Surveys After Treatment Jan 1956	May 1957	Allied Surveys Nov. '57 To Jan '58	Mar 31 - Apr 30, 1959
Paper Machine Production Tons/day		138.4	179.3		192.36	166.0		
Waste Flow Millions gallons/day		4.59	7.48		6.54	8.03	7.15	5.93
Gallons waste/ton		33,200	39,383		33,950	48,300		
Total Suspended Solids Pounds	in					137,100	113,670	105,560
	out	25,130	53,720	53,700	34,900	43,885	36,750	34,455
Suspended Solids #/ton production	out	181.6	301.2		181.7	264.5		
% Susp. Solids Removal						67.0	67.5	67.5
5 Day B.O.D. Pounds	in					25,050	23,150	34,700
	out	8,220	16,340	16,300	15,501	15,948	17,410	22,365
B.O.D. #/ton Production		59.4	90.9		80.7	96.2		
% B.O.D. Removal						36.8	20.5	32.7
Volatiles #/day	in					41,250	49,670	
	out					10,670	9,550	99,750

KA04600382

TABLE II BRYANT DIVISION

		W.R.C. Surveys Before Treatment		W.R.C. Order	W.R.C. Surveys After Treatment		Allied Surveys	
		1946	1950	1951	Fall 1955	May 1957	Nov. 1957 To Jan 1958	Mar 31 to Apr 30, 1959
Paper Machine Production Tons/day		187.85	149.36			168.4		
Waste Flow Million gals/day		3.25	5.042		6.77	5.58	7.124	6.57
Gallons Waste/Ton		33,200	39,383			30,200		
Total Suspended Solids Pounds	in							
	out	67,535	76,544	76,500	53,475	34,844	54,270	57,645
Suspend Solids #/Ton Production	out	360	514			207		
% Susp. Solids Removal						64.0	47.1	52.6
5 Day B.O.D. Pounds	in							
	out	12,395	11,116	11,100	16,837	12,391	15,710	21,000
B.O.D. #/ton out Production		66.0	74.6			73.6		
% B.O.D. Removal						39.9	10.9	26.2
Volatiles #/day	in					42,400	41,795	85,450
	out					11,618	21,370	

KA04600383

TABLE III MONARCH DIVISION

	W.R.C. Surveys Before Treatment 1946	1950	W.R.C. Orders 1951	W.R.C. Surveys After Treatment Jan 1956
Paper Machine Production Tons/day	81.21	91.02		100.21
Waste Flow Million Gal/day	2.49	6.055		3.66
Gallons Waste/ton	30,700	67,533		36,580
Suspended Solids #/Day out	30,180	31,868	31,900	17,558
Suspended Solids #/ton Production	371.5	354.7		175.0
5 Day B.O.D. #/day	16,635	10,120	10,100	9,140
B.O.D. #/ton Prod.	131.0	113.6		91.3

KA04600384

TABLE 4

	East Sewer	West Sewer Before High Water Pump	West Sewer After Hydrapl. 1 per.	King Chlorine Oliver Drop Leg Water	Bryant Chlorin Oliver Drop Leg Water
Suspended Solids #/M gals.	17.0	14.0	13.0	* 4.67	* 1.67
Ash %	62.8	64.3	51.7	46.5	----
Soluble Solids #/M gals.	5.0	6.67	8.34	16.68	16.68
Fiber 200 mesh #/M gals.	2.45	1.62	1.37	----	----
PHj	7.3	7.7	7.7	2.6	2.5
5-Day B.O.D. ppm	200	458	672	** 173	** 262

* Present waste treatment tank tests show the following avg suspended solids #/M gals:

King	influent	14.0
	effluent	5.22
Bryant	influent	17.5 ←
	effluent	11.15

** Present waste treatment tank tests show the following B.O.D. (ppm) taken same day as Chlorine water.

King	effluent	392
Bryant	effluent	368

200

Survey Calculations

lbs. of 5-day B.O.D. per 24 hrs.

7.399 x 8.34 x 460 = 28,400

lbs. of Suspended Solids per 24 hrs.

7.399 x 8.34 x 1670 = 103,000

Lbs. of Suspended Vol. Solids

7.399 x 8.34 x 680 = 41,950

Settleable Solids removal by clarifier

(2640 - 1670) x 100/1840 = 52.7%

Remarks

The great decrease in waste load to the river at the Monarch Division from previously observed levels is due to the discontinuance of de-ink operations.

At Bryant Division, untreated waste is by-passing directly to Portage Creek at two locations. One is white water and the other is de-ink waste. The white water by-pass is due to mechanical troubles with both pumps at the pump station. Repairs are on order. De-ink waste by-passes due to the plugging of the hand cleaned bar grate at the main pump station. A new mechanically cleaned bar grate is on order.

Bleach waste (acid wash) goes directly to Portage Creek.

At King Division, an undetermined amount of by-passing takes place at the back water gate on the by-pass sewer line. This by-passing was confirmed by the use of a tracer dye. This situation could be easily corrected by the construction of a weir in the by-pass line with the crest set at such a level as to prevent flooding problems.

The actual waste load to the river for the 24 hour survey period, as shown in the summary of results, would be somewhat larger if data on King raw waste by-pass, and bleach waste and white water data at Bryant mill were available and included as a part of this report.

Report by: Chester Harvey

Field Survey by: John Bohunsky
Jim McDonald
Frank Vining
Chester Harvey

0002782

To: Allied Paper Company File
From: R. W. Purdy
Date: April 7, 1961

On April 6 the writer, Ralph Purdy, observed a by-pass of de-ink waste to Portage Creek at the Bryant Mill prior to its treatment for removal of settleable solids. The estimated quantity varied from several hundred to over one thousand gallons per minute. Further investigation pointed out that this by-pass was not due to inadequate pump capacity at the pump station. In fact, for a portion of the time one of the three pumps kept the level down in the wet well. The remainder of the time only two pumps were in use. The bar screen had become so plugged with rags and debris that it restricted the waste flow to the wet well and backed the waste up to such a level that the diversion took place. This same condition has been observed on previous occasions.

Mr. Les Stoeffer was notified of this condition at approximately 11:30 a.m., April 7, 1961.

Purdy
EXHIBIT NO. 20
10-15-92
C. LYSTER

Kalamazoo, Michigan Glide 5-7131

ALLIED PAPER CORPORATION

Purdy
EXHIBIT NO. 21
10-15-92
C. LYSTER

April 6, 1961

Water Resources Commission
300 East Michigan
Lansing 13, Michigan

RECEIVED
APR - 7 1961
WATER RESOURCES COMMISSION

Attn: Mr. Ralph Purdy

Dear Ralph:

We appreciate the fact that you called to our attention the by-passing of a portion of our waste from the Bryant pump station wet well during your visit to our office today. As you know we immediately informed the people directly responsible for correcting this situation. We have since advised the other responsible people in our organization that have jurisdiction in this area of operations. Our Bryant maintainence superintendent and maintainence engineer will see to it that the men responsible will clean the bar grate regularly and that any malfunction of the pumps be reported at once. Then too, the superintendent of our Bryant pulp mill has been instructed to make inspections at the by-pass discharge to insure that any flow there will be given remedial action.

The plans to reduce fresh water usage and full utilization of white waters in the mills are being carried out by direction of J.D.Dailey, Senior Vice President. I'm sure you gathered from his remarks to you that these plans will be carried out.

Very truly yours,

ALLIED PAPER CORPORATION

U. G. Stoeffler

U. G. STOEFFLER, ASSISTANT
DEVELOPMENT MANAGER

jmcw
cc: J.D.Dailey
S.J.Stetz

0002789

KA05500182

SA 01097

STATE OF MICHIGAN
WATER RESOURCES COMMISSION
JOHN B. SWAINSON, GOVERNOR

COMMISSION
ALBERT E. HEUSTIS, M.D., Chairman
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GERALD E. EDDY
JOHN C. MACKIE
GEORGE S. McINTYRE
[illegible]
[illegible]

STAFF OFFICES
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LANSING 13, MICHIGAN

LEGAL COUNSEL
PAUL L. ADAMS
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STAFF
MILTON F. ADAMS
[illegible]
LORING F. DEMING
[illegible]
NORMAN BRUNG
[illegible]
JOHN L. DESMON
[illegible]

August 2, 1961

Dr. Ward Harrison, President
Allied Paper Corporation
Kalamazoo, Michigan

Dear Dr. Harrison:

Enclosed herewith is a copy of a report of waste survey at Allied Paper Corporation (Monarch, Bryant, and King Divisions), Kalamazoo, June 27 and 28, 1961.

We would like to draw your particular attention to the by-passing of waste, prior to sedimentation, at the Bryant and King Divisions. We understand that new equipment is on order to correct the deficiencies at Bryant Division. Steps should also be taken to correct the problem at King Division.

If you or any of your technical people wish to discuss our report further, we would welcome this opportunity.

Very truly yours,

Loring F. Deming
Chief Engineer

RWP:jb
cc: C. Harvey

EXHIBIT
8205
ALL-STATE LEGAL SUPPLY CO

DEPOSITION EXHIBIT
Gilman #619
6/20/97 cc

Gilman
EXHIBIT NO. 18
1-19-93
P. MORETTI

0002779

KA04800071

SA 010966

Report of Waste Survey
at
Allied Paper Corporation
(Monarch, Bryant & King Divisions)

Kalamazoo, Michigan

June 27 & 28, 1961

Summary of Results

	Monarch	Bryant	King	Total
Flow, million gallons/24 hrs.	1.506	4.233	7.399	13.138
5-day B.O.D., lbs./24 hrs.	780	16,580	28,400	45,760
Suspended Solids, lbs./24 hrs.	214	53,280	103,000	156,494
Suspended Vol. Solids, lbs./24 hrs.	125	16,140	41,950	58,215
Settleable Solids Removal, per cent		64.2	52.7	

Monarch Division

Survey Period

8 a.m., June 27, 1961 to 8 a.m., June 28, 1961.

Survey Procedure

A company installed recording head meter at the effluent weir box on the clarifier was used to obtain a continuous record of the flow. A composite sample of the effluent was obtained by the installation of a WRC automatic sampler.

Survey Data

	Effluent
Flow, million gallons/24 hrs.	1.506
5-day B.O.D. mg/l	62
Suspended Solids mg/l	17
Suspended Vol. Solids mg/l	10
pH	7.4

Survey Calculations

lbs. of 5-day B.O.D. per 24 hrs.

1.506 x 8.34 x 62 = 780

lbs. of Suspended Solids per 24 hrs.

1.506 x 8.34 x 17 = 214

lbs. of Suspended Vol. Solids per 24 hrs.

1.506 x 8.34 x 10 = 125

0002779

Bryant Division

Survey Period

8 a.m., June 27 to 8 a.m., June 28, 1961.

Survey Procedure

Effluent:

A Stevens type F recording head meter was installed at the effluent weir box on the clarifier to obtain a continuous record of this flow. A composite sample was obtained by the installation of a WRC automatic sampler.

Influent to Clarifier:

A composite sample was obtained by continuously bleeding a small portion of the influent flow from the pump house discharge line through a small box equipped with a WRC automatic sampler.

Raw Waste By-pass:

The diversion dam in a manhole near the pump house served as a rough weir. Head over the weir was recorded continuously by a Stevens type F water level recorder. No samples were obtained since the quality is nearly identical with the influent to the clarifier. Flow for the 24 hour period was 367,000 gallons.

Bleach Plant Waste (Acid Wash):

Flow approximated at 300,000 gallons per 24 hours. Composite sample made up of three grab samples obtained at 8 hour intervals.

White Water By-pass:

Flow approximated at 288,000 gallons per 24 hours. Composite sample made up of three grab samples obtained at 8 hour intervals.

Survey Data

	Raw Waste	Clarifier Effluent	Bleach Waste	White Water
Flow, million gallons/24 hrs.		3.866	.300	.288
5-day B.O.D. mg/l	780	440	160	170
Suspended Solids mg/l	2870	1380	160	760
Suspended Vol. Solids mg/l	1270	380	74	328
2 hr. Settleable Solids mg/l	2320			
pH	9.4	7.3	2.3	7.0

0002780

Survey Calculations

lbs. of 5-day B.O.D. per 24 hrs.

3.866 x 8.34 x 440 = 14,190
0.367 x 8.34 x 780 = 2,390
Total 16,580

lbs. of Suspended Solids per 24 hrs.

3.866 x 8.34 x 1380 = 44,500
0.367 x 8.34 x 2870 = 8,780
Total 53,280

lbs. of Suspended Vol. Solids per 24 hrs.

3.866 x 8.34 x 380 = 12,250
0.367 x 8.34 x1270 = 3,890
Total 16,140

Settleable Solids removal by clarifier

(2870 - 1380) x 100/2320 = 64.2%

King Division

Survey Period

8 a.m., June 27, 1961 to 8 a.m., June 28, 1961.

Survey Procedure

Effluent:

A company installed recording head meter at the weir box on the clarifier was used to obtain a continuous record of the flow. A composite sample was obtained from the company's sampling device (water wheel type sample).

Influent to Clarifier:

A composite sample was obtained by continuously bleeding a small portion of the influent flow from the pump house discharge line through a small box equipped with a WRC automatic sampler.

Survey Data

	Raw Waste	Clarifier Effluent
Flow, million gallons/24 hrs.		7.399
5-day B.O.D. mg/l	700	460
Suspended Solids mg/l	2640	1670
Suspended Vol. Solids mg/l	1230	680
2 hr. Settleable Solids mg/l	1840	
pH	7.6	7.1

0002781

SA00010969

Survey Calculations

lbs. of 5-day B.O.D. per 24 hrs.

7.399 x 8.34 x 460 = 28,400

lbs. of Suspended Solids per 24 hrs.

7.399 x 8.34 x 1670 = 103,000

Lbs. of Suspended Vol. Solids

7.399 x 8.34 x 680 = 41,950

Settleable Solids removal by clarifier

(2640 - 1670) x 100/1840 = 52.7%

Remarks

The great decrease in waste load to the river at the Monarch Division from previously observed levels is due to the discontinuance of de-ink operations.

At Bryant Division, untreated waste is by-passing directly to Portage Creek at two locations. One is white water and the other is de-ink waste. The white water by-pass is due to mechanical troubles with both pumps at the pump station. Repairs are on order. De-ink waste by-passes due to the plugging of the hand cleaned bar grate at the main pump station. A new mechanically cleaned bar grate is on order.

Bleach waste (acid wash) goes directly to Portage Creek.

At King Division, an undetermined amount of by-passing takes place at the back water gate on the by-pass sewer line. This by-passing was confirmed by the use of a tracer dye. This situation could be easily corrected by the construction of a weir in the by-pass line with the crest set at such a level as to prevent flooding problems.

The actual waste load to the river for the 24 hour survey period, as shown in the summary of results, would be somewhat larger if data on King raw waste by-pass, and bleach waste and white water data at Bryant mill were available and included as a part of this report.

Report by: Chester Harvey

Field Survey by: John Bohunsky
Jim McDonald
Frank Vining
Chester Harvey

0002782

SA00010970

Memorandum

Allied Paper Company

Kalamazoo, Michigan

November 15, 1961

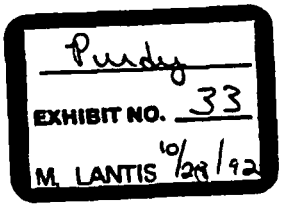
I visited the waste treatment plants of the King and Bryant Divisions of Allied Paper Company between 10:00 and 10:30 a.m. on the above date. Neither waste treatment plant was in operation. All waste was being by-passed.

The trash rack at the King Division appeared to be out of order. No workmen were present. Appearances indicated that the waste treatment plant had been inoperative for at least several days.

A new mechanically cleaned trash rack has been at least partially installed at Bryant Division. This should eliminate some of the past noted problems at this division. No workmen were present in this building. Here again it appeared that the waste treatment plant had been inoperative for sometime.

I attempted to contact Les Stoeffler at the main office. It was reported that he was on his way to the Monarch Division. I attempted to reach him by telephone at Monarch. Mr. Stoeffler had still not been located after about 45 minutes wait, therefore I was not able to obtain additional information.

Ralph W. Purdy



JONES, HENRY AND WILLIAMS SURVEY
FOR KALAMAZOO JOINT TREATMENT STUDY - 1963

May 1963 A. J. Palladino

BYPASS FLOW AT ALLIED PAPER CORP. - KING DIVISION

Occassional bypass occurs at the King Division - Allied Paper Corp. when the flow exceeds the pumping capacity. Conversely clear water sometimes flows from the bypass sewer into the wet well of the pumping station when wet well level is drawn down. The latter occurs due to leakage around a wooden flap gate on the bypass sewer.

Several attempts were made to determine the bypass flow by measurement of the parameters of open channel flow. Application of the open channel flow formulas yielded bypass flows varying from 5.2 to 26 M.G.D. These are obviously incorrect, therefor no reliable data on the bypass flow was obtained. It can merely be stated that bypass of the King Division settling unit occurs on occasion but the extent of this bypass is not known.

If, in the future, this bypassed flow is picked up and pumped through the settling tank, the flow to be handled would be in excess of that reported herein.

KA05400805

MICHIGAN WATER RESOURCES COMMISSION

MEMORANDUM

To: R. J. Courchaine

From: J. M. Bohunsky

Date: February 14, 1964

On February 13, 1964 site inspections were made at the following paper mills:

Rex Paper Company
Hawthorne Paper Company
Kalamazoo Paper Company
Allied Paper Company - King, Byrant and Monarch Divisions
Sutherland Paper Company
National Gypsum
Menasha Corporation.

On February 12, 1964 an abnormally low dissolved oxygen concentration was observed at the Kalamazoo River water quality monitoring station located at Saugatuck, Michigan, and prompted this inspection of the Kalamazoo mills.

This inspection revealed abnormal operation of waste control facilities at the Byrant Division of Allied Paper Company. By-passing was observed at the pumping stations and the clarifier was observed to be inoperative on this date. A workman at the Byrant pumping station indicated that the Clarifier had been inoperative for about 10 days.

With the exception of the Byrant Division of Allied Paper Company, the treatment facilities of the other companies noted above were apparently operating satisfactorily.

lma

COURCHAINE
EXHIBIT NO. 6
12-8-92
S. GERGER

RECEIVED
FEB 20 1964
WATER RESOURCES
COMMISSION

Kalamazoo, Michigan · Fireside 5-7131

ALLIED PAPER CORPORATION

ROBERT M LEVY

February 19, 1964

Mr. Ralph Purdy
Water Resources Commission
200 Mill Street
Lansing, Michigan

Dear Ralph:

This afternoon a Mr. Courshaine and another of your associates called on me concerning two items. First, they were interested in our progress as to waste treatment plans due August 1, 1964. I told them I was not in a position to release any information at this time. Secondly, they reported that we were by-passing the primary treatment tank at our Bryant Division. I could not get an immediate answer on this item while they were here at the plant; hence, I am reporting the situation herewith.

Last week a quantity of wet-strengthened waste paper got into the sewer system. This paper caused a pump breakdown. The pump was removed for repairs and should be in operation on February 20th. Our superintendent at the Bryant Division informs me that this downtime was completely unavoidable and the pump is being placed back in service in the shortest possible time.

Ralph, I am sure we all realize the strain we are all working under concerning the waste problem. I am sorry the above situation developed and we are taking precautions to prevent a recurrence.

Sincerely,

R. M. Levy

elr

S600214

KA05500233

Purdy
EXHIBIT NO. 38
M. LANTIS 10/28/93

STATE OF MICHIGAN

WATER RESOURCES COMMISSION

GEORGE W. ROMNEY, GOVERNOR

COMMISSION
IRVING H. BONK, Chairman
For JOHN C. MACKIE
GERALD E. EDDY, Vice Chairman
ALBERT E. HELISTE M.D.
GEORGE E. McINTYRE
JIM GILMORE, JR., Kalamazoo
GEORGE F. UDDLE, Muskegon
VACANCY

STAFF OFFICES
200 Mill Street
STATION B
LANSING, MICHIGAN 48913

LEGAL COUNSEL
FRANK J. KELLEY
STAFF
LORING F. OEMING
NORMAN BILLINGS
RALPH W. PURDY
JOHN L. DESMOND

REGISTERED MAIL February 20, 1964

Dr. Ward Harrison, President
Allied Paper Corporation
Kalamazoo, Michigan

Dear Dr. Harrison:

An inspection made by a member of our staff on February 13, 1964 revealed that the waste control facilities at the Bryant Division were inoperative and waste water was being discharged to Portage Creek without treatment for the removal of settleable solids. A workman questioned at the site of the pump house indicated that the facility had been out of operation for approximately ten days.

A second investigation on February 19 revealed that the facility was still inoperative.

We have received a letter from Mr. Levy containing an explanation as to when the breakdown occurred and the cause. The time of breakdown stated does not check with our observations. Also the letter does not explain the reason why the pump station was completely out of operation with only one of the three pumps removed from service.

Your Company's performance is not in accordance with assurances that you made to our Commission following a similar bypass of untreated waste in November of 1961. This is a matter which we feel must be placed before our Commission for their consideration. What reliance can our Commission have on assurances from your Company that precautions will be taken to prevent a recurrence?

Very truly yours,

Loring F. Oeming
Executive Secretary

RMP:bmc
cc--R. Courchaine

Purdy
EXHIBIT NO. 39
M. LANTIS 10/28/69

KA05500234

9000217

COMMISSION
IRVING H. RONK, Chairman
For JOHN C. MACKIE
GERALD E. EDDY, Vice Chairman
ALBERT E. HEUSTIS M.D.
GEORGE S. McINTYRE
JIM GILMORE, JR., Kalamazoo
GEORGE F. LIDDLE, Muskegon
VACANCY

STATE OF MICHIGAN
WATER RESOURCES COMMISSION
GEORGE W. ROMNEY, GOVERNOR

STAFF OFFICES
200 Mill Street
STATION 3
LANSING, MICHIGAN 48913

LEGAL COUNSEL
FRANK J. KELLEY
STAFF
LORING F. OEMING
NORMAN BILLINGS
RALPH W. PURDY
JOHN L. DESMOND

March 2, 1964

REGISTERED MAIL

Dr. Ward Harrison, President
Allied Paper Corporation
Kalamazoo, Michigan

Dear Dr. Harrison:

The following is an extract from the minutes of the February 27, 1964 meeting of the Water Resources Commission referring to your Company:

"Allied Paper Corporation, Kalamazoo: Mr. Purdy reported that contact with the Company indicates that it is planning to comply with the Commission's requirement to submit plans by August 1, 1964 whereby it will control its waste within the limits specified by the Commission. Treatment facilities for removal of settleable solids from the wastes at the Bryant Division were found by staff inspection on February 13, 1964 and again on February 19, to be out of operation. Failure of one of three waste pumps was given as the reason for suspension of operations commencing about ten days prior to the first inspection. By letter of February 19, Mr. Robert Levy, Vice President, reported that the pump would be repaired and treatment operations restored by February 20. Executive Secretary has notified Dr. Ward Harrison, Company President, that with three pumping units available in the installation no explanation has been given as to why failure of one pump should result in a complete shutdown, and in addition, the Company's performance does not carry out the assurances given the Commission following a similar bypass of waste in November, 1961. Following discussion, Mr. Pierce made a motion, supported by Mr. Gilmore, that the Executive Secretary be directed to notify the Company that failure to maintain treatment of wastes, as required by the terms of the October 24, 1951 Order, is of grave concern to the Commission and that everything possible be done through negotiations between Company officials and Commission staff to establish measures that will prevent recurrence of bypassing incidents; and further, that the Company's appearance is requested at the March 26, 1964 meeting of the Commission to report on the circumstances surrounding the recent bypassing and action being taken to insure against further interruptions in treatment. Motion unanimously carried."

Purdy
EXHIBIT NO. 40
M. LANTIS 10/28/80

9000219

KA05500235

Dr. Ward Harrison

I will write you further informing you of the time and place for your appearance at the Commission's March meeting.

Very truly yours.

L.F.O.

Loring F. Oaming
Executive Secretary

LFO:S
cc--Mr. Ralph Purdy
Mr. Robert Courchaine
Mr. Chester Harvey

ALLIED PAPER CORPORATION
Kalamazoo, Michigan

Bob C.

December 4, 1964

Mr. Ralph Purdy
Water Resources Commission
200 Mill Street
Lansing 13, Michigan

Dear Ralph:

Confirming my telephone conversation with you on Thursday, December 3, 1964, I am relating below the events which took place at our Bryant Division:

We have three pumps which take waste waters to the clarifier. Usually only two pumps operate and one is standby. On Tuesday, December 1, a motor burned out on one pump and on Thursday, December 3, an impeller failed on another pump at approximately 8:00 a.m. Approximately 50% of waste bypassed the clarifier from 8:00 a.m. until 1:00 p.m. when one pump was put back in service.

Our Engineering Department informs me that it will take approximately five more days before the standby pump can operate.

If you require further information on the above, do not hesitate to get in touch with me.

Sincerely,

R. M. Levy

elr

cc: Mr. Bob Courchaine

Purdy
EXHIBIT NO. 50
M. LANTIS 10/28/92

RECEIVED
DEC 7 1964
WATER RESOURCES COMMISSION

9000262

KA05500259

WATER RESOURCES COMMISSION

Memorandum

To: R. W. Purdy

Subject: Allied Paper Corporation, Bryant Mill, Kalamazoo

m: R. Courchaine RJC

te: May 28, 1965

I called Jack Gilman of this Company to obtain information regarding the bypass of wastes into the Bryant Mill Pond from the large sewer at Alcott Street, observed by Bannister Tuesday morning, May 18, 1965.

Gilman said he could not recall any trouble at the Bryant Mill which would account for any bypassing. He promised to check this out further and will report back to us in writing.

cc: C. Harvey
R. Bannister
lms

0002732

Gilman
EXHIBIT NO. 28
1-19-93
P. MORETTI

KA04800108

SA 011415

ALLIED PAPER CORPORATION

June 4, 1965

Mr. Ralph W. Purdy, Chief Engineer
Water Resources Commission
200 Mill Street
Lansing, Michigan

Dear Ralph:

This letter is to inform you of the circumstances surrounding the partial by-passing of the waste treatment plant at our Bryant Mill on May 21st and 22nd.

On May 21st we were operating two of the three vertical pumps in the interceptor station at Mill "A", with the third pump temporarily out of action with bad bearings. At about noon on that day, one of the other two pumps which had been in operation had a mechanical failure.

We were forced to run the balance of that day and the next day with only one pump, but the other two were repaired on Sunday the 23rd, and all three were in full running condition for our start-up on the 24th.

Thanks to our policy of keeping adequate spare parts for these critical pumps on hand at all times, it was possible to keep the period during which the treatment plant was partially by-passed to a minimum.

Spare parts, equivalent to a complete pump, were again immediately ordered after this incident.

Yours truly,

ALLIED PAPER CORPORATION

Jack Gilman

E. J. Gilman
Vice President-Manufacturing

dg

RECEIVED
JUN 9 1965
WATER RESOURCES COMMISSION

Gilman
EXHIBIT NO. 29
1-19-93
P. MORETTI

0002731

STATE OF MICHIGAN
GEORGE W. ROMNEY, GOVERNOR

WATER RESOURCES COMMISSION

STAFF OFFICES
200 Mill Street
TEL. 373-1300

STATION B
LANSING, MICHIGAN 48913

June 15, 1965

Mr. E. J. Gilman
Vice President-Manufacturing
Allied Paper Corporation
Kalamazoo, Michigan

Dear Mr. Gilman:

Thank you for your report regarding the May 21 and 22, 1965 bypass of wastes which occurred at the Bryant Mill.

Would it be possible to further improve upon the pump maintenance program to reduce failure and downtime of these waste pumps? The installation of a fourth pump for stand-by should be considered to provide added insurance against waste bypassing.

When Dr. Harrison appeared before the Commission on March 26, 1964, he assured the Commission that any future breakdown in the waste disposal system would be reported to us immediately. Would it be possible to immediately notify the staff by telephone or wire of any future breakdown which occurs which will or is likely to result in continuous bypassing of wastes for periods of two hours or more with an estimate of the time expected to place the unit back in service?

Very truly yours,

Ralph W. Purdy
Chief Engineer

RJC:lme
cc: C. Harvey

MICHIGAN
WATER-WINTER WONDERLAND

Gilman
EXHIBIT NO. 30
1-19-93
P. MORETTI

0002730

KA04800110

SA 011411

C. Harvey

WATER RESOURCES COMMISSION

Memorandum

To: R. Purdy & Files

Subject: Allied Paper - Bryant Mill

From: R. Courchaine RJC

Date: June 16, 1965

Jack Gilman called today to report a by-pass at the Bryant Mill on Friday, June 11. A key sheared in the clarifier scraper mechanism. This was repaired at 4:00 p.m. that day but broke down again when the unit was started up. The clarifier was cleaned of sludge and started up Saturday at 2:00 p.m.

Jack believes that the sludge pump must be operated more frequently to prevent sludge build-up and this will now be done.

He commented regarding the suggestion in our recent letter that another waste pump be add for standby. He said he reached the same conclusion a few weeks ago, and has turned this over to the Engineering Department. They think perhaps it might be better to install one large pump which would handle normal flows and retain two of the present pumps for standb and intermittent use during peaks.

He said they are now de-inking only at the Bryant Mill. De-inking at the King Mill was discontinued two weeks ago; there are no plans to de-ink again at King.

RJC:ms
cc: C. Harvey

Gilman
EXHIBIT NO. 31
1-19-93
P. MORETTI

SA 811409

ALLIED PAPER CORPORATION

June 16, 1965

Mr. Ralph W. Purdy, Chief Engineer
Water Resources Commission
200 Mill Street
Lansing, Michigan 48913

Dear Ralph:

I called your office this morning and in your absence talked with Bob Courchaine. I reported to him that we had had trouble with the drive on the Bryant clarifier on Friday the 11th of June and found a considerable build-up of sludge in the bottom. It took us into Saturday to get the sludge cleaned out with fire hoses, and we were back in operation at 2 P.M. on the 12th. We have decided that we will have to pump the sludge out more continuously and in more dilute form.

In further response to your letter of June 15th, we decided about one week ago to study the possible benefits of a fourth pump for stand-by. Our Engineering Department will make me a report on this matter soon. It may be that the replacement of one of the present pumps with one of greater capacity would give us the additional stand-by capability we need.

I will certainly try to follow the practice of calling you in the event of future by-passing of the clarifier.

Yours truly,

ALLIED PAPER CORPORATION

K. J. Gilman
Vice President-Manufacturing

dg

Gilman
EXHIBIT NO. 32
1-19-93
P. MORETTI

0002729

RECEIVED
JUN 18 1965
WATER RESOURCES COMMISSION

KA04800112

SH 011410

KALAMAZOO INTER-OFFICE CORRESPONDENCE

ALLIED PAPER CORPORATION

November 18, 1965

TO: U. G. Stoeffler

FROM: R. J. Willie

cc: E. J. Gilman
B. M. Levy
W. Buenger
H. McGehee
File 300

RE: FLOW, SOLIDS & B.C.D. OF PORTAGE CREEK AS IT PASSES UNDER REED STREET

As requested by Mr. Stoeffler samples and measurements were taken on three different days of Portage Creek, Reed St. Gage Station. Solids and B.C.D. were checked and results as follows:

Date	Flow	Solids #/Day	BOD PPM	BOD #/Day	Effluent Solids Bryant Clarifier	Effluent Solids Monarch Clarifier	Effluent BOD - Bry. #/Day	Effluent BOD - Mon. #/Day
11/10	48,975,696*	147,000	92	37,600	-	-		
11/11	48,975,696*	180,000	79	32,300	30,100	-	12,300	340
11/12	50,300,000*	142,000	88	36,800	19,200	1200	10,600	640

* Flows were checked using gage and chart made out by United States Dept. of Interior, Geological Survey, Water Resources Div.

It must be assumed , until further studies are made, that the high solids and B.O.D. load in Portage Creek is coming from Mill C,D &

Gilman
EXHIBIT NO. 23
1-19-93
P. MORETTI

000783

C. Levy

WATER RESOURCES COMMISSION

Memorandum

To: R. W. Purdy Subject:

From: F. B. Frost

Date: August 2, 1966

Dr. Levy, Allied Paper, called L. F. Oeming this date to report a blown gasket on line from Bryant Division clarifier. The Company had to by-pass raw waste to river for three hours. Started by-passing at 3:00pm. Repairs were to be completed by 6 or 7 pm.

mc
cc: R. J. Courchaine RJC

Purdy
EXHIBIT NO. 57
M. LANTIS 10/28/92

S000286

KA05500266

WASTE TANK TREATMENT TEST

To: U. G. Stoeffler

From: R. J. Willie

Date: April 27, 1967

Division: Bryant

cc: W. Harrison, E. Klimczak, R. Levy, E. Gilman, F. Fragomeli, H. Horrocks, A. Vickery, R & D File, W. Buenger, F. Hyet, D. Falvey, B. Herbert

		4/17 Mon.	4/18 Tues.	4/18 Wed.	4/20 Thurs.	4/21 Fri.	Ave.
(#/day) Influent	* Flow (MGD)	*** →					
	Susp. Solids	53,000	35,700	51,000	42,700	47,000	45,880
	Fiber	10,800	5,700	9,000	10,500	8,800	8,960
	Solubles	35,000	25,400	36,200	34,100	39,300	34,000
	BOD	11,500	8,300	9,000	11,100	14,200	10,820
(#/day) Effluent	** Flow (MGD)	3.815	3.815	3.622	3.715	3.622	3.718
	Susp. Solids	3,200	3,800	3,600	2,400	1,800	2,960
	Fiber	0	0	0	0	0	0
	Solubles	28,600	22,200	33,200	34,100	36,200	31,260
	BOD	8,900	7,000	7,500	7,100	11,400	8,380
% Removal Efficiency	Solids	94.2	89.3	93.0	94.4	96.2	93.4
	Fiber	100.0	100.0	100.0	100.0	100.0	100.0
	Solubles	18.3	12.6	11.0	0	7.9	10.0
	BOD	22.6	15.7	16.7	36.0	19.8	22.1

* Total Flow = Effluent weir flow and magmeter reading to accelator (King Div. Only)

** Net Flow to river (Effluent weir flow)

Remarks:

*** Bypassing pump house all week. All 3 pumps working and still going to river.

SCM CONFIDENTIAL

WASTE TANK TREATMENT TEST

To: U. G. Stoeffler

From: R. J. Willie

Date: April 20, 1967

Division: Bryant

cc: W. Harrison, E. Klimczak, R. Levy, E. Gilman, F. Fragomeli, H. Horrocks, A. Vickery, R & D File, W. Buenger, F. Hyat, A. Vickery, D. Falvey, B. Herbert

		4/10 Mon.	4/11 Tues.	4/12 Wed.	4/13 Thurs.	4/14 Fri.	Av
(#/day) Influent	* Flow (MGD)	xxx	xxx	xxx	xxx	xxx	
	Susp. Solids	50,700	49,000	54,600	37,500	64,500	51,26
	Fiber	7,600	9,500	7,800	9,100	12,400	9,28
	Solubles	41,200	31,800	19,500	26,000	39,100	31,52
	BOD	12,100	11,400	10,100	8,800	14,000	11,28
(#/day) Effluent	** Flow (MGD)	3,815	3,815	3,914	3,914	3,914	3,87
	Susp. Solids	2,500	1,900	3,900	3,200	2,700	2,84
	Fiber	0	0	0	0	0	
	Solubles	38,100	28,600	19,500	22,800	32,500	28,30
	BOD	9,500	7,900	5,500	6,800	10,100	7,96
% Removal Efficiency	Solids	95.0	96.2	92.8	91.5	95.8	94.
	Fiber	100.0	100.0	100.0	100.0	100.0	100.
	Solubles	7.5	10.1	0	12.3	16.9	9.
	BOD	21.5	30.7	45.5	22.7	27.9	29.

* Total Flow = Effluent weir flow and magmeter reading to accelator (King Div. Only)

** Net Flow to river (Effluent weir flow)

Remarks: *** **Bypassing in creek with all three pumps running**

SCM CONFIDENTIAL

SA00035614

W. Buenger
F. Hyet
D. Falvey
B. Herbert

April 13, 1967

Bryant

		4/3 Mon.	4/4 Tues.	4/5 Wed.	4/6 Thurs.	4/7 Fri.	Ave.
	* Flow (MGD)	***					
(#/day)	Susp. Solids	54,700	55,000	45,600	38,700	66,200	52,040
	Fiber	9,600	10,500	8,500	6,300	12,700	9,520
	Solubles	31,800	24,800	22,800	35,000	28,500	28,580
	BOD	11,400	13,600	11,100	11,100	13,600	12,160
	** Flow (MGD)	3.815	3.715	3.914	3.815	3.815	3.815
(#/day)	Susp. Solids	7,000	1,800	2,000	1,000	7,600	3,880
	Fiber	0	0	0	0	0	0
	Solubles	31,800	24,800	22,800	25,500	28,500	26,680
	BOD	6,000	7,400	7,500	7,900	9,500	7,660
	Solids	82.7	96.8	95.6	95.0	88.7	91.8
(%)	Fiber	100.0	100.0	100.0	100.0	100.0	100.0
	Solubles	0	0	0	27.2	0	5.4
	BOD	47.3	45.6	32.4	28.9	30.1	36.9

* Total Flow = Effluent weir flow and magnetex reading to accelator (Kiln Div. only)

** Net Flow to river (Effluent weir flow)

Remarks:

*** Bypassing directly into creek on these days, instead of going to the clarifier.

SCM CONFIDENTIAL

SA00035615

ALLIED PAPER CORPORATION
WASTE TANK TREATMENT TEST

To: U. G. Stoeffler
From: R. J. Willie
Date: December 8, 1967
Division: Bryant

cc: W. Harrison, E. Klimczak, R. Levy, E. Gilman, F. Fragomeli, H. Horrocks, A. Vickery, R & D File, W. Buenger, F. Hyet, D. Falvey, B. Herbert

		Mon. 11/27	Tues. 11/28	Wed. 11/29	Thurs. 11/30	Fri. 12/1	Ave.
(#/Day) Influent	Flow (MGD)						
	Susp. Solids	40,000	50,600	38,900	38,600	41,000	41,800
	Fiber	9,900	10,600	7,300	8,200	12,100	9,200
	Solubles	40,200	44,200	36,000	27,500	36,800	36,900
	BOD	13,300	16,500	12,200	15,500	11,100	13,700
(#/Day) Effluent	Flow (MGD)	3.715	3.528	*** 3.341	*** 4.113	*** 4.013	3.742
	Susp. Solids	6,200	1,200	1,700	1,400	3,300	2,700
	Fiber	0	0	0	0	0	0
	Solubles	34,100	41,200	33,400	17,200	23,400	29,900
	BOD	5,900	10,300	6,700	7,500	7,300	7,500
% Efficiency Removal	Solids	84.4	97.4	95.6	96.3	92.0	93.1
	Fiber	100.0	100.0	100.0	100.0	100.0	100.0
	Solubles	15.2	6.8	7.2	37.5	41.8	21.7
	BOD	70.7	37.6	45.0	51.6	34.1	47.8
	Total BOD for all divisions	****		****+		****	
	BOD	8,700		9,100		8,200	
	Date	11/27		11/29		12/1	

Remarks:

*** Bypassing directly to creek below the dam - estimated about 6 inches through a 24 inch line

**** Includes 200# load at Monarch

SCM CONFIDENTIAL

SA00035586

STATE OF MICHIGAN

GEORGE ROMNEY, Governor

DEPARTMENT OF CONSERVATION

RALPH A. MAC MULLAN, Director

December 13, 1967

CONSERVATION COMMISSION
CARL T. JOHNSON
Chairman
E. M. LAITALA
ROBERT C. McLAUGHLIN
AUGUST SCHOLLE
HARRY H. WHITELEY

WATER RESOURCES COMMISSION
GEORGE F. LIDDLE
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JOHN E. VOGT
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E. DALE BALL
GERALD E. EDDY
JAMES V. MURRAY
LYNN F. BALDWIN
JIM GILMORE

300 MILL ST., LANSING 48926
Tel. 373-2360

Mr. E. J. Gilman
Vice President - Manufacturing
Allied Paper Corp.
Kalamazoo, Michigan 49001

Dear Mr. Gilman:

Our Comprehensive Study Unit is planning a comprehensive re-survey of the Kalamazoo River in 1968, similar to the work which was done in 1956. It is planned to include Portage Creek in our 1968 studies.

Shortly after the first of the year sampling surveys of the streams will be initiated and will be carried out throughout most of the year with a concentrated around-the-clock survey to be conducted sometime during the summer-fall drought period. During the year we will also be carrying out surveys of the various waste sources in the Kalamazoo-Plainwell-Otsego area.

As a prelude to the 1968 studies, we had occasion to be in the Kalamazoo area yesterday (December 12) at which time a group of key personnel of our Comprehensive Study Unit staff were given a tour of the area to orient them as to the location of the various waste sources and their location and pertinent information as to stream sampling locations, etc.

During this tour we noted two matters with respect to the Allied Paper Corporation's waste control operations which should receive your immediate attention. At the Alcott Street Bridge we observed a large by-pass of wastes occurring from the Bryant Mill. It was estimated that this by-pass amounted to approximately 150 gallons per minute.

At the Monarch Mill location, we noted that sludge from the company's sludge storage lagoons located north of Cork Street and east of Portage Creek was topping the dikes at an area located along the creek. It is apparent that there is no capacity left to receive additional sludge in this lagoon.

We would appreciate hearing from you at your earliest convenience as to the reason for the Bryant Mill by-pass, corrective actions taken and the period of time by-passing occurred. It is also requested that you inform

MICHIGAN WATER-WONDERLAND

C0002699

Bennett
EXHIBIT NO. 7
M. LANTIS 7/24/92

KA04500128

SA 011382

Kalamazoo, Michigan, Fireside 5-7131

ALLIED PAPER CORPORATION

December 19, 1967

[RECEIVED]
DEC 22 1967
WATER RESOURCES COMMISSION

Mr. Robert J. Courchaine
Regional Engineer
Water Resources Commission
200 Mills Street
Lansing 13, Michigan 48926

Dear Mr. Courchaine:

This is in answer to your letter of December 13, 1967.

We too were aware of the overflow at Bryant at the time you mentioned. Because it is almost impossible to do any checking of the lines or pumps during an operational week, we were unable to find the answer until the weekend of December 10. At that time, we found that the three eight-inch risers from the vertical pumps were badly restricted, and that there was a lot of build-up on the check valves. We replaced one of the risers and one of the valves that weekend and noticed some improvement in the overflow. This past Sunday, December 17 we did the same job on another pump and the problem has been overcome. We will take care of the third pump either next weekend or the weekend following.

We have instituted regular weekend inspection procedures which will make us aware of build-up in these lines before it causes overflow.

As far as the Monarch sludge bed is concerned, no sludge got into the creek. We check the dikes at frequent intervals and repair them when necessary. Our experience indicates that we will be able to use this sludge bed for some time to come. I would like to show you on the ground just how we will handle our sludge in the future.

Bennett
EXHIBIT NO. 8
M. LANTIS 7/24/12

0002686

You can count on our wholehearted cooperation in your 1968 program. Please let us know specifically what we can do to help.

Sincerely,

E. J. Gilman
Vice President, Manufacturing

EJG:d

0002688

ALLIED PAPER CORPORATION
WASTE TANK TREATMENT TEST

To: U. G. Stoeffler
From: R. J. Willie
Date: December 14, 1967
Division Bryant

cc: W. Harrison
E. Klimczak
R. Levy
E. Silman
F Fragomeli
H. Herrocks
A. Vickery
R & D File
W. Buenger
F. Hyet
D. Falvey
B. Herbert

		12/4 Mon.	12/5 Tues.	12/6 Wed.	12/7 Thurs.	12/8 Fri.	Ave.
(#/Day) Influent	Flow (MGD)						
	Susp. Solids	44,000	66,100	62,700	56,600	35,800	53,000
	Fiber	11,200	19,300	14,700	11,700	6,200	12,600
	Solubles	33,400	30,200	30,000	39,200	47,800	36,000
	BOD	12,700	16,600	16,700	17,700	15,300	15,800
(#/Day) Effluent	Flow (MGD)	*4.013	*4.013	*4.013	*3.914	*4.113	4.015
	Susp. Solids	4,100	4,700	6,700	6,600	2,100	4,800
	Fiber	0	0	0	0	0	0
	Solubles	26,800	30,200	23,500	35,900	41,100	31,500
	BOD	5,200	7,600	11,200	11,100	12,300	9,480
Removal % Efficiency	Solids	90.8	92.9	89.2	88.4	94.2	91.1
	Fiber	100.0	100.0	100.0	100.0	100.0	100.0
	Solubles	19.7	0	21.7	8.4	16.3	13.2
	BOD	59.0	54.2	32.9	37.3	19.6	40.6
	Total BOD for all divisions BOD Date	** 7,300 12/4	** 7,700 12/5	** 12,900 12/6	** 11,200 12/7	** 14,700 12/8	

Remarks:

*Bypassing below dam. AM & PM estimated height of flow through pipe

	12/4	12/5	12/6	12/7	12/8
AM	2"	4"	6"	6"	6"
PM	2"	4"	6"	6"	6"

On Friday the pipe leading to sampler started plugging up. This restricted flow, so this is not a true composite sample.

** Includes 100# load from Monarch

SCM CONFIDENTIAL

SA00035585

WATER RESOURCES COMMISSION

Memorandum

TO: F. B. Frost, Assistant Division Chief

FROM: Chester Harvey, District Engineer

DATE: December 15, 1967

RE: Tax Exemption Application No. 64
Allied Paper Corporation, Bryant Division
Portage Street, Kalamazoo, Michigan

The Bryant Division's waste treatment consists of two pumping stations and about one mile of pipeline, a 100' clarifier and sludge beds. The wastes are discharged to the clarifier where solids, which settle out, are then removed to the sludge beds with the effluent discharging to Portage Creek.

It has been our experience that the various pumping stations frequently bypass and permit untreated wastes to flow directly to Portage Creek. The condition of Portage Creek reveals unsatisfactory conditions and recent surveys show high oxygen consuming loading and high solids loading to this creek.

Corrected now ?

We feel that the operation of this facility has been unsatisfactory and that proper protection of Portage Creek has not been provided. We recommend that this application be denied.

kn

MDNR 003667

MDNR00003667

COURIVE

PM

WATER RESOURCES COMMISSION

Memorandum

TO: Allied Paper Company Files

FROM: R. Courchaine RJC

DATE: December 21, 1967 SUBJECT: Bryant Mill by-passing

Karl Zollner and Jim Pope were in the Kalamazoo area 12-20-67 and report that they observed that the Bryant Mill was again, or continuing to, by-pass wastes.

Shortly after the lunch hour on that date I received a call from Dr. Bob Levy of the Company, explaining that a waste pump had burned out and that to replace it, they had to start by-passing wastes at noon. He indicated that the job would probably be completed and the system back in operation by 3:30 P.M. on that date.

Suggest we check for by-passing at this mill at every opportunity.

RJC: kn
cc: C. Harvey
J. Bohunsky

Harvey
EXHIBIT NO. 29
M. LANTIS 11/5/72

0000350

KA04900188

WATER RESOURCES COMMISSION

Memorandum

TO: R. J. Courchaine

FROM: Karl Zollner, Jr.

DATE: December 21, 1967

RE: Industrial bypasses to the Kalamazoo River and tributaries

During the river sampling survey of December 20, 1967 the following industrial waste bypasses were noted:

1. Kalamazoo Paper Co. #2. An estimated 20 gpm were overflowing the weir on the clarifer and discharging to the Kalamazoo River. This discharge was a milky-white color. A sample was submitted to the laboratory for analysis.

2. Brown Paper Co. (Sutherland #1) An estimated 150 gpm were flowing in the ditch leading from this plant. It had a dark brown color but did not appear to be very turbid. It also contained duckweed or a similar floating aquatic plant. In addition to a sample for chemical analysis a sample was collected for bacteriological analysis because Jim Pope suspected that this bypass might contain sanitary wastes.

3. Allied Paper Corp., Bryant Division. An estimated 250 gpm were being bypassed. This had a brown, turbid appearance. A sample was submitted to the laboratory for analysis.

4. Auto-Ion Chemicals & Engineering Co. A small amount of flow was escaping to the river from this facility. It had a milky, light tan appearance. A sample was collected from the river near the valve and submitted to the laboratory for analysis. The results of this analysis are to be sent to Jim Pope.

The Rex Paper Co., Hawthorne Paper Co., National Gypsum Co. and Kalamazoo Paper Co. #3 were not bypassing on this date.

The Allied Paper Corp., King Div. was not inspected for bypass.

Discharge from an unknown source was observed coming from a sewer at the southwest corner of Farmer St. in Otsego. The estimated quantity was 50 gpm. This source was not sampled.

In spite of their baffle and spray, the City of Kalamazoo was experiencing problems with foam escaping to the river.

The river flow at the Comstock gage was 1,000 cfs.

KZ: kn

MDNR 002469

MDNR00002469

ALLIED PAPER CORPORATION
WASTE TANK TREATMENT TEST

To: U. G. Stoeffler

cc: W. Harrison, E. Klimczak, R. Levy, E. Silman, F. Fragomeli, P. Torrecks, A. Vickery, R & D File, W. Buenger, F. Hyet, D. Falvey, B. Herbert

From: R. J. Willie

Date: December 21, 1967

Division: Bryant

		12/11 Mon.	12/12 Tues.	12/13 Wed.	12/14 Thurs.	12/15 Fri.	Ave.
(#/Day) Influent	Flow (MGD)	**					
	Susp. Solids	-	47,700	94,200	73,200	53,500	67,000
	Fiber	-	9,100	18,600	13,700	10,800	13,000
	Solubles	-	24,600	43,200	36,000	28,700	33,100
	BOD	-	17,800	22,600	24,000	18,200	20,650
(#/Day) Effluent	Flow (MGD)	* 4.216	* 4.216	* 4.320	4.320	4.320	4.278
	Susp. Solids	3,500	3,600	4,400	7,900	7,300	5,300
	Fiber	0	0	0	0	0	0
	Solubles	38,600	21,200	43,200	32,400	25,200	32,100
	BOD	9,600	11,600	13,400	14,600	12,900	12,400
Removal % Efficiency	Solids	-	92.5	95.4	88.0	86.4	90.5
	Fiber	100.0	100.0	100.0	100.0	100.0	100.0
	Solubles	-	13.8	0	10.0	12.2	9.0
	BOD	-	34.9	40.7	39.1	29.1	35.9
	Total BOD for all divisions	***					
	BOD	12,200	11,900	16,500	14,900	16,200	
	Date	12/11	12/12	12/13	12/14	12/15	

Remarks: * Bypassing below dam - Estimated flow $\frac{12/11}{4^{\#}}$ $\frac{12/12}{4^{\#}}$ $\frac{12/13}{4^{\#}}$ $\frac{12/14}{4^{\#}}$ $\frac{12/15}{4^{\#}}$

** No influent sample - Repairing pumps and lines in pumphouse.
*** Includes 300# load from Monarch

SCM CONFIDENTIAL

ALLIED PAPER CORPORATION
WASTE TANK TREATMENT TEST

To: U. G. Stoeffler

From: R. J. Willie

Date: 12/28/67

Division Bryant

cc: W. Harrison
E. Klimczak
R. Levy
E. Gilman
F Fragomeli
H. Torrocks
A. Vickery
R. D File
W. Buenger
F. Hyet
D. Falvey
B. Herbert

		12/18 Mon.	12/19 Tues.	12/20 Wed.	12/21 Thurs.	12/22 Fri.	Ave.
(#/Day) Influent	Flow (MGD)						
	Susp. Solids	**	63,200	56,900	59,300	78,000	64,400
	Fiber	-	8,600	9,700	14,100	16,600	12,200
	Solubles	-	46,700	37,800	32,900	52,000	42,350
	BOD	-	14,600	14,600	14,400	18,600	15,500
(#/Day) Effluent	Flow (MGD)	* 4.216	*4.320	*4.113	*4.438	*3.914	4.200
	Susp. Solids	4,200	7,900	4,800	8,100	3,300	5,650
	Fiber	0	0	0	0	0	0
	Solubles	49,100	36,000	30,800	29,600	45,500	38,200
	BOD	12,800	11,800	11,300	7,100	9,000	10,400
% Efficiency Removal	Solids	-	87.5	91.5	86.6	95.7	90.3
	Fiber	100.0	100.0	100.0	100.0	100.0	100.0
	Solubles	-	22.9	18.5	10.1	12.5	16.0
	BOD	-	19.2	22.6	50.7	51.7	36.0
	Total BOD for all divisions BOD Date	14,400 12/18		14,090 12/20		10,300 12/22	

Remarks:

* Overflows in AM as follows (Reported in GPM)

12/18	12/19	12/20	12/21	12/22
0	739	880	927	927

These flows were not continuous but when checked in the AM, these amounts were actually overflowing into creek.

** Sampler plugged up.

SCM CONFIDENTIAL

WATER RESOURCES COMMISSION

Memorandum

To: R. J. Courchaine, files

Subject: Paper mills - Kalamazoo area

From: C. E. Mogg

Date: January 29, 1968

File

The paper companies in the Kalamazoo area were inspected on January 24, 1968. During this time, two companies were observed bypassing.

1. Bryant Division, Allied Paper Company - Approximately 300 gpm of waste was entering Portage Creek at Alcott Street. John Gilman was contacted to inform him of the situation. Mr. Gilman was unaware the bypass was occurring, but would determine the reason for the bypass and inform our agency of his findings.

2. Brown Paper Company, Mills 4 & 7 - Approximately 150 gpm of sludge from the clarifier was bypassing directly to the Kalamazoo River. Mr. Carl Watterman, treatment plant operator for the company, was contacted to determine the reason for the bypass. Mr. Waterman indicated a sludge pond had been cleaned out recently which exposed the sludge line to the elements. The line had frozen 2 or 3 days ago and had just been thawed out. However, no attempt had been made to switch the sludge from the river to the lagoons. Mr. Waterman made the switch during our presence. Staff suggested to Mr. Waterman that the line be covered to prevent another freeze up.

CEM:as

cc: K. Zollner.

RECEIVED
JAN 30 1968
WATER RESOURCES
COMMISSION

RJC

MDNR00004471

Kalamazoo, Michigan, Fireside 5-7131

C. C. Hartley

ALLIED PAPER CORPORATION

January 26, 1960

Mr. Robert J. Courchaine
Regional Engineer
Water Resources Commission
200 Mills Street
Lansing 13, Michigan 48926

Dear Mr. Courchaine:

On Tuesday of this week, one of your representatives visited my office to tell me that we were bypassing some of our effluent at Bryant. I assured him I would check into the situation and see if it could be helped.

I found that two of the five paper machines at Bryant were on colored orders; a situation which we always try to avoid in scheduling. I thought I would have to take one of the orders off the machine, but it was a very light green tint and we decided to try to reuse the water rather than sewer it. We were able to do this successfully and the problem was solved.

I have stated a flat rule both to our scheduling department and to Bryant supervision that we must never have more than one machine at a time on colored orders.

Yours truly,

Jack Gilman

jlf

cc Ken Sweet
Fritz Peeters

Gilman
EXHIBIT NO. 47
1-19-93
P. MORETTI

0002685

STATE OF MICHIGAN

CONSERVATION COMMISSION
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LYNN F. BALDWIN
JIM GILMORE

200 MILL ST., LANSING 48926
Tel. 373-3560

May 3, 1968

Mr. E. J. Gilman
Vice President - Manufacturing
Allied Paper Corporation
Kalamazoo, Michigan 49001

Dear Mr. Gilman:

The following excerpt from the minutes of the April 24-25, 1968, meeting of the Water Resources Commission will confirm the action taken by the Commission at its conference on April 24 with representatives of your Company:

"Allied Paper Corporation, Kalamazoo: Representatives of the Company were present, as scheduled at the March 26-27, 1968, meeting, for a conference to discuss the condition of Portage Creek and to consider measures necessary to elevate its quality to satisfactory levels. Staff reviewed the background of the problem (see record of Conference). A substantial reduction in the Company's present waste loading is necessary to protect water quality in Portage Creek. Staff reported repeated incidents of partial waste bypassing to Portage Creek without processing by the available treatment facilities. Mr. E. J. Gilman, Vice President of the Company, reported on accomplishments in the reductions of waste loadings to the Creek since 1965. Mr. Donald Swets, Director of Public Works, City of Kalamazoo, said that determination of costs involved in the City's acceptance of the Company's waste, if such is desired by the Company, would require some study. Following discussion, Mr. Baldwin made a motion, supported by Mr. Quackenbush, that the Company be requested to study the problem and present proposals within 90 days on what measures it is prepared to take to improve the conditions of Portage Creek; further, that it be requested to terminate bypassing to Portage Creek immediately. Motion unanimously carried."

Your report to the Commission should reach this office by July 20, 1968, in order to have attention at the Commission's July meeting. Your attention is also directed to the Commission's request that bypassing of untreated wastes to Portage Creek be terminated immediately.

You will receive a copy of the conference record as soon as it is transcribed.

Very truly yours,

WATER RESOURCES COMMISSION

Loring F. Oeming
Executive Secretary

cc: Mr. Purdy
Mr. Courchaine
Mr. Harvey

MICHIGAN
WATER-WINTER WONDERLAND

Harvey 30
EXHIBIT NO.
M. LANTIS 11/5/92

KA04900189

S000388

C. Harvey

WATER RESOURCES COMMISSION

Memorandum

Kalamazoo R

TO: R. J. Courchaine

FROM: Karl Zollner, Jr.

DATE: May 22, 1968

During the river sampling survey of May 21, 1968 the following industrial waste bypasses and other problems were noted:

1. Kalamazoo Paper Company #1 and #3 - As on all of our previous visits a small amount (approximately 10 gpm) of waste was seeping from the clarifier directly to the river. This is a maintenance problem. We did not sample this bypass this month.

2. Kalamazoo Paper Company #2 - We may have been looking at the wrong location to determine if this installation was bypassing directly to the river. It did not appear as if there were a bypass from the spot we have been looking at but a discolored area in the river was the same color as the influent to the clarifier. We collected a sample in the influent sump pit.

3. We collected another sample from Schippers Creek (the ditch that would carry any bypass from the Brown Company). Again the Creek did not appear to have paper mill wastes in it but did appear to contain fecal material. A sample was collected for analysis.

4. Auto-Ion Chemicals and Engineering Company - It appeared as if there had been a fairly recent spill of liquid material in the unloading area. The owner told us that this was due to the carelessness of truckers when they uncoupled their hoses. He had spread caustic on the ground in an attempt to neurtralize the acids that had been spilled. When asked about the sludges and oils in the open holding tank he said that eventual disposal would be to a landfill in Allegan County.

5. Allied Paper Company - Monarch or Bryant Division - We looked over the sludge holding ponds and found one area where sludge had spilled right down to the banks of Portage Creek. A photograph of this area was taken.

6. City of Kalamazoo Wastewater Treatment Plant - The plant was still experiencing difficulty with foam in their final effluent.

KZ:kn

cc: C. Harvey

MDNR 002488

MDNR00002488

ALLIED PAPER CORPORATION

June 13, 1968

Mr. Loring F. Oeming, Executive Secretary
Water Resources Commission
200 Mill Street
Lansing, Michigan 48926

Dear Mr. Oeming:

Allied Paper has been directed to submit a report to your office by July 20, 1968 describing its plans to "improve the condition of Portage Creek."

Our plan, which we submitted to you verbally on May 16 and to the City Engineer of Kalamazoo on May 22, is as follows:

1. We propose to construct a pipe line from the Bryant paper mills between Alcott and Reed Streets to the Monarch clarifier which lies just north of Cork Street. This line, to be 12" in diameter, will carry the excess white water from the Bryant paper machines to the Monarch clarifier, approximately 5,000 feet. This volume is approximately 2 MGD, and will be added to the approximately 2 MGD from Monarch Mill, the total being well within the designed capacity of the clarifier. The effluent from this clarifier would be put into Portage Creek.

2. The effluent from the Bryant deinking operation, also approximately 2 MGD, would be pumped through the existing 20" line to the Bryant clarifier. The effluent from the Bryant clarifier would be piped approximately 800 feet west to the City Sanitary Sewer through another newly constructed 12" line, and would be treated in the city's primary and secondary treatment plants. This is the high-BOD and high-color portion of the present total Bryant effluent. The City Engineer of Kalamazoo has indicated that he would like to draw samples of this deinking effluent and to check its volume for about a two-week period.

3. We estimate that this plan would remove approximately 9,000 pounds of BOD per day from Portage Creek, and that it would also make a dramatic improvement in the color and turbidity of the creek.

KA05500291

Purdy
EXHIBIT NO. 67
M. LANTIS 10/28/92

4. By reducing the volume which is now being pumped through the 20" line by approximately 50 percent, this arrangement would also relieve the overloading condition which troubles us periodically at present, resulting in objectionable by-passing.

We have also been directed by the Commission to stop by-passing the Bryant clarifier. The by-passing of a portion of the effluent occurs when we are unable to pump the entire effluent through the 20" line to the clarifier. Any restriction in this 4,000 foot, 20" line and/or any momentary decrease in the efficiency of any one of the three vertical pumps pumping to the clarifier results in the by-passing.

To put ourselves into a position of conformance with the Commission's directive, we are continually picking up more fresh water within the Bryant mills and piping it directly into Portage Creek. We estimate that within the past week alone we have picked up an additional 250,000 gallons per day, and the volume of the Bryant effluent today is at its lowest point in history. We are also attacking the problem through a program of cleaning the 20" line, and regular inspection and cleaning of the vertical pumps. We have found this problem to be an extremely difficult one, but we are confident that our efforts will pay off and that our by-passing will be stopped within a very short time.

Very truly yours,

E. J. Gilman

E. J. Gilman
Vice-President of Manufacturing

EJG:jf

cc: Mr. Don Swets, Kalamazoo City Engineer

[illegible] the mills we
[illegible]1951, and at the
[illegible]

STATE OF MICHIGAN

GEORGE ROMNEY, Governor

DEPARTMENT OF CONSERVATION

RALPH A. MACMULLAN, Director

CONSERVATION COMMISSION
HARRY H. WHITELEY
Chairman
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E. M. LAITALA
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AUGUST SCHOLLE

WATER RESOURCES COMMISSION
GEORGE F. LIDDLE
Chairman
JOHN E. VOGT
Vice Chairman
B. DALE BALL
GERALD L. EDDY
JAMES V. MURRAY
LYNN F. BALDWIN
JIM GILMORE

200 MILL ST. LANSING 48926
Tel. 373-3560

June 17, 1968

File.

Mr. Les Stoeffler, Manager
Process Development
Allied Paper Corporation
Kalamazoo, Michigan

DEPOSITION EXHIBIT
Exhibit 16
11-16-92 LP

Dear Mr. Stoeffler:

This is in reference to your recent telephone conversation with R. W. Purdy regarding by-passing of the white water at the Bryant Mill to allow for certain tests to be run on quantity and quality of the de-ink wastes.

It is our understanding that such testing will take about two weeks to perform and during this period the de-ink wastes will be treated in the clarifier with by-passing of only the white water.

We would have no objection to this proposal if the testing can be performed now, while stream flows are still relatively high. If, however, testing cannot be started within a week or two before stream flows and temperatures become critical, it should be delayed until the fall.

We will appreciate being kept informed as to when the tests are to be started and terminated.

Very truly yours,

WATER RESOURCES COMMISSION

RJC

Robert J. Courchaine
Regional Engineer

RJC:pb

cc: P. W. Purdy
C. Harvey

MICHIGAN
THE GREAT LAKE STATE

0002649

KA05500958

SA 011342

Date Collected 7/22/69 — CHEMICAL ANALYSIS — Date Received _____

Collected by Zolincz — MICHIGAN WATER RESOURCES COMMISSION — Examiner _____

LOCATION	Bypass from Bryant Div. of Allied Paper Co. → Kalamazoo
TIME	1140
TEMP	31
LAB NO	169
DO	
B.O.D.	340
K_1 rate	
pH	7.9
TDS	
S.S	525
SVS.	185
NH_3—N	
NO_2—N	
NO_3—N	
SO PO_4	
TOTAL PO_4	
TOTAL COLI	
FECAL COLI	
Phenol	
CN	
CR $^{+6}$	
As	
Mn	
Cu	
F	
Zn	

MDNR00002494

Period	Starting	Ending	Hours Monitored	Gallons Monitored	Projected Flow for 24 hours
Bryant Division By-pass					
	Monday, 6-3-68, @ 1800	Tuesday, 6-4-68, @ 0800	14	114,000	196,000 gal
1	Tuesday, 6-4-68, @ 0800	Wednesday, 6-5-68, @ 0800	24	14,600	14,600 gal
2	Wednesday, 6-5-68, @ 0800	Thursday, 6-6-68, @ 0800	24	96,000	96,000 gal
	Thursday, 6-6-68, @ 0800	Thursday, 6-6-68, @ 1945	11.75	23,000	60,000 gal
De-inking Mill--chlorine process discharge	28-inch full channel weir				
1	Tuesday, 6-4-68, @ 2000	Wednesday, 6-5-68, @ 0830	12.5	282,300	542,100 gal
2	Wednesday, 6-5-68, @ 0900	Thursday, 6-6-68, @ 0830	23.5	504,600	515,300 gal
3	Thursday, 6-6-68, @ 0900	Friday, 6-7-68, @ 0900	24	453,600	453,600 gal
Bryant Division clarifier effluent	48" weir ½ rectangular ½ full channel				
1	Tuesday, 6-4-68, @ 0830	Wednesday, 6-5-68, @ 0815	23.75	2,815,000	2,845,000 gal
2	Wednesday, 6-5-68, @ 0830	Thursday, 6-6-68, @ 0800	23.5	2,944,000	2,991,000 gal

052636

STATE OF MICHIGAN

GEORGE ROMNEY, Governor

DEPARTMENT OF CONSERVATION

RALPH A. MAC MULLAN, Director

CONSERVATION COMMISSION
HARRY H. WHITELEY
Chairman
CARL T. JOHNSON
E. M. LAITALA
ROBERT C. McLAUGHLIN
AUGUST SCHOLLE

WATER RESOURCES COMMISSION
GEORGE F. LIDDLE
Chairman
JOHN E. VOGT
Vice Chairman
S. DALE BALL
GERALD E. EDDY
M. P. WOODFORD
BALDWIN
ORE
SING
3560

September 25, 1968

Mr. Dan Yenner
2226 Oakland Drive
Kalamazoo, Michigan 49001

Dear Mr. Yenner:

This is to acknowledge receipt of your September 12, 1968 letter to Commissioner Jim Gilmore regarding the matter of waste control at the Allied Paper Company, Bryant Mill.

You indicated that the latter part of July and during August the Company by-passed waste while cleaning its waste pipeline which carries the Bryant wastes to the waste treatment clarifier.

The Commission and its staff have expressed grave concern for the rather frequent by-passing of wastes which occur at the Bryant Mill. At its April 24th conference with the Company, the Commission discussed the necessity of improving waste treatment at the Bryant Mill and of eliminating the by-passing of wastes.

The Company indicated that a water conservation and re-use program was being pursued to reduce the total volume of wastes to be handled through the pipeline and thereby correct the by-passing. Since the problem is aggravated by the reduced capacity of the pipeline, as a result of a buildup of solids around the inner wall of the pipe, the Company stated that it would be necessary to clean this pipe and, in some instances, to replace badly corroded sections. In our discussion with the Company regarding this program, we informed them that routine cleaning and replacement of pipe should be programmed during shutdown and other periods of reduced waste flow to minimize any by-passing of wastes. Apparently, it was not possible to accomplish all of the work which needed to be done during such periods.

We, of course, would prefer that by-passing of any waste treatment facility would never be necessary; but there are times of equipment failure and circumstances beyond the control of the operators of such facilities which necessitate such by-passing to allow for repairs and equipment replacement. The Commission's policy in such matters is to program, wherever possible, the by-pass so as to minimize the effects on the water quality and uses made of the receiving waters.

MICHIGAN
THE GREAT LAKES STATE

0002639

KA04900441

SH 011332

In any event, the Company's pipe cleaning program, coupled with the flow reduction program, should result in elimination of future by-passing of untreated wastes.

The Commission has notified the Company that improved waste treatment will be necessary to upgrade water quality in Portage Creek to meet the Water Quality Standards for this stream, which are expected to be established early in 1969. The Company is now studying the feasibility of discharging de-ink wastes from its Bryant Mill into the City of Kalamazoo sanitary sewer system. The Company is required to make a report on this matter to the Commission next month.

We certainly appreciate your interest in this matter and in taking the time to write to us regarding your observations. Should you observe any by-passing of wastes in the future, we would appreciate a call so that the matter can be immediately investigated by our staff.

Once again, thank you for calling this matter to our attention.

Very truly yours,

WATER RESOURCES COMMISSION

RWP R.J.C.

Ralph W. Purdy
Chief Engineer

RJC/ro

cc: Jim Gilmore
C. Harvey ✓

0002640

KA04900442

RECEIVED SEP 17 1968

2226 Oakland Dr.,
Kalamazoo, Mich., 49001
September 12, 1968

Mr. James Gilmore, Jr.
201 Michigan Bldg.,
Kalamazoo, Michigan, 49001

Dear Mr. Gilmore,

In the interest of Kalamazoo and the people concerned with water pollution, I would like to make known an act of gross water pollution. As you may or may not know, the Allied Paper Co.,Bryant and Monarch mills use a treatment plant for their paper waste which is located on Cork St. This treatment plant is directly across from the Monarch mill. The waste from the Bryant mill is pumped from their location on Alcott to this plant before it is dumped into the river which runs by there.

During the latter part of July and all of August and, possibly, evenuntil today, the company is disassembling and cleaning this pipe. While the cleaning was in process in July and August the paper waste was pumped directly into the river without any known treatment.

I hope that Kalamazoo can do its part in the total elimination of water pollution, but such action as the above will never let us attain this goal. I hope that such information, when held in the proper hands, will be used to enforce and stop all violation of water pollution laws.

Sincerely yours,

Dan Yenner

0002641

Gilman EXHIBIT NO. 648 8-12-97 T. SPARKMAN

Gilman EXHIBIT NO. 68 1-19-93 P. MORETTI

STATE OF MICHIGAN

NATURAL RESOURCES COMMISSION
E. M. LAITALA
Chairman
CARL T. JOHNSON
ROBERT C. McCULLOUGH
AUGUST SCHOLLE
HARRY H. WHITELEY

WILLIAM G. MILLIKEN, Governor

DEPARTMENT OF NATURAL RESOURCES

STEVENS T. MASON BUILDING, LANSING, MICHIGAN 48926

RALPH A. MACMULLAN, Director

WATER RESOURCES COMMISS.
JOHN E. VOGT
Chairman
STANLEY QUACKENBUSH
Vice Chairman
GERALD E. EDDY
JOHN P. WOODFORD
JIM GILMORE
GEORGE F. LIDDLE
JOHN H. KITCHEL, M.D.

July 2, 1970

CERTIFIED MAIL

Mr. O. G. Stoeffler
Manager - Process Department
Allied Paper, Inc.
Paper Mills Division
Kalamazoo, Michigan 49003

Dear Mr. Stoeffler:

Our staff reports that the King clarifier which went out of service early in June still is not back in service and paper mill wastes continue to be discharged to the Kalamazoo River without treatment.

We cannot permit this to continue and ask the Company to take immediate steps to provide primary treatment of the wastes or to terminate production at the King Mill until such time as the clarifier can be placed back in service.

The fine progress made by the Company in waste control, reported to us earlier and most recently in your May 21 letter to Mr. Courchaine of our staff, will certainly be nullified if such operations as are presently occurring at the King Plant are permitted to continue.

You are asked to contact us upon receipt of this letter to inform us of the Company's intent and program for complying with this request.

Very truly yours,

WATER RESOURCES COMMISSION

F. B. Frost
Chief Engineer

RJC:ms

cc: C. Harvey,
R. Courchaine -

MICHIGAN The great lake state

Gilman EXHIBIT NO. 65 8-12-97 T SPARKMAN

Gilman EXHIBIT NO. 81 1-20-93 P. MORETTI

KA04800203

MICHIGAN WATER RESOURCES COMMISSION

Staff Report

Allied Paper Corporation, King Division
Kalamazoo, Michigan

July 14, 1970

On June 16, 1970, this writer received information that the above company was by-passing untreated waste into the Kalamazoo River. On June 17, this fact was confirmed and samples were taken of the waste discharge and from the Kalamazoo River. The bypass occurred as the result of the drive gears breaking for the clarifier scraper mechanism. Company representatives stated that efforts were being made to obtain replacement parts from either of two sources. At that time, they expected to receive new gears within one week.

The analyses for samples obtained on June 17, 1970, is as follows:

Source	D.O. mg/l	B.O.D.5 mg/l	Susp. Sol. mg/l	Susp.Vol. Sol.mg/l	pH
Kalamazoo River; M-96 Highway (above Allied Paper)	8.8	6.4	17	14	8.5
48" con. sewer; L. bank Kalamazoo River, 300 yds. N. of M-96 (Allied Paper flow)	-	320	1120	470	7.6
Kalamazoo River; Hills Street (below Allied discharge)	8.8	8.4	35	19	8.4
Kalamazoo River; Patterson Street (below both Allied & Portage Creek)	8.0	78.0	30	14	8.3

Because of other waste sources which enter the river, further sampling was not practical to identify oxygen degradation from Allied Paper's King Division. However, it is interesting to note that the suspended solids concentration jumped from 17 mg/l above the loss to 35 mg/l below the King Division's discharge. The Hills Street bridge is about 3/4 mile below the King Division's outfall.

Other inspections were made of conditions and progress on repair on June 19, and June 30. The writer understands that the clarifier was put back in use at 9:30 a.m., July 7, 1970.

DEPOSITION EXHIBIT
Allied # 517
4/23/97 CC

EXHIBIT
8209
ALL-STATE LEGAL SUPPLY CO

A question could be raised as to how diligently the company proceeded to make the repairs. On June 30, a portion of sludge still remained in the clarifier and was being removed very slowly as the sludge pump was not working at full capacity. The shoes on the sludge rakes were also badly worn. Company representatives stated that the clarifier would be brought to good repair prior to putting it back in service but at this same time doubted that work would be done over the July 4th holiday period unless the needed drive gear for the scraper would be delivered. It is doubtful (writer's conjecture) that a full inspection and repair program could have been satisfactorily completed in a two day period. Additionally, the repairing of the sludge pump for faster sludge removal was not being attempted. The replacement of the stater (the supposed problem) can normally be accomplished in about two hours.

James L. Pope

JLP:as

U.G. Steeffler Ray Willie

SAMPLE OF PORTAGE CREEK WATER June 1, 1971

A sample was taken of Portage Creek water at Mill "D" on May 17, 1971 during a so-called "fish kill." The tests on this sample are as follows.

pH - 6.58

BOD - 15 ppm

Water looked okay but a brownfloc readily settled out. Overheard at Mill "D" that Mill "A" had flooded over at this time. The fish were stunned but not dead. It is unlikely that an overflow at Mill "A" contained enough toxic materials to produce a problem like this. However, all these instances should be investigated to determine the reason for the fish "stunning".

cc: R.M. Levy
E.J. Gilman
K. Sweet
FILE

RM/hm

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

PAPER MILLS DIVISION KALAMAZOO, MICHIGAN 49003 (616) 345-7131

June 3, 1974

Mr. Roger Przybysz
Basin Engineer
Water Resources Commission
Stevens T. Mason Building
Grand Rapids, Michigan 48926

Dear Roger:

As per your instructions to Ray Willie, we'd like to relate to you the sequence of events on the overflow of waste water to Portage Creek on this date from our Bryant division.

A steam pipe in our old power plant ruptured at 1:10 p.m. and the steam shorted out an electrical panel board nearby which controlled the waste water pumps at our Mill D pumping station. This pumping station pumps waste water from our Mill C and Mill D plants to the large gray collection tank south of Alcott Street. When these pumps are inoperative, the waste water overflows to Portage Creek. At 1:15 supervision shut all five paper machines in Bryant division down. The steam leak and the electrical panel were repaired and the first waste water pumps were returned to duty at 2:20 with subsequent pumps at Mill D on line at 2:35. By 2:50 the Portage Creek looked clear again except for an occasional pocket along the banks.

Soon after I returned to my office at 3:00, I appraised Chet Harvey that the problem had been solved in good shape. I also appraised him of the fact that we are seriously considering buying diesel engines for emergency power on vital waste water pumps so that any future power outages will not necessitate overflow to Portage Creek and shutting down our paper machines.

Very truly yours,

ALLIED PAPER INCORPORATED

U. G. Stoeffler, Manager
Process Development

UGS:rb

cc: E. J. Gilman, Vice President of Manufacturing
R. J. Willi

DEPOSITION EXHIBIT
Allied # 525
4/23/97 CC

INTER-OFFICE CORRESPONDENCE

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

TO: E.J. Klimczak

WRITTEN BY: Jack Gilman

OFFICE:

OFFICE:

SUBJECT: CONFIDENTIAL

DATE: October 27, 1971

In reply to your letter of October 25, which asked a number of questions concerning the status of our effluent overflow, I would say first that I have no idea how many recorded visits we have with the WRC. Les Stoeffler and I had an interview with Mr. Courchaine of that agency this past summer, and he certainly gave no indication that our status was precarious. I believe, however, that the WRC may be taking moves against mills to enhance their "get tough" image. Norm Hahn of Georgia-Pacific told me today that they have had only one major overflow in the past twelve months.

We have numerous overflows, mostly during our weekend shutdowns, which last probably less than one hour. These usually involve white water from the paper machines rather than D.I. effluent.

Yesterday I met with Ken Sweet, the Superintendents of Mills A, C, and D, Per Hagard and Bill Herbert of Engineering. We discussed every aspect of our water handling facilities and decided on two courses of action. In the event of a power failure, we decided that we could stop the flow of all water to sewers, except for that in the paper machine headboxes, by closing two or three valves in the fresh water, gravity flow lines to the paper mills. We made the necessary arrangements to do this on a 24-hour basis.

To prevent overflows during weekend shutdowns, we decided to clean the Sveen Savealls in Mill D after 7 A.M., when the rest of our regular weekend clean-up has already been completed (the machines shut down at 3 A.M.). We think that this will solve the problem, but we will check it this weekend.

We also have occasional overflow from the Bryant Clarifier, which is connected to the City sanitary sewer system by a 12 inch line. In theory, this line should easily handle the 1.5 to 2.0 MGD flow, but it is not doing so. I asked Engineering to check the line for internal build-up and possible obstructions. I also requested a cost estimate on replacing this line with a larger one. It is my belief that we will continue to use this system even if the D.I. Plant is closed down.

cc: Ken Sweet

Gilman
EXHIBIT NO. 122
2-9-93
SHERYL BUSSINGER

SCM CONFIDENTIAL

000802

Gilman
EXHIBIT NO. 656
8-12-97
T. SPARKMAN

KA04800312

7/3/74

MICHIGAN WATER RESOURCES COMMISSION

STAFF REPORT

Allied Paper Incorporated

Kalamazoo, Michigan

At approximately 1:30 P.M. on Monday, June 3, 1974, the Grand Rapids District office received a call from Mr. Ray Willie of Allied Paper reporting an overflow to Portage Creek from the Mill D pumping station. He indicated that a steam pipe had ruptured and shorted out an electrical panel board which controlled the wastewater pumps at the Mill D pumping station. This pumping station pumps the wastewater from Mill C and Mill D to the large gray collection tank south of Alcott Street. I advised Mr. Willie I would be down to investigate.

Bob Babcock and myself arrived at the Allied Mill at approximately 2:30 P.M. and met Mr. Jack Gilman, Vice President of Manufacturing. Mr. Gilman informed us the overflow had stopped prior to our arrival and Mill D and Mill C were shut down until repairs were completed.

Mr. Gilman was advised that a written report would be required along with measures to prevent a reoccurrence. (See attached letter from Allied Paper.) Immediately following our discussion with Mr. Gilman, samples were taken of Portage Creek and the Kalamazoo River. The analyses of these samples are as follows:

Source	Time	pH	D.O.	B.O.D.	S.S.
Portage Creek at Cork Street	4:45	8.2	8.5	2.9	16
Portage Creek Above Alcott Street Dam	4:30	7.9	5.6	<2	15
Portage Creek at Reed Street	3:10	7.5	8.4	4.1	20
Portage Creek at Lake Street	3:20	7.7	8.2	4.2	21
Portage Creek at Pitcher St.	3:30	7.8	8.4	20	81
Portage Creek At Michigan Ave.	3:40	7.8	7.0	26	138
Kalamazoo River At R.R. bridge in Portage Creek Mixing Zone	3:45	7.9	7.2	36	96
Kalamazoo River at R.R. bridge Left 1/3	3:55	8.2	9.7	5.1	20
Kalamazoo River at Patterson St.	4:05	8.2	9.7	5.1	23

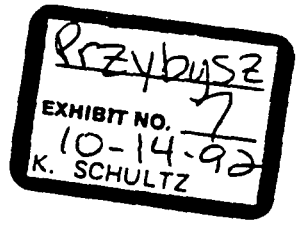
(Concentrations are expressed in mg/l except pH)

Note: Portage Creek was a white milky color from Pitcher Street down to the confluence with the Kalamazoo River. It was at this point that the slug was defined below the mill.

More

S0008S1

KA05500041



Pictures of the Mill D pumping station overflow location, and Portage Creek are available at the district office. An inspection of Portage Creek downstream from the overflow site did not reveal any damage to fish or wildlife. Flow in Portage Creek during the time of sampling was estimated at 66 cfs at Reed Street.

Roger Przybysz

RP/mc
7-3-74

S000882

WATER RESOURCES COMMISSION
4056 Plainfield Avenue, N.E.
Grand Rapids, Michigan 49505

November 19, 1975

Mr. Jack Gilman
Allied Paper Incorporated
P. O. Box 2528
Kalamazoo, Michigan 49003

Dear Mr. Gilman:

The City of Kalamazoo relayed a complaint in regard to turbidity and discoloration of Portage Creek between Cork and Alcott Streets. Our information indicated this was occurring on weekends, especially Saturdays.

In order to confirm the basis of this complaint, one of our staff members visited the complainant on Saturday, November 8, 1975. The river remained normal until approximately 10:00 A.M. and then the river water was noted to change drastically with a white color and marked increase in suspended solids.

A followup at the Monarch clarifier showed this to be the source of the high turbidity and suspended solids. Further contact with mill personnel confirmed that cleanup and washdown of equipment beginning around 7:00 A.M., overloaded the clarifier's capability and a substantial carry-over of suspended solids takes place two to three hours after cleanup operations begin.

A grab sample of the clarifier effluent taken on Saturday, November 8, 1975, shortly after 10:00 A.M. had the following concentrations:

5-Day B.O.D.	146 mg/l
Suspended Solids	212 mg/l
Volatile Suspended Solids	68 mg/l

If the waste volume is normal and the concentration remained at the level of the grab sample, the daily limitation of pounds would be almost double the level of the permit.

Is there a procedure or a change in method or adjustments that can be accomplished to overcome this periodic short-term exceedence of permit levels?

More

DEPOSITION EXHIBIT
Allied #523
4/23/97 cc

EXHIBIT
8214
ALL-STATE LEGAL SUPPLY CO

We also discovered another outlet from the machine room basement containing miscellaneous drainage generally clear but with a marked oil film. Our data does not indicate this source to be set out in the permit for the Monarch mill. This source should be addressed and eventually placed in the permit. We would anticipate only an oil and grease restriction and monitoring.

After your staff has evaluated our findings, would you please communicate on the points raised.

Very truly yours,

WATER RESOURCES COMMISSION

Chester Harvey,
District Engineer

CH/mc
cc: L. H. Pratt
Karl Zollner

FLNR, No 1503-7

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

PAPER MILLS DIVISION KALAMAZOO, MICHIGAN 49003 (616) 345-7131

December 16, 1975

RECEIVED
JAN 22 1976
Water Qual. Control

Mr. Chester Harvey, District Engineer
Department of Natural Resources
Water Resources Commission
4056 Plainfield Ave., N.E.
Grand Rapids, MI 49505

Dear Chet:

On Tuesday, December 9, 1975, at about 12:15 p.m., our Mill D sump pumping station overflowed into Portage Creek for approximately 45 minutes. As soon as this overflow was observed all five of our Bryant Division paper machines were shut down to reduce the generation of wastewater to zero. The cause of the overflow was found to be a break in the discharge pipe from one of the pumps in the sump just inside the cement wall of the sump. The pipe was valved off and the other pump started up, and the overflow stopped. At this point some of the paper machines were started. The one pump was adequate to handle this partial load. By 7 p.m. that evening the new sections of pipe had been installed and everything returned to normal.

It is very difficult to estimate the total overflow volume inasmuch as most of it was gravity flow back from the grey storage tank. (The break was in the pipeline going to the grey tank.)

Very truly yours,

ALLIED PAPER INCORPORATED

U. G. Stoeffler, Manager
Process Development

UGS:mr

cc: E. J. Gilman, V-P of Mfg.
Ken Sweet, Gen'l. Supt., Bryant Div.
Ray Willie, Certified Operator

xc: PEAS File (1600-75)

DEPOSITION EXHIBIT
Allied #522
4/23/97 cc

Presented to the WRC at their April 1976 meeting

Incident No. 1505-75 - Allied Paper Company, Inc., Kalamazoo

On December 9, 1975, a discharge pipe ruptured at a company pumping station on Alcott Street in Kalamazoo. A volume of untreated process waste greater than 100 gallons was subsequently discharged to Portage Creek. The discharge continued for 45 minutes prior to discovery and the volume discharged is unknown. The company shut down all paper machines immediately upon discovery of the rupture. No dead fish or wildlife were observed. Staff recommends no further action.

MDNR00004809

ALLIED PAPER INCORPORATED

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

INTER-OFFICE MEMO

TO: Les Stoeffler

FROM: M. Smith

OFFICE:

OFFICE:

SUBJECT: Complaint on the Color of Portage Creek

DATE: May 16, 1978

At 3:00 p.m. on May 10, 1978, I received a phone call from Mr. Dan French on Homecrest Circle complaining about the yellow color of the Portage Creek. At 4:00 p.m. I made a visual inspection of the Portage Creek and talked to Mr. French in person. The creek at that time looked fair, but Mr. French said it had looked bad since May 5, 1978. I told Mr. French I would look into the matter and let him know the following day on my findings.

After looking at the Monarch clarfier, I feel the Beaver Tail pump is pumping air into the center ring creating upsets. Monarch at that time was making Gold Cork Tipping and the upsets created a yellow effluent.

On May 11, 1978, I called Mr. French at 4:45 p.m. to inform him that part of our problem was a pump pumping air into the clarifier. This air creates upsets in the clarifier causing the creek to look bad. I told him I could not guarantee that correcting this problem would solve future problems and to inform me if the creek looks bad again.

br

cc: E.J.Gilman
D.C.Kirk
J.Roth
J.Stiegemeyer

000770

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

PAPER MILLS DIVISION KALAMAZOO, MICHIGAN 49003 (616) 345-7131

March 14, 1978

RECEIVED
MAR 16 1978
DISTRICT 3
WATER QUALITY DIV.

Mr. Chester Harvey
District Engineer
Department of Natural Resources
Grand Rapids State Office Building
350 Ottawa Avenue, N.W.
Grand Rapids, MI 49502

Dear Chet:

I reported to Roger Przybysz by telephone this morning that due to a power outtage a quantity of our waste water by-passed to Portage Creek. All of our emergency power switch over systems worked perfectly except the Beaver tail pump which pumps waste water from Monarch clarifier wet well to clarifier center ring. The computer shut off the Bryant clarifier effluent going to Monarch clarifier wet well on signal from a probe in the link. The Monarch effluent flow chart shows no flow from 11:45 p.m. (3/13/78) to 7:10 a.m. (3/14/78). However, for a substantial part of this period the paper machines were also down because of the power outtage.

Very truly yours,

U. G. Stoeffler
Manager, Process Development

br

cc: E.J.Gilman

9001400

PRZBYSZ
EXHIBIT NO. 29
10-14-93
K SCHULTZ

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

PAPER MILLS DIVISION KALAMAZOO, MICHIGAN 49003 (616) 345-7131

June 25, 1979

RECEIVED
JUN 26 1979
DISTRICT 3
WATER QUALITY DIV.

Mr. Roger Przybysz, Water Quality Specialist
Department of Natural Resources
State Office Building
350 Ottawa Avenue, N.W.
Grand Rapids, MI 49503

Dear Roger:

This is to confirm my telephone conversation as of June 22 relative to a small discharge of white water into Portage Creek near our Mill D pumping station. A small hole in the gravity line (which is seldom used) from our Mill C operation discharged less than 300 gallons total and was repaired by 3:00 on Friday afternoon. In fact, at the time the repair was made the line was no longer being used because of manufacturing conditions.

Yours very truly,

U. G. Stoeffler
Manager Process Development

br

9001498

KA05500091

RZybysz
EXHIBIT NO. 34
10 14 92
SCHULTZ

SCM ALLIED PAPER INCORPORATED

INTER-OFFICE MEMO

TO: T. Flanagan

FROM: U. G. Stoeffler
A. W. Watson

OFFICE:

OFFICE:

SUBJECT: Gray Tank Overflow

DATE: March 13, 1980

Copies to:
G.Brooks
D.Falvey
G.Gerard
P.Hagard
D.C.Kirk
M.Smith ✓
R.Steadmon
K.Sweet
J.Roth
J.Stiegemeyer

People Present: T. Flanagan, G. Gerard, R. Steadmon, G. Brooks, P. Hagard, D. Falvey, M. Smith, U. G. Stoeffler, A. W. Watson.

A discussion about the overflow of the gray tank brought out the information summarized below.

1. Sometime after ~1:00 a.m., March 1, 1980, the computer control of the flow from the gray tank failed. The pumps to the clarifier stopped and the gray tank overflowed.

2. The indicator light in the filter plant showed an alarm condition (slow flashing). The operator did not inform anyone immediately of this condition or when the computer stopped signal (on steady) began because there had been problems getting the system started and the alarm indication had been on previously.

3. When the Maintenance Department was informed (~6:00 a.m.) the foreman and pipefitter went and looked at the gray tank overflowing but took no further action.

4. When the day Maintenance Foreman, Bill McCracken, came in (~7:00 a.m.) he put the system in manual, the pumps began sending water to the clarifier and the level in the gray tank returned to normal.

5. At about 8:00 a.m. Ray Steadmon examined the creek downstream and found it looked good.

   The cause of the failure and the normal operation of the system were described by Mike Smith.

6. Condensation gathered on the roof of the building and onto computer cabinet and ran into the cabinet around the conduit holes in the cover. The water shorted out the computer and shut down the pumps. The computer cabinet internal heater is a light bulb which was burned out.

7. The computer control became operational about a month ago. The system is intended to provide a steady flow to the clarifier. The pump in the Block House operates continuously. The pumps in the Pump House operate as needed. The flows from these are modulated with butterfly valves. The level indicator in the gray tank is a dP cell.

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SA 051903

SA00051903

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

PAPER MILLS DIVISION KALAMAZOO, MICHIGAN 49003 (616) 345-7131

July 30, 1981

Mr. Roger Przybysz, Water Control Specialist
Department of Natural Resources
350 Ottawa Ave., N.W.
Grand Rapids, MI 49502

Dear Roger:

I reported to you this morning, July 30, that Allied Paper discharged a portion (less than half) of our waste water flow to Portage Creek for about 10 minutes in the period between 9:30 and 10:00 a.m.

We had brought the Alcott dam down to reduce the flow in the creek so that we could replace an elbow from our Mill D Pumping Station. With this repair work one of the three pumps had to be down and during the repair the pump being used failed electrically. About 10 minutes were involved in valving off this pump and valving in the third pump which was then started.

As I reported, the situation was normal when I talked to you and since then the repair has been completed on the elbow which was the original concern.

Yours very truly,

U. G. Stoeffler
Manager Process Development

br

cc: T.Flanagan

bcc: D.C.Kirk,Jr.
J.Roth
M.Smith

PRZYBYSZ
EXHIBIT NO. 38
10-14-92
K. SCHULTZ

000093

KA05500096

SA 030819

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

PAPER MILLS DIVISION KALAMAZOO, MICHIGAN 49003 (616) 345-7131

April 21, 1982

RECEIVED
APR 22 1982
DISTRICT 3
WATER QUALITY DIV.

Mr. Roger Przybysz, Water Control Specialist
Department of Natural Resources
350 Ottawa Ave., N.W.
Grand Rapids, MI 49502

Dear Roger:

This letter will cover the description of two incidents which occurred in our waste treatment system on April 14 and April 15, respectively, as per your telephone request.

On April 14 at 11:25 a.m. I left word with your office that we would be forced to send a small amount of our paper mill waste to Portage Creek at our Mill D sump pumping station due to an electrical repair. We had to replace the circuit breaker for one of the three pumps in this sump. The nature of this electrical repair necessitated cutting all the power to this sump to insure the safety of the personnel. The pumps were down for a period of 46 minutes and since this is only a portion of our discharge, the flow for this period was calculated at 23,300 gallons.

As to the April 15 incident, there are several differences between what was reported to you and the facts we can put together from our records. You reported that the Portage Creek was "colored white" from approximately 2:00 p.m. to after 4:00 p.m. and samples were taken. We replaced a pump at the Monarch clarifier in the afternoon of April 15 causing a surge in the flow of clarifier effluent to Portage Creek. As per our flow chart, the flow increased from the 300 to 400 gpm range (from 10:45 a.m. to 12:45 p.m.) to 750-950 range during the period 12:45 p.m. to 2:07 p.m., returning to the 400 gpm flow rate until 4:05 p.m. All during the period from 9:15 a.m. to 4:05 p.m. the computer readout shows steady turbidity readings. In addition to this data, John Roth took turbidity readings of the Portage Creek water at Alcott Street, Reed Street, Vine Street and Pitcher Street during the time period 3:35 p.m. and 4:10 p.m. in connection with his regular weekly Portage Creek and Kalamazoo River survey. These readings varied from 40-50 JTU (at Pitcher St.) which

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KA05500097

PRZYBYSZ
EXHIBIT NO. 39
1044-92
K. SCHULTZ

can hardly be classified as "colored white". To prove this point, we have added small amounts of milk, 5, 10 and 20 drops, to a liter of city water resulting in turbidities of 22.5, 45 and 90 JTU's respectively. Incidentally at all times we were within our NPDES Permit and limitations.

I hope this clears up the incidents.

Very truly yours,

U. G. Stoeffler
Manager, Process Development

xc Jack Wagenaar-Kalamazoo

br

9001763

KA05500098

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

INTEROFFICE COMMUNICATION

March 21, 1983

TO: Files of Allied Paper

FROM: John Vollmer, Surface Water Quality Division JXV

SUBJECT: Site Visit to Allied Paper on March 3, 1983

The Plainwell office received a complaint on February 22, 1983 concerning the Portage Creek at Kalamazoo. Sandy, the dispatcher, received the message. According to the complaintant, the creek was white and milky. I called Sandy and obtained the name and phone number of the complainant and phoned her.

Mrs. Barabara Barnhart (phone 616-342-4065) stated that the creek was white and that it frequently is a shade of white. I thanked her for the information, promised to check on the creek, and asked her to call if the creek was white again. She called Plainwell again on the following day.

The only paper mill on the creek is Allied Paper, so I began in that area. Before the inspection, on March 3 at 10:00 A.M., Leon Vine and I stopped at the point where Portage Creek crosses Kilgore Road, upstream of Allied Paper. We both noted that the water was perfectly clear with no trace of whiteness.

We visited both the Monarch and the Bryant clarifiers and observed the outfall to Portage Creek. The water going into the creek was pure white. It forms a band of white along the west one-third of the creek until it mixes with the creek water. We checked the creek at Alcott Street, at Stockbridge Street, and at Gibson Street (near the point where the creek enters the Kalamazoo River). At each of these places the creek is milky. I could not see the bottom except at points where the sunlight was direct and undiffused. In diffused light or shade, the creek bottom was not visible.

I feel that this visit was not conclusive. I am planning a second visit as soon as possible, for the purpose of collecting samples.

EXHIBIT
8222
ALL-STATE® INTERNATIONAL

OC26804

DEPOSITION
EXHIBIT
Allied #526
4/23/97 CC

8223

8224

Kendrick
EXHIBIT NO. 4
6.22.92
S. BUSSINGER

November 14, 1956

From: Wayne L. Kendrick

To: The Executive Committee

Attached are three tables giving data on settling tank performance at each of the three Allied mills.

(Ω)

DEPOSITION EXHIBIT
KENDRICK #550
4/24/97 cc

B R Y A N T M I L L

		MILL DATA		WATER RESOURCES COM.	
		Averages	Number of Tests	Orders	Last Official Check
Date		Sept. & Oct. 1956		1951	Fall, 1955
Flow (M.GD)		5.75			6.77
Suspended Solids					
(#/Day)	Influent	74,300	36		
	Effluent	37,000	35	76,500	53,475
	% Removal	56%			
BOD (#/Day)					
	Influent	30,700	4		
	Effluent	16,100	4	11,000	16,837
	% Removal	47.7%			

KA05001172

K I N G M I L L

		MILL DATA		WATER RESOURCES COM.	
		Averages	Number of Tests	Orders	Last Official Check
Date		Sept., Oct., Nov. 5 1956		1951	Jan. 1956
Flow (MGD)		6.13 *	10		6.54
Suspended Solids					
(#/Day)	Influent	58,300	13		
	Effluent	18,050	17	53,700	34,970
	% Removal	69.2%			
BOD (#/Day)					
	Influent **	16,400	6		
	Effluent **	10,700	7	16,300	15,501
	% Removal	33.8%			

* Flow figure low. Some waste bypassing tanks. Steps being taken to correct this. The loss is low.

** Tests from June - September, 1956

N.B. The above figures based on the low flow figure given

KA05001173

M O N A R C H M I L L

		MILL DATA		WATER RESOURCES COMMISS	
		Averages	Number of Tests	Orders	Last Official Check
Date		Sept., Oct., 1956		1951	Jan. 1956
Flow (MGD)		5.25	50		3.66
Suspended Solids					
(#/Day)	Influent	49,900	23		
	Effluent	19,200	38	31,900	17,558
	% Removal	61.5%			
BOD (#/Day)					
	Influent	* 15,000	13		
	Effluent	* 10,200	16	10,100	9,140
	% Removal	32.0%			

* From June, 1956 - October, 1956

KA05001174

COMMISSION
IRVING H. RONK, Chairman
For JOHN C. MACKIE
GAYLORD A. WALKER
ALBERT E. HEUSTIS M.D.
GEORGE S. MUNTYRE
Jim GILMORE JR. Kalamazoo
GEORGE F. LIDDLE, Muskegon
LYNN F. BALDWIN, Eaton Rapids

STATE OF MICHIGAN
WATER RESOURCES COMMISSION
GEORGE W. ROMNEY, GOVERNOR

STAFF OFFICES
200 Mill Street
STATION B
LANSING, MICHIGAN 48913

LEGAL COUNSEL
FRANK J. KELLEY
STAFF
LORING F. DEMING
NORMAN BILLINGS
RALPH W. PURDY
JOHN L. DESMOND

April 29, 1964

Mr. E. J. Gilman
Vice President of Manufacturing
Allied Paper Corporation
Kalamazoo, Michigan

Dear Mr. Gilman:

We were pleased to have the opportunity of meeting with you and Mr. Klimczak recently to discuss waste control procedures for the Kalamazoo mills.

You will recall we expressed concern regarding the bypass control structure at the King Division mill. A rather sizeable leakage was bypassing the flap gate at the time of our visit. As was indicated, we have in the past frequently observed bypassing of raw waste and have even at times observed leakage of clarifier effluent through the gate from the reverse side, flowing back into the raw waste wet well. On most of these occasions there did not appear to be any reason for bypassing and at least once the gate was observed to be stuck in an open position.

Because of these deficiencies in the present bypass control structure, a new device should be installed which will offer more positive control of bypassing and which will allow bypassing only under emergency situations.

We believe you will agree with us that this matter is important to maintaining good waste control and, therefore, we will look for correction of the problem as early as possible this spring or summer. A copy of plans for the installation would be appreciated when these are developed.

Very truly yours,

Ralph W. Purdy
Chief Engineer

RJC:lma
cc: C. Harvey

0002737

SA 011418

Kalamazoo, Michigan ireside 5-7131

ALLIED PAPER CORPORATION

May 12, 1964

Mr. Ralph W. Purdy,
Chief Engineer
Water Resources Commission
Lansing, Michigan

Dear Mr. Purdy:

In Mr. E. J. Gilman's absence I am replying to your letter of April 29, 1964 relating to preventing the by-passing of raw waste at our King division waste treatment plant. We have recently initiated a detailed inspection procedure covering the entire waste disposal system on a frequency of once every two hours. We feel that this procedure will be very effective in eliminating non-emergency by-passing of raw waste.

We are fully committed to the prevention of the by-passing of waste under all non-emergency circumstances and we propose that you visit us in the near future so that we may discuss our program on this with you, along with those recommendations in your letter. If you will let me know when you will be available to discuss this matter with us, I will arrange to have our group at the King division ready for discussion with you.

May 18
1:30 PM

Very truly yours,

ALLIED PAPER CORPORATION

James H. Galloway
PRODUCTION MANAGER

JHG:eba

Gilman
EXHIBIT NO. 26
1-19-93
P. MORETTI

RECEIVED
MAY 13 1964
WATER RESOURCES COMMISSION

9000245

KA04800105

May 25, 1964

Mr. Robert Courchaine
Water Resources Commission
Lansing, Michigan

Dear Mr. Courchaine:

The below listed plan of action was jointly agreed upon during our meeting of Monday, May 18, 1964.

1) A two phase alarm system will be installed in such a way to signal our water treatment plant operator when the level in the wet well reaches a point six inches below the bottom of the by-pass tile and then again when the by-pass tile is taking the full flow from the mill. The water treatment plant operator will immediately notify the maintenance personnel responsible for correcting any malfunction that may exist in our waste disposal system and then the general superintendent, Mr. Harry Morrocks.

2) I have instigated a request to our Engineering Department for the development of a new, heavy weight swing valve to be installed in the by-passing line. This valve will be designed to provide a positive seal thereby preventing recirculation back to the wet well. The valve will be pivoted on anti-friction bearings and suitably counter balanced so that when the level in the wet well reaches a danger point on the high side, the valve will automatically open to by-pass waste; of course in the meantime our alarm system will have signalled the proper persons at the Ring mill so that preparations will be in progress for correcting the condition responsible for the rise in the sewage level in the wet well. This valve will be counter balanced so that when the level in the wet well has receded to a normal position the valve will close and provide a secure seal preventing recirculation.

As Mr. Don Falvey pointed out, we are working with a head differential of eighteen inches between the by-pass line and

Gilman
EXHIBIT NO. 27
1-19-93
P. MORETTI

0002735

the basement of our King mill, therefore the adjustment of the alarm system and the travel of the swing valve will be subject to experimentation. We will plan to complete this installation by the weekend of July 4, 1964. Should any change in plans occur regarding this installation, you will be notified to that effect. We hope you will find it convenient to visit us soon after the installation of this valve.

Very truly yours,

ALLIED PAPER CORPORATION

James H. Galloway
PRODUCTION MANAGER

JHG:eba

cc: Mr. Ralph Purdy
Water Resources Commission

Mr. Loring Coming
Water Resources Commission

Mr. Chester Harvey
Water Resources Commission

Mr. David Johnson
Water Resources Commission

Mr. R. Jack Gilman
Allied Paper Corporation

0002736

April 4, 1900

To: R. M. Levy
E. J. Gilman

From: U. G. Stoeffler

Re: Errant Streams in Portage Creek

COPY

Since the Water Resources Commission is going to be placing focus on Portage Creek in the near future, I think it would be advisable to clean up some errant streams in the Portage Creek from Mill C, Mill D and the Power Plant. There is some leakage of white water near the East side of Portage Creek just beyond the Bryant Street overpass next to the regular Mill C white water line. The continuous blowdown from the hot lime soda softener in the power plant flows through a pipe under Mill D and enters the Portage Creek just beyond the overpass to the Blade Coater. While this is not a large stream, it is light brown in color and is very evident when the creek level is low. When the creek level is high, the discharge pipe is covered and cannot be seen. Down the creek another 50 feet is a goose-neck vent pipe from the white water line from Mill D which flows into the creek spasmodically whenever the load on the pump is too great. When #8 is running color this stream is particularly obvious.

I mentioned these streams to Pete Dekker and Ken Sweet in the past and again this morning and told them of the importance of correcting them at this time.

/deo

cc File 300

Gilman
EXHIBIT NO. 51
1-19-93
P. MORETTI

000801

KA04800141

SA 028950

Conference

Allied Paper Corporation, Kalamazoo

4/68-21

MICHIGAN WATER RESOURCES COMMISSION

City Commission Chambers
City Hall
Kalamazoo, Michigan

Wednesday, April 24, 1968

PRESENT

For the Commission

George F. Liddle (Chairman), for Municipal Groups
John E. Vogt (Vice Chairman), for Director of Public Health
Gerald E. Eddy, for Director of Conservation
John P. Woodford, for State Highway Commission
Stanley Quackenbush, for Director of Agriculture
Lynn F. Baldwin, for Conservation Groups
Jim Gilmore, for Industrial Management Groups

☆ ☆ ☆

Loring F. Oeming, Executive Secretary
Norman Billings, Assistant Executive Secretary
Ralph W. Purdy, Chief Engineer
F. B. Frost, Assistant Chief Engineer
Other members of staff

☆ ☆ ☆

Jerome Maslowski, Assistant Attorney General

☆ ☆ ☆

For the Allied Paper Corporation, Kalamazoo

Andre L. Caron, Western Michigan University
E. J. Gilman, Vice President Manufacturing
Guy E. Kistler, Member MUCC Water Standards Comm.
R. M. Levy, Vice President R & D
U. G. Stoeffler, Manager Process Development
Donald H. Swets, Director of Public Works, Kalamazoo

Recorded by tape recorder

Gilman
EXHIBIT NO. 53
1-19-93
P. MORETTI

0002670

KA04800143

SA 011363

Mr. Deming: Mr. Chairman and members, we are now at item 23 on the agenda which is the conference with, I'm sorry 21, with Allied Paper Corporation of Kalamazoo. Now the background of this conference starts with a communication from the City Manager of Kalamazoo on October 19, 1967. I should read that as part of this record. This is addressed to me, the Executive Secretary...

> "On Monday evening, October 16, a petition was filed with the City Commission concerning the pollution of Portage Creek by effluent from the paper waste settling lagoon operated by the Allied Mills.
>
> "Portage Creek, as you know, empties into the Kalamazoo River. This is a real source of pollution and the residents and businesses which lie adjacent are becoming extremely vociferous in wanting something done to stop the pollution. The City of Kalamazoo has done a real job in trying to stop the pollution in the Kalamazoo River by adding secondary treatment facilities. The bulk of the paper industry is being served by this expanded secondary plant and thus is doing its fair share in water pollution control.
>
> "This petition was stimulated by a previous petition circulated in the Milwood area. The original complaint had to do with fly ash and odors and some consideration of the Portage Creek. We felt that a separate petition relative to the water pollution problem would be more appropriate to send to the Water Resources Commission. Accordingly, the City Commission suggested to the neighbors that they solicit signatures on a petition that could be sent to the Water Resources Commission on this matter.
>
> "I might say that the City Commission, being cognizant of the situation, feels that the Water Resources Commission should use every means at its disposal to have a significant reduction in the pollution of the water of Portage Creek. I am sure that anything that could be done along this line will be greatly appreciated by the citizens, by the City Commission, and by the administration of the City of Kalamazoo."

That is signed by C. H. Elliott, He attached to this letter a petition which reads as follows:

> "We the undersigned respectfully request the attention of the City Commission and Water Resources Board to the following complaint:
>
> > "a. Pollution of a section of Portage Creek by effluent from a paper waste settling lagoon operated by the Allied Mills in the area bordered by South Burdick, Cork, Portage and Alcott Streets.
> >
> > "This pollution contributes to an odor problem, referred to in another petition, and materially affects the wild life in the area of the creek as well as ruining its capacity to support any marine life. It is clear that this pollution also contributes to the pollution of the Kalamazoo River and in fact the whole water shed area.
> >
> > "b. Dumping of unsightly paper wastes by the Reliance Panelyte Company in an area adjacent to the settling lagoon.
> >
> > "This area also contributes to the water pollution problem by uncontrolled water run off. In addition periodic fires have contributed materially to the air pollution problem.

"As property owners and tax payers of Homecrest Circle, Norton Drive and adjacent areas we request an investigation of the above operations and an appropriate action taken to correct these conditions."

And this petition is signed by perhaps a hundred persons where it was referred to in the petition. This petition was brought to your attention at the March meeting and you authorized a conference with the Allied Paper Corporation to discuss the situation and conditions as the staff knows this to be and to discuss what corrections should be made, or where we're heading to get the problem solved.

I transmitted this information to the Allied Paper Corporation by a letter of April .., attention to Mr. Gilman, Vice President of Manufacturing, and made him aware of the meeting and the purpose of the meeting and the time set for the appearance of the Company, which is at eleven o'clock today. I have an attendance card for Mr. Gilman--Mr. Gilman is at the table before you.

I would like to introduce the members of the Commission. Mr. Gilmore, at the end, representing Industrial Management Groups; Mr. Vogt, representing the Director of the Department of Public Health; Mr. Quackenbush, representing the Director of Agriculture; Mr. Liddle, representing Municipal Groups, and the Chairman of the Commission; Mr. Baldwin, who represents Conservation Groups; Mr. Eddy, who just came in, represents the Director of Conservation; Mr. Woodford, represents the Director of the Highway Commission; and Mr. Maslowski, the Assistant Attorney General.

I also have attendance cards for Mr. Levy of Allied Paper, Incorporated; Mr. Stoeffler, Manager of Process Development, Allied Paper, Incorporated; Mr. Andre Caron, Regional Engineer of the pulp paper industry; and Mr. Kistler, member MUCC Water Standards, Kalamazoo Citizen's Action Committee on Clean Water for Michigan.

So much for the background of this. Now for the situation, the actual condition that was (inaudible) by the Commission staff investigations and a background on where the Company stands in respect to the waste proposal, and the action that was taken in the past I refer to Mr. Purdy.

Mr. Purdy: To start back quite some number of years, the cleanup program that has been taking place in the Kalamazoo River, one that has led to the construction of primary treatment facilities initially, and secondary treatment facilities and in some cases (inaudible) facilities, or in some cases, changes in the process to meet the Commission's requirements started back in about 1950, with the requirement that primary treatment be provided at all the mills to limit the suspended solids and settleable solids and discharges. Additional studies were made of the stream along about '55-'56, after the primary treatment facilities had been constructed, and the determination made then that additional treatment was needed.

The Commission adopted specific goals for each one of the mills and the city to meet. The initial design was to protect the Kalamazoo River, to provide a certain quality of water in the Kalamazoo River. The mills, including Allied, provided facilities to meet their load limitation--most by connecting to the municipal system. Allied has changed their process, reduced the amount of paper manufactured by the de-inking process so as to meet the limitation imposed by the Commission. But this limit was not, at the time it was placed before you, designed to provide protection of the waters of Portage Creek. This was discussed in the various conferences and I think it was well-known at that time that the restriction was designed to protect the Kalamazoo River, with respect to Allied, and not Portage Creek. Now in the intervening years, we've added amendments to our statutes and the situation is somewhat different than at the time the original load limitations were placed before you.

The staff has scheduled a comprehensive survey at the various points where wastes are discharged into the Kalamazoo River. For this coming year, they have scheduled a comprehensive study of the Kalamazoo River down through Allegan to determine now what has been accomplished, to show by actual field studies what has been accomplished, and to further refine initial calculations made by staff on predicted conditions after waste treatment was accomplished. These studies will include Portage Creek for this coming summer. Our past studies show that the waters of Portage Creek have a high biochemical oxygen demand. When I say high, I mean in the range from 50 to 100 milligrams per liter of oxygen demand in Portage Creek.

Portage Creek carries quite a suspended solids flow and it has a very high color level.

I believe this provides the background and where we stand today, with respect to the paper mill. All have provided secondary treatment or have changed their product mix, so to speak, so as to bring their load down to your established limit for protection of the Kalamazoo River.

Mr. Oeming: I have a couple of other points I wish to bring up. I'm sure that the Commission understands that Portage Creek runs through the City of Kalamazoo. It originates up in the northwest and joins the Kalamazoo River in the middle of the City. The lower section runs through the business area. The upper portion, between Allied Corporation and the City development property, is characterized by homes and parkways, the Kalamazoo Parkway. Now, secondly, I'd like to have Mr. Purdy give his appraisal of the allegations that have been made as to the condition of the river reported by the residents. Do you confirm that there is an intensely high color, that there is an odor problem and other things that these people complain about?

Mr. Purdy: I'll start with the odor, I mean the color. It's unsightly. I would expect that there would be odors under certain conditions. When you have, say, such an unbalanced condition as represented by 50 to 100 parts per million of oxygen demand. Say 6 or 7 parts in the incoming water is available to satisfy this demand, so, very probably we do have odor conditions. These waters certainly will not support fish life nor can they be used for any other purpose other than carrying the effluent from the treatment plant down to the Kalamazoo River at the present time.

Mr. Oeming: I think, Mr. Chairman and members, that that lays the foundation for this conference and while perhaps the staff is not in a position at the moment to suggest specific requirements, I am sure that it is the feeling of the staff that some substantial degree of improvement in the waste effluent quality, and this you know, is warranted to relieve the people of the problems that they have presented as well as to bring about conformity with the Commission staff recommendations. So unless you have some questions of the staff, you might ask Mr. Gilman his reaction to the matter and how his Company would view the situation.

Chairman: Any questions before we hear from Mr. Gilman?

Mr. Eddy: What effect does that have on the Kalamazoo River right at the junction where the Portage goes into it?

Mr. Oeming: Mr. Purdy can answer that...

Mr. Purdy: It increases the turbidity of the Kalamazoo River and it takes some distance for this to become mixed with the Kalamazoo River waters and not be an identifiable separate source of water that looks different from most of the other Kalamazoo. As to whether or not we are fully meeting the objectives sought by the Commission back about 1960, I believe, or in there, this will be determined by our studies through this coming summer. But visually, certainly, the waters of Portage Creek are identifiable in the Kalamazoo River for some distance.

Mr. Oeming: You see, Mr. Eddy, insofar as the Kalamazoo River itself is concerned, it has been treated as a source point, rather than Portage Creek itself. That is, the residual loading that has been placed there would be chargeable to Allied Paper Corporation. (inaudible) as a run off certainly, but from a day to day waste loading standpoint it is treated on the river insofar as their responsibility for control of pollution of the Kalamazoo is concerned. Does that clear it up?

Mr. Gilman: Well, I have one question that might be helpful to all of us, in fact I should know this, but are there others dumping in that stream? This is quite an important point.

Mr. Oeming: Maybe Mr. Harvey can answer that.

Mr. Harvey: The only two discharges of any importance are the two Allied plants.

Chairman: Mr. Gilman, would you like to make your statement?

Mr. Gilman: Well, Mr. Chairman, gentlemen, I think I can sum up our reaction very briefly for you. I don't want to go into a lot of ancient history, both because Mr. Purdy did a good job in summation and because I don't think any of us is interested in what has already been done. But, I want to give you just a few sets of figures which I have here in front of me. From 1965 until the present, we reduced our effluent, our total effluent, from all the Allied Mills from 14.2 million gallons per day to 9.2, about a 35% reduction. This is from '65 to '68. Solids, suspended solids in the effluent, have been reduced from 35,800 pounds to 4,500 pounds, an 87% reduction and BOD, 26,300 pounds per day to 13,280 pounds, roughly a 50% reduction.

I would also like to point out something that I'm sure you're all aware of. I'm sure that it is a little bit less than two years since we were placed under the present Order to which we are conforming, it's been just under two years. Now we feel that it's our duty to continue to operate our mills that are on Portage Street, with their 600-odd employees, and to operate them fully, and without interruption. On the other hand, our past record indicates we're certainly not unmindful of our obligations as citizens of the community. And as I see our problem, it's to see if there is an answer which is compatible with both of these obligations that we have, and we will continue to make every effort to that end.

Chairman: Are there any questions for Mr. Gilman from members of the Commission?

Mr. Woodford: Just one question. You noted the reduction in Allied plants, there are just these two plants?

Mr. Gilman: No, we have just three in Kalamazoo.

Mr. Woodford: All right, it includes all the plants in the Kalamazoo area.

Mr. Baldwin: Is the same proportionate reduction then accomplished on the Portage Creek plant?

Mr. Gilman: No, we've had greater reduction in the plant on the Kalamazoo River by shutting down a portion of that operation.

Mr. Baldwin: Do you have any specific figures on your load on the Portage Creek plant?

Mr. Gilman: We have figures, we watch them pretty carefully. Your own group keeps very close tabs here, they might be more accurate than our own. I have some figures which were taken, all of ours come from the Wheat Street Station, and these would be again in '65 to '68. We show there a 95% reduction in suspended solids in the river from a 150,000 pounds a day to 6,500, and an 82% reduction in BOD, from 34,000 to 6,400 pounds.

Mr. Purdy: 6,500 pounds, was that at the Bryant Mill?

Mr. Gilman: Yes, it was.

Mr. Baldwin: Do you have any specific changes in mind at the present time on the Portage Creek plants?

Mr. Gilman: Not at this time. We have been kept hopping to keep in compliance with the present restrictions.

Chairman: I can appreciate that.

Mr. Gilmore: Mr. Chairman, I have a question that hopefully I can put this in the right light so it won't be misunderstood by either side, that in most cases I'd like to support both. I stand to be corrected somewhat on my deeds but, about in 1960, Dr. Ward Harrison approached us, I say us, I mean our City Manager, Clarence Elliott, I was working on the Commission at that time, and formally suggesting that the City work out a plan where industry could join in so that the effluent mix would be one that would disintegrate since at first (inaudible) the Kalamazoo's problem. Well, Dr. Ward Harrison at that time, was the real spearhead of this plan, even though I'm sure, Don Swets and many of the other fellows knew that maybe this was the thing to do, and I think the City of Battle Creek had already started their industrial and municipal gathering of waste, but he was the instigator. He suggested it formally, and again, I stand to be corrected, but I believe he felt it wise for all the paper industry in Kalamazoo to put up funds, perhaps matched by the city, for a study. How that finally came out I don't know, I think the UpJohn Institute or Dow, or perhaps the Kalamazoo Foundation, but the study was made, and without trying to go back too far in history, we know now that this plant that we're going to visit this afternoon, is in operation.

When Dr. Harrison approached us, his problem was a lot different. It was strictly then, I believe, a de-inking process, that means old newspaper, that was their raw material. Then, I guess it was the Paramount Company and Dr. Ward Harrison and others in the staff that decided to put up this big pulp mill in the south. So after it was completed, it seemed only practical and probably company-wise, quality-wise, and everything else to use this raw material rather than the old newspapers. So the situation changed to Allied and changed really through progress and through both Allied making this huge investment, I think of some 10 million dollars, I haven't been briefed, I'm just sort of trying to put this together as I recall it. Since then of course, the Allied Mills, I believe, have been sold and I think that that transaction has been consumated.

But if you look at Portage Creek, and then you think of the number of employees that Allied now supports and you think of the families involved, sort of say to yourself, which comes first, the people working there, or to clean up Portage Creek. It's a hard one for me, yet I pass the creek almost daily and it's at a point where you can almost walk across it. I don't think it's that bad through anyone's real fault, or I don't think it's any secret to anyone in Kalamazoo, but I don't say this critically of Allied because I think they've made really tremendous strides and I've been very close to it. I've served on the City Commission and I've been close to it since, because I'm interested in the paper industry. But there is a problem there, I doubt if the citizens of Kalamazoo will accept it too much longer. I would hope that maybe those in management in Allied would be able to come up with a solution whereby people in the Company would still have their jobs and the profit structure would be maintained so we can lick this, because quite frankly, it's a mess and it's almost solid. I can't imagine anything growing in it. It moves so slowly now and I haven't noticed an odor, because I don't get near it, on a hot summer day. It might be a serious problem I think. Again, I don't think it's any secret. If you want to drive by it while you gentlemen are here, you should do it. I'm not pointing a finger at Allied because this is something that (inaudible), but I think this is something that we should try and tackle now with good sense and judgment and see if we can't clean it up. I live in the city maybe that's why I can say this.

Chairman: Any further comments from the Commission?

Mr. Quackenbush: One question. As far as the loading that has been allocated to Allied Paper here, does this, looking at the river now, does this meet the water restrictions set by the Commission previously?

Mr. Deming: Well, Mr. Quackenbush, I think to lead up to the answer to your question, we have quite a severe situation in Portage Creek. That is, looking at what is going to solve this problem to any degree of satisfaction requires a substantial reduction in loading. The flow in Portage Creek is so small, there isn't much resource here to assimilate waste.

Mr. Quackenbush: Well, the other part of the question, Larry, as far as loading and looking at the river, does it comply with the restrictions that have been established.

Mr. Purdy: Mr. Quackenbush, we have made studies, and as Mr. Gilman has pointed out, the Company runs analyses of their waste discharges so that they keep track of this. And we have studies that indicate the total load from the three plants is within, let's say the pounds of BOD is 14,000, roughly 500 pounds that was given as, I believe, was their prorated share and I think this is close to the figure. Now in practice I will have to say that we have not been entirely happy with the operation of one of the facilities in particular where frequently, when the staff inspects the area, we find a portion of the waste to be bypassed directly to Portage Creek and not going through the treatment facilities that are available there today. We have been in contact with Mr. Gilman on this and hopefully this can be corrected rapidly so as to provide the best protection that we can with facilities that are available.

Now, you mentioned that the load from this Bryant Plant to Portage Creek was in the range of 6,500 pounds of BOD a day. We cannot, from the staff standpoint, define specifically today what this ought to be to give us an acceptable condition in Portage Creek, but we can put a range figure out before you. We would estimate that this would have to be reduced down to 750 to 1,500 pounds per day to Portage Creek from the two plants, this would be the Bryant Division and the Monarch Division if these are still the right names.

Mr. Quackenbush: Then, transporting this material, say this could be done, I'm not saying it can or can't be, but if you were to just transport the waste discharge from these two plants that go into Portage Creek into the river, would this create a problem in the river?

Mr. Purdy: I think it might meet your objectives that were set back in 1960-62. However, in view of what has taken place since '62, I am concerned that we would transfer a color and turbidity problem and solid problem down to the river today in view of what you have looked at in the way of requirements in other rivers. In view of the changes made in the statutes and in view of the increasing public pressures for maintaining higher water uses, I don't think that this would really be the proper way to attack this problem.

Mr. Vogt: How does this degree of treatment here and the restrictions imposed upon Allied, or this particular paper company, compare with the restrictions placed upon the other mills, as far as the degree of treatment that has to be provided?

Mr. Purdy: Well, I should back up in history again and point out that when the Commission adopted its first Order, or signed an agreement or Stipulation, with the Company for control of their waste back in 1951, the Commission made as a matter of record, the Company's use of the stream at the time, for discharge of suspended solids and oxygen consuming substances. They made this a matter of record. And so then when you determined what was necessary in the way of a reduction, the same reduction was applied to everybody from the 1951 figure that was made a matter of record. I believe this was a 68% reduction from their 1951 use. The 14,500 represents roughly a 68% reduction from that '51 use. Kalamazoo Paper Company, National Gypsum, and others have the same 68% reduction from the 1951 use. Now, if we look at the reduction, that is, from the raw waste generated today to the effluent of the various mills, those that have gone into a biological treatment process provide a higher degree of treatment from the raw load to the effluent load based on today's figure.

Mr. Vogt: I think this answers the question. This is what I was getting at that comparing this particular operation with the other operations, the other operations are, in effect, paying for a higher degree of treatment whether they're providing it themselves or being a customer of the regional system. Is that a fair analysis, fair statement, sir?

Mr. Gilman: If you look at waste treatment cost alone, I would say yes. I was looking at only the economics of it at that time. But, the economics I think also dictates the water quality, so that if they're paying higher costs for waste treatment, I assume we're getting a better effluent, when you think of the other individual mills. Why I hedged on my answer to you was that the only figures that we have available to us, or have knowledge of, is the cost related to the treatment. There may have been some cost to the company in changing process. That is, where they stopped the inking, they shut down certain operations here and they brought in raw materials from some other place, so if you talk the total economics of production of the paper, I don't know what that is. But on treatment, yes, certain mills, no doubt are paying more for the treatment portion of their process.

Chairman: Is this the only mill now that is using the deinking process, and is still using it.

Mr. Gilman: No, sir.

Chairman: There are others?

Mr. Deming: There are others, yes. The Kalamazoo Paper Company.

Chairman: What kind of treatment do they give their waste?

Mr. Deming: They're in the municipal system, and it's given biological treatment in the joint industry-municipal waste treatment plant operated by the city.

Chairman: This is the only plant that is not going through the municipal plant, then?

Mr. Purdy: The only large mill, I believe. Well I know it as the old Michigan Avenue plant of Sutherland Paper Company. I don't believe that's in the municipal system. It is Chet? Okay. Everything in the Kalamazoo area, other than Allied, is in the municipal system.

Mr. Eddy: How long is Portage Creek between the outfall of the Allied Plants and the junction with the Kalamazoo, approximately? Is there any chance for oxygen pickup in that stretch?

Mr. Purdy: I don't know the distance, but it's not very far and there's really not much chance for oxygen pickup. The only reason that you do not have a more severe odor condition is that Portage Creek discharges into the Kalamazoo River before the full burden of this oxygen consuming load is imposed upon the waters of Portage Creek. The samples that we have --- the staff have taken have been down at the mouth of Portage Creek, and we still have 50 to a 100 parts of oxygen demand as it discharges into the river. Now if this flowed as a separate body of water and this full oxygen consuming load had to be satisfied, say in the separate stream like Portage Creek, without any additional pollution waters, we would have much more severe odor problems.

Mr. Vogt: Going on to the sewage treatment plant, would there be a possibility of driving by...

Mr. Purdy: Sure, certainly. I don't think it would be on the direct route, but we could deviate a little bit. I don't know what the total tour will be this afternoon. I don't know what we're going to have, but either on the way out or back, I think that...

Mr. Vogt: I think that maybe on the way back, we could see this.

Mr. Woodford: Well, why can't you get into the treatment plant or these city sewers?

Mr. Gilman: I don't know whether it's a question of whether it's possible or not. As you say, there is no physical way at the present time for getting at it.

Mr. Deming: What's the distance involved?

Mr. Gilman: I couldn't tell you that. A matter of a couple of miles, I suppose.

Mr. Deming: That answers the question. Is Mr. Swets around? Donald, what's the situation at the plant? Have you got capacity?

Mr. Swets: (Inaudible)

Mr. Deming: You aren't in a position to say whether you have capacity at this time to take....

Mr. Swets: I'd have to run some figures on (inaudible)...

Mr. Deming: How far is this and how much of a problem is this?

Mr. Swets: As I recall, somewhere in the order of a mile to a mile-and-a-half.

Mr. Deming: Well, I don't know as you can settle upon anything that you want, but I think this is exploratory to see where we are and where we're going. Mr. Chairman, and members, it seems to me certainly there are only two solutions you're looking at. One of them is the connection to the municipal system, and the other is treatment and controlled release at the source, at the point of discharge, such that it would give protection to Portage Creek, the kind of protection that's needed.

You have from the staff some indication that this should be considered, at least it's something that people should be looking at. I'm sure that it wasn't in the staff's mind that at this point the Company be prepared to make a commitment as to what they're going to do, but to lay down some objectives that they should be working toward. And certainly if the company went out of Portage Creek, then you wouldn't have any problem. But, if they're going to remain, then the treatment that's provided will have to be so very high type that you would get total protection, just as you would if you went out. This is something that the Company would need to be looking into--all of this involves production, it involves cost, economics and all these things. I think the Commission might be seeking from the Company some position that it would take with respect to looking at its problem and perhaps, with what they have here, to get some studies of this and come back and report to you what they see in this whole picture.

Chairman: Any more questions? Mr. Eddy has a question.

Mr. Eddy: Did you say, Ralph, that the waste reaches the river in about the same condition as when it leaves the plant, only the river does not add anything to its purification?

Mr. Purdy: Portage Creek gives the illusion that there's a sizable flow, not a great deal, but we estimate that on a seven-day average, once in ten years you would have about 25 to 30 feet per second. So it is diluted to some extent, eight or nine times, by Portage Creek waters. But there is very little other purification that takes place. The solids do settle out and at some later date they are scoured out into the water. Certainly they do have solids (inaudible) of Portage Creek.

Mr. Eddy: (inaudible) pipeline directly to the Kalamazoo River (inaudible) satisfy our criteria?

Mr. Purdy: Yes, this is based upon satisfying your criteria at the time of 1960. Yes, I think they would, because it was based on that. We figured the load as a full discharge at Portage Creek into the Kalamazoo River. So this 14,450 pounds was figured as it discharged into the Kalamazoo River.

Mr. Eddy: Don't you figure that in view of present water quality goals there still leaves something to be desired?

Mr. Purdy: Yes. It would meet your goals of 1960-62, but I don't think that this would be a satisfactory answer today, to build a pipeline such as that and not apply additional treatment. Certainly the degree of treatment could still possibly be less than if it were a discharge into Portage Creek.

Mr. Vogt: The question that I was discussing here was the feasibility of closing Portage Creek and providing a proportionately lesser degree of treatment, but still one that would meet the water quality goals of the river, and whether this is feasible and whether there's any aesthetic property (inaudible) the area, from having a nice clean Portage Creek.

