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REPORT ON

Surface Water Contamination Study

For

SHIELDALLOY CORPORATION
Newfield, New Jersey

10 March 1975

WOODWARD-CLYDE CONSULTANTS
EASTERN REGION
CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

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WOODWARD-CLYDE CONSULTANTS
CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

EASTERN REGION
1373 Broad Street
Clifton
New Jersey 07012
Phone (201) 471-2000

20 March 1975
72C75AH

MAR 1975
SHIELDALLOY CORP.
W. F. SEYBOLD
VICE PRESIDENT

Mr. Charles F. Seybold
Vice President
Shieldalloy Corporation
West Boulevard
Newfield, New Jersey 08344

Re: Report on Surface Water Contamination Study

Dear Mr. Seybold:

Transmitted herein is our report on Surface Water Contamination Study for Shieldalloy Corporation.

This brief study, which primarily deals with hexavalent chromium distribution in the Hudson Branch was necessitated by the ground-water contamination problem. As you know, one of our objectives in the Ground-Water Contamination Study was to calculate the dilution of chromium by natural processes. Local hydrologic conditions near the Shieldalloy plant site (e.g. near surface water table, high rate of ground-water recharge, and the existence of swampland) had made it clear to us that flow in the Hudson Branch is partially maintained by ground-water discharge. For this reason it was necessary to monitor the flow and chemical characteristics of the Hudson Branch before any calculations of chromium influx to the stream could be made.

The monitoring of ground-water influx into the Hudson Branch was complicated by the addition of water from runoff and treated water discharge. By utilizing results of flow and chemical measurements, we were able to separate the two components of flow which feed the Hudson Branch.

In the conclusions and recommendations presented in this report (Section 3.0), problem areas are identified and remedial measures are recommended. After reviewing your EPA NPDES Permit (No. NJ 000 4103), we strongly recommend, for your own protection, that our recommendations be followed.

If you desire, we are prepared to assist the Shieldalloy Corporation in the implementation of our recommendations related to surface water discharge and their compliance with the EPA Permit.

Sincerely yours,

Dan Rabinowitz

D. Dan Rabinowitz
Project Hydrologist

DDR:IH
Enclosure

cc: G. L. Baker, Vice President, WCC
M. I. Esrig, Vice President, WCC

REPORT ON

SURFACE WATER CONTAMINATION

FOR

SHIELDALLOY CORPORATION

NEWFIELD, NEW JERSEY

10 MARCH 1975

BY

WOODWARD-CLYDE CONSULTANTS

1373 BROAD STREET

CLIFTON, NEW JERSEY

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SECTION 1.0

INTRODUCTION

1.1 Project Description and Location

Prior to the spring of 1970, Shieldalloy Corporation disposed of waste effluent, a by-product of chrome metal production, by discharge to the ground surface or to an unlined lagoon at its plant in Newfield, New Jersey. Due to the highly permeable nature of the sediments underlying the plant, this alkaline (pH greater than 13), chromate-laden (6,000 mg/l of Cr^{+6}) effluent reached the ground-water system. Moving under the influence of natural and induced ground-water gradients and flow paths, traces of this contaminant appeared in two wells near the plant; the Borough of Newfield Well No. 4 (also referred to as Well 2A) and a privately owned domestic well, 450 feet due south of the disposal site. The appearance of the Cr^{+6} in the municipal water well brought the situation to the attention of the New Jersey Department of Environmental Protection who instructed Shieldalloy Corporation to abate the problem.

Woodward-Envicon, Inc. and Woodward-Moorhouse & Associates, Inc. (now Woodward-Clyde Consultants) were contracted by Shieldalloy Corporation to assist them in solving this problem. Our basic responsibility was to delineate the extent and magnitude of the ground-water contamination and develop an economically and technically feasible program for the withdrawal of the contaminated ground water.

The project was approached in two phases. Phase I was an initial investigation to assess the problem and evaluate geophysical methods for delineating the contaminated ground water. Phase II was a hydrogeological investigation defining and assessing the extent and severity of the ground-water

and changes in ground-water chemistry due to precipitation. Knowledge of stream flow and chemical parameters (Cr^{+6} concentration, pH, and specific conductance) of the Hudson Branch are essential for estimating ground-water contaminant removal by natural processes such as base flow.

