TO: Pat Evangelista - EPA
From: Paul Harvey, DEP

ORIGINAL FILED WITH CLERK IN TRENTON

April 27, 1988

W. CARY EDWARDS
Attorney General of New Jersey
Attorney for Plaintiff, New Jersey
Department of Environmental Protection
Richard J. Hughes Justice Complex
CN 112
Trenton, New Jersey 08625

By: Ronald P. Heksch,
Deputy Attorney General
(609) 292-1557

SUPERIOR COURT OF NEW JERSEY
LAW DIVISION - MIDDLESEX COUNTY
DOCKET NO. C-4474-76
L-28115-76
(Consolidated)

| | |
|---|---|
| CITY OF PERTH AMBOY, a municipal Corporation,<br><br>Plaintiff,<br><br>v.<br><br>MADISON INDUSTRIES, INC., et al.,<br><br>Defendants. | Civil Action<br><br>ORDER AMENDING JUDGMENT OF JUNE 14, 1983 CONSENTED TO BY ARNET REALTY |
| STATE OF NEW JERSEY, DEPARTMENT OF ENVIRONMENTAL PROTECTION,<br><br>Plaintiff,<br><br>v.<br><br>CHEMICAL & POLLUTION SCIENCES, INC., et al.,<br><br>Defendant. | |

507594

This action was brought on for trial before the Court sitting without a jury, David D. Furman, J.S.C., presiding, commencing on June 2, 1978, May 29, 1979 and June 15, 1981, by plaintiffs, State of New Jersey, Department of Environmental Protection ("NJDEP") by the Attorney General of the State of New Jersey, Deputy Attorneys General Steven R. Gray and Rebecca Fields appearing at the trial, and by the City of Perth Amboy by Albert Seaman, Esq. and George Boyd, Esq., and in the presence of defendants, CPS Chemical Co. ("CPS") by its then counsel, Lowenstein, Sandler, Brochin, Kohl, Fisher & Boylan and in the presence of defendant Madison Industries, Inc. ("Madison"), by its then counsel, Lynch, Mannion, Martin, Benitz, & Lynch; and the Court at that trial entered Judgement in favor of the plaintiffs and against the defendants, all as more particularly described in the Court's Final Judgment of October 10, 1981, and all parties appealed that Judgment to the Superior Court of New Jersey, Appellate Division, and the Appellate Division rendered its written decision on April 21, 1983, affirming in part and modifying in part the Trial Court's Judgment and remanding the matter to the Trial Court for the entry of an appropriate Amended Judgment; and such Amended Judgment, entitled "Final Order and Judgment amended to conform with the decision of the Appellate Division" was entered on June 14, 1983 by the Honorable Richard S. Cohen; and the defendants thereafter unsuccessfully sought certification to the New Jersey Supreme Court.

Thereafter, the defendants CPS (Schwartz, Tobia & Stanziale, by Theodore A. Schwartz, Esq.), and Madison (Sterns, Herbert, Weinroth and Petrino, P.A., by William J. Bigham, Esq.),

at their own expense retained consultants and undertook the development of an alternative ground water recovery program which could more effectively address the ground water concerns which were the subject of the June 14, 1983 Judgment mentioned above, and which program would be implemented by the defendants at the CPS/Madison site; and NJDEP considered carefully that alternative recovery program and agreed that it could more effectively abate such contamination; and NJDEP and the defendants thereafter engaged in lengthy and protracted settlement negotiations in an effort to reach agreement on various particulars to that alternative remedial program; and said parties having agreed to utilize the alternative remedial program, and further, agreeing that it is mutually beneficial to have the defendants implement the alternative remedial program and assume responsibility for same instead of NJDEP, as provided in previous Orders of this Court, and NJDEP having made a motion to amend the Judgment of June 14, 1983 to implement the alternative remedial program set forth hereafter, which motion was opposed by City of Perth Amboy, and the matter being the subject of an evidentiary hearing on January 26, 1988 and January 27, 1988 before the Honorable John E. Keefe and the court having rendered an oral decision from the bench on January 27, 1988 finding that the remedial measures mandated by the June 14, 1983 Judgment were environmentally unsound and thereby granting NJDEP's motion to amend the Judgment of June 14, 1983.

IT IS on this 27th day of April, 1988; ORDERED as follows:

1. CPS and Madison shall install and operate a ground water recovery system as conceptually proposed in Wehran Engineer-

ing's Addendum Number Two to the "Recommended Remedial Program for Abatement of Ground Water Contamination of the Old Bridge Sand Aquifer in the Vicinity of CPS and Madison Industries" dated March 28, 1984, attached hereto as Appendix A. This proposed plan includes a crescent-shaped slurry wall keyed into the South Amboy Fire Clay approximately one-third of the distance into Prickett's Pond (Based on borings, the parties estimate that the depth of the South Amboy Fire Clay is 30' to 70') and three (3) recovery wells to control and capture the contaminated ground water plume.

2 CPS and Madison shall relocate Prickett's Brook to the south of the CPS and Madison facilities as conceptually proposed in Converse Consultants Report "Recommended Site Recovery Program, Madison Industries, Incorporated," dated May 27, 1983, attached hereto as Appendix B.

3. CPS and Madison shall discharge the pumped ground water to the Middlesex County Utilities Authority ("MCUA") treatment plant in Sayreville through the Old Bridge Township Sewerage Authority ("OBTSA") collection system. CPS and Madison shall pay all applicable connection and user charges assessed by the OBTSA and/or the MCUA associated with the discharge. A direct discharge of any or all of the wastewaters to the MCUA will be allowable provided appropriate permits and approvals are obtained from the MCUA and the NJDEP.

4. (a) CPS and Madison shall discharge the aforesaid pumped ground water in accordance with all applicable discharge requirements of the MCUA and the OBTSA.

(b) All the ground water pumped from the recovery well designated T-1 and process waste waters of Madison shall be

pretreated by Madison for zinc. A pretreatment program which will achieve 80% removal of zinc from the waste streams detailed above shall be implemented in accordance with Appendix D-1. Removal shall be calculated as $\frac{I-E}{I}$ where, I = influent concentration, and E = effluent concentrations. If Madison should cease to operate its facilities it can, as an alternative to the 80% removal pretreatment program described here, pretreat to five parts per million at T-1 only. Nothing in this paragraph shall be deemed to relieve Madison of any legal obligations it may have with respect to compliance with the Inorganic Chemical Manufacturing Point Source Category, zinc chloride subcategory, 40 CFR. 415.674. CPS shall not have any responsibility whatsoever for the treatment or processing of any process wastewaters of Madison, and further, this Order shall not be construed, interpreted, or impose any liability whatsoever, including but not limited to joint and several liability, on CPS for any handling, discharging and/or processing (including any pretreatment) of Madison's process wastewaters.