Mr. Oeming: This gets to be an economic problem. It seems to me that this is one of the areas that the Company ought to explore. We're on speaking terms, so we can discuss these things. If I size up what's been said here, I haven't heard Mr. Gilman say that he disagrees with the need to do something with Portage Creek. Or do you disagree that something needs to be done?

Mr. Gilman: No, and I can't say it any more precisely than I did before and that is, we feel obligations from both sides and we want to keep our mills running and the other, we have obligations as citizens of Kalamazoo. We are most certainly not unmindful of these problems. Our problem is to satisfy both of these obligations.

Chairman: Are you doing anything to pursue such an obligation?

Mr. Gilman: We work constantly.

Chairman: Are you getting anywhere?

Mr. Gilman: We certainly have these figures I quoted you, which I think are very significant.

Chairman: Those are based on old standards though.

Mr. Gilman: Regardless of the standards they are based on, they are indicative of the things that we have done, and we are continuing to do. As days go by, we are reducing our flow.

Chairman: Well, I don't think we can solve this thing at the Commission level. I think this is going to take studies by both the staff and the Company, and shooting for higher quality than we've had before. I think you'll have to pursue that.

Mr. Oeming: On the converse side, Mr. Gilman, I think I detect on the Commission's part a concurrence with the people's request here and that something needs to be done. I say this, that the situation in Portage Creek needs relief. Mr. Chairman, is that the consensus of the Commission, that the situation, as you see it now, is such that some relief is needed. I'd like Mr. Gilman to go back with something from the Commission.

Mr. Gilmore: Well, I can express my own feelings. I just asked John Vogt about municipal plants. Some 175 primary plants were adequate two years back. Now, with our sights and our goals set higher, we've got to go to secondary treatment. I think you've got to take a look at the same thing.

Mr. Oeming: Well, that being the case, it seems that we have settled two things, at least partly here, and that the next thing is, what does the Commission desire of the Company at this time? The Commission's Executive Secretary's suggestion is to ask the Company to devote attention to this problem, and to come back to you, within whatever period of time you'd like, with some proposals on what they feel can be done here and what they can do to help the situation out.

Mr. Vogt: Well, Mr. Chairman, I think one thing that concerned me considerably was the Chief Engineer's comment about the fact that repeated inspections of a certain one of these facilities found their operating practices to be inadequate. I think efforts should be taken by the Company immediately to correct operating deficiencies of the treatment works. If the treatment work was designed to produce a certain degree of treatment, or if the collection facilities are inadequate so that overflows occur, bypassing the first, I think this needs to be corrected immediately. As I heard, Ralph, you pointed out that this occurs almost routinely here at least whenever you are there, whenever you observe it.

Mr. Purdy: We seem to be in disagreement as to how often it occurs. It seems that we either pick the wrong time or something, but when we're here we can with almost certainty find a bypass. But the Company, from its various investigations, feels that this is not a continual bypass and that we just happened to pick a time when they were having some problems.

Mr. Vogt: Well, statistically, this doesn't add up. This is hard to accept, I believe. Then the other thing, I think it was suggested, the staff has programed a comprehensive survey of Portage Creek for this summer. It would seem, if we're going to discuss with the Company any further degree of removal, that we need to have these facts in order to talk specifics or talk degrees of treatment with the Company. It seems to me that this program should be pursued, that is a staff program of a survey.

Mr. Oeming: Well, my concept, Mr. Vogt, was that it's obvious that we're not just talking a 10% or a 15% flow cut. Now, for the Company purposes, it seems to me that, looking at this, that the figures that Mr. Purdy has proposed give some orientation to what they are looking at. Now these figures will certainly need to be refined. I don't want to place too much reliance on them, but maybe the question should be asked of Mr. Gilman, does this give him enough in the way of a preliminary objective to appraise the situation.

Mr. Gilman: I say, yes.

Mr. Oeming: If it does, then this forms some foundation here for asking the Company to begin some studies on this, certainly with the understanding that the figures could be refined and more definite.

Mr. Vogt: I agree that these certainly do provide the company with some guidelines as to what they need to do. Then when we get down to defining it in a finer way, we need the benefits of additional data. Certainly, and Mr. Gilman agrees, we already have some fairly good guidelines on which to base an additional (inaudible).

Mr. Purdy: In addition to the BOD figure that was mentioned here awhile back, we of the staff also feel that in the way of upgrading treatment to meet Portage Creek requirements, the suspended solids flow would have to be restricted to a 1,000 to 2,000 pounds a day range, from both plants. This represents a considerable reduction over the present one. If we look ahead and get the best possible designated stream uses for this section of the river, then certainly the coliform content of the waste, and I don't know as there is a problem today, but it should be looked into and we would think that a maximum there would be about 5,000 coliforms per 100 M now. From a color standpoint, if we do have colors that are not due to suspended solids, these will have to be restricted to the point where they do not interfere with the value of the property. It means that they should be

some place close to the natural color that Portage Creek runs.

Chairman: Again, time is running out. It would be advisable for you, Ralph, to summarize what you've outlined here in our discussion in our letter to Allied, what you expect them to do in general terms. Ask their cooperation or at least the reply for them on what you expect them to do to meet them.

Mr. Oeming: Does the Commission want the Company to report back to it, and when it comes time, we're going to be back in Kalamazoo I'm not sure, Mr. Baldwin, for the purpose that we're talking about that you need to wait for this full scale detail testing of the Kalamazoo River. I think the Company, as Mr. Jones has said, is willing to go back and take a look and see what they can do here, if this is all we're doing at this time. Certainly we're going to refine this, but it gives some broad foundations for them to work on. Maybe they'll dispute this whole thing, I don't know. But they'll at least look at what we have proposed. You haven't adopted this yet. This forms a foundation, unless you want to wait until next year when this is all refined down, which I don't think is necessary in the light of what Mr. Gilman has said, the operating problems and all these other things.

Mr. Baldwin: Well, what I had in mind was in accordance with one of the boy's suggestions that some outlines or proposals, something along that order, be submitted to the Company. In the meantime our staff, the field boys, when they get out on the job, don't have to be in any one particular time, but the sooner the better, naturally. We take a second look at this, both from our own objective and from what we can expect the Company to accomplish, either during the process or future date.

Mr. Oeming: I don't think we should close this conference at this time.

Mr. Baldwin: I think the problem is serious enough to warrant study on both sides.

Mr. Oeming: Suppose we put it this way, Mr. Chairman and Mr. Baldwin, members, that you instruct the staff to inform the Company of its recommendations, and that you ask the Company to make a study of what it is prepared to do to meet these needs, or some other requirements that they can meet, and to report back to you in 90 days.

Mr. Woodford: I'd like to amend that and ask them to stop their practice immediately of bypassing their facilities.

Mr. Oeming: Fine, let that request also...

Chairman: Will you make a motion on those lines, as I suggested. Mr. Baldwin, Mr. Quackenbush. Any further discussion? All those in favor signify by saying "aye", opposed the same. Motion carried.

Mr. Oeming: Mr. Gilman, we'll send you a letter and you'll get a copy of the conference. I'm sorry, but I'm going to have to take a couple of more minutes here. Mr. Kistler has asked for an opportunity to have something to say about this. Do you want to come up Guy, and tell the Commission? Mr. Kistler is from Michigan United Conservation Clubs and he's on the Standards Committee, and Chairman of the Kalamazoo Citizens Action Committee on Clean Water for Michigan. Have you anything else, Guy that I can add to that?

Mr. Kistler: Part of the things on my mind, gentlemen, have been answered. Allied has not connected with the city (inaudible). After 30 years in this battle of clean water, it is gratifying to see that there have been a few improvements in this area, and let's hope that it doesn't stop at that. I've known Jimmy Gilmore for many years, long before he even knew there was polluted water in Kalamazoo. But you all know, and must read, we still have laws that have (inaudible). People living along the Kalamazoo River or Portage Creek have just as much right to use that water as anyone else. People in the Millwood area too. There is no question but what, as time goes on, these waters are going to have to be updated, they're altogether too low now. I sincerely hope that clean water can come back so that these waters that run between can be enjoyed and used. Thank you.

Mr. Deming: I don't know of anyone else who wants to speak here. I think we can now close.

Chairman: I declare this conference closed.

Commission action:

Mr. Baldwin made a motion, supported by Mr. Quackenbush, that the Company be requested to study the problem and present proposals within 90 days on what measures it is prepared to take to improve the conditions of Portage Creek; further, that it be requested to terminate bypassing to Portage Creek immediately. Motion unanimously carried.

1/56-12

Conference

KALAMAZOO PAPER MILLS

with the

WATER RESOURCES COMMISSION

January 26, 1956, Walwood Union
Western Michigan College
Kalamazoo, Michigan

PRESENT:

For the Commission

Gerald E. Eddy, Director of Conservation, Chairman
Lynn F. Baldwin, for Conservation Groups
George F. Liddle, for Municipal Groups
Irving Ronk, for State Highway Commissioner
Donald M. Pierce, for State Health Commissioner
Joe E. Wells, for State Director of Agriculture

* * * * * *

Milton P. Adams, Executive Secretary
Loring F. Oeming, Chief Engineer
Norman F. Billings, Chief, Hydrology Division
Ralph W. Purdy, Sanitary Engineer
Other members of staff

* * * * * *

Kalamazoo Vegetable Parchment Company

Robert D. Caine, Vice President in Charge of Manufacturing
C. Longford Felske, Vice President
Marshall E. Butz, General Superintendent
R. C. Germanson, Research Engineer

* * * * * *

Otsego Falls Paper Mills, Inc.

Roman Suess, President
G. A. McConney, Secretary

* * * * * *

Sutherland Paper Company

A. L. Sherwood, Vice President

* * * * * *

Recorded by wire recorder.

load and suspended solids load as compared with the 1950 matter of record. The settleable solids removal and the suspended solids in paper processing wastes other than de-ink, if there are any. Quite a few of the mills have dumped all their wastes in the de-ink treatment plant so that we have none. The first mill shown in the St. Regis Paper Company. In 1950, the B.O.D. load was 11,116 pounds. By the way, these figures are the average figures for the production days and do not include a non-production day such as Sunday. A maximum in 1955 of 18,897 pounds, a minimum of 12,337 pounds, an average of 16,837 or an increase of roughly 5,700 pounds. In terms of suspended solids, in 1950 an average of 76,544 pounds, in 1955 a maximum of 68,371 pounds to a minimum of 37,642 or an average of 53,475. In terms of settleable solids removal, we had 66.5 percent; 73.7; 60.8; 59.2; better than 100 percent on Sunday; 71.4; and 86.38. This represents the treatment that was received by the waste that was delivered to the waste treatment plant. One of the serious deficiencies that we see is that on occasions the waste flow to the pump station that delivers the waste to the waste treatment plant exceeds the capacity of the pumps and by-passes directly to Portage Creek.

Mr. Pierce: Those amounts aren't shown here, are they?

Mr. Purdy: Those amounts are not shown, they were not determined. At times the quantity is very small, then other times it's in considerable amounts. One of the other points was that on the first of this month the sludge lagoons had been filled to their capacity and the sludge that was being removed was again being returned, overflowing the dykes in the sludge lagoon back, into the Portage Creek. I understand

KALAMAZOO INTER-OFFICE CORRESPONDENCE

Gilman
EXHIBIT NO. 164
2-9-93
SHERYL BUSSINGER

ALLIED PAPER CORPORATION

November 6, 1962

TO: W. D. HARRISON
J. D. DAILEY
R. M. LEVY
G. H. BALDAUF
E. J. GILMAN
W. WEAVER
W. BEUNGER
J. GALLOWAY
S. STETZ
R. BENNETT
P. HAGARD
T. KAYHART
H. HORROCKS
H. MCGEE

FROM: U. G. STOEFFLER

RE: ADDENDUM TO REPORT ON WASTE TREATMENT FIGURES FOR OCTOBER, 1962.

In order to avoid any misunderstandings on the flow, suspended solids, and B.O.D. figures for October, 1962, listed on the chart sent you a few days ago, this explanation is submitted to clarify the situation. On the bottom of the chart it was noted the effluent normal flow from the King Clarifier is 7 M.G.D. and from the Bryant Clarifier is 6 M.G.D. This is based on previous surveys taken daily in past years.

The King flow was below normal during October (and part of September also) because of by-passing to the river before the clarifier wet well through the butterfly swing gate. The pump on the wet well was not operating at adequate capacity thus the by-passing. This by passing thus reduced the influent B.O.D. and suspended solids proportionally. The reduced flow would increase the retention time in the clarifier and thus increase the percentage of solids removal and increase percentage of B.O.D. removal somewhat. The flow in the King Clarifier at present is about normal (6.5-7.0 M.G.D.) By comparison the flow through the water treatment Accelator is 6.5-7.0 M.G.D. and this is all well water at present.

The Bryant flow is below normal because only waste water from Mill A is going to the clarifier, and sometimes a portion of this water is by-passing the wet well to Portage Creek because the traveling bar grates are shut down. The drop leg water from the chlorination washer normally goes directly to the Bryant Mill Pond. White water from Mill C & D that should go to Mill A

KA04800413

is diverting to Portage Creek since there are no replacements for the worn out pumps in this installation. In Mill D white water is sewered directly into Portage Creek as it is passing under the floor. Since the flow to the clarifier comes from Mill A, the influent suspended solids and B.O.D. content is proportionally higher than if the total waste flow were going to the clarifier. The effluent solids and B.O.D. are proportionally lower because of increased retention time in the clarifier resulting in higher percentage of removal of solids and B.O.D.

Note: Please attach this addendum to the charts of Waste Treatment Results sent you a few days ago.

UGS:gw

WASTE TANK TREATMENT TEST

To: U. G. Stoeffler

From: R. J. Willie

Date: April 27, 1967

Division: Bryant

cc: W. Harrison, E. Klimczak, R. Levy, E. Gilman, F. Fragomeli, H. Horrocks, A. Vickery, R & D File, W. Buenger, F. Hyet, D. Falvey, B. Herbert

		4/17 Mon.	4/18 Tues.	4/18 Wed.	4/20 Thurs.	4/21 Fri.	Ave.
Influent (#/day)	* Flow (MGD)	***	→				
	Susp. Solids	53,000	35,700	51,000	42,700	47,000	45,880
	Fiber	10,800	5,700	9,000	10,500	8,800	8,960
	Solubles	35,000	25,400	36,200	34,100	39,300	34,000
	BOD	11,500	8,300	9,000	11,100	14,200	10,820
Effluent (#/day)	** Flow (MGD)	3.815	3.815	3.622	3.715	3.622	3.718
	Susp. Solids	3,200	3,800	3,600	2,400	1,800	2,960
	Fiber	0	0	0	0	0	0
	Solubles	28,600	22,200	33,200	34,100	36,200	31,260
	BOD	8,900	7,000	7,500	7,100	11,400	8,380
Removal % Efficiency	Solids	94.2	89.3	93.0	94.4	96.2	93.4
	Fiber	100.0	100.0	100.0	100.0	100.0	100.0
	Solubles	18.3	12.6	11.0	0	7.9	10.0
	BOD	22.6	15.7	16.7	36.0	19.8	22.1

* Total Flow = Effluent weir flow and magmeter reading to accelator (King Div. Only)

** Net Flow to river (Effluent weir flow)

Remarks:

*** Bypassing pump house all week. All 3 pumps working and still going to river.

SCM CONFIDENTIAL

WASTE TANK TREATMENT TEST

To: U. G. Stoeffler

From: R. J. Willie

Date: April 20, 1967

Division: Bryant

cc: W. Harrison, E. Klimczak, R. Levy, E. Gilman, F. Fragomeli, H. Horrocks, A. Vickery, R & D File, W. Buenger, F. Hyet, A. Vickery, D. Felrey, B. Herbert

		4/10 Mon.	4/11 Tues.	4/12 Wed.	4/13 Thurs.	4/14 Fri.	Av
* Flow (MGD)		xxx	xxx	xxx	xxx	xxx	
(#/day) Influent	Susp. Solids	50,700	49,000	54,600	37,500	64,500	51,26
	Fiber	7,600	9,500	7,800	9,100	12,400	9,28
	Solubles	41,200	31,800	19,500	26,000	39,100	31,52
	BOD	12,100	11,400	10,100	8,800	14,000	11,28
** Flow (MGD)		3,815	3,815	3,914	3,914	3,914	3,87
(#/day) Effluent	Susp. Solids	2,500	1,900	3,900	3,200	2,700	2,84
	Fiber	0	0	0	0	0	
	Solubles	38,100	28,600	19,500	22,800	32,500	28,30
	BOD	9,500	7,900	5,500	6,800	10,100	7,96
% Removal Efficiency	Solids	95.0	96.2	92.8	91.5	95.8	94.
	Fiber	100.0	100.0	100.0	100.0	100.0	100.
	Solubles	7.5	10.1	0	12.3	16.9	9.
	BOD	21.5	30.7	45.5	22.7	27.9	29.

* Total Flow = Effluent weir flow and magmeter reading to accelator (King Div. Only)

** Net Flow to river (Effluent weir flow)

Remarks: *** **Bypassing in creek with all three pumps running**

SCM CONFIDENTIAL

SA00035614

W. Buenger
F. Hyet
D. Falvey
B. Herbert

April 13, 1967

Bryant

		4/3 Mon.	4/4 Tue.	4/5 Wed.	4/6 Thurs.	4/7 Fri.	Ave.
	* Flow (MGD)	***					
	Susp. Solids	54,700	55,000	45,600	38,700	66,200	52,040
	Fiber	9,600	10,500	8,500	6,300	12,700	9,520
	Solubles	31,800	24,800	22,800	35,000	28,500	28,580
	BOD	11,400	13,600	11,100	11,100	13,600	12,160
	** Flow (MGD)	3.815	3.715	3.914	3.815	3.815	3.81[illegible]
	Susp. Solids	7,000	1,800	2,000	1,000	7,600	3,880
	Fiber	0	0	0	0	0	0
	Solubles	31,800	24,800	22,800	25,500	28,500	26,680
	BOD	6,000	7,400	7,500	7,900	9,500	7,660
	Solids	82.7	96.8	95.6	95.0	88.7	91.8
	Fiber	100.0	100.0	100.0	100.0	100.0	100.0
	Solubles	0	0	0	27.2	0	5.4
	BOD	47.3	45.6	32.4	28.9	30.1	36.9

* Total Flow = Effluent weir flow and magnetor reading to accelerator (Kind Day only)
** Net Flow to river (Effluent weir flow)

Remarks.

***** Bypassing directly into creek on these days, instead of going to the clarifier.**

SCM CONFIDENTIAL

W. Buenger
F. Hyet
A. Vickery
D. Falvey
B. Herbert

April 6, 1967

Bryant

3/27	3/28	3/29	3/30	3/31	
51,000	81,600	47,600	50,500	43,000	54,740
12,100	13,300	8,900	6,100	10,600	10,200
31,800	25,300	41,700	41,700	41,000	36,340
11,600	15,300	10,600	18,600	14,100	14,040
3.815	3.815	3.341	3.341	3.528	3.568
6,300	3,000	4,400	2,800	3,500	4,160
0	0	0	0	0	0
31,800	22,200	30,500	41,700	49,800	35,200
7,900	9,500	7,200	13,300	6,600	8,900
87.7	95.5	90.7	94.5	92.0	92.1
100.0	100.0	100.0	100.0	100.0	100.0
0	9.2	26.8	0	0	7.2
31.9	37.8	32.1	28.5	53.2	36.7

SCM CONFIDENTIAL

SA 035616

ALLIED PAPER CORPORATION
WASTE TANK TREATMENT TEST

To: U. G. Stoeffler

From: R. J. Willie

Date: July 15, 1970

Division: King

cc: W. Harrison, E. Klimczak, R. Levy, E. Gilman, D. Krueger, H. Horrocks, A. Vickery, R & D File, J. Harrison, E. Kowall

		7/6 Mon.	Tues.	7/8 Wed.	Thurs.	7/10 Fri.	Ave.
(#/Day) Influent	Flow (MGD)						
	Susp. Solids			27,900		27,300	27,600
	Fiber			3,000		5,600	4,300
	Solubles			18,500		20,500	19,500
	BOD			3,000		2,900	2,950
(#/D) Effluent	Flow (MGD)	*		2.459		2.459	2.459
	Susp. Solids			400		1,100	750
	Fiber			0		0	0
	Solubles			18,500		16,400	17,500
	BOD			500		200	350
% Efficiency Removal	Solids			98.7		96.0	97.3
	Fiber			100.0		100.0	100.0
	Solubles			0		20.0	10.0
	BOD			83.5		93.1	88.3
	Total BOD for All Divisions BOD Date	**1,800 7/6		***4,400 7/8		***3,100 7/10	

Remarks:
*Filling clarifier. No flow.
**Monarch only
***King and Monarch

Turbidity	Inf.	Eff
Wed.	350	40
Fri.	480	60

SCM CONFIDENTIAL

ALLIED PAPER CORPORATION
WASTE TANK TREATMENT TEST

To: U. G. Stoeffler

From: R. J. Willie

Date: July 7, 1970

Division: King

cc: W. Harrison, E. Klimczak, R. Levy, E. Gilman, D. Krueger, H. Horrocks, A. Vickery, R & D File, J. Harrison, E. Kovall

		6/29 Mon.	Tues.	7/1 Wed.	Thurs.	7/3 Fri.	Ave.
(#/Day) Influent	Flow (MGD)						
	Susp. Solids						
	Fiber						
	Solubles						
	BOD						
(#/Day) Effluent	Flow (MGD)	*		*		**	
	Susp. Solids						
	Fiber						
	Solubles						
	BOD						
% Removal Efficiency	Solids						
	Fiber						
	Solubles						
	BOD						
	Total BOD for All Divisions	***		***			
	BOD	180		190			
	Date	6/29		7/1			

Remarks: *Down for repairs
**Down for holiday
***Monarch only

SCM CONFIDENTIAL

ALLIED PAPER CORPORATION
WASTE TANK TREATMENT TEST

To: U. G. Stoeffler

From: R. J. Willie

Date: July 1, 1970

Division: King

cc: W. Harrison
E. Klimczak
R. Levy
E. Gilman
D. Krueger
H. Horrocks
A. Vickery
R & D File
J. Harrison
E. Kowall

		6/22 Mon.	Tues.	6/24 Wed.	Thurs.	6/26 Fri.	Ave.
(#/Day) Influent	Flow (MGD)						
	Susp. Solids						
	Fiber						
	Solubles						
	BOD						
(#/Day) Effluent	Flow (MGD)	*		*		*	
	Susp. Solids						
	Fiber						
	Solubles						
	BOD						
% Removal Efficiency	Solids						
	Fiber						
	Solubles						
	BOD						
	Total BOD for All Divisions	**4,600		**4,100		**4,000	
	BOD Date	6/22		6/24		6/26	

Remarks: *Down for repairs. Bypassing clarifier, no samples.
**Monarch only.

SCM CONFIDENTIAL

RD-5

ALLIED PAPER CORPORATION
WASTE TANK TREATMENT TEST

To: U. G. Stoeffler

From: R. J. Willie

Date: June 25, 1970

Division: King

cc: W. Harrison
E. Klimczak
R. Levy
E. Gilman
D. Krueger
H. Horrocks
A. Vickery
R & D File
J. Harrison
T. Rowell

		6/15 Mon.	Tues.	6/17 Wed.	Thurs.	6/19 Fri.	Ave.
(#/Day) Influent	Flow (MGD)						
	Susp. Solids						
	Fiber						
	Solubles						
	BOD						
(#/Day) Effluent	Flow (MGD)	*		*		*	
	Susp. Solids						
	Fiber						
	Solubles						
	BOD						
% Efficiency Removal	Solids						
	Fiber						
	Solubles						
	BOD						
	Total BOD for All Divisions	** 2,800		** 3,900		** 2,000	
	BOD Date	6/15		6/17		6/19	

Remarks: *Bypassing because of gear troubles. No samples.
**Monarch only.

SCM CONFIDENTIAL

SA00035082

ALLIED PAPER CORPORATION
WASTE TANK TREATMENT TEST

To: U. G. Stoeffler

From: R. J. Willie

Date: June 17, 1970

Division: King

cc: W. Harrison
E. Klimczak
R. Levy
E. Gilman
D. Krueger
H. Horrocks
A. Vickery
R & D File
J. Harrison
E. Kowall

		6/8 Mon.	Tues.	6/10 Wed.	Thurs.	6/12 Fri.	Ave.
(#/Day) Influent	Flow (MGD)						
	Susp. Solids	25,900		37,000		24,800	29,200
	Fiber	2,100		2,600		2,900	2,500
	Solubles	21,100		28,800		24,400	23,100
	BOD	2,600		4,700		2,700	3,300
(#/Day) Effluent	Flow (MGD)	3.172		3.172		2.933**	3,092
	Susp. Solids	0		800		0	200
	Fiber	0		0		0	0
	Solubles	22,100		22,800		0	22,400
	BOD	600		800		0	700
% Removal Efficiency	Solids	100.0		98.9		-	99.4
	Fiber	100.0		100.0		100.0	100.0
	Solubles	0		0		0	0
	BOD	77.1		83.2		0	80.1
	Total BOD for All Divisions	*4,000		*5,500		*2,400	
	BOD Date	6/8		6/10		6/12	

Remarks: *King and Monarch only
**No eff. sample. Trouble with clarifier

Eff. turbidity
Mon. 55
Wed. 70
Fri. -

SCM CONFIDENTIAL

SA00035083

ALLIED PAPER CORPORATION
WASTE TANK TREATMENT TEST

To: U. G. Stoeffler

From: R. J. Willie

Date: June 10, 1970

Division: King

cc: W. Harrison, E. Klimczak, R. Levy, E. Gilman, D. Krueger, H. Horrocks, A. Vickery, R & D File, J. Harrison, E. Kowali

		6/1 Mon.	Tues.	6/3 Wed.	Thurs.	6/5 Fri.	Ave.
(#/Day) Influent	Flow (MGD)	30,300		33,300		39,000	34,200
	Susp. Solids	1,500		3,700		4,300	3,200
	Fiber	29,400		16,400		22,000	22,600
	Solubles	4,000		3,900		2,100	3,300
	BOD						
(#/Day) Effluent	Flow (MGD)	2.933		2.814		2.933	2.893
	Susp. Solids	0		500		1,000	500
	Fiber	0		0		0	0
	Solubles	27,000		14,000		19,500	20,200
	BOD	900		900		800	900
% Removal Efficiency	Solids	100.0		98.6		97.5	98.7
	Fiber	100.0		100.0		100.0	100.0
	Solubles	8.2		14.7		11.3	11.4
	BOD	77.5		76.9		61.8	72.1
	Total BOD for All Divisions	*2,800		*5,100		*5,200	
	BOD Date	6/1		6/3		6/5	

Remarks: *King and Monarch only

Eff Turbidity
Mon. 10
Wed. 40
Fri. 75

SCM CONFIDENTIAL

RD-5

ALLIED PAPER CORPORATION
WASTE TANK TREATMENT TEST

To: U. G. Stoeffler ✓

From: R. J. Willie

Date: June 23, 1971

Division: BRYANT

cc: ~~W. Harrison~~
E. Klimczak
R. Levy
E. Gilman
~~D. Krueger~~
H. Horrocks
A. Vickery
R & D File

		6/14 Mon.	6/15 Tues.	6/16 Wed.	6/17 Thurs.	6/18 Fri.	Ave.
(#/Day) Influent	Flow (MGD)						
	Susp. Solids		45,600		52,400		49,000
	Fiber		8,100		9,300		8,700
	Solubles		31,600		40,400		36,000
	BOD		17,200		19,800		18,500
(#/Day) Effluent	Flow (MGD)	*1.782	*1.720	*1.626	*2.024	*1.656	1.761
	Susp. Solids		600		1,000		800
	Fiber		0 0		0		0
	Solubles		27,200		33,600		30,400
	BOD		7,000		3,900		5,400
% Removal Efficiency	Solids		98.7		98.1		98.4
	Fiber		100.0		100.0		100.0
	Solubles		13.9		16.8		15.3
	BOD		59.4		80.4		69.9
	Total BOD for All Divisions BOD Date	**1,700 6/14		**2,200 6/16		*2,800 6/18	

Remarks: *Clarifier ran over every day this week.

** Monarch only.

SCM CONFIDENTIAL

RD-5

ALLIED PAPER CORPORATION
WASTE TANK TREATMENT TEST

To: U. G. Stoeffler

From: R. J. Willie

Date: March 17, 1971

Division: BRYANT

cc: W. Harrison
E. Klimczak
R. Levy
E. Gilman
D. Krueger
H. Horrocks
A. Vickery
R & D File

		3/8 Mon.	3/9 Tues.	3/10 Wed.	3/11 Thurs.	3/12 Fri.	Ave.
(#/Day) Influent	Flow (MGD)						
	Susp. Solids		20,600		22,200		21,400
	Fiber		5,400		8,000		6,700
	Solubles		26,900		25,900		26,400
	BOD		6,500		4,900		5,700
(#/Day) Effluent	Flow (MGD)	0.836	*0.900	*0.900	0.840	1.138	0.923
	Susp. Solids		600		400		500
	Fiber		0		0		0
	Solubles		18,700		18,900		18,800
	BOD		3,100		4,000		3,500
% Removal Efficiency	Solids		97.3		98.3		97.8
	Fiber		100.0		100.0		100.0
	Solubles		30.5		27.0		28.8
	BOD		52.3		18.3		35.3
	Total BOD for All Divisions BOD Date	**1,700 3/8		**1,500 3/10		**1,700 3/12	

Remarks:

*Clarifier effluent line to city plugged up and totalizer ran continuously. Tuesday and Wednesday are estimate.

** Monarch only.

SCM CONFIDENTIAL

ROUTING SLIP

SION

MR LES STOEFFLER	Initials	te Surveys
MGR, PROCESS DEVELOPMENT,	Date / Initials	
ALLIED PAPER CORP.	Date / Initials	per Company
KALAMAZOO, MICH. 49001	Date / Initials	Michigan

— Approval — Prepare Reply
— Necessary Action — Prepare Reply for my Signature
— Investigate & Report — Note & File
— See me Regarding Attached — Return with Comments

EMARKS:

	Date 9/3/68
R. CULBERTSON	

Dunday

		-21	7-22	7-23	7-24	7-25	7-26
		741	6.883	6.676	3.099	7.044	6.375
		.53	171.35	173.32		189.66	183.00
		709	18,771	18,373	4,730	12,337	14,940
		.46	109.54	106.00		65.04	81.63
		602	66,589	68,371	5,272	45,234	37,642
Total Suspended Solids, pounds per ton paper	313.00	238.36	388.61	394.47		238.50	205.69
Total Suspended Vol. Solids, pounds	20,740	12,818	22,502	23,384	1,396	9,047	7,443
Total Suspended Vol. Solids, pounds per ton paper	105.70	73.44	131.32	134.92		47.70	40.67
Gallons Waste per ton paper	35,207	38,624	40,169	38,518		37,140	34,836
Population Equivalent	11[illegible]65	106,041	112,401	110,017	28,323	73,874	89,461
Settleable Solids Removal, per cent	- 50	73.77	60.86	...23	113.74	71.42	86.38
White Water Susp. Solids, pounds	0.0	0.0	0.0	0	0.0	0.0	0.0
White Water Susp. Solids, pounds per ton paper.	0.0	0.0	0.0	0.0		0.0	0.0

Type of Mill Production

De-ink Mill

Mill Water Supply

Portage Creek above Allied Monarch Division augmented with city water. Creek water is filtered before it is used.

Waste Control

De-ink waste flows by gravity to the main pump house. White water is pumped from various collection points to the main pump house and then both de-ink waste

SA00039018

COMMISSION

Report of Waste Surveys

at

St. Regis Paper Company
Kalamazoo, Michigan

Survey Periods: (24 hours for each)

July 20, 1955
July 21, 1955
July 22, 1955
July 23, 1955
July 24, 1955
July 25, 1955
July 26, 1955

Summary of Results

Date	7-20	7-21	7-22	7-23	7-24	7-25	7-26
Flow, million gallons per day	6.908	6.741	6.883	6.676	3.099	7.044	6.375
Production, tons	196.21	174.53	171.35	173.32		189.66	183.00
5-Day B.O.D., pounds	18,897	17,709	18,771	18,373	4,730	12,337	14,940
5-Day B.O.D., pounds per ton paper	96.31	101.46	109.54	106.00		65.04	81.63
Total Suspended Solids, pounds	61,414	41,602	66,589	68,371	5,272	45,234	37,642
Total Suspended Solids, pounds per ton paper	313.00	238.36	388.61	394.47		238.50	205.69
Total Suspended Vol. Solids, pounds	20,740	12,818	22,502	23,384	1,396	9,047	7,443
Total Suspended Vol. Solids, pounds per ton paper	105.70	73.44	131.32	134.92		47.70	40.67
Gallons Waste per ton paper	35,207	38,624	40,169	38,518		37,140	34,836
Population Equivalent	11[illegible]65	106,041	112,401	110,017	28,323	73,874	89,461
Settleable Solids Removal, per cent	[illegible]50	73.77	60.86	[illegible]23	113.74	71.42	86.38
White Water Susp. Solids, pounds	0.0	0.0	0.0	0.0	0.0	0.0	0.0
White Water Susp. Solids, pounds per ton paper.	0.0	0.0	0.0	0.0		0.0	0.0

Type of Mill Production

De-ink Mill

Mill Water Supply

Portage Creek above Allied Monarch Division augmented with city water. Creek water is filtered before it is used.

Waste Control

De-ink waste flows by gravity to the main pump house. White water is pumped from various collection points to the main pump house and then both de-ink waste

SA 039019

SA00039019

and white water are pumped to a 100 foot diameter sedimentation basin with a 12 foot sidewater depth. Effluent is discharged to Portage Creek. Sludge is discharged to a large lagoon.

Survey Procedure

Effluent from the sedimentation basin is discharged through a weir box. A recording head meter was installed at the weir to obtain a continuous daily record of the flow. Samples were taken of the flow at fifteen minute intervals by an automatic sampler and composited for each survey period.

An influent sample was obtained by continuously bleeding a small portion of the influent flow from the pump house discharge line through a small box equipped with an automatic sampler.

Survey Data:

Influent

Date	7-20	7-21	7-22	7-23	7-24	7-25	7-26
5-Day B.O.D., p.p.m.	420	590	495	455	205	390	525
Suspended Solids, p.p.m.	1,888	1,944	2,124	2,040	1,048	1,880	2,104
Suspended Vol. Solids, p.p.m.	760	824	780	812	456	772	840
2-hour Settleable Solids, p.p.m.	1,236	1,632	1,584	1,444	742	1,554	1,616
pH	7.2		6.9	7.6	7.8		7.0

Effluent

5-Day B.O.D., p.p.m.	328	315	327	330	183	210	281
Suspended Solids, p.p.m.	1066	740	1160	1228	204	770	708
Suspended Vol. Solids, p.p.m.	360	228	392	420	54	154	140
pH		7.2	7.2	7.3	7.5	7.3	7.2
Production, Tons	196.21	174.53	171.35	173.32		189.66	183.00
Flow, million gallons per day	6.908	6.741	6.883	6.676	3.099	7.044	6.375

Survey Calculations

Pounds of 5-Day B.O.D. to River

						INFLUENT (Raw)
7-20	6.908	x 8.34	x 328	=	18,897	24,200 lbs./day
7-21	6.741	x 8.34	x 315	=	17,709	33,160
7-22	6.883	x 8.34	x 327	=	18,771	28,400
- 7-23	6.676	x 8.34	x 330	=	18,373	25,310
- 7-24	3.099	x 8.34	x 183	=	4,730	—
7-25	7.044	x 8.34	x 210	=	12,337	22,800
7-26	6.375	x 8.34	x 281	=	14,940	27,900

Pounds of 5-Day B.O.D. per ton of paper

7-20	18,897	/ 196.21	= 96.31
7-21	17,709	/ 174.53	= 101.46

SA00039020

7-22	18,771 / 171.35	=	109.54
7-23	18,373 / 173.32	=	106.00
7-25	12,337 / 189.66	=	65.04
7-26	14,940 / 183.00	=	81.63

Population Equivalent

7-20	18,897 / 0.167	=	113,155
7-21	17,709 / 0.167	=	106,041
7-22	18,771 / 0.167	=	112,401
7-23	18,373 / 0.167	=	110,017
7-24	4,730 / 0.167	=	28,323
7-25	12,337 / 0.167	=	73,874
7-26	14,940 / 0.167	=	89,461

Total Pounds of Suspended Solids to River

7-20	6.908	x 8.34	x 1066	=	61,414
7-21	6.741	x 8.34	x 740	=	41,602
7-22	6.883	x 8.34	x 1160	=	66,589
7-23	6.676	x 8.34	x 1228	=	68,371
7-24	3.099	x 8.34	x 204	=	5,272
7-25	7.044	x 8.34	x 770	=	45,234
7-26	6.375	x 8.34	x 708	=	37,642

Total Pounds of Suspended Solids per ton paper

7-20	61,414 / 196.21	=	313.00
7-21	41,602 / 174.53	=	238.36
7-22	66,589 / 171.35	=	388.61
7-23	68,371 / 173.32	=	394.47
7-25	45,234 / 189.66	=	238.50
7-26	37,642 / 183.00	=	205.69

Total Pounds of Suspended Volatile Solids to River

7-20	6.908	x 8.34	x 360	=	20,740
7-21	6.741	x 8.34	x 228	=	12,818
7-22	6.883	x 8.34	x 392	=	22,502
7-23	6.676	x 8.34	x 420	=	23,384
7-24	3.099	x 8.34	x 54	=	1,396
7-25	7.044	x 8.34	x 154	=	9,047
7-26	6.375	x 8.34	x 140	=	7,443

Total Pounds of Suspended Volatile Solids per ton of paper

7-20	20,740 / 196.21	=	105.70
7-21	12,818 / 174.53	=	73.44
7-22	22,502 / 171.35	=	131.32
7-23	23,384 / 173.32	=	134.92
7-25	9,047 / 189.66	=	47.70
7-26	7,443 / 183.00	=	40.67

Gallons of Waste per ton of paper

7-20	6,908,000 / 196.21	=	35,207
7-21	6,741,000 / 174.53	=	38,624
7-22	6,883,000 / 171.35	=	40,169

7-23	6,676,000 / 173.32 =	38,518
7-25	7,044,000 / 189.66 =	37,140
7-26	6,375,000 / 183.00 =	34,836

Treatment Plant Efficiency

B.O.D. Removal

7-20	(420 - 328) x 100 / 420 =	21.90%
7-21	(590 - 315) x 100 / 590 =	46.61%
7-22	(495 - 327) x 100 / 495 =	33.93%
7-23	(455 - 330) x 100 / 455 =	27.47%
7-24	(205 - 183) x 100 / 205 =	10.73%
7-25	(390 - 210) x 100 / 390 =	46.15%
7-26	(525 - 281) x 100 / 525 =	46.47%

Suspended Solids Removal

7-20	(1888 - 1066) x 100 / 1888 =	43.54%
7-21	(1944 - 740) x 100 / 1944 =	61.93%
7-22	(2124 - 1160) x 100 / 2124 =	45.39%
7-23	(2040 - 1228) x 100 / 2040 =	39.80%
7-24	(1048 - 204) x 100 / 1048 =	80.53%
7-25	(1880 - 770) x 100 / 1880 =	59.04%
7-26	(2104 - 708) x 100 / 2104 =	66.35%

Suspended Volatile Solids Removal

7-20	(760 - 360) x 100 / 760 =	52.63%
7-21	(824 - 228) x 100 / 824 =	72.33%
7-22	(780 - 392) x 100 / 780 =	49.74%
7-23	(812 - 420) x 100 / 812 =	48.27%
7-24	(456 - 54) x 100 / 456 =	88.15%
7-25	(772 - 154) x 100 / 772 =	80.05%
7-26	(840 - 140) x 100 / 840 =	83.33%

Settleable Solids Removal

7-20	(1888 - 1066) x 100 / 1236 =	66.50%
7-21	(1944 - 740) x 100 / 1632 =	73.77%
7-22	(2124 - 1160) x 100 / 1584 =	60.86%
7-23	(2040 - 1228) x 100 / 1444 =	56.23%
7-24	(1048 - 204) x 100 / 742 =	113.74%
7-25	(1880 - 770) x 100 / 1554 =	71.42%
7-26	(2104 - 708) x 100 / 1616 =	86.38%

Remarks

On the 7-20 survey and again during the 7-25 survey the by-pass sewer from the pump house was discharging untreated waste to Portage Creek even though all three pumps were in operation. This condition was again observed on August 24. From the flow charts obtained at the effluent weir it is possible to pick off the flows with one, two, and three pumps in operation. The discharge over the weir with one pump in operation is approximately 2,900 gallons per minute, with two

pumps 4,250 gallons per minute and with three pumps 5,000 gallons per minute.

According to a letter of October 19, 1953, the clarifier is 100 feet in diameter and has a sidewater depth of 12 feet. The three pumps in the main pump house are each of 3,000 gallons per minute capacity.

The following is the theoretical detention time in the clarifier for the average daily flow on each of the survey dates:

7-20	2.44 hours
7-21	2.51 hours
7-22	2.45 hours
7-23	2.53 hours
7-24	5.45 hours
7-25	2.40 hours
7-26	2.65 hours

Survey written and supervised by
Ralph W. Purdy

Field Work by
H. Liechti

Chemical Analyses by
R. Krueger

KALAMAZOO INTER-OFFICE CORRESPONDENCE

ALLIED PAPER CORPORATION

June 9, 1965

TO: R. M. Levy

FROM: R. J. Willie
U. G. Stoeffler

cc: E. J. Gilman
W. Buenger
M. Carl
H. McGehee
H. Horrocks
E. Musall
File 301

RE: BRYANT, KING AND MONARCH WASTE TREATMENT SYSTEMS.

During the past two weeks we have been getting the new sampling systems made for the influent and effluent sampling at the three divisions.

The King influent and effluent samplers are in operation and are checked periodically. The "paddlewheel" sampler on the effluent needs to be adjusted so that it will run continuously.

The Bryant influent sampler at Mill A is now installed and ready to go. The waters from Mill C and D, coming into a pump station near Mill D, are not being pumped to Mill A pumping well. An investigation was made by the two authors and H. McGehee.

The waters in the pump station near Mill D were colored with a water soluble dye and when the pump started numerous leaks were found between pump house and railroad bridge. New piping has been ordered and will be installed as soon as possible. The pumps will be left down until the new lines are put in, because the leaks cause a turbulence which brings up a lot of "junk" from the creek bed.

The Monarch samplers should be ready very shortly and in operation by the week of June 14, 1965.

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SA 028977

Previous work (Progress Report No. 8 - Project No. 900 - January 24, 1963) had shown that when treating paper machine white waters 60 - 64% of the B.O.D. could be removed by screening out the fiber on 100 mesh wire. The results on Table II show 100% fiber removal by settling which partly explains the increased percent of B.O.D. removal The other reasons for this excellent percent of B.O.D. removal is; (1) the lower hydraulic loading, (2) the higher percent of solids removal, (3) the lower soluble solids level, and (4) the lower pH of influents. One disturbing result is the wide range of fiber content of the influent samples. The high figure of 18,900#/day is 70% of the average of King's influent fiber content.

It should be pointed out that the two sewer lines from Mill E have not been connected to the sump going to the clarifier, but this work is in progress. The pump recently installed at the collection sump outside of Mill D is not adequate to handle the waste water from Mills C & D when two machines are on colored orders.

Progress has been made to conserve fresh water and reuse white water. However, further reuse of white water at the machines especially at Bryant is necessary, such as using white water for clay dilution. The sludge at Bryant is about 15% fiber and this fiber is fairly clean. The possibility of pumping the Bryant influent over the slide washers at Mill A before going to the clarifier should be investigated. The removal of most of the fiber by this way would reduce the B.O.D., increase the clarifier settling efficiency and improve the sludge dewatering in the lagoons.

Table III contains the B.O.D. results in Carpenter's letter and also some test results from the 24 hour composite samples taken at the Monarch clarifier April 3, 4 and 5. The B.O.D. content of the effluent on March 18, was high as well as the suspended solids level. The reason for this is the carry over into the effluent launder of the sludge blanket which in this case is nearly 100% fine unbleached fiber. This accounts for the low percent removal of B.O.D. and solids. At Monarch Division also it would be advisable to investigate the recovery of the fiber by putting the influent over a slide washer. All these results at Monarch were taken while running 100% One Time Carbon.

gw

August 15, 1957

To: W. A. Kirkpatrick
From: J. R. Dam

cc: G. A. Littlefield
E. J. Gilman
H. B. Johnston
J. H. McClure
H. E. Nelson
G. A. Towne

Subject: Progress report on Paper Machine losses at the King Mill.
These losses are being studied by U.G. Stoeffler and L.R. Bortolotti.

Conclusions: The losses from the inadequate savealls alone on #1 and #2 Paper Machines show losses of $116.00 and $206.00 per day respectively. For a 300 day year #1 = $34,800 and #2 = $61,800.

On the basis of the recent cost of $55,000 installed for a Sveen Pederson unit on #6 machine at Bryant one of these units could be paid off in less than two (2) years time for #1 and in less than a year on #2.

Present indications are that the PIE unit which will be tried the week of August 26, will result in capital savings of about 50% compared to the Sveen Pederson.

Results: I. Schematic Flow diagrams of all four paper machines have been completed. These diagrams include pipe sizes and shows volumes. The engineering department now is redrawing them to a larger scale. We hope to have them ready by August 16.

II. A Weir, and automatic sampler were installed to measure the flow and sample the effluents from the savealls on #1 and #2 Paper Machines.

Observation indicated that losses might be relatively high at this point. This is substantiated by the data shown in Tables I & II.

III. No 3 and 4 machines are operating without savealls so that all wet trim and pit breaks are lost from the machine. We are not set up to measure these actual losses as yet. Some of this stock may be recovered in the deinking plant. (See under discussion)

IV. Machine white water tanks are constantly over-flowing directly to the sewer, particularly on #1, 2 and 3 paper machines. A weir has been installed to measure the direct loss to sewer from #1 & 2.

KALAMAZOO INTER-OFFICE CORRESPONDENCE

ALLIED PAPER CORPORATION

May 1, 1958

TO: H. E. Nelson

cc: G. A. Littlefield
H. B. Johnston
J. H. McClure
E. J. Gilman
Bill Buenger
Stan Stets
Ray Chermak
Roy Bell
Al Mulder

From: H. L. Field
W. E. Kendrick

SUBJECT: Sewer Waste Reduction

Our present status on waste treatment plus our future plans on the Denver Process should be of considerable concern to us, particularly in light of recent overtures from the State to reduce BOD by 50-75%.

At Bryant the residual suspended solids in our primary treated wastes is very high because we are running about 50% more volume through the settling tank than it is designed to handle. In addition, the BOD in these treated wastes is 10% to 50% above the maximum allowance specified by the State.

We are also contemplating increasing our deinking capacity at mill "A" which will further increase our loading on the waste tank in terms of volume, suspended solids, and BOD.

In order to reduce the total volume of waste to a point where good settling can be expected in the waste tank, we must: (a) Divert any flows which are relatively low in suspended solids and BOD directly to the stream. One such flow is the filtrate from our chlorination oliver in Mill A. Any clarified Sveen water which is not reused in the paper mills or in Mill A should also be sewered to the stream; (b) Make our unbleached DI Pulp washing system in Mill A a countercurrent system. In order to do this, we must increase the width of the slide washers on the first two stages by at least 10 feet; (c) Reduce the number of fresh water showers, hoses, etc. used on the paper machines. A survey of this should be started immediately; (d) Replace fresh water showers with clarified white water showers. In order to use clarified Sveen water, it will be necessary to insert either a plate and frame filter, or a protective screening treatment as per the attached sketch. I propose that we install a protective screen on a trial basis on one machine as soon as possible.

Some of these methods should also be applied to reduction in volume at King to compensate for expected increases by introduction of the Denver Process.

The reduction in BOD can be accomplished only by some secondary treatment. The best methods of secondary waste treatment are: (a) The activated sludge process; and (b) The trickling filters. However, a unit of either process to accommodate Bryant's wastes would cost $200,000-$300,000 to build and $100-$200 per day to operate. A much less expensive method to build and operate which has given a partial removal of ~~BOD~~ is an aeration and ponding method. A sketch of a proposed pilot plant to study this method at the Bryant waste tank is attached. It is recommended that such a pilot plant be built in the near future, not only to study this method, but also to convince the State representatives, who have recently shown special concern about Portage Creek, that we are seriously making efforts to improve the situation. If this method shows any promise, it can be applied at all three mills.

The disposal of suspended solids concentrated at the Bryant waste tank will present a problem in the near future. The retaining walls are already quite high and need periodic raising and repairing. Recently we have had leaks and overflows (because the area froze) which have caused substantial quantities of sludge to enter the creek.

It is recommended that we: (a) Reconsider the possibility of rerouting the creek and combining the Monarch and Bryant waste disposal areas; (b) Study the possibility of further concentrating the sludge by centrifuge and then treating it to recover the clay, or to produce alum.

The King waste tank is now satisfactorily removing the suspended solids, and the BOD is just about equal to that allowed by the State. The introduction of the Denver Process is expected to increase the suspended solids and BOD load by 30-50% and will, if means are not initiated to compensate for it, increase the volume load by about the same amount. Reductions in water usage should, therefore, be initated at King and any favorable results from studies made at Bryant should also be applied to King.

The proposed pilot plants will be submitted to central engineering for costing.

To: R. Carson

cc: W. D. Harrison, R. M. Levy, H. B. Johnston, G. H. Baldauf, B. Owen, E. J. Gilman, A. M. Mulder, D. Mendham, S. Stetz, U. C. Stoeffler, R. Bell, B. Buenger, D. Farley, V. Weaver

From: R. J. Willie

KING DIVISION

Date 1959	INFLUENT (#/day) Sus. Solids	Fiber*	Soluble	BOD	EFFLUENT (#/day) Flow (MGD)	Sus. Solids	Fiber*	BOD	Removal % Efficiency Solids	Removal % Efficiency BOD	Waste Paper Input Regular Tons	Waste Paper Input Regular % Book
3/16	---------no samples**----------				6.50	----no sample**----					232	72 c
3/17	94,500	10,100	130,000		6.50	22,700	0				224	
18	88,200	9,850	71,700		6.16	10,250	0				210	
19	133,000	15,300	66,700		5.70	44,700	0				238	
20	98,700	11,400	115,000		5.75	33,500	0				236	
21	101,000	12,900	104,000	?	5.93	no sample	0				247	
Sun.	103,080	11,910	97,480	?	6.09	27,787	0				231	
KC Order						53,700		16,300				
RYANT DIVISION												
16	78,500	9,400	75,500		8.25	17,900	0				162.2	66.8
3/17	130,500	16,200	130,900		8.36	30,500	0				154.4	67.5
3/18	113,000	13,700	62,700		8.37	4,000	0				148.1	64.5
3/19	116,000	12,800	91,000		8.43	47,300	0				128.8	60.5
3/20	142,000	13,200	145,000		8.73	111,000	0				165.3	62.4
3/21	146,000	19,000	131,000	?	8.75	no sample	0				184.0	63.8
Avg.	121,000	14,050	106,017	?	8.48	42,140	0				157.1	64.2
KC Order						76,500		11,100				

**bar grates plugged - bypassing settling t

SCM CONFIDENTIAL

SA0035162 SH 035162

ALLIED PAPER CORPORATION
Kalamazoo, Michigan

April 6, 1961

Water Resources Commission
300 East Michigan
Lansing 13, Michigan

Attn: Mr. Ralph Purdy

Dear Ralph:

We appreciate the fact that you called to our attention the by-passing of a portion of our waste from the Bryant pump station wet well during your visit to our office today. As you know we immediately informed the people directly responsible for correcting this situation. We have since advised the other responsible people in our organization that have jurisdiction in this area of operations. Our Bryant maintainence superintendent and maintainence engineer will see to it that the men responsible will clean the bar grate regularly and that any malfunction of the pumps be reported at once. Then too, the superintendent of our Bryant pulp mill has been instructed to make inspections at the by-pass discharge to insure that any flow there will be given remedial action.

The plans to reduce fresh water usage and full utilization of white waters in the mills are being carried out by direction of J.D.Dailey, Senior Vice President. I'm sure you gathered from his remarks to you that these plans will be carried out.

Very truly yours,

ALLIED PAPER CORPORATION

W. G. STOEPPLER, ASSISTANT
DEVELOPMENT MANAGER

jmw
cc: J.D.Dailey
S.J.Stotz

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ALLIED NEWS
ALLIED PAPER CORPORATION

Associate Editors	Charles Stronski, Peter Barrett
Reporters:	
Local No. 426	Grace Holt
Local No. 78	Paul Waldron
Local No. 667	Don Bond
Local No. 649	Dave Hamilton
King Mill	Martha Steele, Jim Holt
Office	Ray Willis
Monarch Mill	John Alton
Bryant Mill	Juanita Loftus, Florence Fawley, Jose Escamilla, William Atkins, Dale Kennedy

Personal Notes

Welcome to Barbara McKane in the Sales Department.

Congratulations to Mr. and Mrs. Earl Gustin, Bryant Coating, on the birth of their first grandchild.

Mill E Shipping Room held a luncheon for "Gus" Arajs who retired September 1. They gave Gus some wonderful fishing gear and other gifts.

On August 28 the employees of Mill C Finishing gave a luncheon in honor of Florence Fawley who retired September 1. This was a day that Florence will always remember since August 28 was also her birthday and wedding anniversary. She received many gifts from the employees of Mill C Finishing. Some of the retired employees who came back to wish her well were: Cora Curtiss, Ruth Kilgore, Libbie Dewey, Teresa Spaulding, Jeanette Vermeulen, Rena Randall, Jake Meyers, Maynard Gilmore, Orie Curtiss, Orval Burnsworth, John Carryn, John DeVries, Warner McGee, and Alford Krumins.

Jim Holt, King Machine Room, is mighty proud that he beat "Hole-in-one" Buck Weaver in a golf match.

Jerry Squires, Brooks, has a new addition to his family, an Apaloosa filly.

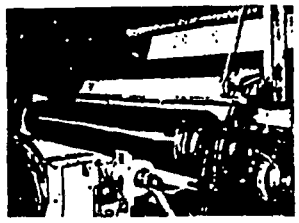
King retired employee Jessie Swan is recovering from a broken hip at the Ridgeview Manor Nursing Home. She would like to hear from her friends.

Terry Morris, Brooks, is the father of a baby daughter.

Larry Bos, son of Coating Mill Manager Claude Bos, will soon become Assistant Dean of Students at the American International College, Springfield, Massachusetts.

Mr. and Mrs. Mike Moran (King Machines) have another baby. This makes number three.

"HOMEMADE" SIZE PRESS IS SUCCESS



King's "Homemade" Size Press

The need was immediate, the challenge apparent; fabricate a replacement size press unit at No. 1 Paper Machine at the King Division embodying the improved features of a horizontal press, at a lower material cost than would be involved in repairing the existing vertical size press.

The above requirements became evident when signs of failure appeared in the bearings of our old vertical size press unit. An additional problem to be overcome consisted of starch size accumulating on the carrying ropes from which it "spattered" on the sheet surface causing objectionable dark spots. Correction of this problem required that the configuration of the existing vertical press be changed. Finally, the need existed for locating the size press roll in such a manner that the sheet would contact either roll immediately after leaving the size press nip; this feature is mandatory where certain coatings are applied to the sheet which will produce a "mottled" effect on the surface if contact occurs between the size press rolls and the sheet after the application of the coating at the nip.

Time would not permit the fabrication and delivery of a new unit by an outside vendor. Our King Maintenance Department employees felt confident that by salvaging material on hand they could fabricate a size press unit of improved design while purchasing only hydraulic control valves and piping. The brass top roll for the new unit was found at the Monarch Division while bearing housings were taken from the old coating unit formerly at #2 Paper Machine. The bottom roll of the old press was adapted to the new unit. Sole plates that formerly existed with the old winder at #3 Paper Machine were used in constructing the support stands for the size press rolls. Pneumatic cylinders were salvaged from the former coating unit at #2 Paper Machine.

All in all, most of the skills involved in the King Maintenance group contributed toward the installation of this unit. Since its start-up on Tuesday, September 8, 1964, its operation has been satisfactory in every respect. This type of achievement speaks for itself in demonstrating the effectiveness of the King Maintenance employees in accomplishing a precision project in a very short period of time at minimum cost. "Congratulations are in order for all who played a part in this important step forward at #1 Paper Machine," stated General Superintendent Harry "Bud" Horrocks.

KING MAINTENANCE EMPLOYEES BUILD SIZE PRESS

Left to right: Wayne Dunklaberger, Ray Hill, Bill Wilson, Ken Bagley, Bill Gates, Bert Courtney, Jerry Lado

Left to right: Ben Boden, Bernard Covey, Gerald McLaughlin, Perle Van Der Meer, Fred Granger, Horace Trout, John De Salvo, Frank Moore, Albert Brinkert, Bill Price

KING MILL GETS NEW ELECTRIC SUBSTATION

Electric substation

A new 1000 KVA substation was installed at the King Mill along Lake Street. It is energized from a 4800 volt line recently erected between this 1000 KVA substation and the Consumers High Voltage substation just east of the Mill on Lake Street.

The purpose of this installation is to transfer some of the electrical load from the former plant and also to permit the removal of a bank of temporary transformers from the east beater room deck. Erection of the platform and installation of the transformer and switchgear was performed by our King Mill Maintenance personnel under the direction of Master Mechanic Gail Olvitt and Master Electrician Gus Abolins.

KA04400470

KA04400470

ALLIED NEWS

ALLIED PAPER CORPORATION

VOLUME II, No 9 KALAMAZOO, MICHIGAN SEPTEMBER, 1961

ALLIED PAPER CORPORATION SPONSORS BLOOD CLINIC

BLOOD DONORS NEEDED

Once again the Allied Paper Corporation will sponsor its annual Red Cross Blood Clinic at two locations On Wednesday, October 7, 1961, the Red Cross Mobile Unit will be located at the King Mill in the Engineers Conference Room The unit will then move to the Office Auditorium at the Bryant Mill on Thursday, October 8, 1961.

Last year 298 people registered as donors and the Red Cross collected 201 pints of blood at our clinic However, only 137 pints were donated by employes of the Allied Paper Corporation

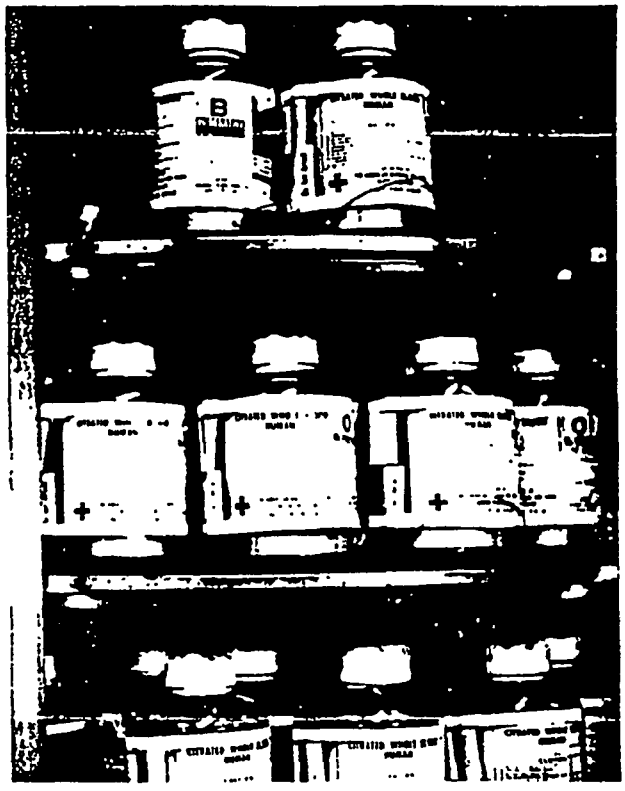
Each and every Allied Paper employee will have the opportunity to donate a pint of blood during the two days October 7th and October 8th The Monarch Division employees will donate their blood at the Bryant Office unit. Each donor will be scheduled, if possible, to donate his blood during working hours without any loss of pay The solicitation of donors will be done by your fellow employees Please be courteous to them since they are volunteering their time and blood

The local Red Cross blood donor program supplies blood free of charge to any Kalamazoo County resident who needs it. Blood can't be given away, in fact it can't be acquired for any price unless it is first donated by someone.

Please give your blood during the blood clinic at Allied. The blood you give helps someone live. Blood cannot be mined or manufactured – it must come from the veins of healthy men and women who feel concern for the suffering of others and know that blood alone can make them whole and well again.

The availability of blood and blood products is of increasing importance to the health and welfare of every resident and worker of this community A healthy person could donate blood every two months, but if everyone who is able would donate just once each year, the program would be able to meet the needs of Kalamazoo County

You can save a life with the blood you can spare!



The Blood You Give Helps Someone Live!

MONARCH PAPER MACHINE #11 AGAIN INCREASES PRODUCTION RECORD

The A, C, and D Tour Crews of #11 Paper Machine at the Monarch Division jointly increased the daily production record for that machine on September 5, 1961 During the 24 hour period of 7:00 a.m. to 7:00 p.m. the three crews, under the able guidance of Machine Tenders Joe Pacek, Joe Gabb, and Ed Johnson, produced a total of 12,170 pounds of 9# Carbon Tissue. This new record replaces a record of 11,275 pounds established on February 16, 1961.

Congratulations!

ANOTHER CENTRI-SCREEN ADDED AT KING

Recently a new Bird CentriScreen was started up on #1 Paper Machine at the King Division. The primary purpose of this equipment is to improve quality by removing the dirt from the stock furnished to the head box. The unit on #1 Paper Machine is a duplicate of the Centri Screen installed on #3 Paper Machine in May, 1961, and is a continuation of Allied Paper's efforts to improve quality.

The installation was completed at the end of August by the King Maintenance Department personnel under the supervision of Maintenance Supervisor Bill Gans and Project Engineer Bill Herbert.

KING PAPER MACHINE #4 CREW SETS 8-HOUR RECORD

On August 17, 1961 the King Division Paper Machine #4 crew of Machine Tender Paul Gallispie, Backtender Bob Allen, 3rd Hand Mike Moran, 4th Hand Paul Munson, and 5th Hand Jake Klepper established a new 8 hour record by producing 12,140 pounds of 50# Government Manual Paper The old record of 10,930 was established by Machine Tender Carol Bland on November 29, 1965.

Congratulations!

MONARCH MACHINE TENDER PROMOTED

Dan Crawford

Effective September 11, 1961, General Superintendent Morris Carlson announced the promotion of Machine Tender Daniel Crawford to Tour Superintendent at the Monarch Division. Dan will replace Harland "Buck" Mendham who retires October 1.

Dan began his employment at the Monarch Mill in 1950. He transferred to the Paper Machines early in 1958. He moved up the Paper Machine progression to become a Machine Tender on 10/30/61

Congratulations to Dan!

KA04400469

KA04400469

ALLIED PAPER CORPORATION
Kalamazoo, Michigan

December 4, 1964

Mr. Ralph Purdy
Water Resources Commission
200 Mill Street
Lansing 13, Michigan

Dear Ralph:

Confirming my telephone conversation with you on Thursday, December 3, 1964, I am relating below the events which took place at our Bryant Division:

We have three pumps which take waste waters to the clarifier. Usually only two pumps operate and one is standby. On Tuesday, December 1, a motor burned out on one pump and on Thursday, December 3, an impeller failed on another pump at approximately 8:00 a.m. Approximately 50% of waste bypassed the clarifier from 8:00 a.m. until 1:00 p.m. when one pump was put back in service.

Our Engineering Department informs me that it will take approximately five more days before the standby pump can operate.

If you require further information on the above, do not hesitate to get in touch with me.

Sincerely,

R. M. Levy

elr

cc: Mr. Bob Courchaine

RECEIVED
DEC 7 1964
WATER RESOURCES COMMISSION

0002734

TABLE 3B
Allied Paper Inc Portage Creek/Kalamazoo River
Superfund Site

Kalamazoo River Trowbridge Otsego and Plainwell Impoundments: Floodplain PCB Results (1988)

Sample	Sample Interval	Total PCBs mg/kg dry weight	Visual Description
J8TS31	0-1.0	5.9	grey silt
J8TS31	1.0-2.0	0.47	grey silt
J8TS31	1.0-2.0	0.47	br. silty sand OX
J8TS31	2.0-3.0	0.2	br silty sand OX
J8TS35	1.0-2.0	24	grey silty sand
J8TS35	1.0-2.0	24	br med sand OX
J8TS35	2.0-3.0	0.72	grey silt
J8TS36	1.0-2.0	7.2	grey silt
J8TS36	2.0-3.0	0.04	grey silt
J8TS7	0-1.0	52.00	gr. silty clay
J8TS7	1.0-2.0	0.34	gr. silty clay
J8TS7	1.0-2.0	0.34	bk O&G
J8TS7	2.5-3.0	0.2	bk O&G
Otsego Impoundment			
J8OS14	0-1.0	0.27	dk. gr. br silt
J8OS14	1.0-2.0	0.04	dk gr br silt
J8OS14	2.0-3.0	0.12	dk. gr sand w/O M
J8OS14	2.0-3.0	0.04	dk. gr sand w/O M
J8OS15	2.0-3.0	18	bk. sandy cl-si w/O&
J8OS15	3.0-4.0	0.2	bk. sandy cl-si w/O&
J8OS3	1.0-2.0	30	grey silt
J8OS3	2.0-3.0	0.48	gr. br silt
J8OS5	1.0-2.0	6.2	grey silt
J8OS5	2.0-3.0	0.2	grey silt
Plainwell Impoundment			
J8PS1	0-1.0	0.72	grey sandy silt
J8PS1	1.0-2.0	0.04	grey sandy silt
J8PS1	2.0-3.0	0.2	grey sandy silt
J8PS1	3.0-4.0	0.2	dk. grey silt w/O M.
J8PS1	5.0-6.0	0.2	bk. silt w/O&G
J8PS5	0-1.0	27.5	grey silt
J8PS5	0-1.0	27.5	br. med. sand
J8PS5	1.0-2.0	0.2	br. med. sand
J8PS5	1.0-2.0	0.04	grey silt
J8PS5	2.0-3.0	0.2	grey silt
J8PS5	3.0-4.0	0.2	dk. gr. br. silt

SA 46497

SA00045868

ALLIED PAPER CORPORATION

June 4, 1965

Mr. Ralph W. Purdy, Chief Engineer
Water Resources Commission
200 Mill Street
Lansing, Michigan

Dear Ralph:

This letter is to inform you of the circumstances surrounding the partial by-passing of the waste treatment plant at our Bryant Mill on May 21st and 22nd.

On May 21st we were operating two of the three vertical pumps in the interceptor station at Mill "A", with the third pump temporarily out of action with bad bearings. At about noon on that day, one of the other two pumps which had been in operation had a mechanical failure.

We were forced to run the balance of that day and the next day with only one pump, but the other two were repaired on Sunday the 23rd, and all three were in full running condition for our start-up on the 24th.

Thanks to our policy of keeping adequate spare parts for these critical pumps on hand at all times, it was possible to keep the period during which the treatment plant was partially by-passed to a minimum.

Spare parts, equivalent to a complete pump, were again immediately ordered after this incident.

Yours truly,

ALLIED PAPER CORPORATION

Jack Gilman

E. J. Gilman
Vice President-Manufacturing

dg

RECEIVED
JUN 8 1965
WATER RESOURCES COMMISSION

Gilman
EXHIBIT NO. 29
1-19-93
P. MORETTI

0002731

KA04800109

SA * 011412

KA04800109

ALLIED PAPER CORPORATION

June 16, 1965

Mr. Ralph W. Purdy, Chief Engineer
Water Resources Commission
209 Mill Street
Lansing, Michigan 48913

Dear Ralph:

I called your office this morning and in your absence talked with Bob Courchaine. I reported to him that we had had trouble with the drive on the Bryant clarifier on Friday the 11th of June and found a considerable build-up of sludge in the bottom. It took us into Saturday to get the sludge cleaned out with fire hoses, and we were back in operation at 2 P.M. on the 12th. We have decided that we will have to pump the sludge out more continuously and in more dilute form.

In further response to your letter of June 15th, we decided about one week ago to study the possible benefits of a fourth pump for stand-by. Our Engineering Department will make me a report on this matter soon. It may be that the replacement of one of the present pumps with one of greater capacity would give us the additional stand-by capability we need.

I will certainly try to follow the practice of calling you in the event of future by-passing of the clarifier.

Yours truly,

ALLIED PAPER CORPORATION

Jack

J. J. Gilman
Vice President-Manufacturing

dg

RECEIVED
JUN 18 1965
WATER RESOURCES COMMISSION

0002729

SA 011410

Week beginning MARCH 4, 1968

1968 MARCH 1968

SUN	MON	TUE	WED	THU	FRI	SAT
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

MONDAY, MARCH 4

OFFICE - RALEN PEARLER C.G. IN TO DISCUSS TREATMENT FACILITY.

EASTMANVILLE - BUTH DAIRY - SERVICE TANK TO GRAND RIVER

WORKED ON LAKEN PACKING CO.

PACKAGING CORP - LOOKS BAD SOLIDS 1 INS 1 INS

(8)

TUESDAY, MARCH 5

PLAINWELL - VALLEY MFG INDUSTRIES, WEYERHAEUSER CO. COMPANY FOR LINE 1 JUNE 68

ANGLE STEEL WILL FILE AS FILE (COD, FLOW DWG, EDISON S. 9 331-1111

3 KALAMAZOO - NO MILLS OBSERVED BYPASSING

9 - ALLIED PAPER "E" - CL WATER → SEWERS - ROY WITZ DISS PLT MGR

BROWN "2" - BILL FITZGERALDS - WILL CHECK FOR (USE RAW PUMP FOR OWN WASTE STORE) WASTE IN CO DRAIN.

12 INS 1 PUMP LEN PRATT - ADD SUNDRIES OIL IN MILL ST. SEWER

1 DUTTON - SAME

WEDNESDAY, MARCH 6

HILLSDALE - SAMPLED ST. JOE RIVER ✓

3 INCHES Daisy (CLEAR) STORM SEWER CK.

OIL LOSS @ BARNES LAKE (WEST #1) ✓ COMPLAINT - MABEL HILLMAN, READING - FENCES

JONESVILLE - VACO - OK

POWLSON - OK

LANSING - SAMPLES TO LAB.

5:20 - 5:30 8.5

THURSDAY, MARCH 7

OFFICE 8-5

NATURAL OIL EQUIPMENT

(8)

C.G. 1:30 ROUTE

FRIDAY, MARCH 8

OFFICE 8-12:10

A.M.

CHERRY GROWERS - WENT OVER SITE WITH R. PEARSON

1 - 4:00 KENT CITY - NATIONAL FRUIT CO 3 INS

VILLAGE PONDS NOT CONSOLIDATED.

(8) OFFICE 1-5

SATURDAY, MARCH 9

COLDWATER - N.P.N. ON STRIKE NOTHING DRY

3 REMINING - BAD - SOLIDS BACK IN 2 HRS

S.N.P.S. - SAME - SAMPLED - JOHN HAS DONE ALL HE CAN DO. $4,000 FOR ENG. SURVEY

QUINCY - PRODUCTS OF SAMPLED

SUNDAY, MARCH 10

JONESVILLE - PUBLIC MEETING - G.C. ISSUE - DO NOT GO

8:00 - (8) (3) LUNCH, SUNDAY, ROOM

KA05300090

KA05300090

STATE OF MICHIGAN

GEORGE ROMNEY, Governor

DEPARTMENT OF CONSERVATION

RALPH A. MAC MULLAN, Director

CONSERVATION COMMISSION
HARRY H. WHITELEY
Chairman
CARL T. JOHNSON
E. M. LAITALA
ROBERT C. McLAUGHLIN
AUGUST SCHOLLE

WATER RESOURCES COMMISSION
GEORGE F. LIDDLE
Chairman
JOHN E. VOGT
Vice Chairman
B. DALE BALL
GERALD E. EDDY
JAMES V. MURRAY
LYNN F. BALDWIN
JIM GILMORE

200 MILL ST., LANSING 48926
Tel. 373-3560

June 17, 1968

Mr. Les Stoeffler, Manager
Process Development
Allied Paper Corporation
Kalamazoo, Michigan

File.

Dear Mr. Stoeffler:

This is in reference to your recent telephone conversation with R. W. Purdy regarding by-passing of the white water at the Bryant Mill to allow for certain tests to be run on quantity and quality of the de-ink wastes.

It is our understanding that such testing will take about two weeks to perform and during this period the de-ink wastes will be treated in the clarifier with by-passing of only the white water.

We would have no objection to this proposal if the testing can be performed now, while stream flows are still relatively high. If, however, testing cannot be started within a week or two before stream flows and temperatures become critical, it should be delayed until the fall.

We will appreciate being kept informed as to when the tests are to be started and terminated.

Very truly yours,

WATER RESOURCES COMMISSION

RJC

Robert J. Courchaine
Regional Engineer

RJC:pb

cc: P. W. Purdy
C. Harvey

MICHIGAN
THE GREAT LAKE STATE

MDNR 003711

MDNR00003711

STATE OF MICHIGAN

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RALPH A MAC MULLAN, Director

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B DALE BALL
GERALD E EDDY
[illegible] P. WOODFORD
[illegible] F BALDWIN
[illegible]ORE

[illegible]ANSING 48926
3560

September 25, 1968

Mr. Dan Yenner
2226 Oakland Drive
Kalamazoo, Michigan 49001

Dear Mr. Yenner:

This is to acknowledge receipt of your September 12, 1968 letter to Commissioner Jim Gilmore regarding the matter of waste control at the Allied Paper Company, Bryant Mill.

You indicated that the latter part of July and during August the Company by-passed waste while cleaning its waste pipeline which carries the Bryant wastes to the waste treatment clarifier.

The Commission and its staff have expressed grave concern for the rather frequent by-passing of wastes which occur at the Bryant Mill. At its April 24th conference with the Company, the Commission discussed the necessity of improving waste treatment at the Bryant Mill and of eliminating the by-passing of wastes.

The Company indicated that a water conservation and re-use program was being pursued to reduce the total volume of wastes to be handled through the pipeline and thereby correct the by-passing. Since the problem is aggravated by the reduced capacity of the pipeline, as a result of a buildup of solids around the inner wall of the pipe, the Company stated that it would be necessary to clean this pipe and, in some instances, to replace badly corroded sections. In our discussion with the Company regarding this program, we informed them that routine cleaning and replacement of pipe should be programmed during shutdown and other periods of reduced waste flow to minimize any by-passing of wastes. Apparently, it was not possible to accomplish all of the work which needed to be done during such periods.

We, of course, would prefer that by-passing of any waste treatment facility would never be necessary; but there are times of equipment failure and circumstances beyond the control of the operators of such facilities which necessitate such by-passing to allow for repairs and equipment replacement. The Commission's policy in such matters is to program, wherever possible, the by-pass so as to minimize the effects on the water quality and uses made of the receiving waters.

MICHIGAN
THE GREAT LAKE STATE

In any event, the Company's pipe cleaning program, coupled with the flow reduction program, should result in elimination of future by-passing of untreated wastes.

The Commission has notified the Company that improved waste treatment will be necessary to upgrade water quality in Portage Creek to meet the Water Quality Standards for this stream, which are expected to be established early in 1969. The Company is now studying the feasibility of discharging de-ink wastes from its Bryant Mill into the City of Kalamazoo sanitary sewer system. The Company is required to make a report on this matter to the Commission next month.

We certainly appreciate your interest in this matter and in taking the time to write to us regarding your observations. Should you observe any by-passing of wastes in the future, we would appreciate a call so that the matter can be immediately investigated by our staff.

Once again, thank you for calling this matter to our attention.

Very truly yours,

WATER RESOURCES COMMISSION

RWP R.J.C.

Ralph W. Purdy
Chief Engineer

RJC/ro

cc: Jim Gilmore
C. Harvey

MICHIGAN DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION BUREAU
POINT SOURCE MONITORING SECTION

Report of an
[redacted]
Conducted at
ALLIED PAPER
All Outfalls No. 390222
NPDES Permit No. MI0000779
Kalamazoo County
Kalamazoo, Michigan
[redacted]

Survey Summary

Wastewater monitoring was performed during one twenty-four hour survey period starting Monday, October 25, 1982.

The results of this survey met the final limitations in the facility's National Pollutant Discharge Elimination System (NPDES) Permit, No. MI0000779. (Table 3)

The survey results were compared to the plant's Monthly Operating Report (MOR) results. The results compare well except for settleable solids. (Table 3)

One grab sample from outfall 390006 (002) was split for comparison of analytical results. These results also compare well. (Table 4)

The results from this survey are presented along with those of the previous survey conducted in March 1982 in Table 5.

Survey Comments

A small amount of groundwater seepage from the old Monarch Mill area was observed entering the Monarch clarifier inlet. This seepage was sampled and analyzed for organic chemicals. Only trace amounts of chlorinated hydrocarbons were detected. (Table 2)

A 96-hour flow-through bioassay was conducted encompassing the survey period. Results will be forthcoming in a separate report.

Plant Processes

The Allied Paper Corporation produces bible paper, light weight printing papers and other specialty papers at its Bryant Mill in Kalamazoo. The mill operates 5 fourdrinier paper machines and one off-machine coater. The normal production of the mill is approximately 220 tons of product per day and actual production figures are given in the appendix. The mill employs about 390 people and operates 24 hours per day, 7 days per week.

The mill uses bleached kraft pulps manufactured at other locations. Both softwood and hardwood pulps are used. Clay, titanium dioxide and calcium carbonate are used as fillers. Very small amounts of direct dyes are used for tinting some grades of paper. Rosin and alum are used for sizing. On some grades of paper small amounts of melamine formaldehyde is used to improve wet strength. No bleaching is done in the normal process of making paper.

On the coater polymeric synthetic latices and/or natural water soluble polymers are used as binders. Styrene-butadiene, vinyl acetate and acrylics are all used from time to time. Of the five paper machines three have flotation type save-alls and two have disc-type save-alls.

Water Supply, Wastewater & Treatment

Process water used at the Bryant Mill is obtained from the Portage Creek and is chlorinated and passed through sand filters prior to use. Potable water for the mill is obtained from the City of Kalamazoo. Domestic wastes are discharged to the city's sanitary sewer system. Boiler water is softened by a hot lime-soda process.

Process wastewaters from excess white water, coating machine water, filter backwash, softener backwash and boiler blowdown are discharged to the 100 ft. diameter Bryant clarifier. A polymer is added to improve settling. A portion of the Bryant clarifier effluent is discharged to the City of Kalamazoo sanitary sewer system via outfall 390004 (001). The remainder of the Bryant clarifier effluent is discharged to the 90 ft. diameter Monarch clarifier. Flow is automatically apportioned by a computerized system utilizing a total organic carbon analyzer. Some of the Monarch clarifier effluent may be recycled for process water, but this was not being done during this survey. The remaining Monarch clarifier effluent is discharged to Portage Creek via outfall 390006 (002).

Sludge from both clarifiers is pumped to drying lagoons on plant property adjacent to the clarifiers.

Survey Procedure

The flows and samples were obtained as follows:

Sampling Location	Flow Measurement	Sampling Methods
390004 (001)	Company totalizer	Automatic air activated sampler, 4 portion grab composite and individual grabs.
390006 (002)	Staff installed water level recorder on a company 36" rectangular weir.	Autocatic air activated sampler, 5 portion grab composite and individual grabs.
Manhole near 002	none	Individual grab.

SA 033485
SA00033485

Kalamazoo, Michigan. Fireside 5-7131

ALLIED PAPER CORPORATION

April 27, 1964

Mr. Ralph Purdy, Chief Engineer
Water Resources Commission
200 Mill Street
Lansing, Michigan

Dear Ralph:

As I explained to you Friday on the phone, we had a breakdown in our Monarch clarifier last week. The clarifier was down for approximately twenty-four hours and was back in operation on Thursday.

The breakdown was caused by the failure of the thrust bearing on the worm gear in the clarifier. We had to obtain a new bearing and oil seals, and fabricate a new shaft and bronze bushings for the gear housing. The work done by the machinist alone amounted to nine hours.

I am going to be on vacation during the month of May, and Jim Galloway, who is Production Manager for all divisions of Allied in Kalamazoo, will contact you if we have any serious shut-downs.

Yours truly,

E. J. Gilman
Vice President - Manufacturing

Purdy
EXHIBIT NO. 044
M. LANTIS 10/6/97

elr
cc: Ward Harrison
Ernest Klimczak
James Galloway

RECEIVED
APR 29 1964
WATER RESOURCES COMMISSION

9000241

KALAMAZOO INTER-OFFICE CORRESPONDENCE

ALLIED PAPER CORPORATION

February 7, 1958

To: H. E. Nelson

cc: Al Mulder
G. A. Littlefield
H. B. Johnston

From. W. E. Kendrick

SUBJECT: Operation of the King Division waste treatment tank.

In a report dated January 30, 1958, it was suggested that a second sludge pump be installed to prevent sludge buildup and subsequent lower down time of the tank. This situation might be remedied without an additional pump if during mill shutdown periods the sludge pump and sludge scraper were operated. Presently the pump is run, but not the scraper. Without the scraper running the sludge does not get into the sludge sump.

Operation of these pieces of equipment during shutdown time would add to the operating cost, of course. However, when the tank is not operating properly, electrical power, etc. are wasted in that nothing is actually being accomplished by their operation. Maintenance and man power enter the picture too. During the week beginning January 27th, the tank operated properly only two of the six days. This week the sludge has built up sufficiently again so that the tank will not run right for a similar number of days. There is little or no solids or BOD reduction during these days. Needless to say, if this condition were discovered by the Water Resources Commission, we would be in extremely hot water.

The additional recommendation of operating the bar grate cleaner during shutdown periods would probably reduce maintenance costs on this piece of equipment.

MICHIGAN WATER RESOURCES COMMISSION
Wastewater Survey
Bryant Division
Allied Mills, Kalamazoo
6-4,5,&6-68

Two consecutive twenty-four-hour wastewater surveys were conducted at the Bryant Division of the Allied Mills in Kalamazoo. The purpose of these surveys was to determine the quality and quantity of waste water being discharged to Portage Creek by the company.

Operation and Waste Treatment

The Bryant Division of the Allied Mills in Kalamazoo has five paper machines and a de-inking mill. The excess white water and a portion of the waste water from the de-inking mill is collected at a pump station near the de-inking mill and pumped to the 100-foot clarifier which is located further south (between Cork and Alcot Streets). The waste water from the clarifier is discharged to Portage Creek. Other waste waters are from the chlorine operation of the de-inking mill and are discharged to the mill pond on Portage Creek. The pumping station at the de-inking mill receiving the raw waste to be pumped to the clarifier occasionally by-passes. The influent rate to the wet well exceeds the pump rate. The Bryant Division employs approximately 600 people.

Survey Procedure

The waste water from the clarifier was measured and sampled at the weir on the clarifier. A weir box was constructed to intercept the waste water from the chlorine process at the de-inking mill. The quantity of waste water being by-passed was measured at the overflow baffle in a manhole by the pump station.

Automatic samplers and water level recorders were installed at the effluent weir of the clarifier and at the box intercepting the waste from the chlorine process at the de-inking mill. The automatic samplers took samples proportional to the instantaneous flow at fifteen-minute intervals and deposited them in clean glass containers to make up twenty-four-hour composite samples. The water level recorders provided a continuous account of the liquid level passing over the weirs on head-time charts from which the total flows could be computed.

The company has a water level recorder to measure the head of liquid passing over the baffle in the manhole at the point of by-pass. The water passing over the baffle by-passes the clarifier and goes directly to Portage Creek without treatment. The baffle is constructed diagonally across the corner of a square vault. The length of the baffle is 46" inches on the short side; therefore, it was considered to be equivalent to a 44" sharp crested weir. Since the baffle is constructed of 4" lumber and has worn rounded on the upstream side, this assumption should be conservative. The float line of a WRC water level recorder was attached to the float line of the company's recorder to provide an account of the head over the baffle.

C002653

SH 311546

Table 1
Survey Periods and Flow Data

Period	Starting	Ending	Hours Monitored	Gallons Monitored	Projected Flow for 24 hours
Bryant Division By-pass					
	Monday, 6-3-68, @ 1800	Tuesday, 6-4-68, @ 0800	14	114,000	196,000 gal
1	Tuesday, 6-4-68, @ 0800	Wednesday, 6-5-68, @ 0800	24	14,600	14,600 gal
2	Wednesday, 6-5-68, @ 0800	Thursday, 6-6-68, @ 0800	24	96,000	96,000 gal
	Thursday, 6-6-68, @ 0800	Thursday, 6-6-68, @ 1945	11.75	28,000	60,000 gal
De-inking Mill--chlorine process discharge	28-inch full channel weir				
1	Tuesday, 6-4-68, @ 2000	Wednesday, 6-5-68, @ 0830	12.5	282,300	542,100 gal
2	Wednesday, 6-5-68, @ 0900	Thursday, 6-6-68, @ 0830	23.5	504,600	515,300 gal
3	Thursday, 6-6-68, @ 0900	Friday, 6-7-68, @ 0900	24	458,600	458,600 gal
Bryant Division clarifier effluent	48" weir ½ rectangular ½ full channel				
1	Tuesday, 6-4-68, @ 0830	Wednesday, 6-5-68, @ 0815	23.75	2,815,000	2,845,000 gal
2	Wednesday, 6-5-68, @ 0830	Thursday, 6-6-68, @ 0800	23.5	2,944,000	2,991,000 gal

0002654

Table 2

Production at Bryant Mill

Paper Machines		De-inking Tons In	(80% In) Tons Out
First Survey Period	209.2 Tons	137	109.9
Second Survey Period	172.9 Tons	118	94.5

Table 3
Laboratory Analyses and Computed Pounds Per Day of Various Constituents
to
Portage Creek from the Bryant Division of Allied Paper Corporation, Kalamazoo

First Survey Period -- Tuesday, 6/4/68, @ 0800 - Wednesday, 6/5/68, @ 0800

Parameter	Clarifier effluent conc.*	Clarifier effluent lbs/day**	Chlorine process conc.*	Chlorine process lbs/day***	By-pass conc.****	By-pass Lbs/day**	Lbs/day to Portage Creek from Bryant Division
Five-day BOD	300	7,005	74	334	840	102.0	7,441
COD	500	11,676	330	1,490	2,000	243	13,410
Suspended Solids	90	2,101	228	1,060	2,180	265	3,426
Suspended Volatile Solids	45	1,050	96	434	1,120	136	1,620
Settleable Solids	10	233	148	668	2,100	255	1,156
Chloroform Extractables	18	420	18	81.4			500
Total PO_4-P	0.9	21	2.6	12.2			33.2
Soluble Ortho PO_4-P	0.0	0	1.4	6.3			6.3
Organic N-N	4.5	105	1.9	8.6			114
Ammonia N-N	0.0	0	0.0	0.0			0.0
Nitrate N-N	0.0	0	0.3	1.4			1.4
Turbidity	270		550				
pH	7.4		3.0		10.7		
Total Solids			1,230	5,550			

*Concentrations expressed as mg/l except pH and Turbidity
**Pounds per day computed from the following formula:
lbs/day = flow (mgd) x conc. (mg/l) x unit weight of water (8.34 lbs/gal)
***Lbs/day computed using the projected 24-hour flow
****Concentrations based on a grab sample obtained while the sewer was overflowing 6-5-68 @ 1715

0002650

Laboratory Analyses and Computed Pounds Per Day of Various Constituents
to
Portage Creek from the Bryant Division of Allied Paper Corporation, Kalamazoo

Second Survey Period -- Wednesday, 6/5/68, @ 0800 - Thursday, 6/6/68, @ 0800

Parameter	Clarifier effluent conc.*	Clarifier effluent lbs/day**	Chlorine process conc.*	Chlorine process lbs/day**	By-pass conc.***	By-pass Lbs/day**	Total lbs/day to Portage Creek
Five-day BOD	280	6,818	87	373	840	672	7,863
COD	540	13,150	400	1,718	2,000	1,600	16,468
Suspended Solids	105	2,557	300	1,288	2,180	1,745	5,590
Suspended Volatile Solids	60	1,461	120	515	1,120	895	2,871
Settleable Solids	37	901	240	1,030	2,100	1,680	3,611
Chloroform Extractables	25	608	20	85			693
Total PO_4-P	1.5	36.5	3.9	16.8			53.3
Soluble Ortho PO_4-P	0.0	0.0	2.0	8.5			8.5
Organic N-N	5.2	126.6	4.0	17.1			143.7
Ammonia N-N	0.0	0.0	0.0	0.0			0.0
Nitrate N-N	0.0	0.0	0.7	3.0			3.0
Total Solids			1,320	5,669			
Turbidity	300		750				
pH	7.6		2.6				

*All concentrations expressed as mg/l except pH and Turbidity
**Pounds per day are computed using the following general formula:
lbs/day = flow (mgd) x concentration (mg/l) x unit weight of water (8.34 lbs/gal)
***Concentration based on a grab sample collected when sewer was overflowing 6/5/68 @ 1715

A - Chlorine Process at Bryant Division

Third Survey Period -- Thursday, 6/6/68, @ 0900 - Friday, 6/7/68, @ 0900

Parameter	Conc.*	Lbs/day**
BOD	120	457
COD	390	1,489
Total Solids	1,480	5,638
Suspended Solids	305	1,165
Suspended Volatile Solids	105	401
Settleable Solids	245	935
Chloroform Extractables	24	92
Turbidity	550	
pH	2.8	

*All concentrations expressed as mg/l except pH and Turbidity
**Pounds per day are computed from the following formula:
lbs/day = flow (mgd) x concentration (mg/l) x unit weight of water (8.34 lbs/gal)

Discussion and Observations

The surveys at the clarifiers of the various mills were started at 8:00 a.m. to correspond with the production day of the plant. The measurement of the by-pass waste was started fourteen hours prior to beginning the surveys at the clarifiers. This fourteen-hour rate is more than double the flow rate during the remainder periods of survey.

Approximately 3.5 tons of BOD and one ton of suspended solids are being discharged to Portage Creek from the Bryant Division clarifier. Of the one ton of suspended solids discharged, approximately 50% were volatile. Also, approximately 500 pounds of chloroform extractables and 30 pounds of phosphorous are being discharged to Portage Creek each day from the clarifier.

The de-inking mill contributes one-seventh of the total flow from this plant but provides 30% of the total amount of suspended solids, when the by-pass is not flowing. The suspended solids from the chlorine process were between 60 and 80% settleable. The pH of the waste from the chlorine process was between 2.6 and 3.0. It was found in the WRC laboratories that, if the pH was raised to 7.5, a very heavy floc was formed which settled readily, resulting in a very clear supernatant. Also, approximately 85 pounds of chloroform extractables were being discharged to Portage Creek from the chlorine process. Before the survey started, an inspection was made of the portion of Portage Creek which flows through the Bryant complex. Four separate discharges were noted between Bryant and Reed Streets. A twenty-four-inch clay tile, located ten feet north of Bryant Street on the east side of Portage Creek, was discharging a white turbid liquid into the creek. Before the survey started, a leak in a process waste line was discovered and repaired, thus the flow ceased. Approximately 150 feet north of Bryant Street, a discharge of approximately 500 gpm was noted. We were informed this was turbine tail water. Approximately 250 feet north of Bryant Street, a discharge of approximately 20 gpm was noted. The survey staff was informed that this was waste water from the lime-soda water softener and that plans were to combine it with the process waste. Approximately 250 feet north of Bryant Street, a discharge was noted. Below this discharge there was a large build-up of deposited solids. This was found to be a relief valve on a pump that discharges to the creek. It was also corrected by connection to the process line before the survey started.

A heavy deposit of solids was noted in the mill pond in the vicinity of the chlorine process outlet. The survey staff was informed that a failure in the process during the spring had allowed a large amount of fiber to be discharged to the pond. This deposit extended into the pond approximately 150 feet from the outlet in all directions.

0002659

The esthetic appeal of the stream above the discharges is more desirable than below the discharges. The turbidity of the clarifier waste water was 270 to 300 and 550 to 750 from the chlorine process at the de-inking mill. Mats of sludge and gas bubbles were observed rising from the bottom of the Mill pond. The mats of sludge break up as they float over the dam at Alcot Street.

Survey by:
Galen Kilmer, Sanitary Engineer
Leroy Vahovick, Water Pollution Investigator
Laboratory analyses by:
Russel Krueger, Chemist
Contact with management:
Les Stoeffler
Report by:
Galen Kilmer
Leroy Vahovick
Water Quality Appraisal Unit
MICHIGAN WATER RESOURCES COMMISSION
7-25-68

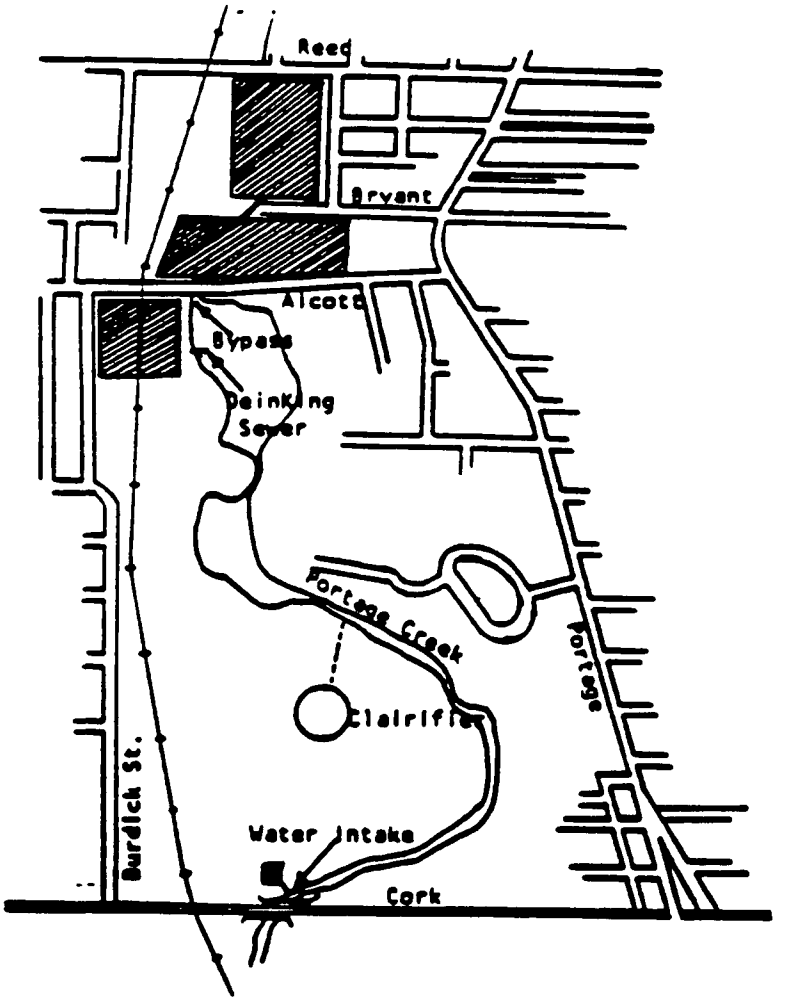
SH 811555

MICHIGAN WATER RESOURCES COMMISSION

Report of Survey

Bryant Division, Allied Paper Co.

June 4,5,6, 1968



Scale

0 1,000 F

002661

August 15, 1957

To: W. A. Kirkpatrick
From: J. R. Dam

cc: G. A. Littlefield
E. J. Gilman
H. B. Johnston
J. H. McClure
H. E. Nelson
G. A. Towne

Subject: Progress report on Paper Machine losses at the King Mill.
These losses are being studied by U. G. Stoeffler and L. R. Bortolotti.

Conclusions: The losses from the inadequate savealls alone on #1 and #2 Paper Machines show losses of $116.00 and $206.00 per day respectively. For a 300 day year #1 = $34,800 and #2 = $61,800.

On the basis of the recent cost of $55,000 installed for a Sveen Pederson unit on #6 machine at Bryant one of these units could be paid off in less than two (2) years' savings for #1 and in less than a year on #2.

Present indications are that the PIE unit which will be tried the week of August 26, will result in capital savings of about 50% compared to the Sveen Pederson.

Results: I. Schematic Flow diagrams of all four paper machines have been completed. These diagrams include pipe sizes and shows volumes. The engineering department now is redrawing them to a larger scale. We hope to have them ready by August 16.

II. A Weir, and automatic sampler were installed to measure the flow and sample the effluents from the savealls on #1 and #2 Paper Machines.

Observation indicated that losses might be relatively high at this point. This is substantiated by the data shown in Tables I & II.

III. No 3 and 4 machines are operating without savealls so that all wet trim and pit breaks are lost from the machine. We are not set up to measure these actual losses as yet. Some of this stock may be recovered in the deinking plant. (See under discussion)

IV. Machine white water tanks are constantly over-flowing directly to the sewer, particularly on #1, 2 and 3 paper machines. A weir has been installed to measure the direct loss to sewer from #1 & 2.

SA 027187

KALAMAZOO INTER-OFFICE CORRESPONDENCE

ALLIED PAPER CORPORATION

November 6, 1962

TO: W. D. HARRISON
J. D. DAILEY
R. M. LEVY
G. H. BALDAUF
E. J. GILMAN
W. WEAVER
W. BEUNGER
J. GALLOWAY
S. STETZ
R. BENNETT
P. HAGARD
T. KAYHART
H. HORROCKS
H. MCGEE

FROM: U. G. STOEFFLER

RE: ADDENDUM TO REPORT ON WASTE TREATMENT FIGURES FOR OCTOBER, 1962.

In order to avoid any misunderstandings on the flow, suspended solids, and B.O.D. figures for October, 1962, listed on the chart sent you a few days ago, this explanation is submitted to clarify the situation. On the bottom of the chart it was noted the effluent normal flow from the King Clarifier is 7 M.G.D. and from the Bryant Clarifier is 6 M.G.D. This is based on previous surveys taken daily in past years.

The King flow was below normal during October (and part of September also) because of by-passing to the river before the clarifier wet well through the butterfly swing gate. The pump on the wet well was not operating at adequate capacity thus the by-passing. This by passing thus reduced the influent B.O.D. and suspended solids proportionally. The reduced flow would increase the retention time in the clarifier and thus increase the percentage of solids removal and increase percentage of B.O.D. removal somewhat. The flow in the King Clarifier at present is about normal (6.5-7.0 M.G.D.) By comparison the flow through the water treatment Accelator is 6.5-7.0 M.G.D. and this is all well water at present.

The Bryant flow is below normal because only waste water from Mill A is going to the clarifier, and sometimes a portion of this water is by-passing the wet well to Portage Creek because the traveling bar grates are shut down. The drop leg water from the chlorination washer normally goes directly to the Bryant Mill Pond. White water from Mill C & D that should go to Mill A

is diverting to Portage Creek since there are no replacements for the worn out pumps in this installation. In Mill D white water is sewered directly into Portage Creek as it is passing under the floor. Since the flow to the clarifier comes from Mill A, the influent suspended solids and B.O.D. content is proportionally higher than if the total waste flow were going to the clarifier. The effluent solids and B.O.D. are proportionally lower because of increased retention time in the clarifier resulting in higher percentage of removal of solids and B.O.D.

Note: Please attach this addendum to the charts of Waste Treatment Results sent you a few days ago.

UGS:gw

TO: U. G. STOEFFLER

FROM: P. H. GUDMAN

CC: W. D. Harrison, J. D. Dailey, R. M. Levy, G. H. Baldauf, E. J. Gilman, V. Weaver, W. Beunger, J. Galloway, S. Stets, R. Bennett, P. Hagard, T. Kayhart, H. Horrocks, H. McGee

MONTH OF OCTOBER 1962

KING DIVISION WASTE TREATMENT EFFLUENT				BRYANT DIVISION WASTE TREATMENT EFFLUENT		
Flow (MGD)	BOD (#/Day)	Suspended Solids (#/Day)	DATE	Flow (MGD)	BOD (#/Day)	Suspended Solids (#/Day)
2.80	7,950	-	10/3	4.66	13,400	-
2.80	10,400	10,280	10/4	4.66	14,700	17,100
2.69	9,880	5,380	10/5	4.44	12,550	14,050
-	-	-	10/10	4.55	12,750	9,860
3.70	-	24,800	10/11	3.39	12,100	3,390
3.55	10,100	15,400	10/12	-	-	-
5.20	-	46,800	10/16	3.55	-	-
4.70	12,750	39,500	10/17	-	-	-
4.40	19,100	17,400	10/18	4.66	17,600	3,080
4.22	8,330	15,500	10/19	4.44	13,600	38,400
4.48	8,360	8,200	10/24	3.28	12,500	28,700
4.48	15,000	19,450	10/25	3.28	14,00	30,100
4.35	16,200	32,600	10/26	4.46	12,200	27,400
Avg. 3.95	11,810	21,390	Avg.	4.12	13,540	19,120

Note: Tests run on grab samples. Full Flow at King 7MGD, Bryant 6MGD.

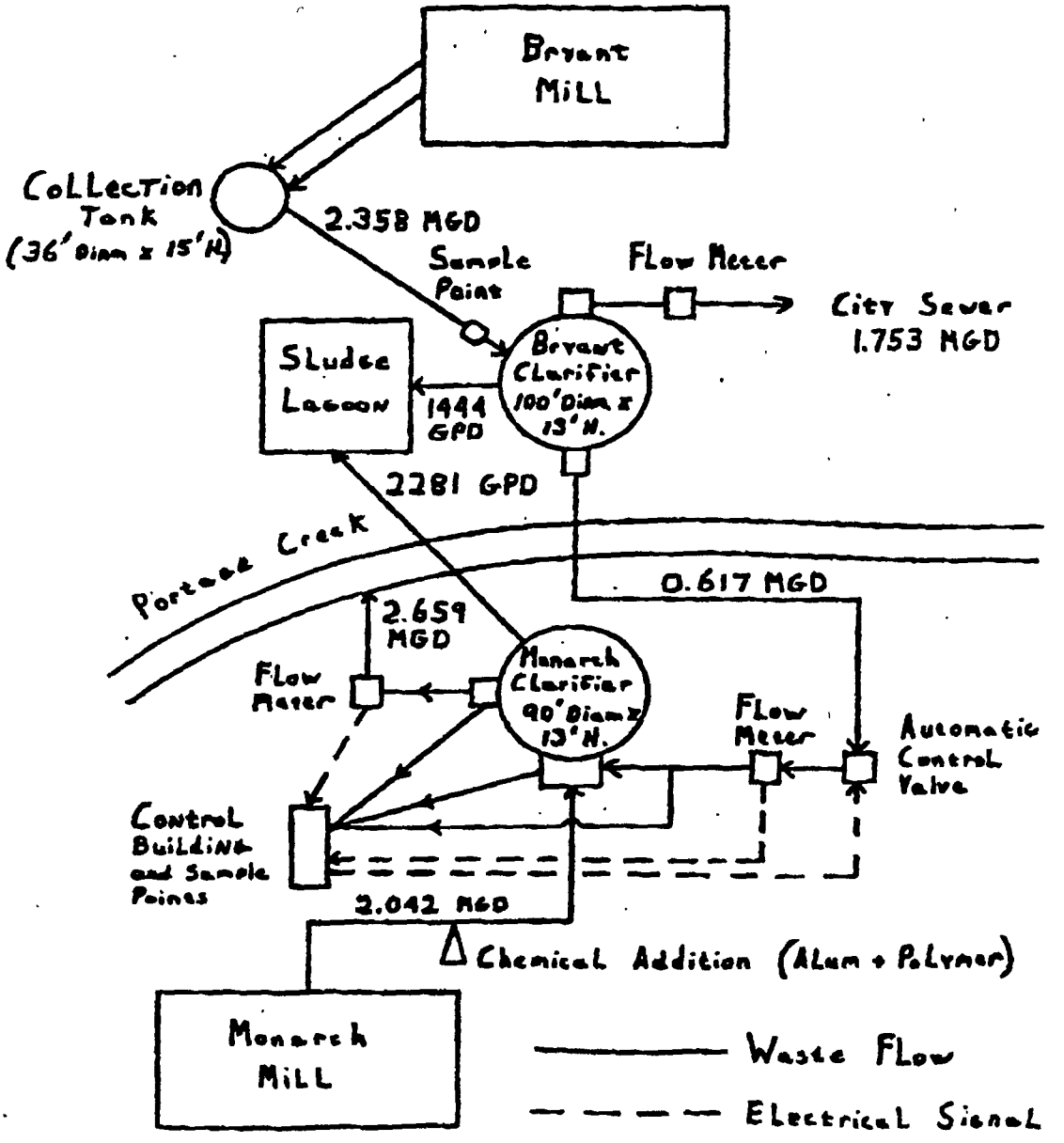
ALLIED WASTE TREATMENT DATA - MONTHY AVERAGES

		KING DIVISION					BRYANT DIVISION					MONARCH DIVISION				
		INFLUENT		EFFLUENT			INFLUENT		EFFLUENT			INFLUENT		EFFLUENT		
		SUSPENDED SOLIDS #/DAY	BOD #/DAY	FLOW MILL G/D	SUSPENDED SOLIDS #/DAY	BOD #/DAY	SUSPENDED SOLIDS #/DAY	BOD #/DAY	FLOW MILL G/D	SUSPENDED SOLIDS #/DAY	BOD #/DAY	SUSPENDED SOLIDS #/DAY	BOD #/DAY	FLOW MILL G/D	SUSPENDED SOLIDS #/DAY	BOD #/DAY
1960	1	97050	29660	7.10	77940	35900	106000	31400	6.33	43900	20200	32000	7700	1.87	360	1200
	2	113850	34250	6.92	97200	38850	104250	34800	6.33	30350	24650	[illegible]	[illegible]	1.49	170	320
	3	125700	40300	6.96	64300	37050	89800	29600	5.00	12400	14150	[illegible]	[illegible]	0.69	480	[illegible]
	4	110800	35400	6.52	57350	27200	49700	16550	3.81	8500	[illegible]	19400	2470	[illegible]	190	410
	5	107600	37500	6.30	50950	26400	56800	25600	4.77	4600	14000	8000	[illegible]	0.74	60	250
	6	115200	33580	6.33	47790	26600	77770	27000	5.73	8260	13000	7700	[illegible]	[illegible]	370	250
	7	111000	32500	6.30	49000	21900	81200	32000	6.14	15200	16400	7600	1900	0.73	174	310
	8	115800	31700	6.69	51500	25400	84700	20700	5.42	9800	7800	[illegible]	[illegible]	0.83	[illegible]	170
	9	103200	29000	7.32	56500	23400	104200	31600	4.55	14500	17900	7100	2000	[illegible]	[illegible]	[illegible]
	10	164470	42850	7.25	80390	30260	77520	19510	4.73	16810	13600	16550	1840	0.56	[illegible]	156
	11	183500	47400	7.16	124400	34000	148300	31300	4.67	22600	19500	[illegible]	[illegible]	0.62	[illegible]	210
	12	238100	51100	7.36	159400	[illegible]	109000	27800	4.51	12200	16300	[illegible]	[illegible]	[illegible]	[illegible]	250
1961	7	156500	30200	7.00	64400	21540	63500	13300	2.05	4650	4780					
1962	10			3.95	21,390	11,810			4.12	19120	13,540					

PHG - 11-2-62

NCAST 000195

ALLIED'S WASTE TREATMENT FLOW SCHEMATIC



★ ALL Flow Figures Are For The Period of July 1, 1997 to Oct. 1, 1977.

ALLIED PAPER CORPORATION

RESEARCH AND DEVELOPMENT DEPARTMENT

Progress Report No. 5

Project No. 300

Subject: Preliminary investigation of Bryant fresh water system with special emphasis on the filter plant.

Distribution:

R. M. Levy
U. G. Stoeffler
H. R. Hall
R & D File

J. D. Dailey
E. J. Gilman
G. H. Baldauf
T. Kayhart
P. Hagard
C. Fredaro

Date: September 8, 1961

By: Fred Harrison

Approved: HBS.

Hagard
EXHIBIT NO. 5
M. LANTIS 7/31/92

Object:

The quality and amount of fresh water available to the Bryant Mills was studied to determine the capacities and efficiencies of the various water sources, and to recommend improvements.

Procedure:

Samples were taken from the 2 Reed Street wells (#8 and #9) on consecutive days and checked for iron and turbidity. A series of filter plant samples were taken at 2 hour intervals for two 24 hour periods. The surface water inlet, clear well, and well inlet water were tested for iron, color, and turbidity. Flow capacities, where stated, are those listed on the respective pump specifications plate. Actual flow rates were supplied by Bryant Engineering from data they obtained in 1958. A flow diagram of the fresh water system is included.

Conclusions:

1. The average filtering rate at the filter plant is approximately 1.6 gal./ft. 2/min. This is based on a total filter flow of 4440 G.P.M. or 4.6 M.G.D. All of the filter beds are overturned and badly mounded. All of the filters have been repaired several times since first installed in 1946. In every case, the sand and gravel bed was dug up and piled outside the filter and then returned in a pile into the filter after repairs had been made. Backwashing was then used in an attempt to regrade the fill. All 8 filters are being operated in this condition today.

2. The two Reed Street wells are relatively low in iron and seem entirely satisfactory. The well at the filter plant, however, is relatively very high in iron, and is used only when necessary since it pumps directly to the clear well.

3. The filter plant inlet pumping capacity should be enough to handle a 50% increase in filter capacity. The total rated pump capacity of the four pumps is 10,000 gpm.

4. It is recommended that the replacement of some of the existing beds, one at a time, be undertaken. Specifications and recommendations for gravel and sand grades to be used in replacement are forthcoming from Hungerford and Terry.

5. It is, also, recommended that the filter inlet chlorinator be put back into operation. This would reduce past and present slime buildup in the filter beds and precipitate some iron.

6. Some form of routine testing by the filter plant operators would be of advantage, and should be instituted. The tests should include iron, turbidity, and Cl residual. The supervision should then be turned over to Process Control which would be able to maintain a closer control of the operation than the present supervision.

Discussion:

The samples from the two Reed Street wells all contained 0 turbidity, but iron was present in varying amounts as is shown in Table II.

The filter plant contains 8 sand gravity filters having an area of 350 ft² each. The clear well is adjacent to the filters but approximately 6 ft. lower so that a 6 ft. gravity head is maintained. The capacity of the clear well is approximately 206,000 gal. If a total mill usage rate of 6.4 million gallons/day is assumed, a filter flow rate of 1.57 gal/ft²/min. is obtained.

All samples taken at the filter plant were collected by the shift operators. The creek inlet samples were taken from one of the filter inlet pipes. The well inlet samples were taken inside the filter plant where the well water drops into the north end of the clear well. This well is used only when the filter capacity is not great enough to retain a good clear well level.

These samples were always taken immediately before the well was turned off. This resulted in a sample with lower iron and color than would have been present soon after the well had been turned on. Clear well samples were normally taken at the north end near the pump inlets, but one set of samples were taken at the south end (the end away from the well), for comparison. The results of the color, turbidity, and iron determinations are presented in Table I. The average value is an average of 12 sample determinations.

The filter plant conditions have been investigated by and discussed with Bob Troutman of Hungerford and Terry. Three filter sand samples have been sent to Hungerford and Terry, and they will make recommendations based on the results of their tests on these samples.

The filter plant flow rates have been estimated by Bryant Engineering and are as follows:

a. Back-wash (from clearwell) is estimated at 10,000 gal./day. Each filter is normally backwashed three times/day for 20 minutes.

b. Well water flow is estimated at 400 gpm when the pump is running. Flow estimated at 330,000 gal./day on 8/7-8/8, and 160,000 gal./day on 8/9-8/10.

c. The total flow of water to the mills is estimated at 6,600,000 gal./day.

Results:

1. A flow diagram of the Bryant mills fresh water system is included in the report.

2. The color, turbidity, and iron content of samples taken at the filter plant are presented in Table I.

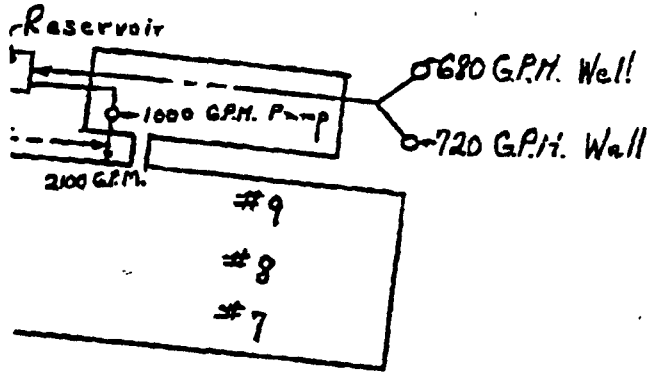
3. The iron content of the Reed St. wells over a 3 day period is presented in Table II.

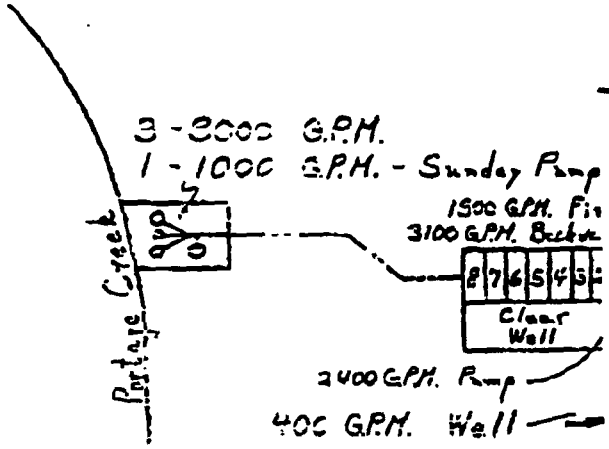
TABLE II

IRON CONTENT OF REED STREET WELLS

DATE	WELL 1	WELL 2
[illegible]	.37 ppm	[illegible] ppm
8/26/81	0.20 ppm	0.05 ppm
8/27/81	0.26 ppm	0.13 ppm

...ncy Air Wells 150 GPM Each





Pump capacities are those listed on the respective pump specifications plate.
Actual flow rates were approx. by Bryant Engineering in 1958.

Drawing not to Scale August 1961

KA04800925

NON-DOMESTIC USER SURVEY FORM

I. GENERAL INFORMATION

Allied Paper Inc. (Corporate Name)	Bryant Mill (Plant Name)
2030 Portage St. (Address - Street and Number)	Same (Address - Street and Number)
Kalamazoo 49001 (City, Zip Code)	Same (City, Zip Code)
	345-7131 (Plant Phone Number)
U. G. Stoeffler (Name and Title of Person Completing Report)	345-7131 (Phone Number)

The information contained in this questionnaire is familiar to me and to the best of my knowledge and belief, such information is true, complete and accurate.

1/13/82 (Date) — [signature] (Signature of Responsible Official) — Vice President Operations (Title)

Thomas E. Flanagan
Print or Type Name of Responsible Official

1. Nature of business: Manufacture of paper

(2621) ( ) ( ) Other ( ) ( ) ( )

2. Write the appropriate Standard Industrial Code (SIC) in the box above.

3. What types of waste(s) do you discharge to the sanitary sewer?

A. (X) Sanitary B. ( ) Wash Water C. ( ) Rinse Waters
D. ( ) Cooling Water E. (X) Process Waters F. ( ) Scrubber Waters
G. ( ) Other

4. Do you use, store or discharge any acids, bases or materials listed in Table I?

A. (X) Yes B. ( ) No

5. Does the operation of your processes or wastewater treatment facility result in a residual residue or sludge type waste?

A. (X) Yes B. ( ) No

MDNR 4-14-81

6. Schedule of operations:

A. 560 Number of employees.

B. 24 hrs/day 7 days/wk 3 shifts/day 12 mos/yr

7. A. If you answered only A to question three(3), sign and return this portion of survey form.

B. If you answer to question three (3) is other than A, complete Section II through VIII of this form, sign it, and return to:

Jean Eldred, Industrial Surveillance Technician
Kalamazoo Wastewater Treatment Plant
1415 N. Harrison
Kalamazoo, Michigan 49007

II. PROCESS AND PRODUCTS

1. Provide a complete list of products used or stored on the site which appear on Table I (the consolidated Critical Materials List and Priority Pollutants List). If you use trade name or proprietory chemicals which do not list contents on the package, indicate the trade name(s) and manufacturer's name(s) at this time. You must also write the manufacturer to request an OSHA Form 20 for each such substance and provide POTW with the necessary information when available, i.e., use numbers NOT chemical name, Table I:

(167) (169) ( ) ( ) ( ) ( ) ( ) ( ) ( )

( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )

2. Describe each process (add sheets if needed):

3. Is any of the enclosed information considered to be confidential?
A. ( )Yes B. (X)No C. If yes, explain what and why (all requests for confidentiality will be processed according to 40 CFR Part 2):

4. Water Supply: A. ( )Municipal B. ( )Well C. (X)Other, explain Portage Creek
D. Consumption Used: A. 150 ft^3/min. (ft^3, gals per time unit)
B. (ft^3, gals per time unit)
Consumption Total:

5. Does your facility have a Spill Prevention Control and Counter Measures Program (SPOC) CFR 112 or a Pollution Incident Prevention Plan (PIPP) MDNR Rule five (5).

A. (X)Yes B. ( )No

SA00036448

III. PROCESS WASTEWATER

1. Identify outfalls (circle):

   (A.) Surface waters. Name of receiving waters: Portage Creek
   B. Septic tank-file field.
   C. Surface of ground.
   (D.) Municipal sanitary sewer.
   E. Storm sewer.
   F. Other, describe _____
   (include line drawing(s) of process flows and all floor drain discharging to each outfall)

2. Volumes of discharge: A. Average Daily Flow: 1.825 millongallon per day
   B. Maximum Daily Flow: 3.76 million gallon per day
   C. Flow is: (X) Measured ( ) Estimated

3. Type of wastewater:

   A. % Process 100 B. % Cooling _____ C. % Sanitary _____ D. % Other _____

4. Are drains (roof, parking lot, etc.) discharging into the sanitary sewer?
   A. ( ) Yes B. (X) No If yes, estimate area drained _____ sq. ft.

IV. DISPOSAL PRACTICES (add extra pages if necessary)

1. How do you dispose of spent chemicals (explain)? In the waste treatment process

2. How do you dispose of spoilage (explain)? Recycled - spoilage meaning "manufactured paper that is off quality." A. Volume Disposed of: Unknown

3. How do you dispose of precipitates and/or sludges (explain)? Clarifier sludge to drying lagoons A. Volume Disposed of: 120,000 gals/da

4. Name of waste hauler: _____ License No. _____

5. Do you have pretreatment for your wastes? A. (X) Yes B. ( ) No

   If box A is checked: Type: Primary clarification & chemical coagulation
   Size: 100 ft. diameter clarifier
   Frequency of Operation: continuous

   If box B is checked, where and how are the wastes disposed of?

   To sanitary sewer ( ) To storm sewer ( )
   Industrial Waste Hauler ( ) Other ( )
   If other, explain _____

SA00036449

6. Do you have any air emission control equipment which would discharge to the sewer system? A. ( ) Yes B. (X) No

7. Are any of the materials listed in Table I discharged with the wastes?

A. ( ) Yes B. (X) No

C. List by number from Table I: ( ) ( ) ( ) ( ) ( ) ( ) ( )
( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )

V. SPILL PREVENTION (add extra pages if necessary)

1. List bulk materials stored on site (liquid, solids), (including cleaning agents).

Material: Oil Volume: 500,000 gals. Location in plant: Outside-500 ft. fr Power Plant

Material: _____ Volume: _____ Location in plant: _____

2. Is separate secondary containment provided for bulk materials?

A. (X) Yes* B. ( ) No C. ( ) Some *As per PIPP #23313 on Oct. 1977

3. Is separate secondary containment provided for those processes which contain chemicals listed in Table I?

A. ( ) Yes B. ( ) No

4. Has separate storage been provided for those chemicals which cause hazardous reactions, i.e., acid with cyanide, acids with bases?

A. ( ) Yes B. ( ) No

VI. SAMPLING AND ANALYSIS

1. Are sampling points available for each:

A. Process Line (X) Yes ( ) No
B. Outfall (X) Yes ( ) No

2. Do you sample your process discharge(s)? (X) Yes ( ) No

3. Type of sample A. ( ) Grab B. (X) Composited
If Box B is checked, is sample composited to A. ( ) Flow B. (X) Time

4. Is a sampling vault and/or manhole provided?
A. ( ) Yes B. (X) No

5. Sampling schedule (i.e., 24-hour, during working hours, etc.): _____
24 hour composite

6. What laboratory analysis (wastewater/solids) can be run on site? _____
All required parameters

SA00036450

VII. MISCELLANEOUS

1. Describe any safety precautions to be observed by those visiting at your site:

All visitors must register at office and be accompanied by a mill employee while on company property.

2. Contact Person: Name U. G. Stoeffler
Title Manager Process Development
Phone Number 345-7131

NON-DOMESTIC USER SURVEY FORM

PRETREATMENT: The treatment of a wastewater contribution, at the point of origin, prior to release to a public sewer or collection system.

PROCESS WATERS: Waters that come in contact with an end product or with materials incorporated in an end product.

SAMPLE, COMPOSITE: A composite sample should contain a minimum of eight (8) discrete samples taken at equal time intervals over the compositing period or proportional to the flow rate over the compositing period (EPA).

SAMPLE, GRAB: A sample which is taken from a waste stream on a one-time basis with no regard to the flow in the waste stream and without consideration of time (EPA).

SECONDARY CONTAINMENT: If a tank or vessel storing a chemical ruptures, the secondary containment structure will prevent the loss of the chemical to the environment. Secondary containment should be provided with a volume of 150% of the storage vessel. All potentially polluting materials such as oil, acid, cyanide, etc., should be stored within a secondary containment structure, usually a concrete wall or earthen dike.

SPENT CHEMICALS: Chemicals that have exhausted their usefulness.

STANDARD INDUSTRIAL CODE (SIC): This is a way of identifying industrial types with a four digit code. A manual with the codes is entitled the Standard Industrial Classification Manual and is available in the reference section of most libraries.

SA00036451

TABLE I

The following is a list of the U.S. EPA Priority Pollutants consolidated with the current Critical Materials Register compiled by the Michigan Department of Natural Resources.

ORGANICS

1. acids
2. acenaphthene
3. acetone cyanohydrin
4. 2-acetylaminofluorene
5. acrolein
6. acrylic acid
7. acrylonitrile
8. allyl chloride
9. 2-aminoanthraquinone
10. aminoazobenzene
11. o-aminoazotoluene
12. 4-aminobiphenyl
13. 3-amino-9-ethylcarbazole
14. 1-amino-2-methylanthraquin
15. aminotriazole (amitrole)
16. aniline
17. aniline hydrochloride
18. o-anisidine
19. o-anisidine hydrochloride
20. benz(a)anthracene
21. benzene
22. benzidine
23. benzidine salts
24. benzo(a)pyrene
25. brucine
26. carbon tetrachloride
27. chlorinated benzenes
27. a. chlorobenzene
27. b. 1,2,4-trichlorobenzene
27. c. 1,2-dichlorobenzene
27. d. 1,3-dichlorobenzene
27. e. 1,4-dichlorobenzene
28. chlorinated dibenzofurans
29. chlorinated dioxins
30. chlorinated ethanes
30. a. 1,1,1-trichloroethane
30. b. 1,1-dichloroethane
30. c. chloroethane
30. d. 1,1,2,2-tetrachloroethane
31. chlorinated naphthalene
31. a. 2-chloronaphthalene
32. chlorinated phenols
32. a. 2-chlorophenol
32. b. parachlorometa-cresol
32. c. 2,4-dichlorophenol
33. 1-chloro-2,3-epoxypropane
34. chloroalkyl ethers
35. bis(2-chloroethyl ether
36. chloroform
37. bis(2-chloromethyl) ether
38. 3-(chloromethyl) pyridine hydrochloride
39. 1-(4-chlorophenyl)-3, 3-dimethyl triazene
40. 4-chloro-m-phenylenediamine
41. 4-chloro-o-phenylenediamine
42. chloroprene
43. 5-chloro-o-toluidine
44. p-cresidine
45. 2,4-diaminoanisole sulfate
46. 4,4-diaminodiphenyl ether
47. 2,4-diaminotoluene
48. dibenz (a,h)anthracene
49. tris(dibromopropyl)phosphate
50. di-n-butyl phthalate
51. 3,3-dichlorobenzidine
52. 3,3-dichlorobenzidine salts
53. 1,2-dichloroethane
54. dichloroethylenes
54. a. 1,1-dichloroethylene
54. b. 1,2-trans-dichloroethylene
55. dichloropropane and dichloropropene
55. a. 1,3-dichloropropylene; (1,3-dichloropropene)
55. b. 1,2-dichloropropane
56. 1,2:3,4-diepoxybutane
57. diethyl sulfate
58. 4-dimethylaminoazobenzene
59. dimethylhydrazines
60. 2,4-dimethylphenol
61. 4,6-dinitro-o-cresol
62. 2,4-dinitrophenol
63. 2,4-dinitrotoluene
64. dinitrotoluene
64. a. 2,6-dinitrotoluene
65. di-n-octyl phthalate
66. 1,4-dioxane
67. 2,3-epoxy-1-propanal
68. ethylbenzene
69. ethylene dibromide
70. ethyleneimine
71. ethylene oxide
72. ethylene thiourea
73. bis(2-ethylhexyl)phthalate
74. ethylmethanesulfonate
75. fluoranthene
76. 2-(2-formylhydrazino)-4-(5-nitro-2-fury)-thiazole

ORGANICS CONTINUED ON PAGE 2

TABLE I

77. Haloethers
77. a. 4-chlorophenyl phenyl ether
77. b. 4-bromophenyl phenyl ether
77. c. bis(2-chloroisopropyl) ether
77. d. bis(2-chloroethoxy)methane
78. Halomethanes
78. a. methylene chloride: (dichloromethane)
78. b. methyl chloride; (chloromethane)
78. c. methyl bromide; (bromomethane)
78. d. bromoform; (tribromomethane)
78. e. dichlorobromomethane
78. f. trichlorofluoromethane
78. g. dichlorodifluroomethane
78. h. chlorodibromomethane
79. hexachlorobenzene (HCB)
80. hexachlorobutadiene
81. hexachlorocyclohexane
82. hexachlorocyclopentadiene
83. hexachloroethane
84. hydrazobenzene
85. hydroquinone
86. N-(2-hydroxyethyl)ethyleneimine
87. isophorone
88. lactonitrite
89. malachite green
90. methylenebis(2-chloroaniline)
91. 4,4-methylenebis(2-methylaniline)
92. 4,4-methylenebis(N,N-dimethylaniline)
93. 1,2(methylenedioxy)-4-propenyl benzene
94. methyl hydrazine
95. 1-methylnaphthalene
96. 2-methyl-1-nitroanthraquinone
97. mustard gas
98. 1,5-naphthalenediamine
99. 1-naphthylamine
100. 2-naphthylamine
101. 5-nitroacenaphthene
102. 5-nitro-o-anisidine
103. nitrobenzene
104. 4-nitrobiphenyl
105. nitrogen mustard
106. 2-nitrophenol
107. 4-nitrophenol
108. Nitrosamines
108. a. N-nitrosodiphenylamine
108. b. N-nitrosodi-n-propylamine
109. N-nitroso-n-butyl-N-(4-hydroxybutyl) amine
110. N-nitrosodiethylamine
111. N-nitrosodimethylamine
112. p-nitrosodiphenylamine
113. N-nitroso-N-ethylurea
114. N-nitroso-N-methylurea
115. N-nitroso-N-methylurethane
116. N-nitrosomethylvinylamine
117. N-nitrosomorpholine
118. N-nitroso-N-phenylhydroxyl-amine, ammonium salt
119. N-nitrososarcosine
120. pentachloronitrobenzene
121. pentachlorophenol
122. peroxyacetic acid
123. phenol
124. Phthalate esters
124. a. butyl benzyl phthalate
124. b. diethyl phthalate
124. c. dimethyl phthalate
125. piperonyl sulfoxide
126. polybrominated biphenyls (PBB)
127. polychlorinated biphenyls (PCB)
128. polynuclear aromatic hydrocarbons
128. a. 3,4-benzofluoranthene
128 b. benxo(k) fluoranthane; (11,12-benzofluoranthene)
128. c. chrysene
128. d. acenaphthylene
128. e. anthracene
128. f. benzo(ghi)perylene; (1,12-benzoperylene)
128. g. fluorene
128. h. phenathrene
128. i. indeno(1,2,3-cd)pyrene; (2,3-O-phenylenepyrene)
128. j. pyrene
128. k. naphthalene
129. 1,3-propane sultone
130. B-proplolactone
131. 5-propyl-1,3-benzodioxole
132. propyleneimine
133. semicarbazide
134. styrene
135. tetrachloroethylene(perchloroethylene
136. thioacetamide
137. 4,4-thiodianiline
138. thiourea
139. toluene
140. o-toluidine
141. o-toluidine hydrochloride
142. triaryl phosphate esters
143. 1,1,2-trichloroethane
144. trichloroethylene
145. trichlorophenols
146. 2,4,5-trimethylaniline
147. trimethylphosphate
148. vinylchloride
149. xylene

ORGANICS CONTINUED ON PAGE 3

TABLE I

A. INORGANICS

150. antimony
151. arsenic
152. beryllium
153. cadmium
154. chromium
155. cobalt
156. copper
157. cyanides
158. hypochlorite
159. lead
160. lithium
161. mercury
162. nickel
163. selenium
164. silver
165. thallium
166. zinc

B. INORGANICS

167. acids
168. chloramines
169. chlorine
170. hydrazine
171. hydrogen sulfide

C. INORGANICS

172. asbestos (fibrous)

PESTICIDES

173. aldicarb
174. aldrin
175. 4-aminopyridine
176. anilazine
177. antimycin A
178. azinphos-ethyl
179. azinphos-methyl
180. barban
181. bendiocarb
182. benomyl
183. bromoxynil
184. 2(p-tert-butylphenoxy)-isoprophyl-2-chloroethyl sulfite
185. captafol
186. captan
187. carbaryl
188. carbofuran
189. carbophenothion
190. chlordane
191. chlordecone
192. chlorfenvinphos
193. chlorobenzilate

PESTICIDES (Continued)

194. chlorpyrifos
195. clonitralid
196. coumaphos
197. crotoxyphos
198. cycloheximide
199. DDT
200. demeton
201. diallate
202. diazinon
203. dibromochloropropane (DBCP)
204. dichlone
205. dichlorvos
206. dichrotophos
207. dieldrin
208. dimethoate
209. dinocap
210. dinoseb
211. dioxathion
212. disulfoton
213. endosulfan
214. endrin
215. EPN
216. ethion
217. fensulfothion
218. fenthion
219. fluchloralin
220. heptachlor
221. heptachlor epoxide
222. Isomers of hexachlorocyclohexane
222. a. a-BHC-Alpha
222. b. b-BHC-Beta
222. c. g-BHC-Delta
223. leptophos
224. malathion
225. metabolites of DDT
225. a. 4,4'-DDE;(p,p'-DDE)
225. b. 4,4'-DDD;(p,p'-TDE)
226. metabolites of endosulfan
226. a. endosulfan sulfate
227. metabolities of endrin
227. a. endrin aldehyde
228. metabolites of heptachlor
228. a. heptachlor epoxide
229. methomyl
230. methoxychlor
231. methyl mercaptan
232. methyl parathion
233. mevinphos
234. mexacarbate
235. mirex
236. monocrotophos
237. naled
238. nicotine
239. nitrofen
240. oxydemeton-methyl

PESTICIDES (Continued)

241. paraquat
242. parathion
243. phorate
244. phosazetim
245. phosmet
246. phosphamidon
247. rotenone
248. silvex, propylene glycolbutyl ether ester
249. sodium fluoroacetate
250. strychnine
251. sulfallate
252. sulfotepp
253. TDE
254. TEPP
255. terbufos
256. tetrachlorvinphos
257. thiram
258. toxaphene
259. trichlorfon
260. trichlorophenoxyacetic acid (2,4,5-T)
261. trifluralin
262. ziram

ATTACHMENT A

STANDARD INDUSTRIAL CLASSIFICATION CODES

Note: This is an edited list.