1.3 Purpose and Approach

The purpose of the surface water survey was two-fold: (1) to determine if contaminated ground water is discharged, as base flow, into the Hudson Branch; and (2) to estimate the amount of hexavalent chromium removed from the aquifer by ground-water discharge into the Hudson Branch. These were accomplished by measuring selected chemical characteristics of the Hudson Branch, and, from their distribution and concentration, evaluating the mutual interaction between the local ground water and surface water near the plant site.

Three relationships were measured to estimate the Cr^{+6} balance in the local flow system and the degree of surface water/ground-water interaction:

(1) distribution of Cr^{+6}, pH, and conductivity within the Hudson Branch,

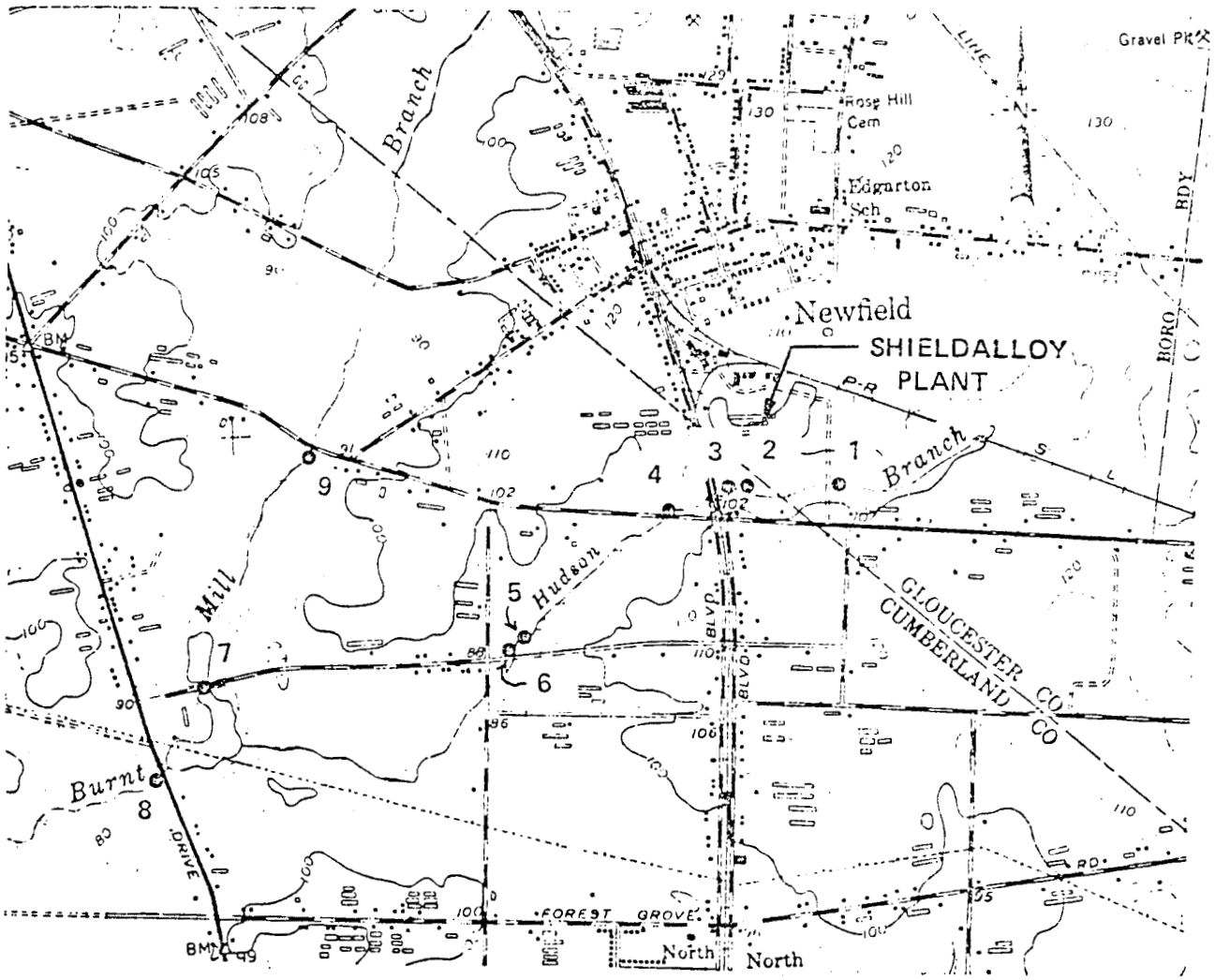
(2) variations in the rate of stream discharge along Hudson Branch, and