(c) Any plans and specifications for the construction of the discharge system and/or pretreatment system which are required by applicable rules of the MCUA to be reviewed and approved by said agency shall be submitted to the MCUA and OBTSA prior to any construction.

(d) As part of the discharge system as aforesaid, a secured metering and sampling vault shall be provided at locations to be established and approved by the MCUA and OBTSA. The MCUA, OBTSA and NJDEP shall retain control and access to the metering and sampling stations at all times.

5. (a) The ground water discharge as described above shall be monitored in accordance with applicable rules and regulations of the MCUA. A sampling protocol shall be established through the NJPDES/SIU Permit Program regarding the monitoring of the discharge.

(b) Should significant deviations occur between sampling data obtained by the MCUA and CPS and Madison, further testing may be required by the MCUA and/or NJDEP. In the event that disagreement arises between the MCUA and CPS and Madison regarding the need for further testing, same shall be resolved by NJDEP. Said further testing shall be conducted at the expense of CPS and Madison at an independent laboratory approved by NJDEP.

(c) It is recognized by the parties hereto that the MCUA, due to restrictions that may be placed upon its effluent discharge or sludge disposal activities, may require revisions to its system-wide pretreatment program to further define discharge limitations. In such event, the parties recognize that revised processing or treatment may be required of all indirect users of the MCUA system.

(d) This Order shall not abridge or affect any rights that CPS and/or Madison may have in regard to said revisions.

6. (a) The crescent-shaped slurry wall referenced in paragraph 1 is intended to act as a barrier to the downstream migration of the contaminated sediments in the east end of Prickett's Pond and to act as a barrier to induced recharge from the down gradient side of the recovery wells.

(b) Contaminated sediments and/or pond water in Prickett's Pond do not require extraction or removal at this time, but CPS and Madison may, after the ground water recovery system is operational and within a reasonable time thereafter, reevaluate, in a manner approved by the NJDEP, the need for sediment removal.

7. The piles of zinc, lead and cadmium, or portions thereof, referred to in the Judgment of June 14, 1983 have been removed or stored in a permanent enclosed structure by Madison. The storage of zinc, lead and cadmium at the Madison site shall be done in a manner which prevents zinc, lead and cadmium from entering the waters of the State and further, which prevents zinc, lead and cadmium from being placed in an area where it might flow or drain into said waters.

8. (a) CPS and Madison shall initiate a program acceptable to NJDEP at the start-up of the ground water recovery system to monitor and evaluate the performance of said system. This program shall include the sampling and measurement of water levels in 30 monitoring wells, the sampling of three recovery wells, and the measurement of water levels in eight piezometers. The locations of these wells and piezometers are depicted on Appendix C.

(b) CPS and Madison shall measure water levels from said wells and piezometers according to the following schedule: within 30 days prior to system start-up and 24 hours, 48 hours, 1 week, 2 weeks, 3 weeks, 4 weeks, 8 weeks, 12 weeks, and quarterly after system start-up in conjunction with the sampling frequency set forth in paragraph 8(c) below.

(c) CPS and Madison shall collect samples from the three pumping wells and 30 monitoring wells one month before system start-up, one month after, three months later, and quarterly thereafter. Said samples shall be collected according to NJDEP procedures and analyzed by a New Jersey State certified laboratory approved by NJDEP for zinc, lead, cadmium, copper, and total volatile organic pollutants.

(d) Within six (6) weeks after each sampling event period, CPS and Madison shall submit to NJDEP a report of the sampling results and include a water level contour map for the entire recovery system.

(e) CPS and Madison may propose modifications to this performance monitoring program based on accumulated data for a reasonable period of time before and after system start-up for NJDEP approval. Under no circumstances will CPS or Madison modify and/or terminate the performance monitoring program without prior written authorization from NJDEP.

(f) If after sixty (60) days of start-up, NJDEP concludes that water level and ground water quality data reveal that the ground water recovery system is not controlling and capturing the entire contaminant plume as conceptually predicted in Appendix A, CPS and Madison shall, within thirty (30) days of being advised of this conclusion by NJDEP, propose modifications to the ground water recovery system so as to address NJDEP's concerns. Said modifications may include, but not be limited to, increased pumping, additional pumping wells and/or the extension of the cut-off slurry wall. Upon approval by NJDEP, CPS and Madison shall

implement said modifications forthwith. In the event that the modifications proposed by CPS and Madison are unacceptable to NJDEP, NJDEP shall advise CPS and Madison accordingly. Upon receipt of NJDEP's response, CPS and Madison shall immediately initiate the actions necessary to address NJDEP's concerns. Under no circumstances will a ground water recovery system that does not control and capture the entire contaminant plume be acceptable to NJDEP. It is understood that if the recovery system implemented pursuant to this Order is not, even after modification, controlling and capturing the entire contaminant plume as conceptually predicted in Appendix A, CPS and Madison shall remain liable and responsible for containing and controlling the entire contaminant plume which is the subject matter of this litigation.

(g) The operation of the recovery system will be terminated when four (4) consecutive quarterly samplings, verified by NJDEP, reveal that the ground water quality is equal to or below New Jersey ground water quality standards or background levels, whichever is higher. In reaching a determination as to the achievement of the aforementioned cleanup standards CPS and Madison shall not be responsible for the maximum background levels which are entering onto or influencing the site. The cleanup standards referred to herein are the Safe Drinking Water Act levels for heavy metals (zinc, lead and cadmium) and the guideline of 100 parts per billion (ppb) for total volatile organics. As standards are promulgated for individual and total volatile organics prior to termination as aforesaid, they will become the new performance standards for termination.

(h) CPS or Madison may petition NJDEP at any time for modification and/or termination of the ground water recovery system based upon accumulated data and the demonstration of the absence of public health and environmental consequences and at such time as it can be demonstrated to the satisfaction of NJDEP that further recovery of the ground water will not significantly further improve the ground water quality. However, under no circumstances will CPS or Madison modify and/or terminate the recovery system under this paragraph without prior written authorization from NJDEP.

(i) Upon termination of the ground water recovery system, CPS and Madison shall implement a two (2) year post-recovery monitoring plan approved by NJDEP which will include quarterly sampling from all 33 wells. If at the end of this two year monitoring period all ground water samples remain within the standards referenced in paragraph 8(g), then all monitoring will terminate. If contamination levels rise above the standards referenced in paragraph 8(g) during these two years in any well for two consecutive monitoring sampling events, then CPS and Madison shall reinitiate or appropriately modify the ground water recovery system and reinitiate the performance monitoring program except as provided by paragraph 8(h) above.

9. (a) CPS and Madison shall apply and obtain all required permits including, but not limited to, stream encroachment, NJPDES/SIU, sewer extension and water diversion permits specific to the project prior to the implementation of any aspect of this Order Amending Judgment. CPS and Madison shall file com-

plete permit applications for all permits required to implement their obligations herein within a reasonable time after the execution of this Order Amending Judgment.