Code	Title
AGRICULTURE	
0100	AGRICULTURAL PRODUCTION-CROPS
0200	AGRICULTURAL PRODUCTION-LIVESTOCK
0211	Beef Cattle Feedlots
0241	Dairy Farms
0700	AGRICULTURAL SERVICES
MINING	
1000	METAL MINING
1011	Iron Ores
1021	Copper Ores
1081	Metal Mining Services
1300	OIL AND GAS EXTRACTION
1380	Oil and Gas Field Services
1400	NONMETALIC MINERALS
1422	Crushed and Broken Limestone
1440	Sand and Gravel
1450	Clay and Related Minerals
1470	Chemical and Fertilizer Minerals
1492	Gypsum
CONSTRUCTION	
1500	GENERAL BUILDING CONTRACTORS
1600	HEAVY CONSTRUCTION CONTRACTORS
MANUFACTURING	
2000	FOOD AND KINDRED PRODUCTS
2010	Meat Products
2011	Meat Packing Plants & Slaughter Houses
2020	Dairy Products
2030	Preserved Fruits & Vegetables
2033	Canned Fruits & Vegetables
2035	Pickles, Sauces & Salad Dressings
2037	Frozen Fruits & Vegetables
2040	Grain Mill Products
2043	Cereal Breakfast Foods
2047	Dog, Cat & Other Pet Food
2050	Bakery Products
2060	Sugar and Confectionary Products
2063	Beet Sugar
2070	Fats & Oils
2076	Vegetable Oil Mills
2077	Animal & Marine Fats & Oils
2080	Beverages
2082	Malt Beverages
2084	Wines, brandy, and brandy spirits
2085	Distilled liquor, except brandy
2086	Bottled and canned soft drinks
2087	Flavoring extracts and sirups, nec.
2090	Misc. Foods and Kindred Products
2091	Canned and cured seafoods
2092	Fresh or frozen packaged fish
2200	TEXTILE MILL PRODUCTS
2300	APPAREL AND OTHER TEXTILE PRODUCTS
2400	LUMBER & WOOD PRODUCTS
2420	Sawmills and Planing Mills
2430	Millwork, Plywood & Structure Members
2440	Wood Containers
2448	Wood pallets and skids
2450	Wood Buildings and Mobile Homes
2491	Wood preserving
2492	Particleboard
2500	FURNITURE AND FIXTURES
2600	PAPER AND ALLIED PRODUCTS
2611	Pulp mills
2621	Paper mills except building paper
2631	Paperboard mills
2640	Misc. Converted Paper Products
2650	Paperboard Containers and Boxes
2661	Building paper and board mills
2700	PRINTING AND PUBLISHING
2710	Newspapers
2750	Commercial Printing
2790	Printing Trade Services
2800	CHEMICALS AND ALLIED PRODUCTS
2810	Industrial Inorganic Chemicals
2820	Plastics Materials & Synthetics
2830	Drugs
2840	Soap, Cleaners, and Toilet Goods
2850	Paints and Allied Products
2860	Industrial Organic Chemicals
2870	Agricultural Chemicals
2890	Miscellaneous Chemical Products
2891	Adhesives and sealants

ATTACHMENT A

Code	Title
	MANUFACTURING (Continued)
2892	Explosives
2893	Printing Inks
2899	Salt (by evaporation)
2900	PETROLEUM AND COAL PRODUCTS
2911	Petroleum refining
2950	Paving and roofing materials
3000	RUBBER AND MISC. PLASTIC PRODUCTS
3011	Tires and inner tubes
3069	Fabricated rubber products
3079	Miscellaneous plastic products
3100	LEATHER AND LEATHER PRODUCTS
3111	Leather tanning and finishing
3200	STONE,CLAY,AND GLASS PRODUCTS
3220	Glass and Glassware,Pressed or Blown
3241	Cement
3250	Structural Clay Products
3260	Pottery and Related Products
3270	Concrete,Gypsum and Plaster Products
3271	Concrete block and brick
3273	Ready-mixed concrete
3274	Lime
3275	Gypsum products
3290	Misc. Nonmetallic Mineral Products
3291	Abrasive products
3292	Asbestos products
3295	Minerals,ground or treated
3297	Nonclay refractories
3300	PRIMARY METAL INDUSTRIES
3310	Blast Furnaces & Basic Steel Products
3312	Blast Furnaces & Steel Mills
3313	Electrometallurgical products
3315	Steel wire and related products
3316	Cold finishing of steel shapes
3317	Steel pipe and tubes
3320	Iron and Steel Foundries
3321	Gray iron foundries
3322	Malleable iron foundries
3330	Primary Nonferrous Metals
3331	Primary copper
3332	Primary lead
3333	Primary zinc
3334	Primary aluminum
3340	Secondary Nonferrous Metals
3360	Die Casting
3361	Aluminum foundries
3362	Brass,bronze & copper foundries
3390	Misc. Primary Metal Products

Code	Title
	MANUFACTURING (Continued)
3398	Metal heat treating
3400	FABRICATED METAL PRODUCTS
3410	Metal cans & shipping containers
3420	Cutlery,hand tools, & hardware
3430	Plumbing & heating, except electric
3440	Fabricated structural metal products
3442	Metal doors, sash & trim
3443	Fabricated plate work (boiler shops)
3444	Sheet metal work
3450	Screw machine products,bolts, etc.
3460	Metal forgings and stampings
3462	Iron and steel forgings
3463	Nonferrous forgings
3465	Automotive stampings
3470	Metal services
3471	Plating and polishing
3479	Metal coating and allied services
3480	Ordnance and Accessories
3490	Misc. Fabricated Metal Products
3500	MACHINERY, EXCEPT ELECTRICAL
3510	Engines and turbines
3520	Farm and Garden Machinery
3530	Construction & Related Machinery
3540	Meatworking machinery
3550	Special Industry Machinery
3560	General Industrial Machinery
3570	Office & Computing Machines
3580	Refrigeration & Service Machinery
3590	Misc. Machinery, except electrical
3600	ELECTRIC AND ELECTRONIC EQUIPMENT
3610	Electric Distributing Equipment
3620	Electrical Industrial Apparatus
3630	Household appliances
3640	Electric lighting and wiring equipment
3650	Radio & TV Receiving Equipment
3660	Communication Equipment
3670	Electronic Components & Accessories
3690	Misc. Electrical Equipment & Supplies
3700	TRANSPORTATION EQUIPMENT
3710	Motor Vechicles & Equipment
3711	Motor Vechicles & Car Bodies
3714	Motor Vechicles & Accessories
3715	Truck trailers
3720	Aircraft and parts
3730	Ship & Board building and repairing
3740	Railroad Equipment
3750	Motorcycles,Bicycles & Parts
3760	Guided Missles,Space Vechicles Parts

MANUFACTURING (Continued)

3790 Miscellaneous Transportation Equipment
3792 Travel trailers & campers
3795 Tanks and tank components

3800 INSTRUMENTS & RELATED PRODUCTS
3810 Engineering & Scientific Instruments
3820 Measuring & Controlling Devices
3830 Optical Instruments and Lenses
3840 Medical Instruments and Supplies
3860 Photographic Equipment & Supplies

3900 MISCELLANEOUS MANUFACTURING INDUSTRIES
3910 Jewelry, Silverware & Plated Ware
3930 Musical Instruments
3940 Toys & Sporting Goods
3950 Pens, Pencils, Office & Art Supplies
3990 Miscellaneous Manufactures

TRANSPORTATION

4010 RAILROADS

4200 TRUCKING AND WAREHOUSING
4210 Trucking Local & Long Distance
4214 Hauling Liquid Wastes
4221 Farm Product Warehousing & Storage
4222 Refrigerated Warehousing
4230 Trucking Terminal Facilities

4400 WATER TRANSPORTATION
4430 Great Lakes Transportation
4440 Transportation on Rivers and Canals
4452 Ferries
4454 Towing and tugboat services
4460 Water Transportation Services
4463 Marine Cargo Handling

SERVICES

4900 ELECTRIC,GAS & SANITARY SERVICES
4911 Electric Services
4925 Gas production and/or distribution
4953 Refuse systems

5810 EATING & DRINKING PLACES

6512 OFFICE BUILDINGS

7000 HOTELS & OTHER LODGING PLACES
7011 Hotels,motels, & tourist courts

SERVICES (Continued)

7030 Camps and Trailering Parks
7032 Sporting and recreational camps
7210 Laundry, Cleaning & Garment Services
7215 Coin-operated laundries

7391 Laboratories-testing and research

7399 Water softener service

7500 AUTO REPAIR SERVICES & GARAGES
7530 Automotive Repair Shops
7542 Car Washes

7900 AMUSEMENT & RECREATION SERVICES
7933 Bowling alleys
7940 Commercial sports
7941 Sports clubs and promoters
7948 Racing including track operation
7992 Public golf courses
7996 Amusement parks
7997 Membership sports & recreation clubs

8000 HEALTH SERVICES
8050 Nursing and personal care facilities
8060 Hospitals
8070 Medical and Dental Laboratories
8080 Outpatient Care Facilities

ALLIED PAPER INC.
PROCESS WATER FLOW REPORT

To: M. Worsen
From: E. Arnold
Date:

cc: E. Arnold, D. Eaton, T. Flannigan, G. Gerard, P. Hagard, D. Kirk, J. Roth, S. Gadient, R. Sturgeon, J. Spurlin, M. Smith, M. Sullivan, D. Brown

Date:	6/5 Sun	6/6 Mon	6/7 Tues	6/8 Wed	6/9 Thurs	6/10 Fri	6/11 Sat	Avg
Fresh Water Supply								
F.P. Influent	2.886	2.277	2.352	2.601	2.377			
F.P. Well	.367	.277	.310	.358	.527			
Total	3.253	2.507	2.662	2.959	2.714			
Waste Water Discharge								
City	1.298	.622	.724	1.400	.911			
Creek	.491	.220	.554	.208	.504			
Recycle	1.686	1.492	1.306	1.446	1.447			
Total	3.477	2.434	2.684					
Clearwell Turbidity	70	55	53	90				
% kecycle	~~57~~ 51	~~55~~ 61	55	56	60			

All Flows are expressed in million gallons.
The Filter Plant Well is estimated.

Remarks:

	pH	6.8	6.5	6.1	6.0	5.9
	TURB	50	23	60	55	57
	H_2S	0.5	0.0	0.1	0.0	0.1
MILL C		1.161	956	1.157	1.220	
MILL D	MR	.990	.871	.782	.817	.907
	PR	.161	.143 .044	.132 .116	.241	.455
		2.312	1.775 2.271			

KA04500067

ARNOLD
EXHIBIT NO. 3
4-8-92
S. GERGER MJ

SA 836423

ALLIED PAPER INC.
PROCESS WATER FLOW REPORT

To: A. Watson
From: J. Ambrose
Date:

cc: E. Arnold, D. Eaton, T. Flanagan, C. Gerard, P. Hagard, D. Kirk, J. Roth, S. Oakleaf, R. Steadman, J. Spurlin, M. Smith, M. Wittrock, D. Brooks

512
557

Date:	5/15 Sun	5/16 Mon	5/17 Tues	5/18 Wed	5/19 Thurs	5/20 Fri	5/21 Sat	Avg.
Fresh Water Supply	2.068	2.689	2.433					
F.P. Influent	0.250	0.322	0.316					
F.P. Well								
Total	2.318	3.011	2.749					
Waste Water Discharge	1.133	1.538	1.337					
City	0.157	0.197	0.198					
Creek	1.126	1.379	1.371					
Recycle								
Total	2.416	3.114	2.906					
Clearuell Turbidity	85	65	98					
% Recycle	49	46	50					

All Flows are expressed in million gallons.
The Filter Plant Well is estimated.

Remarks:

pH	6.1	6.1	6.1	6.1				
Turb	40	62	60	70				
H_2S	0.1	0.5	2.0	0.5				
Mill C	1.340	1.258	1.222	1.261	1.249	1.244	1.177	125 / 274
Mill D Mill	.890	.711	.675	.893	.806	.831	.800	
5/2	.453	.490	.347	.351	.208	.171	.113	
	2.683	2.559	2.464	2.485	2.263	2.246	2.110	

KA04500068

SA 036424

KA04500068

ALLIED PAPER INC.
PROCESS WATER FLOW REPORT

To: A. Watson
From:
Date: J. Jones
J. Ambrose

cc: E. Arnold, D. Eaton, T. Flanagan, G. Gerard, P. Hagard, D. Kirk, J. Roth, S. Oakleaf, R. Steadmon, J. Spurlin, M. Smith, M. Wirtrock, D. Brooks

Date:	5/29 Sun	5/30 Mon	5/31 Tues	6/1 Wed	6/2 Thurs	6/3 Fri	6/4 Sat	Avg
Fresh Water Supply	2.422	2.373	2.305	2.222	2.241	2.243	2.261	2.2[illegible]
F.P. Influent	.320	0.312	.300	.312	.317	.330	.313	
F.P. Well								
Total	2.742	2.685	2.605	2.5[illegible]	2.5[illegible]7	2.573	2.4[illegible]	
Waste Water Discharge								
City	.763	.591	.583	.522	.914	.95[illegible]	.[illegible]3	
Creek	.203	.200	.191	.201	.197	.204	.1[illegible]	
Recycle	1.504	1.526	1.477	1.55[illegible]	1.507	1.507	1.437	
Total	2.470	2.317	2.231	2.273	2.[illegible]	2.[illegible]	2.[illegible]	
Clearwell Turbidity	50	60	50	80	50	[illegible]	7[illegible]	
% Recycle	55	57	57	61	59	5[illegible]	5[illegible]	

All Flows are expressed in million gallons.
The Filter Plant Well is estimated.

Remarks:

pH	6.2	6.2	6.1	6.2	6.1	6.0	6.0	
Turb	0	16	5	40	25	38	40	
H_2S	0.2	0.2	0.5	.7	1.7	1.0	1.5	
MILL C	1.139	1.125	1.022	.952	.815	.912	.822	
MILL D ME	.858	.794	.823	.843	.872	.867	.851	
E/2	.127	.182	.160	.146	.177	.234	.219	
	2.124	2.101	2.005	1.941	1.864	2.013	1.892	1.99

KA04500069

SA 036425

KA04500069

ALLIED PAPER INC.
PROCESS WATER FLOW REPORT

To: A WATSON
From: J. Ambrose
Date:

cc: E. Arnold, D. Eaton, T. Flanagan, G. Gerard, P. Hagard, D. Kirk, J. Roth, S. Oakleaf, R. Sreadmon, J. Spurlin, M. Smith, M. Wirtrock, D. Brooks

Date:	5/22 Sun	5/23 Mon	5/24 Tues	5/25 Wed	5/26 Thurs	5/27 Fri	5/28 Sat	Ave
Fresh Water Supply	2.478	2.268	3.115	2.270	2.296	2.416	2.577	
F.P. Influent	0.414	0.321	0.206	.327	.324	.336	.319	
F.P. Well								
Total	2.892	2.589	3.321	2.597	2.620	2.752	2.896	
Waste Water Discharge	0.878	1.416	1.201	1.109	1.146	1.135	.325	
City	0.219	0.203	0.326	.202	.203	.211	.202	
Creek								
Recycle	1.936	1.242	1.816	1.384	1.384	1.535	1.476	
Total	3.033	2.861	3.343	2.694	2.733	2.881	2.503	
Clearwell Turbidity	70			55	65			
% Recycle	67	49	55	53	53	56	59	

All Flows are expressed in million gallons.
The Filter Plant Well is estimated.

Remarks:

pH		6.0	6.2	6.2	6.4	6.1	6.1	6.2	
Turb		21	39	79	18	27	8	16	
H_2S		0.1	0	0.7	0.3	1.0	0.1	0.3	
Mill C		1.294	1.193	1.205	1.088	1.041	1.049	1.007	1.12
Mill D	MR	.917	1.180	.893	.881	.892	.879	.883	.91
	BR	.167	.306	.392	.307	.262	.165	.159	
		2.378	2.679	2.488	2.276	2.195			

KA04500070

SH 836426

KA04500070

ALLIED PAPER INC.
PROCESS WATER FLOW REPORT

To: A. Watson
From: J. Ambrose
Date:

cc: E. Arnold, D. Eaton, T. Flanagan, C. Gerard, F. Hagard, D. Kirk, J. Roth, S. Oakleaf, R. Steadmon, J. Spurlin, M. Smith, M. Wittrock, D. Brooks

Date:	5/15 Sun	5/16 Mon	5/17 Tues	5/18 Wed	5/19 Thurs	5/20 Fri	5/21 Sat	Avg
Fresh Water Supply	2.068	2.689	2.433	2641	2.414	2.589	2537	
F.P. Influent	0.250	0.322	0.316	0.330	0.318	0.246	0.300	
F.P. Well								
Total	2.318	3.011	2.749	2.971	2.732	2.835	2.837	
Waste Water Discharge	1.133	1.538	1.337	1.229	1.175	1.193	1.176	
City	0.157	0.197	0.198	0.207	0.202	0.190	0.186	
Creek	1.126	1.279	1.371	1.346	1.536	1.525	1.387	
Recycle								
Total	2.416	3.114	2.906	2.982	2.913	2.848	2.749	
Clearwell Turbidity	85	65	98	78	65	90	80	
% Recycle	49	46	50	52	56	54	58	

All Flows are expressed in million gallons.
The Filter Plant Well is estimated.

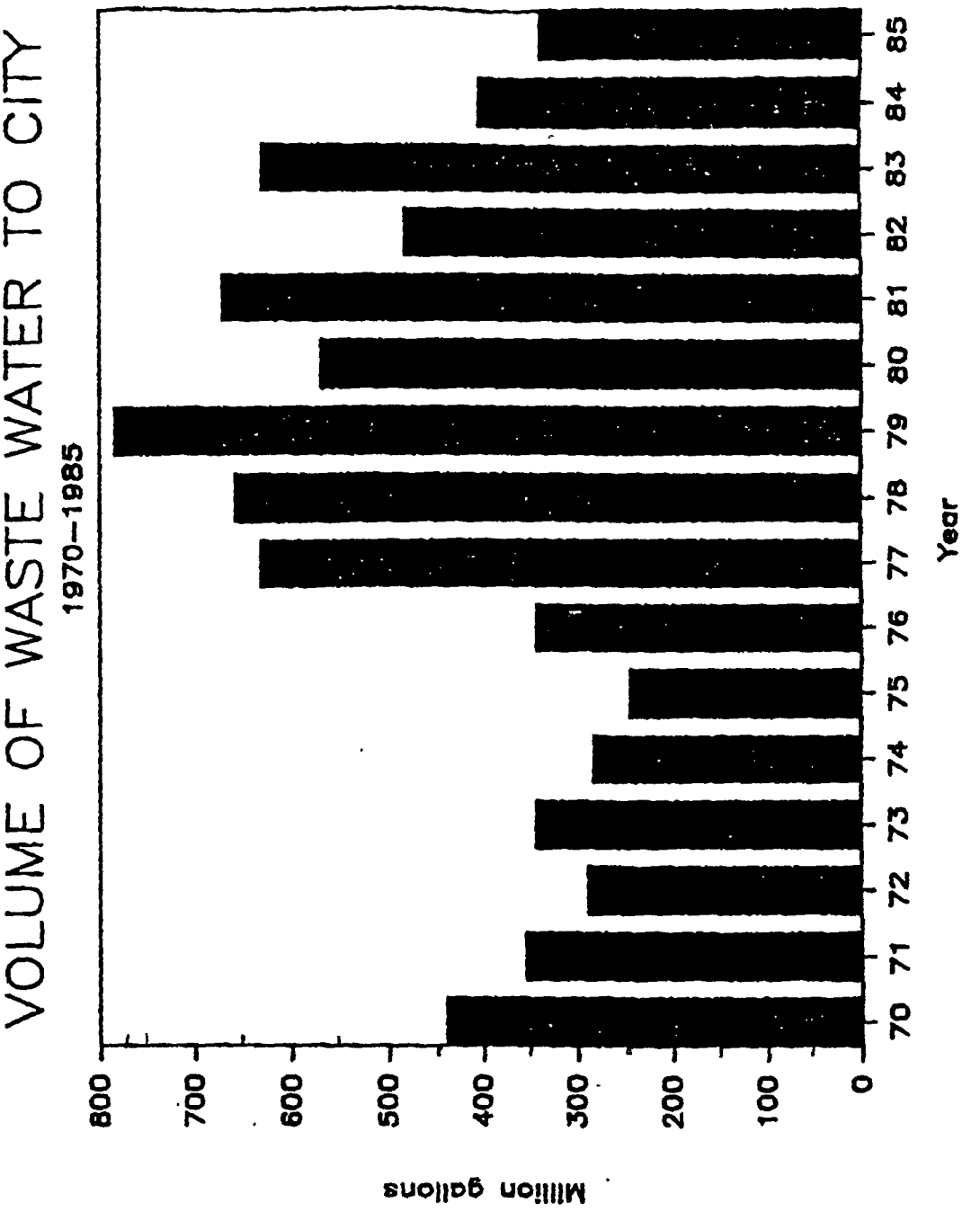
Remarks:

pH	6.1	6.1	6.1	6.1	6.1	6.0	6.0
Turb	40	62	60	78	42	55	30
H_2S	0.1	0.5	2.0	0.5	0.5	0.5	0

KA04500071

SA 936427

KA04500071


VOLUME OF WASTE WATER TO CITY
1970–1985
Million gallons
800
700
600
500
400
300
200
100
0
Year
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85

SA00038418

SCM ALLIED PAPER INCORPORATED
A Wholly Owned Subsidiary of SCM Corporation

INTER-OFFICE MEMO

TO: D. C. Kirk

FROM: D. G. Stoeffler

OFFICE.

OFFICE:

SUBJECT Projected City Sewer Costs

DATE: January 11, 1984

As requested I have estimated the City sewer costs for the last 6 months of FY 84 and for all of FY 85 as follows:

FY 1984	
Jan.	$24,500
Feb.	23,000
Mar.	24,500
Apr.	23,800
May	26,000
June	26,750
Total	$148,550

FY 1985	
July, Aug., Sept.	$63,500
Oct., Nov., Dec., Jan., Feb., Mar., Apr.	104,300
May, June	36,000
Total	$203,800

All of these costs were based on the present new flow rate of $984/10^6$ gals. and also on the present recycle rate of 1,000,000 gals/day. The FY 85 costs did anticipate a higher NPDES BOD limitation for the 7 "winter" months of October thru April. These costs did not estimate a possible credit the City would give us on leaner effluent strengths since this program has not been established.

The daily estimated City flows used to determine the above costs are as follows:

FY 1984

July thru April - 800,000 gals.

May (split month on BOD) 850,000 gals.

June - 900,000 gals.

- continued -

000030

SH 030098

SA00030098

TO: Dave Kirk
FROM: U. G. Stoeffler
January 11, 1984
Page Two

FY 1985

June thru September (92 days)	700,000 gals.
October thru April (212 days)	500,000 gals.
May and June (61 days)	600,000 gals.
Total gallons	207,000,000

The total gallons sent to the City in the calender year 1983 was 628,664,000 gallons. So the FY 85 would mean a major reduction.

/kmj

cc: P. Jepkema
T. Flanagan
A. Watson
R. Eaton

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

INTER-OFFICE MEMO

TO: T. Flanagan

FROM: D. Eaton

OFFICE:

OFFICE:

SUBJECT: Water Conservation Meeting
November 20, 1985

DATE: November 27, 1985

Copies to:

D. Ausland
E. Arnold
J. Buroker
G. Brooks
D. Falvey
G. Gerard
P. Hagard
D. Kirk
R. Laurin
B. McCracken
L. Musall
S. Oakleaf
M. Rozek
M. Smith
R. Steadmon
J. Stiegemeyer
L. Stoeffler
A. Vickery
D. Wagner
A. Watson
M. Wittrock
J. Waldron
B. Huggett

Personnel Present: L. Stoeffler, S. Oakleaf, R. Steadmon, E. Arnold, J. Buroker, R. Laurin, G. Brooks, P. Hagard, D. Wagner, A. Watson, L. Musall

The City of Kalamazoo has announced that we can anticipate an eighteen percent increase in our sewer rates in January 1986. For us this means:

0.32/m^3 would go to 0.38/m^3
$1211/mg would go to $1438/mg

Our current goal is to maintain a daily average of 900,000 gals. or less to the City. In order to keep us in the same monthly dollar range, our new goal becomes 760,000 gals. average/day or less

During the last few years we have, with everyone's help and cooperation, undertaken projects which have enabled us to reduce the volume of fresh water per ton. This has resulted in a volume reduction to the City. This in turn has produced a cost savings for the mill operation.

We have listed 10 projects which will help to reduce our water usage even more. Some of these can be accomplished quickly. Others require more detail and some capital funds. Individuals have been designated to follow up on the progress of specific tasks. We will meet once a month to review the status of our efforts.

/deo

000101

SA 030088

WATER PROJECTS

1.	Seal Water on Vacuum Pumps #6 #7 #8 ok	D. Wagner
2.	Disposition of "Starchy" water in Mill C Vendedor	P. Hagard
3.	White Water loss on #7 P.M. Nothing	P. Hagard
4.	Heat Exchangers temperature control on cooling water	L. Musall Pending
5.	Rework Water collection Tanks Mill D ordered	J. Buroker
6.	"Cement Pond" - larger volume None	J. Buroker
7.	Split #7 and #8 paper machine white water system None	P. Hagard
8.	Filtering and removal of solids from effluent	D. Eaton/B. Huggett
9.	City Water Conversion to Well Water None	P. Hagard
10.	Recylce line Ø increase	P. Hagard

NEW WATER SYSTEM SAVES ALMOST ONE MILLION DOLLARS

Allied Paper Inc.
1986 FAME Award of Excellence Winner

Background
Allied Paper Inc.'s Bryant Paper Mill in Kalamazoo, MI, started before 1900. The paper products produced at the mill are fine papers used in the printing of bibles, encyclopedias, dictionaries and other quality books and publications.

The mill is an old facility that employs 375 people. Dick Eaton, Manager of Utilities, Maintenance and Engineering reports that the plant is running some machinery that was installed as along ago as 1905, as well as modern, state-of-the-art equipment.

The Utilities, Maintenance and Engineering Department was organized in early 1983. The Utilities Department is responsible for the powerhouse, steam turbines, air compressors and the fire system. Three engineers handle maintenance, engineering and capital projects, while the five salaried maintenance superintendent and supervisors, along with 84 hourly personnel, handle the maintenance program. In conjunction with R&D, the Utilities Department is responsible for the fresh water coming into the mill and the effluent going to the primary clarifier. From the clarifier, the supernatent goes to the creek, recycle system and the city sewer.

The Problem
The basic problem was to improve the filtration of the fresh water and reduce the volume of effluent discharged to the city sewer each day. In conjunction with this, an overall water conservation program was implemented.

"The paper industry is a wet process industry. It is not uncommon to use 10,000 gallons of water per ton of paper produced. We produce 250 tons, 340 days per year. A system was needed to cut that use significantly," according to Eaton.

It was decided in October 1969 to discharge into the city sewer system. Since that time the sewer rate per cubic meter has steadily increased. In 1969, the rate was 3.5 cents/cubic meter. By 1976, it had increased to 8.4 cents/cubic meter. In 1980, the rate was 13 cents and today it is 35.4 cents. In 1981,

SA00038424

the Bryant Paper Mill started a conservation program and expanded it to keep ahead of the price increases. If the paper mill had not changed its water program, the costs would have been deleterious to its operation.

The Solution

Reducing sewer flows, as the price increased, to keep the annual sewer costs constant was addressed early in 1981. The company conducted trials to see if it could use some of the clarified effluent in the incoming fresh water system. The amount was limited due to the age and configuration of the sand filters. They installed new automatic filters in June 1983. By December 1983, recycle flows were doubled by increasing the pump size. In February 1986, they increased the line size and the flow went up another 50 percent.

Plans are now in place to install a variable speed pump on the creek water flow to allow for another increase in the recycle volume on a moderated basis. They have a filler project in the planning stages to improve the clarifier operation, hence the recycled water quality and to reduce overall volumes. "With our recycle sytem," said Eaton, "we use about half the industry average in terms of gallons of water per ton of paper produced. We have worked very diligently to stay at a 813,000 gallons per day goal discharged to the city. Every time the city increases its rates, we try to decrease the amount of water we send daily, so that bill does not increase."

The Results

The new filters achieved a manpower reduction of three, which is the equivalent of $130,000/year. The variable speed pump will save electricity and dollars, but more importantly will improve reliability of the system.

If the Bryant Paper Mill had not changed volumes and flows, their present sewer costs would be 2.277 MGD @ 0.35lb/M3 which is $3,035.94/day or $1,113,593/year. Realized savings per year:

a) Sewer cost - $1,113,593 - $264,093 = $894,500

b) Labor cost 130,000

TOTAL $979,500

E. J. Gilman

U. C. Steeffler

R&D

Bryant Clarifier Effluent to City

October 20, 1969

As of this morning, Monday, October 20, the total effluent sent to the City is 25,250,000 gallons for an average of 1,402,770 per working day over a period of three weeks. The daily averages (except 1) all were below 1,500,000. The Saturday-Sunday flows have been 1,555,000, 1,628,000, and 1,650,000 respectively.

Both Ray and I will keep running totals and averages, so that we can give you specific information anytime that you would like.

U. C. Steeffler

UCS/ks

cc: R. Willis

Gilman EXHIBIT NO. 643 9-12 97 T. SPARKMAN

G. Iman EXHIBIT NO. 59 1-19 93 P. MORETTI

SCM. AI sues

POTW

ER-OFFICE CORRESPONDEN

ICORPORATED

TO: E. J. Gilman

OFFICE:

BY: U. G. Stoeffler
R. J. Willis

OFFICE:

SUBJECT: Effluent flow from Bryant Clarifier to City sewer

DATE: April 2, 1970

A review of charges for the effluent flow to City sewer to date is as follows:

Costs

October 1969	$ 5,042.98
November 1969	4,837.31
December 1969	4,403.38
January 1970	4,231.14
February 1970	4,839.01
Total	$23,554.32

DEPOSITION EXHIBIT

Our records indicate that to date, March 31, 1970, we have sent 2[illegible],800,800 gallons to the City sewer for a daily average of 1,430,100 gallons/day. This daily average only included production days at Bryant Mill A,163 to date. This average has steadily risen since January. A summary of daily average flow figures at the end of each month is shown below.

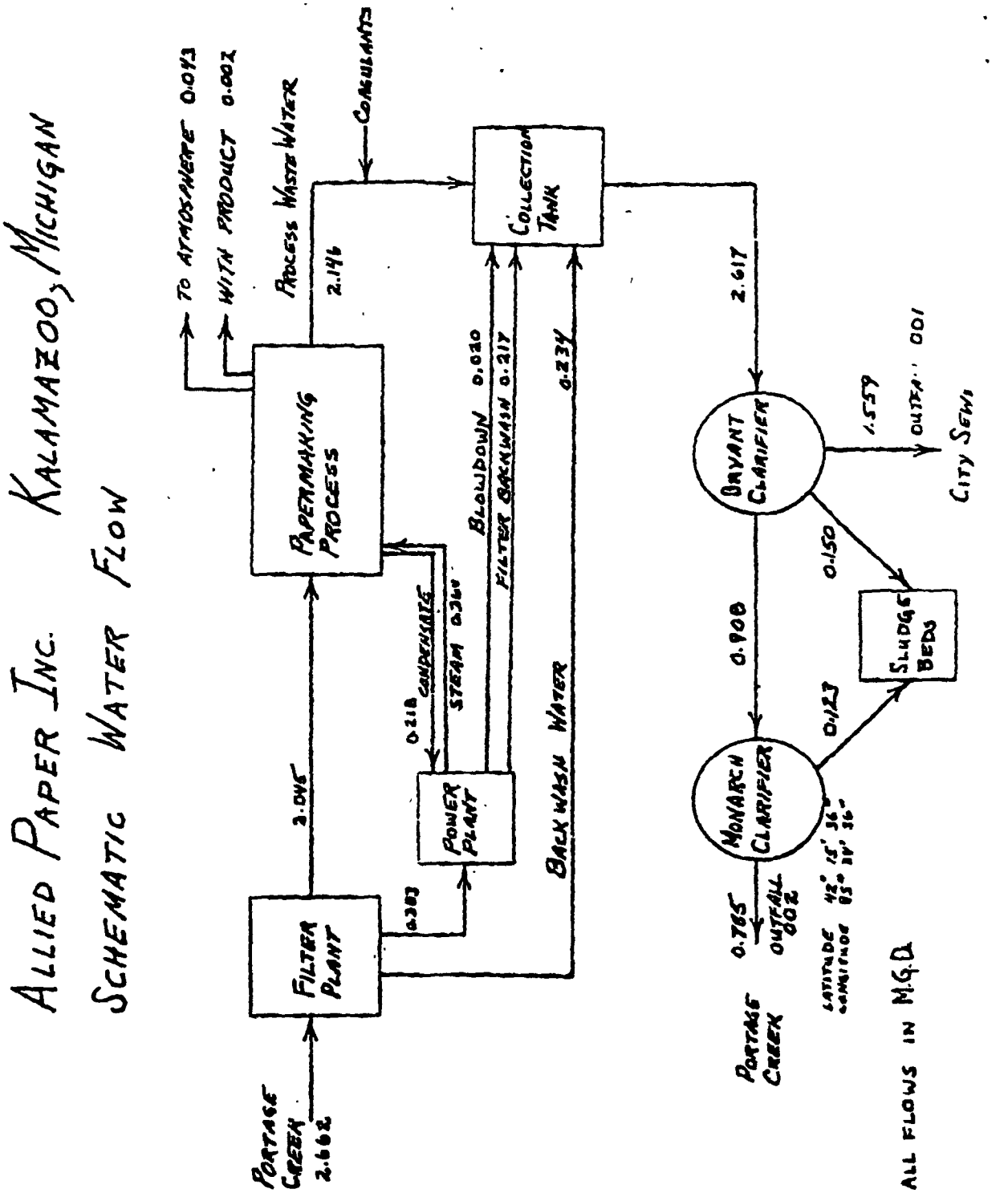
October 31	1,392,400 Gals./Day
November 31	1,418,000 Gals./Day
December 31	1,389,620 Gals./Day
January 31	1,386,900 Gals./Day
February 28	1,413,100 Gals./Day
March 31	1,430,100 Gals./Day

The problem of overflowing the eight inch line going to the City interceptor through the manholes was solved when Bryant maintenance crews took 2[illegible] pails of [illegible] and rocks out of the line on March 29, and then locked the manhole covers.

cc: R. M. Levy
R. Krueger
E. Sweet
[illegible]
File 1508

KA05500897

ALLIED PAPER INC. KALAMAZOO, MICHIGAN
SCHEMATIC WATER FLOW



BRYANT CLARIFIER

Month	1970 Flow	1970 S.S	1970 B.O.D	1971 Flow	1971 S.S.	1971 B.O.D
Jan	1.326	433.3	7266.6	1.037	675.0	5850.0
Feb	1.473	600.0	7625.0	0 832	775.0	5400.0
March	1.413	637.5	9700.0	0.990	480.0	4800.0
April	1.507	810.0	10,060.0	1.301	650.0	4725.0
May	1.679	557.5	11,150.0	0.862	1212.0	4525.0
June	1.746	637.5	9675.0	1.358	1160.0	5580.0
July	1.716	887.5	12,100.0	1.193	1075.0	5950.0
Aug	1.815	987.5	11,600 0	1.674	2000.0	5400.0
Sept.	1.391	880.0	8240.0	1.619	1430.0	7392.0
Oct	1.561	837.5	12,100 0	1.428	925.0	5600.0
Nov	1.643	890.0	11,900.0	1.491	1238.0	7062.0
Dec	1.496	820.0	8,800.0	0.865	410.0	1040 0
Total	18.765	8978.3	120,216.6	15,650	12,030.0	63,324.0
Average	1.564	748.0	10,018.0	1.304	1002.5	5277.0

Month	1972 Flow	1972 S.S	1972 B.O.D	1973 Flow	1973 S.S.	1973 B.O.D
Jan	0.356	225.0	532.5	0.800	400.0	320 0
Feb	0.440	33 8	287 0	0.934	212.0	428.0
March	0.594	48.0	256 0	0.933	215.0	230.0
April	0.673	30.5	277.0			
May	0.593	250.0	480 0			
June	0.682	187.0	406 0			
July	0.887	266.0	566 0			
Aug	1.362	320.0	660 0			
Sept.	1.362	412.0	837.0			
Oct.	2.145	435.0	1235.0			
Nov	1.145	240.0	477.0			
Dec.	1.088	137.0	537.0			
Total	11.327	2584.0	6550.5			
Average	0.944	215.0	546.0	0.889	277.0	326.0

Bryant Clarifier effluent has been going to City sewer since 9/29/69

E.J. Gilman

U.C. Stauffer [redacted]

Industrial Waste Charge Review

January 3, 1973

I would like to update the memo of a year ago showing the industrial waste charges that we have paid the City for accepting the effluent flow from the Bryant Clarifier. The average daily flow for this year is 971,000 gallons per day and the total cost for 1972 is $54,198.37. I think we have reached a point where we have stabilized the flow to the Bryant Clarifier at about one million gallons per day which has helped the effluent of both the Monarch and the Bryant Clarifiers.

Listed below are the monthly industrial waste charges for 1969, 1970, 1971, and 1972.

	1969	1970	1971	1972
January		$4231.14	$3496.01	$1538.45
February		4839.01	3707.79	2198.49
March		5395.14	4805.59	3616.81
April		5421.79	5063.61	2540.44
May		4972.19	4674.15	2465.18
June		6212.86	6041.54	4290.74
July		6946.73	*6999.72	3973.44
August		8157.71	6360.19	7452.56
September		7692.14	7605.31	7121.02
October	$5042.98	6931.46	6360.23	8553.33
November	4837.81	5848.92	6636.83	5328.61
December	4403.38	5557.74	2704.80	5119.30
YEARLY TOTAL	$14284.17	$72186.87	$66374.77	$54198.37
GRAND TOTAL	$207,044.18			

*Correction added from June

[redacted]

cc: R.M. Levy
K. Sweet
R.J. Willis
File
301

C. Harvey

WATER RESOURCES COMMISSION

Memorandum

Kalamazoo R

TO: R. J. Courchaine

FROM: Karl Zollner, Jr.

DATE: May 22, 1968

During the river sampling survey of May 21, 1968 the following industrial waste bypasses and other problems were noted:

1. Kalamazoo Paper Company #1 and #3 - As on all of our previous visits a small amount (approximately 10 gpm) of waste was seeping from the clarifier directly to the river. This is a maintenance problem. We did not sample this bypass this month.

2. Kalamazoo Paper Company #2 - We may have been looking at the wrong location to determine if this installation was bypassing directly to the river. It did not appear as if there were a bypass from the spot we have been looking at but a discolored area in the river was the same color as the influent to the clarifier. We collected a sample in the influent sump pit.

3. We collected another sample from Schippers Creek (the ditch that would carry any bypass from the Brown Company). Again the Creek did not appear to have paper mill wastes in it but did appear to contain fecal material. A sample was collected for analysis.

4. Auto-Ion Chemicals and Engineering Company - It appeared as if there had been a fairly recent spill of liquid material in the unloading area. The owner told us that this was due to the carelessness of truckers when they uncoupled their hoses. He had spread caustic on the ground in an attempt to neurtralize the acids that had been spilled. When asked about the sludges and oils in the open holding tank he said that eventual disposal would be to a landfill in Allegan County.

5. Allied Paper Company - Monarch or Bryant Division - We looked over the sludge holding ponds and found one area where sludge had spilled right down to the banks of Portage Creek. A photograph of this area was taken.

6. City of Kalamazoo Wastewater Treatment Plant - The plant was still experiencing difficulty with foam in their final effluent.

KZ:kn

cc: C. Harvey

MDNR00002488

MICHIGAN WATER RESOURCES COMMISSION

REPORT OF SAMPLING

Allied Paper Corporation
Sludge Pond Supernatant to Portage Creek
Kalamazoo, Michigan

While conducting stream sampling studies on Portage Creek during August 1970, a fish mortality was noted by staff members. Later, in trying to assess the waste irput from Allied Paper's Cork Street clarifier to the creek, a conclusion could not be made concerning this source as being the cause of the mortality. With the Panelyte Corp. removing its operations from a plant located on Portage Creek, no other known discharges exist other than the sludge pond supernatant.

I am not able to comment on the number of acres which Allied Paper has designated for sludge de-watering. However, the area given to this use is large and accommodates the white water clarifier (2 mgd) and the de-inking waste clarifier (2 mgd). The decanting volumes vary drastically from approximately fifty gallons per minute to a mere trickle, depending upon the status of pumping from the clarifier and the influence of rainwater runoff. My earlier thinking was that these volumes and a supposed low concentration of B.O.D. in the decantate would not be overly significant. After obtaining samples from these flows on November 13, 1970, my opinion has been drastically changed and now feel that the sludge lagoon overflows should be regarded as significant loads as samples had analyses as follows:

Source	B.O.D.5 mg/l	Susp. Solids mg/l	S.V.S. mg/l	pH	Est. Flow
North pond - overflow	>530	280	68	7.4	<1 gpm
Middle pond - overflow	>800	130	110	7.2	±5 gpm

With the observed variation in overflow volume, any stream evaluations in the near future should include the measurement and sampling of these sources. A desirable and long-term solution would be to require the company to collect these overflow volumes and convey them to treatment.

James L. Pope,
Water Quality Supervisor

JLP/mc
cc: Karl Zollner

MDNR 003771

MDNR00003771

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

PAPER MILLS DIVISION KALAMAZOO, MICHIGAN 49003 (616) 345 7131

November 24, 1971

Mr. Chet Harvey
Basin Engineer
Water Resources Commission
4056 Plainfield, N.E.
Grand Rapids, Michigan 49505

Dear Chet,

This letter will confirm our telephone conversation of some time ago regarding Allied Paper's program this past summer to reduce the odor and the decanting water from our sludge drying lagoons north of Cork Street.

Following our conversation about the decanting tubes early in the spring, we did in fact analyze the decanting water for B.O.D. over a period of several weeks. We found that the concentration did increase to about 1200 ppm but that the total B.O.D. going to the creek from these sources was still small as compared to the variation in B.O.D. from day to day in our clarifier effluent. However, Mr. Gilman instructed our man responsible for the maintenance of the lagoons and clarifier to purchase and install gasoline engine driven pumps and aluminum irrigation tubes so that we could pump the water from the low end of the drying lagoon back into the Bryant clarifier. We ran these pumps eight hours a day for most of the summer and early fall.

To reduce the odor from the drying lagoons, we employed a two pronged program this summer and early fall. We purchased an old 3000 gallon stainless steel tank truck on which we installed a gasoline engine driven high pressure pump and a long steel boom equipped with nozzles. This rig was used daily to spray lime on the drying lagoons according to a set pattern. In addition to the lime treatment, we regularly used an odor masking chemical from Drew Chemical Company. This chemical, Drewscent, was selected as the best of several that we tried the summer before. In addition to using this chemical, we tried several masking chemicals from another supplier and also made a short trial on an enzyme. By our own observation and analysis, and also by sampling of the neighbor's opinions adjacent to our sludge beds, the program this summer has been the best in reducing the odor from our sludge beds. We are pleased by the results and the acceptance of our neighbors.

We hope that these programs will convince you that we will now merit the "A" rating for the Monarch clarifier in the Wastewater Control Status Report for 1971.

MDNR 003784

MDNR00003784

KALAMAZOO INTER-OFFICE CORRESPONDENCE

ALLIED PAPER CORPORATION

January 20, 1958

Gilman
EXHIBIT NO. 7
1-18-93
P. MORETTI

To: H. E. Nelson

cc: E. J. Gilman
G. A. Littlefield
H. B. Johnston

From: W. E. Kendrick

SUBJECT: Operation and efficiency of the Bryant Mill waste treatment system.

The waste settling tank at the Bryant mill is operating at a lower than desirable efficiency. There are three noticeable things that occur that show the waste treatment inefficiency. They are:

1. Overloading (gallonwise) of the settling tank (7.040 MGD average since November 1, 1957.)

2. Mill "A" effluent bypassing settling tank.

3. Channeling of sludge which is very thin through the sludge bed to the overflow returning to the creek.

Although the treatment tank tests on the effluent show that our solids removal is sufficient, these results are misleading due to the amount of Mill "A" waste that bypasses treatment periodically. During a Mill "A" survey during August 1957, the amount bypassing amounted to a 1.305 MGD average over the six day test. This waste, of course, is very high in solids and BOD. The BOD efficiency of the tank is very poor, especially on days of high flow.

Another indication of poor settling tank efficiency is the low sludge consistency leaving the tank. [illegible] especially bad during the winter months when the sludge bed freezes. [illegible] of the sludge, when very thin, is much more prominent than with a [illegible]. During the colder days, the sludge bed effluent is very high in solids [illegible] is about the same as the flow [illegible] the bed. This situation, [illegible] further the overall tank efficiency and could cause [illegible]

[illegible] November [illegible] efficiency [illegible] dropped. [illegible] and Mun-arch mills, [illegible] the data are given below.

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ALLIED PAPER CORPORATION

TABLE I

Date	Average Suspended Solids Efficiency - %			Sludge Consistency Average - %		
	Bryant	King	Monarch	Bryant	King	Monarch
Nov. 1957 - Jan. 58	47.1*	67.5	59.2	2.99**	6.20	7.82
July 1957 - Oct. 57	59.7			7.12		

* High - 78.1%, Low - 11.4%
** High - 4.27%, Low - 0.40%

TABLE II

Date 1958	Sludge Bed Influent %Cons.	% Fiber (200 M)	%Ash	Sludge Bed Effluent %Cons.	% Fiber (200 M)	%Ash	#/M Gal. Suspended Solids	#/M Gal. Fiber (200 M)
1/7	2.82	13.1	44.2	0.92	16.3	58.8	181.8	13.6
1/9	1.38	10.9	47.4	1.79	13.4	46.2	134.5	16.7
1/10	3.98	11.5	58.5	1.72	11.6	58.8	103.5	16.5
1/11	4.27	15.2	44.8	0.63	7.9	47.8	43.5	6.7
Average	3.11			1.26			92.8	13.3

Note: All spot samples.

[redacted]

KALAMAZOO INTER-OFFICE CORRESPONDENCE

ALLIED PAPER CORPORATION

April 25, 1958

Gilman
EXHIBIT NO. 8
1-18-93
P. MORETTI

To: W. A. Kirkpatrick

J. H. McClure
H. E. Nelson
H. B. Johnston
E. J. Gilman
Al Mulder
Stan Stetz

From: W. E. Kendrick

SUBJECT: Operating data of the King and Bryant waste treatment systems from November 1, 1957 to January 24, 1958 with comparisons to state WRC restrictions and latest WRC survey (Bryant) May 27 and 28, 1957.

Data: I. Bryant Mill

	Nov. 1957 through Jan. 1958 Average	High	Low	1951 Orders	*1957 Survey Average
Suspended Solids					
lbs/day- influent	90,395	160,000	41,100		93,600
effluent	54,270	88,900	16,900	76,500	34,844
Ash % - influent	53.5				
effluent	60.7				
Volatiles-lbs./day					
influent	41,795				42,400
effluent	21,370				11,618
BOD-lbs./day					
influent	[illegible]	33,600	19,530		19,860
effluent	[illegible]	[illegible]	[illegible]	11,[illegible]	12,391
pH - [illegible]	[illegible]	[illegible]	[illegible]		[illegible]
[illegible]	[illegible]				7.6
Flow-MGD	[illegible]	[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	[illegible]		[illegible]

I. Bryant Mill (cont.)

*Survey was run on Monday and Tuesday. Monday is generally our best performan day due to Sunday shutdown and the later starting of Mill "A" on Monday. (Same f King data.)

II. King Mill

	Nov. 1957 through Jan. 1958 Average	High	Low	1951 Orders	1957 Survey Average
Suspended Solids lbs/day -Influent	113,670	165,000	61,200		137,100
effluent	36,750	69,800	9,460	53,700	43,885
Ash % - influent	56.4				
effluent	74.1				
Volatiles-lbs/day influent	49,670				41,250
effluent	9,550				10,670
BOD-lbs/day influent	23,150	34,900	14,500		25,050
effluent	17,410	22,300	12,350	16,300	15,948
pH - influent	7.5	8.4	6.8		7.4
effluent	7.4	8.2	6.9		7.2
Flow-MGD effluent	7,145	8,214	6,232		8,025
Suspended Solids Removal %	67.5	82.9	42.8		67.0
BOD Removal %	26.5	48.8	0		36.8

Remarks: A report dated 1-20-58 gives efficiency data on the Bryant mill waste treatment system.

The King settling tank during the past year (January 23, 1957 through January 30, 1958) has been down from 15-20% of the operating days due to mechanical and operational trouble. During the 213 operating days the mill effluent was not treated 11

ALLIED PAPER CORPORATION

days due to sludge pump trouble. For 30 days (from a few hours to 24 hours) the system was down due to repair and unclogging of the continuous bar grate cleaner.

It seems that tank shutdown due to sludge pump trouble could be eliminated by the installation of a second pump, in parallel, which could be used while the first was down for repair. Thus, eliminating the heavy sludge buildup in the tank during this downtime. The Bryant system is arranged this way.

The worst time for the bar grate clogging is on the Monday morning startup, after debris has accumulated ahead of the grate over the weekend. Running of the grate cleaner even during Sunday shutdown might help this situation.

Monarch	10,100 B.O.D.	31,900 # Solids
Bryant	11,100	76,500
King	16,300	53,700
	37,500	161,900 #

Denver sand 20,000 #

4056 Plainfield, N. E.
Grand Rapids, Michigan 49505

April 11, 1969

Mr. E. J. Gilman
Vice President of Manufacturing
Allied Paper Corporation
Kalamazoo, Michigan

Dear Mr. Gilman:

This is to inform you of a loss from the King Division's sludge ponds on March 12, 1969. Approximately 100 gallons per minute of waste was flowing into the Kalamazoo River and resulted in the stream being discolored. A sample of this flow had analyses as follows:

5 day B.O.D.	430 mg/l
Suspended Solids	5050 mg/l

Upon finding this, Mr. Ray Willey of your staff was contacted and corrections were made. We noted, however, that the sludge level was approaching the top of the dyke at certain points. We trust that the dried sludge will be removed and dyke levels raised as necessary to contain all of the sludge for drying.

In addition to the King Division problem, we also viewed the sludge ponds for the Bryant and Monarch Divisions. The sludge volume in the Monarch pond was practically level with the top of the dyke, particularly along the eastern end. The Bryant Division's south pond had a supernatant overflow which had caused a sludge bank and was resulting in discoloration of Portage Creek. We acknowledge that efforts were being made to raise the height of the Bryant dykes.

Effective operation of the sludge disposal facilities is an important part of your water pollution control program and must not be neglected. We ask that frequent inspections be made of the sludge drying lagoons and repairs made as needed. We are particularly concerned with the Monarch pond at this time.

Gilman
EXHIBIT NO. 70
1-30-93
P. MORETTI

5000439

We shall schedule a follow up visit for the near future and hope to find all aspects of waste treatment is satisfactory order.

Very truly yours,

WATER RESOURCES COMMISSION

Chester Harvey
District Engineer

JLP:as

cc: Len Pratt
W.R.C., Lansing

0440

File

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

PAPER MILLS DIVISION P.O. BOX 2528 KALAMAZOO, MICHIGAN 49003

ERNEST J. GILMAN
VICE PRESIDENT
MANUFACTURING

(616) 345-7131

RECEIVED
APR 23 1969
WATER RESOURCES COMMISSION

April 21, 1969

Mr. Chester Harvey
District Engineer
Department of Natural Resources
Stevens T. Mason Building
Lansing, Michigan 48926

Dear Mr. Harvey:

I have been away from my office most of the time for the past two weeks.

Your letter of April 11 was brought to the attention of various people in our organization while I was gone, and steps have been taken to correct the conditions which you pointed to in our sludge pits.

We recognize that maintenance of our sludge pits is an important part of our water pollution responsibility, and we do not neglect this area. In fact, Brooks, Inc., which does over-the-road freight hauling and also operates earth moving equipment, works full time on the maintenance of our dikes.

We welcome your visits at any time and trust that you will find everything to your satisfaction.

Sincerely yours,

Jack Gilman

E. J. Gilman

may be needs a pump
to return superintendent

EJG/jao

cc: George Brooks

0000142

KA04900200

Harvey
EXHIBIT NO. 33
M. LANTIS 11/5/97

DEPOSITION EXHIBIT
KENDRICK #559
4/24/97 CC

KALAMAZOO INTER-OFFICE CORRESPONDENCE

ALLIED PAPER CORPORATION

May 1, 1958

TO: H. E. Nelson

cc: G. A. Littlefield
H. B. Johnston
J. H. McClure
E. J. Gilman
Bill Buenger
Stan Stets
Ray Chermak
Roy Bell
Al Mulder

From: H. L. Field
W. E. Kendrick

SUBJECT: Sewer Waste Reduction

Our present status on waste treatment plus our future plans on the Denver Process should be of considerable concern to us, particularly in light of recent overtures from the State to reduce BOD by 50-75%.

At Bryant the residual suspended solids in our primary treated wastes is very high because we are running about 50% more volume through the settling tank than it is designed to handle. In addition, the BOD in these treated wastes is 10% to 50% above the maximum allowance specified by the State.

We are also contemplating increasing our deinking capacity at mill "A" which will further increase our loading on the waste tank in terms of volume, suspended solid and BOD.

In order to reduce the total volume of waste to a point where good settling can be expected in the waste tank, we must: (a) Divert any flows which are relatively low in suspended solids and BOD directly to the stream. One such flow is the filtrate from our chlorination oliver in Mill A. Any clarified Sveen water which is not reused in the paper mills or in Mill A should also be sewered to the stream; (b) Make our unbleached DI Pulp washing system in Mill A a countercurrent system. In order to do this, we must increase the width of the slide washers on the first two stages by at least 10 feet; (c) Reduce the number of fresh water showers, hoses, etc. used on the paper machines. A survey of this should be started immediately; (d) Replace fresh water showers with clarified white water showers. In order to use clarified Sveen water, it will be necessary to insert either a plate and frame filter, or a protective screening treatment as per the attached sketch. I propose that we install a protective screen on a trial basis on one machine as soon as possible.

Some of these methods should also be applied to reduction in volume at King to compensate for expected increases by introduction of the Denver Process.

KALAMAZOO INTER-OFFICE CORRESPONDENCE

ALLIED PAPER CORPORATION

The reduction in BOD can be accomplished only by some secondary treatment. The best methods of secondary waste treatment are: (a) The activated sludge process; and (b) The trickling filters. However, a unit of either process to accommodate Bryant wastes would cost $200,000-$300,000 to build and $100-$200 per day to operate. A much less expensive method to build and operate which has given a partial removal of ~~BOD~~ is an aeration and ponding method. A sketch of a proposed pilot plant to study this method at the Bryant waste tank is attached. It is recommended that such a pilot plant be built in the near future, not only to study this method, but also to convince the State representatives, who have recently shown special concern about Portage Creek, that we are seriously making efforts to improve the situation. If this method shows any promise, it can be applied at all three mills.

The disposal of suspended solids concentrated at the Bryant waste tank will present a problem in the near future. The retaining walls are already quite high and need periodic raising and repairing. Recently we have had leaks and overflows (because the area froze) which have caused substantial quantities of sludge to enter the creek.

It is recommended that we: (a) Reconsider the possibility of rerouting the creek and combining the Monarch and Bryant waste disposal areas; (b) Study the possibility of further concentrating the sludge by centrifuge and then treating it to recover the clay, or to produce alum.

The King waste tank is now satisfactorily removing the suspended solids, and the BOD is just about equal to that allowed by the State. The introduction of the Denver Process is expected to increase the suspended solids and BOD load by 30-50% and will, if means are not initiated to compensate for it, increase the volume load by about the same amount. Reductions in water usage should, therefore, be initated at King and any favorable results from studies made at Bryant should also be applied to King.

The proposed pilot plants will be submitted to central engineering for costing.

Detected discharges of PCBs to Kalamazoo R ...
near Kalamazoo

(also) suspect PCBs Discharge	Discharge	Discharge	Date	PCB conc
Yes	Allied Paper Co	settling basin	4/20/72	65 ug/l
		sludge leachate	8/16/76	0.4 ug/l (Ar 1242
Yes	James River Corp	390041	8/76	0.17 ug/l (Ar 124
		board + carton	1981 CMR	11-100 lbs/yr
			1979 CMR	11-100 lbs/yr
		City of Kalamazoo (Brown Co) to sewer system	Circa 1972-1973	0.96 ug/l
	Kalamazoo, city of WWTP		10/5/71	1.3 ug/l (Ar 1254)
			3/28/72	{0.63 ug/l (Ar 1254) 1.7 ug/l (Ar 1242)
			6/6/72	{0.48 ug/l (Ar 1254) 0.92 ug/l (Ar 1242)
			8/76	0.4 ug/l (Ar 1242)
Yes	Mead, Otsego		10/7/71	0.520 ug/l
		030057	?/73	0.22 and 0.76 ug/l
No	Menasha, Otsego		10/7/71	0.13 ug/l
		030055	7/75	0.53 ug/l (Ar 1242)
	Otsego, city of WWTP	030179	3/81	0.22 ug/l (Ar 1254)
? (in sludge)	Plainwell Paper	outfall 005	1/73	reported 11-100 lbs/yr discha
		030049	7/78	0.1 ug/l (Ar 1254)

0012444

MR. BROEKSTRA: Okay. Why don't we just take five minutes.

(A short recess was taken.)

MR. BROEKSTRA: Back on the record.

(Deposition Exhibit Kendrick #559, memo, H. L. Field and W. E. Kendrick to H. E. Nelson, May 1, 1958, was marked for identification.)

Q. Mr. Kendrick, you have been handed Exhibit #559. This is a May 1958 interoffice correspondence from you and Mr. Field to Mr. Nelson. Who is Mr. Field?

A. He was a fellow they hired. He must have been relatively new at this point. He was to help in some equipment things. I'm not sure exactly all the reasons why. He had a lot of experience in save-alls and that kind of stuff.

Q. Had you ever seen this document since you wrote it?

A. I don't think so, no.

Q. Why don't you take a minute just to read it, and I will do the same.

A. I skimmed it enough that I may be able to answer your questions.

Q. What was the general purpose of this memo, do you remember?

A. It refreshed my mind. This fellow Field had had

Q. They had an overflow or a leak, and the sludge went into the creek, is that correct?
A. Yes. That's what it says, yes.
Q. But you don't specifically recall the incident?
A. I don't recall any of that incident at all.
Q. Of course, you probably wouldn't have written this if it hadn't happened, is that correct?
A. Right. I believe you could say that, right.
Q. When you talk about in your next paragraph the possibility of rerouting the creek, what are you getting at there?
A. I don't know what that was. I don't know why -- because of the layout of the sludge beds.
Q. You are thinking because the sludge beds are leaking into the creek, you want to move the creek away from the sludge beds?
A. No. I'm not sure why. I don't know the reasons why. I don't know why that statement is there. As you recall from your drawings that we looked at earlier, the creek runs right between sludge beds. So, you know, they are relatively close.
Q. The next statement is to study the possibility of concentrating the sludge by centrifuge. Is that to remove water from the sludge rather than having settlement or sludge lagoons?

WATER RESOURCES COMMISSION

Memorandum

To: R. W. Purdy, files

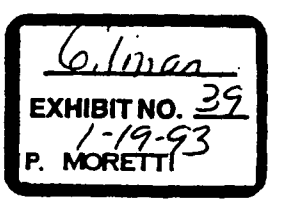
From: R. Courchaine RC

Date: February 6, 1967

Subject: Allied Paper - Monarch Mill, Kalamazoo

Jack Gilman called on this date to report that the bull gear on the clarifier thickening mechanism had broken and that it would be necessary to drain the clarifier to replace the gear. He indicated it would take two days to replace the gear and get the unit back in operation.

mc
cc: C. Harvey



SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

PAPER MILLS DIVISION KALAMAZOO, MICHIGAN 49003 (616) 345 7131

April 21, 1982

RECEIVED
APR 2 [illegible]
WATER QUALITY DIV

Mr. Roger Przybysz, Water Control Specialist
Department of Natural Resources
350 Ottawa Ave., N.W.
Grand Rapids, MI 49502

Dear Roger:

This letter will cover the description of two incidents which occurred in our waste treatment system on April 14 and April 15, respectively, as per your telephone request.

On April 14 at 11:25 a.m. I left word with your office that we would be forced to send a small amount of our paper mill waste to Portage Creek at our Mill D sump pumping station due to an electrical repair. We had to replace the circuit breaker for one of the three pumps in this sump. The nature of this electrical repair necessitated cutting all the power to this sump to insure the safety of the personnel. The pumps were down for a period of 46 minutes and since this is only a portion of our discharge, the flow for this period was calculated at 23,300 gallons.

As to the April 15 incident, there are several differences between what was reported to you and the facts we can put together from our records. You reported that the Portage Creek was "colored white" from approximately 2:00 p.m. to after 4:00 p.m. and samples were taken. We replaced a pump at the Monarch clarifier in the afternoon of April 15 causing a surge in the flow of clarifier effluent to Portage Creek. As per our flow chart, the flow increased from the 300 to 400 gpm range (from 10:45 a.m. to 12:45 p.m.) to 750-950 range during the period 12:45 p.m. to 2:07 p.m., returning to the 400 gpm flow rate until 4:05 p.m. All during the period from 9:15 a.m. to 4:05 p.m. the computer readout shows steady turbidity readings. In addition to this data, John Roth took turbidity readings of the Portage Creek water at Alcott Street, Reed Street, Vine Street and Pitcher Street during the time period 3:35 p.m. and 4:10 p.m. in connection with his regular weekly Portage Creek and Kalamazoo River survey. These readings varied from 40-50 JTU (at Pitcher St.) which

065975

can hardly be classified as "colored white". To prove this point, we have added small amounts of milk, 5, 10 and 20 drops, to a liter of city water resulting in turbidities of 22.5, 45 and 90 JTU's respectively. Incidentally at all times we were within our NPDES Permit and limitations.

I hope this clears up the incidents

Very truly yours,

U. G. Stoeffler
Manager, Process Development

cc Jack Wagemaker - Kalamazoo

br

065976

KALAMAZOO WASTEWATER TREATMENT PLANT

LAB ANALYSIS REPORT

REQUESTED ANALYSIS SAMPLE IDENTIFICATION ALCOTT ST. - PORTAGE CR

DATE: 4-15-82 TIME: 2:30 pm BY: RC/GH

Collected
Received
Reported 4-16-82 3:30 pm BC

SAMPLE SITE: PORTAGE CR. @ ALCOTT STREET

METHOD OF SAMPLING: GRAB SAMPLE

DESCRIPTION OF SAMPLE: CLEAR - SOME FLOATING SOLID - SLIGHTY MILKY COLOR

	BACTERIA		BOD - COD		MISCELLANEOUS	
	Fecal Coliform	X	BOD 18.0 mg/l	X	pH 8.2	
	Coliform		Diss BOD		Chloride	
			COD			
			Diss COD			
	Cadmium	X	SS 139 mg/l		All as N or P	
	Chromium	✓	VSS 43 mg/l		Ammonia	
	Copper		TS		Org. Kieldahl	
	Iron		TVS		Nitrate	
	Lead		Sett. Solids		Nitrate	
	Mercury				Tot. Kieldahl	
	Nickel				Total P	
	Zinc				Ortho P	

SPECIAL

Report results to:

Address:

Phone:

065977

KALAMAZOO WASTEWATER TREATMENT PLANT

LAB ANALYSIS REPORT

REQUESTED ANALYSIS

SAMPLE IDENTIFICATION Cork St & Portage Cr.

Collected DATE: 9-15-82 TIME: 2:30pm BY: RC/GH

Received

Reported 9/26/82

SAMPLE SITE: 3:30 pm

PORTAGE CR. AT CORK ST.

METHOD OF SAMPLING: GRAB SAMPLE

DESCRIPTION OF SAMPLE: CLEAR

BACTERIA		BOD - COD		MISCELLANEOUS	
Fecal Coliform	X	BOD	7.0 mg/l	X	pH 8.3
Coliform		Diss BOD			Chloride
		COD			
		Diss COD			
Cadmium	X	SS	6.4 mg/l		All as N or P
Chromium	✓	VSS	3.2 mg/l		Ammonia
Copper		TS			Org. Kieldahl
Iron		TVS			Nitrate
Lead		Sett. Solids			Nitrate
Mercury					Tot. Kieldahl
Nickel					Total P
Zinc					Ortho P

SPECIAL

Report results to:

Address:

Phone:

065978

7-20-81

$2\frac{30}{PM}$; we received a complaint from a citizen; Portage Creek White.

I checked on it, Allied Paper) was discharging their clarifier was down 3-4 hrs. to have a valve repaired

By 4^{00} creek was clearing up.

At Don Suets request, I took a sample at Alcott St. I also took a sample at Reed St. they were analyzed for COD & SS & PH data are inconclusive.

	Alcott $3\frac{45}{PM}$	Reed $3\frac{30}{PM}$
pH	7.8	7.8
COD	7.1 mg/l	6.7 mg/l
SS	18.3 mg/l	21.1 mg/l

065999

MICHIGAN WATER RESOURCES COMMISSION

Report of
Wastewater Survey

King Division of
Allied Mills Inc., Kalamazoo
June 4 - 6, 1968

Two consecutive 24-hour wastewater surveys were conducted at the King Division of the Allied Mills Inc. in Kalamazoo starting June -, 1968. The purpose of the surveys were to determine the quality and quantity of wastewater being discharged to the Kalamazoo River from the King Division.

Operation and Waste Treatment

The King Division employs 400 people and operates on a 6-day schedule. The main product is book printing material which is produced on 4 paper machines. The water supply for processing is from private wells. Both well water and Kalamazoo River water is used for cooling purposes. The waste treatment consists of save-alls for each machine and a large clarifier which is 110 feet in diameter. A large portion of the clarified effluent is reused in the process at this plant.

Survey procedure and Results

The wastewater from the clarifier which is discharged to the Kalamazoo River passes over a 6 foot full channel weir enroute to the River. The weir was equipped with an automatic sampler and a water level recorder. The automatic sampler took samples proportional to the instantaneous flow at fifteen minute intervals and deposited them in a clean glass container to make up a 24-hour composite sample. The water level recorder provided a continuous account of the head over the weir on a head-time chart from which the total daily flow could be computed. The composite samples were transported to the Water Resources Commission laboratories in Lansing where certain quantitative chemical and physical analyses were performed.

Table 1. Flow data and survey period

	Starting	Ending	Total
Survey period 1	Tuesday 6-4-68 @ 0815	Wednesday 6-5-68 @ 0800	2,339,000 g
Survey period 2	Wednesday 6-5-68 @ 0900	Thursday 6-6-68 @ 0900	2,720,000 g

066356

Table 2. Laboratory analyses of composite samples collected at King Division and computed pounds per day of various constituents discharged to the Kalamazoo River.

Parameter	First Survey Period Conc.*	First Survey Period Lbs/day**	Second Survey Period Conc.*	Second Survey Period Lbs/day**
5 day BOD	64	1,234	87	,973
COD	98	1,904	155	3,5[illegible]
Suspended solids	18	349	18	[illegible]
Suspended volatile solids	14	272	14	[illegible]
Settleable solids	14	272	8	[illegible]
Total phosphrus	0.[illegible]	[illegible].9	0.05	[illegible]
Soluble othro phosphrus	0.0	0.0	0.0	0.0
Organic nitrogen	3.1	60	7.4	168
Ammonia nitrogen	0.3	5.8	0.50	[illegible].3
Nitrate nitrogen	0.0	0.0	0.0	0.0
Turbidity	45	--	20	--
pH	7.5	--	7.4	--

*Concentrations expressed as mg/l except pH and turbidity. Turbidity expressed as Jackson units.

**The pounds per day are computed from the following formula: Lbs/day = flow (mgd) x concentration (mg/l) x unit weight of water (8.34 lbs/gallon)

Table 3. Pounds of paper produced at the King Division during survey periods.

Survey period 1	209.24 tons
Survey period 2	159.3 tons

Table 4. Calculations of various constients discharged to the Kalamazoo River as related to the tons of paper produced, and water usage per ton.

Survey period 1	Survey period 2
11,150 gallons/ton	12,400 gallons/ton
59 lbs BOD/ton	12.4 lbs BOD/ton
9. lbs COD/ton	22 lbs of COD/ton
1.67 lbs of susp. solids/ton	2.56 lbs of susp. solids/ton
1.3 lbs of susp. vol. solids/ton	[illegible].99 lbs of susp. vol. solids/ton
1.3 lbs of settleable solids/ton	1.13 lbs of settleable solids/ton

066357

Discussion of Results

The wastewater from the King Div on clarifier was fairly clear and so ds were not apparent. Those solids present appeared to be the sloughing of slime gro ths within the clarifier. The turbidity of the waste was low for paper mill effluents (40-20).

Survey by:	Galen Kilmer Sanitary Engineer
	Leroy Vahovick, Water Pollution Investigato
Laboratory analyses by:	Russel Krueger, Chemist
Contact with management:	Les Stoeffler
Report by:	Galen Kilmer
	Leroy Vahovick
	Michigan Water Resources Commission
	Water Quality Appraisal Unit
	7-29-68

ce
7-30-68

066358

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

PAPER MILLS DIVISION KALAMAZOO, MICHIGAN 49003 (616) 345-7131

May 17, 1974

Mr. Leonard Pratt
Superintendent of Water Waste
Treatment Plant
City of Kalamazoo
241 West South Street
Kalamazoo, Michigan 49006

Dear Len:

Pursuant to our recent conversation concerning the quality of our Bryant clarifier influent, I have copied the Waste Tank Treatment test sheets for the period of March 5 to April 25, 1974. These results show an average daily suspended solids of 9,397#; average daily BOD of 949#. The effluent results are also shown.

We would request permission to be able to bypass the Bryant clarifier on an emergency basis when the clarifier has to be shut down for repair. Our emergency plan would be to pipe the influent from the Bryant division, and put the flow, approximately 2-2½ MGD, directly into the effluent line running to your 48" interceptor. As you know, Orlin Loen has already given approval for us to send 3 MGD for a short period of time for the same emergency plan.

I am sure that our influent would not cause any problems in your primary and secondary stages for a short period of time. As you can see, we are able to get 98% solids removed in our primary stage; therefore, this waste would not carry solids over into your secondary stage.

We appreciate your cooperation in helping us develop emergency plans when our clarifiers have to be out of service for short periods of time.

Yours very truly,
ALLIED PAPER INCORPORATED

U. G. Stoeffler, Manager
Process Development

UGS:rb
Enclosures
(dictated 5-16-74)
cc: E. J. Gilman, Allied Paper Incorporated
R. J. Willie, Allied Paper Incorporated

066036

Date	Flow	SOLIDS		B.O.D.	
		Influent	Effluent	Influent	Effluent
3-5	0.574	9,335	190	540	245
3-7	0.941	11,995	190	860	405
3-12	0.814	11,595	110	890	320
3-19	0.748	8,035	90	955	330
3-26	0.840	15,085	135	960	305
3-28	0.861	8,295	65	910	360
4-2	0.828	7,055	55	830	435
4-4	0.886	11,765	45	890	475
4-9	1.168	8,495	75	1,250	535
4-11	0.923	10,005	135	1,110	470
4-16	0.789	5,935	75	730	370
4-18	0.729	6,235	85	700	365
4-23	0.894	11,675	245	1,465	430
4-25	0.750	6,055	155	1,200	400
Average	.8389	9,397	118	949	388.5

066037

4 HR. COMPOSITE WASTE WATER LOADS

REX PAPER Co.

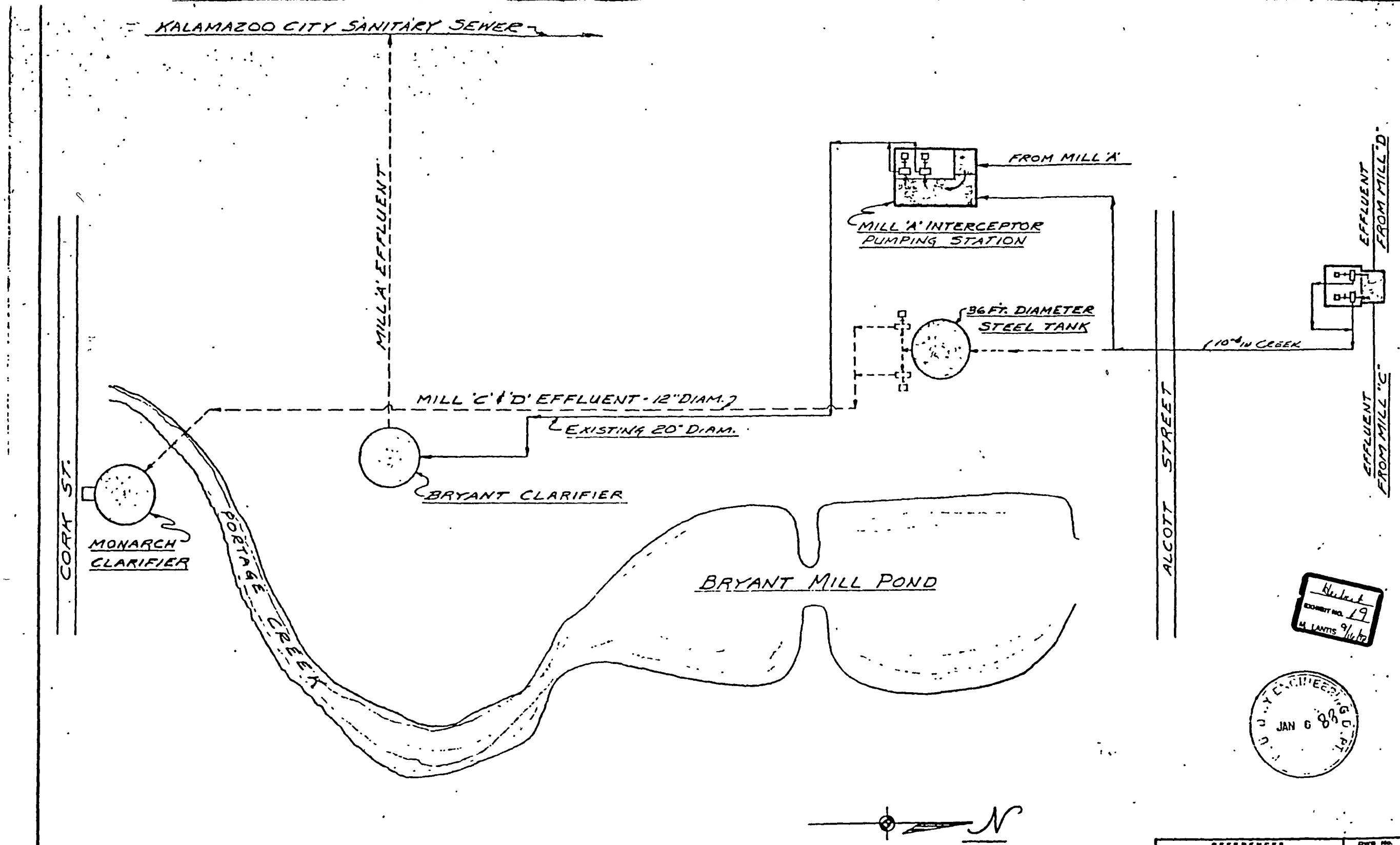
Kalamazoo Joint Treatment Project — JONES, HENRY & WILLIAM

January, 1964 — A.J. Palladino

Date	Period	Flow Gallons	BOD mg/l.	BOD lbs.	S.S. mg/l.	S.S. lbs.	pH	Remarks Flow, gp Max. Mi
Wed. 1/22	NOON-4P	226,000	161	302	434	815		125 4
	4P-8P	254,000	154	326	666	1410		
	8P-MN	191,000	300	475	122	194		Mill down after 10 P
	MN-4A	84,000	125	88	1496	1050		
Total								
Mon. 1/27	8A-NOON	264,000	295	650	272	600		1250 7
	NOON-4P	251,000	415	870	1692	3,540		
	4P-8P	264,000	298	655	1434	3,150		
	8P-MN	248,000	298	615	1290	2,670		
Tues. 1/28	MN-4A	256,000	397	850	1066	2,270		
	4A-8A	252,000	343	720	878	1,850		
Total	24 hrs.	1,535,000		4,360		14,080		
Tues. 1/28	8A-NOON	264,000	245	540	1742	3,830		125
	NOON-4P	245,000	298	610	2310	4,720		
	4P-8P	256,000	182	390	1102	2,350		
	8P-MN	249,000	253	525	1462	3,030		
Wed. 1/29	MN-4A	255,000	286	605	2076	4,400		
	4A-8A	255,000	278	590	1820	3,860		
	24 hrs.	1,524,000		3,260		22,190		

Clarifier operation normal, but appreciable amount of settl...

KA05400865



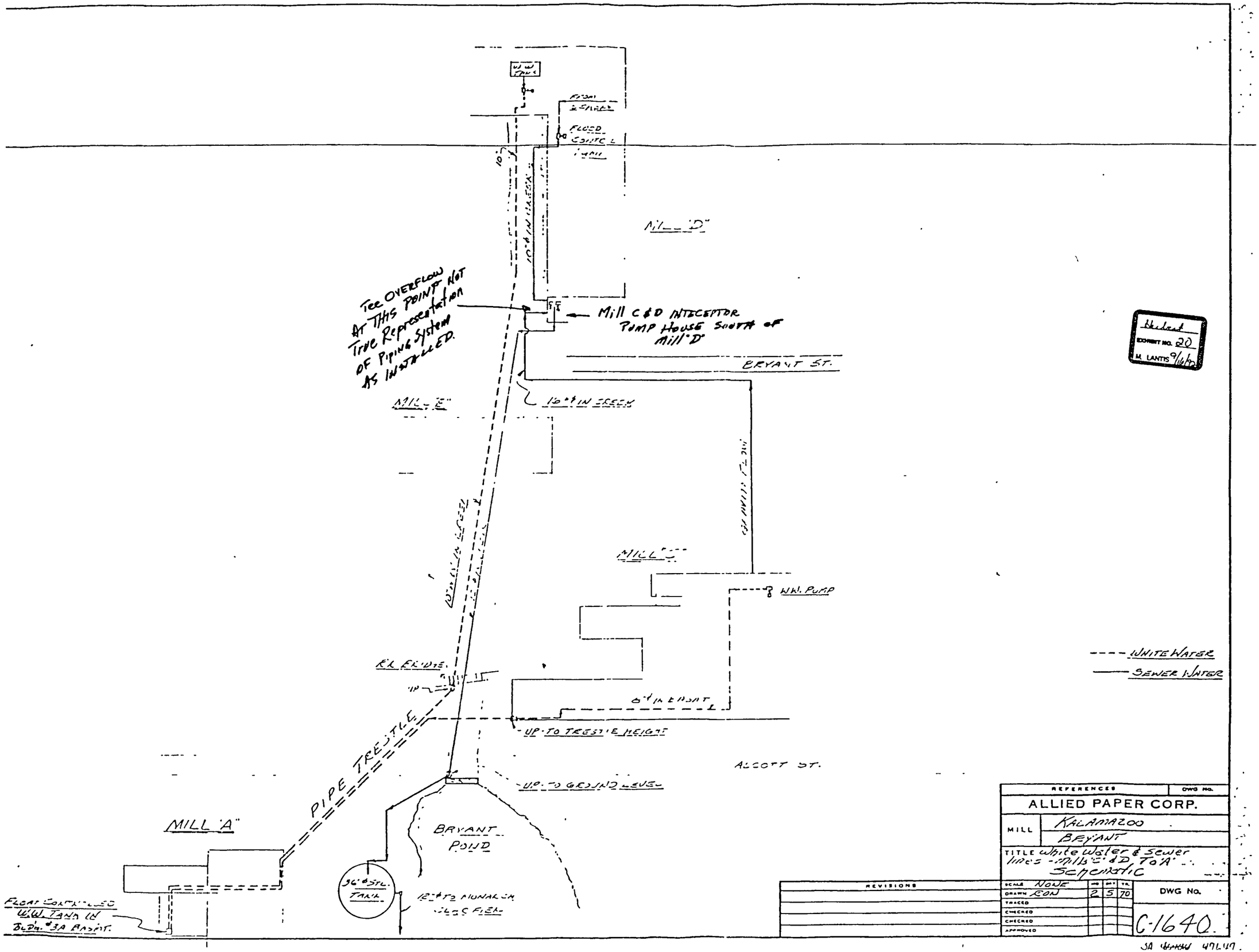
Herbert
EXHIBIT NO. 19
M. LANTIS 9/16/72

JAN 6 88

REFERENCES	DWG. No.
ALLIED PAPER CORP.	
MILL	KALAMAZOO BRYANT
TITLE	PROPOSED WASTE TREATMENT

REVISIONS					DWG. No.
	SCALE ~				
	DRAWN RON	12	19	68	C-1624-A
	TRACED				
	CHECKED				
	CHECKED				
	APPROVED				

SA 46144



Herbert
EXHIBIT NO. 20
M. LANTIS 9/16/82

REFERENCES	DWG No.
ALLIED PAPER CORP.	
MILL	KALAMAZOO BRYANT
TITLE White Water & Sewer lines - Mills "C" & "D" To "A" Schematic	
SCALE NONE	
DRAWN RON	2 5 70
TRACED	
CHECKED	
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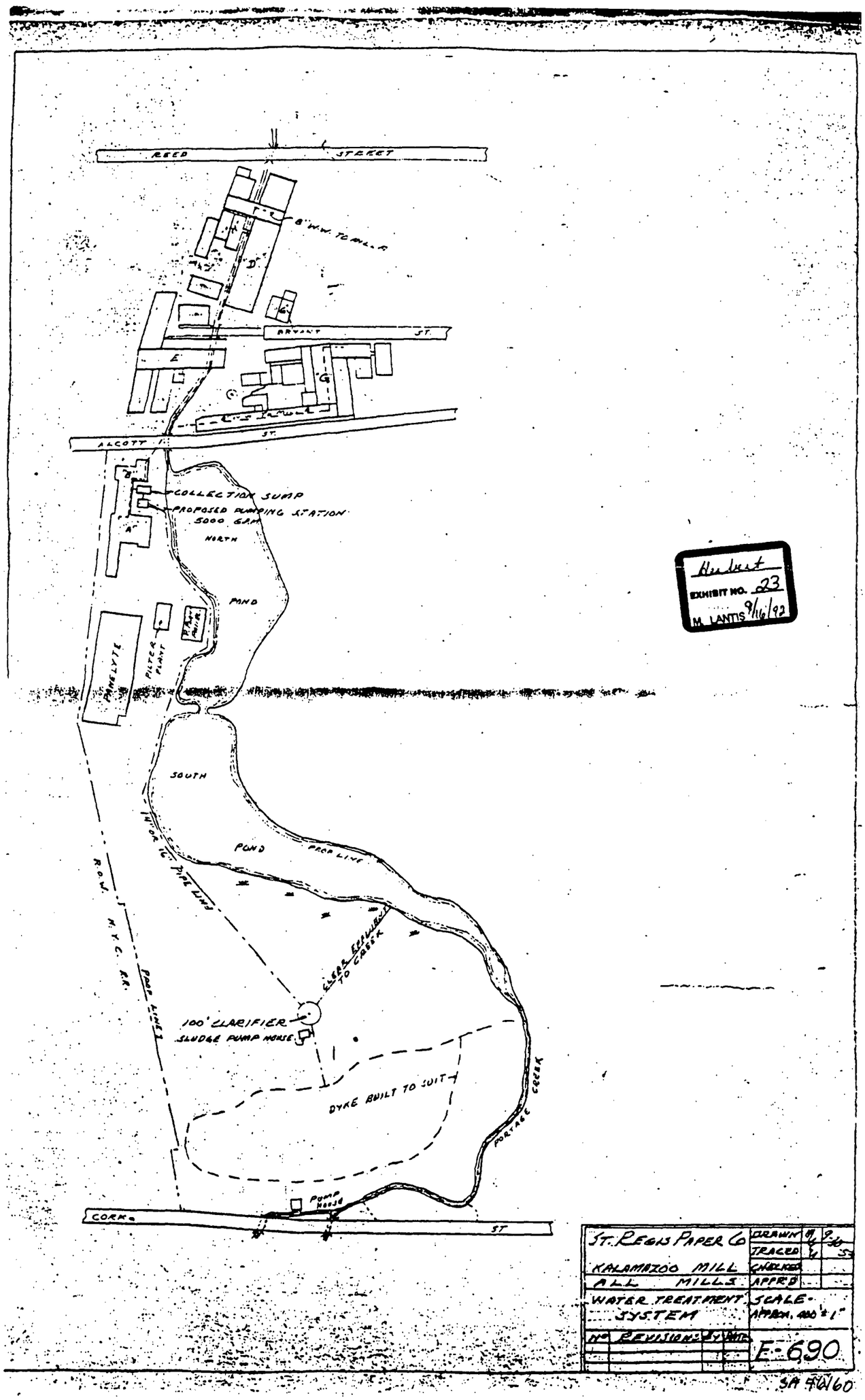
APPROVED	
DWG No.	C-1640

REVISIONS

SA 47L47


REED STREET
8" W.W. TO MILL
BRYANT ST.
ALCOTT ST.
COLLECTION SUMP
PROPOSED PUMPING STATION
5000 G.P.M.
NORTH
POND
PANELYTE
PILTER PLANT
SOUTH
POND
PROP LINE
R.O.W. N.Y.C. R.R.
PROP LINE
100' CLARIFIER
SLUDGE PUMP HOUSE
DYKE BUILT TO SUIT
PORTAGE CREEK
PUMP HOUSE
CORK ST
ST. REGIS PAPER CO
KALAMAZOO MILL
ALL MILLS
WATER TREATMENT SYSTEM
DRAWN
TRACED
CHECKED
APPR'D
SCALE-
APPROX. 400' = 1"
No REVISIONS
E-690
SA 46160
EXHIBIT NO. 23
M. LANTIS 9/16/92

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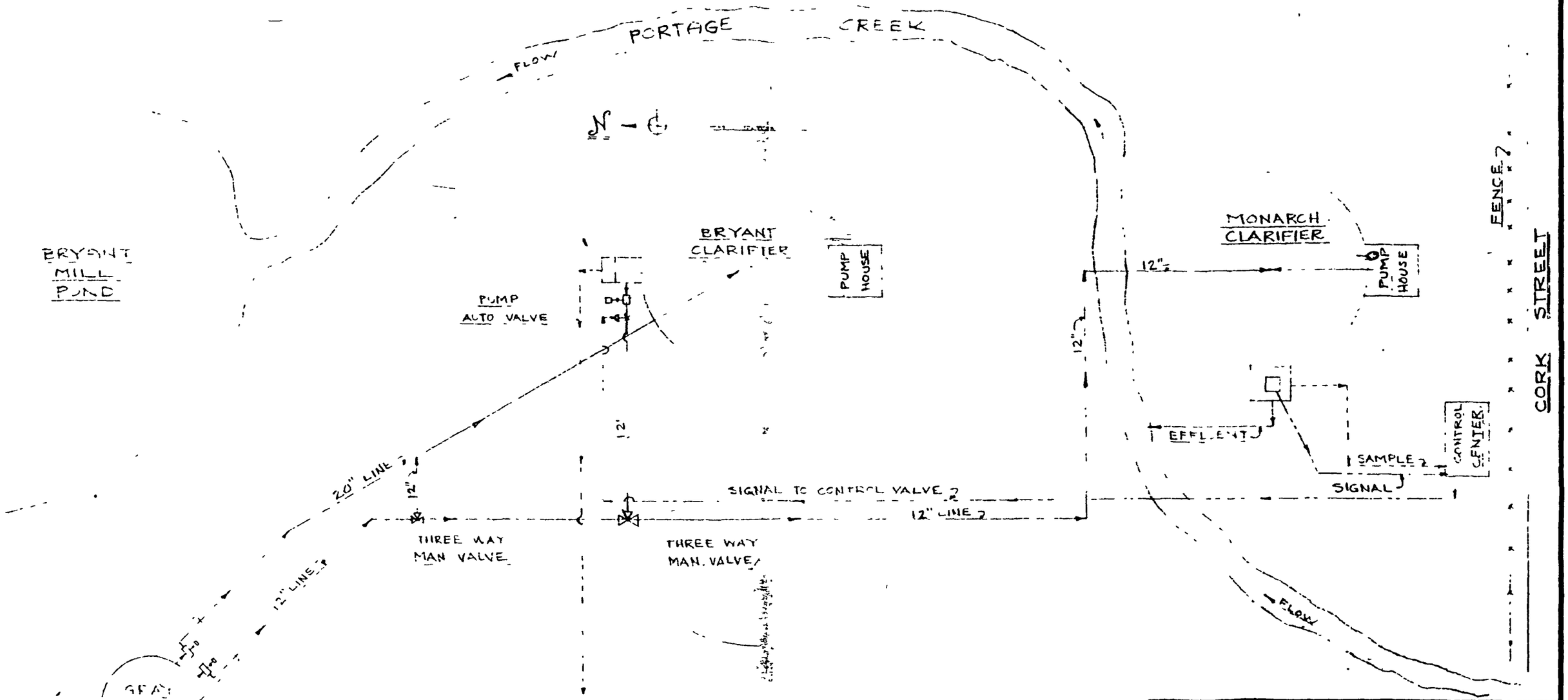

REFERENCES	DWG. No.
ALLIED PAPER CORP.	
MILL	KALAMAZOO MILL
	BRYANT DIVISION- ALL MILLS
TITLE WASTE TREATMENT AT BRYANT & MONARCH CLARIFIERS	

REVISIONS	
	000484

SCALE NONE	MO.	DAY	YR.	DWG. No. 1
DRAWN B HERBERT	2	27	76	
TRACED				
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CHECKED				
APPROVED				

SA 048307

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

PAPER MILLS DIVISION KALAMAZOO

June 8, 1978

Mr. Wayne E. Dennison, P.E.
Chief, Pollution Control Branch
Department of Natural Resources
Stevens T. Mason Building
Box 30028
Lansing, MI 48909

Dear Wayne:

Re: Surveillance Fee
Monarch Mill
Bryant Mill

This will confirm our telephone conversation of today in regard to your letter of June 5, 1978 to our Mr. Gilman. While Allied does not concur with your rating of "I" (inadequate) and the calculation of our 1977 surveillance fee, we will submit the $5,874 fee within the 30 day period you specified. A copy of the 1977 Bryant Mill surveillance fee report form is attached as is a copy of the 1978 Environmental Surveillance Fees billing for Bryant Mill. A check of our records indicates that we have paid this water surveillance fee for Bryant Mill on February 14, 1978.

As I stated to you, the discharge of the sand filter backwash [illegible] from Bryant Mill will be picked up and sent to our Bryant [illegible] as per the plan submitted in our letter of November 30, [illegible] to Karl Zollner. This plan and it's acceptance by the DNR [illegible] discussed with Chet Harvey at a meeting on February 13 in [illegible] Rapids and progress reports on the completion of the project have been given to Chet in letters of April 7 and May 25.

We would again like to point out that the letter of noncompliance was in error in regard to BOD limitation on the dates of June 28, 29 and 30 which were erroneously construed to be July 28, 29 and 30. The actual days exceeding BOD for July were four days, with average exceedance of 47.5. The days exceedance in August were 15 averaging 45.7 , in September 11 days with average exceedance of 36.6 and October three days averaging exceedance of 23. Since then our Monthly Operating Reports show compliance with permit limitations.

Yours very truly,

P. G. Stoeffler
Manager, Process Development

Falvey
EXHIBIT NO. 8
M. LANTIS 9/4/[illegible]

M.Smith
D.C.Kirk
J.Roth
D.Falvey

br
cc: F.J.Gilman
C.Harvey, Department of Natural Resources

000218

SA 027279

INTER-OFFICE CORRESPONDENCE

SCM. ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

TO: A. E. Vickery

WRITTEN BY: B. Herbert

OFFICE:

OFFICE:

SUBJECT: Waste Water System - Bryant Division

DATE: March 9, 1970

A brief recap of our present system seems to be required in order to fully evaluate any changes or additions required. I will endeavor to bring you up to date on our present system.

At Mill "A" all the waste water is collected in the pumping station going to the Bryant Clarifier. The only exception is the excess chlorine seal box water which goes to the steel tank at Mill "A" and then to the Monarch Clarifier. To date we have not experienced trouble with Mill "A" overflowing to the creek.

At Mill "C" we have a gravity system to the collection station at the south end of Mill "D". It is not a problem at Mill "C" with any waste water going directly to the creek. The only possible exception is with the oil that goes out with the "clear" water system. If we overload the gravity line it would result in flooding in the Beater Room basement.

The one exception in Mill "C" is the 50 ton D.I. storage chest or an accident causes a leak in the piping, pumps, etc. this goes directly to the creek thru the storm sewer system at the west side of the Mill "C" buildings.

Mill "E" has none of the waste water collected at the present time. Everything flows directly to Portage Creek.

Mill "D" is the complex system. The Machine Room is divided into two basis systems. The clear fress water is collected and goes directly to the creek.

The waste water goes into basement sewers to a pumping station in the N-W corner of the Machine Room. We have a single pump to handle the water to the pumping station at the south end of Mill "D". We have three gates in the Machine Room that go directly to the creek. If the sump pump fails the gates are raised and the waste water goes directly to Portage Creek.

The Beater Room area is in three systems. The east side of the Beater Room is two systems. Clear water is collected and sent to the creek directly. All waste water goes to the sewers and is collected in a sump. This is then pumped to the collection station at the south end of Mill "D". Again we have only one pump to handle the waste at the Beater Room sump.

Herbert
EXHIBIT NO. 35
M. LANTIS 9/10/82

In the event of a pump failure we have a gate to remove letting the sewers dump into Portage Creek.

All the sewers and both Sveen Savealls for #8 and #9 Paper Machines dump into sewers on the west half of the Beater Room and go directly to Portage Creek.

The waste water from the Blade Coater and Color Prep system is collected in sumps and is sent to the collector station at the south end of Mill "D".

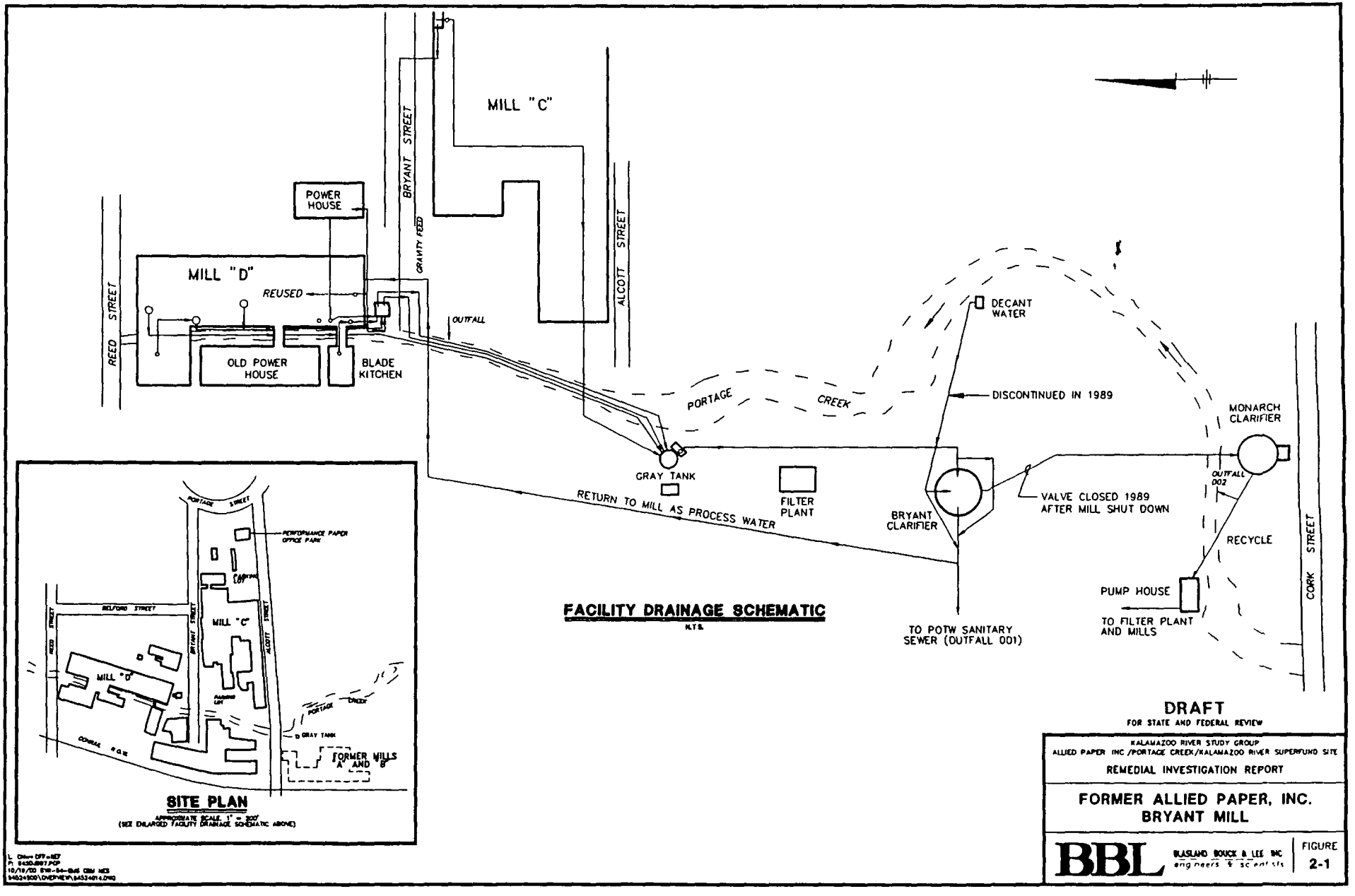
The waste water from the Power Plant water softeners is collected in a sump at the basement level of the Shipping Department and pumped to the collector station.

We have two pumps in the collector station at the south end of Mill"D" to send the water to the steel collector tank at Mill "A". These two pumps have a rating of 1500 GPM at 85' Head when new. Both pumps have to pump into a common line to Mill"A". These pumps will not keep up with the volume of water now sent to the collector station. This is especially true during wash-up on the weekends.

The origional line from these two pumps was a 12" pipe. In the fall of 1965 approximately 700 feet of the pipe in Portage Creek was replaced A 10" pipe was installed rather than the 12" existing. This has increased the head on the pumps thereby lowering the gallonage the pumps will handle.

Please set up a meeting with interested personnel to discuss what we are planning to do to correct and protect the system.

cc: D. A. Falvey
D. Krueger
K. Sweet
E. J. Gilman
File 900



FACILITY DRAINAGE SCHEMATIC

N.T.S.

SITE PLAN

APPROXIMATE SCALE: 1" = 200'
(SEE ENLARGED FACILITY DRAINAGE SCHEMATIC ABOVE)

DRAFT
FOR STATE AND FEDERAL REVIEW

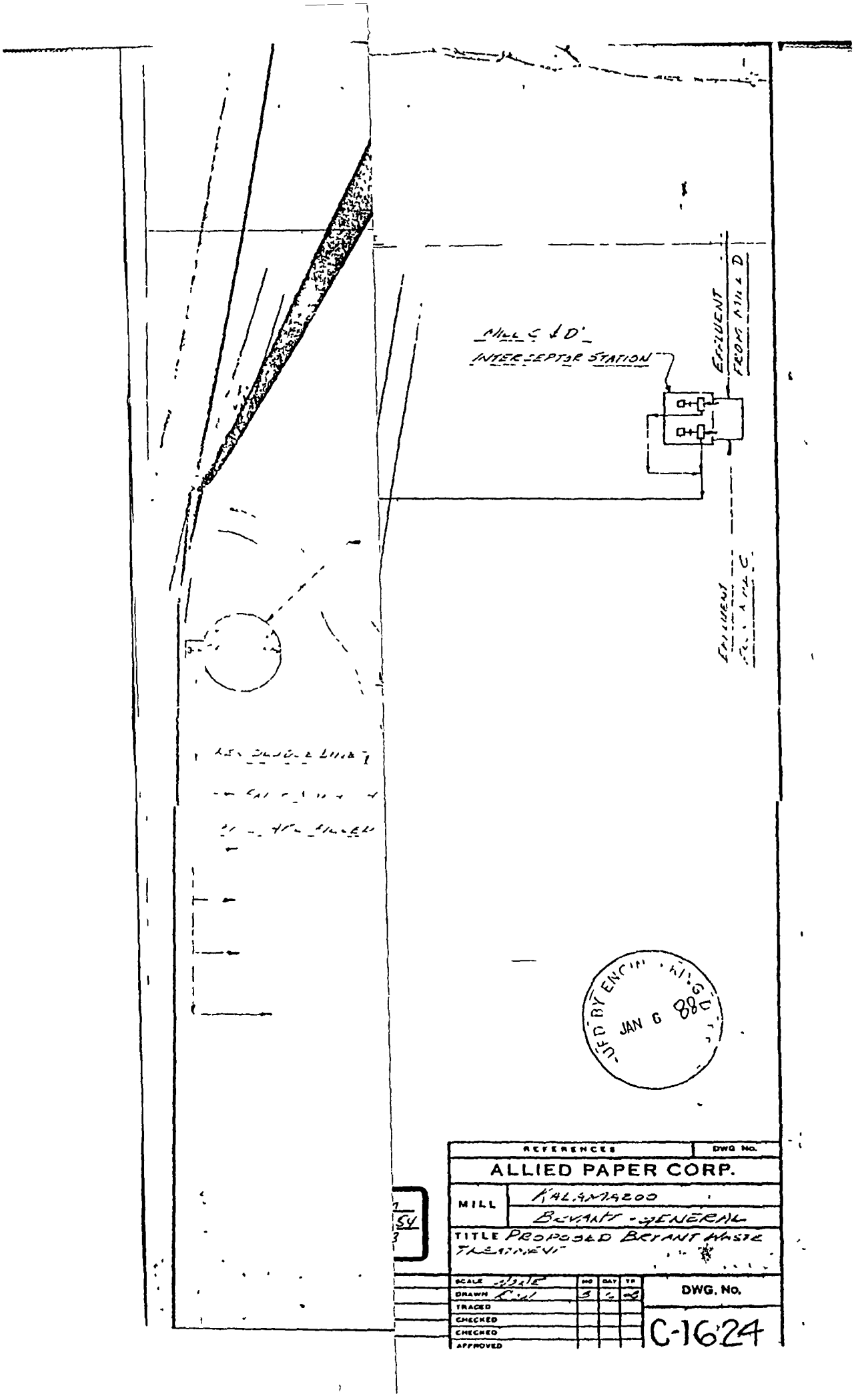
KALAMAZOO RIVER STUDY GROUP
ALLIED PAPER INC /PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE

REMEDIAL INVESTIGATION REPORT

FORMER ALLIED PAPER, INC. BRYANT MILL

BBL BLASLAND BOUCK & LEE INC. engineers & scientists

FIGURE 2-1


MILL C & D
INTERCEPTOR STATION
EFFLUENT FROM MILL D
EFFLUENT
JAN 6 88
REFERENCES
DWG No.
ALLIED PAPER CORP.
MILL
KALAMAZOO
BRYANT - GENERAL
TITLE PROPOSED BRYANT WASTE TREATMENT
SCALE
DRAWN
TRACED
CHECKED
CHECKED
APPROVED
DWG. No.
C-1624

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

PAPER MILLS DIVISION KALAMAZOO, MICHIGAN 49003 (616) 345-7131

February 13, 1970

Robert Courchaine, Regional Engineer
Bureau of Water Management
Dept. of Natural Resources
Stevens T. Mason Bldg.
Lansing, Michigan 48926

Dear Bob:

We are pleased to report to you that as of this week we no longer discharge our Chlorine drop-leg water directly into Bryant Mill pond. This water formerly flowed by gravity from a vacuum seal box into the pond. After much discussion and investigation, we decided to pump this water to our Monarch Clarifier together with the white water from our Bryant Paper Mill Divisions. To accomplish this we now pump from the vacuum seal box into the large surge tank. This is the same surge tank that receives the paper mill white water from our Mill C and D operations.

To date we have not encountered any problems with this new arrangement.

You will recall that I discussed with you, our concern about the appearance that this discharge made to the pond, and that we would make an investigation to determine the remedial action.

Yours very truly,

ALLIED PAPER, INC.

U. G. Stoeffler,
Manager Process Development

jm/UGS

cc: R. M. Levy - Allied
E. J. Gilman - Allied

RECEIVED
FEB 1 1970
WATER RESOURCES COMMISSION

6.1mac
EXHIBIT NO. 62
1-20-93
P. MORETTI

INTER-OFFICE CORRESPONDENCE

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

TO:	R. M. Levy E. J. Gilman	WRITTEN BY:	G. Stoeffler
OFFICE:		OFFICE:	R & D
SUBJECT:	Mill A Waste Water to Bryant Clarifier Trial, July 8-20, 1968	DATE:	July 29, 1968
		cc:	R. J. Willie

During a two week period, July 8 - 20, 1968, only the deinking waste water from Mill A was pumped to the Bryant clarifier, allowing the Mill C and Mill D waste waters to overflow at the Mill D pump wet well. As in regular operation, the chlorine Oliver dropleg water flowed to the Bryant Mill Pond (a check on this waste on July 11, 1968 showed a total solids of 0.45 #/thousand gals.).

This two week trial was requested by the Public Works Department of Kalamazoo and approved by Robert Courchaine, Regional Engineer for the Michigan Water Resources Commission on July 3, 1968. The City of Kalamazoo people requested the trial to get actual data on effluent quality when only Mill A waste water was treated in the Bryant clarifier. Previously we had estimated effluent quality based on an earlier influent sampling trial when only Mill A waste water was pumped to Mill A sump for two hours daily for a two week period. At that time we calculated the suspended solid removal to be 90%, BOD removal to be 35%, fiber 100% and solubles 15%. The average influent flow for this trial was 2.311 M.G.D.

During this trial every effort was made to reduce the influent flow to process waste water from Mill A only. Previously all excess process white water from Mill C and Mill D was pumped to Mill A process water tank, often resulting in greater supply than demand. An attempt was made to use only this white water as demanded by Mill A process. This effort reduced the influent flow for this trial to an average of 1.709 M.G.D. It was estimated before the trial that a flow of 1.5-1.75 M.G.D. was attainable.

Composite samples of influent and effluent were collected every day except Sunday (pumps were down to clean 20" line and pump impellers). Flows were calculated from Leupold & Stevens charts. A gallon of the composite effluent sample was taken to the Kalamazoo Sewage Treatment Plant Laboratory each day and the flow and pH readings were also given the laboratory.

000702

Kalamazoo
EXHIBIT NO. 65
1-19-93
P. MORETTI

SA 029087

Our regular tests were run on the influent and effluent samples. The City people were to run these and other special tests they thought necessary for their evaluation of the trial. These test results will be given us at the Tuesday, July 30,1968, meeting. Two samples of sludge from the Bryant clarifier were taken each week. The results are as follows:

Date	% Consistancy	% Ash
7/10	7.8	48.7
7/12	11.35	41.3
7/16	9.5	42.0
7/18	9.3	58.3

Our overall results of the two week trial showed the following percent removals compared with our estimates.

	Actual	Estimated
Suspended Solids	92.7%	90%
B.O.D.	41.2%	35%
Fiber	100.0%	100%
Solubles	12.3%	15%

The results are very encouraging and better than our estimates of several months ago when this plan was surveyed. The average pH of the effluent (8.85) is lower than we expected which is also good.

All our test results are shown in the attached table.

/dec

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

PAPER MILLS DIVISION KALAMAZOO, MICHIGAN 49003 (616) 345-7131

May 21, 1970

RECEIVED
MAY 22 1970
WATER RESOURCES COMMISSION

Mr. Robert Courchaine, Regional Engineer
Department of Natural Resources
Water Resources Commission
Stevens T. Mason Building
Lansing, Michigan 48926

Wilmer
EXHIBIT NO. 80
1-20-93
P. MORETTI

Dear Bob:

We appreciate the fine comments you made recently to Kalamazoo Gazette staff writer, Tom Stersic, about our company's efforts which have improv the appearance of Portage Creek. We would like to take this opportunity to review our efforts in improving Portage Creek since February. As reported to you earlier in February, we picked up the chlorine drop leg water pumping it to Monarch Clarifier center ring along with the Bryant white water. A few weeks later we extended this pipe from the center ring to the wet well. This means all the influent to Monarch Clarifier is piped to this wet well.

On February 16, we discontinued the use of oxidized or chlorinated starc at our Bryant Division. We have not used oxidized starch at our King Division for 7 - 8 years. The carboxyl content (0.09 - .125%) of any th starches presently used is not high enough to cause dispersion or deflocculation of pigments. Dispersion will not be observed until 0.25 to 0.30% carboxyls are reached.

Since February 28, we have been adding an anionic coagulant (FDA approve to the Monarch Clarifier influent in an effort to further reduce the turbidity to our effluent. The treatment level of this additive is abou 0.75 to 1.0 ppm.

Our program to eliminate any oil from entering Portage Creek also has been very successful. For a while it was frustrating but the determined efforts of several of our Bryant supervisors have paid off.

We finally located the drain line from our coating mill that caused us problems and have piped this to the Mill D pump sump, where it joins the white water from Mill C and D going to Monarch Clarifier. We also built a basement sump to collect the power plant's blowdown from its hot lime soda softener and this is pumped to the same Mill D pump sump.

Our beautification program for the banks of Bryant Mill Pond and Portag Creek where they flow through our property is coming along very well.

Finally, we have been conducting experiments with various species of fi in Portage Creek waters, taken above and below our discharge from

Monarch Clarifier. We have 10 and 25 gallon aquariums in which we have Bluegills and Goldfish. So far we have not lost any Bluegills.

We have also instituted additional sampling and testing of Portage Creek water for turbidity and D.O.

Yours very truly,

ALLIED PAPER, INC.

U.G. Stoeffler,
Manager Process Development

UGS/jm

cc: E. J. Gilman
R. J. Willie

A L L I E D N E W S

Early in the Summer of 1968, the State Water Resources Commission requested Allied to do something to improve the condition of Portage Creek, even though Allied was operating within the restrictions then in force. Several different plans were studied and discussed with the City of Kalamazoo. On July 20, 1968, Allied formally submitted a plan to the State Water Resources Commission, which was subsequently approved by them.

The procedure decided upon was to separate the excess white water generated at Bryant Mills C & D, from the excess water coming out of the De-Inking Mill. The white water was to be pumped through a new line to the Monarch clarifier where it would be given settling treatment along with the white water from Monarch. The De-Inking liquid waste was to be pumped to the Bryant clarifier by itself, given primary settling there, and then the resulting water to be pumped to the City sanitary sewer line, west of the clarifier. The cost to Allied for the new equipment was figured at $100,000.

Work on the laying of the new 12", mile-long pipeline started at the first sign of good weather last Spring. The line from Bryant to Monarch was laid on the ground, but the line from the Bryant clarifier to the City sewer had to be deeply trenched. This work was completed in the latter part of this Summer, but the final hook-up with the City had to be delayed until we received and installed the instruments for measuring and recording the gallonage going to the City.

On Monday, September 29, the settled water from the De-Inking plant began to flow into the City's system. Allied has to pay the City of Kalamazoo for treating this water, and this adds to the cost of our De-Inked pulp. However, everyone in the De-Inking Mill is aware of this and is doing everything possible to limit the amount of water going to their sewers.

With the final accomplishment of the plan, the following results have been attained: 6,000# to 7,000# of BOD (Oxygen-demanding material) [redacted],000# of soluble material, and about 1,000# of suspended [redacted]ids are being kept out of Portage Creek each day.

Not only has the quality of the water and the appearance of Portage Creek been greatly improved since the inauguaration of the new system, but the Kalamazoo River, north of Kalamazoo, also benefits from it. Allied and all its employees can be proud of this contribution towards the betterment of the Kalamazoo Community.

Jack Gilman
10/9/69

000705

Gilman
EXHIBIT NO. 23
1-20 93
P. MORETTI

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

PAPER MILLS DIVISION KALAMAZOO, MICHIGAN 49003 (616) 345-7131

December 5, 1975

Mr. Chester Harvey, District Engineer
Department of Natural Resources
Water Resources Commission
4056 Plainfield Ave. N.E.
Grand Rapids, MI 49505

Dear Chet:

Jack Gilman has asked that I answer your letter of November 19. I have delayed the answer until I was certain a couple of changes had been made and a plan for other remedial action had been formulated.

First of all, we are still not certain about the source of the waste stream that produced the type of effluent from our Monarch clarifier November 8, 1975, at 10:00 a.m., as indicated in your tests, especially the pH of 9.1. No previous effluent sample ever was this high in pH.

Previously we have had to vary our shutdown procedure, staggering the clean out of save-alls, etc., so as not to exceed our pumping capacity to the grey collection tank and then to the clarifiers. Since November 8, 1975, we have installed a third pump at the Mill "D" sump (which pumps to grey tank) and changed the piping at the grey tank so as to be able to pump all Bryant Division's waste to the Bryant clarifier during the shutdown period.

We have made a thorough survey of all discharges to the mill race which runs under the Monarch Mill. Jack and I have met with Monarch Mill personnel and all these discharges will be re-routed to regular waste sewers and the end of the channel to the mill race dammed. This work is under way.

Very truly yours,

ALLIED PAPER INCORPORATED

U. G. Stoeffler
Manager, Process Development

S000999

UGS:mr

cc: E. J. Gilman, Vice President-Manufacturing
H. Horrocks, Gen'l. Supt.-Monarch Mill
K. Sweet, Gen'l. Supt.-Bryant Mill
R. J. Willie, Certified Operator

Gilman
EXHIBIT NO. 99
1-20-93
P. MORETTI

WATER RESOURCES COMMISSION
4056 Plainfield Avenue, N.E.
Grand Rapids, Michigan 49505

November 19, 1975

Mr. Jack Gilman
Allied Paper Incorporated
P. O. Box 2528
Kalamazoo, Michigan 49003

Dear Mr. Gilman:

The City of Kalamazoo relayed a complaint in regard to turbidity and discoloration of Portage Creek between Cork and Alcott Streets. Our information indicated this was occurring on weekends, especially Saturdays.

In order to confirm the basis of this complaint, one of our staff members visited the complainant on Saturday, November 8, 1975. The river remained normal until approximately 10:00 A.M. and then the river water was noted to change drastically with a white color and marked increase in suspended solids.

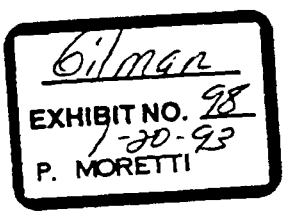
A followup at the Monarch clarifier showed this to be the source of the high turbidity and suspended solids. Further contact with mill personnel confirmed that cleanup and washdown of equipment beginning around 7:00 A.M., overloaded the clarifier's capability and a substantial carry-over of suspended solids takes place two to three hours after cleanup operations begin.

A grab sample of the clarifier effluent taken on Saturday, November 8, 1975, shortly after 10:00 A.M. had the following concentrations:

5-Day B.O.D.	146 mg/l
Suspended Solids	212 mg/l
Volatile Suspended Solids	68 mg/l

If the waste volume is normal and the concentration remained at the level of the grab sample, the daily limitation of pounds would be almost double the level of the permit.

Is there a procedure or a change in method or adjustments that can be accomplished to overcome this periodic short-term exceedence of permit levels?



More

We also discovered another outlet from the machine room basement containing miscellaneous drainage generally clear but with a marked oil film. Our data does not indicate this source to be set out in the permit for the Monarch mill. This source should be addressed and eventually placed in the permit. We would anticipate only an oil and grease restriction and monitoring.

After your staff has evaluated our findings, would you please communicate on the points raised.

Very truly yours,

WATER RESOURCES COMMISSION

Chester Harvey,
District Engineer

CH/mc
cc: L. M. Pratt
Karl Zollner

S000984

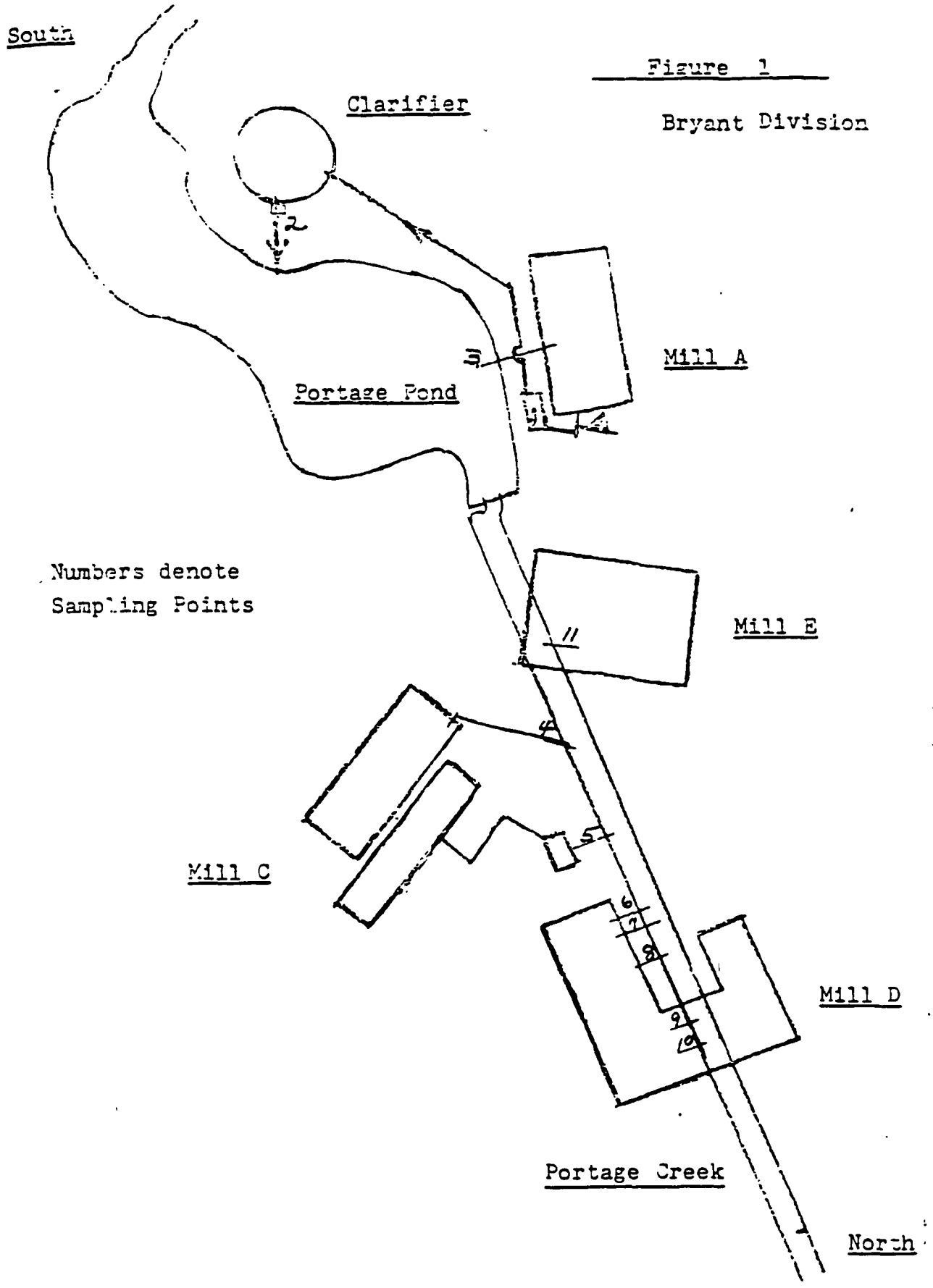
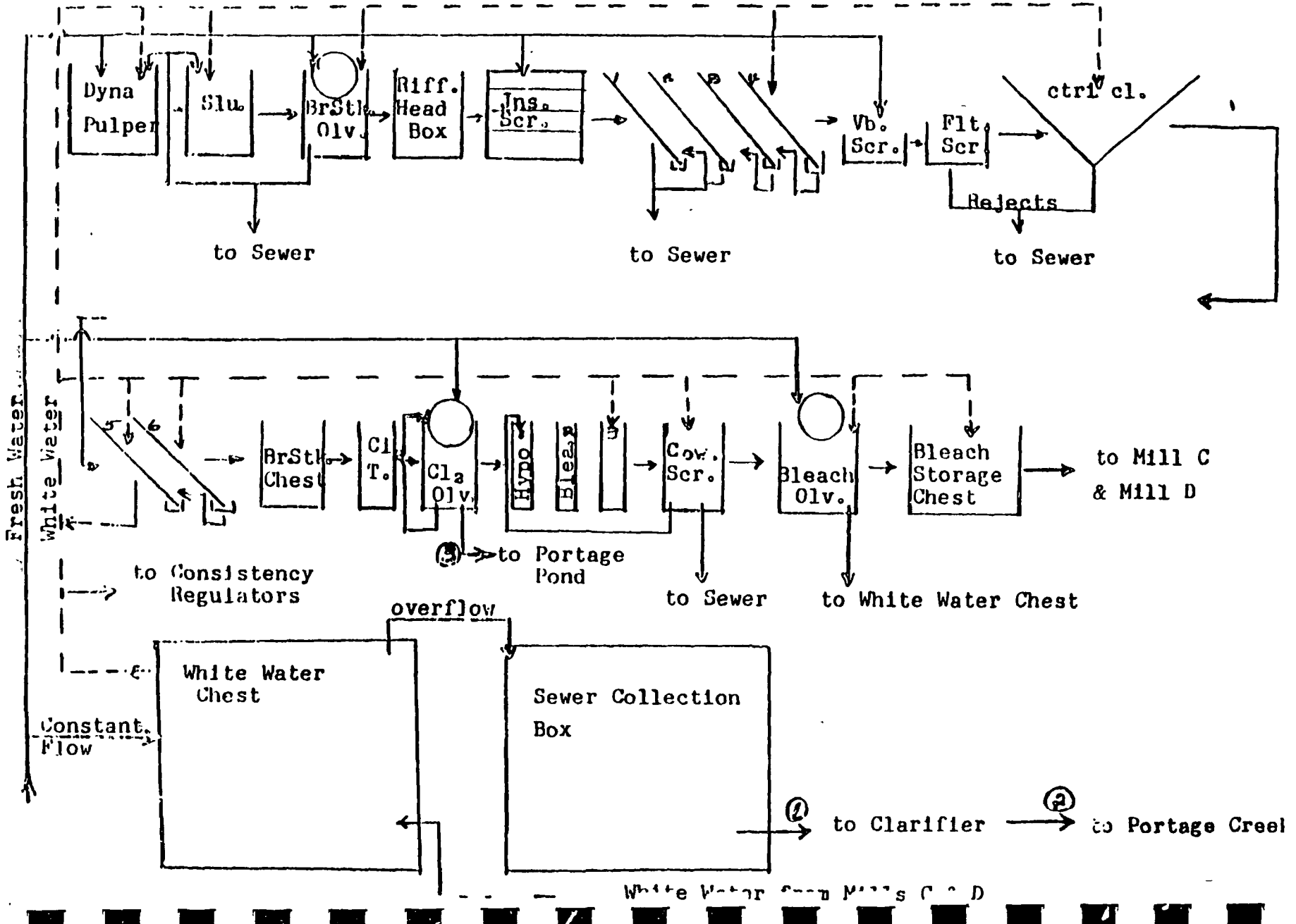


Figure 1

Bryant Division

Allied Paper Company, Bryant Division

Pulping Flow, Diagram 1



Report on Waste Disposal at
Allied Paper Company
Kalamazoo, Michigan
1963

Gilman
EXHIBIT NO. 168
2-9-93
SHERYL BUSSINGER

Introduction

At the request of Dr. Ward Harrison, President of Allied Paper Company, National Council engineers conducted a survey of water usage and waste disposal at Kalamazoo, Michigan.

The objective of the program were the following:

1. To determine the source and intensity of the major pollutional loads as discharged from the present operation.

2. To determine the performance of the existing waste disposal facilities.

3. To indicate ways and means of reducing waste loads and increasing water use efficiency.

4. To make recommendations concerning a program for additional pollution abatement to coincide with requirements of the Michigan Water Resources Commission.

This report is intended to summarize the results of the survey. In view of the magnitude and complexity of the problem, the report is presented in two sections. Parts 1 and 2 will cover the results of the survey at the Bryant and King Division, respectively.

Part 1 Bryant Division

Description of Mill Processes

The Bryant Divison produces approximately 200 tons per day of specialty papers on five Fourdrinier machines. Furnish

for the operation consists of 40-150 tons of pulp prepared at the mill by an alkaline cook of waste papers consisting of book and ledger. Fifty to sixty tons of purchased unbleached sulphite pulp is also re-pulped and blended with the reclaimed pulp. Approximately 50% of the digester liquor is recycled for heat recovery and the remaining 50% is combined with other mill waste for discharge to a primary treatment facility and thence to Portage Creek, the receiving stream. The pulping process is located in Mill A.

Mill C provides facilities for two of the five machines, and the remaining three machines are located in Mill D. The coating operation is completed in Mill E. The location of the above mills may be seen by referring to Figure 1.

All machines are equipped with Bird Screens and Sveen-Pedersen save-all devices. All screen shower waters pass through the saveall devices. Saveall effluents are discharged to storage tanks for re-use, except when colored papers are being produced. White water tank overflows and colored waters are discharged through sewers directly to Portage Creek.

Survey Procedures

To accomplish the objectives previously cited, a three day survey was conducted. The survey consisted of collecting eight, hour composite samples at the major mill waste streams to be indicated later. The composite samples were analyzed for BOD, and suspended solids content according to methods outlined in the 11th edition of "Standard Methods for Water and Waste Water". All laboratory test data is appended to this report.

Sampling Points and Flow Sheets

Major water use and re-use practices are indicated on flow sheets one through three. The major streams and respective sampling points are indicated by circled numbers on the appropriate flow sheets. A description of these points are as follows:

1. Clarifier Influent. The constituent of this sewer contains a portion of the waste from Mill A, C, and D.

2. Clarifier Effluent. The characteristic constituent of this sewer is basically that of the above but weaker in content. This sewer is equipped with a 5 foot rectangular weir and flow recorder.

3. Chlorine Bleach. The waste water in this sewer is composed of bleach water from the Oliver following the chlorine bleach tower in Mill A.

4. Number 1 Sewer Mill C. This waste water is composed of machine waters, floor drains, and roof drains from Mill C.

5. Number 2 Sewer Mill C. This waste water is composed of Sveen-Pedersen effluent, white water chest overflows, and other machine waters directly sewered.

6, 7, & 8. Mill D. The waste water in these sewers is composed of condensate water, machine waters, and drinking fountain waters. These waters combine into one rectangular sewer which is equipped with three ports for discharge into Portage Creek. Parts 6 and 8 are equipped with a 18" rectangular weir.

9. Mill D. The waste water in this sewer is composed of white water chest overflows, rich white water and saveall effluent. This port is equipped with an 18" rectangular weir.

10. Mill D. The waste water in this sewer is composed of excess saveall effluent, and the discharge is intermittent.

11. Mill E. The waste water in this sewer is composed of coating tank dumps, tank rinse water, and machine bearing water.

A. Mill A. The waste water in this sewer is composed of brown stock oliver and side hill water. It also contains screen reject from the pulping process. It is discharged into the wet well prior to final pumping to the clarifier.