(3) concentrations of Cr^{+6}, pH, and conductivity of various waters incoming to Hudson Branch.

Figure 1 is a map showing the principal sampling locations along the Hudson Branch and Burnt Mill Branch (1 through 9). Sampling locations 1, 2, and 3 are along the south side of Shieldalloy Corporation property line. Discharge rates of the Hudson Branch were measured near sampling locations 1, 3, and 5.

1.4 Content of This Report

This report summarizes the results of our brief survey of flow and chemical characteristics of the Hudson Branch and runoff in the vicinity of the Shieldalloy Corporation plant site. Basic data are given in the Preliminary Report and Basic Data - Phase II, December 1974.



SURFACE WATER SAMPLING LOCATIONS 1974		
WOODWARD-MOORHOUSE & ASSOCIATES, INC. CONSULTING ENGINEERS AND GEOLOGISTS NEW YORK, NEW YORK		
DR. BY: BSY	SCALE: 1 in. = 2000 ft.	PROJ. NO: 72C75AH
CK'D. BY: DDR	DATE: SEPT. 1974	FIG. NO: 1

SECTION 2.0
RESULTS OF SURFACE WATER SURVEY

2.1 The Hudson Branch (Hydrochemistry)

Shieldalloy Corporation has measured Cr^{+6} concentration and pH of Hudson Branch water near the North Vineland Car Wash (sampling location 4, Figure 1) since October 1974. The Cr^{+6} concentrations and pH values have been steadily decreasing. The trend of Cr^{+6} concentration in the Hudson Branch from October 1972 to April 1974 was presented by Figure G.3 (Appendix G, Preliminary Report and Basic Data - Phase II, December 1974). Cr^{+6} concentration has decreased from a mean of about 13 mg/l during October 1972 to April 1973, to a mean of about 3 mg/l during January 1974 to April 1974. During the same period, the pH values decreased from 8 -- 9 units, to 7 -- 8 units, respectively. A random measurement during January 1975 resulted in Cr^{+6} concentration of 1.2 mg/l, and pH value of 6.4 at the same location.

In July 1973, surface water samples were collected by WMAI staff every 50 to 100 feet between points 1 and 3 along Hudson Branch (Figure 1) during a low-flow condition. Apart from a short stretch of Hudson Branch immediately south of Shieldalloy's property, no traces of hexavalent chromium were detected in the samples above the southwestern corner of the Shieldalloy property. Minor amounts of Cr^{+6} were detected (Table G.1 Preliminary Report and Basic Data - Phase II, December 1974) in samples collected near the southeastern edge of the Shieldalloy property (near sampling location 3, Figure 1).

Sampling of the longer stretch of Hudson Branch from the vicinity of the Shieldalloy property to Route 47, conducted by WMAI staff during June and July of 1974 (Figure 1), showed a net increase in Cr^{+6} concentration of about 1 mg/l

between sampling points 4 and 6 along the stream. This probably represents ground-water discharge (base flow) into the stream at points downstream from the Shieldalloy property.

2.2 Hudson Branch (Base Flow)

Discharge in Hudson Branch is maintained by storm runoff, base flow, and controlled discharge by Shieldalloy Corporation of treated water (EPA approved discharge, EPA NPDES Permit No. NJ 000 4103, issued October 24, 1974, Appendix A). The stream has no perennial tributaries. Under conditions of constant effluent discharge and no rainfall, measured increase in rate of discharge along a given stretch of the stream can be used for base flow calculation.