(b) The submission of final design, plans, and specifications, for each aspect of this Order shall be in accordance with Appendices D-1 and D-2. Time periods for completion of work herein shall run from date of receipt of effective permits from NJDEP, MCUA, OBTSA, and any other agencies from which permits are required.

(c) CPS and Madison shall include the following requirements in the designs of the ground water recovery system:

(1) All recovery wells will be designed and constructed so that they can produce approximately twice the proposed pumpages in Appendix A.

(2) Continuous water level recorders will be installed in four (4) of the piezometers adjacent to the slurry wall and in the three recovery wells or in immediately adjacent piezometers and placed in a locked, secured compartment.

(3) All upgradient monitoring wells and selected down gradient wells will be made tamper proof and include double locks for which NJDEP has the only key to one lock.

(4) All monitoring wells and piezometers (except those described in paragraph (c)(3) above) shall contain locking caps.

(5) An extra 300 gpm well pump will be kept on hand at all times in case of pump failure.

(6) An alarm system will be installed for all recovery pumping wells to alert of pump failure.

(7) NJDEP will have access to the CPS and Madison sites 24 hours a day. During regular working hours, such access shall be upon request without advance notice. During other hours, CPS and/or Madison shall be given reasonable advance notice.

10. (a) CPS and Madison shall provide funds, as described in (b) following, for an NJDEP appointed consultant through payments to be made to an interest bearing escrow account controlled by NJDEP. The appointment of a consultant shall be made by CPS and Madison from five (5) consultants proposed by NJDEP, or as otherwise agreed by CPS, Madison and NJDEP. Said consultant will independently evaluate the performance of the ground water recovery system from start-up and will continue its independent evaluation until NJDEP determines that said consultant's evaluation is no longer necessary.

(b) The amount of funds to be provided by CPS and Madison to NJDEP for such independent consultant shall be strictly limited in accordance with the terms of this paragraph. CPS and Madison shall provide to NJDEP, within ten (10) days of receipt of all permits required for construction of the remedial program referenced herein, $40,000 for payment by NJDEP to the consultant during the first year following the execution of this Order. On each anniversary of the date of payment of the $40,000 in the first year, the following sums shall be paid by Madison and CPS at the following times:

(i) at the 1st anniversary (during 1989) -- $25,000

(ii) at the 2nd anniversary (during 1990) -- $25,000

(iii) at the 3rd anniversary (during 1991) -- $10,000

(iv) at the 4th anniversary (during 1992) -- $10,000

(v) at the 5th anniversary (during 1993) -- $10,000

(vi) at the 6th anniversary (during 1994) -- $10,000

(vii) at the 7th anniversary (during 1995) -- $10,000

(viii) at the 8th anniversary (during 1996) -- $10,000

(ix) at the 9th anniversary (during 1997) -- $10,000

(x) at the 10th anniversary (during 1998) -- $10,000

(xi) at the 11th anniversary (during 1999) -- $10,000

(xii) at the 12th anniversary (during 2000) -- $10,000

(xiii) at the 13th anniversary (during 2001) -- $10,000

(c) If in any year NJDEP fails to actually expend the annual allotment for that year, it may expend that annual allotment on such consultant in any succeeding year if it is required; however, under no circumstances may NJDEP utilize allotments from future years. Further NJDEP may only draw down such funds as are actually required for the payment of the consultant; these funds may not be used for any other purpose. Any monies remaining in the escrow account at such time as NJDEP determines that the consultant's evaluation is no longer necessary (as described in (a) above) shall be returned to CPS and Madison, in equal shares.

11. (a) Within 120 days of the execution of this Order by the court CPS and Madison shall provide NJDEP with a performance bond in the amount of $5 million to secure performance of their

obligations under this Order. The performance bond shall be in a form substantially similar to Appendix E. The performance bond shall be for a period of not less than five years. In the event that the hydraulic performance of the recovery system referenced herein is not performing as described in the Wehran Engineering Addendum Number Two, attached as Appendix A, within 90 days prior to the expiration of the aforementioned performance bond, the same shall constitute a material breach of this Order and NJDEP shall have a right to assert a claim against the balance of the performance bond. In addition, in the event of that CPS and Madison fail to perform any of their material obligations under this Order, NJDEP may assert a claim for payment of said performance bond; provided, however, that before a claim can be made, NJDEP shall notify CPS and Madison and the issuing institution in writing of the obligation(s) they have failed to perform, and CPS and Madison shall have a reasonable time, not less than 15 nor more than 20 calendar days, to cure such failure.

(b) It is estimated that the costs associated with the said ground water recovery system are approximately $2 million. CPS and Madison shall submit a detailed cost estimate for construction of the ground water recovery system within 90 days of the date of this Order. As the various items of work called for in the ground water abatement program are completed and certified to by CPS/Madison's consulting engineers and such certifications are presented to NJDEP the amount of the performance bond shall be reduced to reflect said work completion. The aforesaid certifications shall be submitted in writing to NJDEP detailing what has

been accomplished and requesting NJDEP to set forth any objection it may have in writing within 60 days of receipt of said certifications. If the Department, within the 60-day period, makes no objection in writing, the work which is the subject matter of the certifications shall be deemed to have been completed.

(c) The amount of the performance bond shall not be reduced below $3 million until such time as it is established to NJDEP's satisfaction that the hydraulic performance of the ground water abatement plan system is performing as described in the Wehran Engineering Addendum Number Two attached as Appendix A.

(d) When the hydraulic performance of the ground water recovery system is performing as described in the Wehran Engineering Addendum Number Two, attached as Appendix A, the bond referenced in paragraphs 11(a), (b) and (c) shall be terminated and in its place a bond in the amount of $1 million shall be posted to secure operation and maintenance of the ground water recovery system. Said bond shall be in a form substantially similar to Appendix F. Such performance bond shall be for a period of not less than five (5) years. Should CPS and/or Madison and/or NJDEP conclude, by reference to actual and/or anticipated operation and maintenance costs and the projected period of operation of the system, that the $1 million performance bond referenced herein is either excessive or insufficient, they, or any of them, may apply to the court for an adjustment.

(e) The bond references in this paragraph shall be issued by a company approved in advance by NJDEP.

(f) When the ground water recovery system meets the operation and maintenance provisions of paragraph 8(g) or (h), the performance bond referenced herein shall be terminated.

12. CPS and Madison shall each pay to NJDEP, within twenty (20) days following the effective date of this Order, the sum of $26,620.

13. Arnet Realty Company ("Arnet"), a New Jersey partnership, is the owner of the land on which the Madison operation exists, and is also the owner of the land beyond and to the south of Madison's leased property, on which the stream relocation will take place. Arnet consents to the entry of this Order for the limited purpose of consenting to the undertaking of these remedial measures on its property in consideration of payment to be made by CPS and Madison.