Flow Measurement

Flows for No. 1, 2, 6, 8, 9 and 10 samples were computed from average flow height values observed during collection of samples. Flows for samples 3,4, 5, 7 and 11 were determined according to the following formula:

$$Q = VA$$

A = Cross sectional area of liquid in pipe in square feet.
V = Velocity of fluid in feet/second.
Q = Flow in cubic feet per second.

Under the existing conditions at the mill, measurement of flows by the above procedures are somewhat difficult. However, the observed flows are believed to be reasonably accurate. The collection and discharge of all flows through one outfall sewer is desirable both for accuracy of flow measurement and simplicity of sampling.

Discussion of Results

The data collected during the survey are summarized in Tables 1 and 2. The suspended solids and BOD after 1 hour settling refers to samples that were settled in the laboratory under quiescent conditions. By reference to Tables 1 and 2 it is observed

Table 1
Allied Paper Company
Test Data
Bryant Division

Summary of Suspended Solids Removal

Sample	11/26/62 Total lbs/day	% Reduction	12/3/62 Total lbs/day	% Reduction
3-11	120,984	0	71,408	0
Clarifier Influent	116,000		82,500	
Clarifier Effluent	43,750	62	15,200	82
Clarifier Influent After 1 hr. Settling	1,765	98	15,200	82
3-11 After 1 hr. Settling	6,856	95	2,976	96
Clarifier Effluent After 1 hr. Settling	5,500	87	5,140	70
lbs/Ton Production	1,180		765	

Table 2
Allied Paper Company
Test Data
Bryant Division

Sample	12/28/62 Total lbs/day	12/28/62 % Reduction	12/3/62 Total lbs/day	12/3/62 % Reduction
3-11	21,695	0	13,966	0
Clarifier Influent	29,300		25,600	
Clarifier Effluent	14,400	51	12,800	50
3-11 After 1 hr. Settling	5,163	78	1,463	89
Clarifier Influent After 1 hr. Settling	14,650	50	7,560	70
Clarifier Effluent After 1 hr. Settling	12,500	57	12,400	51
Sludge Bed Decant (lbs/day)	790		75	
Total BOD produced by Bryant Div.		51,985		39,556
Total BOD discharged to Portage Creek		37,085		26,631
Total BOD now being removed		14,900		12,600
%Removed		29.2		42.5
lbs BOD/Ton prod.+		260		197

+ Based on 200 ton/day

197
457
229

230
200
46000
6
160)40000
1000

that the greater proportion of the solids and BOD is found in the clarifier influent. The majority of this flow is shown to emanate from the deinking process.

For comparative basis, reference is made to rules and regulations relating to waste from pulp and paper mills in Pennsylvania. These regulations were established in 1950 and the values are considered average for the process assuming reasonably well operated mills. The effluent standards for the deinking process are as follows:

Pounds of suspended Solids/Ton product	Pounds of BOD per Ton of product
600	85

Where primary treatment is required the State has set the following standards regarding reductions from raw waste levels:

Suspended Solids Removed	70%
Settleable Solids Removed	98%
BOD Removed	35%

By reference to Tables 1 and 2 it is observed that the average total suspended solids of the combined sewers produced by the process at the Bryant Division is 972 lbs/ton. This is higher than the average 600 for the deinking process. The BOD is also shown to be higher than the average 85 lbs/ton for the deinking process, showing an average 228 lbs per ton of paper produced.

A well designed primary treatment facility for the removal of suspended and settleable solids in deinking waste should provide detention periods in the order of four hours with an overflow rate of 500-600 gallons per square foot per day. Under the present conditions of flow (average 4.6 mgd.), hydraulic loading provides 3.7 hours detention time and 590 gallons per square foot per day overflow rates. Under these circumstances an average of 72% and 50 % of the settleable solids and BOD are

removed respectively. It is further observed that 95% of the suspended solids now being discharged directly to Portage Creek are settleable. The efficiency of removal of these materials if subsequently routed through the clarifier will be dependent on the hydraulic loading changes induced by the added flow.

The BOD removal from the flow presently passing through the clarifier is higher than would be expected from a facility of this type. By reference to Table 2 it is observed that approximately 36% of the applied BOD is removed by primary treatment. It is further observed that 53% of the BOD now being discharged directly to Portage Creek is removable by a good job of settling. It is premature to anticipate what percentage BOD removal could be accomplished should all the waste flow be directed through the clarifier. Again, this would be dependent on the hydraulic characteristics.

Internal Water Usage

Fresh water and recirculated white water usages are shown on Flow Diagrams 1-3.

Fresh water is used for all showers on oliver savealls, Bird Screens, machine showers, and vacuum pump seal water. Fresh water is also used for make-up and dilution in white water storage tanks and Sveen-Pederson savealls.

White water is used for dilution in oliver savealls, centri cleaners, Flat screens, Jonsson screens, consistency regulators, pulpers, and beaters. Fresh water is used in pulpers and beaters at start-up only. Brown stock saveall water is returned to the pulper for chemical and heat recovery. Approximately 50% of this flow is also sewered. All machine white water is designed to pass

through the Sveen-Pederson savealls. However, numerous occasions occur in which machine seal pit waters overflow directly to the sewers resulting in high losses of usable fibre.

By reference to Tables 3 and 4 it is observed that the Sveen-Pederson savealls are doing an excellent job of fibre recovery, providing effluents of re-usable quality.

In consideration of the flow values observed during the survey there is little indication of very much water conservation. This factor is borne out by observations of continuous fresh water flows into white water storage tanks, and flotation savealls. There were also instances of fresh water hoses running for no apparent reason. This would simply be a matter of good housekeeping. These flows while singularly minor, can add up to considerable volume during the course of 24 hours.

Fibre analysis of the clarifier underflow indicate 11-15% 100-mesh fibre content. The recovery in this respect is reasonably good but losses could be reduced further. However, the origin of most of this sludge is the pulping process in Mill A, and does not include fibre losses which are directly sewered in Mills C and D.

The re-use of white water has been successful with some mills and unsuccessful with others. It is generally accepted that white waters containing 0.5 lbs solids/1000 gals. or less can be re-used satisfactorily with present shower equipment. The re-use of flotation saveall effluents on all oliver saveall showers, Bird Screen showers and vacuum pump seal water will substantially reduce fresh water usage. The higher solids content machine waters should be re-used for make-up and dilution at the pulpers, beaters, side hill screens, centri cleaners, mixing

Table 3
Allied Paper Company
Bryant Division
Test Data

November 28, 1962 - Sveen-Pederson Saveall Solids Recovery Efficiency. 10:30 A. M.

Machine Number	Influent lbs/M gal.	Effluent lbs/M gal.	Percent Recovered
5	15.0	0.25	98
6	10.3	1.50	86
7	10.0	0.25	97
8	5.0	0.08	98
9	31.0	0.16	99
Maximum	31.0	1.50	99
Minimum	5.0	0.08	86
Average	14.2	0.45	95

Table 4
Allied Paper Company
Bryant Division
Test Data

December 3, 1962 - Sveen-Pederson Saveall Solids Recovery Efficiency. 10:30 A. M.

Machine Number	Influent lbs/M gal	Effluent lbs/M gal	Percent Recovered
5	7.3	0.75	90
6	20.2	0.21	99
7	7.2	2.31	68
8	3.9	1.29	67
9	45.7	0.83	98
Maximum	45.7	2.31	99
Minimum	3.9	0.21	67
Average	16.8	1.07	84

chests, and stock chests.

Fresh water consumption could be substantially reduced by the installation of high pressure low volume headers on all machine wire showers. Felt conditioner showers could be converted to traveling steam jets and vacuum pump seal water converted to white water.

A general program of water economy should be initiated to reduce fresh water usages and return white waters to the most appropriate re-usable phase of the process. With the present laxity in water conservation it appears that additional white water storage is needed, however, it is believed that if water consumption is reduced as outlined in this report, present storage facilities may be adequate for the future.

White water storage and seal tank overflows should be regulated or controlled by adequate pumping or warning systems so as to prevent overflow into the sewers.

Conclusions

1. Fresh water usage for a mill of this type is excessively high.

2. Fibre recovery is reasonably good. However, present fibre losses could be further reduced with better control of the process.

3. The clarifier is not overloaded at this time. Solids removal is slightly lower than would be expected under these conditions. However, if present volumes of waste discharges of the Bryant Division were passed through the clarifier, it would be overloaded hydraulically, and present levels of efficiency would be lowered.

4. Means for accurate measurement of flow should be provided for all outfall sewers, or all sewers flows combined into a single discharge including an appropriate means of flow measurement.

5. Increased solids recovery within the individual mills is possible with better regulation of waste flows.

4. Extension of existing water re-use practices should definitely be considered in a long-range plan to recover and retain the highest quality solids in the highest quality furnish and reduce the pumping costs involved in waste disposal.

Recommendations

1. Convert vacuum pump seal water to white water seal.

2. Convert oliver saveall and Bird Screen showers to white water.

3. Convert machine wire shower headers to high pressure low volume headers.

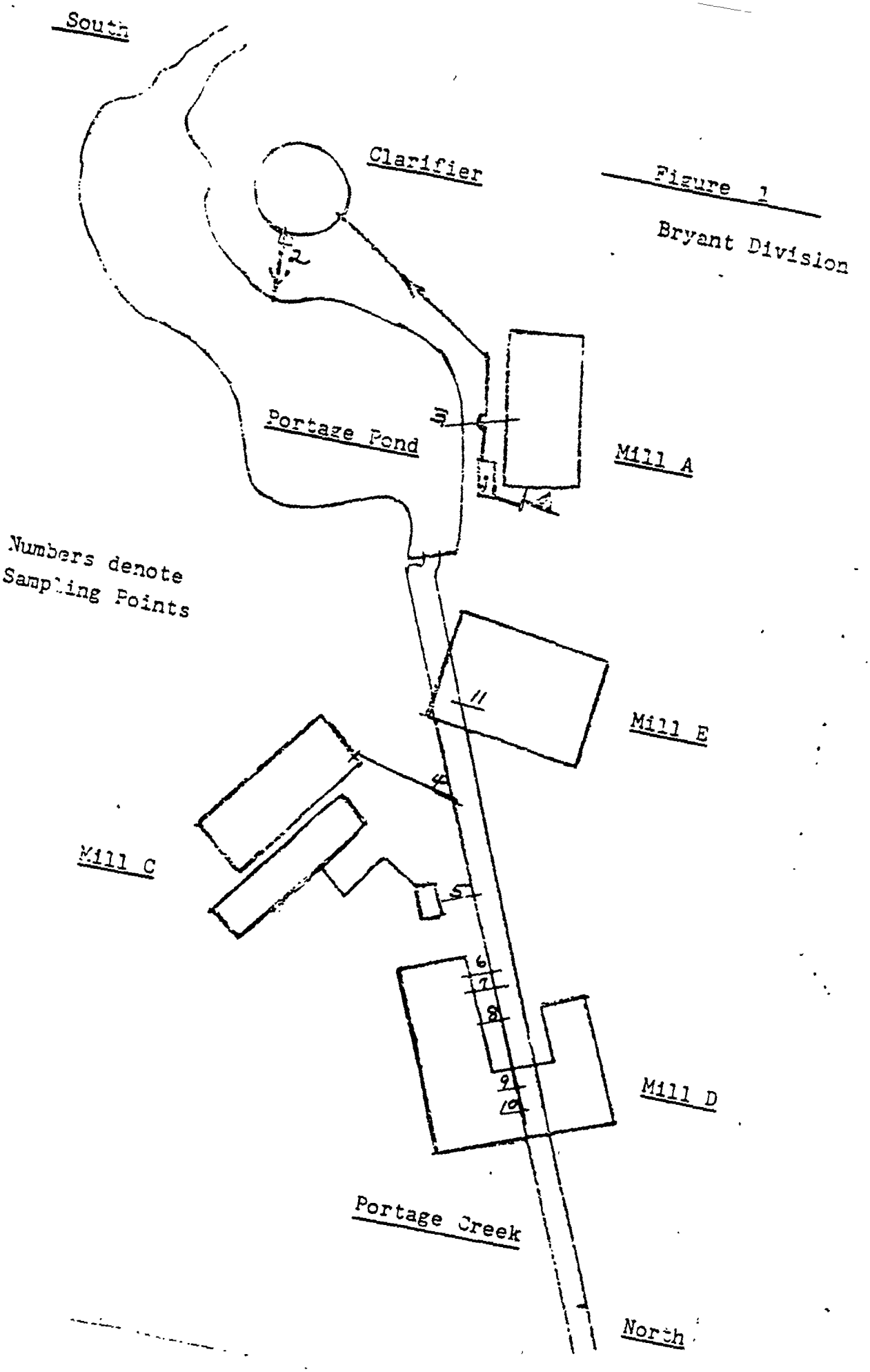
4. Convert felt conditioner showers to traveling steam jets.

5. Provide better control of white water and seal tank overflows by adequate pumping or warning systems to prevent overflows into the sewer.

6. Re-use white water at all possible locations suggested in the body of this report where quality of product is not diminished by its re-use.

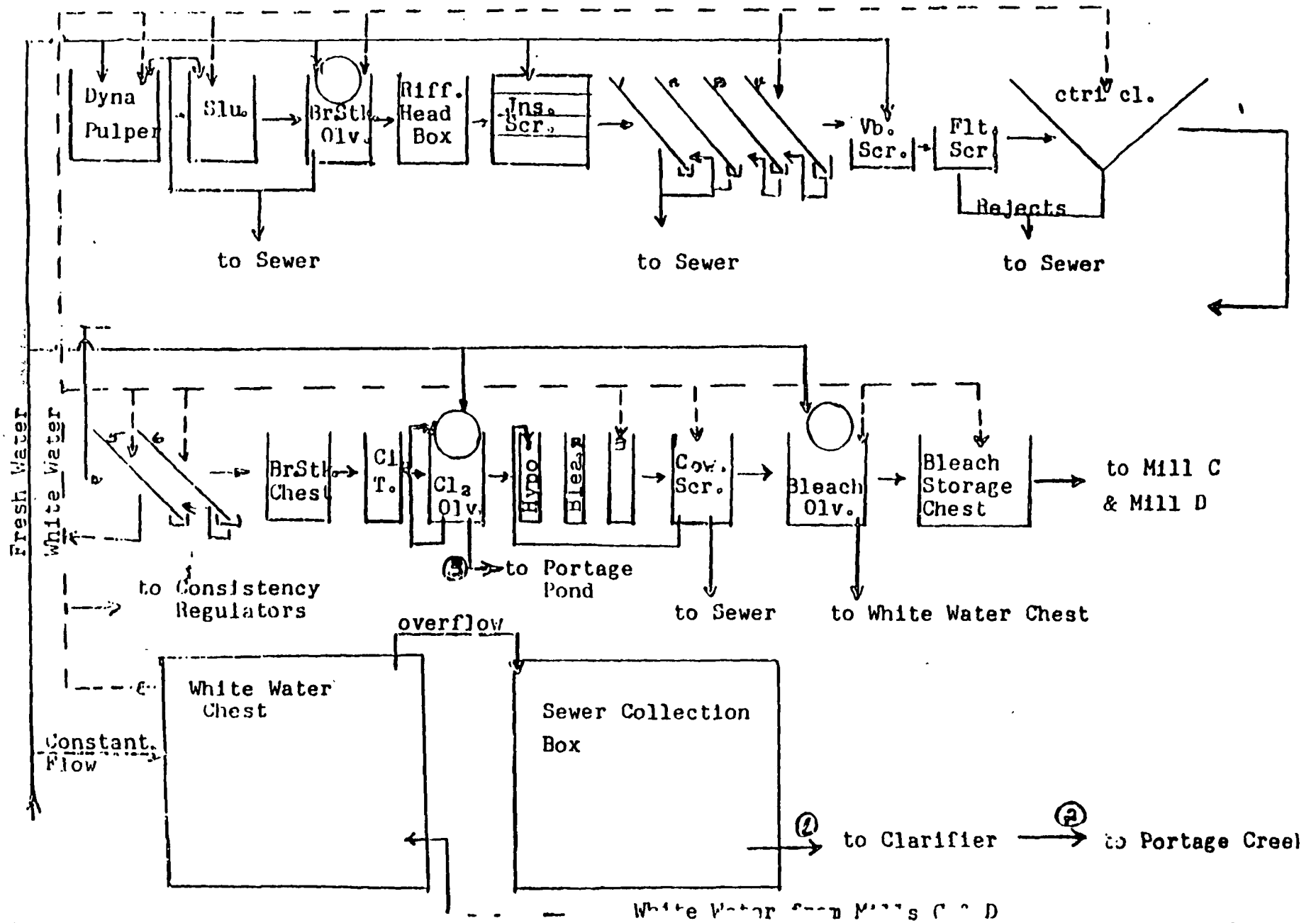
7. Reduce fresh water usage to minimum required flows at all possible phases of the process.

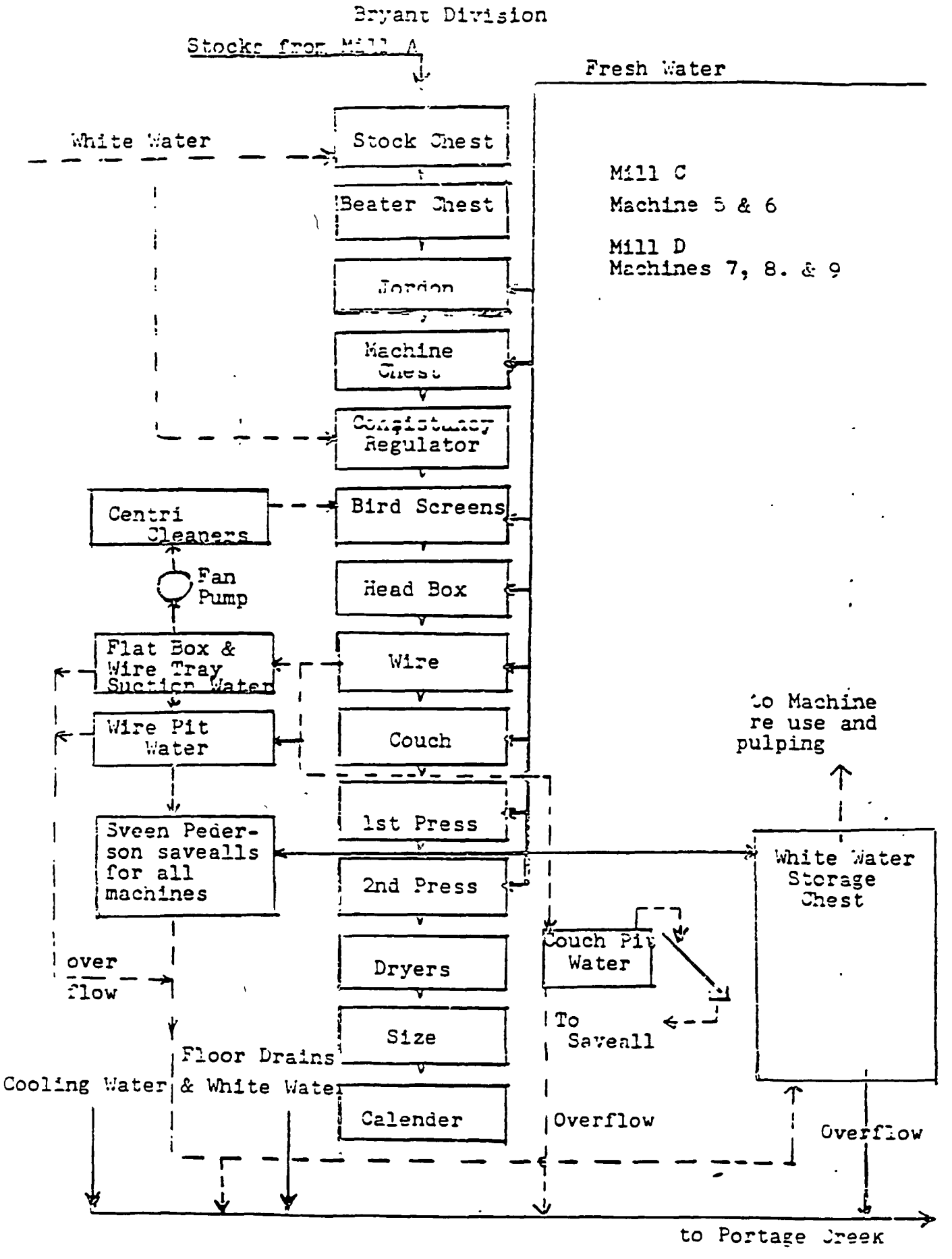
Emphasis should be placed on a program to exercise better in-plant control and to reduce waste flows now discharged. Concentration of waste into minimum volumes by reduction in fresh water use and increased re-use of white water is necessary prior to development of final treatment plant designs. This procedure is desirable so that final treatment costs may be minimized and evidence to date indicates that the biological process itself will be more efficient with concentrated waste.

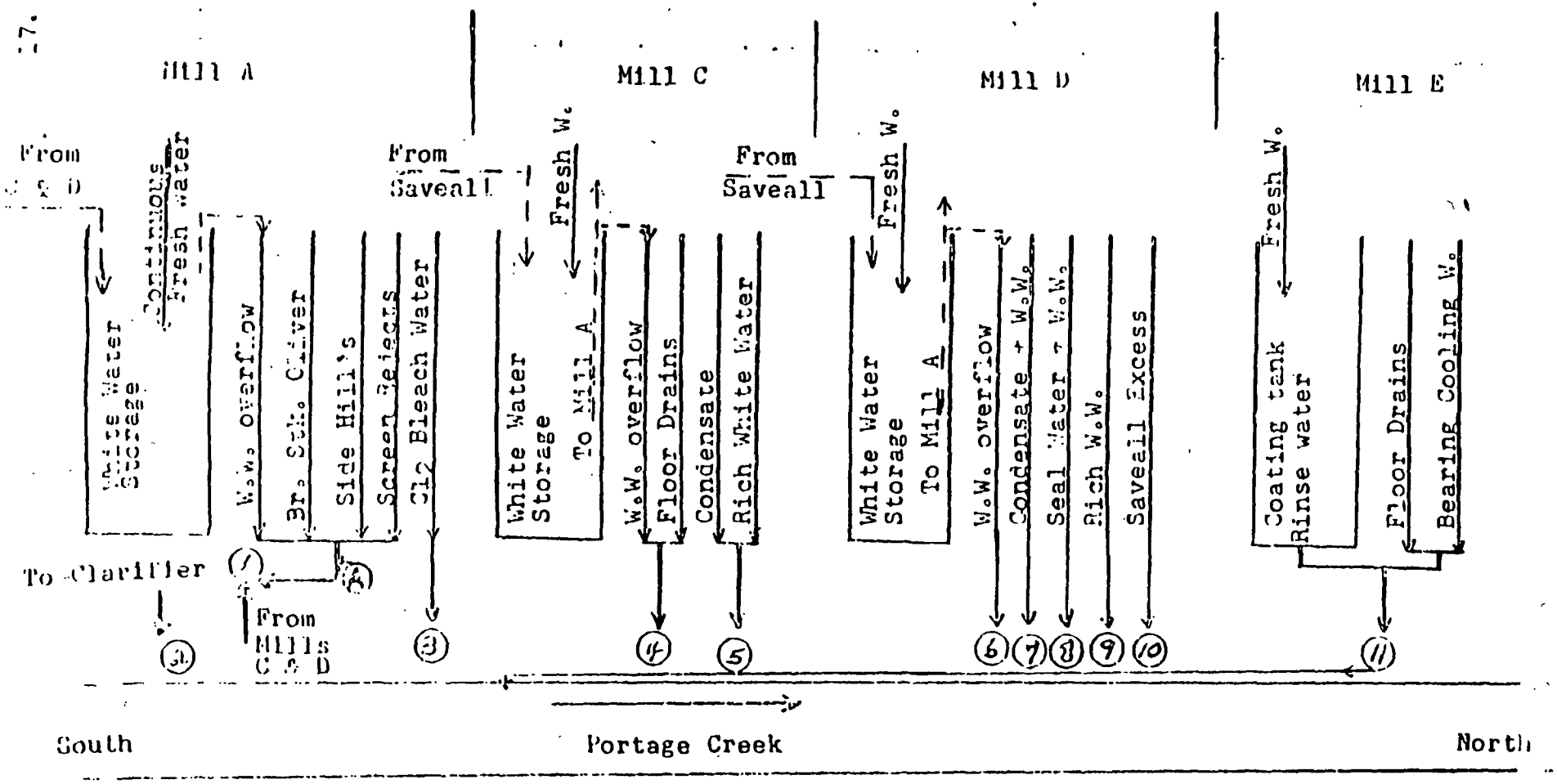

South
Clarifier
Figure 1
Bryant Division
Portage Pond
Mill A
Numbers denote
Sampling Points
Mill E
Mill C
Mill D
Portage Creek
North

Allied Paper Company, Bryant Division

Pulping Flow, Diagram 1




Bryant Division
Stocks from Mill A
Fresh Water
White Water
Stock Chest
Beater Chest
Jordan
Machine Chest
Consistency Regulator
Centri Cleaners
Fan Pump
Flat Box & Wire Tray Suction Water
Wire Pit Water
Sveen Pederson savealls for all machines
over flow
Bird Screens
Head Box
Wire
Couch
1st Press
2nd Press
Dryers
Size
Calender
Mill C
Machine 5 & 6
Mill D
Machines 7, 8. & 9
Couch Pit Water
To Saveall
to Machine re use and pulping
White Water Storage Chest
Floor Drains & White Water
Cooling Water
Overflow
Overflow
to Portage Creek



Bryant Division

Flow Diagram 3

Sewer Composition, Sampling points and Discharge locations

Test Data
Bryant Division

November 28, 1962 - 8-hour Composite Sample

Suspended Solids

Sampling Point	Flow Mgd.	Before Settling ppm	Before Settling lbs/day	After Settling, 1 hr. ppm	After Settling, 1 hr. lbs/day	% Settleable
1	4.4	3600	116,000	40	1,465	98
2	4.4	1200	43,750	150	5,500	87
3	.9	60	450	50	375	16
4	.65	680	3,268	120	650	82
5	1.14	680	6,500	120	1,140	82
6	1.50	1120	14,000	60	750	94
7	-----	1600		40		
8	1.35	2040	23,000	120	1,350	94
9	.85	8200	58,000	60	425	99
10	.02	400	66	40	6	90
11	.65	3000	16,200	400	2,160	87

Biochemical Oxygen Demand

						% Removed
1	4.4	800	29,300	400	14,650	50
2	4.4	390	14,400	340	12,500	13
3	.9	70	525	70	525	0
4	.65	360	1,940	32	173	91
5	1.14	90	850	25	236	72
6	1.50	275	3,450	120	1,510	56
7	----	260		100		
8	1.35	390	4,400	5	55	99
9	.38	940	6,650	30	212	97
10	.02	60	10	10	2	83
11	.65	750	4,070	300	2,450	40

Clarifier underflow 3.5% Solids 15% 100-mesh fibre

Sludge bed decant (continuous flow to Portage Creek approximately 20,000 gals/day.)

Suspended Solids - 4,200 ppm, 700 lbs/day
B.O.D. - 4,720 ppm, 790 lbs/day

Allied Paper Company
Test Data
Bryant Division

December 3, 1962 - 6 Hour Composite Sample

Sampling Point	Flow mgd.	Before 1 hr. Settling ppm	Before 1 hr. Settling lbs/day	After 1 hr. Settling ppm	After 1 hr. Settling lbs/day	% Settleable
1	4.80	2,060	82,500	378	15,200	80
2	4.80	376	15,200	156	5,140	59
3	.90	4	30	2	15	50
4	.20	152	257	16	27	89.5
5	1.27	766	8,100	24	243	97
6	1.27	1,174	12,400	86	930	92.5
7	----	1,032		36		
8	1.85	1,570	24,200	62	970	96
9	.63	4,994	26,100	160	784	97
10	.02	520	87	2	nil	99.5
11	.20	140	234	4	7	97
A	2.20	2,800	51,000	100	1,830	97
			Biochemical Oxygen Demand			% Removed
1	4.80	640	25,600	190	7,560	70
2	4.80	320	12,800	310	12,400	3
3	.9	55	410	45	338	18
4	.2	100	167	10	17	90
5	1.27	200	2,120	19	202	91
6	1.27	260	2,750	20	210	93
7	----	100	-----	7	----	
8	1.35	210	3,250	22	340	90
9	.63	1,000	5,250	55	276	94
10	.02	55	9	16	3	21
11	.20	120	200	45	75	62
A	2.20	880	16,100	290	5,320	67

Clarifier Underflow 3.2% Solids 11.5% 100 mesh-fibre

Sludge Bed Decant (Continuous flow to Portage Creek approximately 20,000 gals/day)

Suspended Solids	46 ppm	7.5 lbs/day
BOD	460 ppm	75 lbs/day

Allied Paper Company
Test Data
Bryant Division

November 21, 1962 - Grab samples were collected at major mill discharge points excluding clarifier influent and effluent. These sample results are listed below.

Sampling Point	Flow Mgd	Before Settling ppm	Before Settling lbs/day	After Settling, 1 hr., ppm	After Settling, 1 hr., lbs/day	% Settleable
			Suspended Solids			
3	.90	25	187	4	3	96
4	.64	320	1700	50	266	64
5	1.13	680	6400	110	1030	84
6	1.30	500	5400	75	935	83
8	1.50	1940	24,200	295	3700	88
9	.40	5160	17,200	750	2500	85
10	.02	40	6	4	----	90
11	.64	140	750	21	112	85
			Biochemical Oxygen Demand			% Removed
3	.90	120	985	100	750	24
4	164	37	200	15	80	60
5	1.13	87	830	38	360	56
6	1.30	75	820	38	420	49
8	1.50	390	4700	190	2380	49
9	.40	470	1570	170	565	64
10	.02	66	14	64	12	14
11	.64	38	210	30	165	21

Total Suspended Solids Before Settling	55,943
Total Suspended Solids After Settling 1 hour	8546
Average Suspended Solids Removed by Additional Settling	85.0%
Total B.O.D. Before Settling	9829
After Settling, 1 hour	4722
Average B.O.D. Removed by Additional Settling	49%

Report on Waste Disposal at
Allied Paper Company
Kalamazoo, Michigan

Part II King Division

Description of Mill Processes

The King Division produces approximately 200 tons per day of specialty papers on four Fourdrinier machines. Furnish for the operation consist of 170-180 tons of pulp prepared at the mill by an alkaline cook of waste papers consisting of magazines, books, and ledger. Twenty to thirty tons of purchased unbleached sulphite pulp is also re-pulped and blended with the reclaimed pulp. The digester liquor is recycled for heat recovery and dilution in the centrifflers and Johnson screens from whence it is discharged to the sewer.

All paper machines are equipped with Bird Screens and Sveen-Pederson saveall devices. All Machine shower and Bird Screen shower waters pass through the saveall devices. Saveall effluents are discharged to storage tanks for re-use except when colored papers are being produced. White Water tank overflows and colored waters are discharged through sewers directly to a primary treatment facility and thence to Kalamazoo River, the receiving stream.

Survey Procedures

To accomplish the objectives previously cited in Part I, a three day survey was conducted. The survey consisted of collecting 8-hr. composite samples at major mill waste streams. In addition to these samples, grab samples were collected at individual waste sources throughout the mill. Location of all sampling points are presented in Figure 1. All samples were analyzed for BOD, and

[illegible] solids content according to methods outlined in [illegible] edition of "Standard Methods for Water and Waste Water". All laboratory data is appended to this report.

Sampling Points and Flow Sheets.

Major water use and re-use practices are indicated on Figures 1, 2, and 3. The major streams and respective sampling points are indicated by circled numbers on the appropriate flow sheets. A description of these points are as follows:

1. Clarifier Influent. The constituent of this sewer contains the total waste flow from the Mill Division.

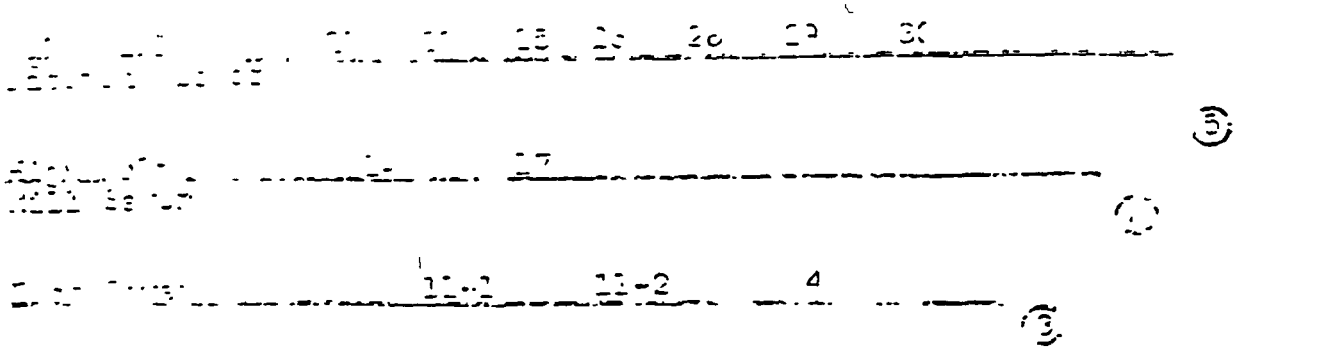
2. Clarifier Effluent. The characteristic constituent of this sewer is basically that of the above but weaker in content. This sewer is equipped with a 6 foot rectangular weir and flow recorder.

3. East Sewer. The waste water in this sewer is composed of floor drains, centricleaner rejects, starch cooking, beater room, and No. 1 and 2 paper machines white water and white water tank overflows.

4. High Pulp Mill Sewer. The waste water in this sewer is composed of rich white water tank overflows, flat and cowan screen rejects, 1st and 2nd stage brown side hill wash water, last stage washer seal water overflows, No. 3 and 4 paper machine white water, East sewer and Pulp mill basement sewer overflow water.

5. Pulp Mill Basement Sewer. The waste water in this sewer is composed of Jonnson screen rejects, 6th stage side hill water, Brown side hill room drains, vitrotor shower water, centricleaner rejects, 2nd and 3rd stage washer water, brown stock washer water and hypo bleach water.

Figure 1



Clarifier

Bypass

To Kalamazoo River

Effluent Streams

1 Clarifier Effluent Composite
2 Clarifier Effluent Composite
3 Lift Station Composite
4 Stage Seal Composite
5 Full Mill Effluent Composite

Individual Streams

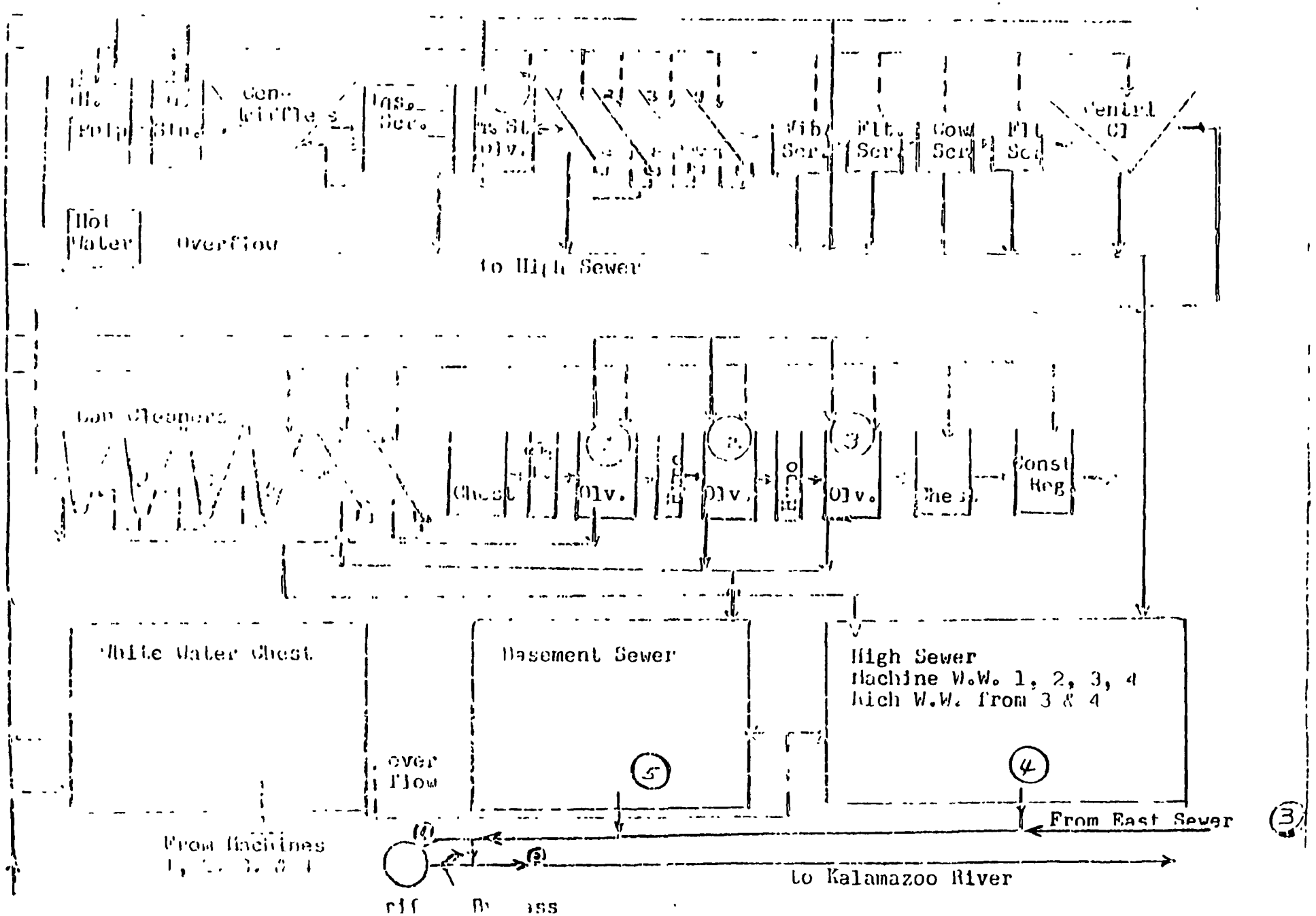
Strong Ammonia Radial Waste

4 Stretch Forming
11-1 Combustion Rejects
11-2 Centrifugal Cleaner Rejects
17 Clean Surface Water
17 Flat and Screen Screen Rejects
21 4th Stage Side Hill Water
22 Ammonia Screen Rejects
25 Kalamazoo River Water
26 Centrifugal Cleaner Rejects
28 Brown Stock Washer seal water
29 3rd stage washer seal water
30 2nd stage washer seal water

Figure 2

[illegible] Paper Company, King Division

Pulping Flow Diagram



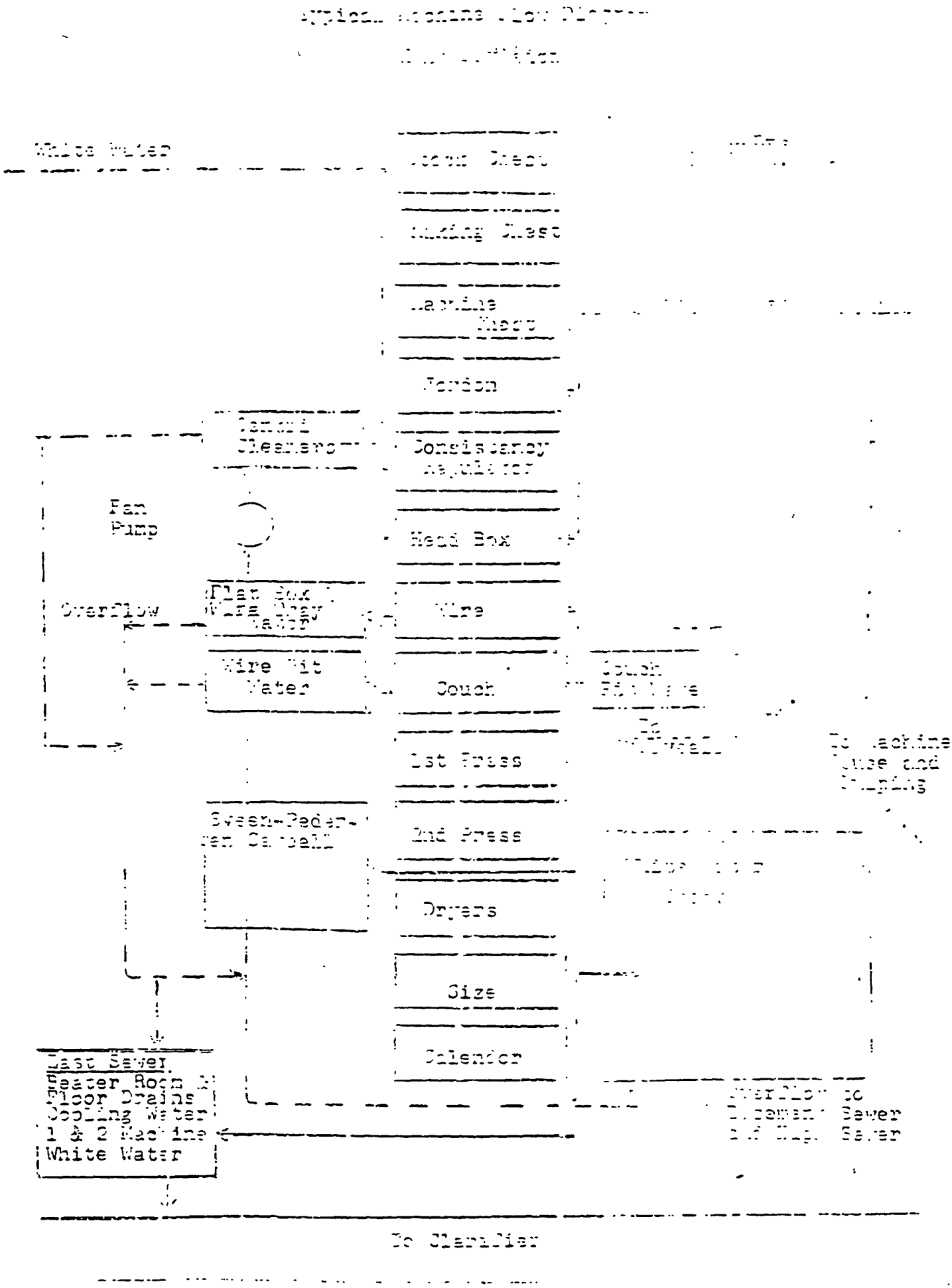

White Water
Jordan
Consistancy
Head Box
Wire
Couch
1st Press
2nd Press
Dryers
Size
Calendar
Pan
Pump
Overflow
Wire Pit
Water
Sveen-Pedersen Carpell
Last Sewer
Beater Room &
Floor Drains
Cooling Water
1 & 2 Machine
White Water
To Clarifier

Table I

Allied Paper Company
Test Data
King Division

Summary of Suspended Solids Removal

Sample	1/8/63 Total lbs/day	1/8/63 Percent Reduction	1/16/63 Total lbs/day	1/16/63 Percent Reduction	1/24/63 Total lbs/day	1/24/63 Percent Reduction
Clarifier Influent	221,700		107,400		162,050	
Clarifier Effluent	118,000	46.8	22,800	79.6	24,200	85.0
Clarifier Influent After 1-hr Settling	5,240	97.7	2,380	97.8	1,230	99.2
Clarifier Effluent After 1-hr Settling	5,680	94.3	6,800	70.0	615	96.7
lbs/ton Production	1,275		540		635	

Average lbs/ton 816

Table 2

Allied Paper Company
Test Data
King Division

Summary of BOD Removal

Sample	1/8/63 Total lbs/day	1/8/63 Percent Reduction	1/16/63 Total lbs/day	1/16/63 Percent Reduction	1/24/63 Total lbs/day	1/24/63 Percent Reduction
Clarifier Influent	34,420		25,800		61,850	
Clarifier Effluent	25,300	26.0	14,175	45.0	[illegible],600	38.5
Clarifier Influent After 1-hr Settling	25,300	26.0	13,850	46.3	23,600	61.8
Clarifier Effluent After 1-hr Settling	18,500	46.2	14,175	45.0	19,700	68.0
Tons Produced	173		199		255	
lbs/ton Production	199		116		242	

Average lbs/ton 186
Average water usage gals/ton = 38,200

Table 3

Allied Paper Company
King Division

Data Summary of Grab Samples

Sample Source	1/6/63 BOD PPM	1/6/63 Sus. Solids PPM	1/24/63 BOD PPM	1/24/63 Sus. Solids PPM
1 Saveall Influent	240	408	370	3146
2 " "	140	6960	300	2452
3 " "	260	3483	240	2592
4 " "	190	1076	130	1466
1 Saveall Effluent	95	8	58	54
2 " "	60	32	55	20
3 " "	75	64	45	1080
4 " "	110	4	28	3
11-1 Centricleaners	420	30,448	730	28,144
11-2 Centricleaners	220	12,856	470	9424
4 Starch Cooking	2960	2470	320	20
14 Rich W.W. Overflow	205	6028	320	5872
17 Flat and C. Scr. Rejects	330	1748	730	2932
21 6th Stage Side Hill	230	1792	710	2080
23 Jns. Scr. Rejects	2560	7000	3280	8290
25 Vibrotor Shower	3040	3690	400	1048
26 Centricleaners	580	17,172	650	19,940
28 Brn. Stb. Seal W.	760	6330	1360	8610
29 3rd Stage Seal W.	160	320	210	236
30 2nd Stage Seal W.	310	576	-	-

775 gallons per square foot per day overflow rates. Under these conditions an average of 70.4% and 43.2% of the settleable solids and BOD are removed respectively. It is further observed that 67% of the suspended solids now being discharged directly to Kalamazoo River are settleable.

The average BOD removal effected by the primary clarifier is observed to be 43.2%. It is further observed that 53.2% of the applied BOD may be removed by a good job of settling. Hence, under conditions of reduced hydraulic loading and additional 10% removal of BOD may be expected. Due to fluctuations in waste flows, direct by-passing of the clarifier to the river occurs intermittently throughout the day. Better regulation of these flows are needed to prevent future by-passing.

Internal Water Usage

Fresh water and recirculated white water usages are indicated in Figures 1, 2, and 3.

Fresh water is used for all showers on oliver saveralls, Bird Screens, machine showers, and vacuum pump seal water. Fresh water is also used for make-up and dilution in white water storage tanks, and Sveen-Pederson saveralls. Treated fresh water storage tanks often overflow into the sewers adding to the hydraulic loading to the primary clarifier.

White water is used for dilution in oliver saveralls, centri-cleaners, flat and cowan screens, Jonnson screens, consistency regulators, pulpers, and beaters. Fresh water is used in pulpers and beaters at start-up only. Brown stock saveall water is returned to the centrifflers and Jonnson screens for dilution and heat recovery. All machine white water is designed to pass through the Sveen-Peder-

[illegible] on occasion machine seal pit waters overflow directly into the sewers.

By reference to Table 4 it is observed that the Green-Pederson overall recovery is excellent, providing effluents of re-usable quality.

Observations of continuous overflow of fresh water supply tanks into the sewers and laxity in fresh water usage indicate some reduction in water usage could be accomplished. The resultant reduction in waste water flow volumes would be expected to improve BOD removal by 10% in the primary treatment facility. Existing fresh water usage at the King division averages 10-15,000 gallons per ton of product higher than the average usage for the deinking process. Although improved water economy would only moderately improve the efficiency of the primary clarifier, the reduction in waste flows would significantly reduce unit area requirements for secondary treatment.

Fibre analysis of the clarifier underflow indicate 20% 100-mesh fibre content. The recovery in this respect could be improved resulting in reduction of fiber losses and improved economy of operation.

The general observations and recommendations as specified in Part I, Bryant Division, may also be applied to the existing conditions at the King Division.

Consideration has been given to the possibility of segregation of some individual waste streams for primary treatment only, while others will require complete treatment. Reference to the data appended to this report indicate an average of 84% BOD removed in the east sewer by a well designed and operated primary clarifier.

Table -
Allied Paper Company
Ding Division
Test Data

Green-Pederson Saveall Solids Recovery Efficiency

1/6/63 - 11:30 A. M.

Machine No.	Influent lbs/m gal.	Effluent lbs/ m gal.	Percent Recovered
1	3.4	0.06	98.0
2	62.3	0.27	99.5
3	29.0	0.53	96.2
4	9.0	0.03	99.6
Maximum	62.3	0.53	99.2
Minimum	3.4	0.03	99.0
Average	25.9	0.22	99.0

1/24/63 - 9:30 A. M.

1	26.2	0.45	98.3
2	20.4	0.16	99.2
3	21.6	9.00	58.4
4	12.2	0.03	99.7
Maximum	26.2	9.00	65.6
Minimum	12.2	0.03	99.7
Average	20.1	2.41	12.0

[illegible] suggest that all flows into the East sewer may be [illegible] for primary treatment only. Optimum settling conditions for the pulp mill basement and High pulp mill sewers indicate [illegible] removal. Secondary treatment for these flows is indicated to provide high BOD removals. The segregation of waste streams for specified treatment at both the Bryant and King divisions appears to be possible. An investigation into the effects of hydraulic characteristics and other factors affecting waste flow segregation may indicate feasability of this plan, prior to formulation of secondary treatment plant designs.

A general program of water economy should be initiated to reduce fresh water usages and return white waters to the most appropriate re-usable phase of the process. White water storage and seal tank overflows should be regulated or controlled by adequate pumping or warning systems so as to prevent overflow into the sewers.

Conclusions:

1. Fresh water usage at this mill is moderately high.
2. Fibre recovery is only average and could be further reduced with better control of the process.
3. The clarifier is not overloaded at this time. Solids and BOD removal is average under the present conditions.
4. Increased solids recovery is possible with better regulations of waste flows.
5. Extension of existing water re-use practices should definitely be considered in a long range plan to recover and retain the highest quality solids in the highest quality furnish and reduce pumping costs in waste disposal.

Recommendations:

1. Convert vacuum pump seal water to white water seal.
2. Convert oliver saveall and Bird screen showers to white water.
3. Convert machine wire showers headers to high pressure low

4. Provide better control of white water and seal tank overflows by adequate storage or warning system to prevent overflows into the sewers.

5. Re-use white water at all possible locations suggested in the body of this report where quality of product is not diminished by its re-use.

6. Reduce fresh water usage to minimum required flows at all possible phases of the process.

7. Regulate waste flows so as to prevent by-passing of clarifier directly to the river.

Emphasis should be placed on a program to exercise better in plant control and to reduce waste flows now discharged. Concentration of waste into minimum volumes by reduction in fresh water use and increased re-use of white water is necessary prior to development of final treatment plant designs.

Allied Paper Company
[illegible] Division
Test Data

January 5, 1983 - 6-hr. composite sample
Fresh Water Usage 7.87 mgd.
Tons Produced 173

Suspended Solids

Sampling Point	Flow mgd.	Before ppm	Before Settling lbs/day	After ppm	After Settling 1-hr. lbs/day	Percent Settleable
East Sewer	1.19	4264	38,500	40	404	99.4
Pulp M. Bas.	2.18	3466	64,100	36	650	99.0
High Sewer	4.03	3572	119,100	96	1200	99.0
C. Influent	7.40	3600	221,700	65	5240	97.7
C. Effluent	7.40	1916	118,000	108	6680	94.3
		Biochemical Oxygen Demand				% Removed
East Sewer	1.19	290	2,680	50	495	83
Pulp M. Bas.	2.18	150	2,740	100	1820	33
High Sewer	4.03	860	28,800	140	4700	84
C. Influent	7.40	550	34,420	410	25300	26
C. Effluent	7.40	410	25,300	300	18500	26

lbs BOD/Ton produced 199

lbs Sus. Solids/Ton produced 1175

Sludge 5.1% Solids 19% Fiber

Allied Paper Company
Mill Division
Test Data

January 16, 1963 - 8-hr. composite Sample
Fresh Water Usage 7.1 mgd.
Tons Produced - 199

Sampling Point	Flow mgd.	Suspended Solids Before Settling ppm	Before Settling lbs/day	After Settling 1-hr. ppm	After Settling 1-hr. lbs/day	Percent Settleable
East Sewer	1.14	2486	23,700	43	408	98.7
Pulp M. Bas.	2.65	1768	39,100	89	1960	95.0
High Sewer	3.01	1784	44,600	129	3230	91.3
C. Influent	6.80	1900	107,400	42	2380	97.8
C. Effluent	6.80	404	22,800	120	6800	70.0

		Biochemical Oxygen Demand				% Removed
East Sewer	1.14	350	3,340	75	710	97.9
Pulp M. Bas.	2.65	620	13 680	245	5400	60.0
High Sewer	3.01	350	8,780	200	5000	47.0
C. Influent	6.80	455	25,800	245	13850	46.0
C. Effluent	6.80	250	14,175	250	14175	00.0

lbs BOD/Ton produced 116

lbs Sus. Solids/Ton produced 540

Sludge 5.0% Solids 20% Fiber

Allied Paper Company
King Division
Test Data

January 24, 1963 - 6-hr composite Samples

Fresh Water usage. 6.55 mgd.

Tons Produced - 255

Suspended Solids

Sampling Point	Flow Mgd.	Before Settling ppm	Before Settling lbs/day	After Settling 1-hr. ppm	After Settling 1-hr. lbs/day	Percent Settleable
East Sewer	1.26	1578	16,550	59	620	95.8
Pulp M. Bas.	2.37	2434	48,000	182	3600	92.5
High Sewer	4.27	2740	97,500	102	3520	96.3
C. Influent	7.90	2463	162,050	20	1230	99.2
C. Effluent	7.90	368	24,200	10	615	96.7
		Biochemical Oxygen Demand				% Removed
East Sewer	1.26	355	3,730	110	1160	70.0
Pulp M. Bas.	2.37	1400	27,600	820	16150	41.5
High Sewer	4.27	700	24,800	480	17100	31.0
C. Influent	7.90	940	61,830	360	23600	61.8
C. Effluent	7.90	390	25,600	300	19700	23.0

Gals/Ton 33.5

lbs BOD/Ton produced 242

lbs Sus. Solids/Ton produced 635

Sludge - 5.2% Solids 22% Fiber

Allied Paper Company
King Division
Test Data

January 24, 1963 - 8-hr composite Samples

Fresh Water usage. 8.55 mgd.

Tons Produced - 255

Suspended Solids

Sampling Point	Flow Mgd.	Before Settling ppm	Before Settling lbs/day	After Settling 1-hr. ppm	After Settling 1-hr. lbs/day	Percent Settleable
East Sewer	1.26	1578	16,550	59	620	95.8
Pulp M. Bas.	2.37	2434	48,000	182	3600	92.5
High Sewer	4.27	2740	97,500	102	3620	96.3
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C. Influent	7.90	940	61,850	360	23600	61.8
C. Effluent	7.90	390	25,600	300	19700	23.0

Gals/Ton 33,500

Lbs BOD/Ton produced 242

Lbs Sus. Solids/Ton produced 635

Sludge - 5.2% Solids 22% Fiber

Rex Paper Purifier Put Into Service

System Meets State's Anti-Pollution Code.

The Rex Paper Company is now purifying all waste water from its plant on King Highway, east of Kalamazoo with completion last week of its 50-foot settling tank, Mrs. Merrill B King, president, said Saturday.

The purifying system, which initial tests have shown to have more than met all state requirements, incorporates several new features in anti-river pollution installations along the Kalamazoo River Valley.

Aided by the mill's location as the highest above the river in Kalamazoo, gravity is used for part of the operations which require pumping in other locations

PADDLES FOR SLUDGE

Heart of the sysetm is a concrete tank, 50 feet in diameter and 11 feet deep, equipped with a Hardinge Sludge Separator Connected to the catwalk shown in the accompanying photograph is a shaft extending to the bottom of the tank where it operates giant paddles equipped with fins These extend across the width of the tank and rotate slowly

The movement of the paddles has two functions It speeds up the settling of solid wastes in the water It also prevents piling of the sediment and speeds its movement into the pumps which force it out of the tank into nearby sludge pits.

The tank will care for 1,200 gallons of waste water per minute Initial tests last week showed 840-960 gallons per minute were going into the tank.

Three sludge pits have been dug each large enough to hold solid wastes extracted during a 90-day period. Surrounding areas owned by the mill provide space for pits to take care of the waste for several years

Mill officials hope that research in the paper industry will provide a solution during that time whereby the clay pulp fiber and chemicals contained may be used economically to form other products. Some boxboard plants have found that they can be incorporated in their boards but no process has been found yet to use them in the high grade white papers made by the Rex company.

9-5-54

KB22501869

REX PAPER COMPANY
KALAMAZOO, MICHIGAN

[illegible]	1st Shift	April 25, 1950
Survey No. 2	2nd Shift	May 9, 1950
Survey No. 3	3rd Shift	May 3, 1950

Times: Book Conversion Mill

Mill Water Supply

Well water is used as process water.

Waste Sources

All waste from the de-ink mill and also the waste water from the one paper machine is discharged through the one sewer. White water from the paper machine is used as make-up water in the de-ink washers before it is discharged.

Waste Measurement

Sewer No. 1 is an open earth channel directly south of the west end of the main mill building. A previously constructed weir box was reconditioned and a 1.0 foot rectangular metal edged weir (Weir No. 1) used to measure the flow.

Sampling Procedure

A recording head meter was installed at the weir to obtain a continuous record of the flow during the three surveys. Samples were taken at half-hour intervals proportional to the flow at the weir and composited during each survey.

SURVEY NO. 1

April 25, 1950 - 1st Shift

Production: 21,160 lbs. (Average daily production)

Flow: 0.509 mg. Weir No. 1 (Total flow)

NCASI 000540

Sample Analysis

	Total Waste	Settled Waste	Per Cent Reduction
5-Day B.O.D.	314	162	48.4
Total Solids	1,868	1,166	
Total Volatile Solids	802	460	
Suspended Solids	1,040	314	69.8
Suspended Volatile Solids	520	156	70.0
pH	8.50		
Settleable Solids	714		

All values in p.p.m. except pH

B.O.D.

Total Waste (0.509 x 8.34 x 314) = 1,332 lbs. Net to River

Pounds of B.O.D. Per Ton of Product

(1,332 ÷ 21,160) x 2,000 = 126.0 lbs.

Suspended Solids

Total Waste (0.509 x 8.34 x 1,040) = 4,410 lbs. Net to River

Pounds of Suspended Solids Per Ton of Product

(4,410 ÷ 21,160) x 2,000 = 417.0 lbs.

Suspended Volatile Solids

Total Waste (0.509 x 8.34 x 520) = 2,210 lbs. Net to River

Pounds of Suspended Volatile Solids Per Ton of Product

(2,210 ÷ 21,160) x 2,000 = 209.0 lbs.

Suspended Solids

Total Waste (0.472 x 8.34 x 676) = 2,665 lbs. Net Total to River

Pounds of Suspended Solids Per Ton of Product

(2,665 ÷ 21,160) x 2,000 = 252.0 lbs.

Suspended Volatile Solids

Total Waste (0.472 x 8.34 x 388) = 1,529 lbs. Net Total to River

Pounds of Suspended Volatile Solids Per Ton of Product

(1,529 ÷ 21,160) x 2,000 = 144.5 lbs.

Per Cent Fibre Loss

$[144.5 \div (2,000 \times 0.95)] \times 100 = 7.61\%$

Population Equivalent

(571 ÷ 0.167) = 3,420 people per 8 hours

Gallons Waste Per Ton Product

(472,000 ÷ 21,160) x 2,000 = 44,600 gallons

SURVEY NO. 3

May 3, 1950 - 3rd Shift

Production: 21,160 lbs. (Average daily production)

Flow: 0.494 mg. Weir No. 1 (Total flow)

Sample Analysis

	Total Waste	Settled Waste	Percent Reduction
5-Day B.O.D.	200	175	12.5
Total Solids	1,650	1,408	
Total Volatile Solids	772	676	
Suspended Solids	792	528	33.3
Suspended Volatile Solids	422	313	25.8
pH	8.05		
Settleable Solids	253		

All values in p.p.m. except pH

B.O.D.

Total Waste (0.494 x 8.34 x 200) = 824 lbs. Net Total to River

Pounds of B.O.D. Per Ton of Product

(824 ÷ 21,160) x 2,000 = 77.9 lbs.

Suspended Solids

Total Waste (0.494 x 8.34 x 792) = 3,265 lbs. Net Total to River

Pounds of Suspended Solids Per Ton of Product

(3,265 ÷ 21,160) x 2,000 = 308.5 lbs.

Suspended Volatile Solids

Total Waste (0.494 x 8.34 x 422) = 1,740 lbs. Net Total to River

Pounds of Suspended Volatile Solids Per Ton of Product

(1,740 ÷ 21,160) x 2,000 = 164.5 lbs.

NCASI 000544

Fibre Loss

$[164.5 \div (2.000 \times 0.95)] \times 100 = 8.65\%$

Population Equivalent

(824 ÷ 0.167) = 4,930 people per 8 hours

Gallons Waste Per Ton of Product

(494,000 ÷ 21,160) x 2.000 = 46,700 gallons

Summary

	Survey No.1	Survey No.2	Survey No.3	Total
Production-Tons	10.58	10.58	10.58	31.74
Flow-Million Gallons	0.509	0.472	0.494	1.475
Pounds of B.O.D. (Net)	1,332	571	824	2,727
Pounds of B.O.D. Per Ton Product	126.0	54.0	77.9	86.0 *
Pounds of Dry Solids (Net)	4,410	2,665	3,265	10,340
Lbs. of Dry Solids Per Ton Prod.	417.0	252.0	308.5	325.8 *
Lbs. of Vol. Solids (Net)	2,210	1,529	1,740	5,479
Lbs. of Vol. Solids Per Ton Prod.	209.0	144.5	164.5	172.7 *
Gallons Waste Per Ton Product	48,200	44,600	46,700	46,500 *
Fibre Loss-Percent	11.00	7.61	8.65	9.09 *
Population Equivalent	7,980	3,420	4,930	16,330

* Average of three surveys.

Remarks

All chemical analyses were made in the Water Resources Laboratory at the Health Department in Lansing. Samples were immediately transported to this laboratory and were iced during transit. The dilution water used to determine the biochemical oxygen demand of the waste waters was Lea-Nichols water and one per cent Plainwell settled sewage was used for seeding each dilution. All other analyses were made according to the Ninth Edition of "Standard Methods for the Examination of Water and Sewage."

When figuring per cent fibre loss the pounds of mill production is converted to a dry basis. For uniformity a product with five per cent moisture is assumed for all of the mills.

R. W. Purdy
W. S. Springer
W. H. Abbott
J. R. Couchois

NCASI 000548

RETURNED TO KALAMAZOO

Chicago Owners Sell Rex Paper To Allied Paper

By JAMES STOBBEN, Gazette Business Editor

Ownership of the Rex Paper Co., for nine years in the hands of a Chicago-based syndicate, was returned to Kalamazoo today as Allied Paper Corp this morning announced the purchase of all the stock of Rex Paper Co.

It will be operated as a wholly owned subsidiary.

Ernest J. Klimczak, president of Allied, said in making the announcement:

"We do not plan to change the Rex business, except to upgrade the product mix wherever possible."

The acquisition, he said, is in line with Allied Paper's program of improving and expanding its operations in the Kalamazoo area, both in present facilities and as other opportunities present themselves.

Dr Ward D Harrison, chairman of the board and chief executvie officer of Allied Paper said that arrangements for the purchase of Rex Paper from the Butler Co. of Chicago were completed today.

With his wife, Dr. Harrison is the principal stockholder of Allied Paper.

Acquisition of Rex Paper, located on King Highway at the western boundary of Comstock Township, was for an undisclosed cash sum.

The company, founded in 1915 by John F King, one of the pioneers in Kalamazoo Valley mill construction, was sold in 1958 to Paul Butler, head of the Butler syndicate.

King was president of Rex until his death in 1972. His son, Merrill B King, then served as president until his death.

Merrill King's widow, Helen King, became president in 1932, and served in that position until the purchase of the company by Butler.

In announcing today's purchase Dr Harrison said that "it'll be a challenge for Allied

(Continued on Page 2)

Rex Paper Purchased By Allied

(Continued from Page 1)

Paper to save Rex Paper" which he said has had declining business in recent years under out-of-town management.

He added that it is the intention of Allied to upgrade the quality of the products of Rex.

The Rex mill currently makes lower grades of paper, such as tablet and construction paper, which contains ground wood, much like newsprint.

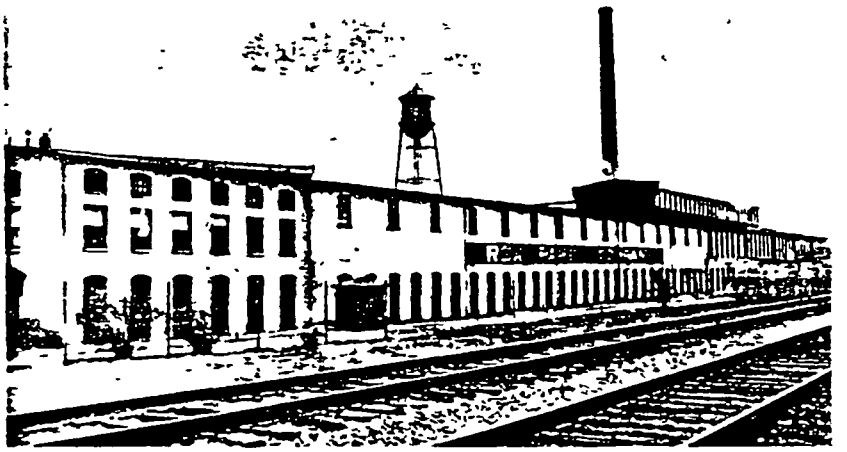
The paper-making machine at the Rex mill is a narrower machine than any of the 11 machines Allied Paper now has, said Dr Harrison.

Approximately 120 persons are employed at Rex Paper, and their addition will bring the total Allied Paper work force in Kalamazoo to 1,370.

In addition to the Rex acquisition Allied announced that a new department will be added to the Monarch mill to manufacture the company's fast-growing manifold-carbon paper sets.

Manufactured and sold under the trade name of Letterex, the product uses one-time carbon paper and lightweight bond, both manufactured by the company.

Designed to increase the efficiency of the stenographic function in offices Letterex is reportedly one of Allied's fastest-growing product lines.



REX PAPER CO MILL, PURCHASED TODAY BY ALLIED PAPER CO.
View Of North Side Of Plant, Taken From East Michigan Avenue —Gazette photo

SA 045909

92-2267

C. Hedley

Kalamazoo, Michigan, Fireside 5-7131

ALLIED PAPER CORPORATION

October 13, 1966

WATER RESOURCES COMMISSION

Mr. Ralph Purdy
Water Resources Commission
200 Mill Street
Lansing, Michigan

Dear Ralph:

I would like to confirm our telephone conversation of yesterday.

Allied Paper Corporation has been in compliance with it's BOD stipulation for some time now, and we would appreciate very much being [illegible] by your Department.

We would [illegible] visit us for this purpose [illegible] — Nov 9, 10 A.M.

Sincerely yours,

ALLIED PAPER CORPORATION

Jack Gilman

J. J. Gilman
Vice President, Manufacturing

[illegible]

0002722

March 79

MONARCH MILL

KALAMAZOO MI 49003

APR 0 1979

THIS IS YOUR MONTHLY REPORT FORM FOR WATER QUALITY CONTROL ACTIVITIES. SEE REVERSE SIDE FOR RETURN MAIL

ALLIED PAPER, INC.
OUTFALL # 002
16"CLARIFIER PIPE TO PORTAGE CREEK

Please complete and return this report at the end of each month. This report must reach our Lansing office by the 10th of the month.

No

FACILITY NUMBER 3 394222

PERMIT NUMBER MI0000779

OUTFALL NUMBER 390006

Date form was computer printed 79/10/20

PARA NAM UNI LIM	50050 FLOW CONDUIT MGD				85001 BOD-5 LBS/DAY AVERAGE 4500 MAXIMUM 7720				00505 SOLIDS-SET-IMHOF ML/L				85002 SOLIDS-SUSPENDED LBS/DAY AVERAGE 4500 MAXIMUM 7720				00400 PH S.U. MAXIMUM 9.0 MINIMUM 6.0				31300 OIL-GREASE-VISUL MG/L MAXIMUM 10			
DATE	I	DAILY AVG	HIGH	LOW	I	DAILY AVG	HIGH	LOW	I	DAILY AVG.	HIGH	LOW	I	DAILY AVG.	HIGH	LOW	I	DAILY AVG.	HIGH	LOW	I	DAILY AVG	HIGH	LOW
1	C	4.004			C	395			I	0.05			C	401			I	7.1			I	0		
2	C	2.340			C	468			I	0.1			C	678			I	7.1			I	0		
3	C	2.416			C	412			I	0.05			C	725			I	6.7			I	0		
4	C	1.936			C	900			I	0.1			C	452			I	6.5			I	0		
5	C	2.708			C	366			I	0.1			C	432			I	7.0			I	0		
6	C	2.592			C	497			I	0.1			C	259			I	6.8			I	1		
7	C	2.416			C	373			I	0.05			C	326			I	7.0			I	0		
8	C	3.424			C	992			I	0.1			C	243			I	6.9			I	0		
9	C	2.288			C	481			I	0.05			C	905			I	6.9			I	0		
10	C	2.167			C	554			I	0.05			C	579			I	7.0			I	0		
11	C	2.033			C	461			I	0.1			C	209			I	7.0			I	0		
12	C	2.375			C	460			I	0.05			C	555			I	7.0			I	1		
13	C	2.296			C	433			I	0.05			C	224			I	7.0			I	0		
14	C	2.742			C	611			I	0.05			C	183			I	6.8			I	0		
15	C	2.443			C	570			I	0.05			C	226			I	6.6			I	0		
16	C	2.557			C	606			I	0.05			C	341			I	7.0			I	0		
17	C	3.393			C	661			I	0.05			C	477			I	7.0			I	0		
18	C	2.392			C	521			I	0.05			C	233			I	6.7			I	0		
19	C	2.266			C	437			I	0.1			C	302			I	6.7			I	1		
20	C	3.306			C	480			I	0.05			C	74			I	6.7			I	1		
21	C	2.127			C	491			I	0.1			C	284			I	6.6			I	1		
22	C	2.455			C	1183			I	0.1			C	366			I	6.6			I	1		
23	C	2.832			C	512			I	0.05			C	378			I	6.6			I	0		
24	C	2.215			C	708			I	0.05			C	148			I	7.0			I	0		
25	C	3.377			C	546			I	0.05			C	20			I	7.1			I	0		
26	C	3.345			C	494			I	0.05			C	235			I	7.3			I	1		
27	C	1.926			C	834			I	0.05			C	256			I	7.1			I	1		
28	C	1.944			C	395			I	0.05			C	324			I	7.2			I	1		
29	C	2.206			C	401			I	0.1			C	368			I	7.3			I	0		
30	C	2.024			C	381			I	0.05			C	135			I	7.1			I	0		
31	C	2.233			C	406			I	0.05			C	149			I	6.9			I	1		
MONTHLY SUMMARY	AVERAGE	2.387			AVERAGE	471			AVERAGE	0.017			AVERAGE	319			AVERAGE				AVERAGE	0.032		
	MAXIMUM	4.004			MAXIMUM	1018			MAXIMUM	0.1			MAXIMUM	725			MAXIMUM	7.3			MAXIMUM	1.0		
																	MIN	6.5						
	NUMBER DAYS REPORTING	31			NUMBER DAYS REPORTING	31			NUMBER DAYS REPORTING	31			NUMBER DAYS REPORTING	31			NUMBER DAYS REPORTING	31			NUMBER DAYS REPORTING	31		
	TOTAL SAMPLES TAKEN	31			TOTAL SAMPLES TAKEN	31			TOTAL SAMPLES TAKEN	31			TOTAL SAMPLES TAKEN	31			TOTAL SAMPLES TAKEN	31			TOTAL SAMPLES TAKEN	31		
	DAYS EXCEEDING MAXIMUM	0			DAYS EXCEEDING MAXIMUM	0			DAYS EXCEEDING MAXIMUM	0			DAYS EXCEEDING MAXIMUM	0			DAYS EXCEEDING MAXIMUM	0			DAYS EXCEEDING MAXIMUM	0		
	AVG EXCEEDANCE				AVG EXCEEDANCE				AVG EXCEEDANCE				AVG EXCEEDANCE				AVG EXCEEDANCE				AVG EXCEEDANCE			
BEGINNING DATE	03 01 79				DUP PUNCH				DUP PUNCH				DUP PUNCH				DUP PUNCH				DUP PUNCH			
ENDING DATE	03 31 79																							

SIGNATURE OF CERTIFIED OPERATOR [redacted] DOUGLAS G. STOLTZFUS CERTIFICATION NUMBER [redacted]

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER [redacted] TELEPHONE NUMBER [redacted]

THOMAS E. FLANAGAN, VICE PRESIDENT OF MANUFACTURING

MDNR 004556

MDNR00004556

ALLIED PAPER INC. FILE
COMSTOCK HILL

KALAMAZOO MI 49003

MONTHLY OPERATING REPORT FOR APRIL 1979

THIS IS YOUR MONTHLY REPORT FORM FOR
SEE REVERSE SIDE FOR RETURN MAIL

ALLIED PAPER, INC.
OUTFALL # 002
16"CLARIFIER PIPE TO PUNTAGE CROUZ

Please complete and submit two copies of this form at the end of each month. This report must reach our Lansing office by the 10th of the month

FACILITY NUMBER 390222
PERMIT NUMBER MI0000779
OUTFALL NUMBER 390006

Date form was computer printed 79/10/20

PARAM	50050	00001	00505	00002	00400	01300	
NAME	FLOW CONDUIT	BOD-5	SOLIDS-SET-IMHOF	SOLIDS-SUSPENDED	PH	OIL-GREASE-VISUL	
UNITS	MGD	LBS/DAY	ML/L	LBS/DAY	S TO 14	S TO 6	
LIMIT		AVERAGE 4500 MAXIMUM 770		AVERAGE 4500 MAXIMUM 770	MAXIMUM 9.9 MINIMUM 6.5	MAXIMUM 0	

DATE	I	DAILY AVG	HIGH	LOW	I	DAILY AVG	HIGH	LOW	I	DAILY AVG	HIGH	LOW	I	DAILY AVG	HIGH	LOW	I	DAILY AVG	HIGH	LOW	I	DAILY AVG	HIGH	LOW
1	C	2.297			C	483			1	0.05			C	230			1	6.7			1	0		
2	C	3.552			C	902			1	0.05			C	521			1	7.4			1	[redacted]		
3	C	2.240			C	749			1	0.1			C	804			1	6.9			1			
4	C	2.096			C	387			1	0.05			C	420			1	6.8			1	0		
5	C	2.543			C	477			1	0.05			C	170			1	6.7			1	0		
6	C	2.274			C	415			1	0.05			C	303			1	6.8			1	0		
7	C	2.711			C	611			1	0.05			C	543			1	7.0			1	0		
8	C	2.282			C	360			1	0.05			C	225			1	6.8			1	0		
9	C	2.155			C	130			1	0.1			C	364			1	7.6			1	[redacted]		
10	C	2.944			C	562			1	0.1			C	196			1	6.9			1	0		
11	C	3.258			C	634			1	0.1			C	317			1	6.8			1	[redacted]		
12	C	2.131			C	328			1	0.05			C	312			1	7.0			1	[redacted]		
13	C	3.360			C	546			1	0.05			C	112			1	6.8			1	[redacted]		
14	C	2.434			C	613			1	0.1			C	115			1	6.8			1	0		
15	C	2.146			C	360			1	0.05			C	18			1	7.1			1	0		
16	C	3.254			C	516			1	0.05			C	109			1	7.2			1	[redacted]		
17	C	2.499			C	578			1	0.05			C	180			1	7.1			1	[redacted]		
18	C	2.445			C	547			1	0.05			C	69			1	7.0			1	0		
19	C	2.222			C	487			1	0.05			C	222			1	7.1			1	[redacted]		
20	C	3.023			C	744			1	0.05			C	202			1	7.1			1	[redacted]		
21	C	3.236			C	618			1	0.05			C	216			1	7.0			1	[redacted]		
22	C	2.319			C	560			1	0.05			C	160			1	6.6			1	[redacted]		
23	C	1.377			C	321			1	0.05			C	253			1	7.0			1	[redacted]		
24	C	2.201			C	487			1	0.05			C	73			1	6.7			1	[redacted]		
25	C	1.493			C	429			1	0.1			C	66			1	6.5			1	[redacted]		
26	C	2.106			C	452			1	0.1			C	141			1	6.6			1	0		
27	C	2.039			C	451			1	0.5			C	136			1	6.5			1	[redacted]		
28	C	1.931			C	460			1	0.5			C	65			1	6.7			1	[redacted]		
29	C	2.185			C	534			1	0.5			C	73			1	6.8			1	[redacted]		
30	C	1.579			C	355			1	0.1			C	213			1	6.7			1	0		
31																								

AVERAGE	2.553	497	0.1	210		0
MAXIMUM	3.552	902	0.5	543	MIN 6.5	0
NUMBER DAYS REPORTING	30	30	30	30	30	30
TOTAL SAMPLES TAKEN	30	30	30	30	30	30
DAYS EXCEEDING MAXIMUM	0	0	0	0	0	0
AVG EXCEEDANCE						
DUP PUNCH						

MONTHLY SUMMARY

BEGINNING DATE 04 01 79
ENDING DATE 04 30 79

SIGNATURE OF CERTIFIED OPERATOR Ulysses G. Stoeffler
ULYSSES G. STOEFFLER
CERTIFICATION NUMBER W-378

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER

TELEPHONE NO. (616) 345-7191

MDNR 004555
MDNR00004555

ALLIED PAPER, INC.
MONARCH MILL

KALAMAZOO MI 49003

RECEIVED
JUN 1 1979

MONTHLY OPERATING REPORT FOR MAY 1979

THIS IS YOUR MONTHLY REPORT FORM FOR
SEE REVERSE SIDE FOR RETURN MAIL

ALLIED PAPER, INC.
OUTFALL # 002
16"CLARIFIER PIPE TO PORTAGE CREEK

Please complete and submit two copies of this form at the end of each month. This report must reach our Lansing office by the 10th of the month.

FACILITY NUMBER: 3 390222
PERMIT NUMBER: MI0004779
OUTFALL NUMBER: 390006

Date form was computer printed: 78/10/20

PARAM	50050	85001		00545	85002		00400		01300									
NAME	FLOW CONDUIT	BOD-5		SOLIDS-SET-IMHOF	SOLIDS-SUSPENDED		PH		OIL-GREASE-VISUL									
UNITS	MGD	LBS/DAY		ML/L	LBS/DAY		0 TO 14		0 TO 8									
LIMIT		AVERAGE <500	MAXIMUM 770		AVERAGE <500	MAXIMUM 770	MAXIMUM 9.5	MINIMUM 6.5	MAXIMUM 0									
DATE	I DAILY AVG	I DAILY AVG.	HIGH LOW	I DAILY AVG	HIGH LOW	I DAILY AVG.	HIGH LOW	I DAILY AVG	HIGH LOW	I DAILY AVG	HIGH LOW	I DAILY AVG	HIGH LOW	I DAILY AVG	HIGH LOW	I DAILY AVG	HIGH LOW	I DAILY AVG	HIGH LOW
1	C 1.704	C 505		I 0.1	C 382		I 6.5		I 1.									
2	C 2.024	C 629		I 0.1	C 271		I 6.5		I 1.									
3	C 2.156	C 520		I 0.1	C 216		I 6.6		I 1.									
4	C 1.679	C 490		I 0.1	C 305		I 6.5		I 2.									
5	C 2.019	C 671		I 0.1	C 277		I 6.5		I 1.									
6	C 1.1.57	C 408		I 0.05	C 132		I 6.7		I 1.									
7	C 2.454	C 316		I 0.05	C 427		I 6.6		I 0									
8	C 2.364	C 428		I 0.05	C 237		I 6.7		I 0									
9	C 2.324	C 560		I 0.05	C 79		I 6.6		I 0									
10	C 2.294	C 414		I 0.05	C 78		I 6.7		I 1									
11	C 2.217	C 695		I 0.05	C 78		I 6.7		I 1									
12	C 2.224	C 526		I 0.05	C 151		I 6.5		I 0									
13	C 2.332	C 609		I 0.05	C 84		I 6.5		I 0									
14	C 2.417	C 619		I 0.1	C 333		I 6.6		I 1.									
15	C 2.236	C 375		I 0.1	C 149		I 6.8		I 1.									
16	C 2.076	C 344		I 0.1	C 146		I 6.5		I 1									
17	C 2.295	C 374		I 0.05	C 307		I 6.8		I 0									
18	C 2.157	C 334		I 0.1	C 264		I 6.6		I 1									
19	C 2.404	C 375		I 0.1	C 365		I 6.9		I 1.									
20	C 2.211	C 312		I 0.1	C 335		I 6.6		I 0									
21	C 2.254	C 345		I 0.1	C 278		I 6.7		I 0									
22	C 2.204	C 325		I 0.1	C 250		I 6.5		I 0									
23	C 2.050	C 317		I 0.1	C 139		I 6.5		I 0									
24	C 2.170	C 584		I 0.05	C 214		I 7.2		I 0									
25	C 2.361	C 976		I 0.05	C 158		I 7.2		I 0									
26	C 2.132	C 341		I 0.05	C 142		I 7.3		I 0.									
27	C 2.545	C 370		I 0.05	C 170		I 7.2		I 0									
28	C 2.420	C 384		I 0.05	C 243		I 7.1		I 0									
29	C 2.561	C 399		I 0.05	C 167		I 7.3		I 0									
30	C 2.757	C 374		I 0.05	C 184		I 6.9		I 0									
31	C 2.514	C 347		I 0.05	C 94		I 6.7		I 0									
MONTHLY SUMMARY AVERAGE	2.038	451		0.07	215				0.45									
MAXIMUM	2.957	976		0.1	382		7.3		2.0									
MIN							6.5											
NUMBER DAYS REPORTING	31	31		31	31		31		31									
TOTAL SAMPLES TAKEN	31	31		31	31		31		31									
DAYS EXCEEDING MAXIMUM																		
AVG EXCEEDANCE																		
DUP PUNCH (75 80)																		
BEGINNING DATE	05 01 79																	
ENDING DATE	05 31 79																	

PLEASE SEE ATTACHMENT

SIGNATURE OF CERTIFIED OPERATOR: XXXXXXXXXXXX Ulysses G. Stoeffler
ULYSSES G. STOEFFLER
CERTIFICATION NUMBER: XXXXXX M-378

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER: Fred Harrison
FRED HARRISON, VICE PRESIDENT OF OPERATIONS
TELEPHONE NUMBER: (616) 345-7131

MDNR 0004551

MDNR0004551

RECEIVED

JUL 10 1980

MONTHLY OPERATING REPORT FOR JUNE 1986 03 DISTRICT 1..-3

THIS IS YOUR MONTHLY REPORT FORM FOR

SEE REVERSE SIDE FOR RETURN MAIL

Please complete and submit two copies of this form at the end of each month. This report shall reach our Lansing office by the 10th of the month.

ALLIED PAPER, INC.
OUTFALL # 008
16" CLARIFIER PIPE TO PORTAGE CREEK

PERMIT EXPIRATION: 9/90

PART 1 - RETURN TO DEPT OF NATURAL RESOURCES

Date form was completed for period: 70/10/31

DAY	00530 PLOW - CUFT	00556 SOLIDS-SETT.-SHOP ML/L	00530 SOLIDS-SUSPENDED LBS/DAY MAXIMUM	00556 PH S.U. MAXIMUM	00556 PH S.U. MINIMUM	00556 DISCOLORATION-VISUAL 0 TO 8 MAXIMUM
	DAILY AVG / HIGH / LOW	DAILY AVG / HIGH / LOW	DAILY AVG / HIGH / LOW	DAILY AVG / HIGH / LOW	DAILY AVG / HIGH / LOW	DAILY AVG / HIGH / LOW
1	1,328	349 Comp.	0.05 CLAR	44	6.8 CLAR	0
2	1,383	355	0.1	46	6.5	0
3	1,527	378	0.1	102	7.2	0
4	1,44	378	0.1	92	7.2	0
5	1,370	378	0.05	46	7.2	0
6	1,334	5	0.05	51	7.0	0
7	1,96	1	0.05	37	7.0	0
8		4	0.05	141	7.2	0
9		1	0.05	198	7.8	0
10	1,413	3	0.1	94	7.2	0
11	1,396	3	0.1	92	7.2	0
12	1,396	3	0.1	20	7.0	0
13	1,321	10	0.1	10	7.0	0
14	1,282	3	0.1	11	7.0	0
15	1,313	3	0.1	11	7.0	0
16	1,573	358	0.1	13	7.1	0
17	1,553	1,2	0.1	13	7.0	0
18	693	347	0.1	56	7.0	0
19	1,653	330	0.1	56	7.0	0
20	1,262	3	0.1	47	7.1	0
21	1,436	7	0.05	96	7.2	0
22	1,64	3	0.1	110	7.2	0
23	1,41	326	0.1	47	7.0	0
24	1,126	326	0.1	115	7.0	0
25	3	326	0.1	42	7.0	0
26	1,4	304	0.1	12	7.0	0
27	1,26	198	0.1	11	7.0	0
28	1,240	331	0.1	49	7.0	0
29	1,494	335	0.1	12	7.0	0
	1,700	358	0.05	58	7.2	0
	1,26	326	0.10	198	6.5	0
	30	30	30	30	30	30
	220	220	220	220	220	220
	060,80					
	0630,90					

Thomas A. Sheffler

THOMAS A. SHEFFLER

T. E. Flanagan, Vice President Operations

(616) 345-7131

MDNR 004550

MDNR00004550

ALLIED PAPER, INC.
MONARCH MILL
KALAMAZOO MI 49003

MONTHLY OPERATING REPORT FOR JANUARY 1984 SP

R 4640 Rev 8-82

THIS IS YOUR MONTHLY REPORT FORM FOR

SEE REVERSE SIDE FOR RETURN MAIL

Please complete all items and return the original and one copy to the address shown on the reverse side. Each report is due by the 10th of the month

ALLIED PAPER, INC.
OUTFALL # 002
16"CLARIFIER PIPE TO PORTAGE CREEK

PERMIT EXPIRATION: 9/79

Date form was printed 03/11/84

FACILITY NUMBER		OUTFALL NUMBER
P	329222	320006

PART 1 RETURN TO DEPT OF NATURAL RESOURCES

PARAM	50050	65801	00545	85082	00400	01300
NAME	FLOW CONDUIT	BOD-5	SOLIDS-SET-INHOF	SOLIDS-SUSPENDED	PH	OIL-GREASE-VISUL
UNITS	MGD	LBS/DAY	ML/L	LBS/DAY	0 TO 14	0 TO 4
LIMIT		AVERAGE MAXIMUM		AVERAGE MAXIMUM	MAXIMUM MINIMUM	MAXIMUM
		<500 770		<500 770	9.5 6.5	0

DATE	1	DAILY AVG	HIGH	LOW	1	DAILY AVG	HIGH	LOW	1	DAILY AVG	HIGH	LOW	1	DAILY AVG	HIGH	LOW	1	DAILY AVG	HIGH	LOW
1	C	0.540			L	440	COMP		L	0.05	GRAB		L	10	COMP		L	6.7	GRAB		L	0		
2	C	0.497			L	539			L	0.05			L	33			L	6.7			L	0		
3	C	2.426			L	370			L	0.05			L	36			L	6.7			L	0		
4	C	0.580			L	475			L	0.05			L	17			L	6.7			L	0		
5	C	0.710			L	682			L	0.05			L	27			L	6.7			L	0		
6	C	0.755			L	711			L	0.05			L	27			L	6.6			L	0		
7	C	0.714			L	688			L	0.05			L	27			L	6.6			L	0		
8	C	0.856			L	732			L	0.05			L	25			L	6.7			L	0		
9	C	0.942			L	643			L	0.05			L	29			L	6.7			L	0		
10	C	0.708			L	427			L	0.05			L	27			L	6.7			L	0		
11	C	0.765			L	435			L	0.05			L	27			L	6.8			L	0		
12	C	1.221			L	457			L	0.05			L	27			L	6.7			L	0		
13	C	0.573			L	311			L	0.05			L	19			L	6.7			L	0		
14	C	0.553			L	338			L	0.05			L	13			L	6.7			L	0		
15	C	0.456			L	339			L	0.05			L	46			L	6.7			L	0		
16	C	0.461			L	462			L	0.05			L	28			L	6.6			L	0		
17	C	0.492			L	435			L	0.05			L	28			L	6.5			L	0		
18	C	0.480			L	413			L	0.05			L	29			L	6.6			L	0		
19	C	0.501			L	345			L	0.05			L	17			L	6.7			L	0		
20	C	0.488			L	349			L	0.05			L	21			L	6.7			L	0		
21	C	0.495			L	448			L	0.05			L	33			L	6.5			L	0		
22	C	0.506			L	518			L	0.05			L	33			L	6.6			L	0		
23	C	0.589			L	557			L	0.05			L	27			L	6.7			L	0		
24	C	0.618			L	581			L	0.05			L	29			L	6.7			L	0		
25	C	0.565			L	513			L	0.05			L	29			L	6.7			L	0		
26	C	0.576			L	501			L	0.05			L	28			L	6.8			L	0		
27	C	0.603			L	513			L	0.05			L	31			L	6.7			L	0		
28	C	2.609			L	540			L	0.05			L	31			L	6.7			L	0		
29	C	2.607			L	432			L	0.05			L	24			L	6.9			L	0		
30	C	2.772			L	400			L	0.05			L	27			L	6.9			L	0		
31	C	2.330			L	533			L	0.05			L	33			L	7.0			L	0		
		AVERAGE	0.605			AVERAGE	497			AVERAGE	0.05			AVERAGE	117			AVERAGE				AVERAGE	0.00		
		MAXIMUM	2.772			MAXIMUM	732			MAXIMUM	0.05			MAXIMUM	315			MAXIMUM MIN	7.5			MAXIMUM	0.00		
MONTHLY SUMMARY		NUMBER DAYS REPORTING	31			NUMBER DAYS REPORTING	31			NUMBER DAYS REPORTING	31			NUMBER DAYS REPORTING	31			NUMBER DAYS REPORTING	31			NUMBER DAYS REPORTING	31		
		TOTAL SAMPLES TAKEN	31			TOTAL SAMPLES TAKEN	31			TOTAL SAMPLES TAKEN	31			TOTAL SAMPLES TAKEN	31			TOTAL SAMPLES TAKEN	31			TOTAL SAMPLES TAKEN	31		
		DAYS EXCEEDING MAXIMUM	0.00			DAYS EXCEEDING MAXIMUM	0.00			DAYS EXCEEDING MAXIMUM	0.00			DAYS EXCEEDING MAXIMUM	0.00			DAYS EXCEEDING MAXIMUM	0.00			DAYS EXCEEDING MAXIMUM	0.00		
		AVG MAX				AVG MAX				AVG MAX				AVG MAX				AVG MAX				AVG MAX			
		DUP PUNCH				DUP PUNCH				DUP PUNCH				DUP PUNCH				DUP PUNCH				DUP PUNCH			

BEGINNING DATE 010184
ENDING DATE 013184

I CERTIFY UNDER PENALTY OF LAW THAT BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THAT THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT

NAME AND OFFICIAL TITLE OF OWNER OR AUTHORIZED AGENT (TYPED OR PRINTED): STOEFFLER, ULYSSES G.

SIGNATURE: Ulysses G. Stoeffler

PHONE NUMBER: M000378

Ken Sweet - Production Manager

(616) 345-7131

SECTION I

SECTION II

SA-049005

PRIVILEGED AND CONFIDENTIAL

ALLIED PAPER, INC.
MONARCH MILL
KALAMAZOO MI 49005

MONTHLY OPERATING REPORT FOR FEBRUARY 1984 SP

R 4640 Rev 8-82

THIS IS YOUR MONTHLY REPORT FORM FOR

SEE REVERSE SIDE FOR RETURN MAIL

Please complete and submit two copies of this form at the end of each month. This report must reach our Lansing office by the 10th of the month

ALLIED PAPER, INC.
OUTFALL # 002
16"CLARIFIER PIPE TO PORTAGE CR002

PERMIT EXPIRATION: 9/79

Date form was printed 03/11/84

FACILITY NUMBER P 0390222 | PERMIT NUMBER MI0000779 | OUTFALL NUMBER 002

PART I RETURN TO DEPT OF NATURAL RESOURCES

PARM	50050	00083	00545	00562	00400	01380	
NAME	FLOW CONDUIT		SOLIDS-SETTLEABLE	SOLIDS-SUSPENDED	PH	OIL-GREASE-VISUL	
UNITS	MGD	LBS/DAY	ML/L	LBS/DAY	S.U.	MG/L	
LIMIT		AVERAGE 388 MAXIMUM 770		AVERAGE 500 MAXIMUM 770	MAXIMUM 9.5 MINIMUM 6.5	MAXIMUM 0	

DATE	1	DAILY AVG	HIGH	LOW	1	DAILY AVG	HIGH	LOW	1	DAILY AVG	HIGH	LOW	1	DAILY AVG	HIGH	LOW	1	DAILY AVG	HIGH	LOW
1	C	0.607			/	510	COMP		/	0.05	GRAB		/	51	COMP		/	6.7	GRAB		/	0		
2	C	0.629			/	604			/	0.05			/	125			/	6.4			/	0		
3	C	0.545			/	430			/	0.05			/	145			/	6.6			/	0		
4	C	0.612			/	531			/	0.05			/	132			/	6.7			/	0		
5	C	0.610			/	546			/	0.05			/	133			/	6.7			/	0		
6	C	0.612			/	554			/	0.05			/	174			/	6.7			/	0		
7	C	0.660			/	656			/	0.05			/	103			/	6.7			/	0		
8	C	0.681			/	560			/	0.05			/	32			/	6.5			/	0		
9	C	0.683			/	423			/	0.05			/	3			/	6.5			/	0		
10	C	0.685			/	736			/	0.05			/	114			/	6.5			/	0		
11	C	0.682			/	791			/	0.05			/	91			/	6.5			/	0		
12	C	0.682			/	735			/	0.05			/	21			/	6.5			/	0		
13	C	0.646			/	680			/	0.05			/	54			/	6.5			/	0		
14	C	0.609			/	421			/	0.05			/	13			/	6.5			/	0		
15	C	0.645			/	537			/	0.05			/	33			/	6.5			/	0		
16	C	0.558			/	469			/	0.05			/	12			/	6.7			/	0		
17	C	0.475			/	399			/	0.05			/	127			/	6.7			/	0		
18	C	0.476			/	383			/	0.05			/	92			/	6.5			/	0		
19	C	0.446			/	356			/	0.05			/	89			/	6.5			/	0		
20	C	0.398			/	375			/	0.05			/	39			/	6.5			/	0		
21	C	0.389			/	342			/	0.05			/	22			/	6.7			/	0		
22	C	0.414			/	340			/	0.05			/	22			/	6.7			/	0		
23	C	0.386			/	265			/	0.05			/	22			/	6.5			/	0		
24	C	0.461			/	301			/	0.05			/	22			/	6.7			/	0		
25	C	0.471			/	413			/	0.05			/	22			/	6.7			/	0		
26	C	0.480			/	403			/	0.05			/	22			/	6.5			/	0		
27	C	0.270			/	250			/	0.05			/	22			/	6.5			/	0		
28	C	0.640			/	571			/	0.05			/	22			/	6.5			/	0		
29	C	0.721			/	703			/	0.05			/	20			/	6.5			/	0		
30																								
31																								

	0.558		414		0.05		20 MIN		6.5		0	
	0.721		703		0.05		22		6.5		0	
	30		27		27		27		27		27	
	30		27		27		27		27		27	
	300		559		559		559		0		0	
	220.34											
	220.34											

STOEFFLER, ULYSSES G. Ulysses G. Stoeffler

T. F. Flanagan - Vice President, Operations

M000378

(616) 345-7131

andy

SA-049004

PRIVILEGED AND CONFIDENTIAL

SA-049003

ALLIED PAPER, INC.
MONARCH MILL
KALAMAZOO MI 49003

MONTHLY OPERATING REPORT FOR MARCH 1984 SP

SEE REVERSE SIDE FOR RETURN MAIL

ALLIED PAPER, INC.
OUTFALL # 002
16"CLARIFIER PIPE TO PORTAGE CR002

PERMIT EXPIRATION: 9/79

Date form was printed 83/11/04

FACILITY NUMBER	PERMIT NUMBER	MAIL NUMBER
P 390222	MI0000779	390006

PART I RETURN TO DEPT OF NATURAL RESOURCES

DRINKING AND GROUNDWATER

PARAM	50050	85001			00545			85002			00400			01300		
NAME	FLOW CONDUIT	BOD-5			SOLIDS-SET-IMHOF			SOLIDS-SUSPENDED			PH			OIL-GREASE-VISUL		
UNITS	MGD	LBS/DAY			ML/L			LBS/DAY			0 TO 14			0 TO 4		
LIMIT		AVERAGE <500	MAXIMUM 770					AVERAGE <500	MAXIMUM 770		MAXIMUM 9.5	MINIMUM 6.5		MAXIMUM 0		
DATE	DAILY AVG	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW
1	0.539	540	comp		0.05	GRAB		144	comp		6.5	GRAB		0		
2	0.540	709			0.05			130			6.6			0		
3	0.600	735			0.05			140			7.0			0		
4	0.601	753			0.05			120			7.0			0		
5	0.599	719			0.05			122			6.8			0		
6	0.601	741			0.05			120			6.8			0		
7	0.479	420			0.05			144			7.0			0		
8	0.459	480			0.05			138			7.1			0		
9	0.459	554			0.05			214			7.9			0		
10	0.394	447			0.05			66			6.8			0		
11	0.350	430			0.05			203			6.9			0		
12	0.381	539			0.05			170			7.0			0		
13	0.382	536			0.05			158			7.0			0		
14	0.330	433			0.05			138			6.8			0		
15	0.380	378			0.05			51			6.6			0		
16	0.700	580			0.05			70			6.7			0		
17	0.750	597			0.05			120			6.6			0		
18	0.593	511			0.05			133			6.9			0		
19	0.545	470			0.05			173			6.7			0		
20	0.547	504			0.05			77			6.7			0		
21	0.510	405			0.05			94			6.5			0		
22	0.479	392			0.05			74			6.5			0		
23	0.463	408			0.05			108			6.5			0		
24	0.461	462			0.05			151			6.6			0		
25	0.432	435			0.05			77			6.5			0		
26	0.401	347			0.05			97			6.5			0		
27	0.317	329			0.05			73			6.6			0		
28	0.462	575			0.05			100			7.0			0		
29	0.462	363			0.05			131			6.9			0		
30	0.462	332			0.05			77			6.9			0		
31	0.462	395	V		0.05	V		31	V		6.6	V		0		
AVERAGE	0.494	AVERAGE	494		AVERAGE	0.05		AVERAGE	102		AVERAGE			AVERAGE	0.00	
MAXIMUM	0.750	MAXIMUM	753		MAXIMUM	0.05		MAXIMUM	220		MIN	7.1 6.5		MAXIMUM	0.00	
MONTHLY SUMMARY																
NUMBER DAYS REPORTED	31	NUMBER DAYS REPORTED	31		NUMBER DAYS REPORTED	31		NUMBER DAYS REPORTED	31					NUMBER DAYS REPORTED	31	
TOTAL SAMPLES TAKEN	31	TOTAL SAMPLES TAKEN	31		TOTAL SAMPLES TAKEN	31		TOTAL SAMPLES TAKEN	31					TOTAL SAMPLES TAKEN	31	
DAYS EXCEEDING MAXIMUM	000	DAYS EXCEEDING MAXIMUM	000		DAYS EXCEEDING MAXIMUM	000		DAYS EXCEEDING MAXIMUM	000					DAYS EXCEEDING MAXIMUM	000	
AVG VALUE		AVG VALUE			AVG VALUE			AVG VALUE						AVG VALUE		
BEGINNING DATE	030184	DUP PUNCH												DUP PUNCH		DUP PUNCH
ENDING DATE	033184															

I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT.

STOEFFLER, ULYSSES G. Ulysses G. Stoeffler M000378

(616) 345-7121

**ALLIED PAPER, INC.
MONARCH HILL
KALAMAZOO MI 49003

APRIL 1984 SP

ALLIED PAPER, INC.
OUTFALL : 002
16"CLARIFIER PIPE TO PORTAGE CR002

PERMIT EXPIRATION: 9/79

P 300222 MI0000779 390006 83/11/04

PARAM	50050	85001		00545		85002		00400		01300
NAME	FLOW CONDUIT	BOD-5		SOLIDS-SET-IMHOF		SOLIDS-SUSPENDED		PH		OIL-GREASE-VISUL
UNITS	MGD	LBS/DAY		ML/L		LBS/DAY		0 TO 14		0 TO 4
LIMIT		AVERAGE	MAXIMUM			AVERAGE	MAXIMUM	MAXIMUM	MINIMUM	MAXIMUM
		<500	770			<500	770	9.5	6.5	0

DATE	1 DAILY										
1	C 0.462	239	Comp.	0.05	Grab	54	Comp.	6.7	Grab	0	
2	C 0.461	213		0.05		46		6.6		0	
3	C 0.400	333		0.05		31		6.8		0	
4	C 0.462	293		0.05		33		6.8		0	
5	C 0.565	447		0.05		113		6.7		0	
6	C 0.592	733		0.05		158		6.6		0	
7	C 0.576	746		0.05		173		6.7		0	
8	C 0.629	718		0.05		229		6.6		0	
9	C 0.540	683		0.05		531		7.0		0	
10	C 0.601	727		0.05		220		6.8		0	
11	C 0.596	698		0.05		109		6.5		0	
12	C 0.598	531		0.05		180		6.7		0	
13	C 0.602	525		0.05		141		6.7		0	
14	C 0.595	536		0.05		60		6.7		0	
15	C 0.645	555		0.05		108		6.9		0	
16	C 0.603	598		0.05		131		6.8		0	
17	C 0.612	579		0.05		245		6.6		0	
18	C 0.666	694		0.05		211		6.9		0	
19	C 0.657	685		0.05		132		6.9		0	
20	C 0.328	385		0.05		55		6.7		0	
21	C 0.473	445		0.05		110		6.8		0	
22	C 0.468	459		0.05		70		6.9		0	
23	C 0.512	458		0.05		102		7.1		0	
24	C 0.367	389		0.05		49		6.6		0	
25	C 0.457	534		0.05		99		6.5		0	
26	C 0.227	237		0.05		15		6.5		0	
27	C 0.219	213		0.05		22		6.6		0	
28	C 0.376	321		0.05		27		6.6		0	
29	C 0.364	323		0.05		36		6.7		0	
30	C 0.470	332		0.05		86		6.8		0	
31											
AVERAGE	0.503	487		0.05		116				.000	
MAXIMUM	0.666	746		0.05		531	MIN	7.1	6.5	.000	
NUMBER DAYS REPORT	30	30		30		30		30		30	
TOTAL SAMPLES TAKEN	30	30		30		30		30		30	
DAYS EXCEEDING MAXIMUM	000	000		000		000		000		000	

BEGINNING DATE 040184
ENDING DATE 043084

SA-049002

PRIVILEGED AND CONFIDENTIAL

STOEFFLER, ULYSSES G. Ulysses G. Stoeffler

M000378
(616) 345-7131

SA-049001

ALLIED PAPER, INC.
MOHAWK MILL
KALAMAZOO MI 49003

MONTHLY OPERATING REPORT FOR OCTOBER 1984 SP

R 4640 Rev 8 82

THIS IS YOUR MONTHLY REPORT FORM FOR

SEE REVERSE SIDE FOR RETURN MAIL

Please complete and submit two copies of this form at the end of each month. This report must reach our Lansing office by the 10th of the month.

ALLIED PAPER, INC.
OUTFALL : 002
16"CLARIFIER PIPE TO PORTAGE CR002

PERMIT EXPIRATION: 9/79

Date form was printed Yr 83 Mo 11 Da 04

FACILITY NUMBER	PERMIT NUMBER	OUTFALL NUMBER
390222	MI0000728	002

PART 1 - RETURN TO DEPT OF NATURAL RESOURCES

PARAM	50050	05001	00545	05002	00400	01300	
NAME	FLOW CONDUIT	BOD-5	SOLIDS-SET-INHOF	SOLIDS-SUSPENDED	PH	OIL-GREASE-VISUL	
UNITS	MGD	LBS/DAY	MG/L	LBS/DAY	0 TO 14	0 TO 4	
LIMIT		MAXIMUM 385		MAXIMUM 500	MAXIMUM 9.5 MINIMUM 6.5	MAXIMUM 0	

DATE	1	DAILY AVG.	HIGH	LOW	1	DAILY AVG	HIGH	LOW	1	DAILY AVG	HIGH	LOW	1	DAILY AVG	HIGH	LOW	1	DAILY AVG	HIGH	LOW	1	DAILY AVG	HIGH	LOW
1	0	0.172				383	COMP			0.05	GRAB			68	COMP			6.9	GRAB			0		
2		0.175				378								54				7.0						
3		0.187				384								33				6.8						
4		0.274				342								77				6.6						
5		0.156				381								72				6.6						
6		0.401				373								134				6.7						
7		0.349				345								39				6.7						
8		0.376				378								51				7.0						
9		0.283				366								74				6.7						
10		0.216				379								58				6.6						
11		0.181				383								26				6.5						
12		0.805				384								129				6.5						
13		0.334				345								100				6.7						
14		0.282				392								119				6.7						
15		0.388				470								77				6.5						
16		0.416				510								39				6.7						
17		0.414				516								19				6.6						
18		0.299				458								19				6.6						
19		0.299				491								37				6.8						
20		0.381				509								50				7.0						
21		0.389				508								231				6.7						
22		0.393				512								264				6.9						
23		0.368				482								187				6.8						
24		0.451				538								162				6.6						
25		0.422				493								189				6.7						
26		0.455				549								129				6.6						
27		0.443				483								423				6.5						
28		0.365				496								149				6.7						
29		0.310				476								66				6.7						
30		0.268				459								46				6.6						
31		0.247				482								39				6.8						
AVERAGE		0.328			AVERAGE				AVERAGE	0.05			AVERAGE				AVERAGE	6.7		AVERAGE				AVERAGE			
MAXIMUM		0.805			MAXIMUM				MAXIMUM	0.05			MAXIMUM				MAXIMUM	7.0		MAXIMUM				MAXIMUM			
																		MIN 6.5								
NUMBER DAYS REPORTING		31			NUMBER DAYS REPORTING				NUMBER DAYS REPORTING	31			NUMBER DAYS REPORTING				NUMBER DAYS REPORTING	31		NUMBER DAYS REPORTING				NUMBER DAYS REPORTING			
TOTAL SAMPLES TAKEN		31			TOTAL SAMPLES TAKEN				TOTAL SAMPLES TAKEN	31			TOTAL SAMPLES TAKEN				TOTAL SAMPLES TAKEN	31		TOTAL SAMPLES TAKEN				TOTAL SAMPLES TAKEN			
DAYS EXCEEDING MAXIMUM		0	0	0	DAYS EXCEEDING MAXIMUM				DAYS EXCEEDING MAXIMUM	0	0	0	DAYS EXCEEDING MAXIMUM				DAYS EXCEEDING MAXIMUM	0	0	0	DAYS EXCEEDING MAXIMUM				DAYS EXCEEDING MAXIMUM			
AVG MAX VIOL					AVG MAX VIOL				AVG MAX VIOL				AVG MAX VIOL				AVG MAX VIOL				AVG MAX VIOL				AVG MAX VIOL			
DUP PUNCH 175 80					DUP PUNCH 175 80				DUP PUNCH 175 80				DUP PUNCH 175 80				DUP PUNCH 175 80				DUP PUNCH 175 80				DUP PUNCH 175 80			
BEGINNING DATE		10 01 84																						
ENDING DATE		10 31 84																						

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS DOCUMENT AND ALL ATTACHMENTS AND THAT, BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THAT THE INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT.

SIGNATURE OF CERTIFIED OPERATOR STOEFFLER, ULYSSES G. Ulysses G. Stoeffler CERTIFICATION NUMBER 0000378

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER E. Flanagan TELEPHONE NUMBER AC 616 345-7131

SECTION I

SECTION II

ALLIED PAPER, INC.
MONARCH MILL
KALAMAZOO MI 49003

MONTHLY OPERATING REPORT FOR NOVEMBER 1984 SP

ALLIED PAPER, INC.
OUTFALL : 002
16"CLARIFIER PIPE TO PORTAGE CR002

PERMIT EXPIRATION: 9/79

P 390222 MI0000779 390006

PART I - RETURN TO DEPT OF NATURAL RESOURCES

Date form is posted 83/11/04

PARAM	50050	85001	00545	85002	00400	01300
NAME	FLOW CONDUIT	BOD-5	SOLIDS-SET-IMHOF	SOLIDS-SUSPENDED	PH	OIL-GREASE-VISUL
UNITS	MGD	LBS/DAY	ML/L	LBS/DAY	0 TO 14	0 TO 4
LIMIT		AVERAGE MAXIMUM		AVERAGE MAXIMUM	MAXIMUM MINIMUM	MAXIMUM
		<500 770		<500 770	9.5 6.5	0

DATE	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW
1	C 0.424			741			0.05			191			6.9			0		
2	C 0.313			603			0.05			278			6.8			0		
3	C 0.221			431			0.05			193			7.0			0		
4	C 0.310			636			0.05			175			7.2			0		
5	C 0.458			725			0.05			254			7.3			0		
6	C 0.278			473			0.05			188			7.0			0		
7	C 0.370			458			0.05			153			7.1			0		
8	C 0.360			441			0.05			131			7.1			0		
9	C 0.276			380			0.05			148			6.9			0		
10	C 0.538			761			0.05			242			7.1			0		
11	C 0.452			766			0.05			131			7.0			0		
12	C 0.280			602			0.05			115			6.9			0		
13	C 0.269			616			0.05			125			7.0			0		
14	C 0.213			560			0.05			77			6.9			0		
15	C 0.170			553			0.05			50			6.7			0		
16	C 0.159			541			0.05			30			7.0			0		
17	C 0.206			629			0.05			45			6.5			0		
18	C 0.204			435			0.05			39			6.5			0		
19	C 0.182			445			0.05			44			6.8			0		
20	C 0.223			552			0.05			81			6.8			0		
21	C 0.129			294			0.05			46			7.0			0		
22	C 0.015			19			0.05			3			7.0			0		
23	C 0.288			349			0.05			41			7.5			0		
24	C 0.500			421			0.05			85			7.1			0		
25	C 0.461			195			0.05			115			7.2			0		
26	C 0.390			377			0.05			294			7.4			0		
27	C 0.353			475			0.05			140			7.3			0		
28	C 0.461			562			0.05			121			6.9			0		
29	C 0.301			535			0.05			83			6.9			0		
30	C 0.262			511			0.05			161			6.9			0		
31																		

	0.302	499	0.05	135		000
	0.538	766	0.05	294 MIN	7.5 / 6.5	000
	30	30	30	30	30	30
TOTAL	030	030	030	030	030	030
DAY	000	000	000	000	000	000

	110184
	113084

STOEFFLER, ULYSSES G. [signature]

T. Flanagan - Vice President Operations

W000378

(616) 345-7131

SA-049000

PROVILEGED AND CONFIDENTIAL

ALLIED PAPER, INC.
MONARCH MILL
KALAMAZOO MI 49003

MONTHLY OPERATING REPORT FOR DECEMBER 1984 SP

ALLIED PAPER, INC.
OUTFALL : 002
16"CLARIFIER PIPE TO PORTAGE CR002

PERMIT EXPIRATION: 9/79

Andy

P | 390222 MI0000779 390006 83/11/04

PARAM	50050	85031		00545		85002		00400		01300
NAME	FLOW CONDUIT	BOD-5		SOLIDS-SET-IMHOF		SOLIDS-SUSPENDED		PH		OIL-GREASE-VISUL
UNITS	MGD	LBS/DAY		ML/L		LBS/DAY		0 TO 14		0 TO 4
LIMIT		AVERAGE	MAXIMUM			AVERAGE	MAXIMUM	MAXIMUM	MINIMUM	MAXIMUM
		<500	770			<500	770	9.5	6.5	0
DATE	DAILY AVG HIGH LOW	DAILY AVG								
1	C 0.232	418	COMP	0.05	GRAB	38	COMP	7	GRAB	
2	C 0.272	524		0.05		108		[illegible]		
3	C 0.373	541		0.05		82		[illegible]		
4	C 0.335	545		0.05		72		[illegible]		
	C 0.334	552		0.05		77		[illegible]		
6	C 0.435	550		0.05		177		[illegible]		
7	C 0.479	620		0.05		70		7.0		
8	C 0.432	553		0.05		146		7.1		
9	C 0.430	481		0.05		110		7.1		
10	C 0.492	572		0.05		144		7.2		
11	C 0.369	667		0.05		30		7.2		
12	C 0.311	562		0.05		132		7.0		
13	C 0.269	498		0.05		100		[illegible]		
14	C 0.254	657		0.05		[illegible]		[illegible]		
15	C 0.216	557		0.05		26		[illegible]		
16	C 0.207	518		0.05		132		[illegible]		
17	C 0.209	460		0.05		121		7.0		
18	C 0.212	247		0.05		35		7.1		
19	C 0.214	449		0.05		51		7.1		
20	C 0.246	332		0.05		105		7.0		
21	C 0.240	375		0.05		138		[illegible]		
22	C 0.192	342		0.05		103		7.2		
23	C 0.233	248		0.05		[illegible]		[illegible]		
24	C 0.135	110		0.05		[illegible]		7.1		
25	C 0.270	143		0.05		[illegible]		[illegible]		
26	C 0.204	106		0.05		[illegible]		[illegible]		
27	C 0.522	758		0.05		[illegible]		[illegible]		
28	C 0.385	650		0.05		[illegible]		[illegible]		
29	C 0.252	439		0.05		[illegible]		[illegible]		
30	C 0.300	238		0.05		[illegible]		[illegible]		
31	C 0.436	742		0.05		[illegible]		[illegible]		
AVERAGE	0.306	482	AV	0.05		138				008
MAXIMUM	0.522	758	MAX	0.05		454	MIN	7.4		008
NUMBER DAYS REPORTED	31	31		31		31		31		31
TOTAL SAMPLES TAKEN	031	031	TOTAL	031		031		031		031
DAYS EXCEEDING MAX	000	000	DAY	000		000		000		000
BEGINNING DATE	1 23 84									
ENDING DATE	1 23 84									

STOEFFLER, ULYSSES G. [signature] M000378

(616) 345-7131

T. Flanigan - Vice President Operations

SA-048999

PRIVILEGED AND CONFIDENTIAL

ALLIED PAPER, INC.
MONARCH MILL
KALAMAZOO MI 49003

MONTHLY OPERATING REPORT FOR JANUARY 1985 SP

PM 4640 Rev. 9-83

THIS IS YOUR MONTHLY REPORT FORM FOR

SEE REVERSE SIDE FOR RETURN MAIL

Please complete and submit two copies of this form at the end of each month. This report must reach our Lansing office by the 10th of the month
REQUIRED BY ACT 245 P.A. 1929 6A

ALLIED PAPER, INC.
OUTFALL 1 of 2
16"CLARIFIER PIPE TO PORTAGE CREEK

PERMIT EXPIRATION: 9/79

Date form was printed 84/12/17

FACILITY NUMBER: 390222 | PERMIT NUMBER: MI0000078 | OUTFALL NUMBER: 390006

PART 1 - RETURN TO DEPT OF NATURAL RESOURCES

SECTION I

PARAM	50050				85041				00545				85042				00400				01300			
NAME	FLOW CONDUIT				BOD-5				SOLIDS-SETTLEABLE				SOLIDS-SUSPENDED				PH				OIL-GREASE-VISUL			
UNITS	MGD				LBS/DAY				ML/L				LBS/DAY											
LIMIT					AVERAGE (350)	MAXIMUM 77.							AVERAGE (542)	MAXIMUM 77.			MAXIMUM 9.0	MINIMUM 6.5			MAXIMUM			
DATE	DAILY AVG	HIGH	LOW		DAILY AVG	HIGH	LOW		DAILY AVG	HIGH	LOW		DAILY AVG	HIGH	LOW		DAILY AVG	HIGH	LOW		DAILY AVG	HIGH	LOW	
1	C 0.438				719	COMP			0.05	GRAB			316	COMP			7.3	GRAB						
2	C 0.371				452				0.05				207				7.2							
3	C 0.353				704				0.05				186				7.0							
4	C 0.385				450				0.05				94				7.0							
5	C 0.304				477				0.05				135				7.0							
6	C 0.195				340				0.05				86				7.3							
7	C 0.321				382				0.05				134				7.1							
8	C 0.341				446				0.05				140				7.1							
9	C 0.330				540				0.05				177				7.0							
10	C 0.342				503				0.05				144				7.1							
11	C 0.290				530				0.05				94				7.2							
12	C 0.304				538				0.05				92				7.1							
13	C 0.225				330				0.05				140				7.1							
14	C 0.332				638				0.05				76				7.1							
15	C 0.309				589				0.05				50				7.1							
16	C 0.413				781				0.05				207				7.2							
17	C 0.316				414				0.05				126				7.2							
18	C 0.191				373				0.05				108				7.1							
19	C 0.267				444				0.05				175				7.1							
20	C 0.435				833				0.05				279				7.1							
21	C 0.312				473				0.05				455				7.3							
22	C 0.213				269				0.05				327				7.2							
23	C 0.202				272				0.05				31				7.2							
24	C 0.330				287				0.05				229				7.4							
25	C 0.270				451				0.05				749				7.2							
26	C 0.235				387				0.05				194				7.1							
27	C 0.259				480				0.05				120				7.1							
28	C 0.300				704				0.05				213				7.2							
29	C 0.369				733				0.05				440				7.0							
30	C 0.139				337				0.05				39				7.1							
31	C 0.157				130	V			0.02	V			37	V			7.0	V						
	AVERAGE 0.397				AVERAGE 493				AVERAGE 0.05				AVERAGE 211				AVERAGE				AVERAGE 000			
	MAXIMUM 0.713				MAXIMUM 753				MAXIMUM 0.05				MAXIMUM 455				MAXIMUM MIN 7.3 6.6				MAXIMUM 000			
MONTHLY SUMMARY	NUMBER DAYS REPORTING 31				NUMBER DAYS REPORTING 31				NUMBER DAYS REPORTING 31				NUMBER DAYS REPORTING 31				NUMBER DAYS REPORTING 31				NUMBER DAYS REPORTING 31			
	TOTAL SAMPLES TAKEN 31				TOTAL SAMPLES TAKEN 31				TOTAL SAMPLES TAKEN 31				TOTAL SAMPLES TAKEN 31				TOTAL SAMPLES TAKEN 31				TOTAL SAMPLES TAKEN 31			
	DAYS EXCEEDING MAXIMUM 000				DAYS EXCEEDING MAXIMUM 000				DAYS EXCEEDING MAXIMUM 000				DAYS EXCEEDING MAXIMUM 000				DAYS EXCEEDING MAXIMUM 000				DAYS EXCEEDING MAXIMUM 000			
	AVG MAX MIN				AVG MAX				AVG MAX				AVG MAX				AVG MAX MIN				AVG MAX			
	DUP PUNCH				DUP PUNCH				DUP PUNCH				DUP PUNCH				DUP PUNCH				DUP PUNCH			
BEGINNING DATE	010135																							
ENDING DATE	013135																							

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS STATEMENT AND ALL ATTACHMENTS AND THAT BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THAT THE INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT.

NAME OF PRINCIPAL EXECUTIVE OFFICER: STOEFFLER, ULYSSES — SIGNATURE — PERMIT NO. MI0000078

TITLE: T. Flintgrin - Vice President Operations — TELEPHONE NO. (616) 345-7131

PRIVILEGED AND CONFIDENTIAL

SA-048998

**ALLIED PAPER, INC.
MONARCH MILL
KALAMAZOO MI 49003

MONTHLY OPERATING REPORT FOR FEBRUARY 1985 SP

THIS IS YOUR MONTHLY REPORT FORM FOR

SEE REVERSE SIDE FOR RETURN MAIL

ALLIED PAPER, INC.
OUTFALL : 002
16"CLARIFIER PIPE TO PORTAGE CR 002

PERMIT EXPIRATION: 9/79

39,222 MIU 779 39) 6

84/12/07

PART 1 RETURN TO DEPT OF NATURAL RESOURCES

PARAM	50050	85001	545	85 3	4.	130
NAME	FLOW CONDUIT	BOD-5 *	SOLIDS-SET-IMHOF	SOLIDS-SUSPENDED	PH	OIL-GREASE-VISUL
UNITS	MGD	LBS/DAY	ML/L	LBS/DAY	TO 14	TO 4
LIMIT		AVERAGE MAXIMUM		AVERAGE MAXIMUM	MAXIMUM MINIMUM	MAXIMUM
		<500 770		<500 770	9.5 6.5 0	

DATE	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW												
1	0.311			431		COMP	0.05	SFAB	238	COMP	7.2	SFAB	0					
2	0.324			356			0.05		38		7.3		0					
3	0.347			476			0.05		77		7.3		0					
4	0.349			325			0.05		122		7.1		0					
5	0.425			424			0.05		74		7.0		0					
6	0.324			295			0.05		154		7.2		0					
7	0.284			279			0.05		152		7.2		0					
8	0.243			258			0.05		560		7.1		0					
9	0.609			376			0.05		478		7.2		0					
10	0.512			334			0.05		370		7.0		0					
11	0.303			552			0.05		152		7.0		0					
12	0.246			480			0.05		65		7.1		0					
13	0.446			812			0.05		378		7.1		0					
14	0.432			812			0.05		249		7.3		0					
15	0.424			801			0.05		356		7.3		0					
16	0.436			794			0.05		311		7.0		0					
17	0.412			832			0.05		320		7.0		0					
18	0.410			774			0.05		287		7.0		0					
19	0.376			803			0.05		232		7.1		0					
20	0.357			802			0.05		332		7.1		0					
21	0.325			841			0.05		359		7.3		0					
22	0.370			862			0.05		330		7.3		0					
23	0.369			832			0.05		334		7.3		0					
24	0.382			815			0.05		77		7.3		0					
25	0.373			777			0.05		77		7.3		0					
26	0.407			852			0.05		77		7.3		0					
27	0.431			811			0.05		223		7.3		0					
28	0.504			808			0.05		203		7.3		0					
29																		
30																		
31																		
AVG	0.398			670					240				000					
MAX	0.343			334					1.0		7.3		000					
NUMBER	28			28					28		28		28					
TOTAL SAMPLES	028			028					028		028		028					
DAYS	000			000					000		000		000					
TOTAL DAYS	0201 35																	
TOTAL DAYS	0228 35																	

*See attached sheet

STOFFEL, ULYSSES G.

Production Manager

(616) 345-7131

SA-048997

PRIVILEGED AND CONFIDENTIAL

ALLIED PAPER, INC.
MONARCH MILL
KALAMAZOO MI 49003

MONTHLY OPERATING REPORT FOR MARCH 1985 SP

PR 4640 Rev 9-83

THIS IS YOUR MONTHLY REPORT FORM FOR

SEE REVERSE SIDE FOR RETURN MAIL

Please complete and submit two copies of this form at the end of each month. The report must reach our office by the 10th of the month. REQUIRED BY ACT 245, P.A. 1929 6A

ALLIED PAPER, INC.
OUTFALL # 002
16"CLARIFIER PIPE TO PORTAGE CR002

PERMIT EXPIRATION: 9/79

Date form was printed 04/12/07

Draft

SECTION 1

FACILITY NUMBER	PERMIT NUMBER	OUTFALL NUMBER
P 390222	MI0000779	3998U6

PART 1 RETURN TO DEPT OF NATURAL RESOURCES

PARAM	50050	05001		00545		850 2		00400		51300		
NAME	FLOW CONDUIT	800-5		SOLIDS-SET-INHOF		SOLIDS-SUSPENDED		PH		OIL-GREASE-HEXSOL		
UNITS	MGD	LBS/DAY *		ML/L		LBS/DAY *		S.U.		MG/L		
LIMIT		AVERAGE 500	MAXIMUM 770			AVERAGE 500	MAXIMUM 770	MAXIMUM 9.5	MINIMUM 6.5	MAXIMUM 10		
DATE	1 DAILY AVG HIGH LOW	1 DAILY AVG HIGH LOW		1 DAILY AVG HIGH LOW		1 DAILY AVG HIGH LOW		1 DAILY AVG HIGH LOW		1 DAILY AVG HIGH LOW		
1	C 0.498	L 572 Comp		L 0.05 GRAB		147 Comp		6.3 GRAB		0		
2	C 0.547	L 784		L 0.05		160		7.0		0		
3	C 0.553	L 736		L 0.05		144		7.0		0		
4	C 0.613	L 697		L 0.05		142		7.0		0		
5	C 0.513	L 675		L 0.05		133		7.0		0		
6	C 0.548	L 833		L 0.05		202		6.9		0		
7	C 0.521	L 799		L 0.05		177		7.0		0		
8	C 0.315	L 578		L 0.05		138		7.0		0		
9	C 0.513	L 633		L 0.05		134		6.8		0		
10	C 0.360	L 533		L 0.05		122		7.0		0		
11	C 0.339	L 720		L 0.05		220		7.0		0		
12	C 0.401	L 684		L 0.05		161		7.0		0		
13	C 0.374	L 567		L 0.05		146		6.8		0		
14	C 0.456	L 703		L 0.05		175		7.0		0		
15	C 0.479	L 687		L 0.05		165		7.0		0		
16	C 0.491	L 827		L 0.05		200		7.0		0		
17	C 0.451	L 817		L 0.05		189		6.8		0		
18	C 0.465	L 879		L 0.05		220		6.8		0		
19	C 0.423	L 816		L 0.05		196		6.8		0		
20	C 0.333	L 826		L 0.05		237		6.8		0		
21	C 0.349	L 830		L 0.05		232		6.8		0		
22	C 0.438	L 702		L 0.05		240		6.8		0		
23	C 0.440	L 857		L 0.05		192		6.8		0		
24	C 0.458	L 892		L 0.05		194		6.8		0		
25	C 0.499	L 930		L 0.05		234		6.8		0		
26	C 0.530	L 730		L 0.05		134		6.8		0		
27	C 0.397	L 641		L 0.05		137		7.0		0		
28	C 0.497	L 726		L 0.05		131		7.0		0		
29	C 0.450	L 803		L 0.05		171		7.0		0		
30	C 0.457	L 891		L 0.05		155		7.0		0		
31	C 0.386	L 926 V		L 0.05 V		139 V		6.8 V		0 V		
AVERAGE	0.443	774		0.05		233				0.00		
MAXIMUM	0.613	933		0.05		726		7.1	6.2	0.00		
MONTHLY SUMMARY	NUMBER DAYS REPORTING	31		NUMBER DAYS REPORTING	31	NUMBER DAYS REPORTING	31	NUMBER DAYS REPORTING	31	NUMBER DAYS REPORTING	31	NUMBER DAYS REPORTING
	TOTAL SAMPLES TAKEN	031		TOTAL SAMPLES TAKEN	031	TOTAL SAMPLES TAKEN	031	TOTAL SAMPLES TAKEN	031	TOTAL SAMPLES TAKEN	031	TOTAL SAMPLES TAKEN
	DAYS EXCEEDING MAX VALUE	000		DAYS EXCEEDING MAX VALUE	000	DAYS EXCEEDING MAX VALUE	000	DAYS EXCEEDING MAX VALUE	000	DAYS EXCEEDING MAX VALUE	000	DAYS EXCEEDING MAX VALUE
	AVG MAX MIN			AVG MAX MIN		AVG MAX MIN						
START DATE	03/01/85	DUP PUNCH	TYP							DUP PUNCH		
END DATE	03/31/85											

I CERTIFY UNDER PENALTY OF LAW THAT BASED ON MY INQUIRY OF THOSE INDIVIDUALS RESPONSIBLE FOR OBTAINING THE INFORMATION, THE MATERIAL AND INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.