On 1 November 1974, stream discharge measurements were made at three points where Hudson Branch passes through culverts:

(1) near sampling location one (Figure 1),
(2) near the UPS Terminal on West Boulevard (near sampling location three) (Figure 1), and
(3) near sampling location five (Figure 1).

These measurements were made with a three-inch parallel Parshall flume placed in the downstream end of the three culverts available at the sampling locations. Sandbags placed underneath and along the sides of the flume forced the water discharging from the culvert to flow through the flume. Reading of water depth in the flume was converted to discharge measurements by using calibration tables.

Flume measurements were also checked by float velocity (channel cross-section method). Float measurements showed to be more consistent due to the relatively low flow rate.

Discharge rates were calculated to be 0.50 cfs, 0.65 cfs, and 0.80 cfs, at sampling points 1, 3, and 5, respectively.

Because of the low flow, error of determination could be as high as two-fold. Nevertheless, these measurements provided information on the order of magnitude of the local base flow. The net increase in discharge, due to ground-water contributions, between sampling points 3 and 5, is on the order of 100,000 gpd.

2.3 Storm Runoff (Hydrochemistry)

During a December 1973 rain storm, two samples of storm runoff were collected in Shieldalloy's slag dump area (Table G.2, Preliminary Report and Basic Data - Phase II, December 1974). One sample taken from runoff flowing from the southeast corner to Hudson Branch had a Cr^{+6} concentration of 50 mg/l, and pH of 10. The second sample, from a 6-inch deep pool of water which had accumulated in the south-central area of the dump, contained 12 mg/l of Cr^{+6} with a pH of 10. Direct surface flow to Hudson Branch was prevented by the raised roadway along the south side of the dump.

2.4 Summary

Water discharged from the property of Shieldalloy Corporation into the Hudson Branch is both treated effluent and natural flow. Controlled discharge is referred to as an intentional operation involving the addition of water into the natural stream. Natural discharge is either by storm runoff or ground-water contribution to base flow. The attempt to separate both the flow and chemical components of ground-water discharge from the natural surface discharge was necessary to estimate the contaminant influx due to ground-water base flow into Hudson Branch.

Measurements of Cr^{+6} and pH of surface water during the course of this investigation suggest that natural discharge is a predominant factor in contributing Cr^{+6} into the Hudson Branch. High pH values as well as high Cr^{+6} concentrations

have been measured in the process effluent at various locations in the plant and in ponds containing storm water runoff from the slag piles. On three occasions pH values larger than 7 or less than 4 were measured in surface water discharge into Hudson Branch at sampling points 2 and 3 (Figure 1). Cr^{+6} concentrations associated with the same pH measurements were between 7 and 2 mg/l. However, on the three sampling occasions, measurements of Cr^{+6} and pH further downstream along Hudson Branch showed that Cr^{+6} and pH values at points 4, 5, and 6 (Figure 1) were controlled by the Cr^{+6} and pH values of the base flow. The source of flow at sampling points 2 and 3 is unclear to us. The measurements suggest the possibility that occasional discharges of contaminated water occur at these locations.

Base flow calculations and the associated concentrations of Cr^{+6} have indicated that Cr^{+6} discharge into the Hudson Branch by ground-water base flow is on the order of 20 to 40 lbs. daily. The observed addition of Cr^{+6} into the stream was not accompanied by an increase of pH. Thus, most of this discharge is probably associated with the discharge of surplus rainfall which quickly infiltrates to the water table. This additional recharge from precipitation was observed to dilute Cr^{+6} by as much as four-fold in monitoring wells at the site.

SECTION 3.0
CONCLUSIONS AND RECOMMENDATIONS

3.1 Conclusions

(1) Natural discharge of Cr^{+6} contaminated water into the Hudson Branch occurs via storm runoff over the plant site and to a lesser extent by ground-water discharge (base flow) to Hudson Branch.

(2) Natural ground-water discharge into the Hudson Branch (base flow) downstream from the plant site increases the surface water concentration of Cr^{+6} on the average by 1 mg/l along a 1,600-foot reach of the stream. From ratios of discharge rates and Cr^{+6} concentrations, the total daily discharge of Cr^{+6} in Hudson Branch by ground-water base flow is estimated to be on the order of 20 to 40 lbs.