14. This Order Amending Judgment of June 14, 1983 supersedes the Final Order and Judgment of the trial court entered in this matter on October 16, 1981, and the "Final Order and Judgment amended to conform with the decision of the Appellate Division" entered on June 14,1983 except to the extent that the Appellate Division in its decision of April 21, 1983, and the June 14, 1983 Judgement establish CPS and Madison jointly and severally liable and further, this Order shall not affect in any way the provisions of paragraphs 8 and 9 of the June 14, 1983 Judgment, which paragraphs shall remain in full force and effect and be unaffected by this Order.

15. If any event occurs which purportedly causes or may cause delays in the achievement of any provision of this Order,

CPS/Madison shall notify NJDEP in writing within ten (10) business days of the delay or anticipated delay, as appropriate, describing the anticipated length, precise cause or causes, measures taken or to be taken, and the time required to minimize the delay. CPS/Madison shall adopt all reasonable necessary measures to prevent or minimize delay. Failure by CPS/Madison to comply substantially with the notice requirements of this paragraph shall render this force majeure provision void and of no effect as to the particular incident involved. If the delay or anticipated delay has been or will be caused by fire, flood, riot, strike, or other circumstances alleged to be beyond the control of CPS/Madison, then the time for performance hereunder shall be extended, subject to the approval of NJDEP, no longer than the delay resulting from such circumstances. However, if the events causing such delay are not beyond the control of CPS/Madison, failure to comply with the provisions of this Order shall not be excused as herein provided and shall constitute a breach of the Order's requirements. The burden of proving that any delay is caused by circumstances beyond the control of CPS/Madison, and the length of such delay attributable to those circumstances shall rest with CPS/Madison.

16. All notices, requests, demands and other communications provided for by this Order shall be in writing and shall be deemed to have been given at the time when mailed at any general or branch United States Post Office, enclosed in a registered or certified postpaid envelope and addressed as follows:

To NJDEP

Melinda Dower, Section Chief
Bureau of Case Management
401 East State St.
Trenton, NJ 08625

with a copy to:

Ronald P. Heksch, Deputy Attorney General
Hughes Justice Complex, CN-112
Trenton, New Jersey 08625

To CPS

Mr. Philip Meisel
CPS Chemical Company, Inc.
P.O. Box 162
Old Water Works Road
Old Bridge, New Jersey 08857

with a copy to:

Theodore A. Schwartz, Esq.
Schwartz, Tobia and Stanziale
22 Crestmont Road
Montclair, New Jersey 07042

To Madison

Mr. Hyman Bzura
Madison Industries, Inc.
P.O. Box 175
Old Water Works Road
Old Bridge, New Jersey 08857

with a copy to

William J. Bigham, Esq.
Sterns, Herbert & Weinroth, P.A.
P.O. Box 1298
186 West State Street
Trenton, New Jersey 08607

To Arnet

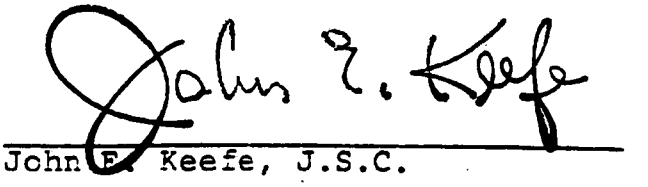
Arnet Realty
c/o Mr. Arnold Asman
111 Great Neck Road
Great Neck, New York 11021

with copies to

Arnet Realty
c/o Mrs. Nettie Bzura
38 Crest Drive
South Orange, New Jersey 07079

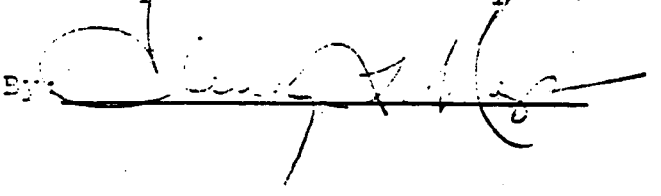
Smith, Stratton, Wise, Heher & Brennan
One Palmer Square
P.O. Box 1154
Princeton, New Jersey 08542

provided, however, that notice of change of address shall be effective only upon receipt.



John F. Keefe, J.S.C.

Smith, Stratton, Wise,
Heher & Brennan
Attorneys for Arnet Realty Co.

By: 

# ADDENDUM NUMBER TWO
# TO
# RECOMMENDED REMEDIAL PROGRAM FOR ABATEMENT OF GROUND-WATER CONTAMINATION OF THE OLD BRIDGE SAND AQUIFER IN THE VICINITY OF CPS AND MADISON INDUSTRIES OLD BRIDGE TOWNSHIP, MIDDLESEX COUNTY, NEW JERSEY

Prepared for

CPS CHEMICAL COMPANY

Old Water Works Road
Old Bridge, New Jersey 08857

Prepared by

WEHRAN ENGINEERING CORPORATION

666 East Main Street
Middletown, New York 10940

We Project No. 02362217

March 28, 1984

APPENDIX "A"

## 1.0 INTRODUCTION

In May, 1983 Wehran Engineering submitted its original report entitled "Recommended Remedial Program for Abatement of Ground-Water Contamination of the Old Bridge Sand Aquifer in the vicinity of CPS and Madison Industries, Old Bridge Township, Middlesex County, New Jersey" to the NJDEP. The recommended remedial plan consisted of a cut-off wall and single recovery well pumping 300 gpm in the vicinity of Pricketts Pond. At the request of the NJDEP, an addendum dated June 21, 1983, was prepared which evaluated the impact of relocating Pricketts Brook and two ground water recovery scenarios. The first scenario (program "A") consisted of the Pricketts Pond well at 300 gpm and existing well T-1 at 150 gpm for a total withdrawal of 450 gpm. Program "B" consisted of program "A" with two additional wells, WCC-6 and M-3 pumping at 125 gpm each for a total withdrawal of 700 gpm.

In accordance with the most recent request of the NJDEP a third ground-water recovery scenario has been evaluated and is presented herein (Addendum Number Two). The plan consists of the Pricketts Pond well pumping 300 gpm and two additional wells, T-1 and T-2, each pumping 50 gpm for a total withdrawal of 400 gpm.

## 2.0 RESULTS

A ground-water computer simulation was conducted to evaluate the aquifer response to pumping the three recovery wells shown on figure 1. The model type, procedures, grid, boundary conditions, and assumptions used were identical to those used in the original model and will not be repeated herein. It has also been assumed that Pricketts Brook has been relocated to the south such that its influence upon the recovery system is negligible. Computed water table elevations are dependent, in part, upon starting conditions and will vary with natural seasonal fluctuations. Of importance are not absolute elevations but rather relative changes in elevations due to ground water withdrawal.