* See attached sheet

STOFFLER, ULYSSES W. [signature] [illegible]

Ken Sweet - Production Manager

(616) 345-7131

SA-048996

PRIVILEGED AND CONFIDENTIAL

SA-048995

ALLIED PAPER, INC.
MONARCH MILL
KALAMAZOO MI 49003

MONTHLY OPERATING REPORT FOR APRIL 1985 SP

PR 4640 Rev 9 83

THIS IS YOUR MONTHLY REPORT FORM FOR
SEE REVERSE SIDE FOR RETURN MAIL

Please complete and submit two copies of this form at the end of each month. This report must reach our Lansing office by the 10th of the month
REQUIRED BY ACT 245 P A 1929 6A

ALLIED PAPER, INC.
OUTFALL # 002
16" CLARIFIER PIPE TO PORTAGE CR002

PERMIT EXPIRATION: 9/79

Date form was printed: Yr 84 Mo 12 Day 07

P	FACILITY NUMBER	PERMIT NUMBER	OUTFALL NUMBER
	390222	MI0000779	390006

PART 1 - RETURN TO DEPT OF NATURAL RESOURCES

PARAM	50050	85001	00545	85002	00400	01300	
NAME	FLOW CONDUIT 460	800-5	SOLIDS-SET-IMHOF	SOLIDS-SUSPENDED	PH	OIL-GREASE-VISUL	
UNITS		LBS/DAY	ML/L	LBS/DAY	0 TO 14	0 TO 4	
LIMIT		AVERAGE 500 / MAXIMUM 770		AVERAGE 500 / MAXIMUM 770	MAXIMUM 9.5 / MINIMUM 6.5	MAXIMUM 0	

DATE	1	DAILY AVG.	HIGH	LOW	1	DAILY AVG	HIGH	LOW	1	DAILY AVG	HIGH	LOW	1	DAILY AVG	HIGH	LOW	1	DAILY AVG	HIGH	LOW	1	DAILY AVG	HIGH	LOW
1	C	0.431			1	826	COMP		1	0.05	GRAB		1	153	COMP			7.0	GRAB		1	0		
2	C	0.477			1	829			1	0.05			1	204				7.1						
3	C	0.455			1	822			1	0.05			1	105				7.2						
4	C	0.417			1	831			1	0.05			1	58				6.9						
5	C	0.315			1	645			1	0.05			1	81				6.7						
6	C	0.502			1	705			1	0.05			1	290				6.9						
7	C	0.401			1	539			1	0.05			1	306				7.0						
8	C	0.386			1	741			1	0.05			1	280				7.0						
9	C	0.430			1	826			1	0.05			1	331				6.9						
10	C	0.298			1	824			1	0.05			1	250				6.6						
11	C	0.317			1	829			1	0.05			1	118				6.2						
12	C	0.327			1	822			1	0.05			1	81				6.5						
13	C	0.307			1	822			1	0.05			1	87				6.7						
14	C	0.480			1	820							1	66				6.8						
15	C	0.666			1	836							1	142				6.8						
16	C	0.424			1	741							1	132				6.8						
17	C	0.380			1	657							1	117				6.9						
18	C	0.439			1	818							1	278				6.8						
19	C	0.582			1	808			1	2.8*			1	196				6.9						
20	C	0.361			1	825							1	152				6.9						
21	C	0.311			1	810							1	106				6.5						
22	C	0.339			1	821							1	204				6.8						
23	C	0.317			1	829							1	278				6.8						
24	C	0.288			1	812							1	127				6.7						
25	C	0.392			1	829							1	105				6.6						
26	C	0.386			1	834			1	3.2*			1	68				6.1						
27	C	0.398			1	810							1	76				6.9						
28	C	0.393			1	826							1	80				6.7						
29	C	0.428			1	823							1	61				6.8						
30	C	0.367			1	831							1	51				6.7						
31																								

MONTHLY SUMMARY																								
AVERAGE	0.397			AVERAGE	793			AVERAGE				AVERAGE	152			AVERAGE	7.2			AVERAGE	0			AVERAGE	
MAXIMUM	0.666			MAXIMUM	836			MAXIMUM				MAXIMUM	331			MAXIMUM MIN	7.2 6.5			MAXIMUM	0			MAXIMUM	
NUMBER DAYS REPORTING	30			NUMBER DAYS REPORTING	30			NUMBER DAYS REPORTING	30			NUMBER DAYS REPORTING	30			NUMBER DAYS REPORTING	30			NUMBER DAYS REPORTING	30			NUMBER DAYS REPORTING	
TOTAL SAMPLES TAKEN	30			TOTAL SAMPLES TAKEN	30			TOTAL SAMPLES TAKEN	5			TOTAL SAMPLES TAKEN	30			TOTAL SAMPLES TAKEN	30			TOTAL SAMPLES TAKEN	30			TOTAL SAMPLES TAKEN	
DAYS EXCEEDING MAXIMUM	0			DAYS EXCEEDING MAXIMUM	0			DAYS EXCEEDING MAXIMUM	0			DAYS EXCEEDING MAXIMUM	0			DAYS EXCEEDING MAXIMUM	0			DAYS EXCEEDING MAXIMUM	0			DAYS EXCEEDING MAXIMUM	
AVG MAX VIOL				AVG MAX VIOL				AVG MAX VIOL				AVG MAX VIOL				AVG MAX VIOL				AVG MAX VIOL				AVG MAX VIOL	
BEGINNING DATE	04 01 85			DUP PUNCH (75-80)				DUP PUNCH (75-80)				DUP PUNCH (75-80)				DUP PUNCH (75-80)				DUP PUNCH (75-80)				DUP PUNCH (75-80)	
ENDING DATE	04 30 85																							

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS DOCUMENT AND ALL ATTACHMENTS AND THAT BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THAT THE INFORMATION IS TRUE ACCURATE AND COMPLETE I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT

*NG/L TESTED ONCE A WEEK PER NEW NPDES PERMIT

SIGNATURE OF CERTIFIED OPERATOR STOEFFLER, ULYSSES S. Ulysses S. Stoeffler CERTIFICATION NUMBER MOC-378

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER

TELEPHONE NUMBER 616/345-7131

DRINKING AND GROUNDWATER

ALLIED PAPER INC
MONARCH MILL
KALAMAZOO MI 49005

MONTHLY OPERATING REPORT FOR MAY 1985

THIS IS YOUR MONTHLY REPORT FORM FOR

SEE REVERSE SIDE FOR RETURN MAIL

Please complete and submit two copies of this form at the end of each month. This report must reach our Lansing office by the 10th of the month.
REQUIRED BY ACT 245, P.A. 1929-6A.

ALLIED PAPER INC
OUTFALL # 002
16" CLARIFIER PIPE TO PORTAGE CR

PERMIT EXPIRATION: 9/79

Date form was printed: 06/12/85

PART 1 – RETURN TO DEPT OF NATURAL RESOURCES

PARAM	50050	00530	00545	00602	00400	00556	
NAME	FLOW CONDUIT	BOD-5	SOLIDS-SET-IMHOF	SOLIDS-SUSPENDED	PH	OIL-GREASE-VISUAL	
UNITS	MGD	LBS/DAY *	ML/L *	LBS/DAY *			
LIMIT		AVERAGE 500 / MAXIMUM 770		AVERAGE 500 / MAXIMUM 770	MAXIMUM 9.5 / MINIMUM 6.5	MAXIMUM 0	

DATE	1	DAILY AVG	HIGH	LOW	1	DAILY AVG	HIGH	LOW	1	DAILY AVG	HIGH	LOW	1	DAILY AVG	HIGH	LOW	1	DAILY AVG	HIGH	LOW	1	DAILY AVG	HIGH	LOW
1	C	0.144			1	331	COMP		1	7.2	GRAB		1	13	COMP		1	6.8	GRAB		1	0		
2	C	0.145			1	150							1	14			1	6.3			1	0		
3	C	0.174			1	378							1	33			1	6.3			1	0		
4	C	0.155			1	336							1	39			1	6.3			1	0		
5	C	0.148			1	368							1	37			1	6.3			1	0		
6	C	0.204			1	378							1	69			1	6.7			1	0		
7	C	0.174			1	376							1	66			1	6.3			1	0		
8	C	0.148			1	372							1	50			1	6.3			1	0		
9	C	0.149			1	380							1	39			1	6.3			1	0		
10	C	0.179			1	380			1	1.6			1	50			1	6.3			1	0		
11	C	0.179			1	379							1	71			1	6.5			1	0		
12	C	0.179			1	307							1	79			1	6.5			1	0		
13	C	0.214			1	348							1	73			1	6.9			1	0		
14	C	0.183			1	363							1	73			1	6.7			1	0		
15	C	0.179			1	370			1	3.2			1	61			1	6.7			1	0		
16	C	0.182			1	378							1	56			1	6.7			1	0		
17	C	0.175			1	382							1	74			1	6.7			1	0		
18	C	0.164			1	330							1	44			1	6.3			1	0		
19	C	0.148			1	377							1	29			1	6.7			1	0		
20	C	0.180			1	315							1	30			1	6.7			1	0		
21	C	0.209			1	328							1	33			1	6.7			1	0		
22	C	0.204			1	329			1	3.2			1	24			1	6.9			1	0		
23	C	0.224			1	378							1	25			1	6.3			1	0		
24	C	0.175			1	311							1	27			1	6.3			1	0		
25	C	0.154			1	378							1	13			1	6.3			1	0		
26	C	0.364			1	377							1	15			1	6.3			1	0		
27	C	0.351			1	337							1	24			1	6.4			1	0		
28	C	0.145			1	296							1	43			1	6.4			1	0		
29	C	0.201			1	380			1	3.2			1	55			1	6.6			1	0		
30	C	0.339			1	378							1	31			1	6.6			1	0		
31	C	0.179			1	326							1	34			1	6.3			1	0		

MONTHLY SUMMARY																								
AVERAGE	0.196			355					46			6.9			000								
MAXIMUM	0.283			380					99			6.9			000								
MIN												6.3												
NUMBER DAYS REPORTING	31			31			31			31			31			31								
TOTAL SAMPLES TAKEN	03			03			005			03			03			03								
DAYS EXCEEDING MAXIMUM	000			000			000			000			000			000								
AVG MAX VIOL																								
DUP PUNCH 170-00h																								
BEGINNING DATE	050185																							
ENDING DATE	053185																							

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS DOCUMENT AND ALL ATTACHMENTS AND THAT BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THAT THE INFORMATION IS TRUE ACCURATE AND COMPLETE I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT

SIGNATURE OF CERTIFIED OPERATOR STOFFLER ULYSSES G. Ulysses G. Stoffler CERTIFICATION NUMBER MCO328

*See Attached Letter

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER T. E. Flanagen, per Oakley T. E. Flanagen, V P. Operations TELEPHONE NUMBER (616) 345-7131

Andy

SA-049045

PRIVILEGED AND CONFIDENTIAL

ALLIED PAPER, INC.
MOYARCH MILL
KALAMAZOO MI 49 3

MONTHLY OPERATING REPORT FOR JUNE 1985 SP

PR 4640 Rev 9/83

THIS IS YOUR MONTHLY REPORT FORM FOR

SEE REVERSE SIDE FOR RETURN MAIL

Please complete and submit two copies of this form at the end of each month. This report must reach our Lansing office by the 10th of the month
REQUIRED BY ACT 245, P.A. 1929 8A

ALLIED PAPER, INC.
OUTFALL # 002
36"CLARIFIER PIPE TO PORTAGE CREEK

PERMIT EXPIRATION: 9/79

Date form was printed: 04/12/07

FACILITY NUMBER: 390222
POINT NUMBER: MI0000779
OUTFALL NUMBER: 390006

PART 1 - RETURN TO DEPT OF NATURAL RESOURCES

PARAM	50050	85041	00545	85002	00400	01380	
NAME	FLOW CONDUIT	BOD-5.	SOLIDS-SET-IMHOF	SOLIDS-SUSPENDED	PH	OIL-GREASE-VISUL	
UNITS	MGD	LBS/DAY *	ML/L *	LBS/DAY *	0 TO 14 *	0 TO 6	
LIMIT		MAXIMUM 385		MAXIMUM 500	MAXIMUM 9.5 MINIMUM 6.5	MAXIMUM 0	

DATE	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW
1	C 0.245			386	COMP					38	COMP		6.5	GRAB		0		
2	C 0.333			314						34			6.9			0		
3	C 0.189			305						14			6.9			0		
4	C 0.240			304						28			6.9			0		
5	C 0.274			323			3.6			17			7.0			0		
6	C 0.170			317						19			6.7			0		
7	C 0.269			329						109			6.9			0		
8	C 0.378			329						149			6.8			0		
9	C 0.333			325						31			7.0			0		
10	C 0.334			327						30			7.1			0		
11	C 0.314			329						15			7.1			0		
12	C 0.201			384			0.8			22			6.7			0		
13	C 0.154			341						60			6.3			0		
14	C 0.179			335						83			6.3			0		
15	C 0.188			304						118			7.4			0		
16	C 0.222			386						101			6.3			0		
17	C 0.221			386						76			6.3			0		
18	C 0.247			377						107			7.0			0		
19	C 0.234			382			6.8			72			6.9			0		
20	C 0.233			378						45			6.9			0		
21	C 0.157			370						37			6.8			0		
22	C 0.227			386						30			7.0			0		
23	C 0.172			373						41			6.6			0		
24	C 0.185			346						88			7.1			0		
25	C 0.170			384						60			6.9			0		
26	C 0.136			378			7.2			45			6.8			0		
27	C 0.170			377						49			6.8			0		
28	C 0.187			384						14			6.8			0		
29	C 0.209			384						18			6.6			0		
30	C 0.172			313						13			6.6			0		
31																		

MONTHLY SUMMARY																		
AVERAGE	0.210			359						51				000				
MAXIMUM	0.378			386						149			MIN 7.2	000				
NUMBER DAYS REPORTING	30			30						30			30	30				
TOTAL SAMPLES TAKEN	030			030						030			030	030				
DAYS EXCEEDING MAXIMUM	000			000						000			000	000				

BEGINNING DATE 8 7 01 85 (M M D D Y Y)
ENDING DATE 8 7 30 85 (M M D D Y Y)

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS DOCUMENT AND ALL ATTACHMENTS AND THAT BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THAT THE INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT.

* See Attached Letter

SIGNATURE OF CERTIFIED OPERATOR: STOEFFLER ULYSSES G. — CERTIFICATION NUMBER: MC-- 328

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER: T. E. Flanagan, V. P. Operations — TELEPHONE NUMBER: (616) 345-7131

PRIVILEGED AND CONFIDENTIAL

Andy

Andy

SA-049043

PRIVILEGED AND CONFIDENTIAL

ALLIED PAPER, INC.
MONARCH MILL
KALAMAZOO MI 49003

MONTHLY OPERATING REPORT FOR JULY 1985 SP

FB 4640 Rev 9/83

THIS IS YOUR MONTHLY REPORT FORM FOR
SEE REVERSE SIDE FOR RETURN MAIL

Please complete and submit two copies of this form at the end of each month. This report must reach our Lansing office by the 10th of the month.
REQUIRED BY ACT 245, P.A. 1929-8A.

ALLIED PAPER, INC.
OUTFALL # 002
16"CLARIFIER PIPE TO PORTAGE CREEK

PERMIT EXPIRATION: 9/[illegible]

Date Rec'd: 08/12/85

PART 1 – RETURN TO DEPT. OF NATURAL RESOURCES

PARAM	50050	80082	00545	00400	00556
NAME	FLOW CONDUIT	BOD-5	SOLIDS-SET-INHOF	SOLIDS-SUSPENDED	PH	OIL-GREASE-VISUAL
UNITS	MGD	LBS/DAY *	ML/L *	LBS/DAY *	0 TO 14 *	0 TO 01
LIMIT		MAXIMUM 385		MAXIMUM 500	MAXIMUM 9.5 MINIMUM 6.5	MAXIMUM 0

DATE	I	DAILY AVG.	HIGH	LOW	I	DAILY AVG.	HIGH	LOW	I	DAILY AVG	HIGH	LOW	I	DAILY AVG	HIGH	LOW	I	DAILY AVG	HIGH	LOW	I	DAILY AVG.	HIGH	LOW
1	C	0.255			I	385							I	33			I	6a5			I	0		
2	C	0.284			I	375			I	8.8			I	31			I	6a4			I	0		
3	C	0.008			I	15							I	3			I	–			I	0		
4	C	0.000			I	0							I	0			I	–			I	0		
5	C	0.281			I	283							I	64			I	7.2			I	0		
6	C	0.266			I	309							I	20			I	7.0			I	0		
7	C	0.250			I	366							I	19			I	6a5			I	0		
8	C	0.312			I	374							I	15			I	6a9			I	0		
9	C	0.277			I	346							I	68			I	6a8			I	0		
10	C	0.301			I	371			I	2.8			I	37			I	6a3			I	0		
11	C	0.303			I	380							I	86			I	6a8			I	0		
12	C	0.192			I	386							I	40			I	7.1			I	0		
13	C	0.149			I	374							I	10			I	7.0			I	0		
14	C	0.151			I	381							I	19			I	5.8			I	0		
15	C	0.155			I	351							I	19			I	5.6			I	0		
16	C	0.152			I	366							I	28			I	5.8			I	0		
17	C	0.153			I	347			I	4			I	33			I	5.8			I	0		
18	C	0.177			I	350							I	24			I	5.8			I	0		
19	C	0.186			I	344							I	19			I	5.8			I	0		
20	C	0.157			I	339							I	22			I	5.8			I	0		
21	C	0.157			I	333							I	18			I	6a4			I	0		
22	C	0.224			I	357							I	15			I	6a1			I	0		
23	C	0.159			I	357							I	5			I	5.9			I	0		
24	C	0.174			I	372			I	0			I	31			I	6a3			I	0		
25	C	0.162			I	303							I	44			I	6a0			I	0		
26	C	0.190			I	339							I	72			I	6a0			I	0		
27	C	0.174			I	328							I	55			I	6a1			I	0		
28	C	0.172			I	378							I	19			I	6a3			I	0		
29	C	0.175			I	372							I	49			I	6a4			I	0		
30	C	0.142			I	307							I	44			I	6a2			I	0		
31	C	0.125			I	346							I	31			I	6a2			I	0		

MONTHLY SUMMARY																								
AVERAGE	0.192			362			2.8			86			6a5			0.00							
MAXIMUM	0.312			386									7a2			0.00							
													5a6										
NUMBER DAYS REPORTING	31			31					31				31			31							
TOTAL SAMPLES TAKEN **	0.30			0.30					0.30				0.30			0.30							
DAYS EXCEEDING MAXIMUM	0.00			0.00					0.00				0.00			0.00							
AVG MAX VOL																							
DUP PUNCH 175-000																							

BEGINNING DATE 07/01/85
ENDING DATE 07/31/85

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS DOCUMENT AND ALL ATTACHMENTS AND THAT BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THAT THE INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT.

* See Attached Letter
** Mill Down July 3 & 4th

SIGNATURE OF CERTIFIED OPERATOR: STOEFFLER, ULYSSES G. Ulysses P. Stoeffler — CERTIFICATION NUMBER: M0003Z8

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER: T. E. Flanagan — TELEPHONE NUMBER: (616) 345-7131

T. E. Flanagan, V. P. Operations

MONARCH MILL
KALAMAZOO MI 49003

THIS IS YOUR MONTHLY REPORT FORM FOR
SEE REVERSE SIDE FOR RETURN MAIL

Please complete and submit two copies of this form at the end of each month. This report must reach our Lansing office by the 10th of the month.
REQUIRED BY ACT 245, P.A. 1929-6A.

ALLIED PAPER, INC.
OUTFALL # 002
16"CLARIFIER PIPE TO PORTAGE CR002

PERMIT EXPIRATION: 9/79

Date form was printed: Yr. 84 Mo. 12 Day 07

FACILITY NUMBER [redacted] PERMIT NUMBER MI0001279 OUTFALL NUMBER 002

PART 1 - RETURN TO DEPT OF NATURAL RESOURCES

PARAM	50050	85600	00545	85002	00400	01300	
NAME	FLOW CONDUIT	BOD-5	SOLIDS-SET-IMHOF	SOLIDS-SUSPENDED	PH	OIL-GREASE-VISUL	
UNITS	MGD	LBS/DAY*	ML/L*	LBS/DAY *	0 TO 14*	0 TO 4	
LIMIT		MAXIMUM 385		MAXIMUM 500	MAXIMUM 9.5 / MINIMUM 6.5	MAXIMUM 0	

DATE	1	DAILY AVG	HIGH	LOW	1	DAILY AVG	HIGH	LOW	1	DAILY AVG	HIGH	LOW	1	DAILY AVG	HIGH	LOW	1	DAILY AVG	HIGH	LOW	1	DAILY AVG	HIGH	LOW
1	C	0.177			I	384	COMP			0.4			I	33	COMP		I	5.9	GRAB		I	0		
2	C	0.176			I	380							I	16			I	6.4			I	0		
3	C	0.176			I	385							I	30			I	6.4			I	0		
4	C	0.191			I	377							I	48			I	6.5			I	0		
5	C	0.235			I	376							I	35			I	6.5			I	0		
6	C	0.174			I	311							I	17			I	6.6			I	0		
7	C	0.151			I	380				12			I	27			I	6.7			I	0		
8	C	0.259			I	387							I	39			I	6.9			I	0		
9	C	0.203			I	384							I	148			I	6.9			I	0		
10	C	0.369			I	383							I	113			I	6.9			I	0		
11	C	0.293			I	386							I	26			I	6.9			I	0		
12	C	0.218			I	330							I	34			I	6.6			I	0		
13	C	0.266			I	387							I	22			I	6.5			I	0		
14	C	0.254			I	386							I	41			I	6.7			I	0		
15	C	0.186			I	383							I	44			I	6.7			I	0		
16	C	0.178			I	373							I	68			I	6.6			I	0		
17	C	0.199			I	389							I	58			I	6.6			I	0		
18	C	0.172			I	379							I	52			I	6.6			I	0		
19	C	0.121			I	340							I	46			I	6.6			I	0		
20	C	0.153			I	387							I	27			I	6.8			I	0		
21	C	0.132			I	366				1.6			I	32			I	6.6			I	0		
22	C	0.191			I	365							I	60			I	6.3			I	0		
23	C	0.205			I	384							I	93			I	6.3			I	0		
24	C	0.159			I	365							I	89			I	6.3			I	0		
25	C	0.232			I	386							I	92			I	6.3			I	0		
26	C	0.140			I	387							I	58			I	6.3			I	0		
27	C	0.159			I	384							I	55			I	6.3			I	0		
28	C	0.135			I	384				6.4			I	39			I	6.0			I	0		
29	C	0.188			I	387							I	69			I	6.0			I	0		
30	C	0.337			I	387							I	132			I	6.0			I	0		
31	C	0.287			I	364	↓						I	111	↓		I	6.1	↓		I	0		

MONTHLY SUMMARY																								
	AVERAGE	0.199			AVERAGE	362			AVERAGE				AVERAGE	56			AVERAGE				AVERAGE	0.00			AVERAGE	
	MAXIMUM	0.337			MAXIMUM	389			MAXIMUM				MAXIMUM	148			MAXIMUM	6.9			MAXIMUM	0.00			MAXIMUM	
																	MIN	5.4								
	NUMBER DAYS REPORTING	31			NUMBER DAYS REPORTING	31			NUMBER DAYS REPORTING				NUMBER DAYS REPORTING	31			NUMBER DAYS REPORTING	31			NUMBER DAYS REPORTING	31			NUMBER DAYS REPORTING	
	TOTAL SAMPLES TAKEN	031			TOTAL SAMPLES TAKEN	031			TOTAL SAMPLES TAKEN				TOTAL SAMPLES TAKEN	031			TOTAL SAMPLES TAKEN	031			TOTAL SAMPLES TAKEN	031			TOTAL SAMPLES TAKEN	
	DAYS EXCEEDING MAXIMUM	000			DAYS EXCEEDING MAXIMUM	000			DAYS EXCEEDING MAXIMUM				DAYS EXCEEDING MAXIMUM	000			DAYS EXCEEDING MAXIMUM	000			DAYS EXCEEDING MAXIMUM	000			DAYS EXCEEDING MAXIMUM	
	AVG. MAX. VIOL.				AVG. MAX. VIOL.				AVG. MAX. VIOL.				AVG. MAX. VIOL.				AVG. MAX. VIOL.				AVG. MAX. VIOL.				AVG. MAX. VIOL.	
BEGINNING DATE		08018	5		DUP PUNCH (75-80)				DUP PUNCH (75-80)				DUP PUNCH (75-80)				DUP PUNCH (75-80)				DUP PUNCH (75-80)				DUP PUNCH (75-80)	
ENDING DATE		08318	5																					

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS DOCUMENT AND ALL ATTACHMENTS AND THAT BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THAT THE INFORMATION IS TRUE ACCURATE AND COMPLETE I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT

* See Attached Letter

SIGNATURE OF CERTIFIED OPERATOR STOEFFLER, ULYSSES G. Ulysses Stoeffler CERTIFICATION NUMBER [redacted]

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER T. E. Flanagan, V. P. Operations TELEPHONE NUMBER (616-345-7131)

SECTION I
SECTION II

Andy

SA-049042

PRIVILEGED AND CONFIDENTIAL

ALLIED PAPER, INC.
MCMARCH MILL

KALAMAZOO

MONTHLY OPERATING REPORT FOR MAY 1978

THIS IS YOUR MONTHLY REPORT FORM FOR

SEE REVERSE SIDE FOR RETURN MAIL

ALLIED PAPER, INC.
OUTFALL : 002
16"CLARIFIER PIPE TO PORTAGE CRK 002

41 430 3 RECEIVED
JUN 9 1978
Water Qual. Control

file 7/13/78

Please complete and submit two copies of this form at the end of each month. This report must reach our Lansing office by the 10th of the month

3	39:222	MI0003779	390006

Date form was computer printed 7/13/78

	50050	85021	00545	85022	03300	00400	
PARAM NAME	FLOW CONDUIT	BOD-5	SOLIDS-SET-IMHOF	SOLIDS-SUSPENDED	OIL-GREASE-VISUL	PH	
UNITS	MGD	LBS/DAY	ML/L	LBS/DAY	C TO 6	C TO 14	
LIMIT		AVERAGE 550 MAXIMUM 771		AVERAGE 550 MAXIMUM 771		MAXIMUM 9.5 MINIMUM 6.0	

DATE	I	DAILY AVG	HIGH	LOW	I	DAILY AVG	HIGH	LOW	I	DAILY AVG	HIGH	LOW	I	DAILY AVG	HIGH	LOW	I	DAILY AVG	HIGH	LOW	I	DAILY AVG	HIGH	LOW
1	C	3.346			C	251			1	0.1			C	22			1	0			1	8.0		
2	C	0.422			C	180			1	0.05			C	6			1	0			1	3.1		
3	C	0.417			C	132			1	0.05			C	4			1	0			1	8.2		
4	C	0.416			C	135			1	0.05			C	4			1	0			1	8.3		
5	C	3.730			C	367			1	0.05			C	192			1	0			1	8.3		
6	C	3.255			C	364			1	0.06			C	143			1	0			1	7.6		
7	C	3.286			C	477			1	0.05			C	82			1	0			1	7.1		
8	C	3.331			C	542			1	0.05			C	167			1	1			1	7.1		
9	C	3.500			C	764			1	0.05			C	32			1	1			1	7.1		
10	C	3.213			C	755			1	0.1			C	750			1	0			1	7.4		
11	C	3.328			C	617			1	0.1			C	88			1	1			1	7.1		
12	C	3.914			C	770			1	0.05			C	555			1	0			1	7.1		
13	C	4.062			C	770			1	0.05			C	271			1	0			1	7.0		
14	C	3.175			C	750			1	0.1			C	700			1	1			1	6.7		
15	C	2.650			C	474			1	0.1			C	485			1	0			1	7.0		
16	C	3.631			C	375			1	0.05			C	26			1	1			1	6.5		
17	C	3.175			C	383			1	0.05			C	79			1	1			1	7.2		
18	C	4.784			C	369			1	0.05			C	23			1	0			1	7.3		
19	C	2.158			C	257			1	0.05			C	19			1	0			1	7.4		
20	C	3.026			C	305			1	0.05			C	252			1	0			1	6.8		
21	C	3.881			C	312			1	0.05			C	76			1	0			1	6.9		
22	C	3.306			C	381			1	0.05			C	93			1	0			1	6.9		
	C	7.617			C	375			1	0.05			C	87			1	0			1	6.5		
	C	3.642			C	381			1	0.05			C	61			1	0			1	6.5		
25	C	3.671			C	377			1	0.05			C	306			1	1			1	6.9		
26	C	3.077			C	383			1	0.05			C	231			1	0			1	7.3		
27	C	0.631			C	383			1	0.05			C	51			1	0			1	7.6		
28	C	0.641			C	310			1	0.05			C	16			1	0			1	6.5		
29	C	0.537			C	233			1	0.05			C	28			1	0			1	6.6		
30	C	3.650			C	380			1	0.05			C	99			1	1			1	7.4		
31	C	3.550			C	371			1	0.05			C	148			1	0			1	6.8		
AVERAGE		2.705			AVERAGE	404			AVERAGE	0.106			AVERAGE	179			AVERAGE	0.2			AVERAGE			
MAXIMUM		4.062			MAXIMUM	771			MAXIMUM	1.0			MAXIMUM	750			MAXIMUM	1			MAXIMUM	9.3		
																						MIN	6.5	
NUMBER DAYS REPORTING		31			NUMBER DAYS REPORTING	31			NUMBER DAYS REPORTING	31			NUMBER DAYS REPORTING	31			NUMBER DAYS REPORTING	31			NUMBER DAYS REPORTING	31		
TOTAL SAMPLES TAKEN		31			TOTAL SAMPLES TAKEN	31			TOTAL SAMPLES TAKEN	31			TOTAL SAMPLES TAKEN	31			TOTAL SAMPLES TAKEN	31			TOTAL SAMPLES TAKEN	31		
DAYS EXCEEDING MAX		0			DAYS EXCEEDING MAXIMUM	0			DAYS EXCEEDING MAXIMUM	0			DAYS EXCEEDING MAXIMUM	0			DAYS EXCEEDING MAXIMUM	0			DAYS EXCEEDING MAXIMUM	0		
AVG EXCEEDANCE					AVG EXCEEDANCE				AVG EXCEEDANCE				AVG EXCEEDANCE				AVG EXCEEDANCE				AVG EXCEEDANCE			
DUP PUNCH					DUP PUNCH				DUP PUNCH				DUP PUNCH				DUP PUNCH				DUP PUNCH			

BEGINNING DATE 05/01/78
ENDING DATE 05/31/78

SIGNATURE OF CERTIFIED OPERATOR [redacted] Ulysses D. Stoeffler
ULYSSES C. STOEFFLER
CERTIFICATION NUMBER [redacted] M-378

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER E. J. Gilman
E. J. GILMAN, VICE PRESIDENT OF OPERATIONS
TELEPHONE NUMBER (616) 345-7131

004558 MDNR
MDNR00004558

ALLIED PAPER, INC.
MONARCH MILL

KALAMAZOO MI 49003

MONTHLY OPERATING REPORT FOR JUNE 1978

RECEIVED
JUL 10 1978
WATER QUALITY CONTROL
COMPREHENSIVE STUDIES

THIS IS YOUR MONTHLY REPORT FORM FOR
SEE REVERSE SIDE FOR RETURN MAIL

DISTRICT

ALLIED PAPER, INC.
OUTFALL # 002
16"CLARIFIER PIPE TO PORTAGE CRK 2

Please complete and submit two copies of this form at the end of each month. This report must reach our Lansing office by the 10th of the month.

3	39.222	MI0000779	3900016

Date form was computer printed 78/10/22

PARAMETER	50050	85001	00545	85002	01300	00400		
NAME	FLOW CONDUIT	BOD-5	SOLIDS-SET-IMHOF	SOLIDS-SUSPENDED	OIL-GREASE-HEXSOL	PH		
UNITS	MGD	LBS/DAY	ML/L	LBS/DAY	MG/L			
LIMIT		MAXIMUM 385		MAXIMUM 50		MAXIMUM 9.5	MINIMUM 6.0	

DAY	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW
1	3.631			0.355			0.055			1.439			0.0			7.2		
2	3.353			0.355			0.055			1.432			0.0			7.1		
3	3.550			0.355			0.055			1.402			0.0			7.6		
4	3.993			0.355			0.055			1.353			0.0			7.9		
5	3.633			0.355			0.055			1.345			0.0			7.8		
6	3.383			0.355			0.055			1.353			0.0			7.9		
7	3.814			0.355			0.055			1.489			0.0			7.8		
8	3.859			0.355			0.055			1.453			0.0			7.8		
9	3.921			0.355			0.055			1.453			0.0			7.8		
10	3.677			0.355			0.055			1.411			0.0			7.6		
11	3.677			0.355			0.055			1.432			0.0			7.8		
12	3.783			0.355			0.055			1.432			0.0			7.8		
13	3.780			0.355			0.055			1.432			0.0			7.6		
14	3.450			0.355			0.055			1.350			0.0			7.6		
15	3.398			0.355			0.055			1.350			0.0			7.4		
16	3.398			0.355			0.055			1.350			0.0			7.4		
17	3.339			0.355			0.055			1.708			0.0			7.8		
18	3.405			0.355			0.055			1.220			0.0			7.8		
19	3.533			0.355			0.055			1.443			0.0			6.8		
20	3.428			0.355			0.055			1.434			0.0			6.8		
21	3.428			0.355			0.055			1.434			0.0			6.8		
22	3.313			0.355			0.055			1.410			0.0			7.0		
23	3.207			0.355			0.055			1.425			0.0			7.2		
24	3.207			0.355			0.055			1.425			0.0			7.2		
25	3.688			0.355			0.055			1.432			0.0			7.2		
26	3.688			0.355			0.055			1.432			0.0			7.2		
27	3.934			0.355			0.055			1.434			0.0			7.4		
28	3.889			0.355			0.055			1.426			0.0			7.4		
29	3.636			0.355			0.055			1.453			0.0			6.9		
30	4.146			0.355			0.055			1.438			0.0			7.0		
31																		
AVERAGE	3.754			0.355			0.055			1.413			0.000					
MAXIMUM	4.146			0.355			0.055			1.443			0.0			7.6		
MINIMUM																6.8		
NUMBER DAYS REPORTING	30			30			30			30			30			30		
TOTAL SAMPLES TAKEN	30			30			30			30			30			30		
DAYS EXCEEDING MAXIMUM	0			0			0			0			0			0		
AVG EXCEEDANCE																		
DUP PUNCH																		

SIGNATURE OF CERTIFIED OPERATOR Ulysses C. Stoeffler ULYSSES C. STOEFFLER

CERTIFICATION NUMBER W378

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER E.G. Tilness

TELEPHONE (616) 349-7731

MDNR 994557
MDNR00004557

ALLIED PAPER, INC.
MONARCH MILL

KALAMAZOO MI 490 3

RECEIVED
AUG 9 1978
WATER QUALITY CONTROL
"MISSPECIFIC STUDIES"

MONTHLY OPERATING REPORT FOR JULY 1978

THIS IS YOUR MONTHLY REPORT FORM FOR
SEE REVERSE SIDE FOR RETURN MAIL

ALLIED PAPER, INC.
OUTFALL # 002
16" CLARIFIER PIPE TO PORTAGE CR 2

Please complete and submit two copies of this form at the end of each month. This report must reach our Lansing office by the 10th of the month.

	Report Number	Outfall Number
3	392222	MI0000779	39C002

Date form was computer printed 7/10/78

DAY	50050 FLOW CO.DUCT MGD				85021 BOD-5 LBS/DAY MAXIMUM 385				00545 SOLIDS-SET-INHOF ML/L				85022 SOLIDS-SUSPENDED LBS/DAY MAXIMUM 50.				03300 OIL-GREASE-VISUL				00400 PH MAXIMUM 9.5 MINIMUM 6.0							
	I	DAILY AVG	HIGH	LOW	I	DAILY AVG	HIGH	LOW	I	DAILY AVG	HIGH	LOW	I	DAILY AVG	HIGH	LOW	I	DAILY AVG	HIGH	LOW	I	DAILY AVG	HIGH	LOW	I	DAILY AVG	HIGH	LOW
1	C	1.569			C	164			1	0.1			C	26			1	0			1	7.2						
2	C	1.068			C	136			1	0.05			C	9			1	0			1	6.6						
3	C	0.673			C	69			1	0.05			C	5			1	0			1	7.8						
4	C	0.662			C	55			1	0.05			C	6			1	0			1	7.5						
5	C	2.799			C	140			1	0.1			C	23			1	1			1	7.0						
6	C	2.661			C	187			1	0.05			C	22			1	0			1	7.0						
7	C	2.240			C	277			1	0.05			C	24			1	0			1	7.6						
8	C	2.921			C	331			1	0.05			C	25			1	0			1	7.4						
9	C	2.617			C	325			1	0.05			C	22			1	0			1	7.2						
10	C	2.654			C	381			1	0.05			C	23			1	0			1	7.3						
11	C	3.173			C	332			1	0.05			C	24			1	0			1	7.4						
12	C	3.358			C	390			1	0.05			C	27			1	0			1	7.2						
13	C	2.767			C	341			1	0.05			C	24			1	1			1	7.0						
14	C	3.136			C	390			1	0.05			C	28			1	1			1	7.0						
15	C	1.841			C	595			1	0.05			C	15			1	0			1	7.0						
16	C	1.746			C	329			1	0.05			C	227			1	0			1	7.4						
17	C	3.277			C	371			1	0.05			C	27			1	1			1	6.9						
18	C	3.191			C	348			1	0.05			C	27			1	1			1	6.9						
19	C	3.511			C	434			1	0.05			C	30			1	0			1	6.5						
20	C	2.808			C	315			1	0.05			C	23			1	0			1	6.9						
21	C	3.491			C	380			1	0.05			C	29			1	0			1	6.5						
22	C	3.331			C	385			1	0.05			C	111			1	0			1	6.9						
23	C	3.816			C	345			1	0.05			C	92			1	0			1	6.8						
24	C	3.355			C	376			1	0.1			C	28			1	1			1	6.8						
25	C	3.033			C	511			1	0.05			C	25			1	1			1	6.6						
26	C	3.352			C	383			1	0.05			C	28			1	0			1	6.7						
27	C	3.333			C	361			1	0.05			C	25			1	0			1	6.7						
28	C	3.669			C	351			1	0.05			C	61			1	1			1	6.9						
29	C	2.867			C	383			1	0.1			C	96			1	0			1	7.7						
30	C	1.648			C	338			1	0.05			C	35			1	0			1	6.9						
31	C	5.191			C	380			1	0.05			C	173			1	1			1	6.8						
MONTHLY SUMMARY	AVERAGE	2.789			AVERAGE			320	AVERAGE			0.106	AVERAGE			14.10	AVERAGE			0.19	AVERAGE				AVERAGE			
	MAXIMUM	5.191			MAXIMUM			385	MAXIMUM			0.10	MAXIMUM			227.10	MAXIMUM			1.0	MAXIMUM			7.8	MAXIMUM			
																					MIN			6.5				
	NUMBER DAYS REPORTING			31	NUMBER DAYS REPORTING			31	NUMBER DAYS REPORTING			31	NUMBER DAYS REPORTING			31	NUMBER DAYS REPORTING			31	NUMBER DAYS REPORTING			31	NUMBER DAYS REPORTING			
	TOTAL SAMPLES TAKEN			31	TOTAL SAMPLES TAKEN			31	TOTAL SAMPLES TAKEN			31	TOTAL SAMPLES TAKEN			31	TOTAL SAMPLES TAKEN			31	TOTAL SAMPLES TAKEN			31	TOTAL SAMPLES TAKEN			
	DAYS EXCEEDING MAXIMUM			1	DAYS EXCEEDING MAXIMUM			0	DAYS EXCEEDING MAXIMUM			0	DAYS EXCEEDING MAXIMUM			0	DAYS EXCEEDING MAXIMUM			9	DAYS EXCEEDING MAXIMUM			0	DAYS EXCEEDING MAXIMUM			
	AVG EXCEEDANCE				AVG EXCEEDANCE				AVG EXCEEDANCE				AVG EXCEEDANCE				AVG EXCEEDANCE				AVG EXCEEDANCE				AVG EXCEEDANCE			
	DUP PUNCH INITIALS				DUP PUNCH INITIALS				DUP PUNCH INITIALS				DUP PUNCH INITIALS				DUP PUNCH INITIALS				DUP PUNCH INITIALS				DUP PUNCH INITIALS			
BEGIN DATE	070178																											
END DATE	073178																											

SIGNATURE OF CERTIFIED OPERATOR XXXXXXXXXXXX Ulysses G. Stoeffler ULYSSES G. STOEFFLER CERTIFICATION NUMBER XXXXXXXX M-378

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER E. J. Gilman E. J. GILMAN, VICE PRESIDENT OF OPERATIONS TELEPHONE NUMBER XXX (616) 345-7131

MDNR 004559
MDNR00004559

MDNR00004563

MDNR0004562 MDNR 004562

7/27/77

ALLIED PAPER, INC.
MONARCH MILL

KALAMAZOO MI 49003

MONTHLY OPERATING REPORT FOR SEPTEMBER 1977 03 DISTRICT : 3

THIS IS YOUR MONTHLY REPORT FORM FOR
SEE REVERSE SIDE FOR RETURN MAIL

ALLIED PAPER, INC.
OUTFALL : 002
16"CLARIFIER PIPE TO PORTAGE CR002

Please complete and submit two copies of this form at the end of each month. This report must reach our Lansing office by the 10th of the month

3 | 390222 | MI0000779 | 390000

Date form was computer printed 76/11/17

PARAM	50050	00001	00505	00500	01300	00400
NAME	FLOW CONDUIT	WOD-5	SOLIDS-SET-IMHOF	SOLIDS-SUSPENDED	OIL-GREASE-VISUL	PH
UNITS	MGD	LBS/DAY	ML/L	LBS/DAY	0 TO 4	0 TO 14
LIMIT		MAXIMUM 305		MAXIMUM 500		MAXIMUM 9.5 MINIMUM 6.5

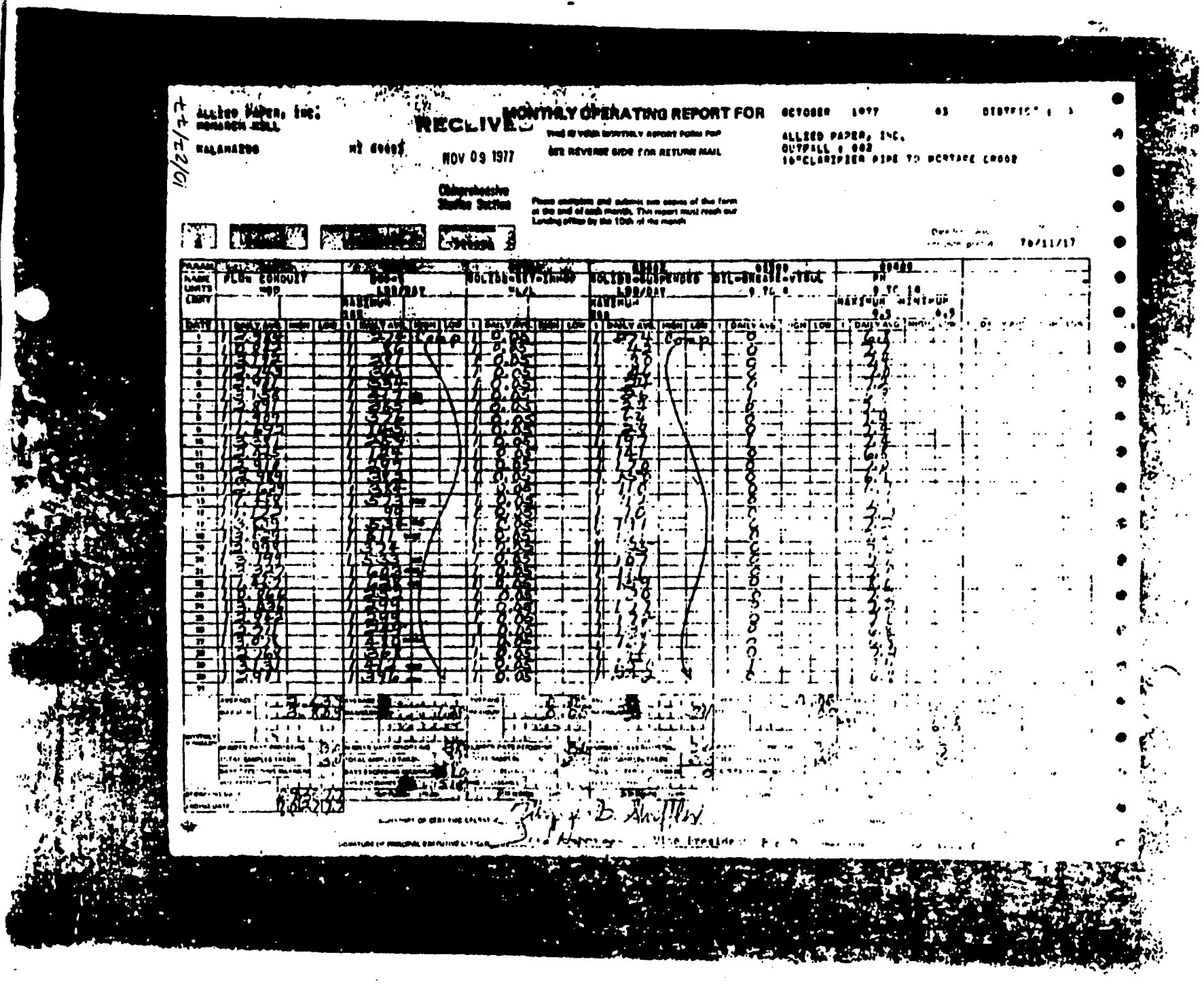
DATE	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW
1	3.452			370	Comp.		0.05			72	Comp.		0			7.2		
2	2.876			474			0.05			48			0			6.9		
3	1.114			369			0.05			9			0			7.6		
4	0.764			212			0.05			20			0			7.2		
5	0.617			150			0.05			21			1			7.6		
6	3.244			183			0.05			46			0			6.9		
7	3.411			295			0.05			57			0			6.7		
8	3.476			399			0.05			483			1			6.9		
9	3.491			392			0.05			29			0			7.0		
10	3.182			423			0.05			159			0			7.1		
11	2.396			370			0.05			217			0			7.4		
12	3.815			393			0.05			293			0			7.4		
13	3.516			490			0.05			30			0			7.5		
14	3.154			366			0.05			237			0			6.8		
15	2.913			350			0.05			20			0			6.6		
16	3.066			356			0.05			332			1			6.6		
17	1.853			389			0.05			371			0			6.9		
18	0.972			361			0.05			41			0			7.2		
19	3.061			354			0.05			77			0			6.8		
20	3.104			306			0.05			52			0			6.8		
21	2.913			377			0.05			98			0			6.8		
22	2.738			379			0.05			69			0			6.8		
23	3.094			418			0.05			77			0			6.6		
24	1.557			456			0.05			91			0			6.9		
25	1.046			388			0.05			17			0			6.8		
26	[illegible]			380			0.05			338			0			7.1		
27	[illegible]			420			0.05			26			0			7.2		
28	[illegible]			150			0.05			93			0			7.0		
29	[illegible]			185			0.05			176			1			6.8		
30	[illegible]			352			0.05			108			0			6.6		
31	[illegible]			299			0.05			86			0			7.0		
AVERAGE	2.56			340			0.05			120			0.13					
MAXIMUM	3.518			490			0.05			483			1.00			8.0		
MINIMUM																6.5		
NUMBER DAYS REPORTING	3.1			3.1			3.1			3.1			3.1			3.1		
TOTAL SAMPLES TAKEN	3.1			3.1			3.1			3.1			3.1			3.1		
DAYS EXCEEDING MAXIMUM				1.1														
AVG EXCEEDANCE				427.63														
DUP PUNCH																		

SIGNATURE OF CERTIFIED OPERATOR Thomas B. Sheffler

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER Ernest V. Lehman

MDNR 004561

MDNR00004561



ALLIED PAPER, INC.
KALAMAZOO

MONTHLY OPERATING REPORT FOR OCTOBER 1977

RECEIVED
NOV 09 1977

ALLIED PAPER, INC.
OUTFALL # 002
16"CLARIFIER PIPE TO PORTAGE CREEK

Chlorination
Studies Section

PARAM	FLOW CONDUIT	BOD5	SOLIDS-SETTLEABLE	SOLIDS-SUSPENDED	OIL-GREASE-VISUAL	PH
UNITS	MGD	LBS/DAY	ML/L	LBS/DAY	P/A	S.U.
LIMIT		MAXIMUM 300		MAXIMUM 300		MAXIMUM 9.0 MINIMUM 6.0
DATE	DAILY AVG HIGH LOW	DAILY AVG HIGH LOW	DAILY AVG HIGH LOW	DAILY AVG HIGH LOW	DAILY AVG HIGH LOW	DAILY AVG HIGH LOW
1	2.75	276	0.05	240 Comp	0	7.4
2	2.75	276	0.05	240	0	7.4
3	2.75	276	0.05	240	0	7.4
4	2.75	276	0.05	240	0	7.4
5	2.75	276	0.05	240	0	7.4
6	2.75	276	0.05	240	0	7.4
7	2.75	276	0.05	240	0	7.4
8	2.75	276	0.05	240	0	7.4
9	2.75	276	0.05	240	0	7.4
10	2.75	276	0.05	240	0	7.4
11	2.75	276	0.05	240	0	7.4
12	2.75	276	0.05	240	0	7.4
13	2.75	276	0.05	240	0	7.4
14	2.75	276	0.05	240	0	7.4
15	2.75	276	0.05	240	0	7.4
16	2.75	276	0.05	240	0	7.4
17	2.75	276	0.05	240	0	7.4
18	2.75	276	0.05	240	0	7.4
19	2.75	276	0.05	240	0	7.4
20	2.75	276	0.05	240	0	7.4
21	2.75	276	0.05	240	0	7.4
22	2.75	276	0.05	240	0	7.4
23	2.75	276	0.05	240	0	7.4
24	2.75	276	0.05	240	0	7.4
25	2.75	276	0.05	240	0	7.4
26	2.75	276	0.05	240	0	7.4
27	2.75	276	0.05	240	0	7.4
28	2.75	276	0.05	240	0	7.4
29	2.75	276	0.05	240	0	7.4
30	2.75	276	0.05	240	0	7.4
31	2.75	276	0.05	240	0	7.4

11/22/77

MDNR 004560

MDNR00004560

Fred Cyr

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

PAPER MILLS DIVISION KALAMAZOO, MICHIGAN 49003 (616) 345-7131

ADDENDUM TO THE OCTOBER 1982 MONTHLY OPERATING REPORT

Facility Number	Permit Number	Outfall Number
390222	M10000779	390006

May 15 - October 15 Limitations

B.O.D. #/Day	385#/day maximum
Suspended Solids #/Day	500#/day maximum

RECEIVED
NOV 1 1982
DISTRICT 3
WATER QUALITY DIV.

October 15 - May 15 Limitations

B.O.D. #/Day	500#/day average 770#/day maximum
Suspended Solids #/Day	500#/day average 770#/day maximum

B.O.D. #/Day	Average	Maximum	Days Exceeding Maximum	Average Exceedance
~~10/1/82~~ - 10/14/82	349	385	0	0
10/15/82 - 10/31/82	457	592	0	0

Suspended Solids #/Day				
10/1/82 - 10/14/82	77	128	0	0
10/15/82 - 10/31/82	116	253	0	0

M-KL Book

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

PAPER MILLS DIVISION KALAMAZOO, MICHIGAN 49003 (616) 345-7131

ADDENDUM TO THE MAY 1982 MONTHLY OPERATING REPORT

Facility Number	Permit Number	Outfall Number
390222	MI0000779	390006

RECEIVED
JUN 11 1982
DISTRICT 3
WATER QUALITY DIV.

May 15 - October 15 Limitations

B.O.D. #/Day	385#/day maximum
Suspended Solids #/Day	500#/day maximum

October 15 - May 15 Limitations

B.O.D. #/Day	500#/day average 770#/day maximum
Suspended Solids #/Day	500#/day average 770#/day maximum

B.O.D. #/Day	Average	Maximum	Days Exceeding Maximum	Average Exceedance
[illegible] - 5/14/82	408	670	0	0
5/15/82 - 5/31/82	305	381	0	0
Suspended Solids #/Day				
5/1/82 - 5/14/82	129	332	0	0
5/15/82 - 5/31/82	157	245	0	0

JUN 9 1982

MDNR00004565

w/ encl

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

RECEIVED

PAPER MILLS DIVISION KALAMAZOO, MICHIGAN 49003 (616) 345-7131 NOV 17 1981

DISTRICT 3
WATER QUALITY DIV.

ADDENDUM TO THE OCTOBER 1981 MONTHLY OPERATING REPORT

Facility Number	Permit Number	Outfall Number
390222	MI0000779	390006

October 15 - May 15 Limitations

B.O.D. #/Day	500#/day average 770#/day maximum
Suspended Solids #/Day	500#/day average 770#/day maximum

May 15 - October 15 Limitations

B.O.D. #/Day	385#/day maximum
Suspended Solids #/Day	500#/day maximum

B.O.D. #/Day	Average	Maximum	Days Exceeding Maximum	Average Exceedance
10/1/81 - 10/14/81	338	385	0	0
10/15/81 - 10/31/81	500	616	0	0
Suspended Solids #/Day				
10/1/81 - 10/14/81	184	426	0	0
10/15/81 - 10/31/81	332	466	0	0

cc Mark Beck

RECEIVED
NOV 10 1981
WATER QUALITY CONTROL

MDNR00004567

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

PAPER MILLS DIVISION KALAMAZOO MICHIGAN 49003 (616) 345 7131

ADDENDUM TO THE MAY 1981 MONTHLY OPERATING REPORT

Facility Number	Permit Number	Outfall Number
390222	MI0000779	390006

May 15 - October 15 Limitations

B.O.D. #/Day	385#/day maximum
Suspended Solids #/Day	500#/day maximum

October 15 - May 15 Limitations

B.O.D. #/Day	500#/day average 770#/day maximum
Suspended Solids #/Day	500#/day average 700#/Day maximum

B.O.D. #/Day	Average	Maximum	Days Exceeding Maximum	Average Exceedance
5/1/81 - 5/14/81	415	767	0	0
5/15/81 - 5/31/81	305	376		
Suspended Solids #/Day				
5/1/81 - 5/14/81	381	692	0	0
5/15/81 - 5/31/81	222	422		

MDNR00004568

RECE[illegible] NOV 10 [illegible]

ALLIED PAPER INCORPORATED

SUBSIDIARY OF SCM CORPORATION

WATER QUALITY CONTROL

PAPER MILLS DIVISION KALAMAZOO, MICHIGAN [illegible]

ADDENDUM TO THE OCTOBER 1980 MONTHLY OPERATING REPORT

RECEIVED

DEC 1 1980

DISTRICT 3
WATER QUALITY DIV.

Facility Number	Permit Number	Outfall Number
390222	MI0000779	390006

October 15 - May 15 Limitations

B.O.D. #/Day	500#/day average 770#/day maximum
Suspended Solids #/Day	500#/day average 700#/day maximum

May 15 - October 15 Limitations

B.O.D. #/Day	385#/day maximum
Suspended Solids #/Day	500#/day maximum

B.O.D. #/Day	Average	Maximum	Days Exceeding Maximum	Average Exceedance
10/1/80 - 10/14/[illegible]	337	385	0	0
10/15/80 - 10/31/80	368	592	0	0
Suspended Solids #/Day				
10/1/80 - 10/14/80	131.43	267	0	0
10/15/80 - 10/31/80	246.47	488	0	0

A. Beck. T Roca

— ? Harvey Rog

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION
PAPER MILLS DIVISION KALAMAZOO, MICHIGAN 49003 (616) 345 7131

RECEIVED
NOV 1 1979
Water Qual. Control

RECEIVED
NOV 15 1979
DISTRICT 3
WATER QUALITY DIV.

ADDENDUM TO THE OCTOBER 1979 MONTHLY OPERATING REPORT

Facility Number	Permit Number	Outfall Number
390222	MI0000779	390006

October 15-May 15 Limitations

B.O.D. #/Day	500#/day average 770#/day maximum
Suspended Solids #/Day	500#/day average 770#/day maximum

May 15-October 15 Limitations

B.O.D. #/Day	385#/day maximum
Suspended Solids #/Day	500#/day maximum

B.O.D. #/Day	Average	Maximum	Days Exceeding Maximum	Average Exceedance
10/1/79 - 10/14/79	344	385	0	0
10/15/79 - 10/31/79	464	761	0	0
Suspended Solids #/Day				
10/1/79 - 10/14/79	78.21	135	0	0
10/15/79 - 10/31/79	137.41	304	0	0

Original To main File

RECEIVED

JUN 19 1980

DISTRICT 3
WATER QUALITY DIV.

Suspended Solids #/day	Average	Maximum	Days Exceeding Maximum	Average Exceedance	Maximum
5/1/80 797 - 5/14/79	197.00	718	0	0	770#/day (Avg. 500#
5/15/79 - 5/31/79	69.47	214	0	0	500#/day
B.O.D. #/day					
5/1/80 797 - 5/14/79	219.00	743	0	0	770#/day (Avg.500#)
5/15/79 - 5/31/79	192.53	383	0	0	385#/day

Addendum to the May Monthly Operating Report

Allied Paper Co
Kalamazoo
MI 0000779

XC: Mike Burk

Allied Paper
Monarch Mill
Kalamazoo
MI0000779

Suspended Solids #/day	Average	Maximum	Days Exceeding Maximum	Average Exceedance	Limitations
5/1/79 - 5/14/79	194.36	382	0	0	770#/day
5/15/79 - 5/31/79	232.71	385	0	0	500#/day
B.O.D. #/day					
5/1/79 - 5/14/79	545	695	0	0	770#/day
5/15/79 - 5/31/79	373	385	0	0	385#/day

Addendum to the May Monthly Operating Report

JUN 14 1979

DISTRICT 3
WATER QUALITY DIV.

cc. Chet Harvey

MDNR00004554

ALLIED PAPER INC.
MONARCH MILL
KALAMAZOO, MI. 49003

MONTHLY OPERATING REPORT FOR

JANUARY 1986 SP

THIS IS YOUR MONTHLY REPORT FORM FOR

SEE REVERSE SIDE FOR RETURN MAIL

Please complete and submit two copies of this form at the end of each month This report must reach our Lansing office by the 10th of the month
REQUIRED BY ACT 245 P.A 1929 6A

ALLIED PAPER INC.
OUTFULL: 002
16" CLARIFIER PIPE TO PORTAGE CR 002

PERMIT EXPIRATION: 4/89

Date form was printed ____ Yr ____ Day

P	FACILITY NUMBER	PERMIT NUMBER	OUTFALL NUMBER
	390222	MI0000779	390002

PART 2 - RETURN TO DEPT OF NATURAL RESOURCES

PARAM	50050	85001	00545	85002	00400	0130	
NAME / UNITS	FLOW CONDUIT	BOD-5	SOLIDS-SETTEABLE	SOLIDS-SUSPENDED	PH		
LIMIT		MAXIMUM 836		MAXIMUM 836 / AVERAGE 534	MAXIMUM 9.0 / MINIMUM 5.0		

DATE	50050 DAILY AVG	50050 HIGH	50050 LOW	85001 DAILY AVG	85001 HIGH	85001 LOW	00545 DAILY AVG	00545 HIGH	00545 LOW	85002 DAILY AVG	85002 HIGH	85002 LOW	00400 DAILY AVG	00400 HIGH	00400 LOW	0130 DAILY AVG	0130 HIGH	0130 LOW	DAILY AVG	HIGH	LOW
1	C 0.051			123	COMP		2.9	GRAB		30	COMP		7.0	GRAB							
2	C 0.228			569						128			6.9								
3	C 0.196			498						126			6.9								
4	C 0.164			329						189			6.9								
5	C 0.315			819						394			6.9								
6	C 0.350			716						353			6.8								
7	C 0.215			347						163			7.0								
8	C 0.316			230			4.1	GRAB		195			7.0								
9	C 0.323			696						349			7.1								
10	C 0.284			497						190			7.0								
11	C 0.533			834						158			7.0								
12	C 0.685			836						276			6.8								
13	C 0.612			827						330			6.8								
14	C 0.615			811						269			7.0								
15	C 0.612			823			0.3	GRAB		191			7.0								
16	C 0.760			813						210			7.0								
17	C 0.761			721						178			7.1								
18	C 0.135			519						103			7.1								
19	C 0.561			482						137			7.0								
20	C 0.790			754						213			7.1								
21	C 0.840			659						31			7.1								
22	C 0.763			834			0.20	GRAB		204			7.0								
23	C 0.764			818						106			6.9								
24	C 0.754			824						204			7.0								
25	C 0.709			814						208			6.9								
26	C 0.723			821						131			7.0								
27	C 0.732			836						104			7.0								
28	C 0.617			836						198			7.0								
29	C 0.740			836			0.30	GRAB		112			7.0								
30	C 0.670			813						67			7.0								
31	C 0.683			825						66			7.0								
AVERAGE	0.549			690						172											
MAXIMUM	0.840			836						349			7.1								
MIN													6.8								
NUMBER DAYS REPORTING	31			31			3			31			31								
TOTAL SAMPLES TAKEN	03			03			005			03			03								
DAYS EXCEEDING MAXIMUM	000			000			000			000			000								
AVG MAX VIOL																					
DUP PUNCH																					

MONTHLY SUMMARY

BEGINNING DATE 010186
ENDING DATE 013186

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS DOCUMENT AND ALL ATTACHMENTS AND THAT BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THAT THE INFORMATION IS TRUE ACCURATE AND COMPLETE I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT

SIGNATURE OF CERTIFIED OPERATOR STOEFFLER, ULYSSES, C. Ulysses C Stoeffler CERTIFICATION NUMBER WO00378

0011788

SA 006952

SA00006952

SA00006953

**ALLIED PAPER, INC.
BRYANT MILL
2030 PORTAGE STREET
KALAMAZOO MI 49001

MONTHLY OPERATING REPORT FOR FEBRUARY 1986 SP

THIS IS YOUR MONTHLY REPORT FORM FOR

SEE REVERSE SIDE FOR RETURN MAIL

Please complete and submit two copies of this form at the end of each month. This report must reach our Lansing office by the 10th of the month
REQUIRED BY ACT 245 P.A. 1929 6A

ALLIED PAPER, INC.
OUTFALL : 002
PROCESS WASTEH2O TO PORTAGE CREEK

P	FACILITY NUMBER	PERMIT NUMBER	OUTFALL NUMBER
	390222	MI0000779	390006

Date form was printed: Yr 86 Mo 02 Day 03

PART 2 – RETURN TO DEPT OF NATURAL RESOURCES

PARAM	50050	85001	00546	85002	00400	91110	
NAME	FLOW CONDUIT	BOD-5	SOLIDS-SETTLEABL	SOLIDS-SUSPENDED	PH	OUTFALL OBSERV.	
UNITS	MGD	LBS/DAY	MG/L	LBS/DAY	0 TO 14	ASSESS.	
LIMIT		MAXIMUM 00000336		MAXIMUM 00000836	MAXIMUM 000009.0 MINIMUM 000005.0		

DATE	1 DAILY AVG	HIGH	LOW	1 DAILY AVG	HIGH	LOW	1 DAILY AVG	HIGH	LOW	1 DAILY AVG	HIGH	LOW	1 DAILY AVG	HIGH	LOW	1 DAILY AVG	HIGH	LOW
1	C 0.865			926						147			6.8			0		
2	C 0.560			818						105			6.6			0		
3	C 0.434			818						136			6.7			0		
4	C 0.452			809						122			6.6			0		
5	C 0.408			682			0.90			131			7.0			0		
6	C 0.432			700						140			7.3			0		
7	C 0.490			693						123			7.2			0		
8	C 0.556			719						98			7.2			0		
9	C 0.566			830						168			7.0			0		
10	C 0.430			824						156			7.0			0		
11	C 0.546			764						73			7.1			0		
12	C 0.372			824			0.3			135			7.1			0		
13	C 0.284			581						56			7.1			0		
14	C 0.486			835						86			7.0			0		
15	C 0.488			824						103			7.0			0		
16	C 0.432			616						81			7.0			0		
17	C 0.484			792						172			7.0			0		
18	C 0.434			813						159			7.0			0		
19	C 0.503			835			1.0			213			7.0			0		
20	C 0.505			835						170			6.7			0		
21	C 0.538			828						100			6.8			0		
22	C 0.411			823						108			7.0			0		
23	C 0.468			831						95			6.9			0		
24	C 0.430			821						53			6.8			0		
25	C 0.323			770						71			6.9			0		
26	C 0.477			834			0.4			127			6.9			0		
27	C 0.516			833						164			6.4			0		
28	C 0.519			817						246			6.2			0		
29																		
30																		
31																		

MONTHLY SUMMARY																							
AVERAGE	0.487			777						128													
MAXIMUM	0.865			835						246			7.3 MIN 6.2										
NUMBER DAYS REPORTING	28			28			28			28			28			28							
TOTAL SAMPLES TAKEN	28			28			004			28			28										
DAYS EXCEEDING MAXIMUM	000			000			000			000			000										
AVG MAX VIOL																							
DUP PUNCH																							

BEGINNING DATE 020186
ENDING DATE 022886

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS DOCUMENT AND ALL ATTACHMENTS AND THAT BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THAT THE INFORMATION IS TRUE ACCURATE AND COMPLETE I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT

SIGNATURE OF CERTIFIED OPERATOR WATSON, ANDREW, W. Andrew W. Watson CERTIFICATION NUMBER W-2961

SM 006953

0011769

(616) 345-7131

SA00006954

**ALLIED PAPER, INC.
BRYANT MILL
2030 PORTAGE STREET
KALAMAZOO MI 49001

MONTHLY OPERATING REPORT FOR MARCH 1986 SP

THIS IS YOUR MONTHLY REPORT FORM FOR
SEE REVERSE SIDE FOR RETURN MAIL

Please complete and submit two copies of this form at the end of each month. This report must reach our Lansing office by the 10th of the month
REQUIRED BY ACT 245 P.A. 1929-6A

ALLIED PAPER, INC.
OUTFALL : 002
PROCESS WASTEH2O TO PORTAGE CREEK

	FACILITY NUMBER	PERMIT NUMBER	OUTFALL NUMBER
P	390222	MI0000779	390006

Date form was printed 86/02/03

PART 2 - RETURN TO DEPT OF NATURAL RESOURCES

PARAM	50050	85001	00546	85002	00400	91110	
NAME	FLOW CONDUIT	300-5	SOLIDS-SETTLEABL	SOLIDS-SUSPENDED	PH	OUTFALL OBSERV.	
UNITS	MGD	LBS/DAY	MG/L	LBS/DAY	0 TO 14	ASSESS.	
LIMIT		MAXIMUM 00000336		MAXIMUM 00000336	MAXIMUM 000009.0 MINIMUM 000005.0		

DATE	1 DAILY AVG	HIGH	LOW	1 DAILY AVG	HIGH	LOW	1 DAILY AVG	HIGH	LOW	1 DAILY AVG	HIGH	LOW	1 DAILY AVG	HIGH	LOW	1 DAILY AVG	HIGH	LOW
1	C 0.551			1 832	Comp					1 243			1 5.0			0		
2	C 0.584			1 825						1 210			1 6.2			0		
3	C 0.653			1 821						1 245			1 6.7			0		
4	C 0.551			1 833						1 197			1 6.8			0		
5	C 0.247			1 384						1 94			1 6.5			0		
6	C 0.208			1 386			0.7 GRAB			1 154			1 6.8			0		
7	C 0.303			1 516						1 96			1 5.8			0		
8	C 0.220			1 270						1 144			1 5.0			0		
9	C 0.336			1 358						1 107			1 5.2			0		
10	C 0.452			1 492						1 136			1 5.7			0		
11	C 0.602			1 667						1 161			1 6.6			0		
12	C 0.770			1 910			0.2 GRAB			1 157			1 7.0			0		
13	C 0.777			1 873						1 254			1 6.9			0		
14	C 0.323			1 340						1 75			1 7.0			0		
15	C 0.263			1 300						1 60			1 5.0			0		
16	C 0.376			1 344						1 103			1 5.0			0		
17	C 0.378			1 358						1 113			1 5.4			0		
18	C 0.486			1 580						1 151			1 7.2			0		
19	C 0.649			1 709			0.1 GRAB			1 121			1 6.2			0		
20	C 0.571			1 797						1 109			1 7.1			0		
21	C 0.402			1 654						1 67			1 7.1			0		
22	C 0.337			1 594						1 44			1 7.0			0		
23	C 0.464			1 815						1 80			1 7.0			0		
24	C 0.031			1 22						1 06			1 -			0		
25	C 0.502			1 440						1 162			1 7.3			0		
26	C 0.724			1 658			0.5 GRAB			1 89			1 7.5			0		
27	C 0.727			1 788						1 102			1 7.4			0		
28	C 0.480			1 629						1 34			1 7.5			0		
29	C 0.558			1 744						1 115			1 7.3			0		
30	C 0.542			1 749						1 136			1 7.4			0		
31	C 0.494			1 827						1 107			1 7.3			0		
AVERAGE	0.470			AVERAGE 586			AVERAGE			AVERAGE 125			AVERAGE 7.5			AVERAGE		
MAXIMUM	0.777			MAXIMUM 833			MAXIMUM			MAXIMUM 254			MAXIMUM			MAXIMUM		
													MIN 6.0					
MONTHLY SUMMARY																		
NUMBER DAYS REPORTING	31			NUMBER DAYS REPORTING 31			NUMBER DAYS REPORTING 04			NUMBER DAYS REPORTING 31			NUMBER DAYS REPORTING 31			NUMBER DAYS REPORTING 31		
TOTAL SAMPLES TAKEN	31			TOTAL SAMPLES TAKEN 31			TOTAL SAMPLES TAKEN 04			TOTAL SAMPLES TAKEN 31			TOTAL SAMPLES TAKEN 30			TOTAL SAMPLES TAKEN 31		
DAYS EXCEEDING MAXIMUM	000			DAYS EXCEEDING MAXIMUM 000			DAYS EXCEEDING MAXIMUM 000			DAYS EXCEEDING MAXIMUM 000			DAYS EXCEEDING MAXIMUM 000			DAYS EXCEEDING MAXIMUM 000		
AVG MAX VIOL				AVG MAX VIOL			AVG MAX VIOL			AVG MAX VIOL			AVG MAX VIOL			AVG MAX VIOL		
DUP PUNCH 75 80				DUP PUNCH 75 80			DUP PUNCH 75 80			DUP PUNCH 75 80			DUP PUNCH 75 80			DUP PUNCH 75 80		
BEGINNING DATE	030186																	
ENDING DATE	033186																	

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS DOCUMENT AND ALL ATTACHMENTS AND THAT BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THAT THE INFORMATION IS TRUE ACCURATE AND COMPLETE I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT

SIGNATURE OF CERTIFIED OPERATOR WATSON, ANDREW, W. CERTIFICATION NUMBER W-2961

SA 006954

0011790

PRINCIPAL EXECUTIVE OFFICER T. E. Flanagan - V. P. Operations TELEPHONE NO. (616) 345-7131

SA00006955

**ALLIED PAPER, INC.
BRYANT MILL
2603 PORTAGE STREET
KALAMAZOO MI 49001

MONTHLY OPERATING REPORT FOR APRIL 1986 SP

THIS IS YOUR MONTHLY REPORT FORM FOR

SEE REVERSE SIDE FOR RETURN MAIL

Please complete and submit two copies of this form at the end of each month. This report must reach our Lansing office by the 10th of the month.
REQUIRED BY ACT 245 P.A. 1929-6A.

ALLIED PAPER, INC.
OUTFALL : 002
PROCESS WASTEH2O TO PORTAGE CREEK

P	FACILITY NUMBER	PERMIT NUMBER	OUTFALL NUMBER
	390222	MIG000779	390006

Date form was printed: 86/02/03

PART 2 – RETURN TO DEPT. OF NATURAL RESOURCES

SECTION I

PARAM	50050	85001	00546	85002	00400	91110	
NAME	FLOW CONDUIT	005-5	SOLIDS-SETTLEABL	SOLIDS-SUSPENDED	PH	OUTFALL OBSERV.	
UNITS	MGD	LBS/DAY	MG/L	LBS/DAY	0 TO 14	ASSESS.	
LIMIT		MAXIMUM 00000836		MAXIMUM 00000836	MAXIMUM 000009.0 / MINIMUM 000005.0		

DATE	DAILY AVG.	HIGH	LOW	DAILY AVG.	HIGH	LOW	DAILY AVG.	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG.	HIGH	LOW	DAILY AVG	HIGH	LOW
1	C 0.714			833						310			7.2			0		
2	C 0.131			154			0.3			48			7.2			0		
3	C 0.388			294						76			7.2			0		
4	C 0.540			530						104			7.2			0		
5	C 0.404			450						83			7.8			0		
6	C 0.295			445						96			7.0			0		
7	C 0.313			398						96			7.0			0		
8	C 0.338			505						107			6.8			0		
9	C 0.530			508			0.4			84			6.9			0		
10	C 0.467			621						53			7.0			0		
11	C 0.449			711						78			6.9			0		
12	C 0.353			687						40			6.9			0		
13	C 0.348			694						66			6.8			0		
14	C 0.420			834						98			6.9			0		
15	C 0.346			676						53			7.0			0		
16	C 0.341			511			0.4			57			7.0			0		
17	C 0.291			815						82			6.9			0		
18	C 0.379			771						54			7.0			0		
19	C 0.408			626						77			7.0			0		
20	C 0.382			268						48			7.2			0		
21	C 0.499			347						210			7.2			0		
22	C 0.596			820						137			7.4			0		
23	C 0.530			835			0.4			126			7.3			0		
24	C 0.587			826						88			7.3			0		
25	C 1.105			834						299			7.3			0		
26	C 0.637			834						108			7.2			0		
27	C 0.578			680						199			6.9			0		
28	C 0.476			492						72			6.9			0		
29	C 0.355			830						37			6.9			0		
30	C 0.221			597			0.3			96			6.8			0		
31																		

SECTION II

MONTHLY SUMMARY																		
AVERAGE	0.447			624						96			7.5					
MAXIMUM	1.105			834						310			7.8					
MIN													6.8					
NUMBER DAYS REPORTING	30			30			30			30			30			30		
TOTAL SAMPLES TAKEN	30			30			05			30			30			30		
DAYS EXCEEDING MAXIMUM	000			000			000			000			000			000		
AVG MAX VIOL																		
DUP PUNCH																		

BEGINNING DATE 040186
ENDING DATE 043086

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS DOCUMENT AND ALL ATTACHMENTS AND THAT, BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THAT THE INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT.

WATSON, ANDREW W. Andrew W Watson
NAME OF CERTIFIED OPERATOR — CERTIFICATION NUMBER W-2961

SP MANAGER (616) 349-7711

0011791

SA0000695G

**ALLIED PAPER, INC.
BRYANT MILL
2030 PORTAGE STREET
KALAMAZOO MI 49001

MONTHLY OPERATING REPORT FOR MAY 1986 SP

THIS IS YOUR MONTHLY REPORT FORM FOR

SEE REVERSE SIDE FOR RETURN MAIL

Please complete and submit two copies of this form at the end of each month. This report must reach our Lansing office by the 10th of the month
REQUIRED BY ACT 245 P.A. 1929 6A

ALLIED PAPER, INC.
OUTFALL : 002
PROCESS WASTEH2O TO PORTAGE CREEK

P	FACILITY NUMBER	PERMIT NUMBER	OUTFALL NUMBER
	390222	MI0000779	390006

Date form was printed 86/02/03

PART 2 - RETURN TO DEPT OF NATURAL RESOURCES

PARAM	50050	85001	00546	85002	00400	91110	
NAME	FLOW CONDUIT	TOD-5	SOLIDS-SETTLEABL	SOLIDS-SUSPENDED	PH	OUTFALL OBSERV.	
UNITS	MGD	LBS/DAY	MG/L	LBS/DAY	0 TO 14	ASSESS.	
LIMIT		MAXIMUM 00000339		MAXIMUM 00000500	MAXIMUM 000009.0 MINIMUM 000005.0		

DATE	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW
1	C 0.140			330						52			6.7			0		
2	C 0.195			381						36			6.8			0		
3	C 0.137			291						43			7.0			0		
4	C 0.140			308						14			7.2			0		
5	C 0.148			267						19			7.3			0		
6	C 0.149			241						13			7.1			0		
7	C 0.141			298			0.2			10			7.2			0		
8	C 0.114			211						13			6.8			0		
9	C 0.142			242						35			6.6			0		
10	C 0.125			204						12			6.8			0		
11	C 0.108			281						18			6.8			0		
12	C 0.125			283						11			6.9			0		
13	C 0.132			353						15			7.0			0		
14	C 0.100			296			0.2			15			6.6			0		
15	C 0.129			360						18			6.7			0		
16	C 0.138			375						11			6.6			0		
17	C 0.280			383						35			6.7			0		
18	C 0.112			282						13			6.7			0		
19	C 0.175			389						34			7.0			0		
20	C 0.368			387						50			6.6			0		
21	C 0.271			388			0.35			52			6.8			0		
22	C 0.383			385						69			7.1			0		
23	C 0.540			383						43			7.0			0		
24	C 0.719			389						58			7.4			0		
25	C 0.547			388						26			7.0			0		
26	C 0.665			388						57			7.6			0		
27	C 0.671			387						94			7.5			0		
28	C 0.763			379			0.4			169			7.5			0		
29	C 0.531			386						165			7.3			0		
30	C 0.341			364						93			7.4			0		
31	C 0.170			343						32			7.3			0		

MONTHLY SUMMARY																		
AVERAGE	0.281	AVERAGE	330	AVERAGE		AVERAGE	43	AVERAGE		AVERAGE		AVERAGE	
MAXIMUM	0.763	MAXIMUM	389	MAXIMUM		MAXIMUM	169	MAXIMUM MIN	7.6 6.6	MAXIMUM		MAXIMUM	
NUMBER DAYS REPORTING	31	NUMBER DAYS REPORTING	31	NUMBER DAYS REPORTING	31	NUMBER DAYS REPORTING	31	NUMBER DAYS REPORTING	31	NUMBER DAYS REPORTING	31	NUMBER DAYS REPORTING	
TOTAL SAMPLES TAKEN	031	TOTAL SAMPLES TAKEN	031	TOTAL SAMPLES TAKEN	04	TOTAL SAMPLES TAKEN	031	TOTAL SAMPLES TAKEN	031	TOTAL SAMPLES TAKEN	031	TOTAL SAMPLES TAKEN	
DAYS EXCEEDING MAXIMUM	000	DAYS EXCEEDING MAXIMUM	000	DAYS EXCEEDING MAXIMUM	000	DAYS EXCEEDING MAXIMUM	000	DAYS EXCEEDING MAXIMUM	000	DAYS EXCEEDING MAXIMUM	000	DAYS EXCEEDING MAXIMUM	
AVG MAX VOL		AVG MAX VOL		AVG MAX VOL		AVG MAX VOL		AVG MAX VOL		AVG MAX VOL		AVG MAX VOL	
DUP PUNCH 75 80		DUP PUNCH 3 80		DUP PUNCH 75 80		DUP PUNCH 75 80		DUP PUNCH 75 80		DUP PUNCH 75 80		DUP PUNCH 1 16	

BEGINNING DATE 050186
ENDING DATE 053186

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS DOCUMENT AND ALL ATTACHMENTS AND THAT BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THAT THE INFORMATION IS TRUE ACCURATE AND COMPLETE I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT

WATSON, ANDREW W. SA 0006956

DULY AUTHORIZED OR CERTIFIED OPERATOR XXXXXXXXXXXXXXXXXX CERTIFICATION NUMBER XXXXXXXXX

W-2961 0011792

SECTION I

SECTION II

SA0000695?

**ALLIED PAPER, INC.
BRYANT MILL
2030 PORTAGE STREET
KALAMAZOO MI 49001

MONTHLY OPERATING REPORT FOR JUNE 1986 SP

EQP 4810 Rev 9-82

THIS IS YOUR MONTHLY REPORT FORM FOR

SEE REVERSE SIDE FOR RETURN MAIL

Please complete and submit two copies of this form at the end of each month This report must reach our Lansing office by the 10th of the month
REQUIRED BY ACT 245 P A 1929 6A

ALLIED PAPER, INC.
OUTFALL : 002
PROCESS WASTEH2O TO PORTAGE CREEK

FACILITY NUMBER	PERMIT NUMBER	OUTFALL NUMBER
P 390222	MI0000779	390006

Date form was printed: Mo 06 Da 02/86/03

SECTION I

PART 2 - RETURN TO DEPT OF NATURAL RESOURCES

PARAM	50050	85001	00546	85002	00400	91110	
NAME	FLOW CONDUIT	SOD-5	SOLIDS-SETTLEABL	SOLIDS-SUSPENDED	PH	OUTFALL OBSERV.	
UNITS	MGD	LBS/DAY	MG/L	LBS/DAY	0 TO 14	ASSESS.	
LIMIT		MAXIMUM 00000390		MAXIMUM 00000500	MAXIMUM 000009.0 MINIMUM 000005.0		

DATE	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW
1	C 0.110			258						14			7.3			0		
2	C 0.143			344						18			7.4			0		
3	C 0.291			384						42			7.0			0		
4	C 0.182			386			0.7			42			7.1			0		
5	C 0.175			243						60			6.5			0		
6	C 0.174			386						41			6.6			0		
7	C 0.140			387						28			6.5			0		
8	C 0.131			333						20			6.3			0		
9	C 0.121			334						36			6.4			0		
10	C 0.064			169						11			6.1			0		
11	C 0.213			384			0.3			57			6.1			0		
12	C 0.236			358						46			6.4			0		
13	C 0.224			386						33			7.1			0		
14	C 0.275			351						24			6.9			0		
15	C 0.252			389						29			7.0			0		
16	C 0.409			389						31			6.9			0		
17	C 0.197			359						46			6.9			0		
18	C 0.424			387			0.2			60			6.7			0		
19	C 0.113			113						39			6.6			0		
20	C 0.432			389						101			6.8			0		
21	C 0.582			384						60			6.8			0		
22	C 0.497			384						40			6.8			0		
23	C 0.415			381						50			6.7			0		
24	C 0.378			380						44			6.6			0		
25	C 0.524			382			0.1			151			6.4			0		
26	C 0.527			389						145			6.1			0		
27	C 0.264			389						49			6.1			0		
28	C 0.176			388						25			6.1			0		
29	C 0.173			389						21			6.5			0		
30	C 0.139			270						18			6.6			0		
31																		

SECTION II

MONTHLY SUMMARY																		
AVERAGE	0.2810			351						46								
MAXIMUM	0.5812			389						151			7.4					
													MIN 6.1					
NUMBER DAYS REPORTING	30			30			30			30			30			30		
TOTAL SAMPLES TAKEN	030			030			04			030			030			030		
DAYS EXCEEDING MAXIMUM	000			000			00			000			000			000		

BEGINNING DATE 06/01/86
END DATE 06/30/86

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS DOCUMENT AND ALL ATTACHMENTS AND THAT BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THAT THE INFORMATION IS TRUE ACCURATE AND COMPLETE I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT

Andrew Weir Watts Mgr SA 0006957 W-2961

0011793

SA00006958

ALLIED PAPER, INC.
BRYANT MILL
2300 PORTAGE STREET
KALAMAZOO MI 49001

MONTHLY OPERATION REPORT FOR JULY 1986 SP

THIS IS YOUR MONTHLY FORM FOR

SEE REVERSE SIDE FOR MAIL

Please complete and submit this form at the end of each month. It must reach our Lansing office by the 15th REQUIRED BY ACT 329 6A

ALLIED PAPER, INC.
OUTFALL : 002
PROCESS WASTEWATER TO PORTAGE CREEK

Date form was printed 86/02/03

PART 2 - RETURN TO NATURAL RESOURCES

P	FACILITY NUMBER 390222	PERMIT NUMBER MI0000779	OUTFALL NUMBER 390006

SECTION I

PARAM	50050	85001			00546			SOLIDED			00400			91110					
NAME	FLOW CONDUIT	BOD-5			SOLIDS-SETTLEABL						PH			OUTFALL OBSERV.					
UNITS	MGD	LBS/DAY			MG/L						0 TO 14			ASSESS.					
LIMIT		MAXIMUM						MAXI			MAXIMUM		MINIMUM						
		000003891						0000			000009.0		000005.0						
DATE	DAILY AVG	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAIL		LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW
1	0.165	360									6.8			0					
2	0.228	325									6.8			0					
3	0.043	—			0.25						—			0					
4	0.022													0					
5	0.214	—									—			0					
6	0.169	384									6.9			0					
7	0.238	384									6.6			0					
8	0.432	385									6.4			0					
9	0.275	387									6.4			0					
10	0.149	389									6.3			0					
11	0.289	389									6.4			0					
12	0.325	386			1.0						6.4			0					
13	0.252	387									6.6			0					
14	0.273	317									6.7			0					
15	0.212	344									6.9			0					
16	0.249	305									6.6			0					
17	0.218	351									6.7			0					
18	0.236	287			0.5						6.7			0					
19	0.168	271									6.7			0					
20	0.176	251									6.7			0					
21	0.121	231									6.7			0					
22	0.096	152									6.6			0					
23	0.114	200									6.4			0					
24	0.188	215									6.8			0					
25	0.141	285			0.2						6.3			0					
26	0.183	167									6.9			0					
27	0.214	235									6.9			0					
28	0.210	218									6.9			0					
29	0.054	208									7.0			0					
30	0.340	50									7.0			0					
31	0.207	273									6.9			0					
		253									6.9			0					
											6.8			0					
AVERAGE	0.211	AVERAGE	291		AVERAGE	0.2		AVERAGE	136		AVERAGE			AVERAGE			AVERAGE		
MAXIMUM	0.432	MAXIMUM	389		MAXIMUM			MAXIMUM	77		MAXIMUM	7.0		MAXIMUM			MAXIMUM		
											MIN	6.3							
NUMBER DAYS REPORTING	31	NUMBER DAYS REPORTING	31		NUMBER DAYS REPORTING			NUMBER DA EPORTING	31		NUMBER DAYS REPORTING	31		NUMBER DAYS REPORTING	31		NUMBER DAYS REPORTING		
TOTAL SAMPLES TAKEN	31	TOTAL SAMPLES TAKEN	129		TOTAL SAMPLES TAKEN			TOTAL SAMP TAKEN	129		TOTAL SAMPLES TAKEN	129		TOTAL SAMPLES TAKEN	31		TOTAL SAMPLES TAKEN		
DAYS EXCEEDING MAXIMUM	0	DAYS EXCEEDING MAXIMUM	0		DAYS EXCEEDING MAXIMUM			DAYS EXCEED MAXIMUM	0		DAYS EXCEEDING MAXIMUM	0		DAYS EXCEEDING MAXIMUM	0		DAYS EXCEEDING MAXIMUM		
AVG MAX VOL		AVG MAX VOL			AVG MAX VOL			AVG MAX VOL			AVG MAX VOL			AVG MAX VOL			AVG MAX VOL		
BEGINNING DATE	07/86																		
ENDING DATE	07/86																		
		DUP PUNCH 175 80			DUP PUNCH 175 80			DUP PUNCH 175 80			DUP PUNCH 175 80			DUP PUNCH 175 80			DUP PUNCH 3 80		

SECTION II

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS DOCUMENT AND ALL ATTACHMENTS - AND THAT BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THAT THE INFORMATION IS TRUE ACCURATE AND COMPLETE I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT

SIGNATURE OF CERTIFIED OPERATOR Andrew Watson ~~STOEFFLER ULTRAVIO~~ SA 00695S CERTIFICATION NUMBER W-2961 W0003373 0011794

Richard [illegible] [illegible] (11)345-7131

SA00006959

**ALLIED PAPER, INC.
BRYANT MILL
2039 PORTAGE STREET
KALAMAZOO MI 49001

MONTHLY OPERATING REPORT FOR AUGUST 1986 SP

THIS IS YOUR MONTHLY REPORT FORM FOR

SEE REVERSE SIDE FOR RETURN MAIL

Please complete and submit two copies of this form at the end of each month. This report must reach our Lansing office by the 10th of the month
REQUIRED BY ACT 245 P.A. 1929 6A

ALLIED PAPER, INC.
OUTFALL : 002
PROCESS WASTEH2O TO PORTAGE CREEK

FACILITY NUMBER	PERMIT NUMBER	OUTFALL NUMBER
P 390222	MI0000779	390002

Date form was printed: Yr 86 Mo 02 Day 03

PART 2 - RETURN TO DEPT OF NATURAL RESOURCES

PARAM:	50050	85001	00546	85002	00400	91110	
NAME	FLOW CONDUIT	300-5	SOLIDS-SETTLEABL	SOLIDS-SUSPENDED	PH	OUTFALL OBSERV.	
UNITS:	MGD	LBS/DAY	MG/L	LBS/DAY	0 TO 14	ASSESS.	
LIMIT		MAXIMUM 00000389		MAXIMUM 00000500	MAXIMUM 000009.0 MINIMUM 000005.0		

DATE	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW
1	C 0.172			250						15			6.8			0		
2	C 0.095			198						9			6.7			0		
3	C 0.087			200						17			6.8			0		
4	C 0.083			167						12			6.8			0		
5	C 0.160			313						40.2			6.7			0		
6	C 0.168			317			0.30			29			6.7			0		
7	C 0.177			326						33			6.6			0		
8	C 0.143			302						18			6.9			0		
9	C 0.171			337						5			7.0			0		
10	C 0.196			365						15			7.1			0		
11	C 0.197			320						15			7.1			0		
12	C 0.174			280						21			7.1			0		
13	C 0.194			363			0.40			19			7.2			0		
14	C 0.211			368						20			7.0			0		
15	C 0.215			389						22			6.9			0		
16	C 0.224			375						34			7.1			0		
17	C 0.214			296						20			7.3			0		
18	C 0.233			286						13			7.3			0		
19	C 0.262			259						13			7.2			0		
20	C 0.433			212			0.05			38			7.1			0		
21	C 0.365			314						41			7.0			0		
22	C 0.433			304						16			7.0			0		
23	C 0.248			376						37			7.0			0		
24	C 0.397			355						34			7.1			0		
25	C 0.268			339						116			6.9			0		
26	C 0.302			326						58			5.5			0		
27	C 0.189			246			0.30			16			7.0			0		
28	C 0.148			217						15			7.0			0		
29	C 0.191			255						12			7.0			0		
30	C 0.141			203						12			7.0			0		
31	C 0.358			388						36			7.0			0		
MONTHLY SUMMARY AVERAGE	0.231			310						24								
MAXIMUM	0.433			389						58			7.3					
MIN													5.5					
NUMBER DAYS REPORTING	31			31			31			31			31			31		
TOTAL SAMPLES TAKEN	31			31			04			31			31					
DAYS EXCEEDING MAXIMUM	00			00			00			00			00					
AVG MAX MIN																		
DUP PUNCH																		

BEGINNING DATE 080186
ENDING DATE 083186

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS DOCUMENT AND ALL ATTACHMENTS AND THAT BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THAT THE INFORMATION IS TRUE ACCURATE AND COMPLETE I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT

Andrew Watson SP 006959 W-2961 0011795

SIGNATURE OF CERTIFIED OPERATOR ~~STAFFING SUPERVISOR~~ CERTIFICATION NUMBER ~~[illegible]~~

**ALLIED PAPER, INC.
BRYANT MILL
2030 PORTAGE STREET
KALAMAZOO MI 49001

MONTHLY OPERATING REPORT FOR SEPTEMBER 1986 SP

THIS IS YOUR MONTHLY REPORT FORM FOR

SEE REVERSE SIDE FOR RETURN MAIL

Please complete and submit two copies of this form at the end of each month. This report must reach our Lansing office by the 10th of the month
REQUIRED BY ACT 245 P.A. 1929 6A

ALLIED PAPER, INC.
OUTFALL : 002
PROCESS WASTEH2O TO PORTAGE CREEK

FACILITY NUMBER	PERMIT NUMBER	OUTFALL NUMBER
P 300222	MI0000779	390006

Date form was printed: 86/02/03

PART 2 - RETURN TO DEPT. OF NATURAL RESOURCES

PARAM	50050	85051	00546	85002	00400	91110	
NAME	FLOW CONDUIT	200-5	SOLIDS-SETTLEABL	SOLIDS-SUSPENDED	PH	OUTFALL OBSERV.	
UNITS	MGD	LBS/DAY	MG/L	LBS/DAY	0 TO 14	ASSESS.	
LIMIT		MAXIMUM 00000389		MAXIMUM 00000500	MAXIMUM 000009.0 MINIMUM 000005.0		

DATE	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW
1	C 0.321			256						27			7.0			0		
2	C 0.251			389						33			7.3			0		
3	C 0.040			115			0.30			8			7.0			0		
4	C 0.100			1311						24			6.6			0		
5	C 0.200			769						29			6.7			0		
6	C 0.232			786						26			6.9			0		
7	C 0.159			732						18			7.2			0		
8	C 0.152			141						21			7.2			0		
9	C 0.165			228						26			7.2			0		
10	C 0.173			252			0.40			37			7.0			0		
11	C 0.137			202						27			6.9			0		
12	C 0.187			245						29			7.0			0		
13	C 0.234			237						16			7.0			0		
14	C 0.236			276						21			7.2			0		
15	C 0.264			318						51			7.1			0		
16	C 0.225			336						43			7.1			0		
17	C 0.190			268			0.50			29			7.1			0		
18	C 0.208			311						40			6.7			10		
19	C 0.195			296						32			7.0			0		
20	C 0.245			366						24			7.0			0		
21	C 0.196			329						19			7.2			0		
22	C 0.189			266						25			7.0			0		
23	C 0.159			286						42			6.8			0		
24	C 0.136			228			0.60			27			7.1			0		
25	C 0.138			240						35			7.0			0		
26	C 0.321			386						71			6.8			0		
27	C 0.568			380						47			7.0			0		
28	C 0.617			367						45			7.4			0		
29	C 0.378			162						19			7.2			0		
30	C 0.540			268						74			7.2			0		
31																		

MONTHLY SUMMARY																		
AVERAGE	0.240			281						33								
MAXIMUM	0.617			389						74			7.4					
MIN													6.6					
NUMBER DAYS REPORTING	30			30			30			30			30			30		
TOTAL SAMPLES TAKEN	030			030			004			030			030			030		
DAYS EXCEEDING MAXIMUM	000			000			000			000			000			000		
AVG MAX VIOL																		
DUP PUNCH																		

BEGINNING DATE 090186
ENDING DATE 093086

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS DOCUMENT AND ALL ATTACHMENTS AND THAT BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THAT THE INFORMATION IS TRUE ACCURATE AND COMPLETE I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT

Andrew Watson SA 006960 W-2961 0011796

SIGNATURE OF CERTIFIED OPERATOR ~~STEVEN H. WASSER~~ CERTIFICATION NUMBER ~~WC00279~~

(616) 345-7171

SA0006960

SA00006961

ALLIED PAPER, INC.
BRYANT MILL
2030 PORTAGE STREET
KALAMAZOO MI 49001

MONTHLY OPERATING REPORT FOR OCTOBER 1986 SP

THIS IS YOUR MONTHLY REPORT FORM FOR

SEE REVERSE SIDE FOR RETURN MAIL

Please complete and submit two copies of this form at the end of each month. This report must reach our Lansing office by the 10th of the month
REQUIRED BY ACT 245, P.A. 1929 6A

ALLIED PAPER, INC.
OUTFALL : 002
PROCESS WASTEWATER TO PORTAGE CREEK

P	FACILITY NUMBER	PERMIT NUMBER	OUTFALL NUMBER
	390222	MI0000779	390006

Date form was printed: Yr 86 Mo 02 Da 03

PART 2 - RETURN TO DEPT OF NATURAL RESOURCES

PARAM:	50050	85001	00546	85002	00400	91110	
NAME	FLOW CONDUIT	BOD-5	SOLIDS-SETTLEABL	SOLIDS-SUSPENDED	PH	OUTFALL OBSERV. ASSESS.	
UNITS	MGD	LBS/DAY	MG/L	LBS/DAY	O TO 14		
LIMIT		MAXIMUM 00000836		MAXIMUM 00000836	MAXIMUM 000009.0 MINIMUM 000005.0		

DATE	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW
1	C 0.566			510			0.50			134			7.1			0		
2	C 0 219			550						82			7.2			0		
3	C 0 297			638						73			7.0			0		
4	C 0 236			420						61			7.1			0		
5	C 0 214			426						37			7.0			0		
6	C 0 395			808						77			7.0			0		
7	C 0 276			532						42			7.2			0		
8	C 0 434			826			0.70			87			7.0			0		
9	C 0 391			683						61			7.1			0		
10	C 0 329			556						40			7.0			0		
11	C 0.306			561						23			7.1			0		
12	C 0 210			445						69			6.5			0		
13	C 0 363			700						108			6.6			0		
14	C 0 434			747						62			6.7			0		
15	C 0 318			718			0.80			57			6.6			0		
16	C 0.663			835						42			6.7			0		
17	C 0 505			729						8			6.7			0		
18	C 0.356			514						19			6.6			0		
19	C 0 562			713						48			6.6			0		
20	C 0.495			556						56			7.2			0		
21	C 0 462			561						42			6.9			0		
22	C 0 540			631			0.40			86			6.9			0		
23	C 0 517			720						116			7.2			0		
24	C 0.666			541						104			6.9			0		
25	C 0 905			613						106			7.0			0		
26	C 0.738			584						166			7.2			0		
27	C 0 625			714						69			7.5			0		
28	C 0.654			407						225			7.2			0		
29	C 0 661			463			1.70			126			7.1			0		
30	C 0 834			751						61			7.5			0		
31	C 0 939			627						31			7.2			0		
MONTHLY SUMMARY AVERAGE	0.419	AVERAGE	613	AVERAGE	10.82	AVERAGE	73	AVERAGE		AVERAGE		AVERAGE		AVERAGE		AVERAGE		
MAXIMUM	0.939	MAXIMUM	1835	MAXIMUM	1170	MAXIMUM	1225	MAXIMUM	7.5	MAXIMUM		MAXIMUM		MAXIMUM		MAXIMUM		
								MIN	6.6									
NUMBER DAYS REPORTING	31	NUMBER DAYS REPORTING	31	NUMBER DAYS REPORTING	31	NUMBER DAYS REPORTING	31	NUMBER DAYS REPORTING	31	NUMBER DAYS REPORTING	31	NUMBER DAYS REPORTING		NUMBER DAYS REPORTING		NUMBER DAYS REPORTING		
TOTAL SAMPLES TAKEN	031	TOTAL SAMPLES TAKEN	031	TOTAL SAMPLES TAKEN	015	TOTAL SAMPLES TAKEN	031	TOTAL SAMPLES TAKEN	031	TOTAL SAMPLES TAKEN	03	TOTAL SAMPLES TAKEN		TOTAL SAMPLES TAKEN		TOTAL SAMPLES TAKEN		
DAYS EXCEEDING MAXIMUM	000	DAYS EXCEEDING MAXIMUM	000	DAYS EXCEEDING MAXIMUM	000	DAYS EXCEEDING MAXIMUM	000	DAYS EXCEEDING MAXIMUM	000	DAYS EXCEEDING MAXIMUM	000	DAYS EXCEEDING MAXIMUM		DAYS EXCEEDING MAXIMUM		DAYS EXCEEDING MAXIMUM		
AVG MAX VOL		AVG MAX VOL		AVG MAX VOL		AVG MAX VOL		AVG MAX VOL		AVG MAX VOL		AVG MAX VOL		AVG MAX VOL		AVG MAX VOL		
BEGINNING DATE	10/1/86	DUP PUNCH		DUP PUNCH		DUP PUNCH		DUP PUNCH		DUP PUNCH		DUP PUNCH		DUP PUNCH		DUP PUNCH		
ENDING DATE	10/31/86																	

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS DOCUMENT AND ALL ATTACHMENTS AND THAT BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THAT THE INFORMATION IS TRUE ACCURATE AND COMPLETE I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT.

Andrew Watson SP 006961 W-2961 0011797

SIGNATURE OF CERTIFIED OPERATOR STOCKHOLDER ULTIMATE S... LICENSE NUMBER K000372

SA0000962

**ALLIED PAPER, INC.
BRYANT MILL
2030 PORTAGE STREET
KALAMAZOO MI 49001

MONTHLY OPERATING REPORT FOR NOVEMBER 1986 SP

THIS IS YOUR MONTHLY REPORT FORM FOR

SEE REVERSE SIDE FOR RETURN MAIL

Please complete and submit two copies of this form at the end of each month. This report must reach our Lansing office by the 10th of the month.
REQUIRED BY ACT 245, P.A. 1929-6A

ALLIED PAPER, INC.
OUTFALL : 002
PROCESS WASTEH2O TO PORTAGE CREEK

	FACILITY NUMBER	PERMIT NUMBER	OUTFALL NUMBER
P	370222	MI0000779	390005

Date form was printed 86/12/03

PART 2 - RETURN TO DEPT OF NATURAL RESOURCES

PARAM:	50050	85001	00546	85002	00400	91110	
NAME:	FLOW CONDUIT	BOD-5	SOLIDS-SETTLEABL	SOLIDS-SUSPENDED	PH	OUTFALL OBSERV.	
UNITS	MGD	LBS/DAY	MG/L	LBS/DAY	0 TO 14	ASSESS.	
LIMIT		MAXIMUM 00000836		MAXIMUM 00000836	MAXIMUM 000009.0 MINIMUM 000005.0		

DATE	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW
1	C 0.969			710						52			7.0			0		
2	C 0.927			417						56			7.3			0		
3	C 0.733			731						159			7.2			0		
4	C 0.492			527						71			7.0			0		
5	C 0.471			813			0.25			66			7.0			0		
6	C 0.478			829						88			6.6			0		
7	C 0.329			823						72			6.9			0		
8	C 0.500			832						69			6.9			0		
9	C 0.404			783						26			6.7			0		
10	C 0.564			834						40			6.9			0		
11	C 0.559			821						24			7.1			0		
12	C 0.606			670			0.20			34			7.0			0		
13	C 0.537			736						36			6.3			0		
14	C 0.590			818						46			6.9			0		
15	C 0.645			807						30			6.9			0		
16	C 0.663			715						18			6.6			0		
17	C 0.593			823						46			6.5			0		
18	C 0.686			811						135			7.0			0		
19	C 0.631			732			0.45			112			7.0			0		
20	C 0.907			932						73			7.4			0		
21	C 0.714			576						54			7.2			0		
22	C 0.948			611						104			7.0			0		
23	C 0.709			378						25			7.0			0		
24	C 0.641			725						58			7.4			0		
25	C 0.116			164						74			7.6			0		
26	C 0.952			1104			0.20			107			7.4			0		
27	C 0.747			771						32			7.2			0		
28	C 0.745			516						47			7.0			0		
29	C 0.623			739						99			7.0			0		
30	C 0.553			729						81			7.0			0		
31																		

MONTHLY SUMMARY																		
AVERAGE	0.644	AVERAGE	669	AVERAGE		AVERAGE	63	AVERAGE	7.1	AVERAGE		AVERAGE	
MAXIMUM	0.969	MAXIMUM	836	MAXIMUM		MAXIMUM	159	MAXIMUM	17.6	MAXIMUM		MAXIMUM	
								MIN	6.5				
NUMBER DAYS REPORTING	30	NUMBER DAYS REPORTING	30	NUMBER DAYS REPORTING	30	NUMBER DAYS REPORTING	30	NUMBER DAYS REPORTING	30	NUMBER DAYS REPORTING	30	NUMBER DAYS REPORTING	
TOTAL SAMPLES TAKEN	030	TOTAL SAMPLES TAKEN	030	TOTAL SAMPLES TAKEN	030	TOTAL SAMPLES TAKEN	030	TOTAL SAMPLES TAKEN	030	TOTAL SAMPLES TAKEN	030	TOTAL SAMPLES TAKEN	
DAYS EXCEEDING MAXIMUM	000	DAYS EXCEEDING MAXIMUM	000	DAYS EXCEEDING MAXIMUM	000	DAYS EXCEEDING MAXIMUM	000	DAYS EXCEEDING MAXIMUM	000	DAYS EXCEEDING MAXIMUM	004	DAYS EXCEEDING MAXIMUM	
AVG MAX VIOL		AVG MAX VIOL		AVG MAX VIOL		AVG MAX VIOL		AVG MAX VIOL		AVG MAX VIOL		AVG MAX VIOL	
DUP PUNCH		DUP PUNCH		DUP PUNCH		DUP PUNCH		DUP PUNCH		DUP PUNCH		DUP PUNCH	

BEGINNING DATE 11 01 86
ENDING DATE 11 30 86

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS DOCUMENT AND ALL ATTACHMENTS AND THAT, BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THAT THE INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT.

SIGNATURE OF CERTIFIED OPERATOR ~~ETTEFELDT~~ ULRICH Andrew Watson OPERATOR NUMBER W-2961

SA 000962

00011798

SECTION I

SECTION II

SA0000695

ALLIED PAPER, INC.
BRYANT MILL
2050 PORTAGE STREET
KALAMAZOO MI 49001

MONTHLY OPERATING REPORT FOR

THIS IS YOUR MONTHLY REPORT FORM FOR

SEE REVERSE SIDE FOR RETURN MAIL

Please complete and submit two copies of this form at the end of each month. This report must reach our Lansing office by the 10th of the month
REQUIRED BY ACT 245 P A 1929 6A

DECEMBER 1986 SP

ALLIED PAPER, INC.
OUTFALL # 001
PROCESS WAST H20 TO PORTAGE CREEK

P	FACILITY NUMBER	PERMIT NUMBER	OUTFALL NUMBER
	390222	MI0000770	390006

Date for this report (mo/yr) 12/01/87

PART 1 - RETURN TO DEPT OF NATURAL RESOURCES

PARAM	50050	85001	00546	85002	00400	91110	
NAME	FLOW CONDUIT	00-5	SOLIDS-SETTLEABL	SOLIDS-SUSPENDED	PH	OUTFALL DESIGN.	
UNITS	MGD	LBS/DAY	MG/L	LBS/DAY	0 TO 14	ASSESS.	
LIMIT		MAXIMUM 7000.0000		MAXIMUM 0000.0000	MAXIMUM MINIMUM 0000.0 0000.0		

DATE	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW	DAILY AVG	HIGH	LOW
1	C 0.593			457						119			7.3			0		
2	C 0.628			592						86			7.2			0		
3	C 0.328			491			0.8			46			7.3			0		
4	C 0.469			555						87			6.8			0		
5	C 0.418			376						74			6.9			0		
6	C 0.407			274						45			7.0			0		
7	C 0.349			262						32			6.9			0		
8	C 0.338			410						28			6.8			0		
9	C 0.313			334						46			7.2			0		
10	C 0.096			118			0.2			18			7.3			0		
11	C 0.041			33						03			7.0			0		
12	C 0.029			20						02			7.3			0		
13	C 0.011			13						01			7.2			0		
14	C 0.028			29						07			7.4			0		
15	C 0.199			217						22			7.3			0		
16	C 0.167			212						15			7.2			0		
17	C 0.030			34			1.4			05			7.1			0		
18	C 0.069			88						10			7.2			0		
19	C 0.438			540						39			7.1			0		
20	C 0.150			258						14			7.0			0		
21	C 0.030			29						01			7.0			0		
22	C 0.094			110						07			7.0			0		
23	C 0.303			500						54			6.6			0		
24	C 0.191			391			1.2			45			7.1			0		
25	C 0.315			397						20			7.3			0		
26	C 0.561			339						30			7.8			0		
27	C 0.703			223						28			8.0			0		
28	C 0.753			132						15			8.0			0		
29	C 0.136			70						13			7.4			0		
30	C 0.181			135						07			7.3			0		
31	C 0.135			186			0.3			07			7.2			0		
AVERAGE	0.274			249						31.0								
MAXIMUM	0.753			592						118			8.0					
MIN													6.6					
NUMBER DAYS REPORTING	31			31						31			31			31		
TOTAL SAMPLES TAKEN	031			031						031			031			031		
DAYS EXCEEDING MAXIMUM	000			000						000			000			000		
SAMPLING DATE	120186																	
ANALYSIS DATE	123186																	

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS DOCUMENT AND ALL ATTACHMENTS AND THAT BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT.

Andrew Watson

SIGNATURE OF CERTIFIED OPERATOR

W-2961

SIGNATURE OF PERMITTEE

RECEIVED

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if different)

NAME ALLIED PAPER INC

ADDRESS BOX 2528

KALAMAZOO, MICHIGAN 49003

FACILITY

LOCATION

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

DISCHARGE MONITORING REPORT

DAILY MONITORING

PERMIT NUMBER	DISCHARGE NUMBER
MI 0000779	002

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	87	11	01	TO	87	11	30

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE ACCURATE AND COMPLETE I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319 (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	NAME/TITLE PRINCIPAL EXECUTIVE OFFICER TYPED OR PRINTED
Martin L Smith	MARTIN L. SMITH Mgr of Waste Treatment

	PAR #	50050	85001	00546	85002	00400	84130			
	PARAMATER	FLOW	BOD5	SETTLEABLE SOLIDS	SUSPENDED SOLIDS	PH	OBSERVATION			
	LIMIT		836		500	5-9				
DAY	UNITS	MGD	lbs/day	ml/l	lbs/day					
01		0.381	836		24	6.1	/			
02		0.448	829		50	6.1	/			
03		0.422	834		55	6.5	/			
04		0.444	826	0.4	34	5.9	/			
05		0.375	819		55	6.1	/			
06		0.249	646		26	6.0	/			
07		0.238	712		23	6.1	/			
08		0.222	666		24	6.3	/			
09		0.401	829		62	6.3	/			
10		0.509	833		74	6.6	/			
11		0.585	834	1.4	94	6.7	/			
12		0.684	817		148	6.4	/			
13		0.512	836		53	6.4	/			
14		0.545	828		85	6.3	/			
15		0.424	442		34	6.5	/			
16		0.489	827		54	6.5	/			
17		0.516	833		63	6.6	/			
18		0.502	828	0.8	67	6.5	/			
19		0.541	790		68	6.6	/			
20		0.312	288		47	6.7	/			
21		0.335	384		27	6.6	/			
22		0.395	696		75	6.7	/			
23		0.505	823		47	6.7	/			
24		0.401	769		47	6.6	/			
25		0.512	820	1.2	43	6.7	/			
26		0.401	721		51	6.6	/			
27		0.317	759		42	6.6	/			
28		0.271	796		08	6.7	/			
29		0.237	658		72	6.6	/			
30		0.423	836		113	6.6	/			
31										
	TOTAL	12.596	22615		1665					
	AVERAGE	0.420	754	1.0	56					

EQ4817 1 12/86

SA-048415

PERMITTEE NAME/ADDRESS (*Include Facility Name/Location if different*)

NAME ALLIED PAPER, INC.
ADDRESS BRYANT MILL
2030 PORTAGE ST
KALAMAZOO MI 49001
FACILITY ALLIED PAPER CO
LOCATION KALAMAZOO MI 49003
ATTN: HAGAKU PER II

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (*NPDES*)
DISCHARGE MONITORING REPORT (*DMR*)

Form Approved
OMB No. 2040-0004
Approval expires 12-31-88

(2-16) MI0000779 PERMIT NUMBER

(17-19) 002 A DISCHARGE NUMBER

F - FINAL
TREATED PROCESS WW

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	87	11	01	TO	87	11	30
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

MAJOR (SUBR PP)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)		(3 Card Only) QUANTITY OR LOADING (46-53) AVERAGE	(54-61) MAXIMUM	UNITS	(4 Card Only) QUALITY OR CONCENTRATION (38-45) MINIMUM	(46-53) AVERAGE	(54-61) MAXIMUM	UNITS	NO EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
BOD, 5-DAY (20 DEG. C)	SAMPLE MEASUREMENT	******	836	lbs/day	******	******	******		0	1/1	24HC
00310 1 1 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	******	836 DAILY MX	LBS/DY	******	******	****** ****	****		DAILY	COMP2
PH	SAMPLE MEASUREMENT	******	******		5.5	******	6.7		0	1/1	GRAB
00400 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	******	****** ****	****	5.0 MINIMUM	******	9.0 MAXIMUM	SU		DAILY	GRAB
SOLIDS, TOTAL SUSPENDED	SAMPLE MEASUREMENT	56	148	lbs/day	******	******	******		0	1/1	24HC
00530 1 1 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	543 30DA AVG	836 DAILY MX	LBS/DY	******	******	****** ****	****		DAILY	COMP2
SOLIDS, SETTLEABLE	SAMPLE MEASUREMENT	******	******		******	1.0	1.4	mg/l	0	1/7	GRAB
00545 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	******	****** ****	****	******	REPORT 30DA AVG	REPORT DAILY MX	ML/L		WEEKLY	GRAB
FLOW, IN CONDUIT OR THRU TREATMENT PLANT	SAMPLE MEASUREMENT	0.420	0.684	MGD	******	******	******		0	1/1	CONT
50050 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	REPORT 30DA AVG	REPORT DAILY MX	MGD	******	******	****** ****	****		DAILY	MEASR
OUTFALL OBSERVATION, VISUAL, Y/N RESPONSE	SAMPLE MEASUREMENT	1	******		******	******	******		0	1/1	V
84130 1 0 0 EFFLUENT GROSS VALUE	PERMIT REQUIREMENT	REPORT 30DA AVG	******	YES=1 NO=0	******	******	****** ****	****		DAILY	VISUAL
	SAMPLE MEASUREMENT										
	PERMIT REQUIREMENT										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER

MARTIN L. SMITH.
MANAGER OF WASTE TREATMENT

TYPED OR PRINTED

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE ACCURATE AND COMPLETE I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT SEE 18 USC § 1001 AND 33 USC § 1319 (*Penalties under these statutes may include fines up to $10000 and/or maximum imprisonment of between 6 months and 5 years*)

Martin L. Smith

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE: AREA CODE 616 NUMBER 345-7131

DATE: YEAR 87 MO 12 DAY 07

COMMENT AND EXPLANATION OF ANY VIOLATIONS (*Reference all attachments here*)

OUTFALL OBSERVATION SHALL BE MONITORING DAILY BY VISUAL SAMPLE TYPE.

SA-048414

92-2366

ALLIED PAPER CORPORATION

June 16, 1965

Mr. Ralph W. Purdy, Chief Engineer
Water Resources Commission
200 Mill Street
Lansing, Michigan 48913

Dear Ralph:

I called your office this morning and in your absence talked with Bob Courchaine. I reported to him that we had had trouble with the drive on the Bryant clarifier on Friday the 11th of June and found a considerable build-up of sludge in the bottom. It took us into Saturday to get the sludge cleaned out with fire hoses, and we were back in operation at 2 P.M. on the 12th. We have decided that we will have to pump the sludge out more continuously and in more dilute form.

In further response to your letter of June 15th, we decided about one week ago to study the possible benefits of a fourth pump for stand-by. Our Engineering Department will make me a report on this matter soon. It may be that the replacement of one of the present pumps with one of greater capacity would give us the additional stand-by capability we need.

I will certainly try to follow the practice of calling you in the event of future by-passing of the clarifier.

Yours truly,

ALLIED PAPER CORPORATION

W. J. Gilman
Vice President-Manufacturing

dg

RECEIVED
JUN 18 1965
WATER RESOURCES
COMMISSION

0002729

SH 011410

93-555 12/8/81

Please print or type in the unshaded areas only

EPA I.D. NUMBER (copy from Item 1 of Form 1)

Form Approved OMB No. 158-R0073

FORM 2C NPDES

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER

EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURAL OPERATIONS

Consolidated Permits Program

I. OUTFALL LOCATION

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

A. OUTFALL NUMBER (list)	B. LATITUDE			C. LONGITUDE			D. RECEIVING WATER (name)
	1. deg.	2. min.	3. sec.	1. deg.	2. min.	3. sec.	
002	42	15	36	85	34	36	Portage Creek

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined (e.g., for certain mining activities), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

B. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

1. OUTFALL NO. (list)	2. OPERATION(S) CONTRIBUTING FLOW		3. TREATMENT	
	a. OPERATION (list)	b. AVERAGE FLOW (include units)	a. DESCRIPTION	b. LIST CODES FROM TABLE 2C-1
001	Manufacture of paper	1.559 MGD	Coagulation	2D
			Sedimentation	1U
			Discharge to P.O.T.W.	XX
			Sludge Lagoons	5T
002	Manufacture of paper	0.785 MGD	Coagulation	2D
			Sedimentation	1U
			Sludge Lagoons	5T
			Discharge to Surface Water	4A

000097

OFFICIAL USE ONLY (effluent guidelines sub-categories)

STORAGE

SA 038058

EPA I D NUMBER (copy from Item 1 of Form 1)

CONTINUED FROM PAGE 2

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V INTAKE AND EFFLUENT CHARACTERISTICS

A, B, & C See instructions before proceeding – Complete one set of tables for each outfall – Annotate the outfall number in the space provided
NOTE Tables V-A, V-B, and V-C are included on separate sheets numbered V-1 through V-9

D Use the space below to list any of the pollutants listed in Table 2c-3 of the instructions, which you know or have reason to believe is discharged or may be discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe it to be present and report any analytical data in your possession

1. POLLUTANT	2. SOURCE	1. POLLUTANT	2. SOURCE

VI POTENTIAL DISCHARGES NOT COVERED BY ANALYSIS

A Is any pollutant listed in Item V-C a substance or a component of a substance which you do or expect that you will over the next 5 years use or manufacture as an intermediate or final product or byproduct?

☐ YES (list all such pollutants below) ☒ NO (go to Item VI-B)

B. Are your operations such that your raw materials, processes or products can reasonably be expected to vary so that your discharges of pollutants may during the next 5 years exceed two times the maximum values reported in Item V?

☐ YES (complete Item VI-C below) ☒ NO (go to Section VII)

C If you answered "Yes" to Item VI-B, explain below and describe in detail the sources and expected levels of such pollutants which you anticipate will be discharged from each outfall over the next 5 years, to the best of your ability at this time. Continue on additional sheets if you need more space

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CONTINUED FROM THE FRONT

C. Except for storm runoff, leaks, or spills are any of the discharges described in Items II-A or B intermittent or seasonal?

☐ YES (complete the following table) ☒ NO (go to Section III)

1. OUTFALL NUMBER (list)	2. OPERATION(S) CONTRIBUTING FLOW (list)	3. FREQUENCY		4. FLOW				
		a. DAYS PER WEEK (specify average)	b. MONTHS PER YEAR (specify average)	a. FLOW RATE (in mgd)		b. TOTAL VOLUME (specify with units)		c. DURATION (in days)
				1. LONG TERM AVERAGE	2. MAXIMUM DAILY	1. LONG TERM AVERAGE	2. MAXIMUM DAILY	

III. MAXIMUM PRODUCTION

A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility?

☐ YES (complete Item III B) ☒ NO (go to Section IV)

B. Are the limitations in the applicable effluent guideline expressed in terms of production (or other measure of operation)?

☐ YES (complete Item III C) ☐ NO (go to Section IV)

C. If you answered "Yes" to Item III-B list the quantity which represents an actual measurement of your maximum level of production, expressed in the terms and units used in the applicable effluent guideline and indicate the affected outfalls.

1. MAXIMUM QUANTITY			2. AFFECTED OUTFALLS
a. QUANTITY PER DAY	b. UNITS OF MEASURE	c. OPERATION, PRODUCT, MATERIAL, ETC. (specify)	(list outfall numbers)

IV. IMPROVEMENTS

A. Are you now required by any Federal, State or local authority to meet any implementation schedule for the construction, upgrading or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions

☐ YES (complete the following table) ☒ NO (go to Item IV-B)

1. IDENTIFICATION OF CONDITION, AGREEMENT, ETC.	2. AFFECTED OUTFALLS		3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COMPLIANCE DATE	
	a. NO.	b. SOURCE OF DISCHARGE		a. REQUIRED	b. PROJECTED

B. OPTIONAL. You may attach additional sheets describing any additional water pollution control programs (or other environmental projects which may affect your discharges) you now have underway or which you plan. Indicate whether each program is now underway or planned, and indicate your actual or planned schedules for construction. ☐ MARK "X" IF DESCRIPTION OF ADDITIONAL CONTROL PROGRAMS IS ATTACHED

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CONTINUED FROM THE FRONT

VII. BIOLOGICAL TOXICITY TESTING DATA

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

☐ YES (identify the test and describe its purposes below) ☒ NO (go to Section VIII)

VIII CONTRACT ANALYSIS INFORMATION

Were any of the analyses reported in Item V performed by a contract laboratory or consulting firm?

☒ YES (list the name, address, and telephone number of, and pollutants analyzed by each such laboratory or firm below) ☐ NO (go to Section IX)

A. NAME	B. ADDRESS	C. TELEPHONE (area code & no.)	D. POLLUTANTS ANALYZED (list)
Environmental Research Group Inc.	117 N. First Ann Arbor, MI 48104	313-662-3104	All Bud C.O.D.

IX. CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print)	B. PHONE NO. (area code & no.)
T. E. Flanagan Vice President Operations	616-345-7131
C. SIGNATURE T E Flanagan	D. DATE SIGNED 12-18-81

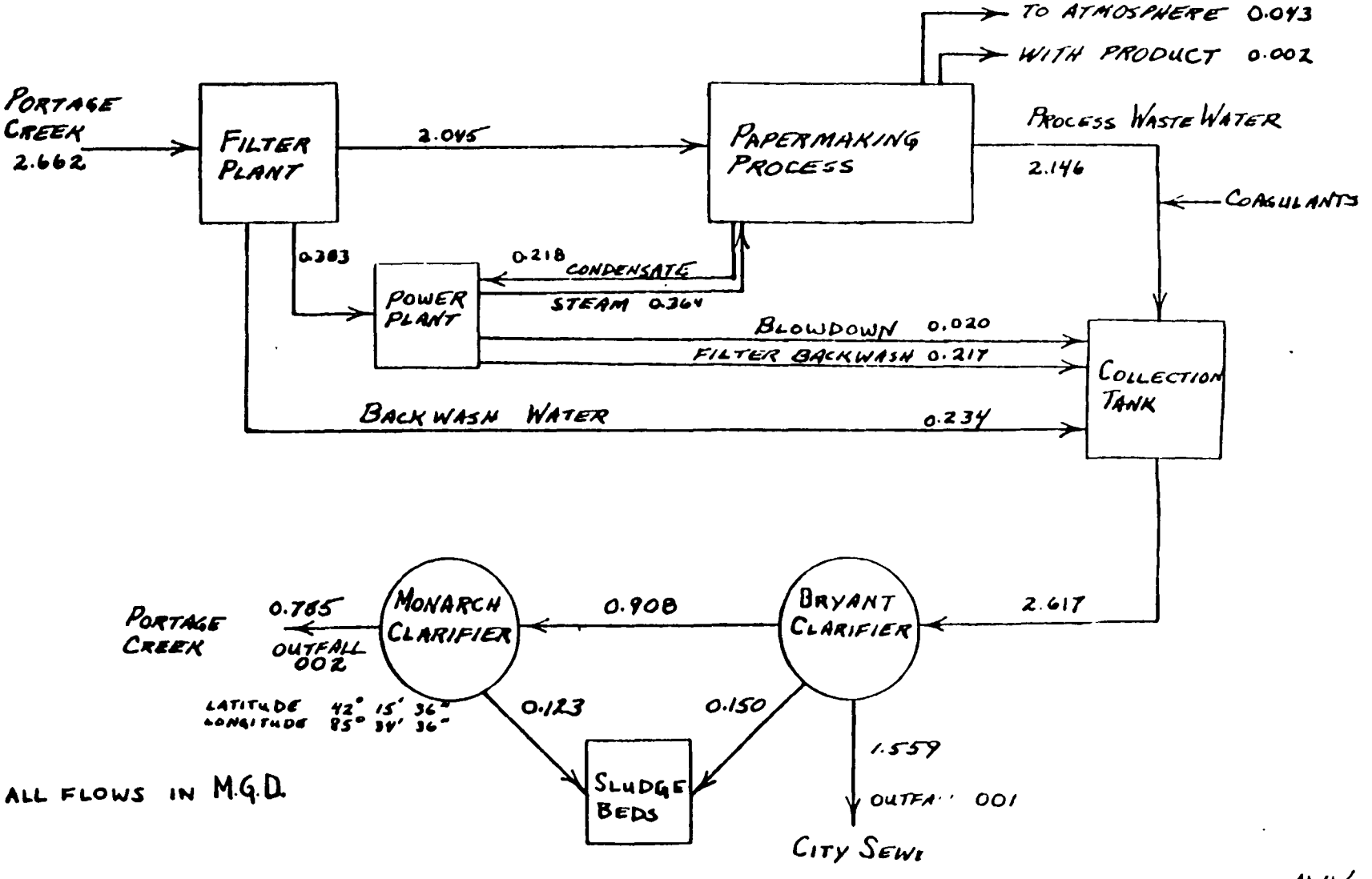
EPA Form 3510-2C (6-80)

SA 038061

SA 038062

ALLIED PAPER INC. KALAMAZOO, MICHIGAN

SCHEMATIC WATER FLOW



AWW
12-81

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY You may report some or all of this information on separate sheets (use the same format) instead of completing these pages SEE INSTRUCTIONS

EPA I D NUMBER (copy from Item 1 of Form 1)

Form Approved OMB No 158 R0173

OUTFALL NO 002

V. INTAKE AND EFFLUENT CHARACTERISTICS (continued from page 3 of Form 2 C)

PART A - You must provide the results of at least one analysis for every pollutant in this table Complete one table for each outfall See instructions for additional details

1. POLLUTANT	2 EFFLUENT a MAXIMUM DAILY VALUE (1) CONCENTRATION	a MAXIMUM DAILY VALUE (2) MASS	b MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b MAXIMUM 30 DAY VALUE (if available) (2) MASS	c LONG TERM AVRG VALUE (if available) (1) CONCENTRATION	c LONG TERM AVRG VALUE (if available) (2) MASS	d NO OF ANALYSES	3 UNITS (specify if blank) a CONCENTRATION	3 UNITS b MASS	4 INTAKE (optional) a LONG TERM AVERAGE VALUE (1) CONCENTRATION	4 INTAKE a LONG TERM AVERAGE VALUE (2) MASS	4 INTAKE b NO OF ANALYSES
a Biochemical Oxygen Demand (BOD)	28	222						mg/l	lbs.			
b Chemical Oxygen Demand (COD)	61	483						mg/l	lbs.			
c Total Organic Carbon (TOC)	35	277						mg/l	lbs.			
d Total Suspended Solids (TSS)	38	301						mg/l	lbs.			
e Ammonia (as N)	0.11	0.87						mg/l	lbs.			
f Flow	VALUE 0.950		VALUE		VALUE			MGD		VALUE		
g Temperature (winter)	VALUE 22		VALUE		VALUE			°C		VALUE		
h Temperature (summer)	VALUE 29		VALUE		VALUE			°C		VALUE		
i pH	MINIMUM 6.5	MAXIMUM 7.5	MINIMUM	MAXIMUM				STANDARD UNITS				

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present Mark "X" in column 2 b for each pollutant you believe to be absent If you mark column 2-a for any pollutant, you must provide the results of at least one analysis for that pollutant Complete one table for each outfall See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO (if available)	2 MARK X a. BELIEVED PRESENT	b. BELIEVED ABSENT	3 EFFLUENT a MAXIMUM DAILY VALUE (1) CONCENTRATION	a MAXIMUM DAILY VALUE (2) MASS	b MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b MAXIMUM 30 DAY VALUE (if available) (2) MASS	c LONG TERM AVRG VALUE (if available) (1) CONCENTRATION	c LONG TERM AVRG VALUE (if available) (2) MASS	d NO OF ANALYSES	4 UNITS a CONCENTRATION	4 UNITS b MASS	5 INTAKE (optional) a LONG TERM AVERAGE VALUE (1) CONCENTRATION	5 INTAKE a LONG TERM AVERAGE VALUE (2) MASS	5 INTAKE b NO OF ANALYSES
a Bromide (24959 67 9)	X		<0.1							mg/l				
b Chlorine Total Residual		X	N.D.											
c Color	X		5							Col. Un.				
d Fecal Coliform	X		380							TC/.1L				
e Fluoride (16984 48 8)	X		0.2	1.6						mg/l	lbs.			
f Nitrate Nitrite (as N)	X		0.91	7.2						mg/l	lbs.			

SD 838863

NOTE: ND IS NOT DETECTABLE

ITEM V B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NO. (if available)	2. MARK X a. Believed present	2. MARK X b. Believed absent	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) Concentration	3. EFFLUENT a. MAXIMUM DAILY VALUE (2) Mass	3. EFFLUENT b. MAXIMUM 30 DAY VALUE (if available) (1) Concentration	3. EFFLUENT b. MAXIMUM 30 DAY VALUE (if available) (2) Mass	3. EFFLUENT c. LONG TERM AVRG. VALUE (if available) (1) Concentration	3. EFFLUENT c. LONG TERM AVRG. VALUE (if available) (2) Mass	3. EFFLUENT d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	4. UNITS b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) Concentration	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (2) Mass	5. INTAKE (optional) b. NO. OF ANALYSES
g. Nitrogen Total Organic (as N)	X		1.2	9.5						mg/l	lbs.			
h. Oil and Grease	X		2.0	15.8						mg/l	lbs.			
i. Phosphorus (as P) Total (7723 14 0)	X		0.27	2.1						mg/l	lbs.			
j. Radioactivity														
(1) Alpha Total														
(2) Beta, Total														
(3) Radium, Total														
(4) Radium 226 Total														
k. Sulfate (as SO_4) (14808 79 8)	X		190	1505						mg/l	lbs.			
l. Sulfide (as S)	X		0.058	0.3						mg/l	lbs.			
m. Sulfite (as SO_3) (14265 45 3)	X		< 1.0	-						mg/l	-			
n. Surfactants	X		0.039	0.3						mg/l	lbs.			
o. Aluminum Total (7429 90 5)	X		1.2	9.5						mg/l	lbs.			
p. Barium, Total (7440 39 3)	X		0.1	0.8						mg/l	lbs.			
q. Boron, Total (7440 42 8)		X	N.D.											
r. Cobalt, Total (7440 48 4)	X		< 0.005	-						mg/l	-			
s. Iron, Total (7439 89 6)	X		0.29	2.3						mg/l	lbs.			
t. Magnesium, Total (7439 95 4)	X		20	158						mg/l	lbs.			
u. Molybdenum, Total (7439 98 7)	X		< 0.1	-						mg/l	-			
v. Manganese, Total (7439 96 5)	X		0.079	0.63						mg/l	lbs.			
w. Tin, Total (7440 31 5)	X		< 0.08	-						mg/l	-			
x. Titanium, Total (7440 32 6)	X		< 0.08	-						mg/l	-			

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EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
	002

CONTINUED FROM PAGE 3 OF FORM 2 C

Form Approved OMB No 158 R0173

PART C If you are a primary industry and this outfall contains process wastewater, refer to Table 2c 2 in the instructions to determine which of the GC/MS fractions you must test for Mark "X" in column 2 a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2 a *(secondary industries, non-process wastewater outfalls, and non-required GC/MS fractions)*, mark "X" in column 2-b for each pollutant you know or have reason to believe is present Mark "X" in column 2 c for each pollutant you believe to be absent If you mark either columns 2-a or 2 b for any pollutant, you must provide the results of at least one analysis for that pollutant Note that there are seven pages to this part, please review each carefully Complete one table *(all seven pages)* for each outfall See instructions for additional details and requirements

1 POLLUTANT AND CAS NUMBER (if available)	2 MARK X			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a Test Not Required	b Believe Present	c Believe Absent	a MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c LONG TERM AVRG VALUE (if available) (1) CONCENTRATION	(2) MASS	d NO OF ANALYSES	a CONCENTRATION	b MASS	a LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b NO OF ANALYSES
METALS CYANIDE, AND TOTAL PHENOLS															
1M Antimony Total (7440 36 0)	X	X		< 0.05	-						mg/l	-			
2M Arsenic Total (7440 38 2)	X	X		< 0.001	-						mg/l	-			
3M Beryllium Total 7440 41 7)	X	X		< 0.002	-						mg/l	-			
4M Cadmium Total (7440 43 9)	X	X		< 0.003	-						mg/l	-			
5M Chromium Total (7440 47 3)	X	X		0.005	0.04						mg/l	lbs.			
6M Copper Total (7550 50 8)	X	X		0.01	0.08						mg/l	lbs.			-
7M Lead Total (7439 97 6)	X	X		< 0.01	-						mg/l	lbs.			
8M Mercury Total (7439 97 6)	X	X		< 0.0002	-						mg/l	-			
9M Nickel Total (7440 02 0)	X	X		< 0.01	-						mg/l	-			
10M Selenium Total (7782 49 2)	X	X		< 0.001	-						mg/l	-			
11M Silver, Total (7440 22 4)	X	X		< 0.003	-						mg/l	-			
12M Thallium Total (7440 28 0)	X	X		< 0.02	-						mg/l	-			
13M Zinc, Total (7440 66 6)	X	X		0.025	0.2						mg/l	lbs.			
14M Cyanide Total (57 12 5)	X	X		< 0.01	-						mg/l	-			
15M Phenols, Total	X	X		< 0.004	-						mg/l	-			
DIOXIN															
2 3 7 8 Tetra chlorodibenzo P Dioxin (1764 01 6)	X		X	DESCRIBE RESULTS N.D.											