(3) Controlled discharge of treated water into the Hudson Branch (EPA NPDES Permit No. NJ 000 4103), near the southeastern corner of the plant site, acts to dilute the contaminated ground-water base flow in the Hudson Branch.

(4) Sufficient quantity of uncontaminated ground water is available on Shieldalloy property to supplement stream flow in Hudson Branch in order to dilute the contaminated ground-water base flow. Wells such as DW-4 and G-2 (Preliminary Report and Basic Data - Phase II, December 1974) could be utilized for this purpose.

3.2 Recommendations

Based upon our brief survey of surface water in the vicinity of Shieldalloy Corporation, we recommend the following:

(1) Treated water should continue to be discharged into the Hudson Branch, at the EPA approved levels of Cr^{+6} upstream from the plant, in order to assure proper dilution of natural discharge of Cr^{+6} contaminated water via ground-water flow.

(2) An additional surface water monitoring station downstream from the car wash location should be added to the Shieldalloy Corporation weekly program. This would be used to detect any future changes in Cr^{+6} levels in the ground-water discharge (base flow) to the Hudson Branch.

(3) Any approved discharge of water into the Hudson Branch should be monitored daily by Shieldalloy Corporation to assure that no accidental discharge of contaminated water will occur.

APPENDIX A

EPA NPDES Permit No. NJ 000 4103 to the
Shieldalloy Corporation, Newfield, N. J.

Shieldalloy Corporation
A SUBSIDIARY OF METALLURG, INC.
NEWFIELD, NEW JERSEY 08344
TELEPHONE 692-4200 (AREA CODE 609)

February 18, 1975

Woodward-Clyde Consultants
Eastern Region
Envicon Division
1373 Broad Street
Clifton, New Jersey 07012

Attention: Dr. Dan Rabinowitz
Project Hydrologist

Dear Dan:

To tie down a few loose ends from our meeting last Friday:

(1) I am enclosing a copy of our EPA NPDES Permit No. NJ 000 4103.

(2) A pump system is now being installed on the Couplan pilot plant "L" well tank so that excess water will be diverted to one of the holding lagoons.

Trust that the revised report is coming along.

Very truly yours,

SHIELDALLOY CORPORATION

C. F. Seybold
Vice President

CFS/ljb

Enclosure

cc: XN-4141 File

RECEIVED
FEB 20 1975
Woodward-Morrhouse & Associates, Inc.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION II
26 FEDERAL PLAZA
NEW YORK, NEW YORK 10007

Copy

October 24, 1974

OCT 1974

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Charles F. Seybold
Vice President - Operations
Shield Alloy Corporation
A Div. of Metallurg, Inc.
P.O. Box 68
Newfield, New Jersey 08344

Re: Newfield, New Jersey
Permit No. (NJ 000 4103)

Dear Mr. Seybold:

Pursuant to authority granted by Section 1342 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. §§1251-1376, the Regional Administrator for Region II of the United States Environmental Protection Agency has made a final determination to issue a National Pollutant Discharge Elimination System (NPDES) permit for the above-indicated facility. All comments received as a result of EPA's Public Notice of its intent to issue an NPDES permit have been considered by EPA in making this final determination.

Enclosed you will find the final determination referred to above along with 10 copies of EPA Discharge Monitoring Report Form 3320-1 (10-72). Please read the final determination carefully, since it may contain changes from the Draft Permit which you received. You may also find enclosed a copy of a memorandum addressing any comments received concerning this NPDES permit. This memorandum has been prepared by the EPA staff and explains this Agency's position on the issues raised by any comments received. If no comments were received concerning this permit no such memorandum has been prepared.

The enclosed final determination will become a final NPDES permit, issued and effective in its entirety, and a legal requirement of your organization on the date indicated unless a request

for an Adjudicatory Hearing is granted pursuant to the provisions of Title 40, Section 125 of the Code of Federal Regulations, as amended, 39 Federal Register 143, pp. 27079-27084 (July 24, 1974).

Please be advised that violation of any of the terms or conditions of the enclosed permit may subject your organization and its officials to the civil and criminal penalties provided for in Section 1319 of the FWPCAA. These penalties include imprisonment for up to one year and fines of up to $50,000.00 per day of violation.