The computed ground-water elevations (heads) were contoured and superimposed

over the inferred aerial extent of the combined zinc and volatile organic plumes as determined in March, 1982. Computed pumping heads in wells T-1, T-2 and T-3 are 20.57, 20.87 and 10.98, respectively. The direction of ground-water flow as illustrated by the arrows, indicates full capture of the plume. Individual capture zones for each well are depicted by the dashed lines on figure 1. The maximum "drawback" distance for wells T-1 & T-2 is determined by the location of the stagnation point. Upgradient wells T-1 and T-2 would serve to hasten the recovery of the more highly contaminated portions of the plume while T-3 would capture of all flows paths originating within the plume. In addition, T-3 would provide rapid withdrawal of contaminants originating from unexcavated pond sediments east of the cut-off wall.

The approximate length of time necessary for a particle of water originating within the plume to reach a recovery well can be calculated using the seepage velocity equation ($V_s$ = Ki/Ne) and the length of the flow path. Because of the placement of the wells, two calculations were made; one for T-3 and one for T-1 & T-2. If the permeability (K) is assumed to be 1,150 gpd/ft$^2$, the effective porosity (Ne) to be 0.40, and the hydraulic gradient (i) to be variable along the flow path, then the maximum travel time to reach T-3 and T-1 & T-2 is 3.0 and 1.5 years, respectively.

These estimates represent one pore volume exchange. However due to retardation of contaminants within the aquifer, actual contaminant travel time may be substantially slower. An evaluation of the retardation factor (original report, section 6.2) indicates that approximately four pore volume exchanges would be necessary to purge the aquifer. Actual expected contaminant travel times, therefore, become 12 and 6 years for wells T-3 and T-1 & T-2, respectively.

The travel time estimates calculated above are based on our present knowledge of the hydrogeology and extent of contamination at the site. As additional data become

available during implementation of the proposed remedial program, these estimates may be refined. The actual duration and capacity of the recovery system will be determined by water quality results generated from the long term monitoring program.