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1. POLLUTANT AND CAS NUMBER (if available)	2. MARK X			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. [illegible]	b. [illegible]	c. [illegible]	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V Acrolein (107 02 8)															
2V Acrylonitrile (107 13 1)															
3V Benzene (71 43 2)															
4V Bis (Chloromethyl) Ether (542 88 1)															
5V Bromoform (75 25 2)															
6V Carbon Tetrachloride (56 23 5)															
7V Chlorobenzene (108 90 7)															
8V Chlorodibromomethane (124 48 1)															
9V Chloroethane (75 00 3)															
10V 2 Chloroethylvinyl Ether (110 75 8)															
11V Chloroform (67 66 3)															
12V Dichlorobromomethane (75 27 4)															
13V Dichlorodifluoromethane (75 71 8)															
14V 1,1 Dichloroethane (75 34 3)															
15V 1,2 Dichloroethane (107 06 2)															
16V 1,1 Dichloroethylene (75 35 4)															
17V 1,2 Dichloropropane (78 87 5)															
18V 1,2 Dichloropropylene (542 75 6)															
19V Ethylbenzene (100 41 4)															
20V Methyl Bromide (74 83 9)															
21V Methyl Chloride (74 87 3)															

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CONTINUED FROM PAGE V-4

EPA I.D. NUMBER (copy from Item 1 of Form 1) | OUTFALL NUMBER 002

Form Approved OMB No. 158-R0173

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X" a. TESTING REQUIRED	b. DESIGNED FOR SENT	c. DESIGNED AS SENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO OF ANALYSES
GC/MS FRACTION – VOLATILE COMPOUNDS (continued)															
22V Methylene Chloride (75 09 2)															
23V 1,1,2,2 Tetrachloroethane (79 34 5)															
24V Tetrachloroethylene (127 18 4)															
25V Toluene (108 88 3)															
26V 1,2 Trans Dichloroethylene (156 60 5)															
27V 1,1,1 Trichloroethane (71 55 6)															
28V 1,1,2 Trichloroethane (79 00 5)															
29V Trichloroethylene (79 01 6)															
30V. Trichlorofluoromethane (75 69 4)															
31V Vinyl Chloride (75 01-4)															
GC/MS FRACTION – ACID COMPOUNDS															
1A 2 Chlorophenol (95 57 8)	X	X		ND											
2A 2,4 Dichlorophenol (120 83 2)	X	X		ND											
3A 2,4 Dimethylphenol (105 67 9)	X	X		ND											
4A 4,6 Dinitro O Cresol (534 52 1)	X	X		ND											
5A 2,4 Dinitrophenol (51 28 5)	X	X		ND											
6A 2 Nitrophenol (88 75 5)	X	X		ND											
7A 4 Nitrophenol (100 02 7)	X	X		ND											
8A P Chloro M Cresol (59 50 7)	X	X		ND											
9A Pentachlorophenol (87 86 5)	X	X		ND											
10A Phenol (108 95 2)	X	X		ND											
11A 2,4,6 Trichlorophenol (88 06 2)	X	X		ND											

CONTINUE ON REVERSE

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1 POLLUTANT AND CAS NUMBER (if available)	2 MARK X			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a. Test Inf. Ex. Sub.	b. Ex. Sub. Pre. Test	c. Ex. Sub. Ex. Test	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B Acenaphthene (83 32 9)															
2B Acenaphtylene (208 96 8)															
3B Anthracene (120 12 7)															
4B Benzidine (92 87 5)															
5B Benzo (a) Anthracene (56 55 3)															
6B Benzo (a) Pyrene (50 32 8)															
7B 3 4 Benzo fluoranthene (205 99 2)															
8B Benzo (ghi) Perylene (191 24 2)															
9B Benzo (k) Fluoranthene (207 08 9)															
10B Bis (2 Chloro ethoxy) Methane (111 91 1)															
11B Bis (2 Chloro ethyl) Ether (111 44 4)															
12B Bis (2 Chloro isopropyl) Ether (39638 32 9)															
13B Bis (2 Ethyl hexyl) Phthalate (117 81 7)															
14B 4 Bromo phenyl Phenyl Ether (101 55 3)															
15B Butyl Benzyl Phthalate (85 68 7)															
16B 2 Chloro naphthalene (91 58 7)															
17B 4 Chloro phenyl Phenyl Ether (7005 72-3)															
18B Chrysene (218 01 9)															
19B Dibenzo (a h) Anthracene (53 70 3)															
20B 1 2 Dichloro benzene (95 50 1)															
21B 1 3 Dichloro benzene (541 73 1)															

CONTINUE ON PAGE V 7

EPA I D NUMBER (copy from Item 1 of Form 1) | OUTFALL NUMBER: 002

Form Approved OMB No. 158-R0173

CONTINUED FROM PAGE V-6

POLLUTANT AND CAS NUMBER (if available)	2 MARK X: a TESTING REQUIRED, b BELIEVED PRESENT, c BELIEVED ABSENT	3 EFFLUENT: a MAXIMUM DAILY VALUE (1) CONCENTRATION	a MAXIMUM DAILY VALUE (2) MASS	b MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b MAXIMUM 30 DAY VALUE (if available) (2) MASS	c LONG TERM AVRG VALUE (if available) (1) CONCENTRATION	c LONG TERM AVRG VALUE (if available) (2) MASS	d NO OF ANALYSES	4 UNITS: a CONCENTRATION	b MASS	5 INTAKE (optional): a LONG TERM AVERAGE VALUE (1) CONCENTRATION	a LONG TERM AVERAGE VALUE (2) MASS	b NO OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (continued)													
37B 1 4 Dichlorobenzene (106 46 7)													
38B 3 3 Dichlorobenzidine (91 94 1)													
39B Diethyl phthalate (84 66 2)													
40B Dimethyl phthalate (131 11 3)													
41B DI N Butyl phthalate (84 74 2)													
42B 2 4 Dinitrotoluene (121 14 2)													
43B 2 6 Dinitrotoluene (606 20 2)													
44B DI N Octyl phthalate (117 84 0)													
45B 1 2 Diphenylhydrazine (as Azobenzene) (122 66 7)													
46B Fluoranthene (206 44 0)													
47B Fluorene (86 73 7)													
48B Hexachlorobenzene (118 74 1)													
49B Hexachlorobutadiene (87 68 3)													
50B Hexachlorocyclopentadiene (77 47 4)													
51B Hexachloroethane (67 72 1)													
52B Indeno (1 2 3 cd) Pyrene (193 39 5)													
53B Isophorone (78 59 1)													
54B Naphthalene (91 20 3)													
55B Nitrobenzene (98 95 3)													
56B N Nitrosodimethylamine (62 75 9)													
57B N Nitrosodi N Propylamine (621 64 7)													

EPA Form 3510 2C (6 80)

CONTINUE ON REVERSE

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1 POLLUTANT AND CAS NUMBER (if available)	2 MARK X			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a TEST INCREASE BELOW	b DISCHARGE PRESENT	c DISCHARGE PRESENT	a MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c LONG TERM AVRG VALUE (if available) (1) CONCENTRATION	(2) MASS	d NO OF ANALYSES	a CONCENTRATION	b MASS	a LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b NO OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (continued)															
43B N Nitro sodiphenylamine (86 30 6)															
44B Phenanthrene (85 01 8)															
45B Pyrene (129 00 0)															
46B 1,2 4 Tri chlorobenzene (120 82 1)															
GC/MS FRACTION – PESTICIDES															
1P Aldrin (309 00 2)															
2P α BHC (319 84 6)															
3P β BHC (319 85 7)															
4P γ BHC (58 89 9)															
5P δ BHC (319 86 8)															
6P Chlordane (57 74 9)															
7P 4 4 DDT (50 29 3)															
8P 4 4 DDE (72 55 9)															
9P 4 4 DDD (72 54 8)															
10P Dieldrin (60 57 1)															
11P α Endosulfan (115 29 7)															
12P β Endosulfan (115 29 7)															
13P Endosulfan Sulfate (1031 07 8)															
14P Endrin (72 20 8)															
15P Endrin Aldehyde (7421 93 4)															
16P Heptachlor (76 44 8)															

CONTINUE ON PAGE V 9

SA 038070

EPA I.D. NUMBER (copy from Item 1 of Form 1) | OUTFALL NUMBER: 002

Form Approved OMB No. 158-R0173

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK X: a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT: a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (if available) (2) MASS	d. NO. OF ANALYSES	4. UNITS: a. CONCENTRATION	4. UNITS: b. MASS	5. INTAKE (optional): a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	5. INTAKE (optional): a. LONG TERM AVERAGE VALUE (2) MASS	5. INTAKE (optional): b. NO. OF ANALYSES
GC/MS FRACTION - PESTICIDES (continued)															
17P Heptachlor (76-44-8)															
18P PCB-1242 (53469-21-9)															
19P PCB-1254 (11097-69-1)															
20P PCB-1221 (11104-28-2)															
21P PCB-1232 (11141-16-5)															
22P PCB-1248 (12672-29-6)															
23P PCB-1260 (11096-82-5)															
24P PCB-1016 (12674-11-2)															
25P Toxaphene (8001-35-2)															

SA 838871

Please print or type in the unshaded areas only
(fill-in areas are spaced for elite type, i.e. 12 characters/inch)

Form Approved OMB No. 158-R0175

FORM 1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER: F D

LABEL ITEMS

I. EPA I.D. NUMBER

III. FACILITY NAME

V. FACILITY MAILING ADDRESS

VI. FACILITY LOCATION

PLEASE PLACE LABEL IN THIS SPACE

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent (*the area to the left of the label space lists the information that should appear*), please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete items I, III, V, and VI (except VI-B which *must be completed regardless*). Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS. Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold-faced terms.

SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACHED	SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACHED
A. Is this facility a publicly owned treatment works which results in a discharge to waters of the U.S.? (FORM 2A)		X		B. Does or will this facility (*either existing or proposed*) include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S.? (FORM 2B)		X	
C. Is this a facility which currently results in discharges to waters of the U.S. other than those described in A or B above? (FORM 2C)	X			D. Is this a proposed facility (*other than those described in A or B above*) which will result in a discharge to waters of the U.S.? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3)		X		F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X		H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X		J. Is this facility a proposed stationary source which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X	

III. NAME OF FACILITY

1 SKIP: ALLIED PAPER INCORPORATED BRYANT MILL

IV. FACILITY CONTACT

A. NAME & TITLE (last, first, & title)	B. PHONE (area code & no.)
2 STOEFFLER U G MANAGER	616 345 7131

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX			
3 2030 PORTAGE ST			
B. CITY OR TOWN	**C. STATE**	**D. ZIP CODE**	
4 KALAMAZOO	MI	49001	

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER			
5 2030 PORTAGE ST BRYANT MILL			
B. COUNTY NAME			
KALAMAZOO			
C. CITY OR TOWN	**D. STATE**	**E. ZIP CODE**	**F. COUNTY CODE (if known)**
6 KALAMAZOO	MI	49001	

EPA Form 3510-1 (6-80)

CONTINUE ON REVERSE

SA 038872

CONTINUED FROM THE FRONT

VII. SIC CODES (4-digit, in order of priority)

A. FIRST	B. SECOND
2621 (specify) Manufacture of Paper	(specify)
C. THIRD	**D. FOURTH**
(specify)	(specify)

VIII. OPERATOR INFORMATION

A. NAME: ALLIED PAPER INC

B. Is the name listed in Item VIII-A also the owner? ☒ YES ☐ NO

C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.): P

F = FEDERAL; M = PUBLIC (other than federal or state); S = STATE; O = OTHER (specify); P = PRIVATE

D. PHONE (area code & no.): A

E. STREET OR P.O. BOX: 2300 PORTAGE ST

F. CITY OR TOWN: KALAMAZOO

G. STATE: MI

H. ZIP CODE: 49001

IX. INDIAN LAND

Is the facility located on Indian lands? ☐ YES ☒ NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water)	D. PSD (Air Emissions from Proposed Sources)
9 N MI0000779	9 P
B. UIC (Underground Injection of Fluids)	**E. OTHER** (specify)
9 U	9 (specify)
C. RCRA (Hazardous Wastes)	**E. OTHER** (specify)
9 R	9 (specify)

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS (provide a brief description)

Manufacture of paper from purchased pulp and other purchased raw materials

XIII. CERTIFICATION (see instructions)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print)	B. SIGNATURE	C. DATE SIGNED
T. E. Flanagan Vice President Operations	T E Flanagan	12-15-81

COMMENTS FOR OFFICIAL USE ONLY

C

EPA Form 3510-1 (6-80) REVERSE

SA 038073

NPDES Permit Reissuance

M10000779

ALLIED PAPER, INC.
BRYANT MILL

93-776

0001789

SA 008908

666888 HS

0001790

KALAMAZOO RIVER IS A WATER QUALITY LIMITED RIVER.

WATER QUALITY STANDARD FOR D.O.:

- 4 mg/L minimum
- 5 mg/L average

0001791

SA 008910

		BPT		Proposed	
		MO. AVG.	DAILY MAX.	Permit Daily Max.	% of BPT Avg
BOD lb/day	MAY-OCT	2217	4277	389	18%
	NOV-APRIL	2217	4277	836	38%

(TSS LIMITATIONS ARE SIMILAR)

118800 SR 0001792

PRIMARY ISSUE

- ARE PROPOSED PERMIT LIMITS NECESSARY TO MEET WATER QUALITY STANDARDS IN KALAMAZOO RIVER

Summer. yes.
Winter: BPT [illegible]

0001793

SA 008912

MAY 1972 - WRC CONFERENCE

- COURCHAINE SPEAKS ABOUT DNR COMPUTATIONS
- 385 lb/day BOD LIMIT FIRST MENTIONED
- REQUIRED TO MAINTAIN 5mg/L D.O. IN PORTAGE CREEK

T

0001794

SA 008913

MID - 1974

- DRAFT NPDES PERMIT ISSUED
- 385 lb/day BOD SUMMER LIMIT
- 770 lb/day BOD WINTER LIMIT

0001795

5H 008914

AUGUST 1974 - LETTER FROM DNR TO EPA RE: DRAFT PERMITS

- WINTER/SUMMER RATIO FOR DISCHARGERS TO KALAMAZOO RIVER IS 2.7
- ALLIED DISCHARGE TO PORTAGE CR.
- ALLIED WINTER LIMIT BASED ON 35 lb BOD/cfs - 770 lb/day (770/385 = 2.0)

0001796

SH 008915

0083916 SH

0001797

DECEMBER 1974 - NPDES PERMIT ISSUED

- SUMMER BOD LIMIT 389 lb BOD/day max.
- WINTER BOD LIMIT 500 lb BOD/day avg.
  770 lb BOD/day max.

216880 HS

0001795

FEBRUARY 1975 - LETTER FROM ZOLLNER TO STOEFFLER

- DOCUMENTATION OF COMPUTATIONS
- BASED ON SIMPLE PROGRAM USING VARIATION OF STREETER-PHELPS
- 385 lb. BOD/day BASED ON 7Q10/ SUMMER TEMP/BRYANT MILL POND
- IF BRYANT MILL POND REMOVED- 560 lb/day LIMIT RECOMMENDED
- INCREASED BOD LIMITS IF FLOW IN PORTAGE CREEK HIGHER
- AT 650 lb BOD/day, KALAMAZOO RIVER BECOMES LIMITING

1976-KALAMAZOO RIVER MODELLING STUDY

- 389 lb/day LIMIT FOR ALLIED USED AS A "GIVEN" IN MODELLING OF KALAMAZOO RIVER

818800 HS 083918

0001799

1976 - BRYANT MILL POND REMOVED

- ALLIED REQUESTS SUMMER BOD LIMIT RAISED TO 560 lb/day

0001300

SA 008919

JAN 1980 ?
17 DEC 1980

1978- DNR TURNS DOWN REQUEST FOR BOD INCREASE

- D.O. SAG IN KALAMAZOO RIVER NEAR PORTAGE CREEK CLAIMED

0001801

SA 008920

1975 TO PRESENT - ONGOING D.O. MEASUREMENTS IN PORTAGE CREEK

- D.O. DURING WINTER MONTHS = 6-12

0001802

SA 008921

OCTOBER 1982 - DNR WATER QUALITY SURVEY IN KALAMAZOO RIVEI

- BOD LOADS = 2.3 × CURRENT WINTER DISCHARGE LIMITS
- FLOW ROUGHLY 2 × 7Q10
- MINIMUM D.O. FOUND = 4.8 mg/L
- ALL WATER QUALITY STANDARDS MET

0001803

SA 008922

JULY 1983 – DNR MODELS KALAMAZOO RIVER UNDER WINTER CONDITIONS

- FLOW = 7Q10 (IS ACTUALLY EXCEEDED APPROXIMATELY 98 PERCENT OF TIME)
- TEMP = 17°C (10° C MORE APPROPRIATE)
- ALL DISCHARGERS AT BPT BOD LIMITS
- ALL WATER QUALITY GOALS EXCEEDED (MIN. D.O. > 5)

0001804

SA 008923

SH 008924

FEBRUARY 1984 – DRAFT PERMIT ISSUED FOR PUBLIC COMMENT

0001805

BOD lb/day	MO. AVERAGE	DAILY MAX.
MAY-SEPT.	—	389
OCT.	612	1181
NOV.-APRIL	2217	4277

0001806

MAY 2, 1984 - LETTER FROM MDNR TO ALLIED

~~OBJECTS~~ POINTED OUT THAT

- EPA ~~VETOES~~ INCREASE IN BOD DUE TO ANTI-BACKSLIDING POLICY (40 CFR 122.44)
- DRAFT PERMIT LIMITATIONS CHANGED BACK TO OLD STANDARDS

MAY 31, 1984 - LETTER FROM ALLIED TO MDNR

- FORMALIZED REQUEST FOR DRAFT PERMIT MODIFICATION (BACK TO INCREASED LIMITS)
- REQUEST IN ACCORDANCE WITH 40 CFR 122.62
  - ALTERATIONS - INCREASED MILL PRODUCTION
  - NEW INFORMATION - OCT. 1982 SURVEY (JULY 1983 MODELING)
  - NEW WISCONSIN REGULATIONS N.A. in MICHIGAN (WISCONSIN RULES)
    - WISCONSIN EXPERIENCE ALONG FOX & WISCONSIN RIVERS

VALID POINT
PERMIT ISSUED 12-74
NEW INFO FROM
SURVEY OF 1976
CONFIRMED, 1982.

000180

SA 008927

MAY 31, 1984 - LETTER FROM ALLIED TO MDNR (CONTINUED)

- NEW Wisconsin REGULATIONS (CONT'D)
  - FLOW/TEMP/CLUSTER VARIABLE PERMITS
  - CONCEPTS NOT IN USE IN 1974 WHEN LIMITS ESTABLISHED
- CORRECT MISTAKES

Proposed Rule (not promulgated).

  - STRINGENT WINTER LIMITS NOT NECESSARY
  - LIMITS ORIG. SET FOR PORTAGE CR., NOT THE KALAMAZOO RIVER
  - CURRENT PERMIT DISCRIMINATOR

SA 008928

0001805

JUNE 1984 – MEETINGS BETWEEN DNR AND ALLIED

- ALLIED ADVISED THAT EPA VETO (?) NO LONGER LIMITING FACTOR
- WRC RULES 1090 & 1098 INVOKED
- STAFF INTERPRETATIONS PRECLUDE PERMIT MODIFICATION

(1) RC MAKES DECISIONS ON RULES 1090 & 1098 (BASED UPON STAFF RECOMMENDATION)

SH 008929

DNR STAFF INTERPRETATIONS OF RULES 1090 AND 1098

- IF WATER QUALITY LIMITED, MUST BE CONSIDERED AS SUCH YEAR ROUND, EVEN IF LIMITATIONS OCCUR ONLY IN A SINGLE SEASON

- IF QUALITY IMPROVES THROUGH ENFORCEMENT OF LIMITS, ANTIDEGRADATION WILL BE JUDGED AGAINST THE NEW QUALITY

- EVEN IF WATER QUALITY BASED LIMITS ARE MORE RESTRICTIVE THAN NECESSARY. THEY CAN NEVER BE RELAXED

0001811

SH 008930

(CONTINUED)

DNR STAFF INTERPRETATIONS OF RULES 1090 & 1098

- IF TREATMENT FACILITIES INSTALLED, THEY MUST BE EFFICIENTLY OPERATED FOREVER, REGARDLESS OF COST OR NECESSITY

True in concept

- PERMITS MUST BE BASED ON 7Q10 FLOW YEAR ROUND (BUT WE DO NOT DO THIS)

- RULES DO NOT PERMIT SEASONAL/FLOW, TEMP VARIATIONS

F.

0001812

SH 008931

ALLIED'S INTERPRETATION

WATER RESOURCES COMMISSION RULES 1075, 1090, 1098

- SEASONAL TEMPERATURE VARIATIONS RECOGNIZED
- WATER QUALITY STANDARDS APPLY TO FLOWS ≥ 7Q10
- LIMITATIONS ARE TO BE DESIGNED TO MEET WATER QUALITY STANDARDS
- NONDEGRADATION POLICY DOES NOT APPLY TO KALAMAZOO RIVER
- RULES DO NOT PRECLUDE PERMIT MODIFICATIO
- RULES DO NOT PRECLUDE SEASONAL/

005932 HS
0001813

WHY WE ARE HERE

- HISTORY OF ALLIED'S EFFORTS TO DATE
- ALL DATA POINTS TOWARD THE LIMITS THAT WERE PROPOSED BY STAFF IN FEBRUARY DRAFT PERMIT
- STAFF REPORTED EPA VETOED? FEBRUARY PROPOSED LIMITS 40 CFR 122.44
- ALLIED REQUESTED MODIFICATION BE CONSIDERED IN ACCORDANCE WITH 40 CFR 122.62 : NOT ANSWERED
- STAFF RELIES INSTEAD (PRESUMABLY) ON INTERPRETATION OF RULES

0001814

SH 008933

(CONTINUED)
WHY WE ARE HERE

- ALLIED CLAIMS INTERPRETATIONS ARE INCONSISTENT WITH RULES, STATUTES AND PRACTICE

OPINION

- PRESENTLY PROPOSED LIMITS ARE TOO HARSH, BURDENSOME, NOT NECESSARY, EXCEED AUTHORITY OF DNR
- POLICY CONSIDERATIONS

0001815

SH 088934

OUR REQUEST

- INSTRUCT DNR STAFF (WITH OUR ASSISTANCE) TO PROCESS REQUESTED MODIFICATION WITH EPA
- IF EPA WILL WITHDRAW ITS OBJECTIONS, REINSTATE THE FEBRUARY DRAFT LIMITS
- ALTERNATIVE: IF PROPOSED PERMIT IS APPROVED, WE RESPECTFULLY RESERVE THE RIGHT TO PETITION FOR REVIEW OF PERMIT LIMITS

0001816

SA 008935

Very truly yours,

U.G. Stoeffler, Manager
Process Development

cc: E.J. Gilman, Vice President of Manufacturing
R.M. Levy, Vice President of Research & Development

UGS:bm

November 24, 1971

Mr. Chet Harvey
Basin Engineer
Water Resources Commission
4056 Plainfield, N.E.
Grand Rapids, Michigan 49505

Dear Chet,

This letter will confirm our telephone conversation of some time ago regarding Allied Paper's program this past summer to reduce the odor and the decanting water from our sludge drying lagoons north of Cork Street.

Following our conversation about the decanting tubes early in the spring, we did in fact analyze the decanting water for B.O.D. over a period of several weeks. We found that the concentration did increase to about 1200 ppm but that the total B.O.D. going to the creek from these sources was still small as compared to the variation in B.O.D. from day to day in our clarifier effluent. However, Mr. Gilman instructed our man responsible for the maintenance of the lagoons and clarifier to purchase and install gasoline engine driven pumps and aluminum irrigation tubes so that we could pump the water from the low end of the drying lagoon back into the Bryant clarifier. We ran these pumps eight hours a day for most of the summer and early fall.

To reduce the odor from the drying lagoons, we employed a two pronged program this summer and early fall. We purchased an old 3000 gallon stainless steel tank truck on which we installed a gasoline engine driven high pressure pump and a long steel boom equipped with nozzles. This rig was used daily to spray lime on the drying lagoons according to a set pattern. In addition to the lime treatment, we regularly used an odor masking chemical from Drew Chemical Company. This chemical, Drewscent, was selected as the best of several that we tried last summer before. In addition to using this chemical, we tried several masking chemicals from another supplier and also made a short trial on an enzyme. By our own observation and analysis, and also by sampling of the neighbor's opinions adjacent to our sludge beds, the program this summer has been the best in reducing the odor from our sludge beds. We are pleased by the results and the acceptance of our neighbors.

We hope that these programs will convince you that we will now merit the "A" rating for the Monarch clarifier in the Wastewater Control Status Report for 1971.

000383

92-2292

April 18, 1968

City of Kalamazoo
241 W. South
Kalamazoo, Michigan

Attn: Mr. Donald Swets
Director, Public Works

Dear Don:

The following is the data that you requested. These are averages for the first 13 weeks of 1968 based on 5 daily test determinations per week of our Bryant clarifier effluent.

Flow	1,000,000 gals.
Suspended Solids	886 lbs.
Solubles	8463 lbs.
5 day BOD	2023 lbs.
Fiber	0
Volatiles	42%

We appreciate your help as well as Len's and Cley's in our discussions.

Very truly yours,

J. G. Stoeffler, Manager
Process Development

/deo
cc E. J. Gilman
bcc R. Willie

000706

92-2273

November 23, 1966

Mr. Robert J. Courchaine
Water Resources Commission
200 Mill Street
Lansing, Michigan 48913

Dear Mr. Courchaine:

Thank you very much for your letter of November 22, 1966 summarizing the results of your visit with us on November 9, 1966.

I am puzzled about the statement in your letter that the B.O.D. from the Bryant Mill ranges from 8,200 to 19,500 pounds.

Actually, the Bryant B.O.D. per day during the three week period we discussed ranged from a low of 4,000 lbs. to a high of 14,200 lbs., and the latter figure should be discounted because of the special trial involving Guar Gum which was being used at that time.

We are looking forward to the opportunity of your running a waste survey at our mills, and splitting our samples with you for a comparison of laboratory results.

Yours truly,

ALLIED PAPER CORPORATION

E. J. Gilman
Vice President, Manufacturing

EJG:dlk

bc: E. Klimczak
R. Levy
U. Stoeffler

000428

MICHIGAN DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION BUREAU
POINT SOURCE STUDIES SECTION

Report of an
Industrial Wastewater Survey
Conducted at
ALLIED PAPER, INC.
All Outfalls No. 390222
Kalamazoo County
Kalamazoo, Michigan
July 18-19, 1977

Survey Summary

Wastewater monitoring was performed during one twenty-four hour survey period starting Monday, July 18, 1977.

The results of this survey did not meet the final limitations in the facility's National Pollutant Discharge Elimination System (NPDES) Permit, No. MI0000779. The BOD_5 loading from outfall 390006 (002) was from 11 percent to 23 percent over limitations specified in the permit (Table 3).

Comparison of the results from the composite sample split between the company and the Environmental Protection Bureau (EPB) Laboratory show EPB concentrations higher for all parameters measured, except for settleable solids on outfall 002 (Table 4).

Comparison of the results of this survey with the survey performed on August 16-18, 1976 show that flow has decreased and TOC has increased slightly. (Table 5)

Underdrainage of the sludge disposal area, which is not covered in the permit, continues to discharge into Portage Creek (Table 1).

Survey Comments

Samples were collected from the Bryant clarifier discharge to the City of *Kalamazoo sanitary sewer system (Table 1).*

Purpose of Survey

The purpose of the survey was to determine the quality and quantity of wastewater being discharged by Allied Paper, Inc., to Portage Creek and to check for compliance with the NPDES Permit No. MI0000779.

93-433
dup

Plant Processes

Allied Paper, Inc. operates two mills in Kalamazoo. The Monarch Mill utilizes two Fourdrinier paper machines to produce bible paper and carbon tissue for "one time" carbon paper. The Bryant Mill also produces bible paper and other specialty papers using five Fourdrinier paper machines. All the machines were in operation during the survey (Figure 1).

Under normal production 275 tons of paper products can be produced a day. Pulp utilized at both mills has previously been treated in the Kraft process at other locations.

Both mills together employ approximately 475 people. The mills operate on a 5 or 6 day a week schedule depending on demand. The week previous to the survey the mills operated for 6 days. Production when the mills are operating is 24 hours a day.

Water, Wastewater & Treatment

Process water used at both the Monarch and Bryant Mills is obtained from Portage Creek. Water for the Monarch Mill is obtained upstream from the Monarch Dam and water for the Bryant Mill is obtained across from Cork Street. Water for both mills is passed through sand filters prior to its use.

Wastewater generated at both mills is treated as depicted in Figure 2. Wastewater received at the 110-foot circular Bryant clarifier originates from the excess white water and from the zeolite and lime soda ash softening process used for boiler feed water. Treatment provided at the Bryant clarifier consists of settling with the effluent going to either the City of Kalamazoo treatment system or the Monarch clarifier. The split of the flow depends on how much additional loading can be placed on the Monarch clarifier without exceeding its discharge limitations into Portage Creek.

Wastewater loadings on the 90-foot circular Monarch clarifier, in addition to the flows from the Bryant clarifier, are excess white water and zeolite waste from the boiler feed water system. Alum and a coagulation agent are added in the Monarch clarifier to increase settling characteristics. The effluent from the clarifier discharges to Portage Creek through outfall 390006 (002).

Sludge from both clarifiers is disposed of on plant property across Portage Creek from the Monarch clarifier. The sand filter backwash from the Bryant Mill is discharged directly to Portage Creek. This discharge is not covered in the NPDES Permit.

Potable water for both mills is obtained from the City of Kalamazoo. Domestic wastewater is discharged into the city's treatment system.

MDNR 003949

Underdrainage from the sludge disposal area was observed being discharged into Portage Creek upstream from the Bryant Mill intake. Flow during the survey was monitored and results of samples collected are included in Table 1.

Survey Procedures

The flows and composite samples were obtained as follows:

Outfall	Flow Measurement	Sampling
390006 (002)	49" full channel weir - company installed. Stevens flow recorder.	Automatic air activated.
Sludge leachate	60° v-notch weir - staff installed. Stevens flow recorder.	Automatic scoop type.
Bryant Mill discharge to City	46-3/4" rectangular weir w/end contractions - company installed. Stevens Flow Recorder.	Automatic air activated.

The water level recorders at 002, sludge leachate and at the Bryant Mill discharge to the city sewer provided a continuous account of the liquid level or head above the crest of each weir on a head versus time graph for the duration of the survey period. The total volume of wastewater over each weir during the survey period was computed from the graph.

The samplers at the sludge leachate obtained samples proportional to the instantaneous flow over the weir at a timed interval.

Individual grab samples were collected from each of the three outfalls for selected physical and chemical analyses.

The following formula was used to compute the kilograms per day of various wastewater constituents discharged: kg/day = flow (M^3/d) x conc. (mg/l) x 0.001.

The composite and grab samples were analyzed by the Environmental Protection Bureau Laboratories located in Lansing.

All samples were preserved according to Table 6. The results of the physical and chemical analyses are presented in Tables 1 & 2.

Allied Paper, Inc.

Table 1 Analyses of composite samples.

Outfalls		390006 (002)			Sludge Leachate		Bryant Mill Clarifier to City Sewer	
Survey Period	From	7-18-77 - 1150			7-18-77 - 1225		7-18-77 - 1240	
	To	7-19-77 - 1150			7-19-77 - 1225		7-19-77 - 1240	
Computed flow rate* (M^3/day)		11,500			74		8,800	
Highest flow rate (M^3/day)		20,700 @ 2315			130 @ 2330		16,400 @ 2258	
Lowest flow rate (M^3/day)		7,300 @ 0608			44 @ 1612		450 @ 0344	
		mg/l	kg/day		mg/l	kg/day	mg/l	kg/day
5-day BOD		19	220		< 5	--	100	880
COD		22	250		13	0.96	52	460
T.O.C.		12	140		--	--	--	--
Color (C.U.)		7	--		11	--	21	--
Turbidity (F.T.U.)		17	--		17	--	290	--
Suspended solids		7	80		32	2.4	69	610
Dissolved solids		470	5,400		420	31	580	5,100
Settleable solids		--	--		29	2.1	26	230
Phenols		< 0.00001	--		0.00003	0.000002	0.00004	0.0004
		ug/l			ug/l		ug/l	
PCB 1242		< 0.1	--		< 0.1	--	< 0.1	--
PCB 1254		< 0.1	--		< 0.1	--	< 0.1	--
PCB 1260		< 0.1	--		< 0.1	--	< 0.1	--

* Flow rates used in the computation of kg/day.
To obtain MGD multiply M^3/day by 0.000264
To obtain lbs/day multiply kg/day by 2.2046

MDNR 003941

Table 2 Analyses of grab samples.

Date	Time	Temp.[1] °C	pH[1] S.U.	Oil & Grease mg/l	BOD mg/l	Suspended solids mg/l	Settleable solids mg/l	D.O. mg/l
390006								
7-18-77	2145	32	6.6	3	13	15	--	5.4
7-19-77	0710	31	6.9	2.5	15	4	--	5.6
Sludge Leachate								
7-18-77	2200	17	7.3	--	< 5	12	--	--
7-19-77	0750	16	7.4	--	< 5	7	--	--
Bryant Discharge to City								
7-18-77	2230	33	6.7	--	120	78	25	--
7-19-77	0800	35.5	6.8	--	140	74	5	--

1 - Values determined in the field at time of sampling.

Table 3 Comparison of survey results with the facility's NPDES Permit and monthly operating report.

Parameter (Unit)	NPDES Permit Final Limitations		July Monthly Operating Report				Survey Results[1]
	Daily Average	Daily Maximum	Monthly Average	Monthly Maximum	7-18-77	7-19-77	
390006 (002)							min. max.
Flow (M^3/day)	--	--	9,710	17,195	10,708	8,941	11,500* (10,400, 12,300
BOD_5 (kg/day)	--	177	138	334	64	79	220 (200, 230)
(mg/l)	--	--	--	--	--	--	19 (13, 15)
Total susp. sol. (kg/day)	--	230	127	380	21	170	80
(mg/l)	--	--	--	--	--	--	7 (15, 4)
Settleable solids (kg/day)	--	--	--	--	--	--	--
(mg/l)	--	--	0.04	0.05	0.05	0.05	--
Oil & Grease (mg/l)	--	--	--	--	--	--	(3, 2.5)
pH (S.U.)	not <6.5 nor >9.5		--	7.4 min. 6.5	6.9	6.8	(6.6, 6.9)

* Company reports flows for the same time span as 10,400 M^3/day.
1 - Survey results are for the composite sample. Grab sample ranges are shown in parantheses ( ).
To obtain MGD multiply M^3/day by 0.000264 To obtain lbs/day multiply kg/day by 2.2046

Table 4 Comparison of the laboratory analytical results obtained by the Allied Paper, Inc. and the Environmental Protection Bureau from the split composite samples.

Outfall	390006 (002)		Sludge		Bryant Mill Discharge to City	
	E.P.B. mg/l	Allied Paper mg/l	E.P.B. mg/l	Allied Paper mg/l	E.P.B. mg/l	Allied Paper mg/l
5-day BOD	19	7.6	< 5	--	100	62
Suspended solids	7	2.0	32	18.0	69	42
Settleable solids	--	0 *	29	0.05 *	26	0.05 *

* Values reported as ml/l.

Table 5 Comparison of the previous survey results with the results obtained in this survey at Allied Paper, Inc.

Outfall	390006		390006		390006	
Survey Date From	8-16-76 - 1300		8-17-76 - 1335		7-18-77 - 1150	
To	8-17-76 - 1330		8-18-76 - 1335		7-19-77 - 1150	
Flow Rate (M^3/day)	13,800		16,200		11,500	
	mg/l	kg/day	mg/l	kg/day	mg/l	kg/day
5-day BOD	14	200	17	270	19	220
COD	20	270	21	340	22	250
T.O.C.	8.7	120	9.7	160	12	140
Suspended solids	6	90	2	32	7	80
Dissolved solids	468	6,450	448	7,260	470	5,400
Phenols	0.68	8.2	0.45	7.3	< 0.00001	--

Table 6 Sample Preservation

Parameter	Preservative
COD & TOC	10 drops H_2SO_4/250 ml (to pH <2).
D.O.	Fixed on site.
Oil & Grease	1 ml 1:1 H_2SO_4/250 ml (to pH <4).
Phenolics	2 ml 10% $CuSO_4$ + H_3PO_4 (to pH 4)/250 ml.

All samples cooled to 4°C upon collection.

Survey by: Gary Boersen, Sanitary Engineer
Larry Elmleaf, Water Quality Investigator
Richard Irvin, General Foreman

Contact with Management: U.G. Stoeffler

Hydrocarbon Analyses by: Tom Wilcox, Chemist

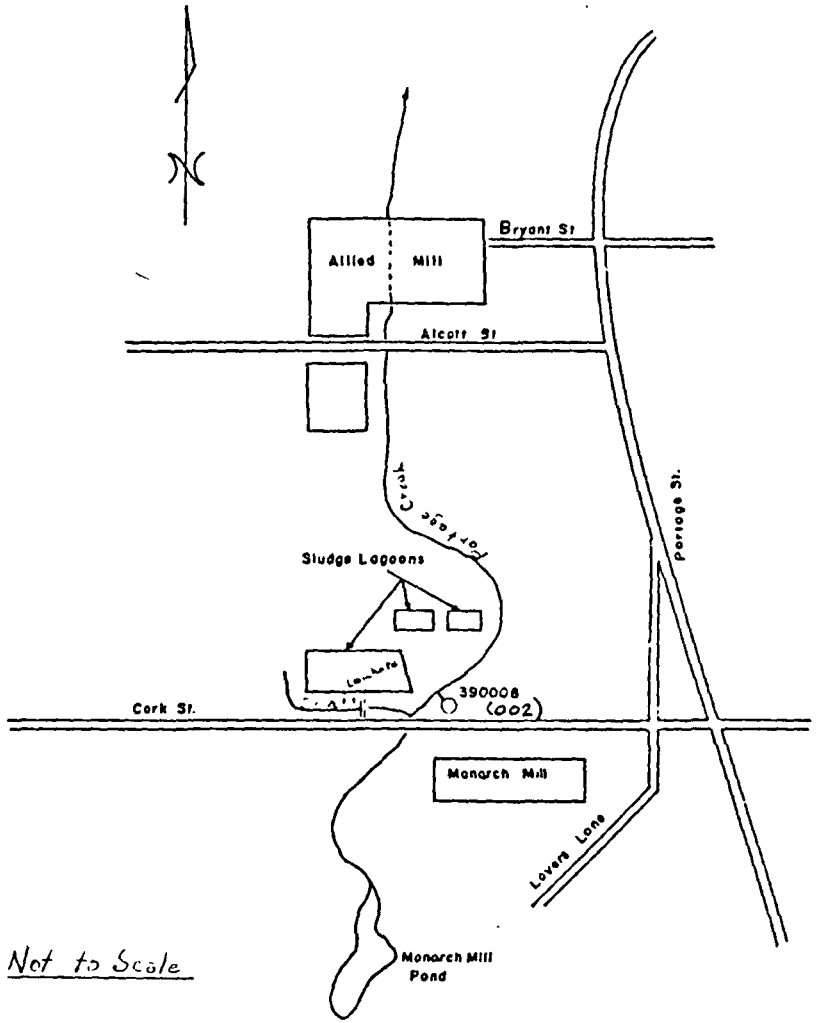
Physical & Chemical Analyses by: Ray Wimmer, Chemist

Report by: Gary Boersen
Larry Elmleaf
Point Source Studies Section
Environmental Services Division
Environmental Protection Bureau
Michigan Department of Natural Resources

Distribution "A"
MH

FIGURE. 1

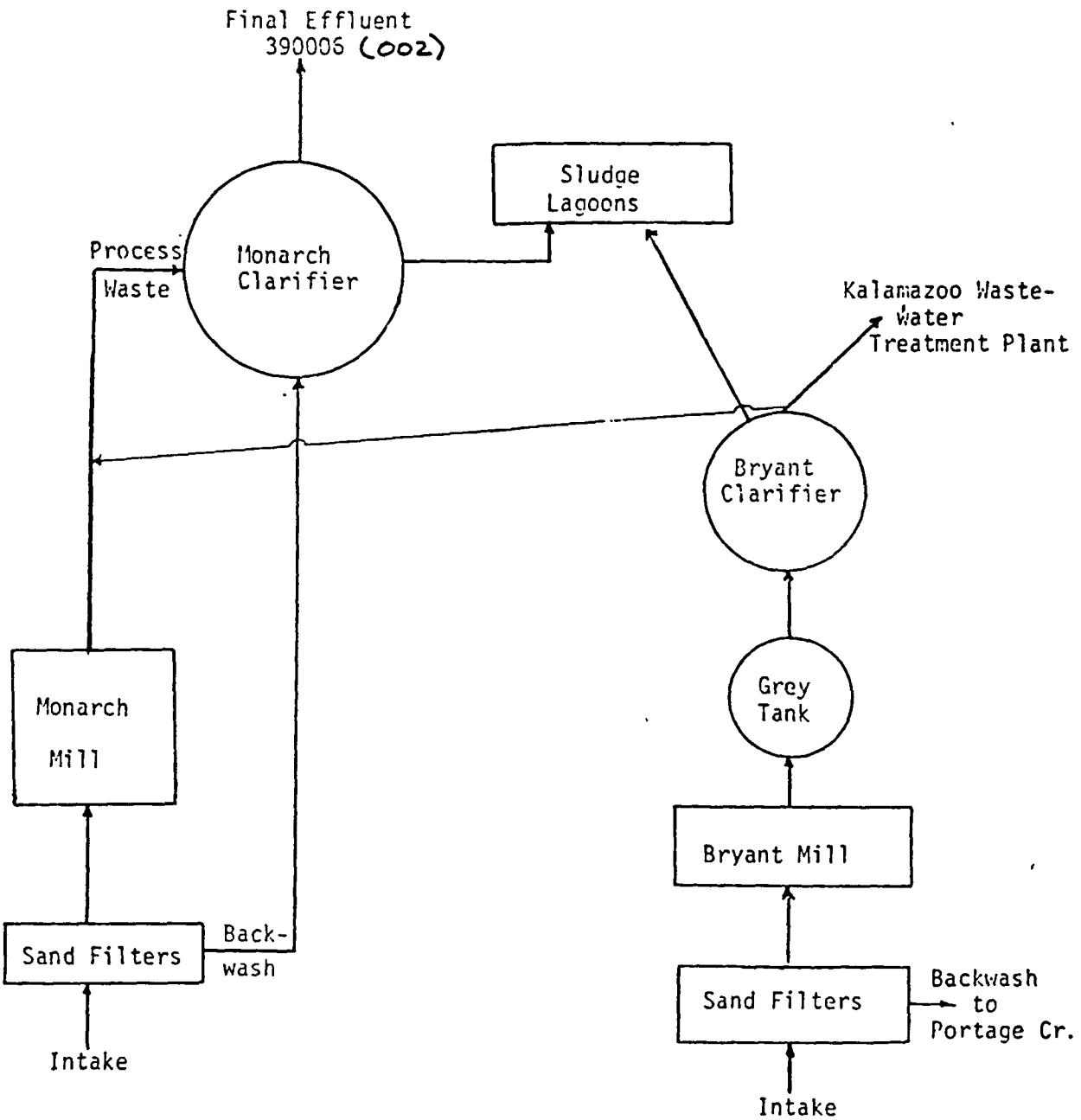
ALLIED PAPER MILLS
KALAMAZOO



Not to Scale

MDNR 003943

Figure 2 Allied Paper Incorporated, Kalamazoo Mills



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MICHIGAN DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION BUREAU
POINT SOURCE STUDIES SECTION

Report of an
Industrial Wastewater Survey
Conducted at
ALLIED PAPER, INC.
MONARCH MILL
Kalamazoo County
Kalamazoo, Michigan
August 16-18, 1976

Survey Summary

Wastewater monitoring was performed during two twenty-four hour survey periods starting Monday, August 16, 1976.

The results of this survey met the initial limitations in the facility's National Pollutant Discharge Elimination System (NPDES) Permit, No. MI0000779 (Table 3).

Comparison of survey results with the company's August 1976 monthly operating report indicates the survey was representative of plant performance for the month of August (Table 3).

Composite samples from the two 24-hour surveys were split with the company for analysis in their laboratory. The company's BOD results compare well with the Environmental Protection Bureau laboratory results. Company's results for suspended solids and settleable solids were lower than EPB results (Table 4).

Comparison of the results of this survey with results of the May 1975 survey show a reduction in the concentration of most parameters while the flow increased by about 0.9 MGD (Table 5).

Leachate from the company's sludge lagoons is entering a ditch and flowing into Portage Creek. This leachate was sampled after it combined with the ditch flow (Figure 1).

The leachate had a concentration of 1242 PCB of 0.4 ug/l.

Survey Comments

This company appears to be reporting settleable solids in grams per liter.

Purpose of Survey

The purpose of the survey was to determine the quality and quantity of wastewater being discharged by Allied Paper, Inc., Monarch Mill, to Portage Creek and to check for compliance with the NPDES Permit No. MI0000779.

This survey was conducted in conjunction with an intensive water quality study of the Kalamazoo River conducted by the Comprehensive Studies Section.

Plant Processes

Allied Paper, Inc. currently operates two mills in Kalamazoo, the Monarch Mill and the Bryant Mill (Figure 1). A third mill, the King Mill, is no longer in operation.

A total of 275 tons of paper products are produced at the mills under normal production. Both mills use virgin pulp in a standard papermaking operation.

The Monarch Mill utilizes two Fourdrinier paper machines to produce bible paper and carbon tissue for "one-time" carbon paper. Both machines were operating during the survey.

The Bryant Mill produces bible paper and other specialty papers using five Fourdrinier paper machines. One of the machines was out of service at the beginning of the survey.

The mills employ about 475 people. Both mills were shut down during the weekend prior to the survey, but production had resumed on the first day of the survey. Production is on a twenty-four hour a day basis, averaging six days per week.

Water, Wastewater and Treatment

Potable water for the mills is obtained from the City of Kalamazoo. Domestic wastewater is discharged to the Kalamazoo Wastewater Treatment System. Process water for the Monarch Mill is obtained from Portage Creek upstream of the Monarch dam and is treated using sand filters before being used in the mill. Process water for the Bryant Mill is obtained from Portage Creek near Cork Street and is also passed through sand filters prior to use.

A 90-foot circular clarifier at the Monarch Mill and a 110-foot circular clarifier at the Bryant Mill are used to treat process wastewater. All process wastewater from the Monarch Mill, consisting mainly of excess white water-paper machines, goes directly to the Monarch clarifier. Backwash water from the sand filters at the Monarch Mill is also discharged to the Monarch clarifier.

The Bryant clarifier receives a portion of the process waste from the Bryant Mill along with wastes from the zeolite and lime-soda ash softeners. The Bryant clarifier discharges to the Kalamazoo Wastewater Treatment System. The remainder of the flow from the Bryant Mill is then diverted to the Monarch clarifier for treatment.

Alum and a coagulation agent are added to the Monarch clarifier to increase settling and flocculation. The effluent from the clarifier discharges to

MDNR 003992

Portage Creek through outfall 390006. The sludge from the clarifier is disposed of on plant property across Portage Creek (Figure 2).

Sand filter backwash from the Bryant Mill's water system is discharged directly to Portage Creek. This discharge is not covered in the NPDES permit.

Leachate from this sludge disposal area was observed to be flowing into a ditch and eventually to Portage Creek, just upstream of the company's intake. The water was very dark at the beginning of the survey, however the company applied a large dosage of lime causing it to clear up. Results of samples collected from the sludge leachate are included in the tables.

Survey Procedure

The survey crew utilized a company constructed 48-inch full channel weir for flow measurement and proportional sample collection on outfall 390006 (002), the wastewater discharge from the company's clarifier. The survey crew constructed a 60-degree vee-notch weir on the sludge leachate.

Each weir was equipped with a water level recorder and an automatic sampler; scoop-type on sludge leachate and air-activated on 390006 (002). The water level recorder provided a continuous account of the liquid level or head above the crest of each weir on a head versus time graph for the duration of each survey period. The total volume of wastewater over each weir during the survey period was computed from the graph. The automatic scoop-type and air-activated samplers obtained samples proportional to the instantaneous flow over each weir at 5-minute intervals. These individual samples were deposited in a clean container to make up a composite sample representative of the total flow over each weir during the survey period.

A series of individual grab samples were collected from outfalls 390006 (002) and sludge leachate for selected physical, chemical and bacteriological analyses.

All samples collected were preserved according to Table 6.

The composite and grab samples were transported to the Environmental Protection Bureau laboratory located in Lansing for selected quantitative physical and chemical analyses. The following formula was used to compute the pounds per day of various wastewater constituents discharged:

lbs/day = flow (mgd) x conc. (mg/l) x unit weight of water (8.34 lbs/gal).

The bacteria samples were transported to the Michigan Department of Public Health, Bureau of Laboratories located in Lansing for selected quantitative bacteriological analyses.

The results of the physical, chemical and bacteriological analyses are presented in Tables 1 and 2.

Table 1 Quantitative analyses of the two 24-hour composite samples collected from Allied Paper, Inc., Monarch Mill discharge, 390006 (002) and sludge leachate, to Portage Creek to determine the concentration of the wastewater constituents present in the samples, plus the computed pounds per day (lbs/day) of these constituents being discharged. Also noted are the highest and lowest flow rates recorded during the respective survey periods.

Outfall		390006 (002)	
Survey Period	From	8-16-76 - 1300	8-17-76 - 1335
	To	8-17-76 - 1330	8-18-76 - 1335
Computed flow rate (mgd) *		3.64	4.28
Highest flow rate (mgd)		4.33 - 1510-8/16	4.67 - 1420-8/17
Lowest flow rate (mgd)		2.9 - 1620-8/16	2.25 - 0950-8/18
pH (S.U.)		7.3	6.9

	mg/l	lbs/day	mg/l	lbs/day
5-day BOD	14	430	17	600
20-day BOD	20	600	21	750
COD	20	600	30	1,100
T.O.C.	8.7	260	9.7	350
Suspended solids	6	200	2	70
Dissolved solids	468	14,200	448	16,000
Orthophosphate-P	< 0.01	--	0.01	0.4
Total phosphorus-P	0.02	0.6	0.06	2
Nitrite & nitrate nitrogen-N	0.49	15	0.66	24
Ammonia nitrogen-N	0.02	0.6	0.01	0.4
Organic nitrogen-N	0.25	8	0.72	26
Chlorides (Cl)	38	1,200	33	1,200
Sulfates (SO_4)	140	4,300	130	4,600
Phenols	0.68	18	0.45	16
Color (Pt. Co.)	3	--	2	--
Turbidity (F.T.U.)	16	--	8.0	--

	ug/l
1242 PCB **	< 0.1
1254 PCB **	< 0.1
1260 PCB **	< 0.1

* Flow rates used in the computation of lbs/day.
** PCB samples were composited over 48 hours.

Table 1 (continued)

Outfall		Sludge Leachate	
Survey Period From		8-16-76 - 1410	8-17-76 - 1415
To		8-17-76 - 1410	8-18-76 - 1415
Computed flow rate (mgd) *		0.03①	0.03①
pH (S.U.)		8.4	10.6
	mg/l	lbs/day	mg/l	lbs/day
5-day BOD	11	2.8	9	2.3
20-day BOD	13	3.3	11	2.8
COD	32	8.0	29	7.3
Suspended solids	535	130	280	70
Dissolved solids	324	80	224	60
Settleable solids	491	120	--	--
Orthophosphate-P	0.02	0.01	< 0.01	--
Total phosphorus-P	0.21	0.05	0.05	0.01
Nitrite & nitrate nitrogen-N	0.04	0.01	0.06	0.02
Ammonia nitrogen-N	0.39	0.1	0.49	0.1
Organic nitrogen-N	0.35	0.09	0.41	0.1
Chlorides (Cl^-)	24	6	26	7
Sulfates (SO_4)	96	20	72	20
Phenols	0.15	0.04	0.08	0.02
Color (Pt. Co.)	--	--	7	--
Turbidity (F.T.U.)	--	--	92	--
	ug/l			
1242-PCB **	0.40			
1254 PCB **	< 0.1			
1260 PCB **	< 0.1			

* Flow rates used in the computation of lbs/day.
** PCB samples were composited over 48 hours.
① - Flow was constant over survey period.

Table 2 Quantitative analyses of grab samples collected from Allied Paper, Inc., Monarch Mill discharges, 390006 (OC and leachate, to Portage Creek to determine concentrations of select physical, chemical and bacteriological constituents present in the wastewater.

Date	Time	Flow[1] MGD	Temp.[2] °C	pH[2] S.U.	Oil & Grease mg/l	BOD_5 mg/l	Susp. solids mg/l	Settle. solids mg/l	Ortho-phosphate mg/l	Total phos-phorus mg/l	Nitrite & nitrate nitrogen mg/l	Ammonia nitrogen mg/l	Organic nitrogen mg/l
390006 (002)													
8-16-76	2115	3.72	25	6.9	1	16	21	13	< 0.01	0.03	0.53	0.06	0.26
8-17-76	0820	3.6	24.5	7.0	< 1	--	4	--	< 0.01	0.01	0.42	0.02	0.21
8-17-76	2130	4.6	27	7.3	2	--	6	--	< 0.01	0.01	0.69	0.04	0.67
8-18-76	1335	4.0	26	6.9	2	24	12	--	< 0.01	0.02	0.78	0.04	0.62
Sludge Leachate													
8-16-76	2055	0.03	15	7.4	--	16	--	--	0.21	0.29	0.01	0.07	0.63
8-17-76	0800	0.03	12.5	7.3	--	--	--	--	0.20	0.28	0.01	0.14	0.56
8-17-76	2115	0.03	15	11.8	--	--	--	--	< 0.01	0.04	0.07	0.50	0.32
8-18-76	1400	0.03	14.5	10	--	9	--	--	0.01	0.07	0.02	0.50	0.37

		Fecal Coliform cts/100 ml	Fecal Strep. cts/100 ml	Temperature °C
390006 (002)				
8-16-76	1300	30	< 10	21.5
8-16-76	2115	160	< 10	25
8-17-76	0820	50	< 10	24.5
8-17-76	2130	< 10	--	27
8-18-76	0840	60	--	--
8-18-76	1335	70	--	26
Geometric Mean		50		
Sludge Leachate				
8-16-76	1410	430	800	12.5
8-16-76	2055	210	790	15
8-17-76	0600	230	570	12.5
8-17-76	2115	< 10	--	15
8-18-76	0855	< 10	--	--
8-18-76	1400	10	--	14.5
Geometric Mean		50	700	

1 - Flow at time of grab sampling.
2 - Values determined in the field at time of sampling.

MDNR 003909

Survey by:	Dennis Bittner, Sanitary Engineer William Long, Water Quality Investigator Richard Irvin, General Foreman
Contact with Management:	U. G. Stoeffler
Hydrocarbon Analyses by:	Tom Wilcox, Chemist
Physical & Chemical Analyses by:	Ray Wimmer, Chemist
Bacteriological Analyses by:	Michigan Department of Public Health Bureau of Laboratories
Report by:	Dennis Bittner William Long Point Source Studies Section Environmental Services Division Environmental Protection Bureau Michigan Department of Natural Resources

Distribution "A"
MM

FIGURE. 1

ALLIED PAPER MILLS
KALAMAZOO

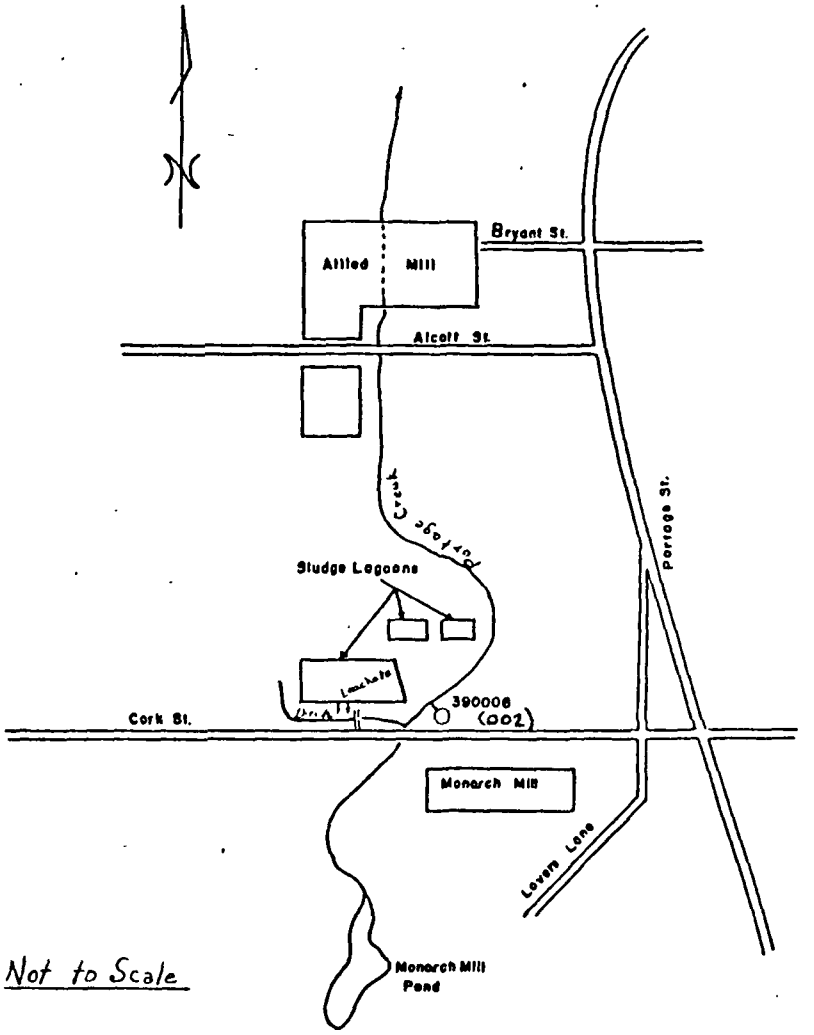

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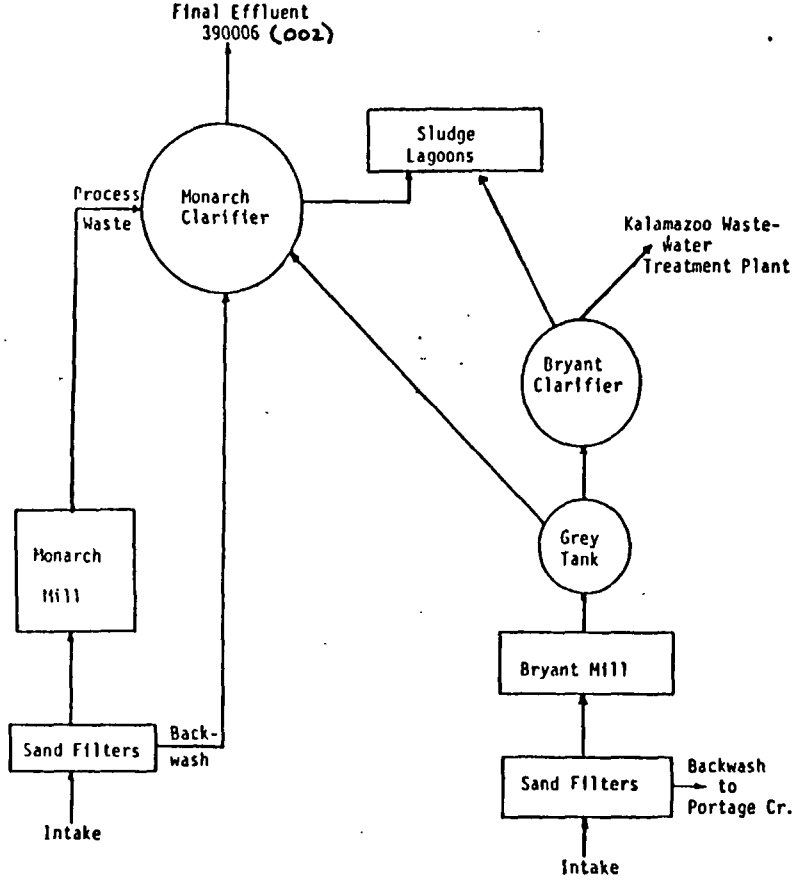
Figure 2 Allied Paper Incorporated, Kalamazoo Mills



MDNR 883912

93-1528

WATER QUALITY STUDIES OF PORTAGE CREEK IN KALAMAZOO COUNTY 1968 AND 1970

STORAGE

Michigan Water Resources Commission

Bureau of Water Management

Department of Natural Resources

State of Michigan

May 1972

0000723

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S000725

INTRODUCTION

The Michigan Water Resources Commission adopted quality standards for inland waters on January 4, 1968. A portion of these standards designate the particular use or uses for which a stream or lake sector will be protected. The intent of the standards program is both to protect existing desirable use and to improve the quality of water where it does not now support desirable use consistent with Michigan Act 245, Public Acts of 1929, as amended.

Portage Creek, a tributary of the Kalamazoo River, has been degraded by industrial wastes as it passed through the cities of Portage and Kalamazoo. Improvements and changes in wastewater treatment at various industries have recently improved water quality in Portage Creek.

Intensive water quality surveys of the lower three miles of Portage Creek were conducted in the summers of 1968 and 1970. The purpose of these studies was to determine the quantity and strength of waste discharges to the creek and to determine the severity of chemical, physical, and bacteriological degradation caused by these waste discharges. This data was then used to determine the additonal restrictions necessary to adequately protect the designated uses of Portage Creek. In addition to restrictions intended to protect existing use designations, calculations were also made to determine restrictions if the use designations of the creek from Cork Street in Kalamazoo to its mouth were upgraded from the existing Warm Water Tolerant Fish use designation to a Warm Water Intolerant Fish use designation.

S000726

SUMMARY

1. Portage Creek has had a history of water quality degradation from industrial waste discharges. These have affected not only the entire reach of the creek below these discharges, but have also added to degradation of the Kalamazoo River

2. Changes in wastewater treatment practices at the Upjohn Company and the Georg Pacific Corporation Paper Converted Products Plant protect the water quality of t upper portions of Portage Creek to satisfactory levels. Improvements and changes wastewater treatment at the Allied Paper Corporation Monarch and Bryant Mills and the Cadillac Plastic and Chemcial Company have recently improved water quality in lower portion of Portage Creek.

3. Water quality investigations of the lower portion of the stream were conducted in August 1968 and in September 1970. Data indicated severe water quality degradation in 1968 for the entire reach of Portage Creek below the Allied Paper Corporation (Cork Street to the mouth). In contrast, in 1970, after deinking and chlorine bleach wastes were diverted to the City of Kalamazoo sewerage system, the water quality in Portage Creek substantially improved.

4. Except for the Bryant millpond, the water quality of Portage Creek in September 1970 was satisfactory to meet the criteria of Michigan's Intrastate Water Quality Standards for the designated uses of Portage Creek. Dissolved oxygen concentrations in the millpond were not adequate to protect current designated uses.

5. To adequately maintain dissolved oxygen concentrations at specified (10 - year recurrence of minimum low flow of 7 - day duration) drought flow conditions, it will be necessary to reduce the discharge of biochemical oxygen demanding substances from the Allied Paper Corporation.

6. Upgrading of the existing Warm Water Tolerant Fish use designation to a Warm Water Intolerant Fish use designation would require even more substantial reductions in discharges of biochemical oxygen demanding substances.

5000727

BASIN DESCRIPTION

Portage Creek is a small tributary of the Kalamazoo River, draining approximately 55 square miles of Texas Township, the City of Portage and the City of Kalamazoo. Its headwaters are in eastern, central Texas Township, in the Gourdneck State Game Area. The creek flows east into Portage, passing through Hampton Lake, and then flows north into Kalamazoo. The West Fork of Portage Creek has its headwaters in Scouters Pond, located in the center of Texas Township. It flows northeast, passing through Atwater Millpond and Limekiln Lake, and then east, roughly paralleling the Portage - Kalamazoo boundary, until it joins Portage Creek just inside Kalamazoo. This portion of the Creek passes through residential areas and parks. Upstream from Cork Street and also upstream from Alcott Street low head dams form small impoundments, the Monarch millpond and the Bryant millpond. Industrial development is found along this portion of the creek. From Reed Avenue to East Walnut Street the creek continues north through residential, commercial, and park areas within Kalamazoo. The last three quarters of a mile of Portage Creek passes through a basically industrial area. It joins the Kalamazoo River just east of the central business district of Kalamazoo. (See Figure 1).

DESIGNATED USES OF PORTAGE CREEK

Intrastate Water Quality Standards, intended to protect and enhance the quality of Michigan's inland waters, were adopted by the Water Resources Commission on January 4, 1968. The standards include specific limits on water quality parameters and desiganted water uses to be protected in particular lakes and reaches of streams and rivers. Where multiple use classifications exist, the most restrictive limits on parameters apply. Water which does not meet the standards at all stream flows equal to or exceeding the 10-year recurrence of minimum low flow of 7-day duration will be improved to meet the standards.

6000729

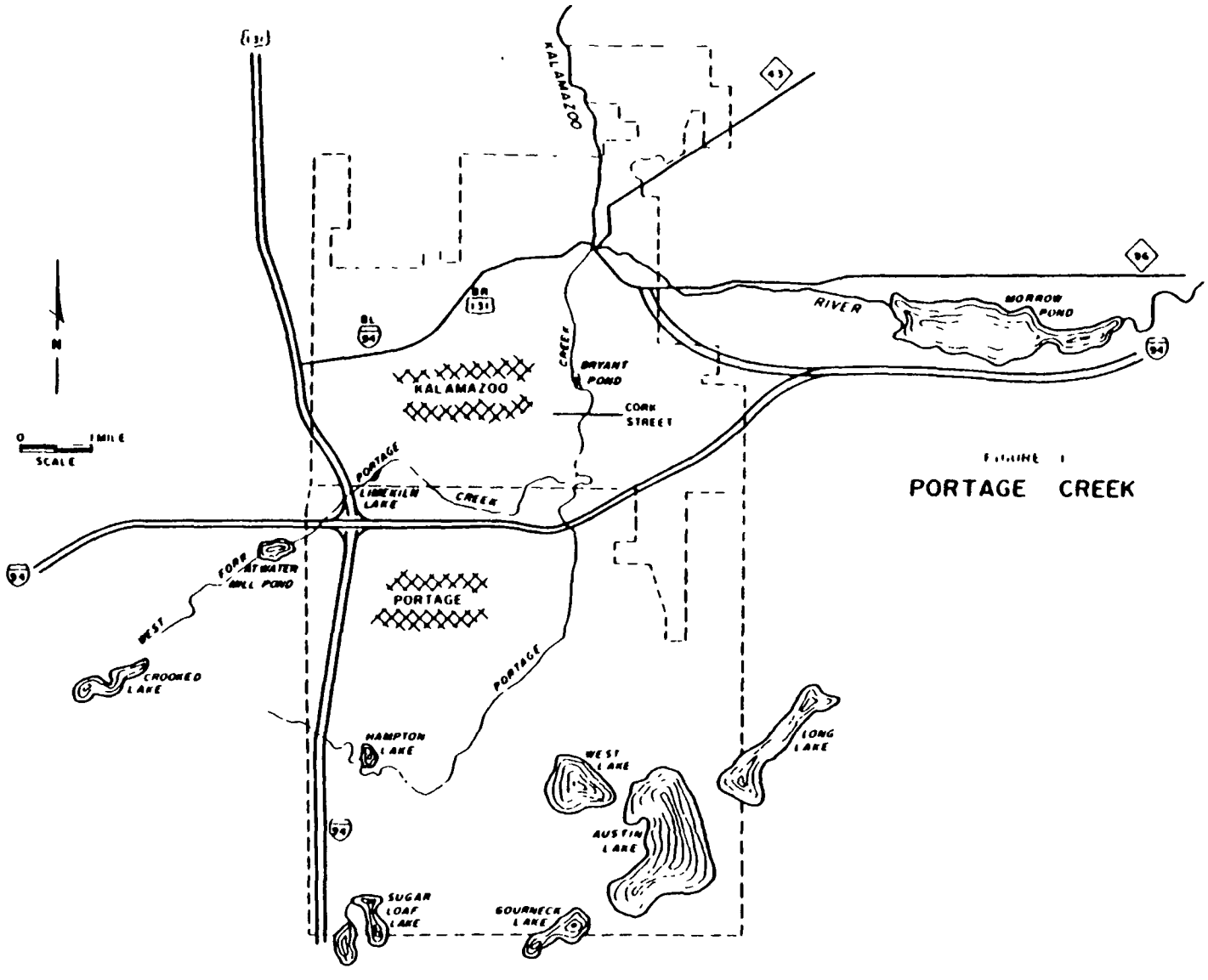

FIGURE 1

PORTAGE CREEK

The presently adopted uses for various reaches of Portage Creek are:

Industrial Water Supply - (manufacturing processes other than food processing) - Entire creek.

Recreation - Partial Body Contact - (hunting, fishing, boating, etc.) - Entire creek.

Fish, Wildlife, and Other Aquatic Life - Intolerant Fish, Warmwater Species - (bass, pike, panfish, etc.) - Entire creek upstream from Cork Street in Kalamazoo.

Fish, Wildlife, and Other Aquatic Life - Tolerant Fish, Warmwater Species - (carp, bullheads, etc.) - Entire creek downstream from Cork Street in Kalamazoo to its confluence with the Kalamazoo River.

Agricultural - (irrigation, stock watering, etc.) - Entire creek.

The Tolerant Fish, Warm-Water Species use designation for the lower portion of the stream will apply only until January 1974 by which time the waste disposal situations involved are to have been placed before the Water Resources Commission for critical reconsideration, with a view toward the application of higher quality use designations.

The limits on specific water quality parameters for various designated uses are shown in Table 1.

WASTE DISCHARGES TO PORTAGE CREEK

Upjohn Company

This large pharmaceutical firm is located in Portage. Since 1954 certain strong wastes from antibiotics manufacture have been pretreated and injected into the Traverse and Monroe underground formations by two deep wells located on the company's property. The Water Resources Commission by Order of Determination requires that the quantities injected not exceed 300,000 gallons per day (gpd); that casing head pressures not exceed 1,250 pounds per square inch; and that the company report to the Commission at least once every six months showing quantities of waste disposal, waste injection pressures, pH of the waste, and any unusual conditions which develop in the underground waste disposal program. Solvents and certain other organic compounds are incinerated.

Sanitary and less concentrated process wastes were given secondary treatment in trickling filters, disinfected, and the final effluent was discharged to Portage Creek. In June, 1967 these liquid wastes were connected to the City of Kalamazoo sewerage system, thus eliminating this discharge to Portage Creek.

A portion of their cooling and storm water is still discharged to Portage Creek. The quantity of cooling water and its temperature, are determined daily by the company and monthly operating reports, containing this information, are sent to the Bureau of Water Management. For the last half of 1971, the average

[illegible] WATERS IN WHICH THE EXISTING QUALITY IS BETTER THAN THE ESTABLISHED STANDARDS IN THE DATE WHEN [illegible] BE LOWERED IN QUALITY BY ACTION OF THE WATER RESOURCES COMMISSION UNLESS AND UNTIL IT HAS [illegible] AFFIRMATIVELY DEMONSTRATED TO THE MICHIGAN WATER RESOURCES COMMISSION THAT THE CHANGE IN QUALITY WILL NOT BE INJURIOUS TO THE PUBLIC HEALTH, SAFETY OR WELFARE, OR BECOME INJURIOUS TO DOMESTIC, COMMERCIAL, INDUSTRIAL, AGRICULTURAL, RECREATIONAL OR OTHER USES WHICH ARE BEING MADE OF SUCH WATERS OR BECOME INJURIOUS TO THE VALUE OR [illegible] OR BECOME INJURIOUS TO [illegible] WILD ANIMALS, [illegible] FISH, AQUATIC LIFE OR PLANTS OR [illegible] OR [illegible] THEREBY BE PREVENTED OR [illegible] AFFECTED OR [illegible] THE VALUE OF FISH AND [illegible] OR DESTROYED OR IMPAIRED AND THAT SUCH LOWERING IN QUALITY WILL NOT BE UNREASONABLE AND AGAINST PUBLIC INTEREST [illegible] THE EXISTING CONDITIONS IN ANY INTRASTATE WATERS OF MICHIGAN

WATER WHICH DOES NOT MEET THE STANDARDS WILL BE IMPROVED TO MEET THE STANDARDS

WATER

PARAMETERS / USES	1 COLIFORM GROUP (organisms 100ml or mPa)	2 DISSOLVED OXYGEN (mg/l)	3 SUSPENDED, COLLOIDAL & SETTLEABLE MATERIALS	4 RESIDUES (Debris and material of unnatural origin and oils)	5 TOXIC & DELETERIOUS SUBSTANCES
ER SUPPLY MESTIC as drinking, [illegible] and food [illegible].	The monthly geometric average shall not exceed 5000 nor shall 20% of the samples examined exceed 5000, nor exceed 20 000 in more than 5% of the samples	Present at all times in sufficient quantities to prevent nuisance	No objectionable unnatural turbidity, color, or deposits in quantities sufficient to interfere with the designated use	Floating solids: None of unnatural origin Residues: No evidence of such material except of natural origin. No visible film of oil, gasoline or related materials. No globules of grease	Conform to current USPHS Drinking Water Standards except Cyanide: Normally not detectable with a maximum upper limit of 0.2 mg/l Chromium: Normally not detectable with a maximum upper limit of 0.05 mg/l Phenol: Limitations as defined under A-8
USTRIAL as cooling, manufacturing [illegible].	The geometric average of any series of 10 consecutive samples shall not exceed 5000 nor shall 20% of the samples examined exceed 10 000. The fecal coliform geometric average for the same 10 consecutive samples shall not exceed 1000	Present at all times in sufficient quantities to prevent nuisance	No objectionable unnatural turbidity, color, or deposits in quantities sufficient to interfere with the designated use	Floating solids: None of unnatural origin Residues: No evidence of such material except of natural origin. No visible film of oil, gasoline or related materials. No globules of grease	Limited to concentrations less than those which are or may become injurious to the designated use
REATION AL BODY NTACT as swimming, skiing and skin [illegible].	The geometric average of any series of 10 consecutive samples shall not exceed 1000 nor shall 20% of the samples examined exceed 5 000. The fecal coliform geometric average for the same 10 consecutive samples shall not exceed 100	Present at all times in sufficient quantities to prevent nuisance.	No objectionable unnatural turbidity, color, or deposits in quantities sufficient to interfere with the designated use	Floating solids: None of unnatural origin Residues: No evidence of such material except of natural origin. No visible film of oil, gasoline or related materials. No globules of grease	Limited to concentrations less than those which are or may become injurious to the designated use
TIAL BODY CONTACT as fishing, [illegible], trapping, [illegible]	The geometric average of any series of 10 consecutive samples shall not exceed 5000 nor shall 20% of the samples examined exceed 10 000. The fecal coliform geometric average for the same 10 consecutive samples shall not exceed 1000	Present at all times in sufficient quantities to prevent nuisance	No objectionable unnatural turbidity, color, or deposits in quantities sufficient to interfere with the designated use	Floating solids: None of unnatural origin Residues: No evidence of such material except of natural origin. No visible film of oil, gasoline or related materials. No globules of grease	Limited to concentrations less than those which are or may become injurious to the designated use
WILDLIFE OTHER ATIC LIFE [illegible] and propagation)	The geometric average of any series of 10 consecutive samples shall not exceed 5000 nor shall 20% of the samples examined exceed 10 000. The fecal coliform geometric average for the same 10 consecutive samples shall not exceed 1000	At the average low flow of 7-day duration expected to occur once in 10 years the following DO values shall be maintained in rivers capable of supporting: Intolerant fish, coldwater species (trout, salmon) - Not less than 6 at any time. Intolerant fish, warmwater species (bass, pike, pan-fish) - Average daily DO not less than 5, nor shall any single value be less than 4. Tolerant fish (carp, bullheads) - Average daily DO not less than 4 nor shall any single value be less than 3. Principal anadromous fish migrations in warmwater rivers - Not less than 5 during migrations. At greater flows the DO shall be in excess of these values. For lakes see discussion, page 25 Not less than 5 at any time	No objectionable unnatural turbidity, color, or deposits in quantities sufficient to interfere with the designated use	Floating solids: None of unnatural origin Residues: No evidence of such material except of natural origin. No visible film of oil, gasoline or related materials. No globules of grease	Not to exceed 1/10 of the 96-hour median tolerance limit obtained from continuous flow bioassays where the dilution water and toxicant are continuously renewed except that other application factors may be used in specific cases when justified on the basis of available evidence and approved by the appropriate agency
CULTURAL [illegible] livestock, [illegible] irrigation, [illegible]	The geometric average of any series of 10 consecutive samples shall not exceed 5000 nor shall 20% of the samples examined exceed 10 000. The fecal coliform geometric average for the same 10 consecutive samples shall not exceed 1000		No objectionable unnatural turbidity, color, or deposits in quantities sufficient to interfere with the designated use	Floating solids: None of unnatural origin Residues: No evidence of such material except of natural origin. No visible film of oil, gasoline or related materials. No globules of grease	Conform to current USPHS Drinking Water Standards as related to toxicants. Toxic and deleterious substances shall be less than those which are or may become injurious to the designated use
ERCIAL OTHER [illegible]	The geometric average of any series of 10 consecutive samples shall not exceed 5000 nor shall 20% of the samples examined exceed 10 000. The fecal coliform geometric average for the same 10 consecutive samples shall not exceed 1000	Average daily not less than 2.5, nor any single value less than 2	No objectionable unnatural turbidity, color, or deposits in quantities sufficient to interfere with the designated use	Floating solids: None of unnatural origin Residues: No evidence of such material except of natural origin. No visible film of oil, gasoline or related materials. No globules of grease	Limited to concentrations less than those which are or may become injurious to the designated use

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TABLE I

QUALITY STANDARDS

6 TOTAL DISSOLVED SOLIDS	7 NUTRIENTS	8 TASTE & ODOR PRODUCING SUBSTANCES	9 TEMPERATURE (°F)	10 HYDROGEN ION (pH)	11 RADIOACTIVE MATERIALS
[illegible]	Nutrients or algal growth stimulating substances from municipal or domestic or agricultural sources shall be limited to the extent necessary to prevent nuisance growths of algae, weeds and slimes which are or may become offensive or which are or may become injurious to the designated uses.	Concentrations of substances of unnatural origin shall be less than those which are or may become offensive to the designated use. Monthly average phenol concentration not to exceed 0.001 mg/l. Maximum concentration not to exceed 0.005 mg/l for a single sample.	The maximum natural water temperature shall not be increased by more than 1°F.	pH shall not have an unnatural variation greater than 0.5 pH unit as a result of unnatural sources.	Gross beta activity (in the absence of alpha emitters) not to exceed 1000 picocuries per liter. Average annual concentration of Sr-90 not to exceed 8 picocuries per liter. Average annual concentration of Ra-226 not to exceed 3 picocuries per liter. Concentrations of other radioactive materials not to exceed the maximum permissible concentrations recommended by the International Commission on Radiological Protection.
Not to exceed 500 mg/l. The monthly average shall not exceed 750 mg/l at any time. The chloride content shall not exceed 125 mg/l.	Nutrients or algal growth stimulating substances from municipal or domestic or agricultural sources shall be limited to the extent necessary to prevent the stimulation of growths of algae, weeds and slimes which are or may become offensive or which are or may become injurious to the designated use.	Concentrations of substances of unnatural origin shall be less than those which are or may become offensive to the designated use.	The maximum natural water temperature shall not be increased by more than 1°F.	Maintained within the range 6.5 to 8.5 with a maximum induced variation of 0.5 unit within this range.	Standards to be established when information becomes available on deleterious effects.
Limited to concentrations less than those which are or may become offensive to the designated use.	Nutrients or algal growth stimulating substances from municipal or domestic or agricultural sources shall be limited to the extent necessary to prevent the stimulation of growths of algae, weeds and slimes which are or may become offensive or which are or may become injurious to the designated use.	Concentrations of substances of unnatural origin shall be less than those which are or may become offensive to the designated use.	90°F maximum.	Maintained within the range 6.5 to 8.5 with a maximum induced variation of 0.5 unit within this range.	Standards to be established when information becomes available on deleterious effects.
Limited to concentrations less than those which are or may become offensive to the designated use.	Nutrients or algal growth stimulating substances from municipal or domestic or agricultural sources shall be limited to the extent necessary to prevent the stimulation of growths of algae, weeds and slimes which are or may become offensive or which are or may become injurious to the designated use.	Concentrations of substances of unnatural origin shall be less than those which are or may become offensive to the designated use.	90°F maximum.	Maintained within the range 6.5 to 8.5 with a maximum induced variation of 0.5 unit within this range.	Standards to be established when information becomes available on deleterious effects.
Standards to be established when information becomes available on deleterious effects.	Nutrients or algal growth stimulating substances from municipal or domestic or agricultural sources shall be limited to the extent necessary to prevent the stimulation of growths of algae, weeds and slimes which are or may become offensive or which are or may become injurious to the designated use.	Concentrations of substances of unnatural origin shall be less than those which are causing or may cause taint in the flesh of fish or game.	In waters capable of supporting: Salmonid fish (coldwater species of trout): 32° to not more than 70°. Intolerant fish (warmwater species of bass): 32° to 35°, not more than 85°. Tolerant fish (warmwater species of carp): 32° to 59°, not more than 87°. For anadromous fish migrations and rearing areas see discussion, page 29.	Maintained between 6.5 and 8.8 with a maximum artificially induced variation of 1.0 unit within this range. Changes in the pH of natural waters outside these values must be toward neutral (7.0).	Standards to be established when information becomes available on deleterious effects.
Less than 500 mg/l unless a higher chloride concentration can be shown not to cause the formula $\frac{Na \times 100}{sum(cations)}$ when the cations are expressed as milliequivalents per liter.	Nutrients or algal growth stimulating substances from municipal or domestic or agricultural sources shall be limited to the extent necessary to prevent the stimulation of growths of algae, weeds and slimes which are or may become injurious to the designated use. MPN concentrations shall conform to USPHS Drinking Water Standards.	Concentrations of substances of unnatural origin shall be less than those which are or may become injurious to the designated use.	Not applicable.	pH shall not have an induced variation greater than 0.5 unit as a result of unnatural sources.	Gross beta activity (in the absence of alpha emitters) not to exceed 1000 picocuries per liter. Average annual concentration of Sr-90 not to exceed 8 picocuries per liter. Average annual concentration of Ra-226 not to exceed 3 picocuries per liter. Concentrations of other radioactive materials not to exceed the maximum permissible concentrations recommended by the International Commission on Radiological Protection.
Limited to concentrations less than those which are or may become offensive to the designated use.	Nutrients or algal growth stimulating substances from municipal or domestic or agricultural sources shall be limited to the extent necessary to prevent the stimulation of growths of algae, weeds and slimes which are or may become offensive or which are or may become injurious to the designated use.	Concentrations of substances of unnatural origin shall be less than those which are or may become offensive to the designated use.	The maximum natural water temperature shall not be increased by more than 1°F.	pH not to exceed 8.5 within the range 6.5 to 8.0 with a maximum induced variation of 0.5 unit within this range.	Standards to be established when information becomes available on deleterious effects.

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cooling water discharge was 4.7 million gallons per day (mgd) with an average temperature of 19.8° C and a maximum value of 25° C. The quality of this effluent is such that it would not have an adverse affect on Portage Creek. Monthly average, maximum, and minimum flow data for this period are included in Table 1-A, located in Appendix A. The location of this outfall and outfalls of all other companies discussed are shown in Figure 1-A or Appendix A.

Georgia Pacific Corporation, Paper Converted Products Plant

This plant, located in Portage, fabricates corrugated containers. The only liquid wastes from the plant consist of sanitary sewage. These wastes are treated by trickling filters, followed by sand filtration, and chlorination before being discharged to Portage Creek.

The monthly operating reports show the plant discharges a small volume (0.007 mgd average) of high quality effluent with an average 5-day biochemical oxygen demand (BOD) concentration of 1.7 milligrams per liter (mg/l.) and an average suspended solids concentration of 2.9 mg/l. This discharge has no measurable effect on the dissolved oxygen resources of the stream.

Allied Paper Incorporated, Monarch and Bryant Divisions

Two divisions of this paper company are located in the south central part of Kalamazoo. The Monarch Division primarily produces carbon tissue using coniferous unbleached pulp that is brought to the plant site. The Bryant Division produces book paper, commercial printing papers, and coated specialty papers. These are produced from hard and softwood sulphate pulp that is brought to the plant site and, until December 1971, with deinked pulp that was produced at the plant site using waste papers.

Historically, both Divisons have diverted water from Portage Creek for use as process and cooling water and have returned their wastewater to the Creek. The polluting materials in these wastewaters consist of oxygen consuming substances (such as starch and binders) and suspended solids (primarily clay and whiteners). In addition residual chlorine bleach wastes from the manufacture of deinked pulp at the Bryant Division were also discharged to the Creek. All of these materials had an extremely adverse effect on the water quality of Portage Creek, and in turn on the water quality of the Kalamazoo River.

The wastewater treatment and reductions provided at these two plants over the last two decades, and particularly in the last few years, has been significant. In October 1951 the Water Resources Commission adopted an Order of Determination on the Monarch Division which declared their existing waste discharge to be 10,100 pounds of BOD per day and 31,900 pounds of suspended solids per day. It added the restriction that all paper processing wastes other than from the deink pulping operation be restricted to not more than ten pounds of suspended solids per ton of paper produced. This Order became effective after October 1, 1953. A Final Order of Determination was adopted by the Commission against the St. Regis Paper Company (now Allied Paper Bryant Division) which declared their existing waste discharge to be 11,100 pounds of BOD per day and 76,500 pounds of

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suspended solids per day. This Order also contained the provision that all paper processing wastes other than those from the deink pulping operations be restricted to not more than ten pounds of suspended solids per ton of paper produced. This Order became effective after June 1, 1954. Both mills provided waste solids removal or control facilities as required.

In April 1961 the Commission adopted further restrictions on all pap companies in Kalamazoo, Parchment, Plainwell, and Otsego intended to maint a minimum dissolved oxygen (DO) content of 30 percent of the saturation val in the Kalamazoo River from Comstock to Allegan at the once in ten year, thirty day drought flow. The Allied Paper Corporations "share" of the allowable maximum waste discharge was a total of 14,490 pounds of BOD per day from all three of their Divisions: Monarch, Bryant, and King (the King Division clarifier discharged to the Kalamazoo River rather than to Portage Creek). In November 1961 a Stipulation containing this limitation was signed by the company. In September 1963 the company indicated that they would proceed independently to construct the facilities to meet this load limit, rather than joining an area wide treatment system. Ultimately, the company met the restriction by discontinuing deinking operations at the Monarch and King Divisions and modifying deinking operations at the Bryant Division. Inplant improvements also reduced the volume of water use and increased efficiency in reclaiming fiber.

While these measures taken by the Company improved water quality of the Kalamazoo River, it did little to improve the water quality of Portage Creek downstream from the Bryant Division. When Intrastate Water Quality Standards were adopted in January 1968, it became necessary to greatly improve wastewater treatment at the Monarch and Bryant Divisions to meet these standards in Portage Creek.

In March 1968 representatives of the company met with the Water Resources Commission to discuss measures necessary to elevate the water quality to satisfactory levels and at the same time were requested to terminate the frequent bypasses of portions of the untreated wastes from the Bryant Division. To achieve these goals, the company has since taken a number of steps. A twelve inch diameter pipeline was constructed from the Bryant Division mills to the Monarch Division clarifier located near Cork Street. White water from both divisions is settled in this clarifier before the supernatent liquid is discharged to Portage Creek. The settled materials are disposed of in large sludge ponds located between the two mills. A portion of the wastes from the Bryant Division (deinking wastes until December 1971) have been discharged to the City of Kalamazoo sewerage system after receiving treatment in the Bryant clarifier. This diversion to the City's system began in September 1969.

Although the early steps greatly reduced the load of waste materials to Portage Creek, the appearance of the creek below Alcott Street appeared virtually unchanged because of the continued discharge of chlorine bleach water from the Bryant Division deinking operation. To solve this problem the company in February 1970 began pumping this waste to the Monarch clarifier along with the Bryant white water. The same month they also discontinued the use of oxidized or chlorinated starch at the Bryant Division and began adding an anionic coagulant to the Monarch clarifier to improve settling.

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Deinking operations were terminated at the Bryant Division in December 1971. is expected to be permanent. A portion of the Bryant Division whitewater sently being treated in the Bryant clarifier with the final effluent discharged to the Kalamazoo sewerage system.

natent liquid from the sludge ponds is now reportedly pumped to of Kalamazoo sewerage system. This waste was previously discharged tage Creek.

In response to a Bureau of Water Management request to identify and eliminate oil reaching Portage Creek from the Bryant Division, the company took several steps. They prevented some oil from reaching the creek by covering fresh water collection tanks under two of their paper machines, built curbs around certain drains, and built a basement sump to collect the power plants' blowdown water from its hot lime soda softener. They also located a drain line from the coating mill that was contributing much of the oil. All of these wastes were added to the whitewaters being pumped to the Monarch clarifier.

Table 2-A of Appendix A lists the waste loads being discharged to Portage Creek from the two Divisions during 1967, 1968 and 1970 Bureau of Water Management surveys. The improvements in wastewater treatments are very evident in the differences in pre-improvement waste loads (1967 and 1968) and the values found after improvements (1970).

The summation of data submitted in monthly operating reports from May through December 1971 is included in Table 1-A of Appendix A. This data shows that the Monarch clarifier discharged an average of 3.759 mgd. The average BOD load was 1,525 pounds per day and the average suspended solids load was 454 pounds per day.

Cadillac Plastic and Chemical Company, Division of Dayco Corporation

This company, located in Kalamazoo a short distance southeast of the central business district, formulates acrylic plastic. Although some product shaping is done most of the production consists of making extrusion stock for other companies.

On September 15 - 17, 1970 two sets of composite samples were collected from the company's two wastewater outfalls to Portage Creek by the staff of the Bureau of Water Management. Analyses of the samples revealed that the company was discharging oils and chloroform extractable materials in quantities sufficient to cover the surface of Portage Creek and that their effluents also contained substantial quantities of suspended solids and BOD. The majority of all constituents were discharged by the south sewer while the north sewer discharged essentially clear cooling water. The waste loads found during these surveys are listed in Table 3-A of Appendix A.

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Subsequent Commission action resulted in a Stipulation which was adopted at the August 1971 meeting of the Water Resources Commission. The company agreed to the following terms:

1. Commencing July 1, 1972, and continuing thereafter, the Company will treat or control its wastes to the extent that, when discharged to the waters of the state they shall:

   a. Contain not more than thirty-five (35) milligrams per liter of 5-day BOD.

   b. Contain not more than thirty-five (35) milligrams per liter of suspended solids.

   c. Contain not more than ten (10) milligrams per liter of chloroform extractable substances nor create a noticeable oil film on the receiving waters.

   d. Have a pH of not more than 9.5 nor less than 6.5.

   e. Contain no substances in amounts which are or may become injurious to designated uses of Portage Creek and the Kalamazoo River.

2. The Company shall provide facilities capable of treating and controlling its waste discharges as specified in paragraphs 1 (a), 1(b), 1(c), 1(d), and 1(e), above in accordance with the following time schedule:

   a. Submit complete construction plans and specifications for the necessary treatment facilities to the Chief Engineer of the Commission and obtain his approval thereof on or before October 1, 1971.

   b. Award contracts and commence construction of said facilities on or before October 15, 1971.

   c. Complete construction of facilites and place same into continuous operation on or before July 1, 1972.

The Stipulation stated that if the company planned to correct its pollution of Portage Creek and the Kalamazoo River by connecting its process wastes to the City of Kalamazoo sanitary sewerage system, it was to notify the Commission of this intent by July 1, 1971 and complete its connection to the sewerage system by November 1, 1971. The company has selected this means of correcting its problem and the south sewer effluent (the strong wastes) now receives pretreatment and is discharged to the Kalamazoo sanitary sewer system. The company's north sewer effluent is essentially clear, cooling water which meets all of the restrictions of 1(a) through 1(e) of the Stipulation. It will continue to be discharged to Portage Creek. The company must submit monthly operating reports showing the daily quantity, pH, temperature, and oil-grease severity of this discharge.

WATER QUALITY INVESTIGATIONS

The upper portion of Portage Creek is a clear, attractive stream. Water quality is good. In contrast, the lower three miles have had extremely poor water quality.

Water quality investigations of the lower portion of the stream were conducted in August 1968 and in September 1970 to determine the severity of the problem, to establish the relationship between water quality and waste loads, to determine the degree of improvement in water quality resulting from Allied Paper's improved wastewater treatment practices and to determine the extent of further improvements necessary to protect existing or future use designations.

Sampling Procedures

Six sampling stations were selected in 1968 and seven in 1970 to characterize the water quality of the lower portion of Portage Creek. The locations of these stations are shown in Figure 2.

Nine samples were collected at each location during the 24 hours of the 1968 survey and eight samples during the 24 hours of the 1970 survey. The water temperature of each sample was recorded and the DO concentration, BOD concentration and bacteriological density of each sample was determined in the Lansing laboratories of the Bureau of Water Management and the Michigan Department of Public Health. The results of these analyses for the 1968 survey are listed in Table 1-B and for the 1970 survey in Table 2-B of Appendix B.

Composite samples were made for each station, using portions of the individual samples collected during each sampling run. These composite samples were then analyzed for a number of chemical constituents to indicate water quality during each sampling period. The results of the analyses for the 1968 survey are listed in Table 3-B of Appendix B. The results of the analyses for the 1970 survey are listed in Table 4-B of Appendix B. Two sets of composite samples were accumulated at each station during the 1970 survey; the first set consists of samples collected during the first eighteen hours of the survey in dry weather and the second set consists of samples collected during and after a brief, but heavy, thunder shower.

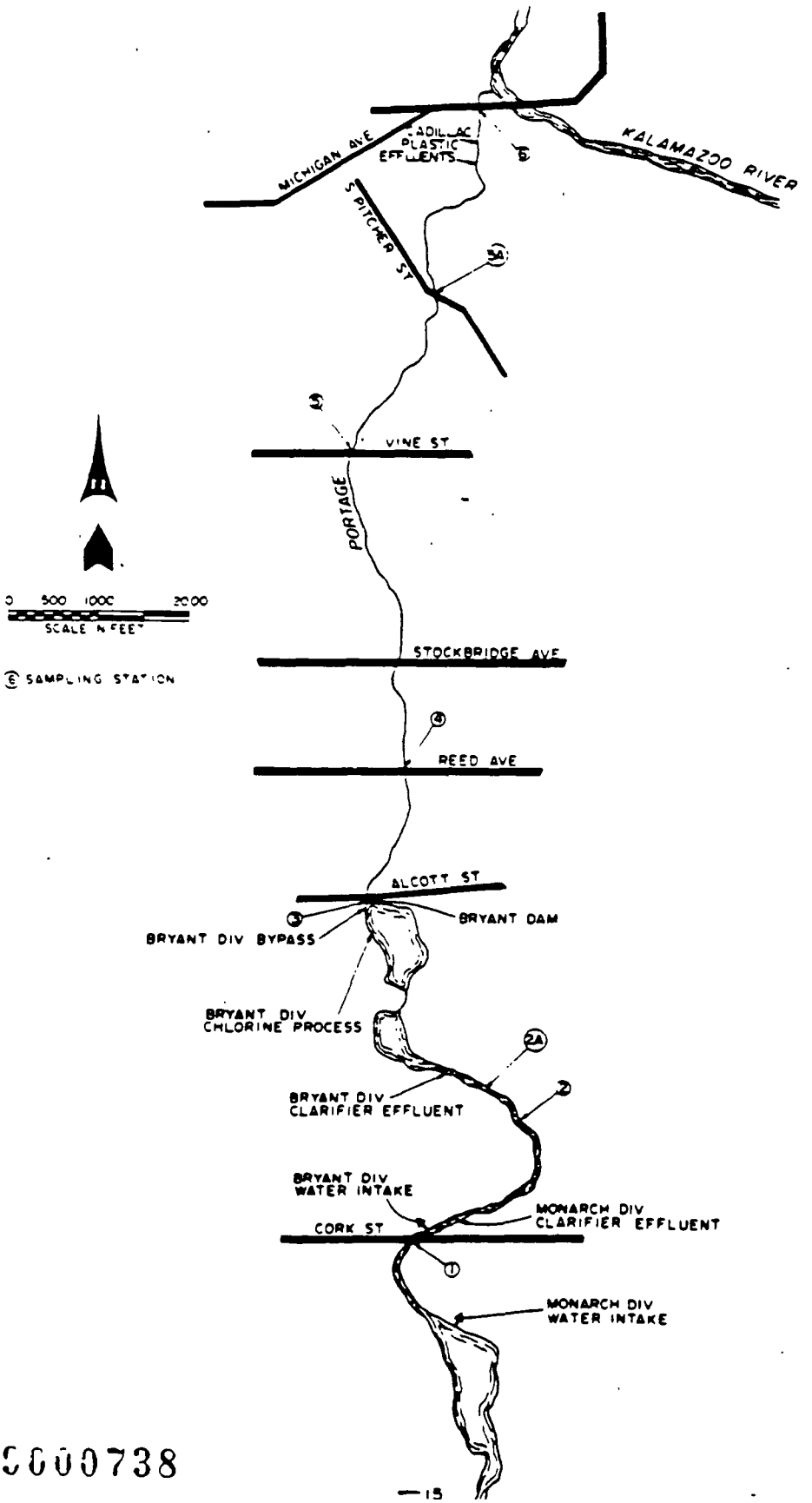
In addition to the two intensive sampling surveys, monthly grab samples were collected prior to Allied Paper's improvements in wastewater treatment. The results of analyses of these samples are listed in Table 5-B.

Physical Appearance

During both investigations, Portage Creek at Cork Street in Kalamazoo was a fast moving, clear stream with a gravel and rock bottom. The Creek was turbid and discolored immediately downstream from the outlet of the Monarch Division clarifier. Sludge deposits were observed on the bottom of the stream between the clarifier outlet and the Bryant Dam.

FIGURE 2

SAMPLING STATION LOCATIONS ON PORTAGE CREEK IN KALAMAZOO 1968 AND 1970 SURVEYS



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In 1968, gas evolution and odors of decomposition were noted in the upper portions of the Bryant millpond and strong chlorine odors were noted near the dam. On occasion, an unsightly grey foam covered portions of the impoundment. The grey, turbid appearance persisted to the Kalamazoo River. Oil was frequently observed downstream from the Bryant Division. Very large quantities of irridescent oil films were usually observed downstream from the Cadillac Plastic and Chemical Company.

In 1970, the appearance of the stream was greatly improved, particularly in the lower reaches. Portage Creek was more turbid below the Monarch clarifier outlet than at Cork Street, however the turbidity had been reduced so that the bottom, which was not visible in 1968, was visible in 1970. Strong odors were not evident. Fish were observed in 1970. Oil was not observed below Allied Paper but was still present near the mouth of the Creek.

Dissolved Oxygen

Sufficient quantities of dissolved oxygen are essential for a healthy stream environment. During both surveys the DO concentrations within the Bryant millpond were not sufficient to even protect the warm tolerant fish use designation. The Intrastate Water Quality Standards state that to protect this use, the average daily DO should not be less than 4 mg/l nor shall any single value be less than 3 mg/l. During the 1968 survey the average DO at the Bryant Dam was only 1.6 mg/l while eight of the nine samples collected had concentration less than 3 mg/l. During the 1970 survey the average concentrations at the Bryant Dam was 4.2 mg/l. However, three of the eight samples collected had concentrations less than 3 mg/l.

The improved 1970 conditions were partially due to the reduced organic waste load discharged by Allied Paper Corporation, Bryant Division and partially due to the fact that water temperatures were lower and stream flows slightly higher in 1970 than in 1968.

The 1968 dissolved oxygen profile is illustrated in Figure 1-B and the 1970 profile in Figure 2-B of Appendix B. In both cases a similar pattern is is found. The high DO concentrations found at Cork Street rapidly dropped after waste effluents were added to the stream and sludge demands exerted their influence in the Bryant millpond. The low point of the profile occurred at the upstream face of the Bryant dam. Marked reaeration occurred as water dropped over the approximately twenty-foot high dam. From the dam to the mouth of Portage Creek, a more gradual decline in DO concentrations occurred.

The greatest depression in DO concentrations occurred in the Bryant millpond because of the reduced water velocities in this reach of Portage Creek. This not only allowed a longer period of time for organic wastes to decompose and utilize available oxygen in the process, but allowed much of the suspended material to settle to the bottom of the impoundment where it added to previously deposited sludge and continued to decompose and utilize oxygen. In addition, supernatent liquid from sludge ponds imposed another source of organic wastes on this reach of the creek.

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Biochemical Oxygen Demand

BOD is a measure of the amount of oxygen required by bacteria and other organisms as they decompose the organic matter present in the water. During both the 1968 and 1970 surveys, concentrations at Cork Street were low, 1.7 mg/l and 2.3 mg/l, respectively. In 1968 concentrations approximately doubled below the Monarch clarifier to 3.2 mg/l while in 1970 they increased sixfold to more than 13.9 mg/l; in 1970 the Monarch clarifier was treating both the Monarch and Bryant Division whitewater. In 1968 the BOD concentrations were much higher downstream from the Bryant Dam. A comparison of average BOD concentrations found during the two surveys is presented graphically in Figure 3-B of Appendix B.

Solids

Total solids, suspended solids and suspended volatile solids all increased significantly below the Allied Paper Corporation in 1968 and 1970. In 1970, however, the majority of the suspended solids and suspended volatile solids found in Portage Creek below the outfall of the Monarch clarifier settled out in the Bryant millpond and did not affect the lower reaches of the stream. A graphical comparison of the 1968 and 1970 solids concentrations is presented in Figure 4-B of Appendix B.

Nutrients

In both 1968 and 1970 the ammonia-nitrogen, nitrate-nitrogen, and soluble ortho-phosphorus concentrations decreased in Portage Creek downstream from the discharges of the Allied Paper Corporation. This occurred because the growth of bacteria and other organisms utilized these chemicals in the formation of their cell material. Paper wastes are deficient in nitrogen and phosphorus compounds.

Total phosphorus concentrations did not change significantly below the Allied Paper Corporation.

Other Chemical & Physical Parameters

Calcium, magnesium, and iron concentrations and hardness were not significantly influenced by the Allied Paper Corporation effluents during the 1968 survey. Concentrations of sodium, potassium, chlorides and sulfate were increased by these effluents (see Table 3-B). pH values dropped from 7.7 at Cork Street to 7.1 at the Bryant dam.

In contrast, in 1970 sodium and chloride concentrations were only slightly increased by the Allied Paper Corporation effluent (see Table 4-B). pH values dropped from 8.2 at Cork Street to 7.8 at the Bryant dam. Turbidity, which was not measured in 1968, showed a great increase in Portage Creek downstream from the Monarch clarifier effluent.

Bacterial Densities

Total and fecal coliform bacteria are indicator organisms whose presence

indicates the possible presence of pathogenic (disease causing) bacteria or viruses. Coliform bacteria, which are normally present in the intestinal tracts of humans and other warm-blooded animals, are excreted in large numbers in fecal wastes. Coliform bacteria are also present in soils and on plants. Fecal coliform bacteria provide positive correlation with recent contamination from the fecal material of warm-blooded animals. The presence of coliform bacteria above certain limits is a warning of potential health hazards to those who use the water for direct contact recreation or other purposes.

Michigan's Intrastate Water Quality Standards to protect the designated uses of Portage Creek state that for total coliform organisms per 100 ml, "the geometric average of any series of 10 consecutive samples shall not exceed 5,000 nor shall 20% of the samples examined exceed 10,000. The fecal coliform geometric average per 100 ml for the same 10 consecutive samples shall not exceed 1,000".

Total coliform densities fluctuated greatly in the lower portion of Portage Creek. In 1968 coliform densities in Portage Creek were sharply reduced immediately downstream from the discharge of the chlorine bleach wastes. A gradual return to higher densities occurred further downstream (see Table 1-B). In 1970 this reduction did not occur because the chlorine bleach wastes were no longer discharged to Portage Creek from the Bryant Division.

Geometric average fecal coliform densities were less than 1,000 per 100 ml at all sampling stations during both surveys.

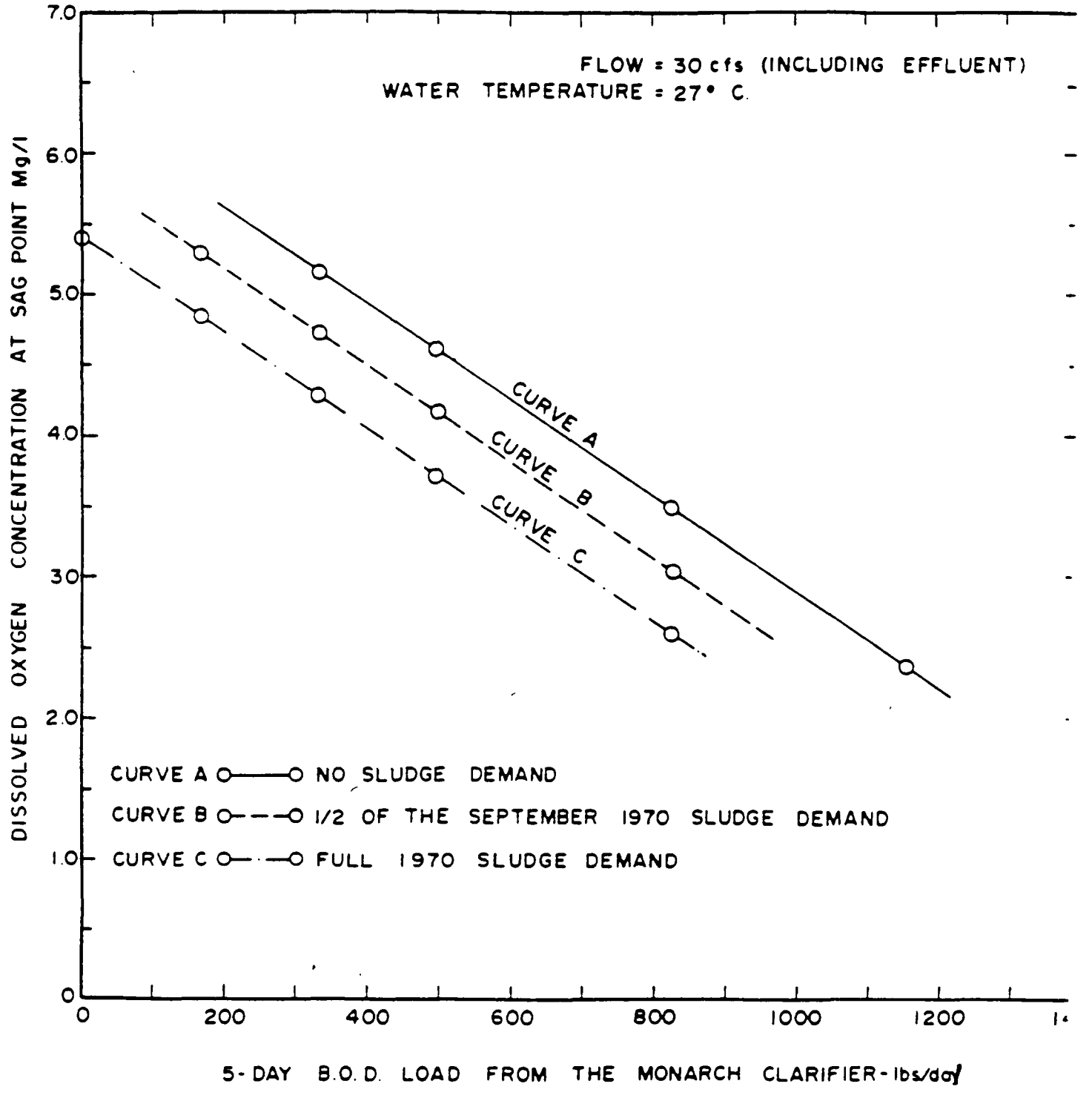
WASTE ASSIMILATION CAPACITY

If the quantities of organic wastes discharged to a stream are limited, the wastes can be assimilated (naturally purified) without impairing legitimate water uses. Assimilation occurs when bacteria and other organisms break down organic or other biodegradable materials into stable compounds or elements. The organisms utilize dissolved oxygen from the water during this process. When excessive quantities of waste are discharged to a stream, oxygen is used faster than it can be replaced by atmospheric reaeration or photosynthesis, and oxygen depletion occurs. Lowered oxygen levels have a measured effect on fish and other aquatic life. A complete lack of dissolved oxygen causes undesirable conditions such as noxious odors and the death of fish and other aquatic life. Low levels change the aquatic environment so that it will support only the least desirable species.

The relationships involved in organic waste assimilation and the rates of oxygen utilization and reoxygenation can be approximated by the use of mathematical models. These relationships and rates are dependent on factors such as the character of waste, the physical characteristics of the stream, flow volumes, the water temperatures, etc. Calculations for Portage Creek using waste load and stream conditions measured during the 1968 and 1970 surveys and assumed decomposition rates, showed that much of the oxygen depletion in the Bryant millpond was due to decomposition of bottom sludges.

FIGURE 3

PREDICTED MINIMUM DISSOLVED OXYGEN CONCENTRATIONS IN PORTAGE CREEK BELOW THE MONARCH CLARIFIER EFFLUE



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Dissolved oxygen concentrations were then predicted for drought flow conditions. Since droughts are most apt to occur in late summer in Michigan, it was assumed that the water temperature would be higher than the 1970 survey conditions. The creek upstream from the Monarch clarifier effluent was assumed to be 90 percent saturated with dissolved oxygen and contain 2.3 mg/l of BOD. Variable waste loads from the Monarch clarifier were selected and assumed to have a K_1 rate of 0.10. The results of three sets of calculations are presented graphically in Figure 3.

For case 1 it was assumed that the same sludge demand as was determined for the September 1970 survey would be present in Portage Creek. To maintain a minimum average DO of 4.0 mg/l (necessary to protect existing use designations) it was found that the Monarch clarifier effluent would have to be limited to 415 pounds per day of BOD. If upgraded use designations are considered (Warm Water Intolerant Fish), the BOD in the effluent would have to be limited to 125 pounds per day to maintain a minimum average DO of 5.0 mg/l under the conditions of these assumptions. See curve C of Figure 3.

For case 2 the most optimistic set of assumptions was made; there would no longer be any sludge addition or demand from previously deposited sludge. When calculations were made using these assumptions, it was found that to maintain a minimum average DO of 4.0 mg/l the effluent would have to be limited to 675 pounds of BOD per day and to maintain a minimum average DO of 5.0 mg/l it would have to be limited to 385 pounds of BOD per day. See curve A of Figure 3.

Actually, it is expected that the existing accumulations of sludge deposits will continue to have some oxygen demand for some years to come. It is also likely that even improved wastewater treatment will still result in an effluent containing some settleable solids. Because of these facts, it was felt that neither Case 1 nor Case 2 would be apt to accurately reflect conditions in Portage Creek after improvements in wastewater treatment. Consequently, a third case was examined; one in which half the sludge demand found in September 1970 was assumed to be present. Calculations using this assumption showed that to maintain a minimum average DO of 4.0 mg/l the effluent would have to be limited to 545 pounds of BOD per day and to maintain a minimum DO of 5.0 mg/l the effluent would have to be limited to 255 pounds of BOD per day. See Curve B of Figure 3.

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APPENDIX A

WASTE DISCHARGES

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TABLE 1-A

1971 INDUSTRIAL WASTE DISCHARGES TO PORTAGE CREEK (FLOW, BOD, & SUSPENDED SOLIDS)
(DATA FROM MONTHLY OPERATING REPORTS SUBMITTED BY THE COMPANIES)

		5/71	6/71	7/71	8/71	9/71	10/71	11/71	12/71	1971 Averages
lied Paper Corp., Monarch Clarifier (390006)										
Flow (mgd)	Av.	3.832	3.776	3.830	3.871	3.780	3.728	3.609	3.644	3.759
	Max.	4.216	4.113	4.216	4.216	4.113	4.013	4.113	3.914	
	Min.	3.434	3.341	2.611	3.528	3.340	3.434	2.788	3.247	
BOD (lbs/day)	Av.	1900	1841	1543	1115	1381	1309	1519	1594	1525
	Max.	2900	2800	2900	1900	2000	2200	2500	2200	
	Min.	1000	1200	400	500	500	600	1000	1000	
Susp. Solids (lbs/day)	Av.	560	695	348	590	484	318	383	250	454
	Max.	2300	1800	1300	1900	1270	900	1000	1100	
	Min.	0	0	0	0	0	0	0	0	
iohn Co. (390055)										
Flow (mgd)	Av.	----	----	5.96	6.68	5.45	4.28	2.41	3.40	4.70
	Max.	----	----	8.18	11.09	8.90	6.97	5.34	8.62	
	Min.	----	----	3.05	2.67	1.47	1.00	1.09	1.17	
orgia-Pacific Corp, Portage Paper Converted Prod. Plt. (390065)										
Flow (mgd)	Av.	----	----	----	----	0.007	0.007	0.006	----	0.007
	Max.	----	----	----	----	0.008	0.008	0.008	----	
	Min.	----	----	----	----	0.005	0.005	0.005	----	
BOD (mg/l)	Av.	----	----	----	----	1.6	1.4	2.0	----	1.7
	Max.	----	----	----	----	2.0	2.1	4.0	----	
	Min.	----	----	----	----	1.0	1.0	1.0	----	
Susp. Solids (mg/l)	Av.	----	----	----	----	1.9	2.2	4.5	----	2.9
	Max.	----	----	----	----	4.0	4.0	7.0	----	

FIGURE 1-A

MAJOR WASTEWATER DISCHARGES TO PORTAGE CREEK

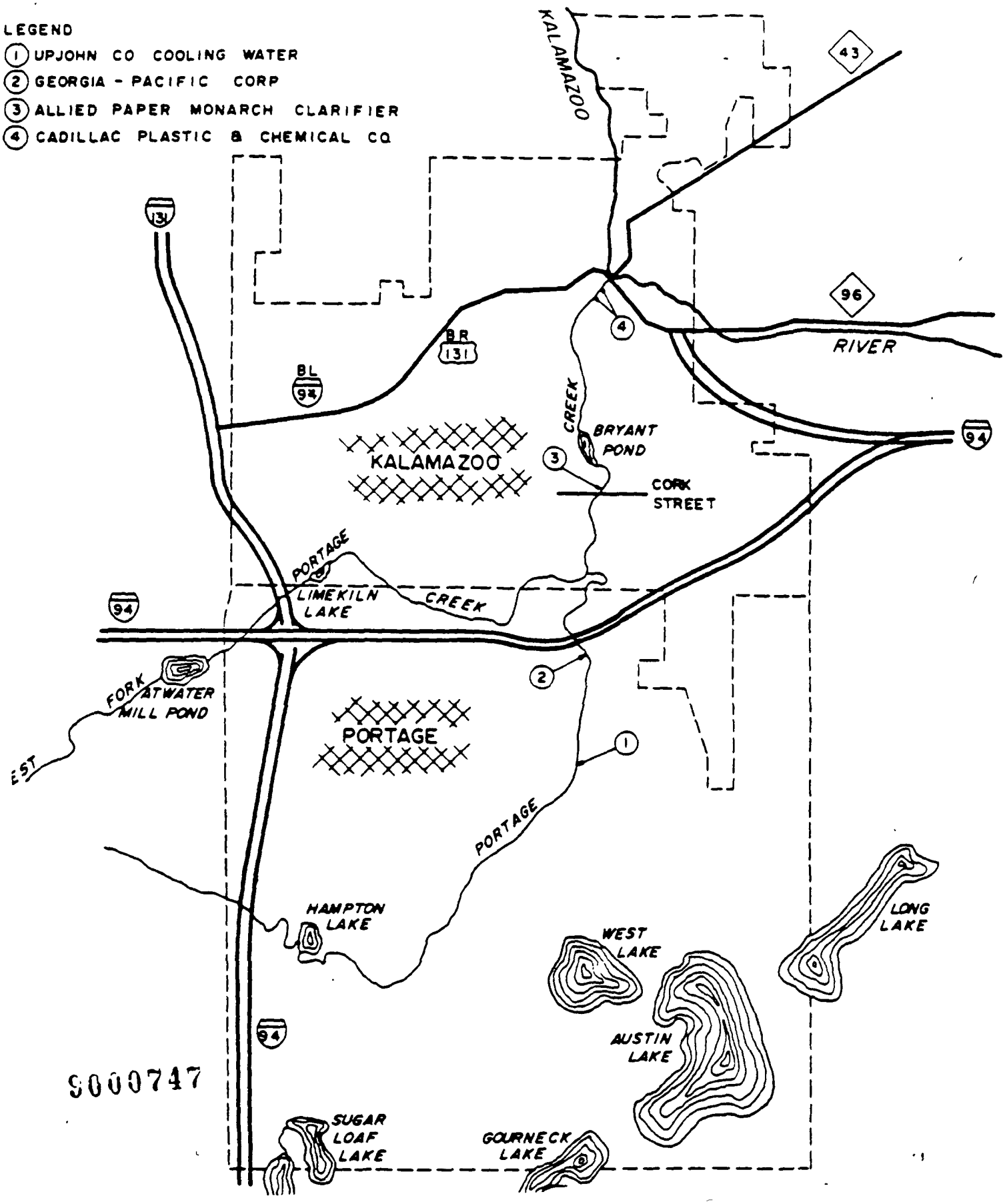

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TABLE 2-A

WASTE LOAD DISCHARGES (LBS./DAY) TO PORTAGE CREEK FROM ALLIED PAPER, INC., MONARCH AND BRYANT DIVISIONS

MONARCH DIVISION

Parameter	6/13-14/67	6/14-15/67	6/4-5/68	6/5-6/68	8/20-21/68	9/16-17/7C
5-day BOD	568	202	586	712	456	1,636
COD	----	----	870	1423	----	2,383
Total Solids	----	----	----	----	9,026	16,076
Susp. Solids	497	248	391	538	564	1,608
Susp. Vol. Solids	231	186	249	411	304	1,608
Settleable Solids	391	171	213	221	----	----
Total PO_4-P	----	----	7	20	----	3
Sol. Ortho PO_4P	----	----	0	0	----	0
Organic Nitrogen-N	----	----	37	52	----	43
Ammonia Nitrogen-N	----	----	7	0	----	0
Nitrate Nitrogen-N	----	----	0	0	----	6
Sodium	----	----	----	----	----	976
Sulfates	----	----	----	----	----	4,306
Chlorides	----	----	----	----	----	1,263
Flow (mgd)	2.128	1.86	2.127	1.895	2.6	3.44

BRYANT DIVISION

	*	*				
5-day BOD	11,193	6,870	7,559	8,036	10,008	Discharge
COD	----	----	13,608	16,801	----	included
Total Solids	----	----	5,550**	5,676**	46,904	in that
Susp. Solids	8,155	6,126	3,434	5,658	6,712	shown abo
Susp. Vol. Solids	2,958	1,775	1,638	2,911	2,425	
Settleable Solids	680	458	1,163	3,638	----	
Total PO_4-P	----	----	33	54	----	
Sol. Ortho PO_4-P	----	----	6	9	----	
Organic Nitrogen-N	----	----	116	147	----	
Ammonia Nitrogen-N	----	----	0	0	----	
Nitrate Nitrogen-N	----	----	1	3	----	
Sodium	----	----	----	----	----	
Aluminum	----	----	----	----	101	
Sulfates	----	----	----	----	----	
Chlorides	----	----	----	----	----	
Chloroform Extr.	----	----	508	710	----	
Flow (mgd)	4.79	3.43	3.402	3.602	3.91	

NOTE: (1) All data is from analyses of composite samples collected during surveys of the plants conducted by the Bureau of Water Management.

(2) All loads are expressed as pounds per day except Flow which is in million gall per day.

* Only the Bryant clarifier discharge; does not include deinking bleach wastewat or bypasses, if any.

** Only the deinking bleach wastewater contribution

*** White water from both the Monarch and Bryant Divisions treated in this clarifi

TABLE 3-A

WASTE LOAD DISCHARGES (LBS./DAY) TO PORTAGE CREEK
FROM THE CADILLAC PLASTIC AND CHEMICAL COMPANY

Parameter	North Sewer 9/16-17/70	9/17/70
5-day BOD	3	1
Susp. Solids	6	11
Susp. Vol. Solids	5	8
Total PO_4-P	0.2	0.2
Mercury	0	0
Chloroform Extr.	2	1
Flow (mgd)	0.044	0.044
	South Sewer	
5-day BOD	26	216
Susp. Solids	272	3,152
Susp. Vol. Solids	152	2,324
Total PO_4-P	0.1	0.3
Mercury	0	0
Chloroform Extr.	280	1,554
Flow (mgd)	0.034	0.055

NOTE: All loads are expressed as pounds per day except flow which is in million gallons per day.

9000749

APPENDIX B

WATER QUALITY INVESTIGATIONS

TABLE 1-B

RESULTS OF ANALYSES OF 1968 GRAB SAMPLES OF PORTAGE CREEK

Sampling Stations	Date	Time	Temp (°C)	K1 Rate	Dissolved Oxygen (mg/l)	BOD (mg/l)	Total Coliform Organisms (counts/100 ml)	Fecal Coliform (counts
1 Cork Street	8/20	0800	23	0.09	7.4	1.6	10,000	
	8/20	1040	23	----	7.6	1.9	1,400	
Mile Point [illegible]	8/20	1320	24	----	7.6	1.8	900	
	8/20	1552	26.5	----	7.4	1.6	4,000	
	8/20	1850	26	----	7.2	1.4	4,000	
	8/20	2114	26	----	7.6	2.0	8,000	
	8/20	2350	25	----	7.2	1.4	6,000	
	8/21	0240	25	----	7.4	2.0	18,000	
	8/21	0520	24	----	7.6	1.9	11,000	
	Arithmetric Ave.		24.7		7.4	1.7	7,000	
	Geometric Ave.		----		7.4	1.7	4,989	
2. End of sludge pond between Cork and Alcott Streets	8/20	0817	25	----	6.1	3.7	6,000	
	8/20	1056	25.5	----	6.4	2.9	1,000	
	8/20	1332	26	----	6.2	3.0	7,800	
Mile Point 2.58	8/20	1610	27	----	6.6	3.0	400	
	8/20	1858	27	----	6.6	2.8	8,000	
	8/20	2127	27	----	6.2	3.2	11,000	
	8/21	0005	26	----	6.4	3.2	19,000	
	8/21	0255	26	----	6.0	3.6	18,000	
	8/21	0530	26	----	5.6	3.6	15,000	
	Arithmetric Ave		26.2		6.2	3.2	9,600	
	Geometric Ave		----		6.2	3.2	5,884	
3. Byrant Dam	8/20	0829	25.5	0.13	1.6	27.0	400	
	8/20	1110	26	----	1.2	23.0	< 100	<
Mile Point 1.94	8/20	1344	27	----	1.0	30.0	< 100	<
	8/20	1614	28	----	2.6	23.0	3,400	<
	8/20	1908	29	----	0.6	32.0	1,100	
	8/20	2133	28	----	3.0	----	< 100	<
	8/21	0015	28	----	1.6	29.0	< 100	
	8/21	0305	28	----	1.4	33.0	< 100	<
	8/21	0540	27	----	1.0	41.0	< 100	
	Arithmetric Ave		27.4		1.6	29.8	< 611	<
	Geometric Ave		----		1.4	29.3	< 225	<
4. Reed Avenue	8/20	0837	25.5	----	7.2	32.0	< 100	<
	8/20	1121	26	----	7.4	32.0	< 100	<
Mile Point 1.63	8/20	1352	27	----	6.8	29.0	< 100	<
	8/20	1620	28	----	6.8	31.0	< 100	<
	8/20	1911	28	----	6.2	38.0	130,000	8,0
	8/20	2139	28	----	6.0	37.0	240,000	<
	8/21	0025	26	----	6.6	33.0	800	
	8/21	0310	27	----	6.8	34.0	< 100	<
	8/21	0545	28	----	7.0	30.0	< 100	<
	Arithmetric Ave.		27.1		5.8	32.9	< 41,267	< E
	Geometric Ave.		----		6.7	32.8	< 664	<
5. Vine Street	8/20	0848	25.5	----	6.4	33.0	70,000	1,0
	8/20	1130	26	----	6.4	30.0	< 100	<
Mile Point 0.94	8/20	1400	27	----	6.2	28.0	500	
	8/20	1625	28	----	6.0	32.0	29,000	
	8/20	1920	28	----	4.6	38.0	20,000	2,0
	8/20	2147	27.5	----	5.6	38.0	110,000	7,0
	8/21	0035	26	----	5.8	35.0	8,800	<
	8/21	0315	27	----	6.2	34.0	900	
	8/21	0555	27	----	6.4	33.0	30,000	
	Arithmetric Ave.		27.0		6.0	33.4	< 29,922	< 1,0
	Geometric Ave.		----		5.9	33.3	< 4,089	<
6. Michigan Avenue	8/20	0858	25	0.12	5.2	33.0	1,500	<
	8/20	1145	26	----	5.0	30.0	14,500	
Mile Point 0.06	8/20	1410	26.5	----	5.0	21.0	20,700	
	8/20	1637	27	----	4.6	32.0	400,000	38,0
	8/20	1928	27	----	4.2	33.0	84,000	1,0
	8/20	2155	27	----	4.0	37.0	160,000	2,0
	8/21	0040	26	----	4.0	51.0	150,000	6,0
	8/21	0330	27	----	4.0	35.0	80,000	1,0
	8/21	0605	26	----	4.0	35.0	11,000	
	Arithmetric Ave.		26.4		4.4	34.1	113,411	5,5
	Geometric Ave.		----		4.4	33.3	40,888	< E

9000751

TABLE [illegible]

RESULTS OF ANALYSES OF [illegible] GRAB SAMPLES OF RIPTRAGE CREEK

Date and Locations	Date	Time	Temp	D O	[illegible]	[illegible]	Total Coliform after a [illegible]	Fecal Coliform Bacteria [illegible]
Cora Street								
Mile Point 3 04	[illegible]	[illegible]0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible],000	[illegible]
	[illegible]	[illegible]20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible],000	80
	[illegible]	2400	[illegible]	[illegible]	[illegible]	[illegible]	[illegible],000	20
	[illegible]	0300	[illegible]	[illegible]	[illegible]	[illegible]	28,000	200
	[illegible]	0600	[illegible]	[illegible]	[illegible]	[illegible]	22,000	900
	[illegible]	[illegible]0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible],000	[illegible]
	[illegible]	[illegible]00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible],000	910
	9/17/70	500	[illegible]	[illegible]	[illegible]	[illegible]	4,300	100
	Arithmetic Ave		16 9	9 0	2 3	8 2	12,475	332
	Geometric Ave		---	9 0	2 2	---	6,703	216
2A 2,100 ft downstream from Monarch Clarifier discharge, 300 ft downstream from end of sludge pond Mile Point 2 50	9/16/70	1800	21 0	5 2	>13 2	7 9	4,000	<10
	9/16/70	2100	21 0	6 0	12 4	7 8	6,000	<100
	9/17/70	0005	21 0	5 2	>13 2	8 0	4,000	100
	9/17/70	0310	19 0	6 4	>14 4	7 7	58,000	100
	9/17/70	0605	19 0	6 8	12 8	8 1	4,000	100
	9/17/70	0915	[illegible] 5	8 0	>16 [illegible]	---	13,000	2,500
	[illegible]	[illegible]215	18 0	7 4	3 0	---	130,000	20,000
	9/17/70	1511	19 5	8 0	>16 [illegible]	---	120,000	12,000
	Arithmetic Ave		19 5	6 6	>13 9	7 9	42,000	<4,364
	Geometric Ave		---	6 5	>13 4	---	15,592	< 395
3 Bryant Dam Mile Point 1 94	9/16/70	1820	21 0	5 2	9 6	8 0	20,000	30
	9/16/70	2120	21 0	4 4	9 2	7 7	10,000	300
	9/17/70	0010	21 0	3 6	10 0	7 5	10,000	100
	9/17/70	0335	18 0	2 8	9 2	7 7	18,000	100
	9/17/70	0620	18 5	2 4	8 0	7 8	7,000	<100
	9/17/70	0930	18 0	2 6	8 2	---	31,000	100
	9/17/70	230	18 5	4 4	9 4	---	37,000	1,200
	9/17/70	1520	19 0	8 2	10 4	---	31,000	3,000
	Arithmetic Ave		19 4	4 2	9 3	7 7	20,500	<2,041
	Geometric Ave		---	3 9	9 2	---	17,541	<262
4 Reed Avenue Mile Point 1 63	9/16/70	1825	21 0	7 8	10 6	8 1	9,000	200
	9/16/70	2130	20 0	7 8	10 6	7 9	19,000	500
	9/17/70	0015	20 0	7 8	9 8	7 8	24,000	100
	9/17/70	0345	19 0	8 0	8 8	8 1	30,000	100
	9/17/70	0625	18 5	7 8	7 8	8 2	14,000	100
	9/17/70	0940	18 5	8 6	8 6	---	7,900	260
	9/17/70	1240	18 5	9 8	9 2	---	25,000	1,200
	9/17/70	1530	19 5	9 6	9 4	---	73,000	8,500
	Arithmetic Ave		19 4	8 3	9 4	8 0	25,238	1,370
	Geometric Ave		---	8 2	9 3	---	19,976	476
5 Vine Street Mile Point 0 94	9/16/70	1835	21 0	7 0	13 4	8 0	2,000	40
	9/16/70	2140	21 0	6 8	9 2	8 0	9,000	<100
	9/17/70	0020	20 0	4 8	5 2	7 8	6,000	100
	9/17/70	0355	19 0	6 8	7 6	8 1	14,000	100
	9/17/70	0635	18 5	6 9	8 1	8 2	10,000	200
	9/17/70	0953	18 5	7 8	8 4	--	16,000	900
	9/17/70	1253	19 0	8 2	8 6	---	17,000	1,800
	9/17/70	1543	19 5	4 8	4 6	---	30,000	2,600
	Arithmetic Ave		19 6	6 6	8 1	8 0	13,000	<730
	Geometric Ave		---	6 6	7 7	---	10,264	<276
6 S Pitcher St Mile Point 0 81	9/16/70	1840	21 0	5 6	>13 6	8 1	340,000	1,600
	9/16/70	2145	21 0	6 4	8 8	7 8	14,000	400
	9/17/70	0025	20 0	6 4	8 8	7 7	11,000	400
	9/17/70	0410	19 0	6 2	7 6	8 2	19,000	300
	9/17/70	0640	18 0	6 4	7 2	8 2	15,000	800
	9/17/70	1005	18 5	7 4	7 9	--	26,000	980
	9/17/70	1305	19 0	6 6	7 4	---	9,000	600
	9/17/70	1551	19 5	6 4	5 2	---	10,000	1,300
	Arithmetic Ave		19 5	6 4	>8 3	8 0	55,500	798
	Geometric Ave		---	6 4	>8 0	---	20,785	682
7 Michigan Avenue Mile Point 0 05	9/16/70	1845	22 5	5 8	9 0	8 0	15,000	100
	9/16/70	2150	20 0	5 6	8 0	7 7	11,000	400
	9/17/70	0030	20 0	5 8	7 4	7 6	27,000	400
	9/17/70	0420	19 0	5 9	7 1	8 0	19,000	200
	9/17/70	0650	18 5	6 0	6 0	8 2	20,000	100
	9/17/70	1020	18 0	6 6	7 4	---	25,000	560
	9/17/70	1316	18 5	7 2	9 6	---	31,000	1,300
	9/17/70	1602	20 0	10 0	10 2	---	19,000	2,200
	Arithmetic Ave		19 6	6 6	8 1	7 9	20,875	658

TABLE 3-B

RESULTS OF ANALYSES OF 1968 COMPOSITE SAMPLES OF PORTAGE CREEK

Analysis	Sampling Stations					
	Cork Street 1	End of Sludge Pond 2	Bryant Dam 3	Reed Avenue 4	Vine Street 5	Michigan Avenue 6
Total Solids	348	358	502	472	486	506
Suspended Solids	12	25	55	41	51	46
Suspended Volatile Solids	3	16	20	14	23	14
pH	7.7	7.4	7.1	7.3	7.3	7.3
Ammonia - N	0.1	0.1	0.2	0.0	0.0	0.0
Nitrate - N	0.50	0.40	0.10	0.10	0.0	0.0
Soluble Ortho PO_4-P	0.06	0.02	0.0	0.0	0.0	0.0
Total PO_4-P	0.15	0.19	0.26	0.18	0.26	0.25
Hardness	230	230	230	230	230	260
Calcium	64	64	62	62	62	70
Magnesium	17	17	18	18	18	21
Sodium	9.2	12	37	34	33	37
Potassium	0.8	0.9	1.8	1.6	1.6	1.8
Iron	0.5	0.7	0.6	0.5	0.6	0.6
Chloride	18	20	50	40	40	50
Sulfate	36	40	56	54	52	58

NOTE: All constituents except pH are expressed as mg./l.