Your cooperation in the NPDES program is appreciated.

Sincerely yours,

Richard A. Baker

Chief
Status of Compliance Branch
Enforcement and Regional Counsel Division

Enclosure

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

SUBJECT: Final Permit - Shield Alloy Corporation, Newfield, New Jersey

DATE: September 20, 1974

FROM: John F. Falkenbury, Environmental Engineer
Industrial Water Facilities Branch
Facilities Technology Division

TO: The Record

THRU: James A. Sellar, Chief
Permits Administration Branch
Enforcement and Regional Counsel Division

The state of New Jersey waived certification. The company requested an increase in temperature limits, and an increase in chromium average limits. Since the maximum limit set in the permit is EPA's usual required average limit and they agree with this maximum EPA will grant both requests. The company also requested an increase in TSS to allow for the TSS in their intake water. The intake water is municipally supplied and the TSS limits are therefore gross limits. EPA cannot grant this request. The New Jersey Public Interest Research Group responded to the Public Notice. They requested we use water quality numbers and more monitoring with a more frequent sampling schedule. Mr. Willinger has been shown many times that the request is uneconomical and that the State is the guardian of water quality. EPA cannot use water quality numbers unless the State so certifies. EPA will have to deny the NJPIRG requests.

All additions and corrections are incorporated in the attached copy of the permit.

John F. Falkenbury

Attachment

9/30/74

EPA Form 1320-6 (Rev. 6-72)

Permit No. NJ0004103

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Water Pollution Control Act, as amended, (33 U.S.C. 1251 et seq; the "Act"),

Shield Alloy Corporation

is authorized to discharge from a facility located at

West Boulevard
Newfield, Glouchester County, New Jersey

to receiving waters named

the Hudson Branch of the Maurice River.

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I, II, and III hereof.

This permit shall become effective on November 30, 1974

This permit and the authorization to discharge shall expire at midnight, November 30, 1979.

By authority of Gerald M. Hansler, P.E., Regional Administrator.

Signed this 21st day of October, 1974

Meyer Scolnick

Meyer Scolnick, Director
Enforcement and Regional
Counsel Division

A.1. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning November 30, 1974 and lasting through August 31, 1975 the permittee is authorized to discharge from outfall(s) serial number(s) 001.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Gross - Discharge Limitations kg/day(lbs/day)		Other Units(Specify)		Monitoring Requirements	
	Daily Avg	Daily Max	Daily Avg	Daily Max	Measurement Frequency	Sample Type
Flow-m^3/Day (MGD)	N/A	N/A	N/A	N/A	monthly	grab
Temperature °C(°F)						
Winter	N/A	N/A	N/A	13.3° (56°)	monthly	Multiple grab
Summer	N/A	N/A	N/A	22.2° (72°)	monthly	Multiple grab
Total Suspended Solids	50(110)	N/A	N/A	N/A	monthly	24 hr. composite
Chromium Total	0.068(0.15)	0.136(0.3)	N/A	N/A	monthly	24 hr. composite
Oil & Grease	N/A	N/A	N/A	10 mg/l	monthly	24 hr. composite

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored using grab samples monthly.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): @ outfall serial number 001.

A.2. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning August 31, 1975 and lasting through November 30, 1979 the permittee is authorized to discharge from outfall(s) serial number(s) 001.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Gross Discharge Limitations kg/day(lbs/day)		Other Units(Specify)		Monitoring Requirements	
	Daily Avg	Daily Max	Daily Avg	Daily Max	Measurement Frequency	Sample Type
Flow-m^3/Day (MGD)	N/A	N/A	N/A	N/A	monthly	grab
Temperature °C(°F)						
Winter	N/A	N/A	N/A	13.3°(56°)	monthly	Multiple grab
Summer	N/A	N/A	N/A	22.2°(72°)	monthly	Multiple grab
Total Suspended Solids	15.4(34)	23.1(51)	N/A	N/A	monthly	24 hr. composite
Chromium Total	0.068(0.15)	0.136(0.3)	N/A	N/A	monthly	24 hr. composite
Oil & Grease	N/A	N/A	N/A	10 mg/1	monthly	24 hr. composite

34 #/day 51 #/day TSS

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored using grab samples monthly.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): @ outfall serial number 001.