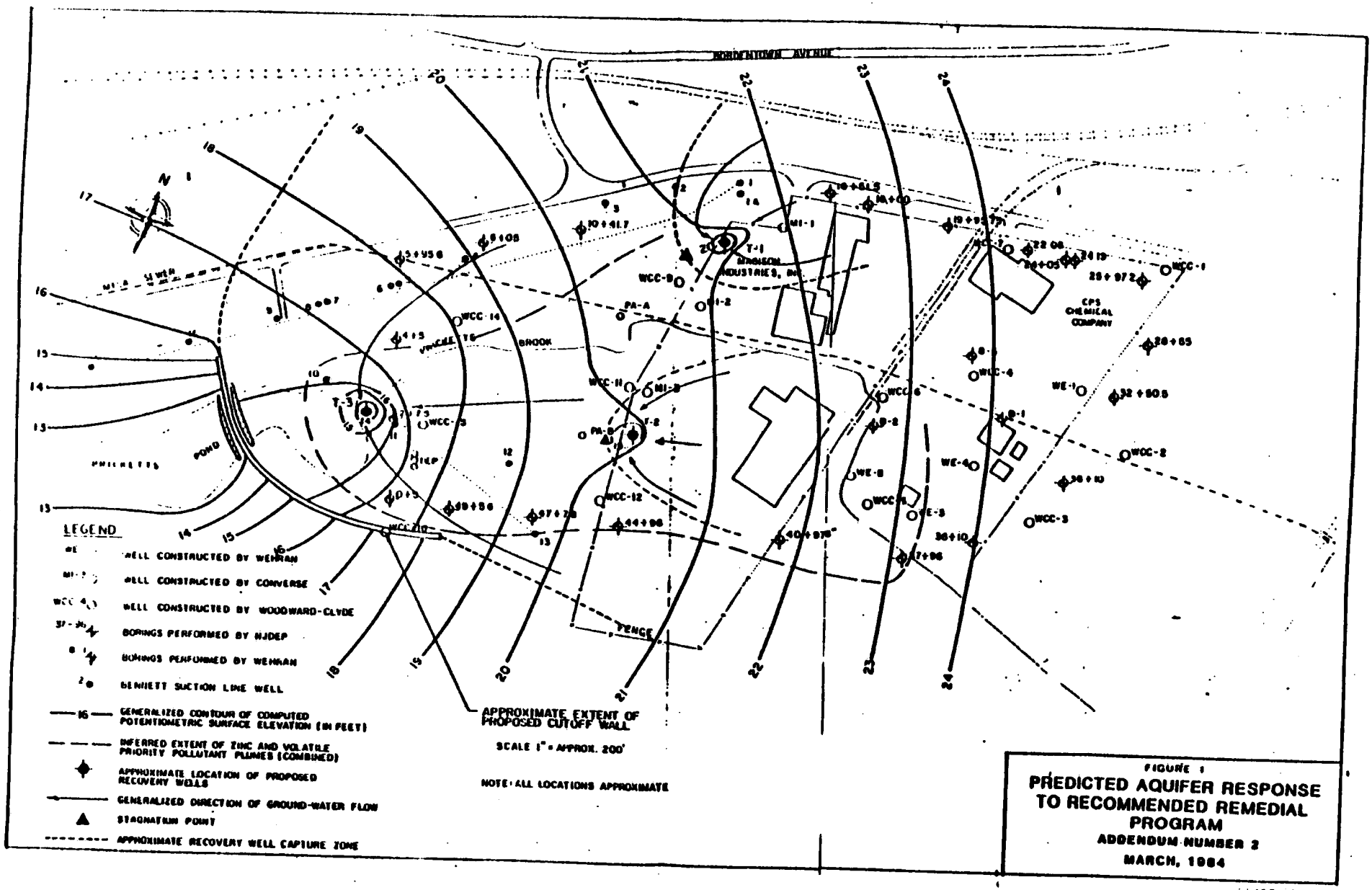



FIGURE 1

**PREDICTED AQUIFER RESPONSE TO RECOMMENDED REMEDIAL PROGRAM**

**ADDENDUM NUMBER 2**

**MARCH, 1984**

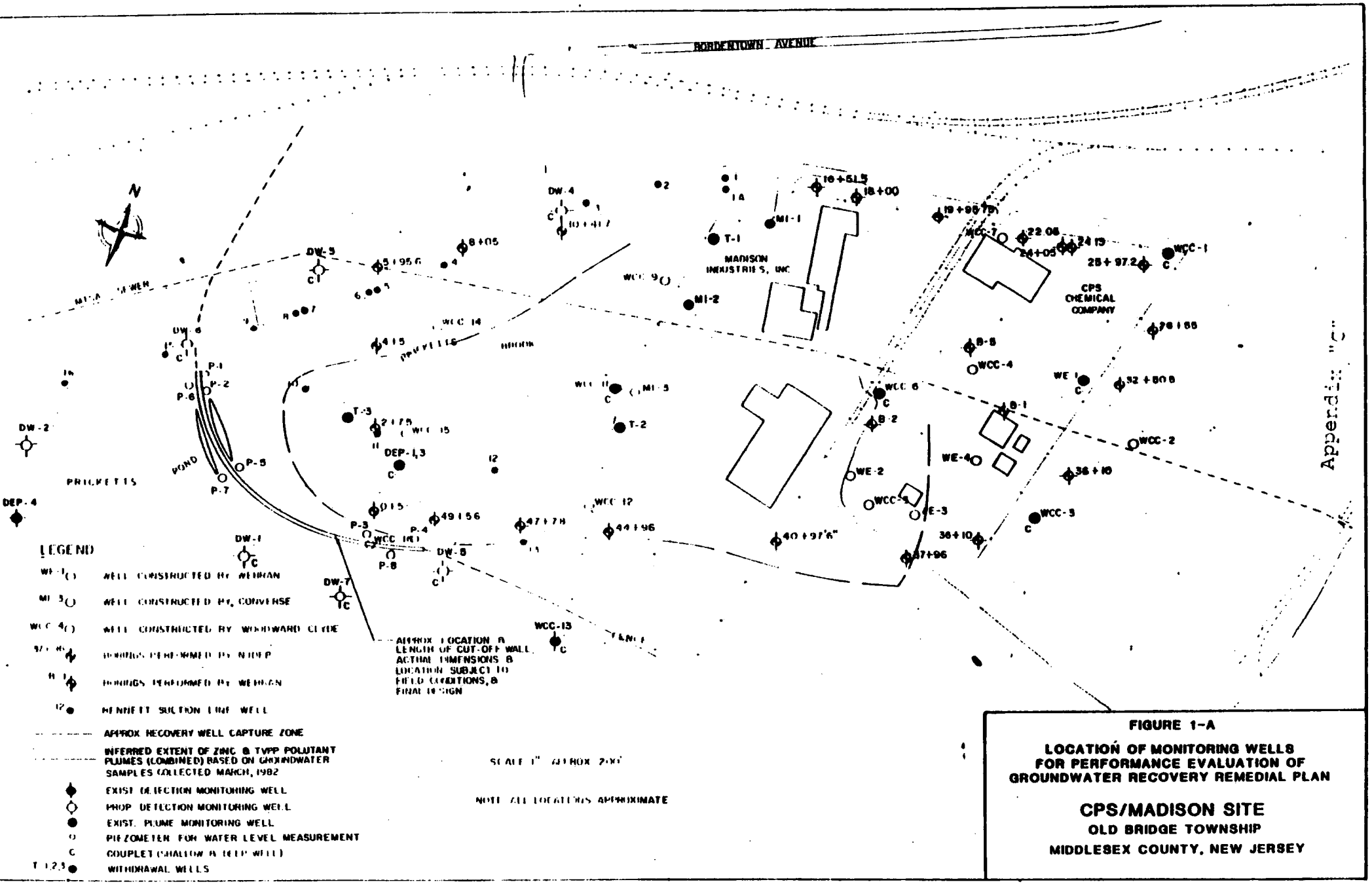



**FIGURE 1-A**

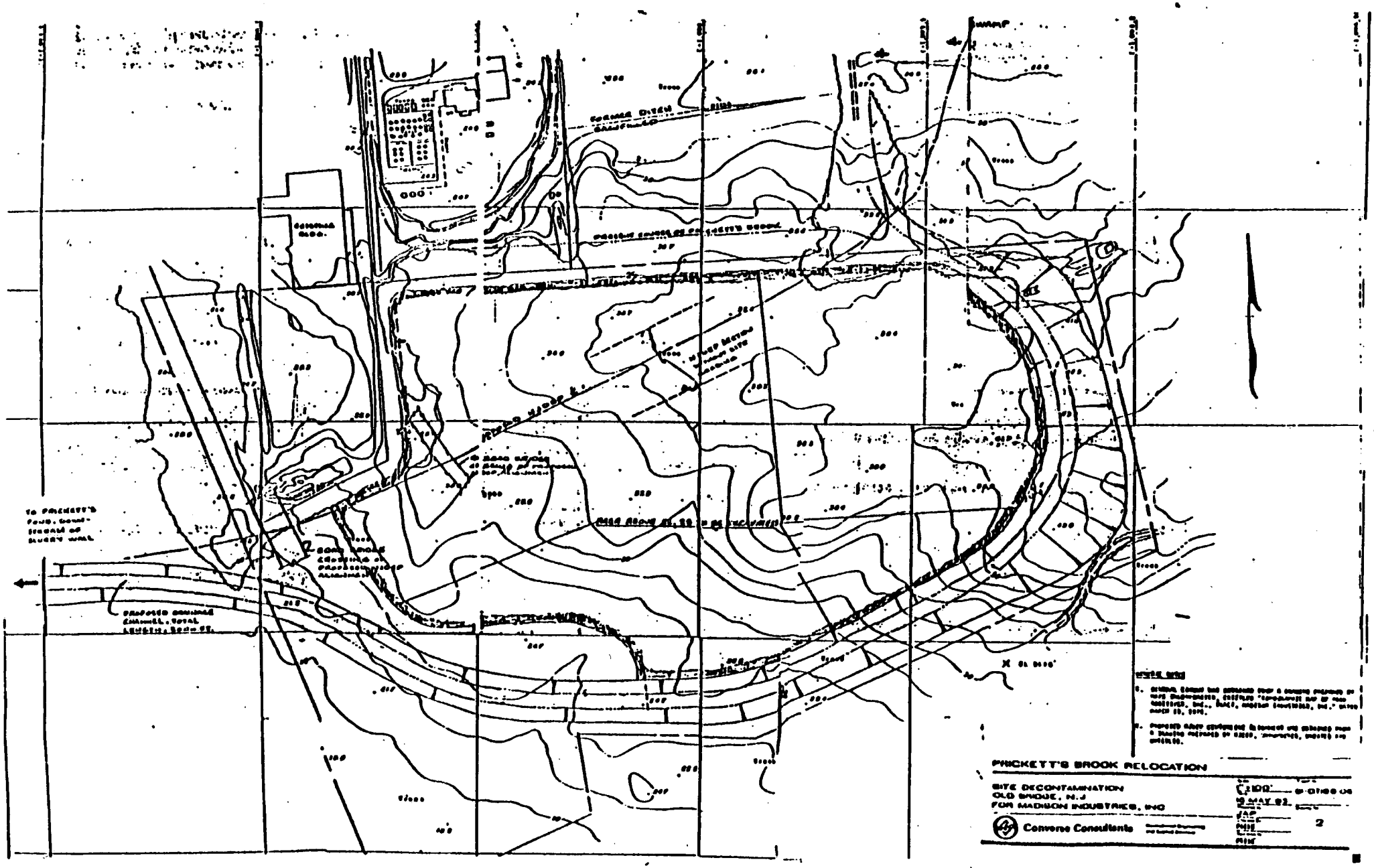
**LOCATION OF MONITORING WELLS FOR PERFORMANCE EVALUATION OF GROUNDWATER RECOVERY REMEDIAL PLAN**