Survey Period from 0800, August 20, 1968 to 0800, August 21, 1968

Average Flow upstream from Cork St. = 33.7 cfs.
Average Flow at Reed Ave. = 44.0 cfs.

0000753

TABLE 4-B

RESULTS OF ANALYSES OF 1970 COMPOSITE SAMPLES OF PORTAGE CREEK

ANALYSIS	SAMPLING STATIONS						
	Cork Street 1	2100 Ft. below Monarch Clarifier 2A	Bryant Dam 3	Reed Avenue 4	Vine Street 5	S. Pitcher Street 5A	Michigan Avenue 6
l Solids	334	432	370	366	376	384	394
ended Solids	14	80	12	12	14	15	13
ended Vol. Solids	6	22	4	5	5	5	6
	8.2	8.0	7.8	7.8	7.9	8.0	8.0
idity (J.C.U.)	4	18	12	12	13	11	11
nia - N	0.19	0.13	0.07	0.07	0.04	0.02	0.05
ate - N	0.65	0.30	0.30	0.40	0.25	0.30	0.25
Ortho PO_4-P	0.03	0.00	0.01	0.02	0.02	0.00	0.00
l PO_4-P	0.07	0.13	0.08	0.08	0.12	0.11	0.09
um	14	18	22	18	18	19	20
ride	25	28	28	30	28	32	33
ate	Low	0.145	------	0.10	------	------	0.06
ended Solids	22	80	17	11	18	14	30
ended Vol. Solids	9	10	6	4	4	4	8
	8.1	8.0	7.9	7.9	8.0	8.0	7.9
idity (J.C.U.)	9	20	20	12	15	11	14
nia - N	0.11	0.07	0.04	0.09	0.04	0.05	0.05
ate - N	0.70	0.35	0.25	0.30	0.35	0.30	0.35
Ortho PO_4-P	0.03	0.02	0.03	0.03	0.02	0.04	0.06
l PO_4-P	0.09	0.20	0.10	0.11	------	------	-------
ride	24	28	29	29	29	44	37

All constituents except pH, turbidity and K_1 Rate are expressed as mg/l.

Upper, prerain set of data from 1800, Sept. 17, 1970 to 1000, Sept. 18, 1970.
Lower, post rain set of data from 1000, Sept. 18, 1970 to 1800, Sept. 18, 1970.

Average Flow at Reed Avenue = 47.0 cfs.

TABLE 5 B

SEASONAL VARIATIONS OF PORTAGE CREEK WATER QUALITY
PRIOR TO IMPROVEMENTS IN ALLIED PACKS COMPANY
WASTEWATER TREATMENT

Station	Date	Time	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Lane	9/26/67	1170	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]			[illegible]							[illegible]		
	6/26/68	1115	[illegible]	[illegible]					[illegible]	[illegible]					[illegible]						
	9/16/67	1130	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]								[illegible]		
	12/20/67	1117	[illegible]		[illegible]	[illegible]	[illegible]	0.07	[illegible]	170	[illegible]	[illegible]	[illegible]		[illegible]			[illegible]	[illegible]		
	1/23/68	1065	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]		[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	
	3/19/68	1050	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
	3/21/68	1055	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
	6/26/68	0820	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	100	[illegible]		[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
	5/21/68	1105	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
	6/25/68	1411	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
	7/22/68	1132	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
[illegible] Dam	9/26/67	1135		[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]							[illegible]	[illegible]	
	2/19/68	1115		[illegible]	[illegible]	[illegible]	[illegible]	0.12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
	3/21/68	1110		[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
	6/26/68	0830		[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
	5/21/68	1130		[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
	6/25/68	1425		[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
	7/22/68	1161		[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
[illegible]	12/20/67	1120		[illegible]	[illegible]	[illegible]	[illegible]	0.05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
	1/23/68	1100		[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
	3/19/68	1125		[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
	3/21/68	1120	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
	6/26/68	0840	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
	5/9/68	1300	[illegible]	[illegible]					[illegible]	[illegible]					[illegible]						
	5/21/68	1144	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
	6/25/68	1435	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
	7/22/68	1155	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
[illegible] Ave	9/26/67	1145		[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]							[illegible]	[illegible]	
[illegible] Ave	9/26/67	1210	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]							[illegible]	[illegible]	
	12/20/67	1020		[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
	1/23/68	1115		[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
	2/19/68	1140		[illegible]	[illegible]	[illegible]	[illegible]	0.12	[illegible]		[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
	3/21/68	1130	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
	6/26/68	0850		[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
	5/21/68	1136	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
	6/25/68	1450		[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
	7/22/68	1210		[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
	9/11/13/68			[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	

All constituents except H_2 rate, pH and those otherwise designated are expressed as mg/l

Flows at the first two stations are those recorded at the USGS gage at Lower Lane

Flows at other stations are those recorded at the USGS gage at Reed Ave

NO_2 values are included in the NO_3 value

[illegible] no means [illegible] samples collected [illegible]

Cultivated counts are geometric means

FIGURE 18

PORTAGE CREEK IN KALAMAZOO

DISSOLVED OXYGEN PROFILE

AUGUST 20-21 1968 SURVEY

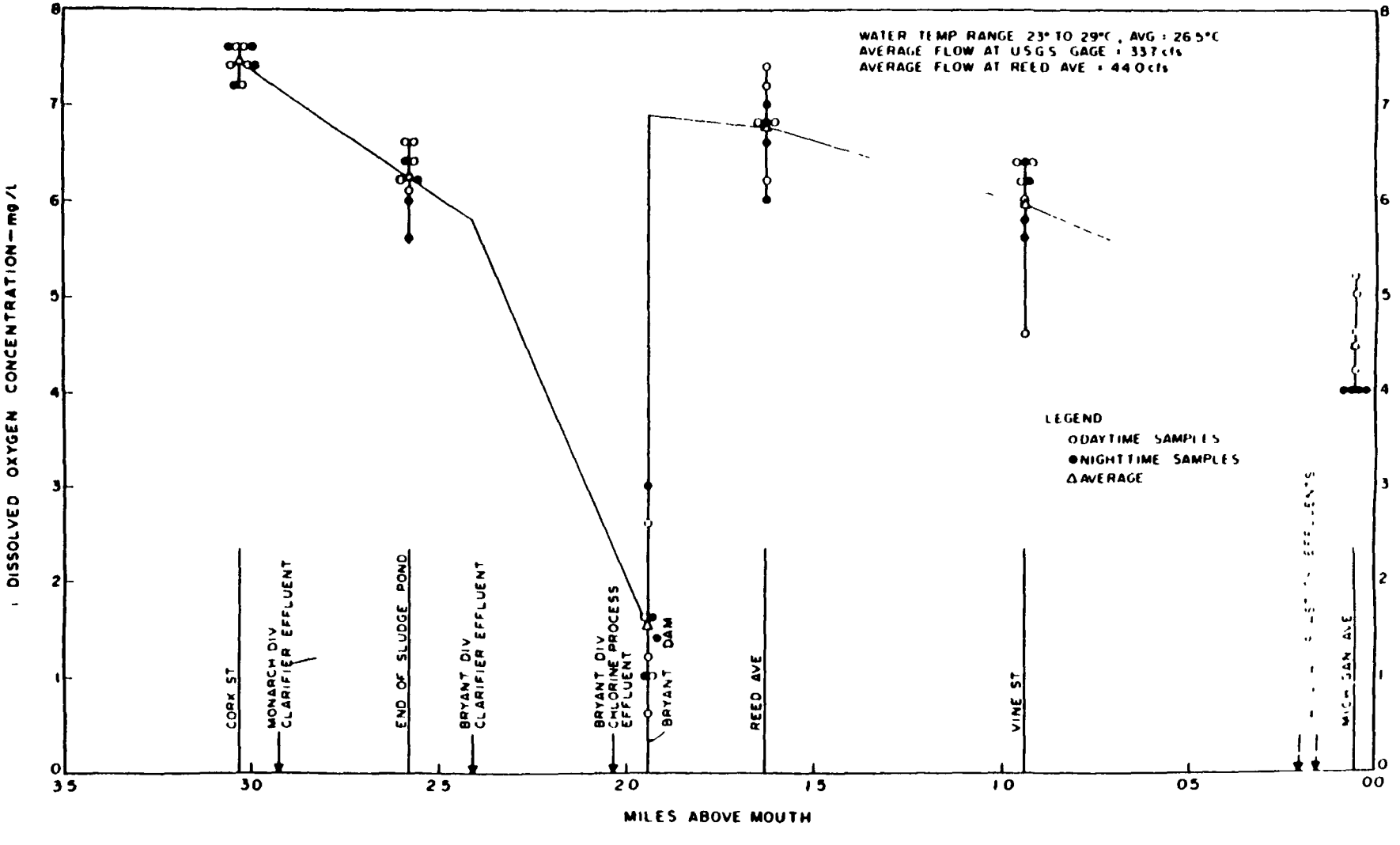


FIGURE 2-8

PORTAGE CREEK IN KALAMAZOO

DISSOLVED OXYGEN PROFILE

SEPTEMBER 16 17, 1970 SURVEY

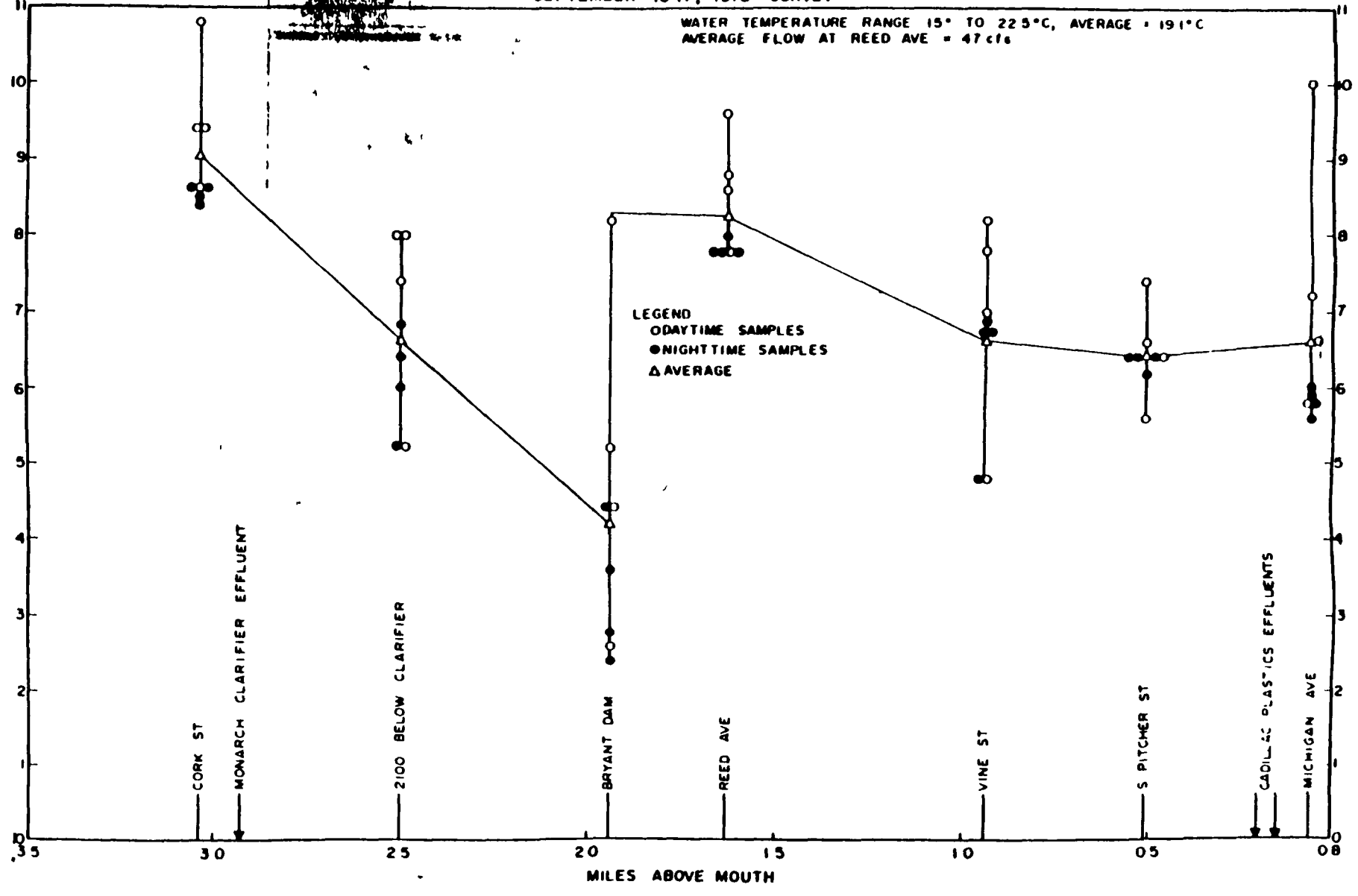
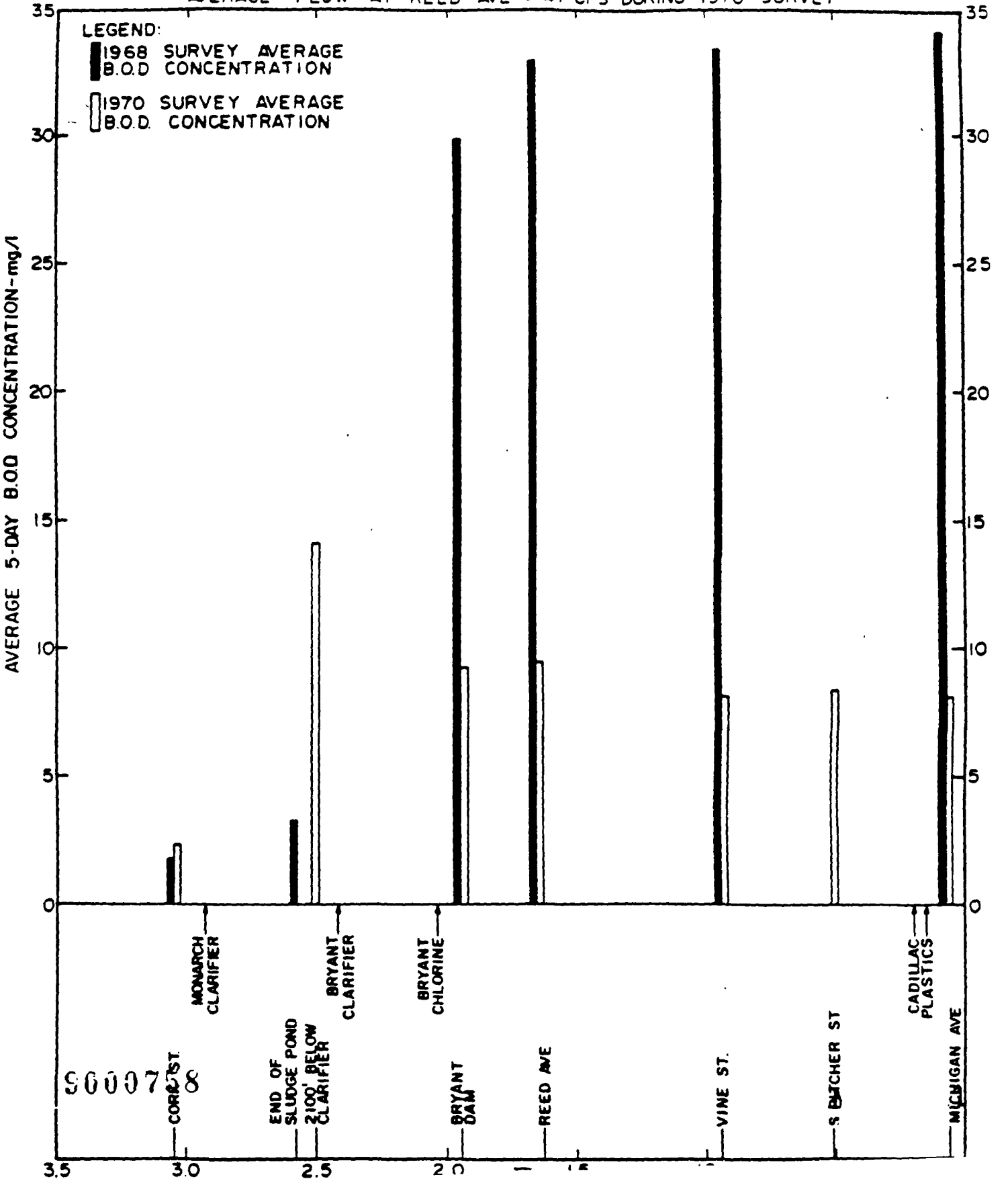


FIGURE 3-B

COMPARISON OF AVERAGE 1968 AND 1970 B.O.D. CONCENTRATION PORTAGE CREEK IN KALAMAZOO

AVERAGE FLOW AT REED AVE = 44 CFS DURING 1968 SURVEY
AVERAGE FLOW AT REED AVE = 47 CFS DURING 1970 SURVEY



960078

MICHIGAN WATER RESOURCES COMMISSION
BUREAU OF WATER MANAGEMENT
ENVIRONMENTAL PROTECTION BRANCH
DEPARTMENT OF NATURAL RESOURCES

Report of an
Industrial Wastewater Survey
Conducted at
ALLIED PAPER INC
Monarch Mill
All Outfalls No 390222
Kalamazoo County
Kalamazoo, Michigan
May 5-7, 1975

Survey Summary

Wastewater monitoring was performed during two twenty-four hour survey periods starting Monday, May 5, 1975

The results of this survey met the initial limitations in the facility's National Pollutant Discharge Elimination System Permit (NPDES), No MI0000779 except for three out of four pH grab samples The pH of all the grab samples ranged from 5 5 to 6 5 The pH of the two 24-hour composite samples were 6 4 and 6 4 (Tables 1 and 2). Plant personnel said that the low pH was possibly due to a malfunction in the automatic alum feed system over the weekend before the survey

The survey results agreed well with the results reported by the company on the monthly operating report (Table 4) The two twenty-four hour composite samples were split with the company and analyzed in their laboratory The results of the company's analysis agrees well with our laboratory results (Table 5)

Survey Comments

The company is monitoring pH from a composite sample and using the hexane extractable test for measuring oil and grease

The company appears to be reporting settleable solids in grams per liter on the monthly operating report

A heavy flock was being discharged over the final weir on May 5, 1975 at 5 p m This problem was still occurring at 10 20 p m on the same day and a grab sample collected at that time showed 110 mg/l of suspended solids (Table 2) During the afternoon of May 6, 1975 there was foam in Portage Creek from the plant discharge which was evident approximately 2000 feet downstream

93-65 dup. 1

Purpose of Survey

The purpose of the survey was to determine the quality and quantity of wastewater being discharged by Allied Paper Inc , a principal discharger, to Portage Creek and to check for compliance with the NPDES Permit No 0000779

Plant Processes

The wastewater treatment plant at the Monarch Mill of Allied Paper Inc treats all of the wastewater from the Monarch Mill and some of the process wastewater from the Bryant Mill The rest of the process wastewater from the Bryant Mill is discharged to the city sanitary system Generally about one-third of the effluent from the treatment system originates in the Bryant Mill and two-thirds originates in the Monarch Mill. At the time of the survey the effluent from the wastewater treatment plant was approximately 50% Bryant Mill wastewater and 50% Monarch Mill wastewater

The Monarch Mill produces bible paper and carbon tissue for "one time" carbon paper. The mill has two Fourdrinier paper machines which were operating during the survey

The Bryant Mill produces bible paper and other specialty paper Four of the five Fourdrinier paper machines at the Bryant Mill were operating during the survey

Both plants use virgin pulp in a standard papermaking operation Both plants were operating five days a week, 24 hours a day.

Water, Wastewater and Treatment

Potable water for the Monarch Mill is obtained from the City of Kalamazoo All domestic wastewater goes to the Kalamazoo sanitary sewer system Process water is obtained from Portage Creek This water is treated using sand filters before being used in the mill

The main source of process wastewater treated in Monarch Mill's 90 foot clarifier is excess white water from the paper machines The backwash water from Monarch's sand filters are also treated in the clarifier Alum and a flocculating agent are added to influent to the clarifier to aid in flocculation and settling The effluent from the clarifier discharges to Portage Creek through outfall 390006. The sludge from the clarifier is disposed of on plant property adjacent to Portage Creek.

Survey Procedure

An existing 48-inch full-channel weir on the clarifier was used by the survey crew

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The weir was equipped with a water level recorder and an automatic sampler. The water level recorder provided a continuous account of the liquid level or head above the crest of the weir on a head versus time graph for the duration of each survey period. The total volume of wastewater over the weir during the survey period was computed from the graph. The automatic sampler obtained samples proportional to the instantaneous flow over the weir at 15-minute intervals. These individual samples were deposited in a clean container to make up a composite sample representative of the total flow over the weir during the survey period.

A series of individual grab samples were collected from outfall 390006 (002) for selected physical and chemical analyses.

All samples collected were preserved according to Table 6.

The composite and grab samples were transported to the Bureau of Water Management laboratory located in Lansing for selected quantitative physical and chemical analyses. The following formula was used to compute the pounds per day of various wastewater constituents discharged:

lbs/day = flow (mgd) x conc. (mg/l) x unit weight of water (8.34 lbs/gal).

The results of the physical and chemical analyses are presented in Tables 1 through 3.

Table 1 Quantitative analyses of the two composite samples collected from Allied Paper Inc., Monarch Mill discharge, 390006 (002), to Portage Creek to determine the concentration of the wastewater constituents present in the samples and the computed pounds per day (lbs/day) of these constituents being discharged. Also noted are the highest and lowest flow rates recorded during the respective survey periods.

From	4:55 pm - 5-5-75		4:00 pm - 5-6-75	
To	3:55 pm - 5-6-75		3:50 pm - 5-7-75	
Total flow monitored (gal)	2,640,000		3,340,000	
Computed flow rate (mgd) *	2.78		3.35	
Highest flow rate (mgd)	3.78		4.06	
Lowest flow rate (mgd)	1.79		2.64	
pH (S.U.)	6.4		6.9	
	mg/l	lbs/day	mg/l	lbs/day
5-day BOD	23	530	35	980
COD	57	1300	86	2400
TOC	22	510	41	1100
Total solids	484	11200	424	11800
Suspended solids	24	560	8	200
Settleable solids	2	50	< 8	--
Sulfates (SO_4)	--	--	156	4400
Color (S.U.)	4	--	9	--
Turbidity (J.C.U.)	59	--	54	--

* Flow rates used in the computation of lbs/day.

Table 2 Quantitative analyses of grab samples collected from Allied Paper Inc., Monarch Mill discharge 390006 (002) to determine concentrations of select physical and chemical constituents present in the wastewater.

Outfall	390006 (002)	390006 (002)	390006 (002)	390006 (002)
Time	10:20pm	8:40am	3:35pm	8:07am
Date	5-5-75	5-6-75	5-6-75	5-7-75
Temp., °C	23	22.5	23	23.5
pH (S.U.)	(5.8)	(6.3)	6.5	6.4
	mg/l	mg/l	mg/l	mg/l
BOD	28	20	43	47
COD	110	47	75	170
TOC	--	17	42	46
Total solids	520	488	476	432
Suspended solids	110	2	15	1
Settleable solids	104	< 2	< 15	< 1
Oil & Grease	< 1	< 1	1	2
Sulfate	210	190	170	152
Color (S.U.)	4	6	7	16
Turbidity (J.C.U.)	250	26	90	46

Table 3 Quantitative analyses of a 48-hour grab composite sample collected from Allied Paper Inc., Monarch Mill discharge, 390006 (002) to the Portage Creek to determine concentrations of select chlorinated hydrocarbons.

Outfall	390006 (002)
Date	5-5-75 to 5-7-75
PCB 1242	< 0.01
PCB 1254	< 0.01
PCB 1260	< 0.01
DEHP	< 0.5
DBP	< 1.5

Note: Results reported in ug/l.

PCB - Polychlorinated biphenyls
DEHP - Diethylhexylphthalates
DBP - Dibutylphthalates

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Table 4 Comparison of results obtained during the survey at Allied Paper Inc., Monarch Mill with the facility's NPDES Permit, No. MI0000775 and the monthly operating report for May, 1975.

Source - 390006 (002)

Parameter (Unit)	NPDES Permit Limitations Average	Maximum	Monthly Operating Report 5-5-75	5-6-75	5-7-75	Average	Survey Results * 5-5-75 5-6-75	5-6-75 5-7-75
BOD5 (lbs/day)	1205	2210	235	480	660	759	530	920
Suspended solids (lbs/day)	825	2300	460	280	235	327	960	200
Settleable sol.	--	--	10	10	5	--	10+, <2, <15, <1	
Oil & Grease (mg/l)		10	--	--	0	0	<1, <1, 1, 2	
pH (range) (S.U.)	6.5 - 9.5		6.9	6.5	6.9	6.9	5.8, 6.3, 6.5, 6.4	

* - The survey results reported for BOD5 and suspended solids are from 24-hour composite samples. The other survey results are from grab samples.

Table 5 Comparison of the analysis of the two composite samples collected at Allied Paper Inc., Monarch Mill, discharge 390006 (002). The composite samples were split with the company and analyzed by their laboratory (AP Lab) and the Water Resources Commission laboratory (WRC Lab).

	WRC Lab	AP Lab	WRC Lab	AP Lab
From	5-5-75	5-5-75	5-6-75	5-6-75
To	5-6-75	5-6-75	5-7-75	5-7-75
pH	6.9	7.2	7.2	7.35
	mg/l	mg/l	mg/l	mg/l
5-day BOD	23	19	35	27
Total solids	484	750	424	670
Suspended solids	24	5	8	2
Settleable solids	2	48	< 8	5
Turbidity	59	35	54	25

Table 6 Sample Preservation

Parameter	Preservative
BOD	Cooled to 4°C.
COD	5 drops 1:1 H_2SO_4/125 ml. Cooled to 4°C.
General Chemistry	Cooled to 4°C.
Oil & Grease	1 ml 1:1 H_2SO_4/250 ml. Cooled to 4°C.
Pesticides, PCB's, Phthalate	100 ml hexane.

Survey by: Richard Christensen, Sanitary Engineer
L.J. McDonald, Water Quality Investigator
William Long, Water Quality Investigator

Contact with Management: Ray J. Willie

Certified Operator: Ray J. Willie

Chlorinated Hydrocarbon Analyses by: Christine Kazen, Chemist

Physical & Chemical Analyses by: James Bedford, Chemist

Bacteriological Analyses by: Michigan Department of Public Health
Bureau of Laboratories.

Report by: Richard Christensen
L.J. McDonald
William Long
Point Source Survey Section
Michigan Water Resources Commission
Bureau of Water Management
Environmental Protection Branch
Department of Natural Resources

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92-2187

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Project No. 200T

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SA 029050

OBJECT:

It was evident that the Rice Barton water extractors would effect some saving in heat and chemical (caustic) recovery. It was thought important to run determinations of the liquor from the Rice Bartons and also to get a comparison of the waste water from the two first stage slide washers. This first Rice Barton installation was on the North side set of slide washers and began operation on April 13, 1959, A preliminary survey of the caustic was determined.

PROCEDURE:

Samples of liquor from the Rice Barton water extractors were taken before returning to the hydrapulper. Samples were taken at the water boxes of both first stage slide washers. These last two samples were taken both when the Rice Bartons were and were not operating. Tests were run on these samples to determine the temperature, pH, caustic concentration, suspended solids, ash, soluble solids, fiber (200 mesh) and B.O.D. Since the caustic concentration varied so on the samples taken, the actual caustic usage in the hydrapulper was sought on a full week immediately before and after the operation of the Rice Bartons on the North side.

CONCLUSIONS:

It must be remembered that these results are based on a few spot samples and that, as the caustic usage figures show, the percent of caustic usage based on baled weight varies and is excessive.

The average caustic usage in the hydrapulper before Rice Barton operation (April 6-11) was 31,543#/day for an average baled weight of 214.7 tons/day. This was 7.34% caustic based on baled weight. For the first six days of the Rice Barton operation, April 13-15,17,18 and 20th, the averages were 19,589# caustic, 199.5 tons baled weight and 4.9% caustic on baled weight. Based on this 2.44% differential and 200 tons/day this results in a caustic savings of 9760#/day or $329.89/day (caustic cost at $3.38 per cwt).

Caustic concentrations on the waste water going to the sewer from the North and South first stage slide washers showed a caustic savings (caustic not being sewered) to be from 2304#/day to 18,648#/day. While these may be extremes, they are both probable if one notes the percent usage variations on Table III and the fact that these were determined from spot samples.

The waste water from the North side first stage slide washer (Rice Barton side) showed a decrease in temperature, pH, caustic concentration, ash, suspended solids and B.O.D. and an increase in fiber content and soluble solids in relation to the tests taken on the waste waterfrom the south first stage slide washer. The apparent reduction in B.O.D. is very encouraging but not conclusive at this time, since many B.O.D. determinations must be run to establish this trend.

Tests on the waste waters from the North and South first stage slide washers when the Rice Bartons were not operating April 16th (Table II) show variations between these two washers.

In line with these other results, the washer man in the M.I. plant reports that the North slide washer wires require less souring out than the South since the operation of the Rice Bartons.

These survey tests clearly indicate the following recommendations:

The liquor from the Rice Barton extractors, with its high fiber content, should never be sewered.

In order to achieve any effective heat recovery from the Rice Bartons, no cold water dilution can be added between the hydrapulper and the Rice Bartons. If the consistency is too heavy for pumping this should be remedied in the hydrapulper with hot water.

Composite samples and daily flows of the waste waters from the first stage slide washers should be taken after completion of the other set of Rice Bartons to survey the effects of these water extractors on chemical recovery, caustic discharge to the sewer, B.O.D. and suspended solids content.

Work continue on methods and procedure to control caustic concentration in the hydrapulper at a level to achieve good deinking.

DISCUSSION:

The samples were taken when the brown stock washing operation seemed to be normal and production full. The temperature was taken immediately, but all the other tests were

run in the laboratory. The caustic concentration was determined by titrating with 0.1 N. HCl to a phenolphthalein endpoint. The caustic saving was computed on the difference of caustic per day going to the sewer on the two first stage slide washers. If the caustic concentration in the hydrapulper is excessive (over 2.5g/l) than the level and difference of caustic concentration in the two slide washer sewer waters is necessarily higher. This accounts for the high caustic saving indicated on 4/17 sample of 18,648#. Even this could be substantiated as possible using the actual caustic usage figures from Table III. If the maximum percent of caustic used before the Rice Barton operation is taken - 9.26% - which @ 800 Tons/day equals 37,040# and the minimum percent of caustic used after the Rice Barton operation - 3.56% - which @ 200 tons/day equals 14,240#. Then the maximum daily savings of caustic could be 22,800#.

As pointed out in the recommendations, the apparent reduction in B.O.D. due to the Rice Bartons could only be substantiated after more tests on composite samples after Rice Bartons are operating on both sides. The B.O.D. would then have to be expressed as pounds of B.O.D. per ton of Waste Paper. The difference in the B.O.D. in this report could be explained by some aeration of the Rice Barton liquor at the [illegible], additional dilution with bleach water, in the dilution box, due to the thickening of the Rice Bartons or an increased variation between the North & South first stage slide washers as shown in Table II.

There is no doubt that the Rice Bartons water extrators will effect a savings in caustic usage of about $500/day (for both units) and also will produce several other minor benefits in operation and cost reduction.

Table I shows all the test data on the waters with the operation of the Rice Bartons, while Table II shows the same data on the day the Rice Bartons were not operating.

Table III shows the caustic usage figures gathered from the King Deinking Mill records for the periods before and after the operation of the North set of Rice Bartons.

TABLE I

DATA ON WATERS WITH RICE BARTONS OPERATING

TEST	RICE BARTON LIQUOR NORTH SIDE		NORTH SIDE FIRST STAGE WASTE WATER				SOUTH SIDE FIRST STAGE WASTE WATER			
	4/14/59	4/17/59	4/14	4/17	4/21	4/23	4/14[b]	4/17	4/21	4/23
Temp. °F	140[b]	164	86	78	84	85	114	120	98	96
pH	11.9	12	9.8	10.8	9.5	10.4	10.4	12	10.9	10.8
Suspended Solids #/M gal.	144.5	131.7	50.0	32.5	--	--	76.1	71.7	--	--
Ash %	52	66	62	48.2	--	--	66	69	--	--
Soluble Solids #/M gal.	168.5	150.0	56.7	160	--	--	51.7	99.1	--	--
Fiber (200 mesh) #/M gal.	15.3	16.7	2.2	1.2	--	--	1.5	0.5	--	--
B.O.D. ppm	3372	--	1388	--	--	--	2012	--	--	--
Caustic Concentration g/l	0.71	2.44	.048	.144	.048	.336	.208	1.44	.272	.64
#/day	1533[c]	5270[c]	691[d]	2072[d]	691[d]	4830[d]	2995[d]	20720[d]	3915[d]	9210[d]
Caustic Savings #	--	--	2304	18648	3224	4380				

(a) Some chlorine Oliver drop leg water added to dilution box
(b) Cold water dilution in drop chest
(c) Based on 180 gpm
(d) Based on 1200 gpm

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TABLE II

DATA ON WATERS WITH RICE BARTONS NOT OPERATING

TEST	NORTH SIDE SLIDE WASHER WASTE WATER	SOUTH SIDE SLIDE WASHER WASTE WATER
	4/16/59	4/16/59
Temp. °F.	98	110
pH	11.5	11.7
Suspended Solids #/M gal.	48.3	78.7
Ash %	62.7	64.4
Soluble Solids #/M gal.	63.4	35
Fines (200 mesh) #/M gal.	2.45	2.37
B.O.D. ppm.	1840	2332

TABLE III

CAUSTIC USAGE IN KING D.I. PLANT
BEFORE AND AFTER RICE BARTON OPERATION

DATE	TOTAL CAUSTIC USED #	CAUSTIC USED IN BLEACH #	CAUSTIC USED IN HYDRAPULPER	WASTE PAPER BALED WT. TONS	% CAUSTIC IN HYDRAPULPER
Before					
4/6/59	55,255	18,000	37,255	201.2	9.26
4/7	39,213	14,400	24,813	200.0	6.21
4/8	42,125	14,400	27,725	206.7	6.71
4/9	54,140	14,400	39,740	236.5	8.40
4/10	44,868	18,300	26,565	223.3	5.95
4/11	47,955	14,800	33,155	220.6	7.53
Total	283,556	94,300	189,256	1288.3	
Aug.	47,389	15,715	31,543	214.7	7.34
After					
4/13/59	33,765	14,800	18,965	170.7	5.56
4/14	29,716	14,800	14,916	209.7	3.56
4/15	33,332	14,800	18,535	202.9	4.57
4/16*	45,234	14,800	30,434	199.9	7.66
4/17	35,797	14,800	20,997	186.3	5.63
4/18	37,783	14,800	22,983	216.0	5.32
4/20	39,641	18,500	21,141	211.3	5.01
Total	210,034	92,500	117,534	1196.9	
Aug	35,006	15,416	19,589	199.48	4.9

* Rice Barton not operating - not used in total or average

950620 SA 02959

Kalamazoo, Michigan, Fireside 5-7131

C. C. HARVEY

92-2364
dup

ALLIED PAPER CORPORATION

January 26, 1968

Mr. Robert J. Courchaine
Regional Engineer
Water Resources Commission
200 Mills Street
Lansing 13, Michigan 48926

Dear Mr. Courchaine:

On Tuesday of this week, one of your representatives visited my office to tell me that we were bypassing some of our effluent at Bryant. I assured him I would check into the situation and see if it could be helped. ?

I found that two of the five paper machines at Bryant were on colored orders; a situation which we always try to avoid in scheduling. I thought I would have to take one of the orders off the machine, but it was a very light green tint and we decided to try to reuse the water rather than sewer it. We were able to do this successfully and the problem was solved.

I have stated a flat rule both to our scheduling department and to Bryant supervision that we must never have more than one machine at a time on colored orders.

Yours truly,

Jack Gilman

Jack Gilman

jlf

cc Ken Sweet
Fritz Peeters

MDNR 003673

93-1755

ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

PAPER MILLS DIVISION KALAMAZOO, MICHIGAN 49003 (616) 345-7131

May 20, 1974

Mr. James N. Howell
Division Permit Coordinator
Department of Natural Resources
Water Resources Commission
Steven T. Mason Building
Lansing, Michigan 48926

Dear Jim:

Jack Gilman and I thank you, Karl, and Tom for taking time to meet with us last May 7. We now have a much better handle on the various deadline dates and effluent limitations required in our proposed permit.

To insure that we will be in compliance on July 1, 1974, with the B.O.D. 30 day average limitation, we request a new value of 1205 pounds/day. This figure is based on the last 33 B.O.D. sample tests taken and using the corrected flow figures for total B.O.D. pounds. The maximum of 2207 pounds/day can remain as stated.

We would like some information on Portage Creek flow. What would you consider to be average daily flow for spring, summer, and fall? What flow figure do you use for the 10 year 7 day low drought flow? Our reason for asking is that we have given some thought to the flow augmentation to maintain average flow. If average flow could be automatically maintained, how would this affect the calculation of B.O.D. limitations for the proposed permit 1977 date?

Since our meeting with you, we have placed on order some $10,000 worth of meters and measuring devices for our fresh water supply pipes and our Monarch clarifier effluent discharge flow. Once these are installed, we will better be able to pursue our program to reduce fresh water usage and waste water discharge. This program has high priority on our drive to meet the 1977 B.O.D. limitations.

Very truly yours,

ALLIED PAPER INCORPORATED

U. G. Stoeffler, Manager
Process Development

UGS:rb
cc: E. J. Gilman
R. J. Willie

MDNR 003812

Kalamazoo, Michigan, [illegible] reside 5-7131

93-1507

ALLIED PAPER CORPORATION

RECEIVED
JUL 5 1968
WATER RESOURCES COMMISSION

July 3, 1968

Water Resources Commission
200 Mill Street
Lansing, Michigan 48926

Attn: Mr. Robert J. Courchaine
Regional Engineer

Dear Bob:

This is to confirm our telephone conversation of this morning relative to the two week testing period at Bryant Mill. During these two weeks we will treat the deinked waste in the Bryant clarifier bypassing the white water from the Bryant Division. We will take samples from the clarifier effluent and both the City of Kalamazoo and our laboratory personnel will make tests on the samples.

July 8-20

This will also confirm your verbal approval of this two week testing program and we will convey this approval to Don Swets. We appreciate your cooperation in this project.

As you know, the City of Kalamazoo was desirous of a two week testing program as they felt they would have a better idea on the composition of the wastes we would be putting into their system. This would simulate the proposed plan outlined by our E.J. Gilman in a recent letter to the Commission.

Yours very truly,

U. G. Stoeffler, Manager
Process Development

/deo

cc R. M. Levy
E. J. Gilman
D. Swets

0002648

92-2240

ALLIED PAPER CORPORATION

RESEARCH AND DEVELOPMENT DEPARTMENT

Progress Report No. 6

Project No. 900

Subject: Bryant sewer loadings and determination of B.O.D. and solids removal by screening of Bryant wastes as well as Bryant machine centricleaner rejects.

Distribution

R. M. Levy
G. H. Baldauf
U. G. Steeffler
H. R. Hall
B. Growald
R & D File

W. D. Harrison
J. D. Dailey
E. J. Gilman
W. Boenger

Date: January 24, 1963

By: P. H. Germann
R. J. Willie

Approved:

000777

SA 028987

Subject:

1. To determine the components of Bryant waste streams.

2. To determine the reduction in B.O.D. and solids by screening Bryant waste.

3. To determine the machine centricleaner reject fraction of the total paper mill sewer loading and the reduction in loading by screening.

Procedure:

The individual sources of sewer loading were traced and designated on a plan of the mill sewers.

Composite samples were taken and tested for B.O.D. and solids. The screened solids was determined by pouring 500 ml. of sample through a 200 mesh sieve and filtering the component that passed through the screen

Conclusions:

By screening Bryant sewer loadings were reduced 60 to 64 percent in B.O.D. and 22 to 76 percent in solids.

The sewer loading from the machine cleaners was 6000 to 15000 pounds per day or 7 to 17 percent of the total solids and 163 to 226 pounds per day or 1 to 1 5 percent of the total B.O.D.

The centricleaner loading by screening was reduced 50 percent B.O.D. and 48 percent in solids.

Discussion:

Sampling points at Mill "D" are designated as follows:

#5 Mill C waste.

#6 lateral sewers under machines at "D"
#7
#8

#9 sewers under beater room at "D"
#10

Samples were taken at each point each hour for four hours and combined for testing. All tests were run following standard laboratory procedure.

Centricleaner reject flows were measured with a pint cup and stop watch.

Results:

1. Attached to file copy.
   A. Drawing of Mill D sewer components.
   B. Drawing of Mill C sewer components.
2. Tables
   I Bryant machines waste solids and B.O.D.
   II Bryant machines centricleaner rejects.
   III Bryant machines waste reduction.
   IV Bryant machines centricleaner waste reduction.

gw

BRYANT MAC

12/18/62

SAMPLING POINT	pH	SOLIDS				PPM BOD			pH
		SUSPENDED #/M Gal.	SCREENED #/M Gal.	FLASH #/M Gal.	SOLUBLES (#/M Gal.)	SUSPENDED	SCREENED	FILTERED	
#5	7.2	10	5	3	1	230	110	90	7.5
#6	7.4	3	2	1	1	120	80	56	7.6
#7	7.4	10	5	4	1	270	55	40	7.3
#8	6.6	17	2	14	2	512	240	122	4.7
#9	7.1	23	5	10	2	235	60	0	7.5
#10	7.6	1	0.5	0.5	1	0	0	0	7.6

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TABLE II

BRYANT MACHINES CENTRICLEANER REJECTS

MACH.	GRADE	1/8/63 ASH (%)	FLOW (Gal/Day)	BOD (#/Day) Raw	BOD (#/Day) Screened	SUSPENDED SOLIDS (#/Day)	FIBER (#/Day)
5	28#C# Bond 24# D.Bond	13 6.4	2,400	7	2	605	124
6	41# Union Bond	14.5	21,600	53	29	1100	470
7	30# E.B.	17	5,400	12	4	-	503
8	60# Church Bul.	12.6	5,400	22	9	3770	412
9	30# Imp. Bible	17	47,000	132	6	5760	1440

MACH	GRADE	1/10/63 ASH (%)	FLOW Gal/Day	BOD #/DAY RAW	BOD #/DAY SCREENED	BOD #/DAY FILTERED	SOLIDS #/Day SUSPENDED	SOLIDS #/Day SCREENED	FIBER #/Day	SOLUBLES #/Day
6	42# Custom	16	21,600	14	13	0	2020	942	348	7
7	25# Imp Bible	21	4,320	4	2	0	1342	771	423	7
8	45# Solar	15.4	10,800	20	16	0	1460	1340	390	18
9	50# Velour	2.4	36,400	125	54	40	1595	152	1320	91

TABLE III

BRYANT MACHINES WASTE REDUCTION

	ALLIED R & D			N.C.S.I. *	
BOD (ppm)	12/18/62	12/19/62	12/20/62	11/28/62	12/3/62
Total	1367		1081	2015	1825
After Screening	545		300		
% Reduction	60		64		
Solids (#/M Gal.)					
Total	64	112	62	110	66
After Screening	20	88	15		
% Reduction	69	22	76		

TABLE IV

BRYANT MACHINE CENTRICLEANER WASTE REDUCTION

			N.C.S.I.* values for total amount from Mill "C" & "D".	
BOD (#/Day)	1/8/63	1/10/63		
Total	226	163	17,825	13,546
After Screening		85		
% Reduction		48		
% of total loading	1.5	1.0		
Solids (#/Day)				
Total	15,235	6,400		
After Screening		3,200		
% Reduction		50		
% of total loading	17	7.0		

* N.C.S.I.

National Council for Stream Improvement Engineering Report.

92-221

ALLIED PAPER CORPORATION

RESEARCH AND DEVELOPMENT DEPARTMENT

Progress Report No. 6

Project No. 900

Subject: ~~A study~~ of BOD removal from King Mill primary treated effluent in an activated sludge pilot plant with and without nutrient addition and from a mixture of mill primary treated effluent and domestic sewage without additional nutrients.

Distribution:

R. M. Levy
R. A. Larson
G. H. Baldauf
H. R. Hall
R&D File

W. D. Harrison
J. D. Dailey
E. J. Gilman
D. Falvey

Date: October 20, 1960

By: P. H. Germann
U. G. Stoeffler
J. B. Yonker
R. J. Willie

Approved: RL

000788

Objectives:

1. To determine if mill primary treated effluent can be treated by the activated sludge process.

2. To determine the effect on BOD removal of varying the nutrient level.

3. To determine the feasibility of treating paper mill primary treated effluent with domestic sewage by the activated sludge process.

Procedure:

The pilot plant was operated on a six day week at 10,000 ppm suspended solids in the mixed liquor. Dissolved oxygen in the mixed liquor was maintained except during periods of mechanical difficulties which occurred several times throughout the course of this study. The flow was maintained at 5 gpm except from August 24, 1960 through September 15, 1960 when it was 6 gpm. The flow in September 1960 was composed of 50% domestic sewage and 50% mill primary treated effluent except on September 14, 1960 and September 15, 1960 when the flow was 60% mill effluent and 40% sewage. From September 15, 1960 on the flow was 6 gpm and 100% mill effluent.

The retention time in the mixed liquor tank was 4.5 hours at 5 gpm and 4.0 hours at 6 gpm flow. The return sludge flow was 12 gpm at all times. The turbine speed was 210 rpm and the air flow was 5 cubic feet per minute. The nutrients were added at various rates. In September 1959 the feed was 206 ml. of phosphoric acid and 1900 ml. of ammonia. In October 1959 the nutrient feed was 152.2 acid and 1023.6 ammonia. In June 1960 the nutrient feed was 136 acid and 1250 ammonia. In September 1960 there was no addition of ammonia or phosphoric acid.

Samples were tested for suspended solids, solubles, ash, BOD, nitrogen and phosphorus.

Conclusions:

1. King mill primary effluent can be treated to remove greater than 80% of the BOD loading by the activated sludge process using less than theoretical amounts of ammonia and phosphoric acid, nutrients, at a retention time of 4.5 hours in the mixed liquor tank. (See Table I)

2. The theoretical BOD to nutrient ratios were 1/20 N(Nitrogen) and 1/70 P(Phosphorus) at 420 ppm BOD loading. This ratio is equivalent to 308 ml. of 75% phosphoric acid and 2570 ml. of 30% ammonia per day at 5 gpm flow (4.5 hours detention time). During September 1959 the nutrient feeds were 72.8% of theoretical P and 80.3% of theoretical N with a BOD removal of 81.4%. During October 1959 the BOD removal was 85% with 44.6% theoretical P and 36% of theoretical N. During June 1960 the BOD removal was 88.7% with 50% of P and 42.8% of N. In July 1960 the BOD removal was 89.0% and the nutrient feed was 45.9% of theoretical P and 50.5% of theoretical N (at these percentages the nutrient ratios are 1/70 N and 1/400 P). (See Table III) During September 1960 there

was no nutrient feed and the BOD removal was 52.4% for a detention time of 4.0 hours operating with substandard conditions. (See Table I)

3. The treatment of mill effluent with domestic sewage is feasible as shown in the September 1960 operation of the pilot plant. Without additional nutrients, as the sewage provided as excess, the BOD removal was greater than 90% at a retention time of 4.5 hours in the mixed liquor aeration tank. (See Table I) It was also observed that the solids removal was improved in this mixed system. It is also feasible to reduce the ratio of sewage to mill effluent from 1:1 to 2:3 and maintain the same BOD removal efficiency.

Discussion:

The breakdown of equipment plagued this trial from the start. The turbine motor burned out three times, a sludge pump was replaced, the air compressor would not function continuously and finally the gears on the turbine wore out. This was not enough, the primary settling tank lost pumps, motors and the entire raking assembly during the time of this pilot plant operation.

The operation in 1959 was piped differently in minor points compared with 1960 when the blueprint of the system was obtained.

The suspended solids buildup necessitated bleeding the system frequently to keep the mixed liquor solids at a reasonable level. The inlet flow was regulated in a headbox for all periods except the sewage trial. During this phase orifice plates and adjustible heads were provided to maintain the prescribed flow (3 gpm of each, sewage and mill effluent). The mill effluent was obtained from the primary settling tank wier and the sewage was pumped from a trunk line to insure against times of low flow. A recorder was put on the sewage wier box to investigate the change in flow during the night. From this level recorder it was found necessary to install a large weighted screen around the inlet to the pump and to clean it periodically.

The dissolved oxygen was maintained throughout the trial and frequently checked as were the flows. The nutrient feeds were obtained by diluting concentrated phosphoric acid and ammonia with water in 50 gallon drums. These diluted solutions were fed in 1959 by a Clarkson feeder and low capacity pump. In 1960 the use of a Sigma motor pump increased the feed rate efficiency.

Samples were taken from continuous samplers on the mill effluent, the sewage, and the pilot plant effluent. The samples were tested according to the following procedures. Suspended solids were taken by filtering 500 ml. through no.42 filter paper on a Büchner funnel. This test was accurate to the 20 ppm level and all values less than that are reported as less than 20. The solubles were tested by evaporating 100 ml. of the filtrate from the solids filtration. The ash was determined by ignition of the suspended solids filter pad. The BOD was tested after five days incubation at 20 degrees C. (The procedure as outlined by the National Council for Stream Improvement). The results are reported to the minimum accuracy

of 20 ppm and all tests below this value are reported as less than 20. This was because of the dilutions of the solutions used in the testing. The BOD of the mixture of the mill effluent and sewage was determined by averaging the BOD of the sewage and mill effluent. All the nitrogen and phosphorus tests were taken on a Hach Colorimeter and are on the low side due to equipment limitations. (See Table IV) Because of the residuals of nitrogen and phosphorus in the effluent from the pilot plant as shown by these tests it was decided to conduct a run without the addition of nutrients. This run was made from September 16, 1960 to October 13, 1960.

Sludge settling rates were taken in a liter graduate and the sample was stirred by a 1/10 rpm rotor. (See Table V) Leaf tests were made by EIMCO and oxygen utilization rates were taken in collaboration with NCSI.

Nutrient analysis of the city sewage samples were run both by Allied and Kalamazoo City technicians from July 25th to September 12, 1960. Ammonia nitrogen, nitrite nitrogen, nitrate nitrogen, otho phosphate, meta-phosphate and total phosphate were run on daily samples from comminutor rumm aerator influent, supernatent and plant effluent. Results of these daily tests by both laboratories are attached to the file copy of this report.

Results:

I Suspended solids and BOD data

II Operating Summary data

III Calculation of N and P ratios

IV Nitrogen and Phosphorus tests of the system

V Settling rates of activated sludge

VI Curves of activates sludge settling rates

TABLE I (a)

SUSPENDED SOLIDS SOLIDS AND BOD DATA FROM PILOT PLANT

Date	Suspended Solids (ppm) Influent	Mixed Liquor	Effluent	Solubles (ppm) Influent	Effluent	BOD (ppm) Influent	Effluent	% Removal
)-10-59	600	1,296	600	1300	1000	425	85.5	79.9
)-16-59	840	3,860	339	1300	1300		45	
)-17-59		3,760	160	1400	1400			
)-18-59		7,230	360	1760	1700		87	
)-22-59	420	10,800	340	1900	2100			
)-23-59	480	10,780	260	1400	1700	350	66	82.9
)-24-59	840	12,300	120	1200	1500			
)-25-59		12,300	460	1500	2100			
)-28-59		12,850	570	1000	900			
						387		81.4 Average
)-29-59	940	13,580	580	1400	1700	392	82	79.4
)-30-59	540	13,450	1040	1400	1800	420	76	82.0
10-1-59	940					410	43	89.6
10-2-59		11,400	440	1500	1500			
10-6-59	568					380	57	85.5
10-7-59		7,500	1080			720	84	88.3
						464		85.0 Average

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TABLE I (b)

SUSPENDED SOLIDS AND BOD DATA FROM PILOT PLANT

Date	Suspended Solids (ppm) Influent	Mixed Liquor	Effluent	Solubles (ppm)	BOD (ppm) Influent	Effluent	% Removal
4-29-60					500	410	(18.0)
6-2-60					530	86	80.5
6-7-60	1140	19,580	980	1700			
6-8-60	1630	22,560	480	1800	730	53	92.7
6-9-60	2060	21,480	900	2300			
6-14-60	220	19,840	920	2400			
6-15-60	480	19,320	2240	2200			
6-16-60	340	19,620	1000	2200	510	65	87.3
6-21-60	560	22,060	800	2000			
6-22-60	620	23,240	560	2100			
6-23-60	660	22,940	1120	2000	370	29	91.8
6-24-60					445	38	91.0
6-28-60	360	21,360	2040	2300			
6-29-60	220	20,940	2440	2100	460	167	(63.8)
6-30-60	567	19,740	2100	2000	450	160	(64.5)
					491		88.7 Average
7-13-60	400	18,640	2020	2200	350	130	62.8
7-14-60	460	18,780	1060	2000	445	54	88.0
7-19-60	720	23,580	1480	2100	420	40	90.5
7-20-60	940	13,280	1260	2000			
7-21-60	900	13,460	610	2100			
				Average	404		

SA 020916

TABLE I (c)

SUSPENDED SOLIDS AND BOD DATA FROM PILOT PLANT

Date	SUSPENDED SOLIDS (ppm) Mill Effluent	% Ash	Sewage	% Ash	Mixed Liquor	%Ash	Effluent	% Ash	B.O.D. (ppm) Mill	Sewage	Eff	% Removal
8-24-60	600	50.0	160	8.7	4140	55.0	300	33.0	300	80	41	71.5
8-29-60	260	38.0	-	-	-	-	60	67.0	-	-	-	-
8-30-60	1360	51.5	-	-	11,340	47.7	160	32.6	545	121	96	71.5
8-31-60	1500	46.7	260	23.0	7100	55.0	<20	0.0	535	115	28	91.5
9-1-60	1460	53.4	280	42.9	10,080	51.0	200	10.0	540	175	23	98.0
9-2-60	1500	49.5	100	60.0	10,880	50.8	260	15.3	625	193	35	91.6
9-3-60	1040	46.2	160	11.2	10,700	50.5	<20	0.0	312	331	28	91.4
9-6-60	360	72.2	140	43.0	11,060	55.0	40	0.0	288	234	<20	92.4
9-7-60	160	87.5	220	27.3	10,600	56.6	<20	0.0	318	136	<20	>91.0
9-8-60	100	60.0	0.0	0.0	9120	58.8	140	42.9	288	148	<20	>91.5
9-9-60	2040	45.0	100	40.0	5140	60.0	<20	0.0	515	108	<20	>93.5
9-10-60	560	68.0	100	40.0	9860	56.6	100	60.0	237	224	<20	>91.5
9-12-60	1420	52.0	160	25.0	9200	57.6	120	16.7	124	134	<20	>85.0
9-13-60	145	11.0	90	66.7	1500	100.0	<20	0.0	308	217	44	84.5
9-14-60	1260	52.5	160	62.5	7040	51.5	40	100	615	290	42	91.5
9-15-60	660	45.5	220	18.3	8440	54.9	<20	20.0	469	160	23	93.0

SH 029020

TABLE I (d)

SUSPENDED SOLIDS AND BOD DATA FROM PILOT PLANT

Date	SUSPENDED SOLIDS (ppm) Mill Effluent	% Ash	Sewage	% Ash	Mixed Liquor	% Ash	Effluent	% Ash	B.O.D. (ppm) Mill	Sewage	Eff	% Removal
9-16-60	640	71.9			10,220	55.0	120	16.7	478		>74	<84.4
9-17-60	1660	55.5			10,780	63.0	<20	0.0	460		113	78.5
9-19-60	200	90.0			11,500	52.5	120	50.0	232		234	0.0
9-27-60	2640	54.5			15,340	40.6	1080	70.4	550			
9-28-60	1200	68.5			12,340	41.7	500	80.0	340		135	60.5
9-29-60	1620	60.5			12,360	41.9	740	73.0				
10-4-60	1860	59.2			13,660	38.9	1040	71.1				
10-5-60	1700	58.8			13,440	39.3	1040	69.3				
10-11-60	1120	66.2			15,000	40.9	920	67.4	590		280	52.6
10-12-60	1320	62.2			14,680	41.3	840	69.1	520		270	48.2
10-13-60	1280	63.6			14,280	41.1	980	71.6	540		280	48.2

SA 029021

TABLE II

NUTRIENT FEED AND B.O.D. REMOVAL

Date	Nutrient Feed Actual ml/day H_3PO_4	Actual ml/day NH_4OH	Theoretical ml/day H_3PO_4	Theoretical ml/day NH_4OH	% of Theoretical Used * H_3PO_4	% of Theoretical Used * NH_4OH	Average BOD Remo %
9-10-59 to 9-28-59	206	1900	308	2570	72.8	80.3	81.4
9-29-59 to 10-7-59	152.2	1023.6	308	2570	44.6	36.0	85.0
6-7-60 to 6-30-60	180	1280	308	2570	50.0	42.8	88.7
7-13-60 to 7-21-60	136	1250	308	2570	45.9	50.5	89.0

* Corrected % of theoretical based on actual average of influent BOD from the base of 420 ppm BOD loading.

TABLE III

CALCULATION OF N (Nitrogen) and P (Phosphorus)

FLOW: 7,200 gal/day (5 gpm) or 26,640 liters/day

NUTRIENTS: 0.136 liters H_3PO_4 or 5.1 ppm H_3PO_4

1.250 liters NH_4OH or 46.9 ppm NH_4OH

75% of 5.1 ppm = 3.82 ppm H_3PO_4

and 31.6% of H_3PO_4 is P 31.6% x 3.82 ppm = 1.21 ppm P

30% of 46.9 ppm = 14.1 ppm NH_4OH

and 40.0% of NH_4OH is N 40.0% x 14.1 ppm = 5.6 ppm N

Based on 420 ppm BOD this is 1/70 N and 1/400 P in addition to mill supp

7200gal. x 3.7 = 26,640.0 liters/day

$\frac{0.136}{26640}$ = 5.1 ppm $\frac{1.25}{26640}$ = 46.9 ppm

Phosphoric Acid is 75% conc.

Ammonia is 30% cons.

H_3PO_4 $3+31+64 = 98$ $\frac{31}{98} = 31.6\%$

NH_5O $14+5+16 = 35$ $\frac{14}{35} = 40.0\%$

TABLE IV

NITROGEN AND PHOSPHOROUS IN SYSTEM DURING SEWAGE TRIAL

DATE	AMMONIA NITROGEN (ppm)			TOTAL PHOSPHATE (ppm)			NITRATE NITROGEN (p		
	MILL	SEWAGE	EFF	MILL	SEWAGE	EFF	MILL	SEWAGE	EFF
8-24-60	12.0	16.1	9.0	13.0	20.0	10.5			
8-31-60	10.0	17.5	6.0	10.0	30.0	11.0			
9-1-60	8.0	8.0	4.0	8.0	17.0	10.0			
9-6-60	12.0	15.0	2.5	10.0	27.0	5.5			
9-7-60	12.0	17.5	3.0				0.4	3.0	1.0
9-8-60	11.0	18.0	16.0				2.1	3.3	6.0

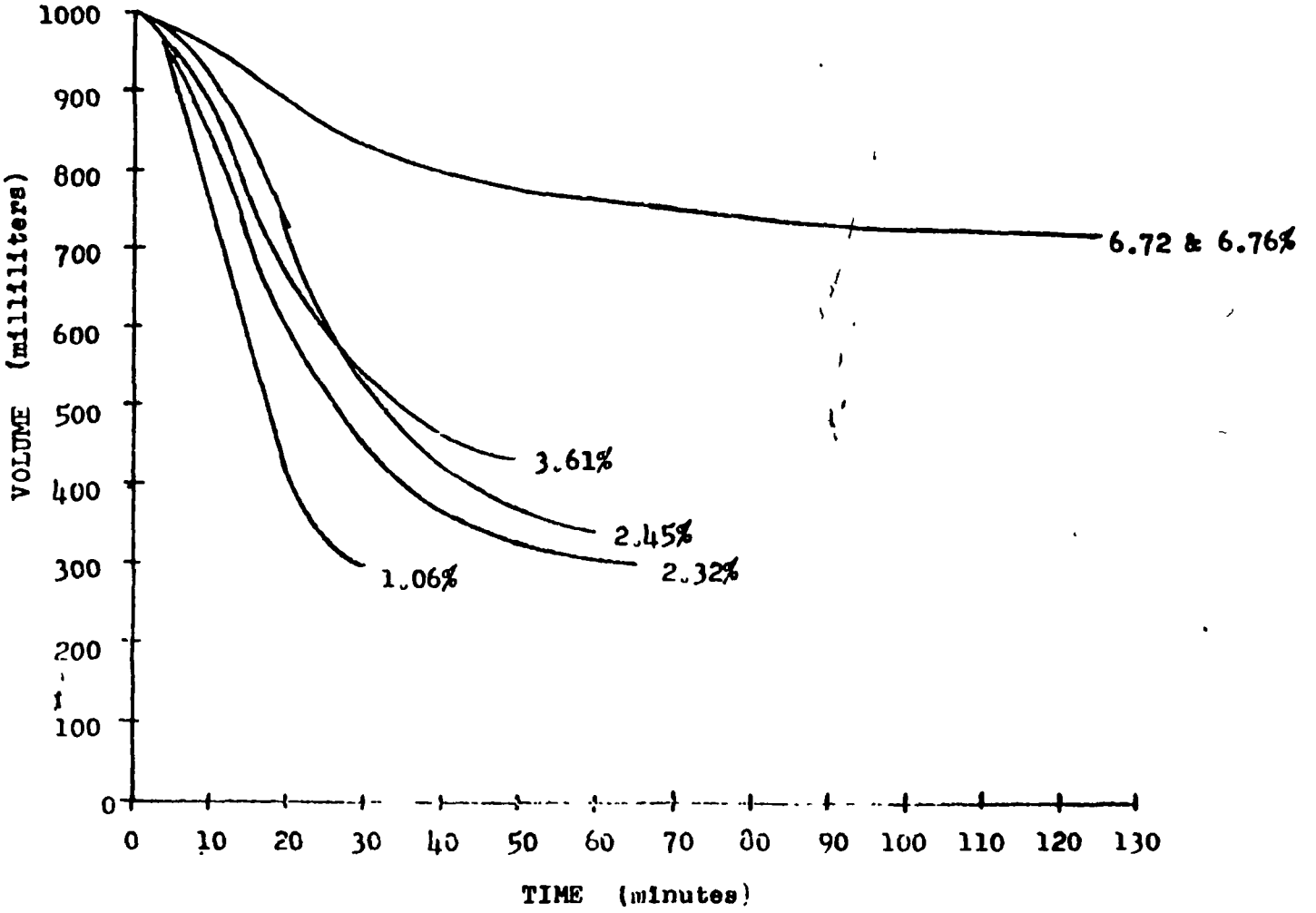
TABLE V

SETTLING RATE OF ACTIVATED SLUDGE

SAMPLE	#1		#2		#3		#4		#5		#6	
CONSISTENCY,	1.06%		3.61%		6.76%		6.72%		2.32%		2.45%	
Time	Vol.	Time	Vol.	Time	Vol.	Time	Vol.	Time	Vol.	Time	Vol.
1041	1000	405	1000	1037	1000	1255	1000	934	1000	1107	1000
1043	980	407	990	1039	990	1205	955	936	9980	1109	990
1045	960	409	970	1041	990	1215	890	938	960	1111	985
1047	920	411	940	1043	980	1225	830	940	945	1113	970
1049	840	413	910	1045	970	1255	760	942	900	1115	950
1051	740	415	880	1047	955	1225	730	944	840	1117	925
1053	630	417	840	1049	945			946	780	1119	900
1055	550	419	790	1051	930			948	720	1121	860
1057	500	421	750	1053	920			950	660	1123	810
1059	450	423	720	1055	910			952	620	1125	770
1101	410	425	680	1057	900			954	590	1127	710
1103	370	427	650	1059	880			956	550	1129	670
1105	340	429	620	1101	870			958	510	1131	630
1107	320	431	590	1103	850			1000	480	1133	590
1109	300	433	560	1105	840			1002	460	1135	560
1111	290	435	540	1107	830			1004	440	1137	520
0132	200	437	520	1109	830			1006	420	1139	500
		439	500	1111	820			1008	400	1141	470
		441	490	1113	810			1000	385	1143	445
		443	480	1115	800			1012	370	1145	430
		445	460	1117	800			1014	360	1147	420
		450	440	1119	790			1019	340	1149	405
		455	430	1121	785			1024	320	1151	390
		500	420	1123	780			1029	320	1157	370
				1125	775			1034	300	1202	350
				1130	765			1039	300	107	290
				1135	760			1226	250		
				1145	750			340	240		
				1155	740						
				1210	730						
				1240	720						

TABLE V (a)

ACTIVATED SLUDGE SETTLING RATE CURVES



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92-2376

ALLIED PAPER CORPORATION

RESEARCH AND DEVELOPMENT DEPARTMENT

Progress Report No. 4

Project No. 900

SUBJECT: Reclaiming sludge with low ash content.

Distribution:

R.N.Levy
G.H.Baldauf
R.A.Larson
H.R.Hall
R&D File

Date: April 7, 1960

By: P.H.Germann
E.G.Stoeffler
D.B.Shaw

Approved: RL

000155

Objects:

To determine if the ash content of the sludge can be reduced by centricleaning or by slide washing. A trial of corrugating medium was run but the ash content was too high and as a result this study was made.

Procedure:

A sludge sample was run through the laboratory centricleaner at several consistencies to determine the separation proportions of fiber and filler. The sludge was also washed over a side hill slide, at different consistencies that this method of ash removal may be evaluated. The material balance of each system is included at the end of this report.

Conclusions:

The percent ash was not decreased by centricleaning the sludge at 0.71 and 0.91 percent consistency and there was a substantial loss in fiber (31 to 33 percent).

The percent ash can be reduced by running the sludge over a slide. At 1.14 percent inlet consistency the percent ash was reduced from 45.0 to 35.6 with a fiber loss of 1.68 percent. A run was also made of sludge at 6.12 percent consistency and would not work on the slide at that consistency.

Discussion:

The sludge sample was taken from the bleed line on the moyno pump at the King settling tank. Part of this sample was diluted in the laboratory to consistencies of 0.91 and 0.71 percent and centricleaned at 40 psig inlet pressure and 0.0 back pressure. The slide runs were made on the small laboratory side hill screen (100 mesh). The maximum rate of flow over this slide was 7.4 gallons per minute. The material balance for each run was also determined.

On the attached data sheet the samples are calculated as moisture free and the figures in parentheses were calculated from the other data. The fiber is the portion of the total solids that remains on a 200 mesh screen.

Centricleaner Sludge Runs

	SOLIDS				FIBER		
	GPM	%	#/Min	% Ash	% of Solids	#/Min	% Loss
Inlet	(26.53)	0.71	1.56	-	19.60	0.305	
Accepts	24.60	0.58	1.19	43.1	17.25	0.205	
Rejects	1.93	2.02	0.32	47.5	28.80	0.092	31.0
Inlet	(21.78)	0.91	1.65	45.0	20.10	0.332	
Accepts	20.00	0.77	1.28	45.5	19.50	0.250	
Rejects	1.78	1.69	0.25	78.7	50.50	0.125	33.0

Slide Sludge Runs

	SOLILS				FIBER		
	GPM	%	#/Min	% Ash	% of Solids	#/Min	% Loss
Inlet	(7.3)	1.42	0.865	41.5	17.60	0.17[illegible]	
Accepts	2.8	1.91	0.445	33.5	38.80	0.17[illegible]	
Rejects	4.5	1.12	0.420	58.0	0.89	0.00[illegible]	2.10
Inlet	(7.4)	1.85	1.140	46.0	21.60	0.246	
Accepts	3.9	2.02	0.656	35.6	35.60	0.23[illegible]	
Rejects	3.5	1.27	0.371	59.0	0.95	0.00[illegible]	1.68
Inlet	6.0	0.91	0.455	-	20.10	0.09[illegible]	
Accepts	(1.68)	1.77	0.260	22.0	(34)	0.089	
Rejects	(4.32)	0.55	0.194	58.0	1.09	0.002	2.20
Inlet	2.0	0.91	-	-	20.10	-	
Accepts	-	1.43	-	27.1	47.00	-	
Rejects	-	0.45	-	62.0	1.50	-	-
Inlet	(4.0)	6.12	2.10	-	(19.5)	0.41	
Accepts	3.0	6.14	1.53	43.5	26.80	0.41	
Rejects	1.0	2.03	0.17	69.0	0.45	0.00	0.00

92-2186

4/9/59

ALLIED PAPER CORPORATION

RESEARCH AND DEVELOPMENT DEPT.

Progress No. 2

Project No. 900

Subject: Evaluation of Nalco 1610 and 1623 as coagulants for [redacted] and King brown stock slide washer sewer waste.

Distribution
R. Levy
G. Baldauf
R. Hall
R. Larson
R&D file

Date: April 9, 1959

By: U. G. Stoeffler

Approved: R. L

000792

Object: These two new Nalco long chain, high molecular weight polymers had looked very promising in previous applications. Not wanting to miss an opportunity to evaluate some new promising product which might aid our waste treatment problem, laboratory tests were scheduled and run on Nalco 1610 and 1623.

Procedure: All tests were carried out in the laboratory using 700 cc samples of the two wastes. A. J. McKimm, Nalco sales representative, aided in this work. Visual inspection and solids tests were used to evaluate the results. No attempt was made to measure BOD removal as no clarity was attained in the supernatural liquid.
attained in the supernatant liquid.

Conclusions:

1) Neither the Nalco 1610 nor the 1623 was effective in coagulating the King waste tank influent to a point which produced any degree of clarity in the supernatant liquid at the as received pH level (9.2 in this case) with a dosage within economic reason.

2) Using the King slide washer sewer waste the following results were noted:

a. Nalco 1610 added to the waste, adjusted to a pH of 7.0 at 3.6 ppm dosage did not produce any clarity and the cost for the Nalco 1610 is prohibitive--about $75 per million gals.

b. Nalco 1623 added to the raw waste (pH 11.5) at a dosage of 0.36 ppm produced negligible coagulation.

c. Nalco 1623 added to the adjusted waste (pH 5.5) at a dosage of 0.36 ppm produced a large floc, very fast settling rate and slight clarity. The total solids in the supernatant liquid after 2 hours settling time was the lowest of all tests--a 47.2% reduction of solids over the blank sample. Nalco 1623 cost on this was $3.75 per million gals.

d. Acidifying this waste with concentrated sulfuric acid to a pH of 3.7 produced good clarity and 45.7% solids reduction.

3) The water solution of these polymers is somewhat delicate to prepare as severe agitation will shear the long chain polymer thus destroying its effectiveness.

Table I shows the results of all the various tests on this project

Discussion: The brown stock slide washer sewer waste used in these tests was from the south slides and tested as follows:

Suspended solids-71.06#/M gals.
Ash-61%

The Nalco 1610 was made up at a concentration of 2.5 grams/liter and the Nalco 1623 at 0.25 grams/liter. The solids were added slowly to wet the surface and then thoroughly mixed for about an hour with slow agitation. Nalco 1610 has a molecular weight over 1,000,000 while the Nalco 1623 molecular weight is 6,000,000. Both products are not production items yet and their present cost is about $2.50 per pound.

The King waste tank influent was used first. A 700 cc sample was agitated and various dorages of Nalco 1610 and 1623 were added. None of these showed any clarity of the supernatant liquid at the pH level as received.

The slide washer sewer waste (pH 11.5) treated with Nalco 1610 and 1623 did not show any results until the pH was adjusted with 1 cc concentrated H_2SC_4 per 700 cc sample resulting in an adjusted pH of 5.5-5.9. Note the difference in results between sample #4 and #5 on Table 1. It should also be noted that additional dosage over the optimum did no good, in fact decreased the clarity, settling rate, and solids reduction. This is shown in samples #4 and #6 on the Table. Nalco 1610 was only used on one sample (#1) because the results were poor and cost high. The evaluation of color, clarity, floc size and settling rate was by visual inspection and was on a relative basis. In an attempt to quantitatively measure the solids reduction in the supernatant liquid with settling, a 25 cc sample was pipetted into a solids cup and evaporated to dryness. These total solids appear in the last two columns. The total solids of the raw waste sample was 116.70#/M. gals.

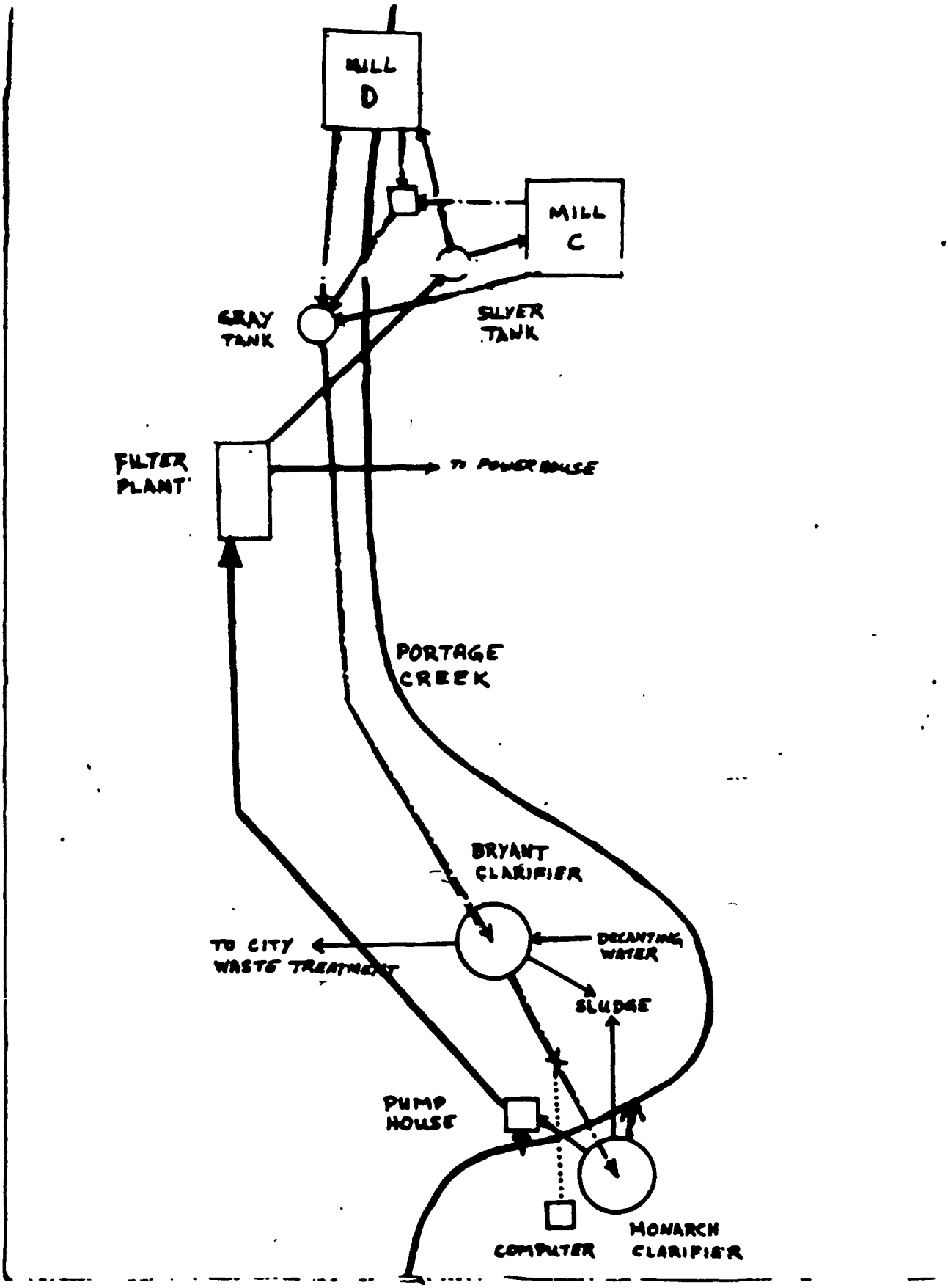
Since good BOD removal is only achieved with clarity in the supernatant liquid, no BOD determinations were made on these samples.

TABLE I

Treatment of King Slide Washer Sewer Waste

Sample No.	Treatment	pH	Color	Clarity	Floc size	Settling Rate	Total Solids in the Supernatant Liquid # per M gals. After 1/2 hr.	After 2 hr.
1	3.6 ppm 1610 1 cc H_2SO_4	7.0	lt. green	none	large	med.	80.06	70.05
2	1 cc H_2SO_4	5.9	lt. green	none	small	slow	91.74	75.06
3	0.18 ppm 1623 1 cc H_2SO_4	5.85	lt. green	none	large	med.	76.73	69.09
4	0.36 ppm 1623 1 cc H_2SO_4	5.5	dark green	slight	large	very fast	70.05	61.72
5	0.36 ppm 1623	11.5	tan-brown	none	small	very slow	98.41	93.41
6.	0.72 ppm 1623 1 cc H_2SO_4	5.9	med. green	none	large	fast	90.05	68.39
7	H_2SO_4	3.7	green	good	med.	fast	70.05	63.38
8	original sample - no settling						116.76	
10	none	11.5	tan-brown	none	small	very slow	105.08	100.08*

* 1 1/2 hour settling.


MILL D
MILL C
GRAY TANK
SILVER TANK
FILTER PLANT
TO POWER HOUSE
PORTAGE CREEK
BRYANT CLARIFIER
TO CITY WASTE TREATMENT
DECANTING WATER
SLUDGE
PUMP HOUSE
COMPUTER
MONARCH CLARIFIER

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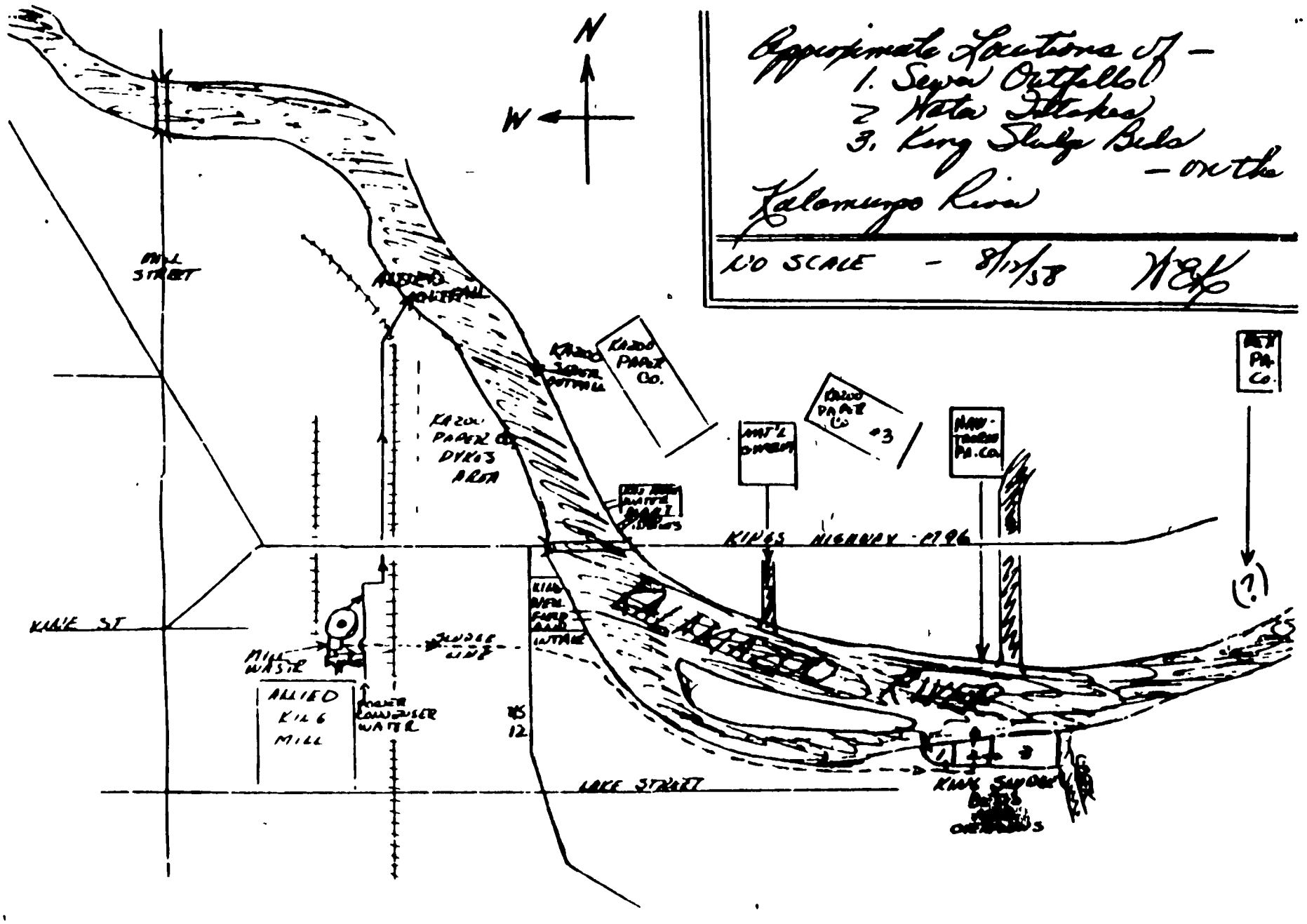
Approximate Locations of -
1. Sewer Outfalls
2. Water Intakes
3. King Sludge Beds
- on the
Kalamazoo River
NO SCALE - 8/12/58
N
W
MILL STREET
KINE ST
LAKE STREET
KINGS HIGHWAY - M96
KAZOO PAPER CO.
KAZOO PAPER CO. DYKES AREA
MILL WASTE
ALLIED KING MILL
POWER CONDENSER WATER
SLUDGE LINE
KING SLUDGE BEDS
(?)

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Kalamazoo, Michigan, [illegible]

AUG 7 1958

WATER RESOURCE COMMISSION

ALLIED PAPER CORPORATION

August 6, 1958

Mr. Milton P. Adams
Executive Secretary
Water Resources Commission
300 E. Michigan
Lansing 13, Michigan

Dear Mr. Adams:

This is a progress report and also a discussion of what we intend to do in the future, as the Allied Paper Corp., in the reduction and elimination of our paper mill effluents that have an oxygen demand from the Kalamazoo River.

We have broken the problem up into two distinct parts, one being the paper mill effluent and the other being the deinking mill effluent.

The paper mill effluent as such is no longer a serious problem with us since we have equipped each of our paper machines with a Sveen Pederson flotation type saveall. The savealls have reduced the solids content of our effluent, which goes back to the deinking mill, to figures that rarely exceed 1/2 pound per thousand gallons and more normally follow in a pattern of .15 to 1/4 pound of solids per thousand gallons. Of this solids only 15% is of a fiberous nature and the other 85% is inert materials such as clays, titanium dioxide, and other fillers used in the manufacture of paper. Also along this line, we have taken great pains to see that none of our tub sizing starch or starch used anywhere else is used in any excess quantities or is allowed to be mishandled in such a manner as to find its way into the sewers. In a further effort to cut down on the amount of water that is being used on the paper machines, we are studying various types of mechanical filters to polish the clarified water from the Sveen Pederson savealls so that we can use it back on all the showers that are used on the paper machines. This is a necessary step even though the saveall water would be good for 99% of the time, we have to guard ourselves against the 1% of the time when conditions could be upset so that the water, if it were used back on the showers would not cause mechanical damage to the wires, the felts, and also make paper that could not be saleable.

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The second part or phase of this problem is the treatment of our deinking waste to the point where we will have a very high percentage of the biological oxygen demanding materials removed from the effluent. Our basic method of attack has been to re-design and re-engineer our piping systems so that we have our offending waste concentrated as much as possible and have as few gallons per day to contend with as is possible. We have accomplished this by counter flow washing of the brown stock to the point now where the major portion of our deinking waste is confined to our waste water off the first section of the slide washers and has been reduced in volume to somewhere between 1500 and 2000 gallons per minute. This then gives us a volume of water to treat on a daily basis that is less than half of what we have been having to treat before so we are now in a much better position to do a more effectual treatment than heretofore possible.

At present we are undergoing many different types of experiments on this effluent from this particular slide washer all conducted with the thought in mind of removing, by some mechanical method, the solids material in this effluent. I should mention at this point that our studies here in the laboratory which are going on daily, have clearly demonstrated the fact that the materials causing a reduction in the oxygen supply of the stream can be almost completely eliminated by suitable mechanical filtering. Lest you become too elated, this is not quite as simple as it sounds. The material is quite difficult to filter and has a great tendency to plug up filtering mediums such as fly ash, sand, diatomaceous earth, or of wire mesh cylinder covers, but nevertheless it can be filtered, especially by pretreatment with an acid such as sulfuric acid to drop the pH of this alkaline effluent down to that of 4 1/2 to 5. So as to aid this filtering problem, we have had various representatives of the manufacturers of centrifugal equipment such as Delaval, Sharples, Merco, etc. centrifuging various samples from our systems and some of these results look quite promising. I should point out right here and now that these filtration studies have changed our thinking considerably as to what the offending materials were and what our method of handling them should be. For a long time most people have thought that the offending materials were highly dissolved materials, but we have found out for instance, by filtering the effluent through a fly ash medium that 95% of the BOD demand could be reduced and we have further found out that if we can get the effluent to have some degree of clarity, that our BOD demand is practically minimized. You can readily see then why we are enthused as to why we can possibly surmount this very difficult problem by a combination of mechanical means.

We have also found that this material can be readily floated in the same fashion that we float the materials in our Sveen Pedersen saveralls. There are some indications that this flotation process might be better than our present settling processes, and if this proves out to be the fact, and since by concentration we have been able to cut down on the amount of gallons we have to treat per day, we may readily effect a sludge that can be transported

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to some drying areas and then used as a land fill or some other uses not presently thought of.

As a further step in our effort to clean up the Kalamazoo River, the present voluntary group of the Kalamazoo River Improvement Co. consisting of ourselves, Kalamazoo Paper Co., Rex, and Hamilton Paper Co. at Plainwell have agreed to hire a secretary and technical coordinator, and the gentlema we have in mind is Tony Palladino, to coordinate and direct the various research projects that are now being done separately by the various members of the group. We here at Allied have pledged utmost cooperation through the group in disclosing our processes, our plans, our research program, and results to the members of the KRIC so that no overlapping in work occurs and that we can effect a more speedy conclusion to this highly complex and costly mill effluent problem. Along these same lines, we would greatly appreciate it if someone from your department, such as Mr. Purdy or Mr. Courchaine would set in these various meetings with us and give us the benefit of their experience and guidance and at the same time pass on to us your wishes and/or that of the Water Resources Commission.

If there is any material in the above that is not exactly clear, please get in touch with me so that I can clarify it.

Sincerely yours,

ALLIED PAPER CORPORATION

Harley E. Nelson

Harley E. Nelson
Technical Director

dcm

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Chief

Kalamazoo, Michigan, Fireside 5-7131

ALLIED PAPER CORPORATION

September 15, 1958

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WATER RESOURCES COMMISSION

Mr. Loring F. Oeming, Chief Engineer
Water Resources Commission
300 E. Michigan
Station B
Lansing 13, Michigan

Dear Mr. Oeming:

This is in reply to your letter of September 9th for which I thank you very much. As to your surprise as to the reduction of BOD demand through various filtering media, this is what I would normally expect. Apparently most investigations of trying to filter off the oxygen demanding materials through filtering media must have been confined to just using ordinary filter paper, which, of course, as we all know, does a very poor job of retaining colloidal materials or near colloidal material in the area of the particle sizes that we are confronted with in our deinking waste. Our experiments along these lines have only just begun and I think it will be some time before we have some very definite conclusions, or even feasibility, on this particular process or any of the flotation or sedimentation steps that could be worked in sequence with the filtering operation.

Just as soon as we have some concrete data and other points worth considering, we want to sit down with you and your staff and discuss the entire aspects of the contemplated process. Accordingly we will advise you as to the time and then we can arrange our dates for a meeting.

Very truly yours,

ALLIED PAPER CORPORATION

Harley E. Nelson

Harley E. Nelson
Technical Director

dcm

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ALLIED PAPER CORPORATION

June 4, 1965

Mr. Ralph W. Purdy, Chief Engineer
Water Resources Commission
200 Mill Street
Lansing, Michigan

Dear Ralph:

This letter is to inform you of the circumstances surrounding the partial by-passing of the waste treatment plant at our Bryant Mill on May 21st and 22nd.

On May 21st we were operating two of the three vertical pumps in the interceptor station at Mill "A", with the third pump temporarily out of action with bad bearings. At about noon on that day, one of the other two pumps which had been in operation had a mechanical failure.

We were forced to run the balance of that day and the next day with only one pump, but the other two were repaired on Sunday the 23rd, and all three were in full running condition for our start-up on the 24th.

Thanks to our policy of keeping adequate spare parts for these critical pumps on hand at all times, it was possible to keep the period during which the treatment plant was partially by-passed to a minimum.

Spare parts, equivalent to a complete pump, were again immediately ordered after this incident.

Yours truly,

ALLIED PAPER CORPORATION

Jack Gilman

E. J. Gilman
Vice President-Manufacturing

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JUN 8 1965
WATER RESOURCES

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92-2368

May 23, 1964

Mr. Robert Courchaine
Water Resources Commission
Lansing, Michigan

Dear Mr. Courchaine:

The below listed plan of action was jointly agreed upon during our meeting of Monday, May 18, 1964.

1) A two phase alarm system will be installed in such a way to signal our water treatment plant operator when the level in the wet well reaches a point six inches below the bottom of the by-pass tile and then again when the by-pass tile is taking the full flow from the mill. The water treatment plant operator will immediately notify the maintenance personnel responsible for correcting any malfunction that may exist in our waste disposal system and then the general superintendent, Mr. Harry Morrocks.

2) I have instigated a request to our Engineering Department for the development of a new, heavy weight swing valve to be installed in the by-passing line. This valve will be designed to provide a positive seal thereby preventing recirculation back to the wet well. The valve will be pivoted on anti-friction bearings and suitably counter balanced so that when the level in the wet well reaches a danger point on the high side, the valve will automatically open to by-pass waste; of course in the meantime our alarm system will have signalled the proper persons at the Ring mill so that preparations will be in progress for correcting the condition responsible for the rise in the sewage level in the wet well. This valve will be counter balanced so that when the level in the wet well has receded to a normal position the valve will close and provide a secure seal preventing recirculation.

As Mr. Don Falvey pointed out, we are working with a head differential of eighteen inches between the by-pass line and

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the basement of our King mill, therefore the adjustment of the alarm system and the travel of the swing valve will be subject to experimentation. We will plan to complete this installation by the weekend of July 4, 1964. Should any change in plans occur regarding this installation, you will be notified to that effect. We hope you will find it convenient to visit us soon after the installation of this valve.

Very truly yours,

ALLIED PAPER CORPORATION

James H. Galloway
PRODUCTION MANAGER

JHG:eba

cc: Mr. Ralph Purdy
Water Resources Commission

Mr. Loring Coming
Water Resources Commission

Mr. Chester Harvey
Water Resources Commission

Mr. David Johnson
Water Resources Commission

Mr. E. Jack Gilman
Allied Paper Corporation

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CONFERENCE

ALLIED PAPER COMPANY

with the

MICHIGAN WATER RESOURCES COMMISSION

Room 337
Stevens T. Mason Building
Lansing, Michigan

Thursday, March 26, 1964

PRESENT

For the Commission

Irving H. Ronk, for State Highway Commissioner, Chairman
Gerald E. Eddy, Director of Conservation, Vice Chairman
Albert E. Heustis, M.D., State Health Commissioner
Stanley Quackenbush, For Director of Agriculture
George F. Liddle, for Municipal Groups
Lynn Baldwin, for Conservation Groups

* * *

Loring F. Oeming, Executive Secretary
Norman Billings, Assistant Executive Secretary
Ralph Purdy, Chief Engineer

* * *

Curtis G. Beck, Assistant Attorney General

Allied Paper Company

Ward Harrison, President

Recorder by Tape Recorder.

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Chairman: . . . . . to prevent waste by-passing by the Allied Paper Corporation and Mr. Harrison. Should we have a comment by you, Larry, do you have a comment to make on this, or Ralph?

Mr. Oeming: Just for introduction purposes, Mr. Chairman, at your last meeting we referred it to the instruments of by-passing at the Allied Paper Corporation's Bryant Division on two dates our staff representative was at the mill, one of the dates was February 13 and again on the 19th and at both times the settling facility to remove settleable solids was out of operation. The failure of operation occurred as the result of a failure of one of the waste pumps at this, that takes the wastes and pumps it to the settling facility . After you discussed the matter you expressed deep concern about this by-passing in view of the fact that there is an Order to the Allied Paper Corporation as there is to other mills in the valley requiring that all wastes shall be settled to remove settleable materials prior to the discharge to the Kalamazoo River. And you asked therefore that the Company be represented at this meeting to discuss with you this by-passing incident and the circumstances surrounding it and what action we might expect to be taken to prevent further occurrences of this nature. I think that places it before you as it was--appears in the minutes of the February meeting. With that now, I think you might wish to call on Dr. Harrison. Would you come up Dr. Hasrison, and talk to the Commission close up.

Dr. Harrison: I'm deeply concerned about the problem that we have. We had an accident and it lasted longer than we expect4d it to, It was two things that happened that caused it to last as long as it did. On the 7th of February we lost some wet strength paper. This is paper that doesn't disintegrate when you put it in water, It got

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lost into our waste ~~xxxx~~ system and small amounts of this happens from time to time and it goes through our pumps and it's settled out and is put on our waste areas. On this particular day we had more than the pumps would handle and it broke one pump, broke the casing, and it broke the impeller in another pump and the third pump wasn't large enough to handle the complete capacity. Worse than that this material plugged up a pit from which the pumps operated and it took us ~~xxx~~ time to get this cleaned up, to get new parts, replaced on the pumps and just at the time that we got that done a gear broke on our settling basin, and this required--this was a 27inch gear and this required the flying in of another gear, and it just took longer than we expected for--or had hoped for, and we weren't prepared for all of this trouble all at once. Normally we have a spare pump which will take care of complete maintenance of one of the three pumps at any time, but to have two of them lost at the same time was a bad accident for us, and then during this time that it was down we kept the settling basin operating and we had a further accident which we couldn't foresee. Now, we made arrangements with our operating people and have--we always have had arrangements but they're more specific now than ever before, and the minute that anything happens the Water Resources board is going to be advised of the problem and of course we're going to--we have reconditioned these pumps all new parts--we have plenty of spare parts in our storeroom, and we don't expect to have this same thing happen again. This business of breaking the gear on the clarifyier--was something that just impossible for us to foresee and we don't expect that to happen again either. This is the first time this has happened since that clarifier has been installed. It's a hundred feet in diameter and all of the

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gear.

CHairman: I take it this á first accident happened some time . . .

Dr. Harrison: On the 76h of February.

Chairman: . . . . . .

Dr. Harrison: That's right.

Chairman: When it was observed. Then between the 13th and 19th you had this second condition, is that right? That's between the 13th and 19th, there was another report made on . . .

Dr. Harrison: That's correct. I could tell you how many manhours we expended on that job and how just exactly what happened but I think it's the most important thing is--to do everything you can to make sure it doesn't reoccur.

Chairman: We don't want another happening.

Dr. Harrison: That's right. And we're prepared to the best of our ability ax to take care of it.

Chairman: Any questions.

Mr. Liddle: . . . . .

Chairman: Gerry.

Mr. Eddy: . . . . . was there a period of a few days there in which nobody did anything?

Dr. Harrison: No, we worked around the clock. We had to wait for some parts, during part of the time, but the minute we--during any time that we had any parts or anything that we could do--we worked around the clock, to get it fixed. As we will anytime that anything like this happens, and the next time you aren't going to report it to us--we're going to report it to you. We've got a procedure set up which whereby that'll happen. I'm terribly ~~embarrassed~~/ embarrassed to have you fellows report it to us.

Mr. Eddy: This paper that you mentioned it was not _____ readily in water

Dr. Harrison: Yes.

Mr. Eddy: Is there any way that you can forget that or handle--I don't know enough about your business--to ask a healthy question. . .

Dr. Harrisoh: I can tell you a little bit about this. You see this paper is purchased--it's waste paper--and we don't want it, and we try our darndest to keep it from getting to our mill in the first place. But it slips past us from time to time and when it does slip past us we're prepared to handle it in quantities that are reasonable. But this particular time it / was man failure by our people not catching this before it got to the point where it did--it was a slug of it rather than just a couple of pieces. And it cost us a lot of money in repairs and down time and labor plus the fact that we were throwing away materials that should have been sent back to the people that sent it to us. But it's one of the things that we have to contend with in this waste paper. You're familiar with parchment paper like a butter wrap--it's wet strength, well today there is a lot of this kind of paper made and it gets into our supplies and we have a hard time keeping it out.

Chairman: Lynn, do you have any questions? . . . . . .

Chairman: What comments do you have to make on this, Mr. Oeming?

Mr. Oeming: Dr. Harrison, one thing occurred to me while you were speaking about this kind of material that causes plugging--is there any protective device that could be installed that would prevent this material from getting to the pumps--so that it doesn't get ther

Dr. Harrison; That is one of the things that we did, Mr. Oeming, we put a new grating ahead of it with much more openings, and that was installed at the time we put the rebuilt pumps into service.

Mr. Oeming: I see.

Dr. Harrison: All of the new grating was put in at that time this is much

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smaller holes than the old grating.

Mr. Oeming: So that if you have a xx surge like this again--a surge of this undesirable or clogging material--it will clog the screen rather than the pump.

Dr. Harrison: The screen instead of the pump. That is correct.

Mr. Oeming: And bring somebody's attention to it. . . .

Br. Harrison: q That's correct.

Mr. Oeming: One other thing I would like to go into before the Commission here, and that is what is your organizational setup for the maintenance and operation control of this facility--how do you what kind of authority or communication system do you have so that if something breaks down somebody gets to it right away, it doesn't go on for say a day or so.

Br. Harrison: No. We have a manufacturing vice-president--I think you fellows have seen--and he is responsible to me for this and he makes the general superintendent of the various mills responsible for their facilities, and they know that this responsibility is theirs and the emphasis has been put on it--on them that the--these facilities that we're talking about are just as important as the manufacture of paper itself. And they have complete authority to spend any amount of money necessary to fix the facilities the minute that it has a breakdown. They don't have to wait for anything. On top of that they have to put into writing any xxx time a failure happens and that too the manufacturing vice-president and he in turn is responsible to let you people know any time that this happens, so it's not a word of mouth thing. It's in writing every time it happens, and we've xx set up this organization all the way back to right where it happened.

Mr. Oeming: So that if a break or clog occurs you feel that you would know or somebody can do something about it--would know about it within a short time.

Dr. Harrison: That's right.

Mr. Oeming: . . . after it happened.

Dr. Harrison: That's the way its set up. But it hasn't been set up to be put in writing. And to report. Beyond the manufacturing Vice-president, but now it's set up to be put in writing every time it happens and to let you know.

Mr. Beck: Dr. Harrison, is it unreasonable to maintain spare parts in case of a breakdown?

Dr. Harrison: You see, we had spare parts. We didn't have spare parts for two pumps. It's not . . . one thing in addition. . . we don't normally carry a spare casing, we carry a spare pump--complete spare pump but we broke a casing, we broke an impeller in another pump and the third pump wasn't enough to take care of it.

Mr. Liddle: One question, Dr. Harrison, _____ if it starts backing up, where will that discharge go?

Dr. Harrison: It will overflow but it can't overflow because alarms are sounded.

Mr. Liddle: . . . . . shut down . . .

Dr. Harrison: People have to do it. We want people to be responsible and to be watching instead of leaving it to automation.

Mr. Liddle: Assuming this happens again with these new screens in--what would happen if your people didn't catch it--would this overflow and back up and flood your _____ or something like that?

Dr. Harrison: Yes it would.

Mr. Liddle: _____ a direct flow into an outlet.

Dr. Harrison: Yes, there is.

Mr. Liddle: Is it piped into an outlet?

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storage creek if it did overflow.

Mr. Liddle: It would overflow into the creek then.

Dr. Harrison: Yes.

Mr. Liddle: The waste then is allowed into the stream.

Dr. Harris n: That's correct.

Mr. Oemng: . . it's the same as--it's now treatment--you haven't removed any solids. This Order is designed to remove the settleable material.

Dr. Harrison: It's primarily clay. The material that we are removing is primarily clay. You take a sheet of W Life magazine, it's clay coated, and that's what we've taken off and that's what we're removing that coating--the clay coating from the sheet of paper.

Mr. Quackenbush: _____ unexpected like occurred would result in the same thing then.

Dr. Harrison: It's possible. Any time you have man failure this can happen. Whether you have it automated to the point where it's still possible.

Mr. Oeming: Dr. Harrison, pursuing Mr. Liddle's question a little further, I think I understand his concern and it's the ~~ar~~ same concenn that we have that with this screen in here now the possibility of this clogging and then causing an overflow would be increases -- the screen is hooked up to--kept clean wouldn't it?

Dr. Harrison: That's correct.

Mr. Oeming: Is there--you said there were some alarms or something. Do you have an alarm on this overflow so that you know--that somebody's attention is called to the need for cleaning the screen?

Dr. Harrison: We have people watching it to catch the alarm.

Mr. Oeming: I see.

Mr. Liddle Is this/automatically screen cleaned or not?

Dr. Harrison: No. It's not. It could be.

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couldn't be set on this overflow device?

Dr. Harrison: . . . . no problem.

Mr. Oeming: I mean a probe in there--at a given level where something would ring or some light would flash to call the peoples attention to it.

Dr. Harrison: That can be done.

Chairman: Befofe it got to the emergency state.

Mr. Oeming: It would start to overflow immediately set off an alarm to call the peoples attention--they just don't have to be there.

Dr. Harrison: It could be set at the lower levels . . . .

Mr. Oeming: A weir. Yes. There's a weir and there's a normal flow in the sewer, if this fills up it flows over the weir, where we need an alarm, I'm asking Dr. Harrison if the alarm can be put in so that when it gets up to the point where it overflows something--someboyd attention is called to it.

Mr. Liddle: Just before that.

Mr. Oeming: Yes. He sayshe could do this before . . .

Mr. Liddle: . . . go a little farther than that. Even if that did happen we still have to . . . . that screen in order to

Dr. Harrison: The only reason the screen is there is to protect the pump. The mechanical equipment. That's the only reason it's there. without any automatic cleaning on it/the discharges puts into the river where we don't want it.

Mr. Oeming: That's right.

Mr. Liddle: You still don't shut down your operations with the time involved in correcting the situation, which I think an automatic screen device to take care of it.

Dr. Harrison: We haven't had any problem--since this went back into operation, nor do we expect any problems, because it's going to be maintained.

Mr. Liddle: Automatic screens are quite common, aren't they in water sewage

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Dr. Harrison: Yes.

Mr. Liddle; When a bell rings and everything else means that this is going into the creek_____ as long as you continue to operate.

Dr. Harrison: There's no question but what. . . do you say is correct?

Mr. Liddle:

Dr. Harrison: Well, we'll certainly look into it. I think we can put a probe on the thing at a low enough level so the people can--if they're not there they can be there before any damage.

Mr. Eddy: Screen cleaned manufally ?

Dr. Harrison: Yes. Manufally. It's pretty nasty stuff to handle and we find that the best way to do it is manually, rather than automatically becasue the automatic screen can have problems too. And the safest thing is to do it with people. It costs more to do it with people

Chairman: I'm assuming that the cleaning of that screen is done either each day or twice a day or once a week or something of that nature. Is that right?

Dr. Harrison: It is done eveyy day.

Chairman: Every day.

Dr. Harrison: Yes, sir. And more often if necessary, because we have people lookin at it.

Mr. Oeming: Mr. Purdy has. . .

Chairman: Ralph.

Mr. Purdy: I'm curious as to the location of this new screen.

Dr. Harrison: It's right where the old one was, Ralph.

Mr. Purdy: Several years ago we had a problem with the maintenance of the old bar rack--rags and paper would collect on this and the water would build up and it would bypass to Portage Creek and this was a repeated condition that occurred and then you replaced this bar

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Dr. Harrison: Well, Ralph you might know more about it than I do, because I haven't been down there since this happened, I've got a complete report on what happened, and it might well be that it is a self-cleaning screen. But I don't know that for a fact and I dont want to tell this Commission that it is because I don't know.

Mr. Purdy: You spent a considerable sum of money replacing the old manually cleaned bar rack with a self-cleaning screen and if now you have just replaced the grates on this it may well be a self-cleaning device.

Dr. Harrison: We--I know that we have changed the filtering medium of this whatever you call it--if it's traveling I don't happen to know it for fact, and I don't want to represent it as a traveling stream

Mr. Purdy: We did have some problems with the manual maintenance of the old one and this was rectified by the self-cleaning screen.

Dr. Harrison: Then, you're probably right. But I know this that the screening mechanism has been replaced with a type that is finer in mesh than what we have in there before.

Mr. Oeming: I'd suggest that we _____ this but as I sense what the Commission _____Dr. Harrison, I think we might also take a look at puting an alarm system on this overflow.

Dr. Harrison: I'll take that responsibility. Right now.

Mr. Oeming: At least that's part of it, and the question about this mechanical raking business would take it . . . .

Dr Harrison: We want to put it in whate er shape--we want to put it in the best possible shape--and we'd like to have your help.

Chairman: Can we have a report on what is going to be done at the next meeting on this?

Dr. Harrison: Surely.

Mr. Oemng: We'll come back with a report

5000233

92-2237

ALLIED PAPER CORPORATION

RESEARCH AND DEVELOPMENT DEPARTMENT

Progress Report No. 7

Project No. 900

Subject: Survey of King Mill Sewer Losses.

Distribution:

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Date: November 23, 1962

By: P. H. Germann
R. J. Willie

Approved:

000817

SA 028965

Object:

To obtain an overall picture of location and concentration of loadings to the primary waste clarifier.

Procedure:

B.O.D., flow rate, fiber, suspended solids, and pH were taken at the following sample points: Clarifier influent and effluent; Sewer on east side of mill; Sewer from #3 and #4 paper machines; Pulp mill basement sewer; and Pulp mill sewer at ground level on east side of building.

Conclusions:

The material balance was good on suspended solids but the fiber balance was poor. To obtain a better fiber balance a continuous sampling device should be employed. The B.O.D. determinations were incomplete.

Discussion:

B.O.D. determinations were set up but incomplete because of a high concentration of seed in the dilution water.

Flow was determined by timing a float over a 10 to 15 feet length except for the centricleaner rejects, Jonnson screen rejects and pulp mill high sewer. The centricleaners were checked individually and timed with a two quart sample. The Jonnson screen rejects were measured as a spouting stream over the area of the stream. The flow in the pulp mill high sewer was calculated as the difference between clarifier flow and the measured component streams. The last set of flow measurements was made while #1 machine was on a dark colored furnish and its white water was sewered in the east basement rather than pumped to the pulp mill. The flow in the west machine sewer was higher as well as was the flow in the Pulp mill basement due to the east sewer overflowing into these other sewers.

Fiber was determined by using a liter sample and washing it on a 200 mesh seive, filtered and oven dried.

Suspended solids were measured by filtering 500 milliliters of sample except for the Jonnson and centricleaner rejects for which a 100 gram sample was weighed, filtered and oven dried.

pH was measured with the laboratory bench meter.

Data: I Sewer loadings

II Sewer layout

III Test results

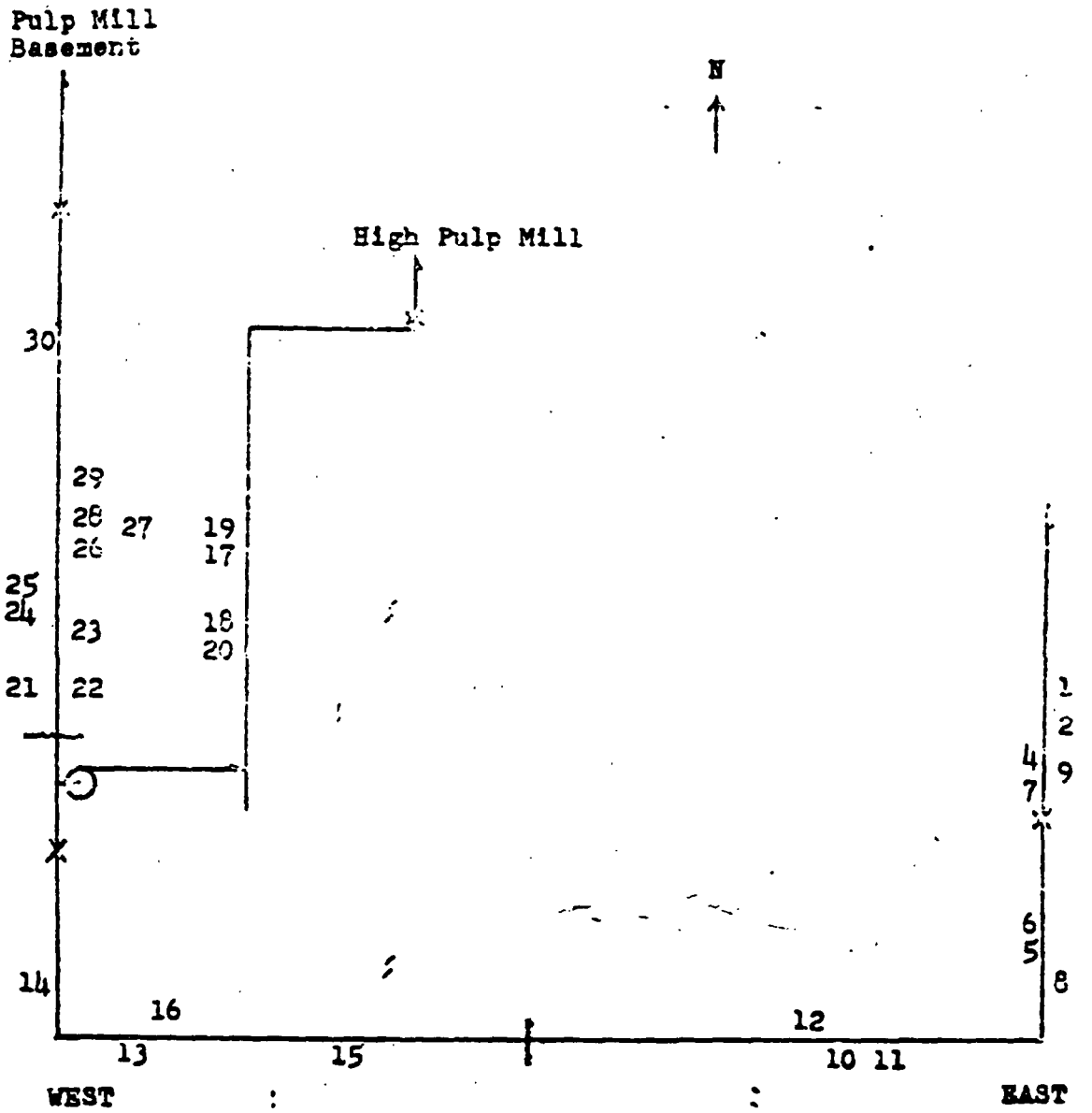
TABLE I

SEWER LOADINGS

Source	Flow: Intermittent / Continuous	High In: Sus. Solids, B.O.D. Fiber
East Sewer		
1. Clay Receiving System	I	S.S.
2. Grinder Room Dregs	I	S.S.
3. Blender Room Floor Drains	I	Fiber
4. Starch Cooking	I	B.O.D.
5. White Water Sewering	I	S.S.
6. Stock Sewering	I	Fiber & S.S.
7. Water Softener Regeneration	I	None
8. P. Machine Fresh Water	C	None
9. Blender Room Gland Water	C	None
10. Heat Exchange Water	C	None
11. Paper Machine Centricleaners	C	S.S. & Fiber
12. Paper Machine White Water	C	S.S. & Fiber
West Paper Machine Sewer		
13. Fresh Water Screens	I	None
14. Rich White Water Tank	I	S.S. & Fiber
15. Heat Exchange Water	C	None
16. Paper Machine White Water	C	S.S. & Fiber
High Pulp Mill Sewer		
(West paper machine sewer - See above)		
17. Flat & Cowan screen rejects	C	Fiber
18. 1st & 2nd Brown Slide Washers	C	S.S. & B.O.D.
19. 1st Stage Washer Seal Box	C	B.O.D.
20. Pulper Water Storage	I	B.O.D., S.S., Fiber
Pulp Mill Basement Sewer		
21. 6th Stage Side Hill Water	I	S.S.
22. Pulp Mill White Water Chest	I	S.S. & Fiber
23. Jonnson Screen Rejects	C	S.S., Fiber, B.O.D.
24. Drains in Brown Slide Room	I	S.S. & Fiber
25. Vibrotor Shower Water	C	Fiber
26. Centricleaner Rejects	C	Fiber & S.S.
27. Hole in Pipe to High Sewer	C	Fiber
28. Brown Stock Washer Seal Water	I	S.S. & B.O.D.
29. 3rd Stage Washer Seal Water	I	S.S. & B.O.D.
30. 2nd Stage Washer Seal Water	I	S.S. & B.O.D.

SA 028967

II KING MILL SEWERS



NOTE:

12	Key to Table I.
X	Sampling points for this study
6/7	Natural division of flow under normal operation

III KING MILL WASTE COMPONENTS

SAMPLE POINT	FLOW M.G.D.	SUSPENDED SOLIDS #/DAY	FIBER #/DAY	pH	
East Basement	0.74	19,200	5,230	7.25	A
	1.18	39,800	21,000	5.70*	B
	1.28	27,900	4,060	7.60	C
	2.59	38,900	7,560	6.75	D
West Paper Machines	1.88	7,500	2,180	7.35	A
	1.83	10,050	7,640	7.10	B
	2.07	13,800	518	7.95	C
	3.10	20,700	232	6.70	D
Pulp Mill Basement	2.95	85,600	46,700	8.30	A
	2.21	46,800	21,700	8.30	B
	1.86	27,900	13,000	8.45	C
	2.19	51,000	26,100	8.90	D
Pulp Mill High	-	-	-	-	A
	2.17	55,600	3,610	6.90	B
	2.79	50,300	5,340	6.95	C
	1.45	37,400	1,680	7.50	D
King Clarifier In	-	-	-	-	A
	-	134,000	24,400	7.20	B
	-	95,000	14,300	7.45	C
	-	129,000	31,700	8.20	D
King Clarifier Out	-	-	-	-	A
	6.10	14,200	975	6.90	B
	5.93	4,920	474	7.25	C
	6.23	22,800	0	7.25	D
Jonnson Rejects	-	-	-	-	A
	0.27	10,350	1,600	11.80	B
	.22	8,420	2,310	11.75	C
	.31	32,800	17,200	11.90	D
Centricleaner Rejects	0.060	14,600	14,000	7.20	A
	0.056	12,600	10,800	7.30	B
	0.051	13,700	10,980	8.10	C
	0.046	10,820	9,280	7.40	D

Note: Samples Taken On:
A - 11/7/62
B - 11/8/62
C - 11/14/62
D - 11/15/62

* This is not a typographical error.

92-2201

waste treatment

September 24, 1959

ALLIED PAPER CORPORATION

Research and Development Projects carried on during the year September 1958-September 1959 in the field of B.O.D. reduction, decreased loading of Kalamazoo River, and other waste treatment studies both in connection with the Kalamazoo River Improvement Co. Program and studies conducted solely by and for Allied Paper Corp. These include:

1) Centrifuging of concentrated waste liquor and sludge in cooperation with the DeLaval Separator Co. (See report).

2) Vacuum filtration with fly ash. Laboratory tests showing requirements of 20 tons per million gallons per day with a flow rate of 1 gpm per sq. ft.

3) Flotation of concentrated waste from DI plant using a pilot model Sveen Pedersen SavealL. (See report)

4) Participation in the Portage Creek and Kalamazoo River surveys, keeping a check on the stream conditions through the year.

5) Participation in the Portage Creek Aeration with our personnel and equipment.

6) Many laboratory evaluations of various coagulants to determine the value of chemical coagulation in B.O.D. reduction and more complete solids removal. Some of the flocculants and coagulants used were: Sveen Glue, Kymene, Illinois Water Treatment I.F.A. 313, Booty Resineer's Tybon 5813, Acrysol, Separan, Nalco's long chain high molecular weight compounds 1610, 1623, and 1593. Activated carbon was tried also.

7) Activated sludge pilot model now in operation to investigate the costs and other design factors of this type of secondary treatment.

Several internal changes in Allied's operation have been made, investigated or planned to decrease the B.O.D. loading and water usage which includes:

1) Sveen-Pedersen Savealt installations.

2) Water surveys to determine better utilization of white water.

3) Use of previous waste waters in the pulping operation.

4) Decrease of load by not using deinking process at Monarch Mill.

92-2188

ALLIED PAPER CORPORATION

RESEARCH AND DEVELOPMENT DEPARTMENT

Progress Report [illegible]

[illegible]

[illegible] and Suspended Solids Removed by Flotation of [illegible] from Brown Stock Slide Washers.

[illegible]

Date: April 30, [illegible]

By [illegible] Steeff[illegible]
and
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[illegible] Gilman
[illegible]
[illegible] Central File

Approved: R. F.

000791

SA 029027

Object:

To study the results from the flotation of concentrated deinking waste from brown stock slide washers at King Division. To determine whether this method of flotation would materially decrease the B.O.D. and suspended solids content of this waste within a cost compatable with the per cent of B.O.D. reduction. Since the present equipment and treatment of mill waste is not satisfactory, further treatment methods have been investigated to reduce the B.O.D. load. It was agreed that Allied would investigate this flotation phase as a part of the program of the Kalamazoo River Improvement Company to study ways and means of B.O.D. abatement.

Procedure:

A pilot model Sveen Pedersen Flotation Unit was loaned us for this study by the manufacturer. A small portion of the deinking waste was [illegible] effluent to the unit. Concentrated sulfuric acid was used to adjust pH. The influent flow was varied, numerous flocculants were evaluated, air flows and pressures were varied, and various pH levels were tried in order to study fully the flotation of this concentrated deinking waste. To reduce the suspended solids in the influent and minimize the variations, fresh water was used to dilute the concentrated deinking wastes. The equipment was modified to study the recycling of the waste. A flow diagram is shown on the following page. The influent, acid, flocculant, effluent, air and sludge flows were all controlled and measured. Samples of influent, effluent and sludge were taken and tested for suspended solids, ash, fiber, soluble solids and B.O.D. Some samples of influent and effluent were filtered through Whatman No. 1 filter paper and fly ash to study the effect on B.O.D. reduction. Previous to the work on the pilot model, evaluation of various flocculants or coagulants was pursued in the laboratory. The most promising of these were used in the pilot plant work. Work was also carried out on various samples of concentrated deinking waste from the first stage slide washers and influent to the waste treatment tank at King to determine amount of concentrated sulfuric needed to adjust the pH to any level.

Conclusions:

The flotation operation indicated that a pH range of 3.0 - 4.0 is desirable, with pH 3.5 being optimum. To achieve this pH, an average of 8.2 cc of concentrated sulfuric acid/gallon of concentrated deinking waste was needed for a cost of $.40/thousand gallons of waste - based on an acid cost of $.0125/#. The laboratory work had indicated that 9.4 cc acid/gallon was needed.

The overall average B.O.D. reduction was 34%. However, using the best runs, it is evident that a 40% B.O.D. reduction could be consistantly maintained. In reality this is only a 20% increase since the present Dorr thickener produces a 20% B.O.D. reduction. The cost is $.055/# B.O.D. removed by flotation or $.11/# additional B.O.D. removed by flotation. This can be compared to a capital and operating cost of $.015/# B.O.D. removed by activated sludge. The flotation cost includes acid, flocculant, air and pumping costs. A summary of B.O.D. determinations are tabulated on Table 1A, 1B and 1C.

The flocculants increased the clarity of the effluent, thus decreasing the effluent suspended and soluble solids and B.O.D. Hercules Kymene 557 (10% solids) at 2 ppm showed the best results for a flocculant used alone. However, a combination of 1 ppm, Kymene 557 and 1 ppm Swedish glue gave the best overall result, namely 46% B.O.D. reduction, 1.7#/M gal. suspended solids and a 3.3% sludge consistency. This flocculant combination would cost $8.40/million gals. of concentrated deinking waste.

The influent varied greatly in regard to suspended solids, pH and temperature which affected the operation and close control had to be maintained. The summary of results of the tests (giving both ranges and average values) on the influent waste, influent mixture, effluent and sludge are tabulated on Table 2.

While the flotation process gave a B.O.D. reduction of about 35 - 40%, supplemental treatment of the effluent through fly ash showed an average additional B.O.D. reduction of 50.7 - 53%, resulting in an average overall B.O.D. reduction of 82.5 - 86%.

A spot check showed a B.O.D. reduction of 80% achieved by passing a high (3140 ppm) B.O.D. influent sample through fly ash. A sample of influent waste with high soluble solids - 231.9#/M gal. was run through fly ash and showed a 60% reduction in soluble solids.

A series of B.O.D. determinations on samples of the sludge run through fly ash. Results showed an average B.O.D. of 274 ppm, with a range of 90 - 628 ppm.

Using the B.O.D. determinations and flows a good B.O.D. balance was obtained between the influent and the effluent and sludge.

Any pH change of the influent could be detected by a color change of the froth and sludge going from a white color at pH 6.0 through a gray and then gray-green at pH 3.0.

The B.O.D. reduction obtained by filtering the effluent through filter paper is negligible.

The effluent suspended solids could easily be reduced to a pound per thousand gallons with longer runs and additional blending capacity of influent waste.

Settling of the deinking waste would take much larger equipment area and is not as effective in B.O.D. reduction.

Laboratory tests on the influent to the waste treatment tank at King reveals that the greatest clarity of the supernatant liquid is obtained at pH 2.5, but sufficient clarity is attained at pH 5.0. The clarity gained between 2.5 and 5.0 doesn't warrant the additional acid needed. The same degree of clarity was not attained in this waste as in the concentrated deinking waste from the slide washers at the same pH level and to the paper machine white water in the waste tank influent. The work on this pilot flotation saveall indicates that:

The B.O.D removal is small and the cost per pound of B.O.D. removal is too great (in comparison to other processes) to warrant continued study of flotation as an only method of reducing B.O.D.

Further studies using fly ash as a filtering media to remove B.O.D. should be pursued. However, primary settling preceding this filtering is necessary to prevent clogging the filter and to produce a fast filtering rate.

The acidification of the waste is necessary, for good flotation is the most expensive item in the cost and requires the use of special protective surfaces on all equipment to handle this low pH waste.

The flocculants used perform best on the acid side. For instance, to achieve the same clarity at the "as received" pH of 11.5 as at the acidified pH of 3.5, the Kymene 557 dosage had to be increased 25 times.

Processes and Equipment:

25 gallon Sveen Pedersen Flotation Saveall pilot model was used as the basic equipment in these experimental runs. A small portion of the deinking waste water effluent from the first stage of the south set of brown stock slide washers at the King Division was used as influent for these experiments. Later on, fresh water was used as dilution for this influent (in a commercial operation, clearified effluent water would be used to reduce the solids in the influent.) in order to reduce the suspended solids load. The influent flow was measured

on a 60° V-notch weir and flowed into a 300 gallon blending head tank with lightning mixer. Acid was added either at the discharge of the weir box or into the blending tank. The influent waste was then pumped through a rotometer and into the retention tank, through the disc valves into the inlet chamber of the saveall. Various flocculents were added to the influent either at the weir box outlet or immediately before the inlet chamber of the saveall using a Milton Roy pump. Flocculents were added at 0.1% concentration. Air was introduced at the inlet of the pump or into the top of the retention tank. The floated sludge was skimmed off by the four scrapers, and the clarified effluent was drawn off through the tubes into the clarified water chamber and into a weir box.