B. SCHEDULE OF COMPLIANCE

1. The permittee shall achieve compliance with the effluent limitations specified in Condition A.2. for discharges in accordance with the following schedule:

   The permittee shall attain the operational levels required to achieve the limits specified by August 31, 1975.

2. No later than 14 calendar days following a date identified in the above schedule of compliance, the permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

   All reports, plans and/or specifications that propose new or modified waste treatment and/or disposal facilities must be approvable, and signed and sealed by a professional engineer licensed to practice in the State in which the facilities are to be built.

C. MONITORING AND REPORTING

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.

2. Reporting

Monitoring results obtained during the previous month shall be summarized and reported on a Discharge Monitoring Report Form (EPA No. 3320-1), postmarked no later than the 28th day of the month following the completed reporting period. The first report is due on January 28, 1975. Duplicate signed copies of these, and all other reports required herein, shall be submitted to the Regional Administrator and the State at the following addresses:

Gerald M. Hansler, P.E.
Regional Administrator, Region II
U.S. Environmental Protection Agency
26 Federal Plaza
New York, New York 10007
ATTN: Permits Administration Branch

Director
Division of Water Resources
New Jersey Department of Environmental Protection
Labor & Industry Building
P. O. Box 1390
Trenton, New Jersey 08625

3. Definitions

a. The "daily average" discharge means the total discharge by weight or in other appropriate units, as specified herein, during a calendar month divided by the number of days in the month that the production or commercial facility was operating. Where less than daily sampling is required by this permit, the daily average discharge shall be determined by the summation of all the measured daily discharges by weight or in other appropriate units, as specified herein, divided by the number of days during the calendar month when the measurements were made.

b. The "daily maximum" discharge means the total discharge by weight or in other appropriate units, as specified herein, during any calendar day.

c. "Daily" - each operating day.

d. "Weekly" - every seventh day (the same day each month) and a normal operating day.

e. "Monthly" - one day each month (the same day each month) and a normal operating day. (i.e. the 2nd Tuesday of each month)

f. "Net" - the amount of a pollutant contained in the discharge measured in appropriate units as specified herein, less the amount of a pollutant contained in the surface water body intake source, measured in the same units, over the same period of time.

   1. The intake source must be the same water body that is being discharged to.

   2. In cases where the surface water body intake source is pretreated for the removal of pollutants, the intake level of a pollutant to be used in calculating the net, is that level contained after the pretreatment steps.

g. "Composite" - a combination of individual (or continuously taken) samples obtained at regular intervals over the entire discharge day. The volume of each sample shall be proportional to the discharge flow rate. For a continuous discharge, a minimum of 24 individual grab samples (at hourly intervals) shall be collected and combined to constitute a 24-hour composite sample. For intermittent discharges of 4 - 8 hours duration, grab samples shall be taken at a minimum of 30 minute intervals. For intermittent discharges of less than 4 hours duration grab samples shall be taken at a minimum of 15 minute intervals.

h. "Gross" - the poundage or the concentration contained in the discharge. (Gross applies when the intake source is a municipal or private water supply, ground water, or a surface water body other than the one being discharged to.)

i. "Grab" - an individual sample collected in less than 15 minutes.

4. Test Procedures

Test procedures for the analysis of pollutants shall conform to regulations published pursuant to Section 304(g) of the Act, under which such procedures may be required.

5. Recording of Results

For each measurement of sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

a. The exact place, date, and time of sampling;

b. The dates the analyses were performed;

c. The person(s) who performed the analyses;

d. The analytical techniques or methods used; and

e. The results of all required analyses.

6. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report Form (EPA No. 3320-1). Such increased frequency shall also be indicated.

7. Records Retention

All records and information resulting from the monitoring activities required by this permit including all records of analyses performed and calibration and maintenance of instrumentation and recordings from continuous monitoring instrumentation shall be retained for a minimum of three (3) years, or longer if requested by the Regional Administrator or the State water pollution control agency.