**CPS/MADISON SITE**

**OLD BRIDGE TOWNSHIP**

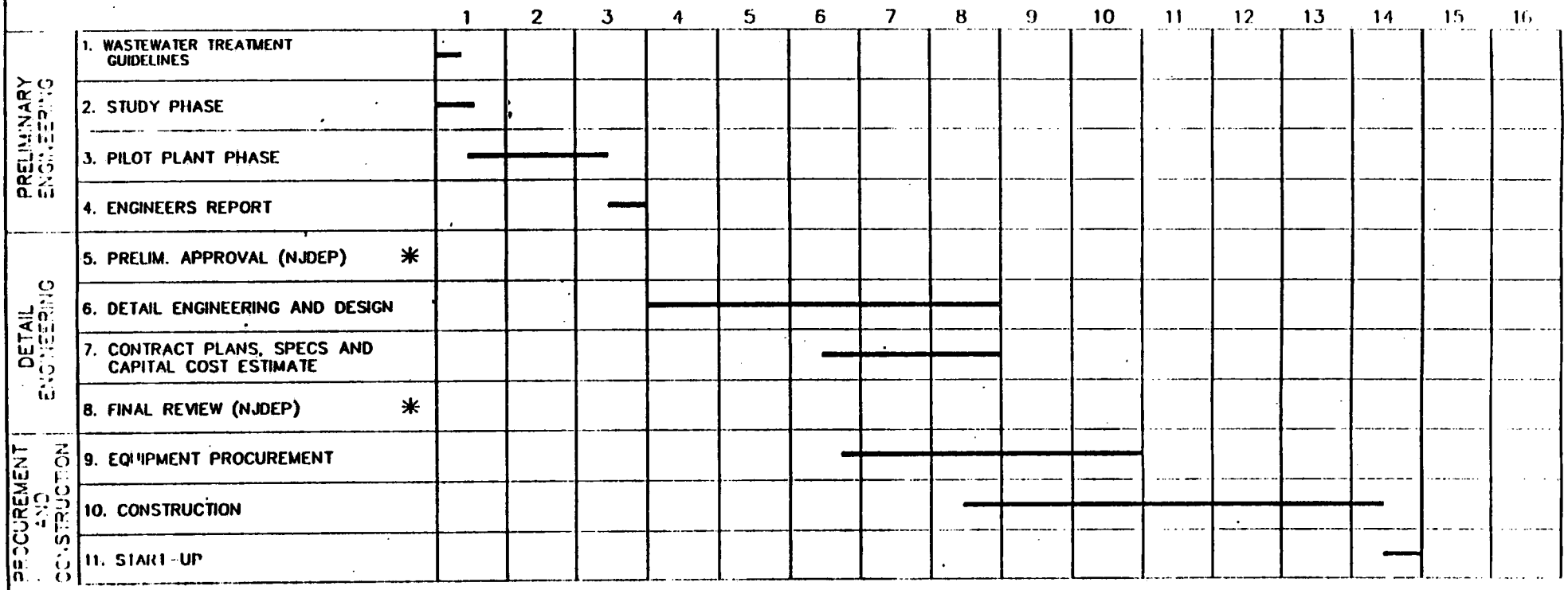
**MIDDLESEX COUNTY, NEW JERSEY**

02362217


PRICKETT'S BROOK RELOCATION
SITE DECONTAMINATION
OLD BRIDGE, N.J.
FOR MADISON INDUSTRIES, INC
Converse Consultants
2

APPENDIX "B"

# PROJECT SCHEDULE – MONTHLY BASIS




* PROJECT SCHEDULE DOES NOT INCLUDE REVIEW TIME BY NJDEP.

Appendix "D-1a"

JEG PROJECT NO. 03-A083-00

JACOBS ENGINEERING GROUP INC.

MADISON INDUSTRIES
OLD BRIDGE, NEW JERSEY

WASTEWATER TREATMENT PLANT
PROJECT SCHEDULE

MADSCH.DWG
3-3-88

MADISON INDUSTRIES
SCHEDULE FOR
PILOT PLANT OPERATION AND ENGINEERING & CONSTRUCTION FOR
PLANT WASTE WATER TREATMENT FACILITY

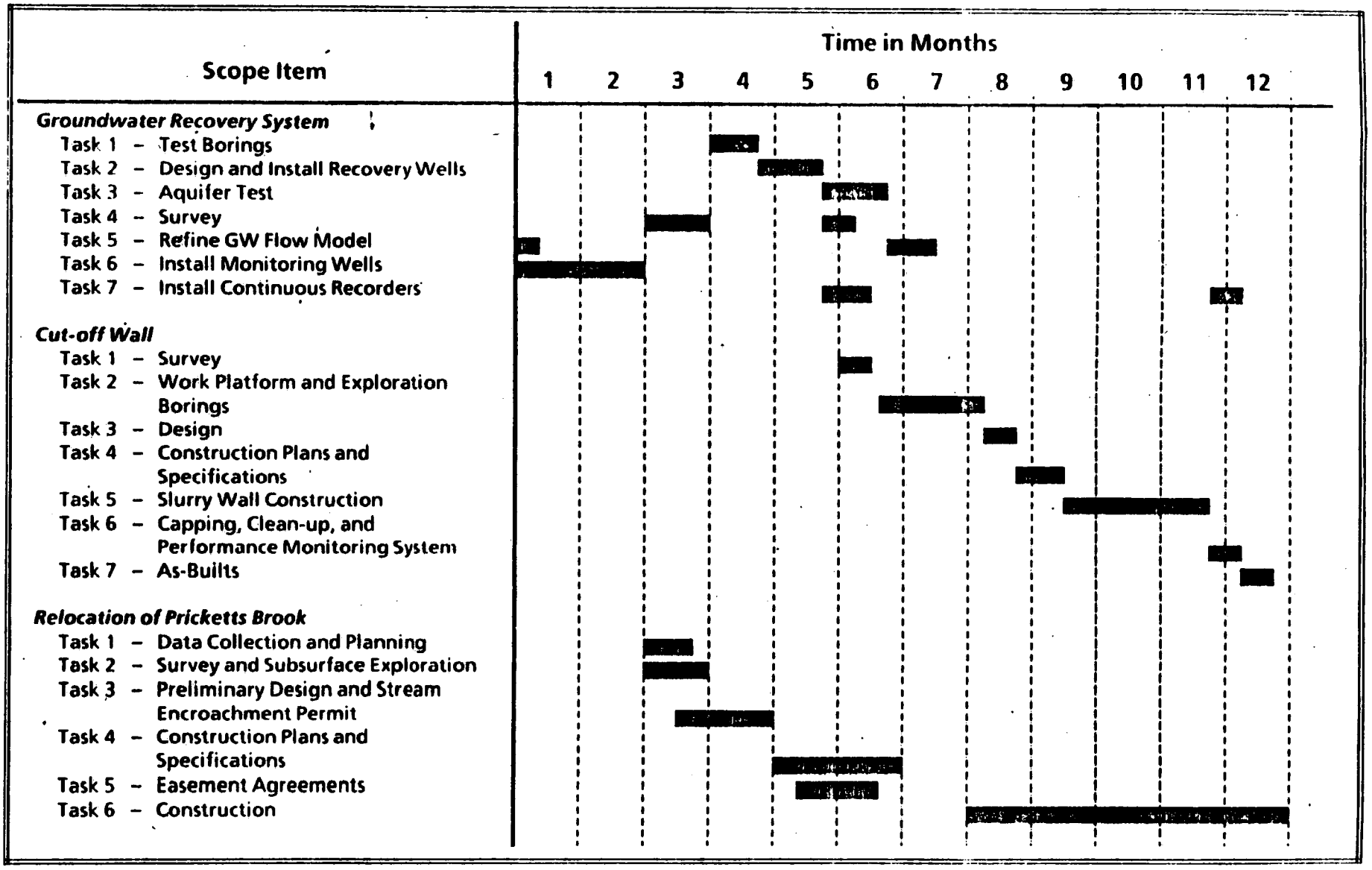
The Schedule is based on the study, pilot plant design and operation, detail engineering, design and construction for a plant waste water treatment facility. The process, to be confirmed by pilot plant work, is based on pre-treatment of waste water by precipitation of solids by neutralization, recovery and recycling of precipitated metals by liquid ion exchange and by post treatment of the treated waste water by precipitation of remaining dissolved metals.