In order to get a comparison between a flotation and settling operation, this equipment was modified for several runs to study the settling of the waste. The influent was brought directly by gravity from the blending tank into the inlet chamber, bypassing the pump, rotometer, retention tank and disc valves. A baffle was installed 4 inches from the edge of the inlet chamber extending 2/3 of the way down into the flotation compartment. The scrapers were propped up and not used. The clarified effluent was withdrawn over the end of the flotation chamber and the sludge taken off through the last two tubes. Both the sludge and effluent discharged into weir boxes. Even with these modifications, this was not a good settling chamber setup.

Commercial grade 66° Be' sulfuric acid was used. Several flocculents were used, namely, Sveen glue, Hercules Kymen 557 or 660, Illinois Water Treatment IFA 313, Booty Resineers' Tybon 5813 and some combinations of these. Others were previously evaluated in the laboratory.

The total suspended solids, solubles of the filtrate, the pH, the temperature, and total alkalinity of the influent waste varied greatly. In an attempt to determine the best results, the influent flow was varied from 10 to 25 gpm and later the influent waste was mixed one to one with fresh water, since the influent suspended solids ranged from 50-80#/M gals.

Laboratory tests were run to determine results as to pH, suspended solids, soluble solids, ash, fiber content (retained on 200 mesh wire) B.O.D. and consistency. Samples of effluent, sludge and some influent were run through a fly ash mat to determine further reduction by this operation. No attempt was made at this time to determine the quality of fly ash needed per gallon of effluent to accomplish this reduction.

Laboratory work was performed on the following flocculants, Kymene 557 and 660, Acrysol, LFA 313, Sveen glue, Separan 2610 and Tybon 5813. Various dosages at various pH levels were tried. This work indicated that at pH 3.5 the flocculant improved the clarity of the supernatant liquid.

At a pH 11.4 (as received basis) the addition of 100 ppm of Sveen glue, alum, Acrysol and LFA 313 to individual samples of concentrated deinking waste showed no coagulation and up to 20 ppm of Kymene 557 showed little effect, at 50 ppm Kymene 557 there was good coagulation with good clarity of supernatant liquid. Even at pH 6.8 and 5.8, 100 ppm of alum, LFA 313 or Acrysol showed little or no coagulation of the deinking waste. These laboratory tests showed Kymene and Sveen glue to be the most effective, and this was borne our in the pilot plant runs.

The cost of B.O.D. removal by flotation was computed in the following manner. At an average influent B.O.D. of 2255 ppm and 12.5 gpm the daily B.O.D. was 337#, at 40% removal, the total B.O.D. removed was 135#/day. The cost of acid was $7.20/day, the flocculants (at 1 ppm Kymene and 1 ppm Glue) cost $.15/day, and the cost of air and pumping $.13/day - total $7.48. This resulted in the reported figure of $0.055/# B.O.D. removed by flotation or $0.11/# additional B.O.D. removed by flotation over present equipment and operation.

Graphs and charts showing the pH change with the additions of concentrated sulfuric acid to both concentrated deinking waste from slide washers and influent to the waste treatment tanks are included in this report.

All operating data and laboratory results of this study (not tabulated on the tables already mentioned) are attached to the R & D file copy of this report.

TABLE 1a

FLOTATION OF STRAIGHT DEINKING WASTE INFLUENT

Date	Sample	Flow gpm	BOD ppm Inf.	BOD ppm Eff.	% BOD Reduc.	Eff. Thru Fly Ash BOD ppm	% Overall BOD Reduc.	Additional % Reduc of BOD by Fly Ash
1/21	1[illegible]	12	1750	1220	30	-	-	-
1/21	2[illegible]	12	2060	1110	46	-	-	-
1/21	3[illegible]	12	2220	1535	31	-	-	-
1/21	4[illegible]	17	1735	1265	27	-	-	-
1/21	5[illegible]	27	2450	1265	48	-	-	-
2/2	1[illegible]	10	-	1660	-	368	-	-
2/3	1Th	10	2580	1830	29	362	86	57
2/3	2Th	12.5	2580	1680	35	532	79	44
2/4	1[illegible]	12.5	3000	2000	33	462	85	52
2/4	2[illegible]	12.5	3100	2160	30	605	80	50
Average			2680	1750	34	46.6	82.5	50.7
Range			1735-3100	1100-2160	29-48	362-605	79-86	44-57

TABLE NO. 1b

SETTLING OF STRAIGHT DEINKING WASTE INFLUENT

1/29	1Th	12	-	770	-	-	-	-
1/29	2Th	15	1242	488	61	140	89	28
1/30	1F	9.5	1538	1368	11	360	77	66
1/31	1S	5.0	1620	1200	26	128	92	66
Average			1470	1020	30	209	86	53

TABLE 1c

FLOTATION OF MIXTURE OF DEINKING WASTE AND FRESH WATER

Date-Sample	Flow gpm		BOD (ppm)		% BOD
	Waste	Fresh Water	Inf.	Eff.	Reduc.
2/5 1F	12.5	12.5	820	640	22
2/10 1Tu	12.0	12.0	1048	568	45.8
2/10 2Tu	12.0	12.0	1048	760	275
2/13 1F	12.5	12.5	360?	-	-
2/16 1M	12.5	12.5	420?	-	-
2/16 2M	12.5	12.5	940	570	40
				590	37.2
2/17 1Tu	12.5	12.5	888	680	23.4
2/17 2Tu	12.5	12.5	888	680	23.4
2/17 3Tu	12.5	12.5	888	848	5.0
2/18 1W	12.5	12.5	1020	708	30.6
2/18 2W	12.5	12.5	1140	808	29.1
2/19 1Th	12.5	12.5	1200	648	46
2/19 2Th	12.5	12.5	1248	680	45.5
Average			1011	667	34.4
Range			820-1248	480-808	5.0-49.0

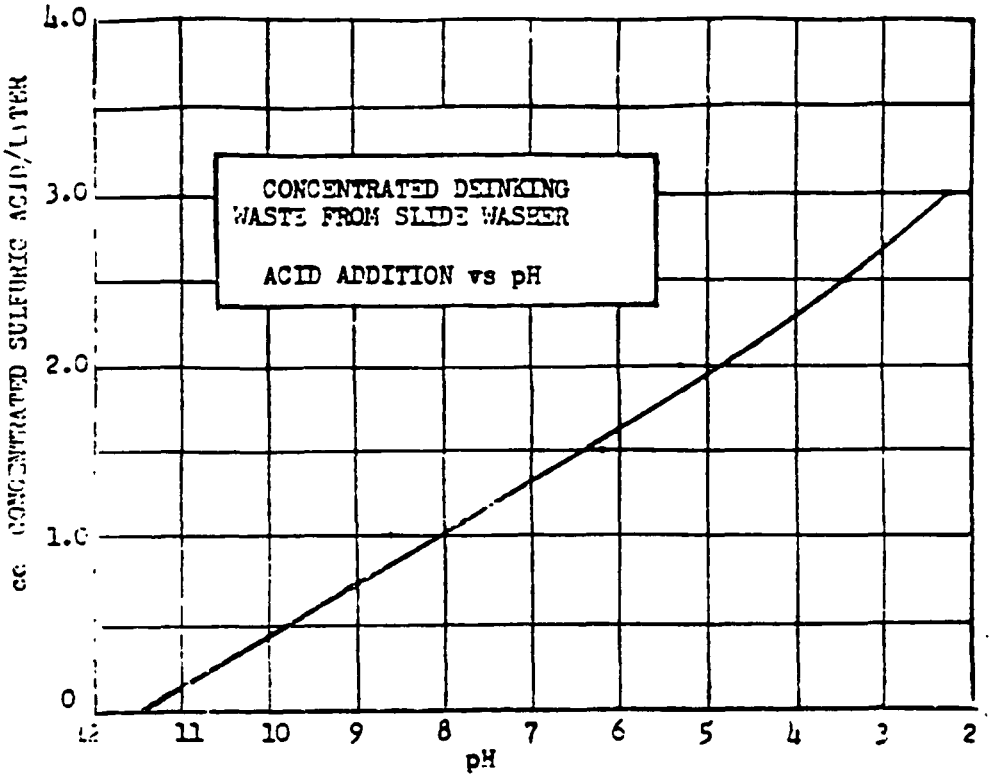
Table No. 2

Summary of Laboratory Results

Drinked Waste Influent	Influent Mixture
Suspended Solids (#/M gal)	
Avg. [illegible]	26.25
Range 36.2-[illegible]	16.7-31.8
Ash %	
Avg. 53.6	64.2
Range [illegible]-71	60.5-68
Filtrate Solubles (#/M gal)*	
Avg. [illegible]	33.2
Range [illegible]	27.1-42.5
[illegible] gal.	
Avg. [illegible]	0.58
Range [illegible]	0.5-0.67
[illegible] °F	
Avg. [illegible]	81
Range [illegible]	74-[illegible]
[illegible]	
Avg. [illegible]	10.85
Range [illegible]	9.1-11.6

Effluent	Sludge
Suspended solids #/M gal	Conc. %
Avg. 2.7	Avg. 3.0
Range .1-7.6	Range 0.62-5.7
Ash %	
Avg. 67.2	64.2
Range 53.3-86	53.0-72
Filtrate Solubles (#/M gal)*	
Avg. 43.8	47.5
Range 22.5-91.7	13.3-95.9
[illegible]	
Avg. 3.1	3.0
Range 1.7-4.3	1.7-5.0

* [illegible] through Whatman [illegible] Filter Paper.


CONCENTRATED DEINKING
WASTE FROM SLIDE WASHER
ACID ADDITION vs pH
cc CONCENTRATED SULFURIC ACID/LITER
4.0
3.0
2.0
1.0
0
12
11
10
9
8
7
6
5
4
3
2
pH

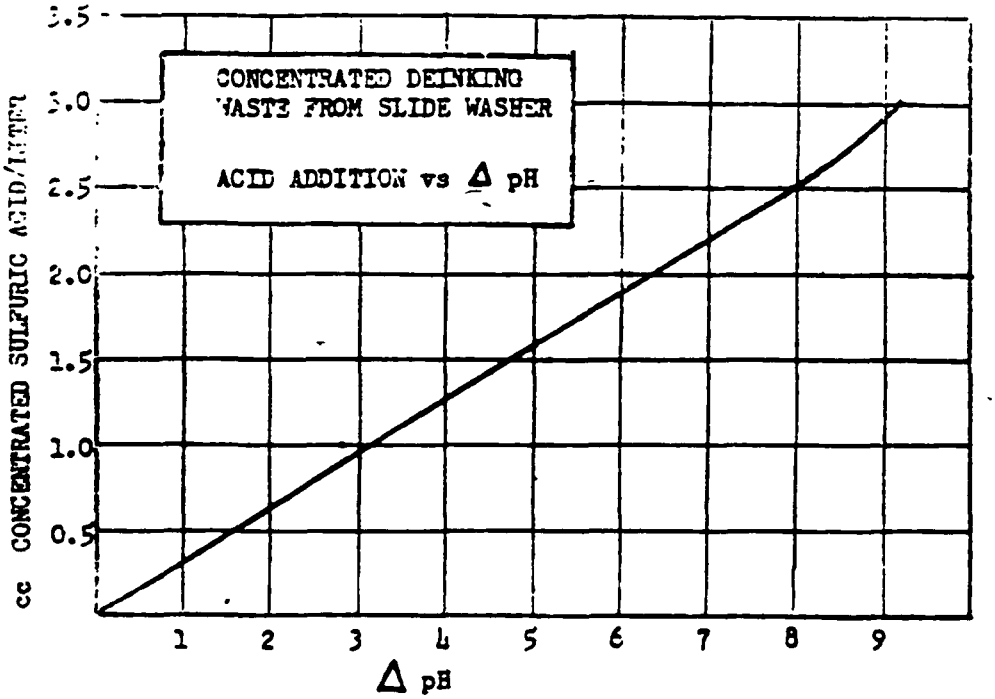
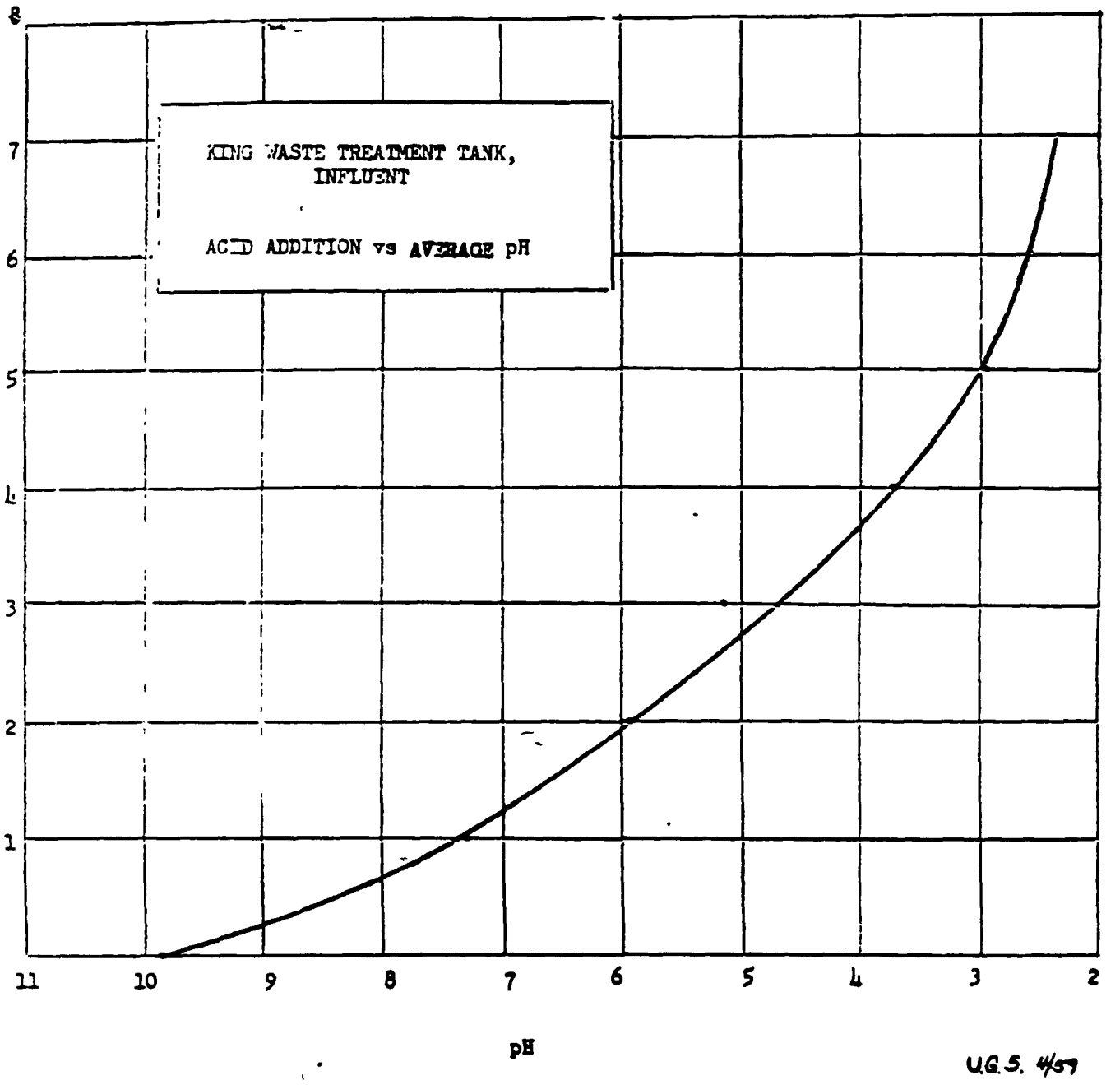

CONCENTRATED DEINKING
WASTE FROM SLIDE WASHER
ACID ADDITION vs Δ pH
cc CONCENTRATED SULFURIC ACID/LITER
3.5
3.0
2.5
2.0
1.5
1.0
0.5
1
2
3
4
5
6
7
8
9
Δ pH

TABLE 3

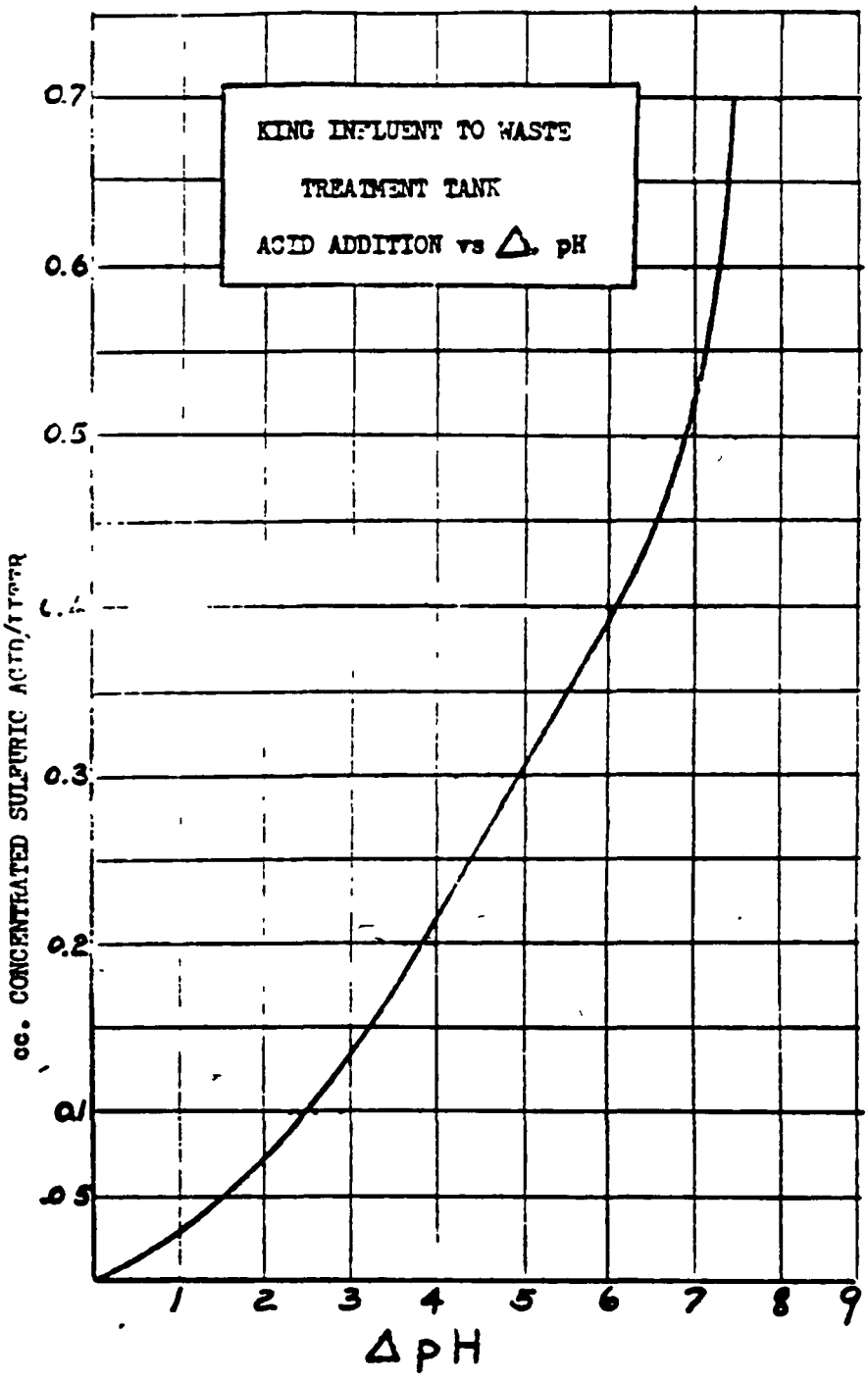
INFLUENT WASTE TO KING WASTE TREATMENT TANK

Sample	1	2	3	4	5	6	Aug. *
CC ACID per liter	pH						
0	10.8	9.8	9.9	10.4	9.5	97	9.86
0.1	9.2	7.5	7.3	7.5	7.1	7.1	7.30
0.2	7.1	5.9	5.9	6.0	5.9	6.0	5.94
0.3	6.2	5.2	4.9	-	5.3	4.9	5.18
0.4	5.4	3.7	3.6	3.6	3.9	3.7	3.7
0.5	-	2.8	3.0	2.9	3.1	2.9	2.94
0.6	3.2	2.4	2.6	2.6	2.6	2.5	2.54
0.7	2.6	2.3	2.5	2.4	2.4	2.3	2.38
0.8	2.3	-	-	-	2.3	2.2	-
Suspended Solids #/1000 gal	23.02	11.0	8.34	8.34	20.35	23.5	
Soluble Solids #/1000 gals	25.9	18.3	23.35	17.93	24.2	22.5	

* Does not include #1 sample pH


KING WASTE TREATMENT TANK,
INFLUENT
ACID ADDITION vs AVERAGE pH
8
7
6
5
4
3
2
1
11
10
9
8
7
6
5
4
3
2
pH

U.G.S. 4/59


KING INFLUENT TO WASTE
TREATMENT TANK
ACID ADDITION vs Δ pH
0.7
0.6
0.5
0.3
0.2
0.1
0.5
1
2
3
4
5
6
7
8
9
ΔpH

U.S.S 4/69

ALLIED PAPER CORPORATION

RESEARCH AND DEVELOPMENT DEPARTMENT

Progress Report No. 1

Project No. 301

Subject: A STUDY OF DEINKING PULP MILL WASTES AND THEIR COMPOSITION IN RELATION TO TOTAL MILL EFFLUENT BY LABORATORY PULPING AND MILL PRODUCTION SAMPLING.

Distribution:

R. M. Levy
E. J. Klimczak
U. G. Stoeffler
E. J. Gilman
J. Galloway

By: Philip Germann
Ray Willie
John Harrison

Date: February 19, 1964

Approved: U.G.S.

Gilman
EXHIBIT NO. 21
1-19-93
P. MORETTI

000812

KA04800091

OBJECT:

To obtain deinking waste data in order to relate the deinking process to overall mill waste and possible ways to reduce the treatment cost of additional waste removal in view of state water resources requirements.

PROCEDURE:

To obtain a reasonable value for deinking waste in relation to total mill waste three approaches were used. Waste treatment data from 1963 was used to project the change in waste loading from the deinking process at various percentages of book and ledger graded raw materials. Laboratory cooks at various raw material percentages were made to supplement and confirm the calculated data. The various waste streams in the mill were sampled for waste concentration and volume on three different days.

Material balances and biological oxygen demand (B.O.D.) were determined for all samples.

CONCLUSIONS:

Deinking waste at King accounts for 49 percent of the total waste flow, 64 percent of total waste solids, and 84 percent of the total B.O.D. Of this deinking waste, the portion from the first stage brown stock side hill washer is 24 percent of the total mill flow with 44 percent of the solids and 64 percent of the B.O.D.

The operation of the deinking mill with 100 percent ledger graded raw material results in the lowest waste solids and B.O.D. The waste increases in proportion to the increase in book graded raw material.

DISCUSSION:

A comparison of waste treatment data at King and Bryant divisions was made for the time the King pulp mill was supplying the Bryant paper mill with pulp. The waste loading from the King pulp mill was obtained by subtracting the Bryant paper mill data from the King pulp and paper mill data. (Table I) The furnish at the King pulp mill was 75 percent book and 25 percent ledger graded waste paper with an average finished pulp production of 200 tons per day. At 60 percent book retention and 90 percent ledger retention in the deinking process, the retention of mixtures of book and ledger was calculated. The

B.O.D. loading was calculated from the actual 26,700 pounds per day of B.O.D. for an input of 296.2 tons of raw material. The amount of B.O.D. per day was then divided by 200 tons to obtain a value in pounds of B.O.D. per finished ton of pulp. (Table II)

The waste treatment data for the last six months of 1963 from the King division was averaged (Table III) to correlate the data from the laboratory and mill samples.

Laboratory cooks were made at 100 percent book, 100 percent ledger and 50 percent book and ledger. The book grade was a combination of 80 percent magazines and 20 percent sections. The ledger grade was a combination of 75 percent colored and 25 percent white ledger. One pound of material was pulped in 10 liters of water with 21 grams of NaOH at 180 degrees F. for 15 minutes. The cook was then washed for 3 minutes with a total of 18 gallons of water on an 80 mesh sieve. Samples of each cook were taken to complete a material balance of the system and this data is reported in Table IV. The 50-50 cook and 100 percent ledger cook were repeated with a previously determined high yield ledger raw material because of the low yield of the first ledger sampled. The data from the duplicate cooks was averaged for comparison with other data in this report.

Samples in the King mill were taken from the following sewer points:

1. East wing - #1 & 2 paper machines and blenders
2. West wing - #3 & 4 paper machines
3. Pulp mill basement - all deinking and cleaning and screenings except first stage brown stock washers.
4. First Stage Brown Stock Side Hill washer water
5. Load Lugger - Jonnson and Centriffler rejects

The load lugger flow was determined by weir measurements and the first stage side hill waste was calculated as shown in Table V. Sewer flows were determined by the following formula:

$$\frac{\text{Depth of stream x width x 10 ft. length}}{\text{Seconds to traverse 10 feet}} \times 4.49 \times 10^{-3} = \text{MGD}$$

Samples were taken on January 7, 10 and 16, 1964 and materia. balance and B.O.D. determined and reported in Table VI.

Pulp mill production on the days of sewer sampling was combined with the sewer data to calculate the B.O.D. and waste loading reported in Table VII.

A comparison of the pounds of B.O.D. per ton of finished product shows that the data for the three dates in January which averaged 61 percent book and 39 percent ledger correlates with the calculated data at this percentage ratio. (Table VII) The laboratory data is lower than the mill sampling and the calculation values. This can be explained by the difference in batch operation in the lab and continuous operation in the mill and the small sampling used in the lab cook which was representative but limited. The B.O.D., Suspended Solids and Solubles of the lab cooks are consistent in comparison with the mill data. (Table VIII)

There are several ways to reduce the river pollution to the required level, other than complete secondary treatment of waste material, as indicated in the loading concentrations of various inplant waste streams. The pulp mill contributes the majority of the waste loading and the first stage brown stock side hill washers contribute most of the deinking waste loading.

Using the data in Table VI, one possibility for waste reduction in compliance with state water resources recommendation of 14,490 pounds of B.O.D. per day was estimated. With Bryant division waste loading at May 1963 level (no deinking) of 1530 pounds of B.O.D. per day and Monarch at 500 pounds of B.O.D./day King waste could be divided with the paper mill waste flowing directly to the river at a loading of 4000 pounds of B.O.D. per day. The deinking mill waste amounts to 21,500 pounds of B.O.D. per day. This deinking flow would be primary clarified in existing equipment and secondary treated for a combined treatment reduction of at least 60 percent of the deinking mill B.O.D. where present primary treatment of the total King division removes 44 percent of the B.O.D. (Table I)

RESULTS:

Table I	Waste Treatment Data - May 1963
Table II	Calculated B.O.D. at Various Deinking Raw Material Ratios
Table III	King Waste Treatment Data - 1963
Table IV	Laboratory Pulps at Various Raw Material Ratios
Table V	First Stage Brown Stock Side Hill Washer Waste Water
Table VI	King Mill Sewer Sample Data
Table VII	Pulp Mill Furnishes on Days of Sampling
Table VIII	Comparison of Laboratory Pulps and Mill Data

TABLE I

WASTE TREATMENT DATA - MAY 1963

Division	Flow (MGD)	Mill Effluent Suspended Solids (#/D)	Mill Effluent BOD (#/D)	Treated Effluent Suspended Solids (#/D)	Treated Effluent BOD (#/D)
King	7.15	165,080	33,830	61,900	19,000
Bryant	4.52	42,100	7,125	1,090	1,530
Difference	2.63	122,980	26,705		

TABLE II

CALCULATED B.O.D. AT VARIOUS DEINKING RAW MATERIAL RATIOS

Raw Material Composition % Book	% Ledger	Product as % of Input Book	Ledger	Process Retention (%)	Raw Material for 200 Tons of Product (Tons/Day)	BOD Mill Effluent (#/D)	BOD #/Ton of Product
75	25	45.0	22.5	67.5	296.2	26,700	133
50	50	30.0	45.0	75.0	266.7	24,100	120
25	75	15.6	67.5	83.1	240.7	21,700	108
0	100	0	90.0	90.0	222.2	20,000	100

TABLE III

KING WASTE TREATMENT DATA - 1963

Date	Flow (MGD)	Mill Effluent Suspended Solids (#/D)	Treated Effluent Suspended Solids (#/D)	Test Days
July	7.44	166,109	65,285	14
August	7.36	152,469	59,223	6
September	7.07	161,118	38,073	7
October	6.96	163,951	40,095	19
November	6.94	206,831	60,380	14
December	7.00	167,200	45,800	15
Daily Average	7.10	171,800	51,070	(75)

TABLE IV

LABORATORY PULPS AT VARIOUS RAW MATERIAL RATIOS

Cook No.	Raw Material % Book	Raw Material % Ledger	Raw Material Retained (%)	Raw Material for 200 tons of product (Tons/Day)	B.O.D. (#/D)	B.O.D. # Per Ton of Product	Waste Suspended Solids (#/D)	Waste Solubles (#/D)	Permanganate No.
1	100	0	58.7	341	24,600	123	177,000	146,000	20.2
2	0	100	79.0	253	16,700	84	44,500	84,000	[illegible]
3	50	50	65.7	304	20,800	104	100,000	131,500	[illegible]
4	0	100	98.0	204	13,900	70	33,200	57,600	[illegible]
5	50	50	75.0	267	19,600	98	58,800	126,000	12.2

TABLE V

FIRST STAGE BROWN STOCK SIDE HILL WASHER WASTE WATER

$$C_{gal/day} = \frac{K_o \cdot K_f}{B_o} \cdot \frac{B_o - A_o}{A_o - C_c}$$

$$C_{\#/day} = C_{gal/day} \cdot C_c \cdot \frac{8.33}{100}$$

Where

K_o is the consistency of stock to chlorination

K_f is the flow of stock to chlorination in gallons per day

A_o is the consistency of inlet stock to the first stage washer

B_o is the consistency of stock at the bottom of the 1st stage washer

C_c is the consistency of stock wasting from 1st stage washer

Date

1-7-64 $C = \frac{2.54}{7.40} \cdot 1440 \cdot 1400 \cdot \frac{0.566 \cdot 8.33}{100} \cdot \frac{7.40-2.61}{2.61-0.566} = 76{,}600$ #/day

1-10-64 $C = \frac{1.97}{2.02} \cdot 1440 \cdot 1500 \cdot \frac{0.60 \cdot 8.33}{100} \cdot \frac{2.02-1.93}{1.93-0.60} = 71{,}200$ #/day

1-16-64 $C = \frac{2.82}{8.65} \cdot 1440 \cdot 1400 \cdot \frac{0.49 \cdot 8.33}{100} \cdot \frac{8.65-2.74}{2.74-0.49} = 90{,}500$ #/day

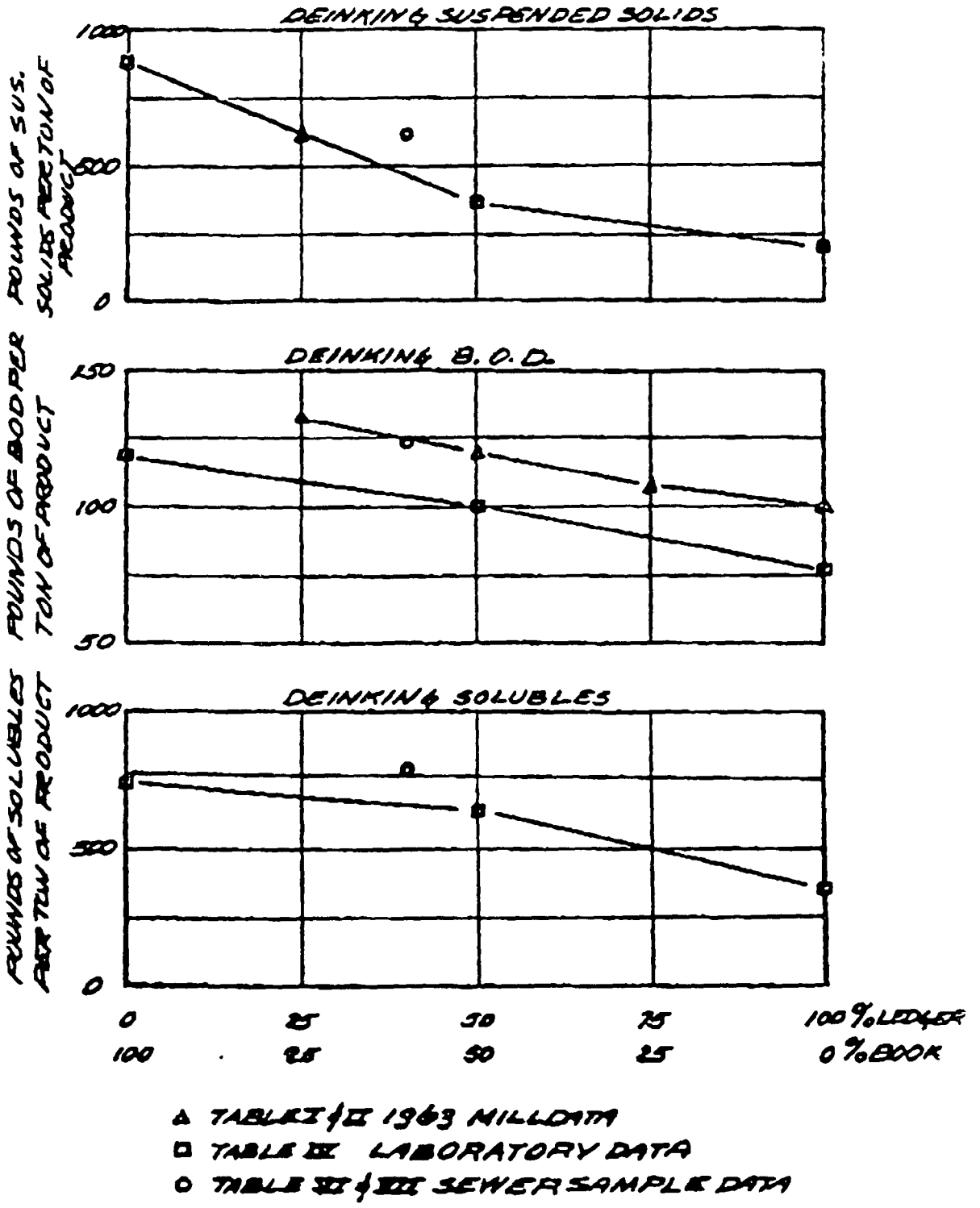
TABLE VII

PULP MILL FURNISHES ON DAYS OF SAMPLING

	Furnish Book %	Furnish Ledger %	Input tons	Retention %	Finished Tons	(#/D BOD) From Sewers	BO #/Ton Prod
1-7	60	40	251.6	72	181	24,390	135
1-10	64	36	248.1	70	173	10,467	60
1-16	63	37	238.2	70	166	29,600	178
Average	61				173	21,486	124

TABLE VIII

COMPARISON OF LABORATORY PULPS AND MILL DATA



Bennett
EXHIBIT NO. 2
6.25.92
S. BUSSINGER

ALLIED CHEMICAL CORPORATION

RESEARCH AND DEVELOPMENT DEPARTMENT

[illegible]

Project No. 900

Subject: Survey of King Mill Sewer Losses.

Distribution:

R. M. Levy
G. H. Baldauf
D. G. Stoeffler
H. R. Hall
B. Growald
R & D. File

W. D. Harmison
J. D. Dailey
E. J. Gilman
V. Weaver
J. Galloway
R. Bennett
H. Horrocks

Date: November 23, 1962

By: P. H. Germann
R. J. Willie

Approved: [signature]

Object:

To obtain an overall picture of location and concentration of loadings to the primary waste clarifier.

Procedure:

B.O.D., flow rate, fiber, suspended solids, and pH were taken at the following sample points: Clarifier influent and effluent; Sewer on east side of mill; Sewer from #3 and #4 paper machines; Pulp mill basement sewer; and Pulp mill sewer at ground level on east side of building.

Conclusions:

The material balance was good on suspended solids but the fiber balance was poor. To obtain a better fiber balance a continuous sampling device should be employed. The B.C.D. determinations were incomplete.

Discussion:

B.O.D. determinations were set up but incomplete because of a high concentration of seed in the dilution water.

Flow was determined by timing a float over a 10 to 15 feet length except for the centricleaner rejects, Jonnson screen rejects and pulp mill high sewer. The centricleaners were checked individually and timed with a two quart sample. The Jonnson screen rejects were measured as a spouting stream over the area of the stream. The flow in the pulp mill high sewer was calculated as the difference between clarifier flow and the measured component streams. The last set of flow measurements was made while #1 machine was on a dark colored furnish and its white water was sewered in the east basement rather than pumped to the pulp mill. The flow in the west machine sewer was higher as well as was the flow in the Pulp mill basement due to the east sewer overflowing into these other sewers.

Fiber was determined by using a liter sample and washing it on a 200 mesh seive, filtered and oven dried.

Suspended solids were measured by filtering 500 milliliters of sample except for the Jonnson and centricleaner rejects for which a 100 gram sample was weighed, filtered and oven dried.

pH was measured with the laboratory bench meter.

Data: I Sewer loadings

II Sewer layout

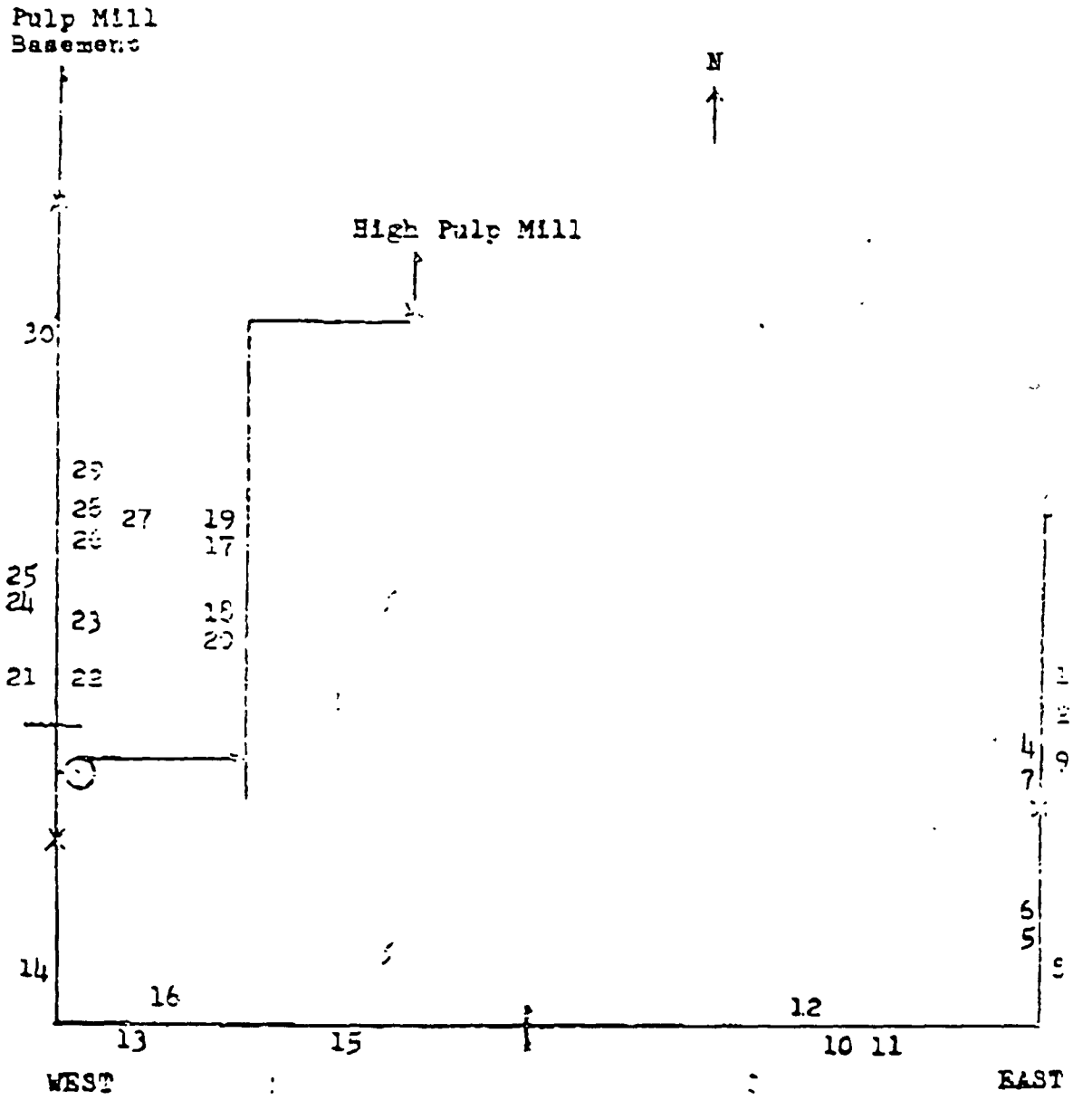
III Test results

TABLE I

SEWER LOADINGS

Source	Flow Intermittent Continuous	High In Sus. Solids, B.O.D. Fiber
East Sewer		
1. Clay Receiving System	I	S.S.
2. Grinder Room Drags	I	S.S.
3. Blender Room Floor Drains	I	Fiber
4. Starch Cooking	I	B.O.D.
5. White Water Sewering	I	S.S.
6. Stock Sewering	I	Fiber & S.S.
7. Water Softener Regeneration	I	None
8. P. Machine Fresh Water	C	None
9. Blender Room Gland Water	C	None
10. Heat Exchange Water	C	None
11. Paper Machine Centricleaners	C	S.S. & Fiber
12. Paper Machine White Water	C	S.S. & Fiber
West Paper Machine Sewer		
13. Fresh Water Screens	I	None
14. Rich White Water Tank	I	S.S. & Fiber
15. Heat Exchange Water	C	None
16. Paper Machine White Water	C	S.S. & Fiber
High Pulp Mill Sewer		
(West paper machine sewer - See above)		
17. Flat & Cowan screen rejects	C	Fiber
18. 1st & 2nd Brown Slide Washers	C	S.S. & B.O.D.
19. 1st Stage Washer Seal Box	C	B.O.D.
20. Pulper Water Storage	I	B.O.D., S.S., Fiber
Pulp Mill Basement Sewer		
21. 6th Stage Side Hill Water	I	S.S.
22. Pulp Mill White Water Chest	I	S.S. & Fiber
23. Jonnson Screen Rejects	C	S.S., Fiber, B.O.D.
24. Drains in Brown Slide Room	I	S.S. & Fiber
25. Vibroter Shower Water	C	Fiber
26. Centricleaner Rejects	C	Fiber & S.S.
27. Hole in Pipe to High Sewer	C	Fiber
28. Brown Stock Washer Seal Water	I	S.S. & B.O.D.
29. 3rd Stage Washer Seal Water	I	S.S. & B.O.D.
30. 2nd Stage Washer Seal Water	I	S.S. & B.O.D.

II KING MILL SEWERS



NOTE:

12	Key to Table I.
X	Sampling points for this study
6/7	Natural division of flow under normal operation

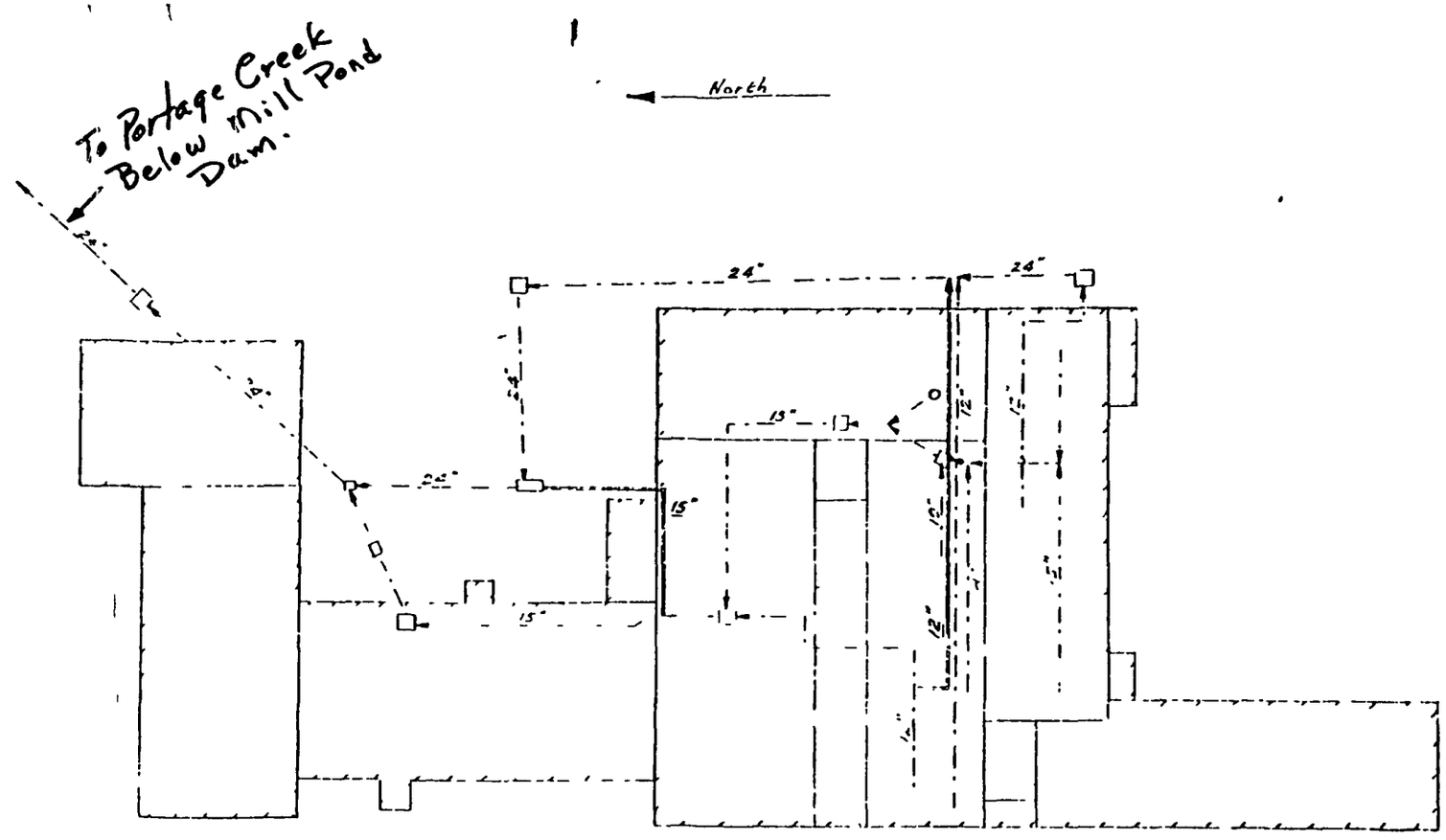
KA04500101

III KING MILL WASTE COMPONENTS

SAMPLE POINT	FLOW M.G.D.	SUSPENDED SOLIDS #/DAY	FIBER #/DAY	pH	
East Basement	0.74	19,200	5,230	7.25	A
	1.18	39,800	21,000	5.70*	B
	1.28	27,900	4,060	7.60	C
	2.59	38,900	7,560	6.75	D
West Paper Machines	1.88	7,500	2,180	7.35	A
	1.83	10,050	7,640	7.10	B
	2.07	13,800	518	7.95	C
	3.10	20,700	232	6.70	D
Pulp Mill Basement	2.95	85,600	46,700	8.30	A
	2.21	46,800	21,700	8.30	B
	1.86	27,900	13,000	8.45	C
	2.19	51,000	26,100	8.90	D
Pulp Mill High	-	-	-	-	A
	2.17	55,600	3,610	6.90	B
	2.79	50,300	5,340	6.95	C
	1.45	37,400	1,680	7.50	D
King Clarifier In	-	-	-	-	A
	-	134,000	24,400	7.20	B
	-	95,000	14,300	7.45	C
	-	129,000	31,700	8.20	D
King Clarifier Out	-	-	-	-	A
	6.10	14,200	975	6.90	B
	5.93	4,920	474	7.25	C
	6.23	22,800	0	7.25	D
Jonnson Rejects	-	-	-	-	A
	0.27	10,350	1,600	11.80	B
	.22	8,420	2,310	11.75	C
	.31	32,800	17,200	11.90	D
Centricleaner Rejects	0.060	14,600	14,000	7.20	A
	0.056	12,600	10,800	7.30	B
	0.051	13,700	10,980	8.10	C
	0.046	10,820	9,280	7.40	D

Note: Samples Taken On:
A - 11/7/62
B - 11/8/62
C - 11/14/62
D - 11/15/62

* This is not a typographical error.



Herbruck
EXHIBIT NO. 15
M. LANTIS 9/16/82

Existing Sewers

Proposed Sewers

ST. REGIS PAPER CO.	DRAWN	D	1-9-58
KALAMAZOO MILL	TRACED	D	
	CHECKED		
MILL "A".	APPR'D		
PROP. IMPROVEMENT OF SEWER SYSTEM	SCALE 1" = 50'0"		

No.	REVISIONS	BY	DATE

E-678

MHI-00026

92-2332

MICHIGAN WATER RESOURCES COMMISSION

Staff Report

Allied Paper Corporation, King Division
Kalamazoo, Michigan

July 14, 1970

On June 16, 1970, this writer received information that the above company was by-passing untreated waste into the Kalamazoo River. On June 17, this fact was confirmed and samples were taken of the waste discharge and from the Kalamazoo River. The bypass occurred as the result of the drive gears breaking for the clarifier scraper mechanism. Company representatives stated that efforts were being made to obtain replacement parts from either of two sources. At that time, they expected to receive new gears within one week.

The analyses for samples obtained on June 17, 1970, is as follows:

Source	D.O. mg/l	B.O.D.5 mg/l	Susp. Sol. mg/l	Susp.Vol. Sol.mg/l	pH
Kalamazoo River; M-96 Highway (above Allied Paper)	8.8	6.4	17	14	8.5
48" con. sewer; L. bank Kalamazoo River, 300 yds. N. of M-96 (Allied Paper flow)	-	120	1120	470	7.6
Kalamazoo River; Mills Street (below Allied discharge)	8.8	8.4	35	19	8.4
Kalamazoo River; Patterson Street (below both Allied & Portage Creek)	8.0	78.0	30	14	8.3

Because of other waste sources which enter the river, further sampling was not practical to identify oxygen degradation from Allied Paper's King Division. However, it is interesting to note that the suspended solids concentration jumped from 17 mg/l above the loss to 35 mg/l below the King Division's discharge. The Mills Street bridge is about 3/4 mile below the King Division's outfall.

Other inspections were made of conditions and progress on repair on June 19, and June 30. The writer understands that the clarifier was put back in use at 9:30 a.m., July 7, 1970.

0002593

A question could be raised as to how diligently the company proceeded to make the repairs. On June 30, a portion of sludge still remained in the clarifier and was being removed very slowly as the sludge pump was not working at full capacity. The shoes on the sludge rakes were also badly worn. Company representatives stated that the clarifier would be brought to good repair prior to putting it back in service but at this same time doubted that work would be done over the July 4th holiday period unless the needed drive gear for the scraper would be delivered. It is doubtful (writer's conjecture) that a full inspection and repair program could have been satisfactorily completed in a two day period. Additionally, the repairing of the sludge pump . . . for faster sludge removal was not being attempted. The replacement of the stater (the supposed problem) can normally be accomplished in about two hours.

James L. Pope

JLP:as

ROUTING SLIP

MR LES STOEFFLER	Initials ____ Date ____
MGR, PROCESS DEVELOPMENT,	Initials ____ Date ____
ALLIED PAPER CORP	Initials ____ Date ____
KALAMAZOO, MICH. 49001	Initials ____ Date ____

SSION

92-2300

ste Surveys

per Company
Michigan

9/3/68

___ Approval
___ Necessary Action
___ Investigate & Report
___ See me Regarding Attached
___ Prepare Reply
___ Prepare Reply for my Signature
___ Note & File
___ Return with Comments

EMARKS

Sunday

		-21	7-22	7-23	7-24	7-25	7-26
		741	6.883	6.676	3.099	7.044	6.375
		.53	171.35	173.32		189.66	183.00
		709	18,771	18,373	4,730	12,337	14,940
		.46	109.54	106.00		65.04	81.63
		602	66,589	68,371	5,272	45,234	37,642
Total Suspended Solids, pounds per ton paper	313.00	238.36	388.61	394.47		238.50	205.69
Total Suspended Vol. Solids, pounds	20,740	12,818	22,502	23,384	1,396	9,047	7,443
Total Suspended Vol. Solids, pounds per ton paper	105.70	73.44	131.32	134.92		47.70	40.67
Gallons Waste per ton paper	35,207	38,624	40,169	38,518		37,140	34,836
Population Equivalent	11[illegible]5	106,041	112,401	110,017	28,323	73,874	89,461
Settleable Solids Removal, per cent	[illegible]50	73.77	60.86	[illegible].23	113.74	71.42	86.38
White Water Susp. Solids, pounds	0.0	0.0	0.0	0	0.0	0.0	0.0
White Water Susp. Solids, pounds per ton paper.	0.0	0.0	0.0	0.0		0.0	0.0

on R. Courchaine Date 9/3/68

Type of Mill Production

De-ink Mill

Mill Water Supply

Portage Creek above Allied Monarch Division augmented with city water. Creek water is filtered before it is used.

Waste Control

De-ink waste flows by gravity to the main pump house. White water is pumped from various collection points to the main pump house and then both de-ink waste

COMMISSION

Report of Waste Surveys

at

St. Regis Paper Company
Kalamazoo, Michigan

Survey Periods: (24 hours for each)

July 20, 1955
July 21, 1955
July 22, 1955
July 23, 1955
July 24, 1955
July 25, 1955
July 26, 1955

Summary of Results

Date	7-20	7-21	7-22	7-23	7-24	7-25	7-26
Flow, million gallons per day	6.908	6.741	6.883	6.676	3.099	7.044	6.375
Production, tons	196.21	174.53	171.35	173.32		189.66	183.00
5-Day B.O.D., pounds	18,897	17,709	18,771	18,373	4,730	12,337	14,940
5-Day B.O.D., pounds per ton paper	96.31	101.46	109.54	106.00		65.04	81.63
Total Suspended Solids, pounds	61,414	41,602	66,589	68,371	5,272	45,234	37,642
Total Suspended Solids, pounds per ton paper	313.00	238.36	388.61	394.47		238.50	205.69
Total Suspended Vol. Solids, pounds	20,740	12,818	22,502	23,384	1,396	9,047	7,443
Total Suspended Vol. Solids, pounds per ton paper	105.70	73.44	131.32	134.92		47.70	40.67
Gallons Waste per ton paper	35,207	38,624	40,169	38,518		37,140	34,836
Population Equivalent	11[illegible]5	106,041	112,401	110,017	28,323	73,874	89,461
Settleable Solids Removal, per cent	[illegible]50	73.77	60.86	[illegible].23	113.74	71.42	86.38
White Water Susp. Solids, pounds	0.0	0.0	0.0	0	0.0	0.0	0.0
White Water Susp. Solids, pounds per ton paper.	0.0	0.0	0.0	0.0		0.0	0.0

Type of Mill Production

De-ink Mill

Mill Water Supply

Portage Creek above Allied Monarch Division augmented with city water. Creek water is filtered before it is used.

Waste Control

De-ink waste flows by gravity to the main pump house. White water is pumped from various collection points to the main pump house and then both de-ink waste

SA 839019

and white water are pumped to a 100 foot diameter sedimentation basin with a 12 foot sidewater depth. Effluent is discharged to Portage Creek. Sludge is discharged to a large lagoon.

Survey Procedure

Effluent from the sedimentation basin is discharged through a weir box. A recording head meter was installed at the weir to obtain a continuous daily record of th flow. Samples were taken of the flow at fifteen minute intervals by an automatic sampler and composited for each survey period.

An influent sample was obtained by continuously bleeding a small portion of the influent flow from the pump house discharge line through a small box equipped with an automatic sampler.

Survey Data:

Influent

Date	7-20	7-21	7-22	7-23	7-24	7-25	7-26
5-Day B.O.D., p.p.m.	420	590	495	455	205	390	525
Suspended Solids, p.p.m.	1,888	1,944	2,124	2,040	1,048	1,880	2,104
Suspended Vol. Solids, p.p.m.	760	824	780	812	456	772	840
2-hour Settleable Solids, p.p.m.	1,236	1,632	1,584	1,444	742	1,554	1,616
pH	7.2		6.9	7.6	7.8		7.0

Effluent

5-Day B.O.D., p.p.m.	328	315	327	330	183	210	281
Suspended Solids, p.p.m.	1066	740	1160	1228	204	770	708
Suspended Vol. Solids, p.p.m.	360	228	392	420	54	154	140
pH		7.2	7.2	7.3	7.5	7.3	7.2
Production, Tons	196.21	174.53	171.35	173.32		189.66	183.00
Flow, million gallons per day	6.908	6.741	6.883	6.676	3.099	7.044	6.375

Survey Calculations

Pounds of 5-Day B.O.D. to River

					INFLUENT (Raw)
7-20	6.908	x 8.34 x	328 =	18,897	24,200 lbs./day
7-21	6.741	x 8.34 x	315 =	17,709	33,160
7-22	6.883	x 8.34 x	327 =	18,771	28,400
- 7-23	6.676	x 8.34 x	330 =	18,373	25,310
- 7-24	3.099	x 8.34 x	183 =	4,730	—
7-25	7.044	x 8.34 x	210 =	12,337	12,800
7-26	6.375	x 8.34 x	281 =	14,940	27,900

Pounds of 5-Day B.O.D. per ton of paper

7-20	18,897 / 196.21	= 96.31
7-21	17,709 / 174.53	= 101.46

7-22	18,771 / 171.35 =	109.54
7-23	18,373 / 173.32 =	106.00
7-25	12,337 / 189.66 =	65.04
7-26	14,940 / 183.00 =	81.63

Population Equivalent

7-20	18,897 / 0.167 =	113,155
7-21	17,709 / 0.167 =	106,041
7-22	18,771 / 0.167 =	112,401
7-23	18,373 / 0.167 =	110,017
7-24	4,730 / 0.167 =	28,323
7-25	12,337 / 0.167 =	73,874
7-26	14,940 / 0.167 =	89,461

Total Pounds of Suspended Solids to River

7-20	6.908	x 8.34	x 1066	=	61,414
7-21	6.741	x 8.34	x 740	=	41,602
7-22	6.883	x 8.34	x 1160	=	66,589
7-23	6.676	x 8.34	x 1228	=	68,371
7-24	3.099	x 8.34	x 204	=	5,272
7-25	7.044	x 8.34	x 770	=	45,234
7-26	6.375	x 8.34	x 708	=	37,642

Total Pounds of Suspended Solids per ton paper

7-20	61,414 / 196.21 =	313.00
7-21	41,602 / 174.53 =	238.36
7-22	66,589 / 171.35 =	388.61
7-23	68,371 / 173.32 =	394.47
7-25	45,234 / 189.66 =	238.50
7-26	37,642 / 183.00 =	205.69

Total Pounds of Suspended Volatile Solids to River

7-20	6.908	x 8.34	x 360	=	20,740
7-21	6.741	x 8.34	x 228	=	12,818
7-22	6.883	x 8.34	x 392	=	22,502
7-23	6.676	x 8.34	x 420	=	23,384
7-24	3.099	x 8.34	x 54	=	1,396
7-25	7.044	x 8.34	x 154	=	9,047
7-26	6.375	x 8.34	x 140	=	7,443

Total Pounds of Suspended Volatile Solids per ton of paper

7-20	20,740 / 196.21 =	105.70
7-21	12,818 / 174.53 =	73.44
7-22	22,502 / 171.35 =	131.32
7-23	23,384 / 173.32 =	134.92
7-25	9,047 / 189.66 =	47.70
7-26	7,443 / 183.00 =	40.67

Gallons of Waste per ton of paper

7-20	6,908,000 / 196.21 =	35,207
7-21	6,741,000 / 174.53 =	38,624
7-22	6,883,000 / 171.35 =	40,169

7-23	6,676,000 / 173.32 =	38,518
7-25	7,044,000 / 189.66 =	37,140
7-26	6,375,000 / 183.00 =	34,836

Treatment Plant Efficiency

B.O.D. Removal

7-20	(420 - 328) x 100 / 420 =	21.90%
7-21	(590 - 315) x 100 / 590 =	46.61%
7-22	(495 - 327) x 100 / 495 =	33.93%
7-23	(455 - 330) x 100 / 455 =	27.47%
7-24	(205 - 183) x 100 / 205 =	10.73%
7-25	(390 - 210) x 100 / 390 =	46.15%
7-26	(525 - 281) x 100 / 525 =	46.47%

Suspended Solids Removal

7-20	(1888 - 1066) x 100 / 1888 =	43.54%
7-21	(1944 - 740) x 100 / 1944 =	61.93%
7-22	(2124 - 1160) x 100 / 2124 =	45.39%
7-23	(2040 - 1228) x 100 / 2040 =	39.80%
7-24	(1048 - 204) x 100 / 1048 =	80.53%
7-25	(1880 - 770) x 100 / 1880 =	59.04%
7-26	(2104 - 708) x 100 / 2104 =	66.35%

Suspended Volatile Solids Removal

7-20	(760 - 360) x 100 / 760 =	52.63%
7-21	(824 - 228) x 100 / 824 =	72.33%
7-22	(780 - 392) x 100 / 780 =	49.74%
7-23	(812 - 420) x 100 / 812 =	48.27%
7-24	(456 - 54) x 100 / 456 =	88.15%
7-25	(772 - 154) x 100 / 772 =	80.05%
7-26	(840 - 140) x 100 / 840 =	83.33%

Settleable Solids Removal

7-20	(1888 - 1066) x 100 / 1236 =	66.50%
7-21	(1944 - 740) x 100 / 1632 =	73.77%
7-22	(2124 - 1160) x 100 / 1584 =	60.86%
7-23	(2040 - 1228) x 100 / 1444 =	56.23%
7-24	(1048 - 204) x 100 / 742 =	113.74%
7-25	(1880 - 770) x 100 / 1554 =	71.42%
7-26	(2104 - 708) x 100 / 1616 =	86.38%

Remarks

On the 7-20 survey and again during the 7-25 survey the by-pass sewer from the pump house was discharging untreated waste to Portage Creek even though all three pumps were in operation. This condition was again observed on August 24. From the flow charts obtained at the effluent weir it is possible to pick off the flows with one, two, and three pumps in operation. The discharge over the weir with one pump in operation is approximately 2,900 gallons per minute, with two

pumps 4,250 gallons per minute and with three pumps 5,000 gallons per minute.

According to a letter of October 19, 1953, the clarifier is 100 feet in diameter and has a sidewater depth of 12 feet. The three pumps in the main pump house are each of 3,000 gallons per minute capacity.

The following is the theoretical detention time in the clarifier for the average daily flow on each of the survey dates:

7-20	2.44 hours
7-21	2.51 hours
7-22	2.45 hours
7-23	2.53 hours
7-24	5.45 hours
7-25	2.40 hours
7-26	2.65 hours

Survey written and supervised by
Ralph W. Purdy

Field Work by
H. Liechti

Chemical Analyses by
R. Krueger

93-1284

STATE OF MICHIGAN

WATER RESOURCES COMMISSION

GEORGE W ROMNEY, GOVERNOR

COMMISSION
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For JOHN C MACKIE
GAYLORD A WALKER
ALBERT E MEUSTIS M D
GEORGE S McINTYRE
JIM GILMORE JR Kalamazoo
GEORGE F LIDDLE Muskegon
LYNN F BALDWIN Baton Rapids

LEGAL COUNSEL
FRANK J KELLEY

STAFF
LORING F CEMING
NORMAN BILLINGS
RALPH W PURDY
JOHN L DESMOND

STAFF OFFICES
200 Mill Street
STATION B
LANSING MICHIGAN 48913

April 29, 1964

Mr. E. J. Gilman
Vice President of Manufacturing
Allied Paper Corporation
Kalamazoo, Michigan

Dear Mr. Gilman:

We were pleased to have the opportunity of meeting with you and Mr. Klimczak recently to discuss waste control procedures for the Kalamazoo mills.

You will recall we expressed concern regarding the bypass control structure at the King Division mill. A rather sizeable leakage was bypassing the flap gate at the time of our visit. As was indicated, we have in the past frequently observed bypassing of raw waste and have even at times observed leakage of clarifier effluent through the gate from the reverse side, flowing back into the raw waste wet well. On most of these occasions there did not appear to be any reason for bypassing and at least once the gate was observed to be stuck in an open position.

Because of these deficiencies in the present bypass control structure, a new device should be installed which will offer more positive control of bypassing and which will allow bypassing only under emergency situations.

We believe you will agree with us that this matter is important to maintaining good waste control and, therefore, we will look for correction of the problem as early as possible this spring or summer. A copy of plans for the installation would be appreciated when these are developed.

Very truly yours,

Ralph W. Purdy
Chief Engineer

RJC: lmo
cc: C. Harvey

0002737

SA 011418

93-1287

WATER RESOURCES COMMISSION

Memorandum

To: R. W. Purdy

Subject: Allied Paper Corporation, Bryant Mill, Kalamazoo

From: R. Courchaine RJC

Date: May 28, 1965

I called Jack Gilman of this Company to obtain information regarding the bypass of wastes into the Bryant Mill Pond from the large sewer at Alcott Street, observed by Bannister Tuesday morning, May 18, 1965.

Gilman said he could not recall any trouble at the Bryant Mill which would account for any bypassing. He promised to check this out further and will report back to us in writing.

cc: C. Harvey
W. Bannister
lms

0002732

SA 011413

93-1506
dup

STATE OF MICHIGAN

GEORGE ROMNEY, Governor

DEPARTMENT OF CONSERVATION

RALPH A MAC MULLAN Director

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WATER RESOURCES COMMISSION
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JOHN E VOGT
Vice Chairman
B DALE BALL
GERALD E EDDY
JAMES V MURRAY
LYNN F BALDWIN
JIM GILMORE

200 MILL ST LANSING 48926
Tel 373 3560

June 17, 1968

Mr. Les Stoeffler, Manager
Process Development
Allied Paper Corporation
Kalamazoo, Michigan

File

Dear Mr. Stoeffler:

This is in reference to your recent telephone conversation with R. W. Purdy regarding by-passing of the white water at the Bryant Mill to allow for certain tests to be run on quantity and quality of the de-ink wastes.

It is our understanding that such testing will take about two weeks to perform and during this period the de-ink wastes will be treated in the clarifier with by-passing of only the white water.

We would have no objection to this proposal if the testing can be performed now, while stream flows are still relatively high. If, however, testing cannot be started within a week or two before stream flows and temperatures become critical, it should be delayed until the fall.

We will appreciate being kept informed as to when the tests are to be started and terminated.

Very truly yours,

WATER RESOURCES COMMISSION

RJC

Robert J. Courchaine
Regional Engineer

RJC:pb

cc: P. W. Purdy
C. Harvey

18001-RJ-8.7/00

MICHIGAN
THE GREAT LAKE STATE

WATER RESOURCES COMMISSION

Memorandum

93-1502
dup

TO: Allied Paper Company Files

FROM: R. Courchaine RJC

DATE: December 21, 1967 SUBJECT: Bryant Mill by-passing

Karl Zollner and Jim Pope were in the Kalamazoo area 12-20-67 and report that they observed that the Bryant Mill was again, or continuing to, by-pass wastes.

Shortly after the lunch hour on that date I received a call from Dr. Bob Levy of the Company, explaining that a waste pump had burned out and that to replace it, they had to start by-passing wastes at noon. He indicated that the job would probably be completed and the system back in operation by 3:30 P.M. on that date.

Suggest we check for by-passing at this mill at every opportunity.

RJC: kn
cc: C. Harvey
J. Bohunsky

MDNR 003672

93-1299
dup

STATE OF MICHIGAN

GEORGE ROMNEY, Governor

DEPARTMENT OF CONSERVATION

RALPH A. MAC MULLAN, Director

December 13, 1967

CONSERVATION COMMISSION
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AUGUST SCHOLLE
HARRY H. WHITELEY

WATER RESOURCES COMMISSION
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Vice Chairman
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GERALD E. EDDY
JAMES V. MURRAY
LYNN F. BALDWIN
JIM GILMORE

200 MILL ST., LANSING 48926
Tel. 373-3560

Mr. E. J. Gilman
Vice President - Manufacturing
Allied Paper Corp.
Kalamazoo, Michigan 49001

Dear Mr. Gilman:

Our Comprehensive Study Unit is planning a comprehensive re-survey of the Kalamazoo River in 1968, similar to the work which was done in 1956. It is planned to include Portage Creek in our 1968 studies.

Shortly after the first of the year sampling surveys of the streams will be initiated and will be carried out throughout most of the year with a concentrated around-the-clock survey to be conducted sometime during the summer-fall drought period. During the year we will also be carrying out surveys of the various waste sources in the Kalamazoo-Plainwell-Otsego area.

As a prelude to the 1968 studies, we had occasion to be in the Kalamazoo area yesterday (December 12) at which time a group of key personnel of our Comprehensive Study Unit staff were given a tour of the area to orient them as to the location of the various waste sources and their location and pertinent information as to stream sampling locations, etc.

During this tour we noted two matters with respect to the Allied Paper Corporation's waste control operations which should receive your immediate attention. At the Alcott Street Bridge we observed a large by-pass of wastes occurring from the Bryant Mill. It was estimated that this by-pass amounted to approximately 150 gallons per minute. 0.2 MGD

At the Monarch Mill location, we noted that sludge from the company's sludge storage lagoons located north of Cork Street and east of Portage Creek was topping the dikes at an area located along the creek. It is apparent that there is no capacity left to receive additional sludge in this lagoon.

We would appreciate hearing from you at your earliest convenience as to the reason for the Bryant Mill by-pass, corrective actions taken and the period of time by-passing occurred. It is also requested that you inform

MICHIGAN
WATER-WINTER WONDERLAND

us as to what precautionary measures are planned or being taken to prevent losses of waste sludge to the surface waters and what disposition is planned for the sludges in view of the extremely limited area remaining in the immediate mill areas.

Very truly yours,

WATER RESOURCES COMMISSION

RJC

Robert J. Courchaine
Regional Engineer

RJC:kn
cc: C. Harvey
J. Bohunsky

93-1285

ALLIED PAPER CORPORATION
Kalamazoo, Michigan

December 4, 1964

Mr. Ralph Purdy
Water Resources Commission
200 Mill Street
Lansing 13, Michigan

Dear Ralph:

Confirming my telephone conversation with you on Thursday, December 3, 1964, I am relating below the events which took place at our Bryant Division:

We have three pumps which take waste waters to the clarifier. Usually only two pumps operate and one is standby. On Tuesday, December 1, a motor burned out on one pump and on Thursday, December 3, an impeller failed on another pump at approximately 8:00 a.m. Approximately 50% of waste bypassed the clarifier from 8:00 a.m. until 1:00 p.m. when one pump was put back in service.

Our Engineering Department informs me that it will take approximately five more days before the standby pump can operate.

If you require further information on the above, do not hesitate to get in touch with me.

Sincerely,

R. M. Levy

elr

cc: Mr. Bob Courchaine

RECEIVED
DEC 7 1964
WATER RESOURCES COMMISSION

ALLIED PAPER CORPORATION
Kalamazoo, Michigan

93-1274

April 6, 1961

Water Resources Commission
300 East Michigan
Lansing 13, Michigan

Attn: Mr. Ralph Purdy

Dear Ralph:

We appreciate the fact that you called to our attention the by-passing of a portion of our waste from the Bryant pump station wet well during your visit to our office today. As you know we immediately informed the people directly responsible for correcting this situation. We have since advised the other responsible people in our organization that have jurisdiction in this area of operations. Our Bryant maintainence superintendent and maintainence engineer will see to it that the men responsible will clean the bar grate regularly and that any malfunction of the pumps be reported at once. Then too, the superintendent of our Bryant pulp mill has been instructed to make inspections at the by-pass discharge to insure that any flow there will be given remedial action.

The plans to reduce fresh water usage and full utilization of white waters in the mills are being carried out by direction of J.D.Dailey, Senior Vice President. I'm sure you gathered from his remarks to you that these plans will be carried out.

Very truly yours,

ALLIED PAPER CORPORATION

W. G. STOEPPLER, ASSISTANT
DEVELOPMENT MANAGER

jmcw
cc: J.D.Dailey
S.J.Stotz

000433

Chief Answer

93-1276

Memorandum

Allied Paper Company

Kalamazoo, Michigan

November 15, 1961

I visited the waste treatment plants of the King and Bryant Divisions of Allied Paper Company between 10:00 and 10:30 a.m. on the above date. Neither waste treatment plant was in operation. All waste was being by-passed.

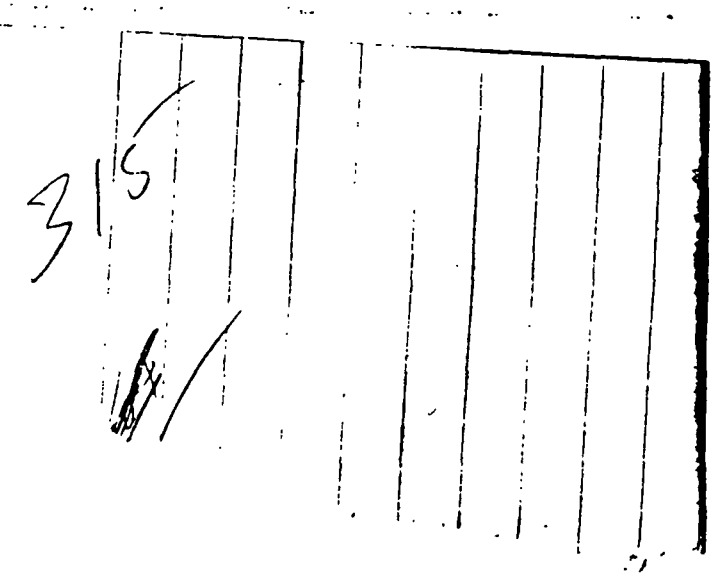
The trash rack at the King Division appeared to be out of order. No workmen were present. Appearances indicated that the waste treatment plant had been inoperative for at least several days.

A new mechanically cleaned trash rack has been at least partially installed at Bryant Division. This should eliminate some of the past noted problems at this division. No workmen were present in this building. Here again it appeared that the waste treatment plant had been inoperative for sometime.

I attempted to contact Les Stoeffler at the main office. It was reported that he was on his way to the Monarch Division. I attempted to reach him by telephone at Monarch. Mr. Stoeffler had still not been located after about 45 minutes wait, therefore I was not able to obtain additional information.

Ralph W. Purdy

315



C002750

STATE OF MICHIGAN

93-1509
dup

CONSERVATION COMMISSION
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GERALD E EDDY
N P. WOODFORD
F BALDWIN
ORE

NSING 48926
-3560

September 25, 1968

Mr. Dan Yenner
2226 Oakland Drive
Kalamazoo, Michigan 49001

Dear Mr. Yenner:

This is to acknowledge receipt of your September 12, 1968 letter to Commissioner Jim Gilmore regarding the matter of waste control at the Allied Paper Company, Bryant Mill.

You indicated that the latter part of July and during August the Company by-passed waste while cleaning its waste pipeline which carries the Bryant wastes to the waste treatment clarifier.

The Commission and its staff have expressed grave concern for the rather frequent by-passing of wastes which occur at the Bryant Mill. At its April 24th conference with the Company, the Commission discussed the necessity of improving waste treatment at the Bryant Mill and of eliminating the by-passing of wastes.

The Company indicated that a water conservation and re-use program was being pursued to reduce the total volume of wastes to be handled through the pipeline and thereby correct the by-passing. Since the problem is aggravated by the reduced capacity of the pipeline, as a result of a buildup of solids around the inner wall of the pipe, the Company stated that it would be necessary to clean this pipe and, in some instances, to replace badly corroded sections. In our discussion with the Company regarding this program, we informed them that routine cleaning and replacement of pipe should be programmed during shutdown and other periods of reduced waste flow to minimize any by-passing of wastes. Apparently, it was not possible to accomplish all of the work which needed to be done during such periods.

We, of course, would prefer that by-passing of any waste treatment facility would never be necessary; but there are times of equipment failure and circumstances beyond the control of the operators of such facilities which necessitate such by-passing to allow for repairs and equipment replacement. The Commission's policy in such matters is to program, wherever possible, the by-pass so as to minimize the effects on the water quality and uses made of the receiving waters.

MICHIGAN
THE
GREAT
LAKE
STATE

MDNR 083718

In any event, the Company's pipe cleaning program, coupled with the flow reduction program, should result in elimination of future by-passing of untreated wastes.

The Commission has notified the Company that improved waste treatment will be necessary to upgrade water quality in Portage Creek to meet the Water Quality Standards for this stream, which are expected to be established early in 1969. The Company is now studying the feasibility of discharging de-ink wastes from its Bryant Mill into the City of Kalamazoo sanitary sewer system. The Company is required to make a report on this matter to the Commission next month.

We certainly appreciate your interest in this matter and in taking the time to write to us regarding your observations. Should you observe any by-passing of wastes in the future, we would appreciate a call so that the matter can be immediately investigated by our staff.

Once again, thank you for calling this matter to our attention.

Very truly yours,

WATER RESOURCES COMMISSION

RWP RJC.

Ralph W. Purdy
Chief Engineer

RJC/ro

cc: Jim Gilmore
C. Harvey ✓

[illegible] TANK TESTS

To: R. [illegible]arson

From: R. J. Willie

cc W. D. Harrison, R. M. Levy, H. B. Johnston, G. H. Baldauf, [illegible] B. Owen, E. J. Gilman, A. M. Mulder, D. Mendham, S. Stetz, U. C. Stoeffler, R. Bell, B. Buenger, D. F[illegible]y, V. Weaver

KING DIVISION

Date 1959	INFLUENT (#/day) Sus. Solids	Fiber*	Soluble	BOD	EFFLUENT (#/day) Flow (MGD)	Sus. Solids	Fiber*	BOD	Removal % Efficiency Solids	BOD	Waste Paper Input Regular Tons	% Look
3/16	--------no samples**----------				6.50	----no sample**----					232 [illegible]	73.[illegible]
3/17	94,500	10,100	130,000		6.50	22,700	0				224	
18	88,200	9,850	71,700		6.16	10,250	0				210	
19	133,000	15,300	66,700		5.70	44,700	0				238	
20	98,700	11,400	115,000		5.75	33,500	0				236	
21	101,000	12,900	104,000		5.93	no sample	0				247	
[illegible]	103,080	11,910	97,480		6.09	27,787	0				231	
[illegible] Order						53,7[illegible]		16,300				

RYANT DIVISION

16	78,500	9,400	75,500		8.25	17,900	0				162.2	66.8
3/17	130,500	16,200	130,900		8.36	30,500	0				154.4	67.5
3/18	113,000	13,700	62,700		8.37	4,000	0				148.1	64.5
3/19	116,000	12,800	91,000		8.43	47,300	0				128.8	60.5
[illegible]/20	142,000	13,200	145,000		8.73	111,000	0				165.3	62.4
3/21	146,000	19,000	131,000		8.75	no sample	0				184.0	63.8
[illegible]	121,000	14,050	106,017		8.48	42,140	0				157.1	64.2
[illegible] Order						76,500		11,100				

[illegible] **bar grates plugged - bypassing settling t[illegible]

SCM CONFIDENTIAL

5H 035162

42-2360

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

PAPER MILLS DIVISION KALAMAZOO, MICHIGAN 49003 (616) 345-7131

February 13, 1970

Robert Courchaine, Regional Engineer
Bureau of Water Management
Dept. of Natural Resources
Stevens T. Mason Bldg.
Lansing, Michigan 48926

Dear Bob:

We are pleased to report to you that as of this week we no longer discharge our Chlorine drop-leg water directly into Bryant Mill pond. This water formerly flowed by gravity from a vacuum seal box into the pond. After much discussion and investigation, we decided to pump this water to our Monarch Clarifier together with the white water from our Bryant Paper Mill Divisions. To accomplish this we now pump from the vacuum seal box into the large surge tank. This is the same surge tank that receives the paper mill white water from our Mill C and D operations.

To date we have not encountered any problems with this new arrangement.

You will recall that I discussed with you, our concern about the appearance that this discharge made to the pond, and that we would make an investigation to determine the remedial action.

Yours very truly,

ALLIED PAPER, INC.

U. G. Stoeffler,
Manager Process Development

jm/UGS

cc: R. M. Levy - Allied
E. J. Gilman - Allied

RECEIVED
FEB 19 1970
0002613 WATER RESOURCES COMMISSION

92-2387

INTER-OFFICE CORRESPONDENCE

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

CONFIDENTIAL

TO: Les Stoeffler **WRITTEN B** Citadin 27

OFFICE: Kalamazoo **OFFIC**

SUBJECT: Portage Creek **DATE:**

Our next goal in the clarification of Portage Creek should be to pick up the Chlorine Oliver drop leg water, which is now going directly into the Creek, and send it to the Monarch clarifier by way of the collection tank. Furthermore, it should be our aim to do this without increasing the present flow to the Monarch clarifier, which is about 3 MGD.

To accomplish this step, we need to pick up additional fresh water in "C", "D", and Monarch, totaling about 500,000 GPD, which is the approximate flow from the Chlorine Oliver. One such possibility occurred to me yesterday, and I mentioned it to Bob Dennany and Ray Willie; it is to put the size press water from Numbers 10 and 11 into the fresh water sump under No. 11 and thence directly into the Creek. This could give us a good start toward the half-million GPD that we are looking for.

I would like Engineering to come up with a proposal for pumping the drop leg water into the collection tank, with estimated cost. I believe that this could be included in the overall $100,000 project for Portage Creek clarification.

I would like Les Stoeffler to tell us of the effect this water would have on our pumps and pipes, and also how it would effect the operation of the Monarch clarifier.

Jack

Jack

EJG:jl

cc: Bob Dennany
Al Vickery
Ken Sweet
Dick Bennett

SP 034512

92-2223

STATE OF MICHIGAN
WATER RESOURCES COMMISSION
JOHN B. SWAINSON, GOVERNOR

COMMISSION
ALBERT E. HEUSTIS, M.D., Chairman
GEORGE F. LEDDLE, Muskegon, V Chairman
GERALD E. EDDY
JOHN C. MACKIE
GEORGE S. McINTYRE
[illegible]

STAFF OFFICES
200 Mill Street
STATION B
LANSING 13, MICHIGAN

LEGAL COUNSEL
PAUL L. ADAMS
STAFF
MILTON P. ADAMS
LORING F. OEMING
NORMAN BILLINGS
JOHN L. DESMOND

August 2, 1961

Dr. Ward Harrison, President
Allied Paper Corporation
Kalamazoo, Michigan

Dear Dr. Harrison:

Enclosed herewith is a copy of a report of waste survey at Allied Paper Corporation (Monarch, Bryant, and King Divisions), Kalamazoo, June 27 and 28, 1961.

We would like to draw your particular attention to the by-passing of waste, prior to sedimentation, at the Bryant and King Divisions. We understand that new equipment is on order to correct the deficiencies at Bryant Division. Steps should also be taken to correct the problem at King Division.

If you or any of your technical people wish to discuss our report further, we would welcome this opportunity.

Very truly yours,

Loring F. Oeming
Chief Engineer

RWP:jb
cc: C. Harvey

0002779

Report of Waste Survey
at
Allied Paper Corporation
(Monarch, Bryant & King Divisions)

Kalamazoo, Michigan

June 27 & 28, 1961

Summary of Results

	Monarch	Bryant	King	Total
Flow, million gallons/24 hrs.	1.506	4.233	7.399	13.138
5-day B.O.D., lbs./24 hrs.	780	16,580	28,400	45,760
Suspended Solids, lbs./24 hrs.	214	53,280	103,000	156,494
Suspended Vol. Solids, lbs./24 hrs.	125	16,140	41,950	58,215
Settleable Solids Removal, per cent		64.2	52.7	

Monarch Division

Survey Period

8 a.m., June 27, 1961 to 8 a.m., June 28, 1961.

Survey Procedure

A company installed recording head meter at the effluent weir box on the clarifier was used to obtain a continuous record of the flow. A composite sample of the effluent was obtained by the installation of a WRC automatic sampler.

Survey Data

	Effluent
Flow, million gallons/24 hrs.	1.506
5-day B.O.D. mg/l	62
Suspended Solids mg/l	17
Suspended Vol. Solids mg/l	10
pH	7.4

Survey Calculations

lbs. of 5-day B.O.D. per 24 hrs.

$1.506 \times 8.34 \times 62 = 780$

lbs. of Suspended Solids per 24 hrs.

$1.506 \times 8.34 \times 17 = 214$

lbs. of Suspended Vol. Solids per 24 hrs.

$1.506 \times 8.34 \times 10 = 125$

0002779

Survey Calculations

lbs. of 5-day B.O.D. per 24 hrs.

3.866 x 8.34 x 440 = 14,190
0.367 x 8.34 x 780 = 2,390
Total 16,580

lbs. of Suspended Solids per 24 hrs.

3.866 x 8.34 x 1380 = 44,500
0.367 x 8.34 x 2870 = 8,780
Total 53,280

lbs. of Suspended Vol. Solids per 24 hrs.

3.866 x 8.34 x 380 = 12,250
0.367 x 8.34 x 1270 = 3,890
Total 16,140

Settleable Solids removal by clarifier

(2870 - 1380) x 100/2320 = 64.2%

King Division

Survey Period

8 a.m., June 27, 1961 to 8 a.m., June 28, 1961.

Survey Procedure

Effluent:

A company installed recording head meter at the weir box on the clarifier was used to obtain a continuous record of the flow. A composite sample was obtained from the company's sampling device (water wheel type sample).

Influent to Clarifier:

A composite sample was obtained by continuously bleeding a small portion of the influent flow from the pump house discharge line through a small box equipped with a WRC automatic sampler.

Survey Data

	Raw Waste	Clarifier Effluent
Flow, million gallons/24 hrs.		7.399
5-day B.O.D. mg/l	700	460
Suspended Solids mg/l	2640	1670
Suspended Vol. Solids mg/l	1230	680
2 hr. Settleable Solids mg/l	1840	
pH	7.6	7.1

0002781

Survey Calculations

lbs. of 5-day B.O.D. per 24 hrs.

7.399 x 8.34 x 460 = 28,400

lbs. of Suspended Solids per 24 hrs.

7.399 x 8.34 x 1670 = 103,000

Lbs. of Suspended Vol. Solids

7.399 x 8.34 x 680 = 41,950

Settleable Solids removal by clarifier

(2640 - 1670) x 100/1840 = 52.7%

Remarks

The great decrease in waste load to the river at the Monarch Division from previously observed levels is due to the discontinuance of de-ink operations.

At Bryant Division, untreated waste is by-passing directly to Portage Creek at two locations. One is white water and the other is de-ink waste. The white water by-pass is due to mechanical troubles with both pumps at the pump station. Repairs are on order. De-ink waste by-passes due to the plugging of the hand cleaned bar grate at the main pump station. A new mechanically cleaned bar grate is on order.

Bleach waste (acid wash) goes directly to Portage Creek.

At King Division, an undetermined amount of by-passing takes place at the back water gate on the [redacted] line. This by-passing was confirmed by the use of a tracer dye. This situation could be easily corrected by the construction of a weir in the by-pass line with the crest set at such a level as to prevent flooding problems.

The actual waste load to the river for the 24 hour survey period, as shown in the summary of results, would be somewhat larger if data on King raw waste by-pass, and bleach waste and white water data at Bryant mill were available and included as a part of this report.

Report by: Chester Harvey

Field Survey by: John Bohunsky
Jim McDonald
Frank Vining
Chester Harvey

0002782

INTER-OFFICE CORRESPONDENCE

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

TO: U. G. Stoeffler **WRITTEN BY:** Ray Willie

OFFICE: **OFFICE:**

SUBJECT: Solids, fiber, pH, and residual chlorine, and BOD of chlorine drop leg at Mill A (Bryant) **DATE:** January 31, 1969

As requested samples were taken on two (2) consecutive days at the new sampling valve of the chlorine drop leg in the basement of Mill A. The results are as follows. These samples were taken with the bad wire on chlorine oliver.

Date	pH	Cl_2 residual PPM	Fiber gm/l	Solids gm/l	BOD PPM as rec'd	BOD PPM Antichlor
1/23	2.7	280	1.67	3.34	No results	200
1/24	2.9	480	.84	1.80	No results	275

The samples used for BOD's were run as received and with the chlorine residual reduced to zero using antichlor.

BOD samples seem to be running very high. Will recheck.

/ks

CC: R. M. Levy
E. J. Gilman
K. Sweet
F. Hyet

(14)(e)

SCM CONFIDENTIAL

SA 034938

SA00034938

INTER-OFFICE CORRESPONDENCE

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

TO: U. G. Stoeffler

OFFICE:

WRITTEN BY: Ray Willie RLW

OFFICE: R & D

SUBJECT: Evaluation of chlorine drop leg water going to Bryant Pond after new wire installed on chlorine oliver.

DATE: February 13, 1969

As requested by U. G. Stoeffler, samples of the chlorine drop leg water were taken and evaluated. Results are as follows:

Date	2/5	2/6	2/7
pH	4.4	3.9	3.7
Cl2 residual PPM	440	390	463
Fiber gm/l	0	0	0
Solids gm/l	.18	.18	.14
Solubles gm/l	1.30	.70	1.30
BOD PPM	145	115	265

Conclusions:

When I ran samples quite some time ago, the chlorine residual was not so high and a straight sample could be run for B.O.D., or so I thought. In order to check the B.O.D., the chlorine must be neutralized with sodium sulfite or the residual will give a false B.O.D. figure. It, therefore, seems that we have a lot more B.O.D. going into the pond then was previously figured. Further evaluation will continue.

/ks

CC: R. L. Levy
E. J. Gilman
K. Sweet
F. Hyet
P. Hagard

KA05100111

SCM CONFIDENTIAL

Kilmer
EXHIBIT NO. 22
M. LANTIS 4/20/92

INTER-OFFICE CORRESPONDENCE

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

TO: Les Steffler
OFFICE: Kalamazoo
SUBJECT: Tests of Cl_2 Drop Leg Water

WRITTEN BY: Ray J. Willie
OFFICE: Kalamazoo
DATE: October 14, 1969

As requested samples were taken from the chlorine drop leg at Mill A during the week of 10/6/69 and checked for the following: pH, Cl_2 residual, fiber, solids, ash, and turbidity. The results are as follows:

DATE	pH	* Cl_2 RES. PPM	FIBER #/M Gal	SOLIDS #/M Gal	ASH %	TURBIDITY ** PPM
10/7	3.3	620 PPM 17.5 cc	.08	1.08	61.5	1000 ++
10/8	4.9	462 PPM 13 cc	.13	1.75	69.0	1000 ++
10/9	3.0	275 PPM 9.8 cc	.04	1.83	63.7	1000 ++
10/10	3.2	520 PPM 14.6 cc	.04	1.25	53.3	1000 ++

*Residual could be smelled at the Vine Street bridge at times.
**Turbidity was as read on the Hach Meter and was way off scale.

cc: R. Levy
J. Gilman
K. Sweet
D. Bennett
File 301

Kilmer EXHIBIT NO. 23 M. LANTIS 7/20/92

SCM CONFIDENTIAL

KA05100112

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

TO: U. C. Stoeffler
OFFICE:
SUBJECT: Tests of Cl_2 Drop Leg Water

WRITTEN BY: R. J. Willie
OFFICE: R&D
DATE: October 21, 1969

As requested, samples were taken from the chlorine drop leg at Mill A during the week of October 14, 1969, and checked for the following: pH, Cl_2 residual, fiber, solids, ash and turbidity.

The results are as follows:

Date	pH	*Cl_2 Res. PPM	Fiber #/M gal.	Solids #/M gal.	Ash %	**Turbidity PPM
10/14/69	2.8	530 PPM 14.9 cc	.17	.83	70.0	1000 ++
10/15/69	5.4	300 PPM 8.3 cc	.17	1.33	62.5	1000 ++
10/16/69	4.7	460 PPM 12.9 cc	.17	1.17	57.2	1000 ++
10/17/69	3.2	535 PPM 15.0 cc	.17	1.94	65.2	1000 ++

* Residual can still be smelled down stream.
** Turbidity read on Hach meter and was way off scale.

/ks

cc: R. M. Levy
E. J. Gilman
Ken Sweet
D. Bennett
File 301

Kilmer EXHIBIT NO. 24 M. LANTIS 11/20/92

SCM CONFIDENTIAL

KA05100113

INTER-OFFICE CORRESPONDENCE

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

TO:	R. M. Levy E. J. Gilman	WRITTEN BY:	H. G. Stoeffler
OFFICE:		OFFICE:	R & D
SUBJECT:	Mill A Waste Water to Bryant Clarifier Trial, July 8-20, 1968	DATE:	July 29, 1968
		cc:	R. J. Willie

During a two week period, July 8 - 20, 1968, only the deinking waste water from Mill A was pumped to the Bryant clarifier, allowing the Mill C and Mill D waste waters to overflow at the Mill D pump wet well. As in regular operation, the chlorine Oliver dropleg water flowed to the Bryant Mill Pond (a check on this waste on July 11, 1968 showed a total solids of 0.45 #/thousand gals.).

This two week trial was requested by the Public Works Department of Kalamazoo and approved by Robert Courchaine, Regional Engineer for the Michigan Water Resources Commission on July 3, 1968. The City of Kalamazoo people requested the trial to get actual data on effluent quality when only Mill A waste water was treated in the Bryant clarifier. Previously we had estimated effluent quality based on an earlier influent sampling trial when only Mill A waste water was pumped to Mill A sump for two hours daily for a two week period. At that time we calculated the suspended solid removal to be 90%, BOD removal to be 35%, fiber 100% and solubles 15%. The average influent flow for this trial was 2.311 M.G.D.

During this trial every effort was made to reduce the influent flow to process waste water from Mill A only. Previously all excess process white water from Mill C and Mill D was pumped to Mill A process water tank, often resulting in greater supply than demand. An attempt was made to use only this white water as demanded by Mill A process. This effort reduced the influent flow for this trial to an average of 1.709 M.G.D. It was estimated before the trial that a flow of 1.5-1.75 M.G.D. was attainable.

Composite samples of influent and effluent were collected every day except Sunday (pumps were down to clean 20" line and pump impellers). Flows were calculated from Leupold & Stevens charts. A gallon of the composite effluent sample was taken to the Kalamazoo Sewage Treatment Plant Laboratory each day and the flow and pH readings were also given the laboratory.

000702

KA05700014

Bryant Deink

did not use handwritten values

JULY 8 - 20, 1968

TEST RESULTS OF TWO WEEK TRIAL AT [illegible] WASTE TREATMENT PLANT

Date	pH Inf.	pH Eff.	Flow	Solids Gms/l Inf.	Solids Gms/l Eff.	Ash Inf.	Ash Eff.	% Volatiles Inf.	% Volatiles Eff.	BOD ppm Inf.	BOD ppm Eff.	Solubles Gms/l Inf.	Solubles Gms/l Eff.	Fiber Gms/l Inf.
7/8	10.25	7.5	1.863	2.52	.28	50.0	64.2	[illegible]	[illegible]	36.5	304	2.00	1.90	.30
7/9	9.5	9.0	1.786	2.32	.24	54.2	33.1	45.8	66.7	23.7	34[illegible]	2.60	2.30	.24
7/10	11.15	9.3	1.786	3.00	.28	54.6	42.8	[illegible]	57.2	40	39[illegible]	2.70	2.[illegible]	.26
7/11	10.0	8.6	1.479	2.02	.26	47.6	38.5	52.4	61.5	89.6	29[illegible]	3.10	2.80	.36
7/12	10.1	9.7	1.479	2.72	.14	54.4	42.8	45.6	57.2	45	455	2.80	2.60	.16
7/13	-	8.8	1.863	-	.34	-	47.1	-	52.9	43.4	390	-	2.10	-
										Avg.	360			
	* City Figures													
7/15	9.9	9.1	1.479	0.46	.12	69.5	66.6	30.5	33.4	53.2 645	** [illegible]	1.90	1.80	.03
7/16	9.5	8.9	1.708	1.24	.06	53.2	66.7	46.8	33.3	[illegible] 570	360	1.50	1.30	.22
7/17	10.0	8.7	1.786	1.80	.08	50.0	50.0	50.0	50.0	33.3 780	[illegible]	1.70	1.40	.30
7/18	9.3	8.3	1.708	3.08	.08	45.4	50.0	54.6	50.0	21 735	425	1.80	1.00	.49
7/19	9.5	8.9	1.786	3.38	.12	53.2	50.0	46.8	50.0	19.2 790	420	1.90	1.80	.60
7/20	-	9.2	1.786	-	.06	-	66.7	-	33.3	64.7 -	450	-	1.90	-
2 week Avg.	9.92	8.85	1.709	2.33	.17	53.2	51.5	46.8	48.4	704	41[illegible]	2.20	1.93	.30
									50.4					
	** Allied Figures				2,400 lbs/day						5,900 lbs./day		27,300 lbs/day	

KA05700016

92-2146

Report of Survey

Allied Paper Company
Monarch Division
Kalamazoo, Michigan

5/53

Survey Periods:

November 3rd, 7:00 a.m. to November 4th, 7:00 a.m., 1953
November 4th, 7:00 a.m. to November 5th, 7:00 a.m., 1953

Type:

Book conversion mill

Mill Water Supply:

Portage Creek and well water

Production:

November 3rd	186,335 lbs.	93.17T
November 4th	239,290 lbs.	119.65T

4

Survey Procedure:

Effluent from the de-ink waste treatment plant is di through a four foot full channel weir. A record of the head over this weir was obtained by a continuous water level recorder. Influent and effluent twenty-four hour composite samples were obtained through the use of company installed equipment.

A portion of the bleach water was discharged directly to Portage Creek without treatment. This was discharged through a three foot full channel weir. A record of the head over this weir was obtained by a continuous water level recorder. A twenty-four hour composite sample of this waste was obtained through the use of a W.R.C. automatic sampler.

SA 039024

Miscellaneous sewers that discharged directly to Portage Creek were spot sampled and flow estimates were made.

Survey Data:

	Flow m.g.d.	5-Day B.O.D. p.p.m.	Susp. Solids p.p.m.	Susp. Vol. Solids p.p.m.	pH
November 3, 1953					
Waste Treatment Plant					
Influent		330	1528	628	7.9
Effluent	3.71	290	660	128	7.7
Condenser Water Sewer	1.5	17	226	61	7.6
November 4, 1953					
Waste Treatment Plant					
Effluent	4.01	410	850	200	8.9
Influent		495	1810	720	9.3
Bleach Water Sewer	0.60	99	210	120	2.5
Condenser Water Sewer	1.5	2.0	22	22	7.7

Calculations:

B.O.D. Data: (Pounds to River)

Waste Treatment Plant
- November 3rd: $3.71 \times 8.34 \times 290 = 8,960$
- November 4th: $4.01 \times 8.34 \times 410 = 13,700$

Bleach Water Sewer
- November 3rd: Use same quantity as November 4th
- November 4th: $0.60 \times 8.34 \times 99 = 495$

Condenser Water Sewer
- November 3rd: $1.5 \times 8.34 \times 17 = 213$
- November 4th: $1.5 \times 8.34 \times 2 = 25$

B.O.D. Data: (Pounds per Ton of Production)

November 3rd	9,668/ 93.17 = 103.8
November 4th	14,220/119.65 = 118.9

B.O.D. Data: (% Reduction Through Waste Treatment Plant.)

November 3rd	(330-290)x100/330 = 12.1%
November 4th	(495-410)x100/495 = 17.2%

B.O.D. Data: (Population Equivalent)

November 3rd	9,668/0.167 = 57,900
November 4th	14,220/0.167 = 85,300

Suspended Solids Data: (Pounds to River)

Waste Treatment Plant

November 3rd	3.71 x 8.34 x 660 = 20,400
November 4th	4.01 x 8.34 x 850 = 28,400

Bleach Water Sewer

November 3rd	Use same quantity as Nov. 4
November 4th	0.60 x 8.34 x 210 = 1,050

Condenser Water Sewer

November 3rd	1.5 x 8.34 x 226 = 2,830
November 4th	1.5 x 8.34 x 22 = 275

Suspended Solids Data: (Total Pounds per Ton of Production)

November 3rd	24,280/ 93.17 = 261
November 4th	29,725/119.65 = 249

Suspended Solids Data: (Pounds per ton of Production from sources other than waste treatment plant.)

November 3rd	3,880/ 93.17 = 41.7
November 4th	1,325/119.65 = 11.1

Suspended Solids Data: (% Reduction through Waste Treatment Plant)

November 3rd	(1528-660)x100/1528 = 56.8%
November 4th	(1810-850)x100/1810 = 53.0%

Suspended Volatile Solids Data: (Pounds to River)

Waste Treatment Plant

November 3rd	3.71 x 8.34 x 128 = 3950
November 4th	4.01 x 8.34 x 200 = 6680

Bleach Water Sewer

November 3rd	Use same quantity as Nov. 4th.
November 4th	0.60 x 8.34 x 120 = 600

Condenser Water Sewer

November 3rd	1.5 x 8.34 x 61 = 763
November 4th	1.5 x 8.34 x 22 = 275

Suspended Volatile Solids Data: (Total Pounds Per Ton of Production)

November 3rd	5313/ 93.17 = 57.0
November 4th	7555/119.65 = 63.1

Suspended Volatile Solids Data: (% Reduction through Waste Treatment Plant)

November 3rd	(628-128)x100/628 = 79.6%
November 4th	(720-200)x100/720 = 72.2%

Flow Data: (Gallons of Waste per ton of Production)

November 3rd	4,310,000/ 93.17 = 46,200
November 4th	4,610,000/119.65 = 38,600

Summary and Comparison of Results:

	Sept. 1953	1950
Production, tons	106.41	91.02
Flow, million gallons	4.46	6.05
B.O.D., total pounds	11,944	10,120
B.O.D., total pounds per ton	111.3	113.6
Suspended Solids, total pounds	27,000	31,868
Suspended Solids, total pounds per ton	255	354.7
Suspendéd Solids, lbs. per ton from machines	26.4	
Suspended Vol. Solids, total pounds	6,434	29,214
Susp. Vol. Solids, total pounds per ton	60.0	151.1
Gallons of waste per ton	42,400	67,533
Population equivalent	71,600	60,580

Remarks:

The September 1953 results reported in the summary are the average of two consecutive twenty-four hour surveys. Between the first and second survey a change was made that eliminated a solids loss from 41.7 to 11.1 pounds. Also, it was only due to an error made in making some mill changes over the preceding week end that the portion of the bleach water was discharged direct to Portage Creek. It has been and it was stated that it was the intent in the future to treat all of this waste in the waste treatment plant.

Survey made by:
Ralph W. Purdy
Chester Harvey

Chemical Analyses by:
Russell Krueger

92-2192

To: R. M. Levy & R. A. Larson

Date: May 25, 1959

From: U. G. Stoeffler ✓

cc: H. B. Johnston
L. B. Owen
E. J. Gilman
A. Mulder
D. Falvey
R. Bell
R. J. Willie

Subject: Waste Treatment Program

Now that a Kalamazoo meeting of the Water Resources Commission for late September (changed from June by request of the Kalamazoo River Improvement Company) is now definite, it becomes imperative that we make the very best effort to make a good showing. We must show progress and intent so that we will have sufficient time to complete studies and prepare plans for what is thought to be an inevitable ruling by the W. R. C. for further pollution abatement which will mean secondary treatment.

A letter of April 9, 1958 from W. R. C. contains "possible potential future obligations". The letter listed "two schemes of allocations (a) Require 61.4% reduction of all waste loads from the 1950 level, (b) Require a 75% reduction of the 1950 de-ink mill waste loads with all other waste sources limited to their 1955-56 level. Under these two schemes your share of this allocation would be either"

King Division

(a) 6,293# of 5-day B.O.D.
(b) 4,075# of 5-day B.O.D.

Monarch Division

(a) 3,900# of 5-day B.O.D.
(b) 2,526# of 5-day B.O.D.

Bryant Division

(a) 4,288# of 5-day B.O.D.
(b) 2,776# of 5-day B.O.D.

000778

The last monthly waste tank summary showed that at present the B.O.D. in the effluent to the river at King is 37% over W.R.C. order and at Bryant is 91% over W.R.C. order, being 106# B.O.D. per ton and 122# B.O.D. per ton respectively. It was thought advisable to prepare tables showing W.R.C. surveys before treatment in 1946 and 1950, the 1951 W.R.C. orders, the W.R.C. surveys after treatment in 1955 (1956) and 1957, and Allied surveys in 1957 and 1959. Past memos and reports from Wayne Kendrick, especially December 1958, have called attention to violation of W.R.C. orders.

There is some explanation of the increased volatile solids and B.O.D. load to the waste treatment plants. First, the bale weight tonnage at King has increased from about 170 T average in September, 1958 to the present 200-220 T. The book tonnage has, especially during this waste paper shortage of the past months, contained a greater percentage of groundwood and the overall quality has degenerated. At Bryant there is some by-passing of the waste to the creek. At King there is some recirculation of effluent water back to the wet well. Recent B.O.D. checks on sewer waters in the paper machine basement at King show an average of 200 ppm on East side to 458 ppm on West side. This is very high.

These are some suggestions to improve our waste treatment tank operations and show the W.R.C. that Allied is making progress towards further abatement.

1. Install the second sludge pump at King to prevent sludge build up in tank and utilize more settleing volume of tank and prevent sludge carryover in the effluent.

2. Proceed with plan to change the tile by-passing the clarifier which will increase head differential between the wet well level and the clarifier effluent tile.

3. Reduce fresh water usage wherever possible. To note any reduction, it is recommended that meters be installed on the well water line and river water line at King. An estimate has been received from engineering on a 20 inch water meter for $900.00. A six (6) inch meter would be $400 (for an individual well line). This 20 inch model would be a saddle type.

4. Consider diverting the Chlorine Oliver drop leg water at King from the present sewer and piping it directly to the river. Comparative tests were run on the chlorine water at King and Bryant and the respective clarifier effluents. The B.O.D. of the King Chlorine water is 173 ppm as compared to 262 ppm of the Bryant chlorine water -- this water is now being sent to the creek directly. This would reduce the waste water in the clarifier by at least 1,300,000 gals/day based on a 2% consistency going into the chlorine Oliver and 7.5% consistency going out. Table is attached to this report showing the waters together with other sewer waters.

5. Segregate paper machine sewer waters with low B.O.D. (lower than B.O.D. content of present effluent from clarifier) and low solids, remove solids on a slide washer or in a Sveen Pedersen and either reuse this water or send it directly to river. The East sewer from the paper machines has a B.O.D. of 200 ppm and a solids content of 17#/M gals is the most desirable for this use. This flow is from 500,000-600,000 gal per day. This flow is from vacuum pumps primarily and overflow from white water boxes.

   The retention time in the King Clarifier at 6 million gallons is 4.28 hours; at 5 million gallons is 5.14 hours; and at 4 million gallons is 6.70 hours.

6. Proceed with plans to store concentrated D.I. waste water overflowing from heat recovery Oliver at Bryant and pump to new lagoon on weekend. This would reduce our B.O.D. load to the clarifier by about 6%. A survey is now under way to determine the weekly flow of this waste.

7. To participate in the reaeration study of Portage Creek to be conducted by the Kalamazoo River Improvement Company this July or August.

8. To consider installing and operating a pilot model of an activated sludge plant at King to evaluate this secondary method of treatment. A pilot model from Dorr-Oliver is available and could be installed and operated for about $800-$900.

These last three suggestions would certainly show the W.R.C. that studies are continuing to study further pollution abatement.

It is further suggested that a meeting of manufacturing, engineering and technical people be held to chart a course which the company will follow to implement improvement in our present waste treatment program.

TABLE I KING DIVISION

		Before Treatment 1956	1958	W.R.C. Order 1951	W.R.C. Surveys After Treatment Jan 1956	May 1957	Allied Surveys Nov. '57 To Jan '58	Mar 31 - Apr 30, 1959
Paper Machine Production Tons/day			3		192.36	166.0		
Waste Flow Millions gallons/day		4.59	7.48		6.54	8.03	7.15	5.93
Gallons waste/ton		33,200	39,383		33,950	48,300		
Total Suspended Solids Pounds	in					137,100	113,670	105,560
	out	0	20	53,700	34,900	3	36,750	34,455
Suspended Solids #/ton production	out	181.6	301.2		181.7	264.5		
% Susp. Solids Removal						67.0	67.5	67.5
5 Day B.O.D. Pounds	in					25,050	23,150	34,700
	out	8,220	16,340	16,300	15,501	15,948	17,410	22,365
B.O.D. #/ton Production		59.4	90.9		80.7	96.2		
% B.O.D. Removal						36.8	20.5	32.7
Volatiles #/day	in					41,250	49,670	
	out					10,670	9,550	99,750

54 028997

TABLE II [illegible]

		W.R.C. Surveys Before Treatment 1946	W.R.C. Surveys Before Treatment 1950	W.R.C. Order 1951	W.R.C. Surveys After Treatment Fall 1955	W.R.C. Surveys After Treatment May 1957	Allied Surveys Nov. 1957 To Jan 1958	Allied Surveys Mar 31 to Apr 30, 1959
Paper Machine Production Tons/day		~~187.05~~	149.36			168.4		
Waste Flow Million gals/day		3.25	5.042		6.77	5.58	7.124	6.57
Gallons Waste/Ton		33,200	39,383			30,200		
Total Suspended Solids Pounds	in							
	out	67,~~535~~	76,~~544~~	76,500	~~53,475~~	34,~~844~~	54,270	57,645
Suspend Solids #/Ton Production	out	360	514			207		
% Susp. Solids Removal						64.0	47.1	52.6
5 Day B.O.D. Pounds	in							
	out	12,395	11,116	11,100	16,837	12,391	15,710	21,000
B.O.D. #/ton out Production		66.0	74.6			73.6		
% B.O.D. Removal						39.9	10.9	26.2
Volatiles #/day	in					42,400	41,795	85,450
	out					11,618	21,370	

SA 028998

TABLE III MONARCH DIVISION

	W.R.C. Surveys Before Treatment 1946	1950	W.R.C. Orders 1951	W.R.C. Surveys After Treatment Jan 1956
Paper Machine Production Tons/day	~~81.21~~	~~91.02~~		100.21
Waste Flow Million Gal/day	2.49	6.055		3.66
Gallons Waste/ton	30,700	67,533		36,580
Suspended Solids #/Day out	30,180	31,868	~~31,900~~	17,558
Suspended Solids #/ton Production	371.5	354.7		175.0
5 Day B.O.D. #/day	16,635	10,120	10,100	9,140
B.O.D. #/ton Prod.	131.0	113.6		91.3

SA 028999

TABLE 4

	East Sewer	West Sewer Before High Water Pump	West Sewer After Hydrapl. 1 per.	King Chlorine Oliver Drop Leg Water	Bryant Chlorine Oliver Drop Leg Water
Suspended Solids #/M gals.	17.0	14.0	13.0	* 4.67	* 1.67
Ash %	62.8	64.3	51.7	46.5	----
Soluble Solids #/M gals.	5.0	6.67	8.34	16.68	16.68
Fiber 200 mesh #/M gals.	2.45	1.62	1.37	----	----
PHJ	7.3	7.7	7.7	2.6	2.5
5-Day B.O.D. ppm	200	458	672	** 173	** 262

* Present waste treatment tank tests show the following avg suspended solids #/M gals:

King	influent	14.0
	effluent	5.22
Bryant	influent	17.5 ←
	effluent	11.15

** Present waste treatment tank tests show the following B.O.D. (ppm) taken same day as Chlorine water.

King	effluent	392
Bryant	effluent	368

200

INTER-OFFICE CORRESPONDENCE

SCM. ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

TO: U. G. Stoeffler

WRITTEN BY: Ray Willie

OFFICE:

OFFICE:

SUBJECT: Continuing check of chlorine drop leg at Mill A

DATE: February 19, 1969

As requested, samples were taken on three consecutive days and evaluated. Results are as follows:

Date	2/12	2/13	2/14
pH	4.4	3.9	3.9
Fiber gm/l	0	0	0
Solids gm/l	.18	.18	.14
Solubles gm/l	1.30	.70	1.30
BOD PPM	145	115	265
Chlorine Residual PPM	440	390	465

A sample of water was taken on 2/14/69 at the dam just before overflowing. The results are as follows:

pH	7.3
D.O. PPM	5.2
Chlorine residual PPM	0
BOD PPM	60

/ks

CC: R.M. Levy
E.J. Gilman
K. Sunet
F. Hyet
P. Hagard

SCM CONFIDENTIAL

INTER-OFFICE CORRESPONDENCE

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

CONFIDENTIAL

TO: Les Stoeffler **WRITTEN BY:** Jack Gilman

OFFICE: Kalamazoo **OFFICE:** Kalamazoo

SUBJECT: Portage Creek **DATE:** October 2, 1969

Our next goal in the clarification of Portage Creek should be to pick up the Chlorine Oliver drop leg water, which is now going directly into the Creek, and send it to the Monarch clarifier by way of the collection tank. Furthermore, it should be our aim to do this without increasing the present flow to the Monarch clarifier, which is about 3 MGD.

To accomplish this step, we need to pick up additional fresh water in "C", "D", and Monarch, totaling about 500,000 GPD, which is the approximate flow from the Chlorine Oliver. One such possibility occurred to me yesterday, and I mentioned it to Bob Dennany and Ray Willie; it is to put the size press water from Numbers 10 and 11 into the fresh water sump under No. 11 and thence directly into the Creek. This could give us a good start toward the half-million GPD that we are looking for.

I would like Engineering to come up with a proposal for pumping the drop leg water into the collection tank, with estimated cost. I believe that this could be included in the overall $100,000 project for Portage Creek clarification.

I would like Les Stoeffler to tell us of the effect this water would have on our pumps and pipes, and also how it would effect the operation of the Monarch clarifier.

Jack

Jack

EJG:jl

cc: Bob Dennany
Al Vickery
Ken Sweet
Dick Bennett

Bennett
EXHIBIT NO. 11
M. LANTIS 7/24/97

SCM CONFIDENTIAL

KA04500135

MICHIGAN WATER RESOURCES COMMISSION
Wastewater Survey
Bryant Division
Allied Mills, Kalamazoo
6-4,5,&6-68

Two consecutive twenty-four-hour wastewater surveys were conducted at the Bryant Division of the Allied Mills in Kalamazoo. The purpose of these surveys was to determine the quality and quantity of waste water being discharged to Portage Creek by the company.

Operation and Waste Treatment

The Bryant Division of the Allied Mills in Kalamazoo has five paper machines and a de-inking mill. The excess white water and a portion of the waste water from the de-inking mill is collected at a pump station near the de-inking mill and pumped to the 100-foot clarifier which is located further south (between Cork and Alcot Streets). The waste water from the clarifier is discharged to Portage Creek. Other waste waters are from the chlorine operation of the de-inking mill and are discharged to the mill pond on Portage Creek. The pumping station at the de-inking mill receiving the raw waste to be pumped to the clarifier occasionally by-passes. The influent rate to the wet well exceeds the pump rate. The Bryant Division employs approximately 600 people.

Survey Procedure

The waste water from the clarifier was measured and sampled at the weir on the clarifier. A weir box was constructed to intercept the waste water from the chlorine process at the de-inking mill. The quantity of waste water being by-passed was measured at the overflow baffle in a manhole by the pump station.

Automatic samplers and water level recorders were installed at the effluent weir of the clarifier and at the box intercepting the waste from the chlorine process at the de-inking mill. The automatic samplers took samples proportional to the instantaneous flow at fifteen-minute intervals and deposited them in clean glass containers to make up twenty-four-hour composite samples. The water level recorders provided a continuous account of the liquid level passing over the weirs on head-time charts from which the total flows could be computed.

The company has a water level recorder to measure the head of liquid passing over the baffle in the manhole at the point of by-pass. The water passing over the baffle by-passes the clarifier and goes directly to Portage Creek without treatment. The baffle is constructed diagonally across the corner of a square vault. The length of the baffle is 46" inches on the short side; therefore, it was considered to be equivalent to a 44" sharp crested weir. Since the baffle is constructed of 4" lumber and has worn rounded on the upstream side, this assumption should be conservative. The float line of a WRC water level recorder was attached to the float line of the company's recorder to provide an account of the head over the baffle.

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SH 811546

Table 1
Survey Periods and Flow Data

Period	Starting	Ending	Hours Monitored	Gallons Monitored	Projected Flow for 24 hours
Bryant Division By-pass					
	Monday, 6-3-68, @ 1800	Tuesday, 6-4-68, @ 0800	14	114,000	196,000 gal
1	Tuesday, 6-4-68, @ 0800	Wednesday, 6-5-68, @ 0800	24	14,600	14,600 gal
2	Wednesday, 6-5-68, @ 0800	Thursday, 6-6-68, @ 0800	24	96,000	96,000 gal
	Thursday, 6-6-68, @ 0800	Thursday, 6-6-68, @ 1945	11.75	28,000	60,000 gal
De-inking Mill--chlorine process discharge 28-inch full channel weir					
1	Tuesday, 6-4-68, @ 2000	Wednesday, 6-5-68, @ 0830	12.5	282,300	542,100 gal
2	Wednesday, 6-5-68, @ 0900	Thursday, 6-6-68, @ 0830	23.5	504,600	515,300 gal
3	Thursday, 6-6-68, @ 0900	Friday, 6-7-68, @ 0900	24	458,600	458,600 gal
Bryant Division clarifier effluent 48" weir ½ rectangular ½ full channel					
1	Tuesday, 6-4-68, @ 0830	Wednesday, 6-5-68, @ 0815	23.75	2,815,000	2,845,000 gal
2	Wednesday, 6-5-68, @ 0830	Thursday, 6-6-68, @ 0800	23.5	2,944,000	2,991,000 gal

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Table 2

Production at Bryant Mill

Paper Machines		De-inking Tons In	(80% In) Tons Out
First Survey Period	209.2 Tons	137	109.9
Second Survey Period	172.9 Tons	118	94.5

Table 3
Laboratory Analyses and Computed Pounds Per Day of Various Constituents
to
Portage Creek from the Bryant Division of Allied Paper Corporation, Kalamazoo

First Survey Period -- Tuesday, 6/4/68, @ 0800 - Wednesday, 6/5/68, @ 0800

Parameter	Clarifier effluent conc.*	Clarifier effluent lbs/day**	Chlorine process conc.*	Chlorine process lbs/day***	By-pass conc.****	By-pass Lbs/day**	Lbs/day to Portage Creek from Bryant Division
Five-day BOD	300	7,005	74	334	840	102.0	7,441
COD	500	11,676	330	1,490	2,000	243	13,410
Suspended Solids	90	2,101	228	1,060	2,180	265	3,426
Suspended Volatile Solids	45	1,050	96	434	1,120	136	1,620
Settleable Solids	10	233	148	668	2,100	255	1,156
Chloroform Extractables	18	420	18	81.4			500
Total PO_4-P	0.9	21	2.6	12.2			33.2
Soluble Ortho PO_4-P	0.0	0	1.4	6.3			6.3
Organic N-N	4.5	105	1.9	8.6			114
Ammonia N-N	0.0	0	0.0	0.0			0.0
Nitrate N-N	0.0	0	0.3	1.4			1.4
Turbidity	270		550				
pH	7.4		3.0		10.7		
Total Solids			1,230	5,550			

*Concentrations expressed as mg/l except pH and Turbidity
**Pounds per day computed from the following formula:
lbs/day = flow (mgd) x conc. (mg/l) x unit weight of water (8.34 lbs/gal)
***Lbs/day computed using the projected 24-hour flow
****Concentrations based on a grab sample obtained while the sewer was overflowing 6-5-68 @ 1715

KA04800161
SH 01343
0002650

Laboratory Analyses and Computed Pounds Per Day of Various Constituents
to
Portage Creek from the Bryant Division of Allied Paper Corporation, Kalamazoo

Second Survey Period -- Wednesday, 6/5/68, @ 0800 - Thursday, 6/6/68, @ 0800

Parameter	Clarifier effluent conc.*	Clarifier effluent lbs/day**	Chlorine process conc.*	Chlorine process lbs/day**	By-pass conc.***	Lbs/day**	Total lbs/day to Portage Creek
Five-day BOD	280	6,818	87	373	840	672	7,863
COD	540	13,150	400	1,718	2,000	1,600	16,468
Suspended Solids	105	2,557	300	1,288	2,180	1,745	5,590
Suspended Volatile Solids	60	1,461	120	515	1,120	895	2,871
Settleable Solids	37	901	240	1,030	2,100	1,680	3,611
Chloroform Extractables	25	608	20	85			693
Total PO_4-P	1.5	36.5	3.9	16.8			53.3
Soluble Ortho PO_4-P	0.0	0.0	2.0	8.5			8.5
Organic N-N	5.2	126.6	4.0	17.1			143.7
Ammonia N-N	0.0	0.0	0.0	0.0			0.0
Nitrate N-N	0.0	0.0	0.7	3.0			3.0
Total Solids			1,320	5,669			
Turbidity	300		750				
pH	7.6		2.6				

*All concentrations expressed as mg/l except pH and Turbidity
**Pounds per day are computed using the following general formula:
lbs/day = flow (mgd) x concentration (mg/l) x unit weight of water (8.34 lbs/gal)
***Concentration based on a grab sample collected when sewer was overflowing 6/5/68 @ 1715

KA04800162
SH 011350
C002657

Chlorine Process at Bryant Division

Third Survey Period -- Thursday, 6/6/68, @ 0900 - Friday, 6/7/68, @ 0900

Parameter	Conc.*	Lbs/day**
BOD	120	457
COD	390	1,489
Total Solids	1,480	5,638
Suspended Solids	305	1,165
Suspended Volatile Solids	105	401
Settleable Solids	245	935
Chloroform Extractables	24	92
Turbidity	550	
pH	2.8	

*All concentrations expressed as mg/l except pH and Turbidity
**Pounds per day are computed from the following formula:
lbs/day = flow (mgd) x concentration (mg/l) x unit weight of water (8.34 lbs/gal)

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Discussion and Observations

The surveys at the clarifiers of the various mills were started at 8:00 a.m. to correspond with the production day of the plant. The measurement of the by-pass waste was started fourteen hours prior to beginning the surveys at the clarifiers. This fourteen-hour rate is more than double the flow rate during the remainder periods of survey.

Approximately 3.5 tons of BOD and one ton of suspended solids are being discharged to Portage Creek from the Bryant Division clarifier. Of the one ton of suspended solids discharged, approximately 50% were volatile. Also, approximately 500 pounds of chloroform extractables and 30 pounds of phosphorous are being discharged to Portage Creek each day from the clarifier.

The de-inking mill contributes one-seventh of the total flow from this plant but provides 30% of the total amount of suspended solids, when the by-pass is not flowing. The suspended solids from the chlorine process were between 60 and 80% settleable. The pH of the waste from the chlorine process was between 2.6 and 3.0. It was found in the WRC laboratories that, if the pH was raised to 7.5, a very heavy floc was formed which settled readily, resulting in a very clear supernatant. Also, approximately 85 pounds of chloroform extractables were being discharged to Portage Creek from the chlorine process. Before the survey started, an inspection was made of the portion of Portage Creek which flows through the Bryant complex. Four separate discharges were noted between Bryant and Reed Streets. A twenty-four-inch clay tile, located ten feet north of Bryant Street on the east side of Portage Creek, was discharging a white turbid liquid into the creek. Before the survey started, a leak in a process waste line was discovered and repaired, thus the flow ceased. Approximately 150 feet north of Bryant Street, a discharge of approximately 500 gpm was noted. We were informed this was turbine tail water. Approximately 250 feet north of Bryant Street, a discharge of approximately 20 gpm was noted. The survey staff was informed that this was waste water from the lime-soda water softener and that plans were to combine it with the process waste. Approximately 250 feet north of Bryant Street, a discharge was noted. Below this discharge there was a large build-up of deposited solids. This was found to be a relief valve on a pump that discharges to the creek. It was also corrected by connection to the process line before the survey started.

A heavy deposit of solids was noted in the mill pond in the vicinity of the chlorine process outlet. The survey staff was informed that a failure in the process during the spring had allowed a large amount of fiber to be discharged to the pond. This deposit extended into the pond approximately 150 feet from the outlet in all directions.

The esthetic appeal of the stream above the discharges is more desirable than below the discharges. The turbidity of the clarifier waste water was 270 to 300 and 550 to 750 from the chlorine process at the de-inking mill. Mats of sludge and gas bubbles were observed rising from the bottom of the Mill pond. The mats of sludge break up as they float over the dam at Alcot Street.

Survey by:
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Leroy Vahovick, Water Pollution Investigator
Laboratory analyses by:
Russel Krueger, Chemist
Contact with management:
Les Stoeffler
Report by:
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Water Quality Appraisal Unit
MICHIGAN WATER RESOURCES COMMISSION
7-25-68

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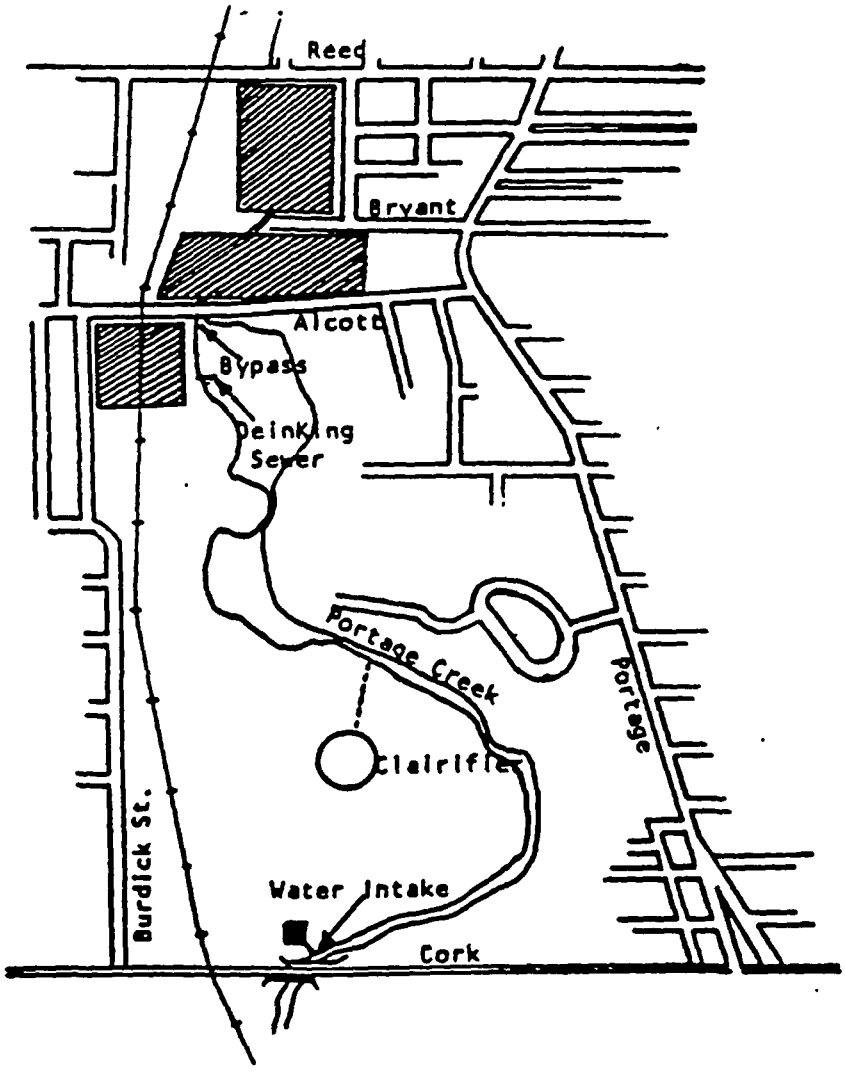
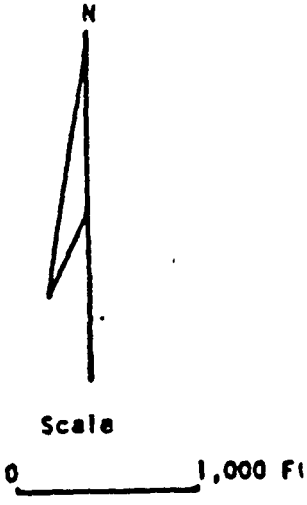
MICHIGAN WATER RESOURCES COMMISSION

Report of Survey

Bryant Division, Allied Paper Co.

June 4,5,6, 1968





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INTER-OFFICE CORRESPONDENCE

SCM. ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

TO: Les Stoeffler
OFFICE: Kalamazoo
SUBJECT: Tests of Cl_2 Drop Leg Water

WRITTEN BY: Ray J. Willie
OFFICE: Kalamazoo
DATE: October 14, 1969

As requested samples were taken from the chlorine drop leg at Mill A during the week of 10/6/69 and checked for the following: pH, Cl_2 residual, fiber, solids, ash, and turbidity. The results are as follows:

DATE	pH	* Cl_2 RES. PPM	FIBER #/M Gal	SOLIDS #/M Gal	ASH %	TURBIDITY ** PPM
10/7	3.3	620 PPM 17.5 cc	.08	1.08	61.5	1000 ++
10/8	4.9	462 PPM 13 cc	.13	1.75	69.0	1000 ++
10/9	3.0	275 PPM 9.8 cc	.04	1.83	63.7	1000 ++
10/10	3.2	520 PPM 14.6 cc	.04	1.25	53.3	1000 ++

*Residual could be smelled at the Vine Street bridge at times.
**Turbidity was as read on the Hach Meter and was way off scale.

cc: R. Levy
J. Gilman
K. Sweet
D. Bennett
File 301

Gilman
EXHIBIT NO. 58
1-19-93
P. MORETTI

MHI-00028

Hayard
EXHIBIT NO. 12
M. LANTIS 7/1/92

P1