A. MANAGEMENT REQUIREMENTS

1. Change in Discharge

All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit. Any anticipated facility expansions, production increases, or process modifications which will result in new, different, or increased discharges of pollutants must be reported by submission of a new NPDES application or, if such changes will not violate the effluent limitations specified in this permit, by notice to the permit issuing authority of such changes. Following such notice, the permit may be modified to specify and limit any pollutants not previously limited.

2. Noncompliance Notification

If, for any reason, the permittee does not comply with or will be unable to comply with any daily maximum effluent limitation specified in this permit, the permittee shall provide the Regional Administrator and the State with the following information, in writing, within five (5) days of becoming aware of such condition:

a. A description of the discharge and cause of noncompliance; and

b. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

3. Facilities Operation

The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit.

4. Adverse Impact

The permittee shall take all reasonable steps to minimize any adverse impact to navigable waters resulting from noncompliance with any effluent limitations specified in this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

5. Bypassing

Any diversion from or bypass of facilities necessary to maintain compliance with the terms and conditions of this permit is prohibited, except (i) where unavoidable to prevent loss of life or severe property damage, or (ii) where excessive storm drainage or runoff would damage any facilities necessary for compliance with the effluent limitations and prohibitions of this permit. The permittee shall promptly notify the Regional Administrator and the State in writing of each such diversion or bypass.

6. Removed Substances

Solids, sludges, filter backwash or other pollutants removed in the course of treatment or control of wastewaters and/or the treatment of intake waters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering navigable waters. The following data shall be reported together with the monitoring data required in Part 1, C.2.: (a) The sources of the materials to be disposed of; (b) The approximate volumes and weights; (c) The method by which they were removed and transported; (d) Their final disposal locations.

7. Power Failures

In order to maintain compliance with the effluent limitations and prohibitions of this permit, the permittee shall either:

a. In accordance with the Schedule of Compliance contained in Part 1, provide an alternative power source sufficient to operate the wastewater control facilities;

or, if such alternative power source is not in existence, and no date for its implementation appears in Part 1,

b. Halt, reduce or otherwise control production and/or all discharges upon the reduction, loss, or failure of the primary source of power to the wastewater control facilities.

B. RESPONSIBILITIES

1. Right of Entry

The permittee shall allow the head of the State water pollution control agency, the Regional Administrator, and/or their authorized representatives, upon the presentation of credentials:

a. To enter upon the permittee's premises where an effluent source is located or in which any records are required to be kept under the terms and conditions of this permit; and

b. At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect any monitoring equipment or monitoring method required in this permit; and to sample any discharge of pollutants.

2. Transfer of Ownership or Control

In the event of any change in control or ownership of facilities from which the authorized discharges emanate, the permittee shall notify the succeeding owner or controller of the existence of this permit by letter, a copy of which shall be forwarded to the Regional Administrator and the State water pollution control agency.

3. Availability of Reports

Except for data determined to be confidential under Section 308 of the Act, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the State water pollution control agency and the Regional Administrator. As required by the Act, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the Act.

4. Permit Modification

After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to, the following:

a. Violation of any terms or conditions of this permit;

b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or

c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

5. Toxic Pollutants

Notwithstanding Part II, B-4 above, if a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Act for a toxic pollutant which is present in the discharge and such standard or prohibition is more stringent than any limitation for such pollutant in this permit, this permit shall be revised or modified in accordance with the toxic effluent standard or prohibition and the permittee so notified.

6. Civil and Criminal Liability

Except as provided in permit conditions on "Bypassing" (Part II, A-5) and "Power Failures" (Part II, A-7), nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

7. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Act.

8. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Act.

9. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

10. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

PART III

OTHER REQUIREMENTS

Effectiveness of Permit

This permit shall become effective on the date indicated on the first page hereof as the effective date unless a request for an Adjudicatory Hearing is granted pursuant to the provisions of Sections 125.35 and 125.36 of the NPDES regulations published at 40 CFR 125, 39 Federal Register 143, Wednesday, July 24, 1974.

Winter is from January 1 to May 31 and from October 1 to December 31. Summer is from June 1 to September 30.