Certain assumptions have been made in developing this schedule that are yet to be confirmed by further study, pilot plant work and by subsequent data collection. The pre-treatment requirements ultimately imposed by the Middlesex County Utilities Authority (MCUA), the Old Bridge Township Sewer Authority (OBTSA) and/or the NJDEP may also require changes to the process and consequently the schedule.

The project schedule does not include time to obtain applicable permits, nor does the schedule include review time by NJDEP.

# RECOMMENDED REVISIONS TO PROJECTED CONSTRUCTION SCHEDULE FOR CPS/MADISON SITE

## FEBRUARY 1988




***Note:*** Certain tasks are presented here as well as in the Design Schedule as they involve field activities which are an integral part of the final system construction.
Schedule does not include time for regulatory agency review, delays due to weather or subcontractor scheduling.
Design and construction of pretreatment system is not included.
Assumes applicable permits have been obtained prior to initiation of work.

Appendix "D-2"

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That CPS Chemical Company, Inc. and Madison Industries, Inc., jointly and severally as Principal, hereinafter called Contractor, and [Surety], a corporation organized and existing under the laws of the State of Connecticut, with its principal office in the City of Hartford, Connecticut, as Surety, hereinafter called Surety, are held and firmly bound unto the New Jersey Department of Environmental Protection, as Obligee, in the amount of Five Million and 00/100 Dollars ($5,000,000), to be reduced to Three Million and 00/100 Dollars ($3,000,000) as outlined in Section 11(b) of the Consent Order Amending Judgment of June 14, 1983 dated for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successor, and assigns, jointly and severally, firmly by these presents.

Whereas, Contractor has by a certain Consent Order Amending Judgment of June 14, 1983 dated agreed to perform certain obligations in accordance with provisions outlined therein, which Consent Order is by reference made a part hereof, and is hereinafter referred to as the Contract.

Now, Therefore, the condition of the obligation is such that, if Contractor shall promptly and faithfully perform said Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect but for a period not to exceed five (5) years from the date of execution.

The Surety hereby waives notice of any alteration or extension of time made by the Obligee.

Whenever Contractor shall be, and declared by Obligee to be in default under the Contract, the Obligee having performed its obligations thereunder, the Surety may promptly remedy the default or shall promptly

(1) Complete the Contract in accordance with its terms and conditions, or

(2) Obtain a bid or bids for completing the Contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, or, if the Obligee elects, upon determination by the Obligee and the Surety jointly of the lowest responsible bidder, arrange for a contract between such bidder and Obligee, and make available as work progresses (even though there should be a default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof.

Any suit under this bond must be instituted before the expiration of five (5) years from the date of this bond.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the Obligee named herein or the heirs, executors, administrators or successors of the Obligee.

Signed, sealed and dated , 1985.

CONTRACTOR/PRINCIPAL:

CPS CHEMICAL COMPANY, INC.

By: _____

MADISON INDUSTRIES, INC.

By: _____

SURETY:

By: _____

BOND OF FAITHFUL PERFORMANCE

Whereas the New Jersey Department of Environmental Protection, hereinafter called the NJDEP, and CPS Chemical Company, Inc. and Madison Industries, Inc., hereinafter called the Contractor, have entered into a Consent Order Amending Judgment of June 14, 1983, dated for the operation and maintenance specified in Section 11(d) of said Consent Order (herein referred to as "the Contract");

Amount of Bond . . . One Million and no/100 Dollars ($1,000,000).

Now, THEREFORE, the Contractor, as Principal, and the following named Surety, [Designated Surety] are held and firmly bound to NJDEP as Obligee jointly and severally in the penal sum of this Bond set forth above as Amount of Bond for which payment, well and truly to be made, the Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

The condition of this obligation is that if the Contractor shall promptly and faithfully perform all the conditions of the Contract in strict conformity with the terms and conditions set forth therein, then this obligation shall be null and void, otherwise it shall remain in full force and effect but for a period not to exceed five (5) years from the date of execution.

Whenever Contractor shall be, and declared by NJDEP to be in default under the Contract, NJDEP having performed

its obligations thereunder, the Surety may promptly remedy the default or shall promptly

(1) Complete the Contract in accordance with its terms and conditions, or

(2) Obtain a bid or bids for completing the Contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, or, if the NJDEP elects, upon determination by the NJDEP and the Surety jointly of the lowest responsible bidder, arrange for a contract between such bidder and NJDEP, and make available as work progresses (even though there should be a default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof.

The Surety, for value received, hereby stipulates and agrees that no change, alteration or addition or extension of time in the terms of the Contract or in the goods, supplies or service to be furnished thereunder shall in any wise affect its obligations on this bond; and it does hereby waive notice of any such change.

Signed, sealed and dated , 1985.

CONTRACTOR/PRINCIPAL:

CPS CHEMICAL COMPANY, INC.

By: _____

MADISON INDUSTRIES, INC.

By: _____

SURETY:

By: _____