BEFORE THE

OHIO ENVIRONMENTAL PROTECTION AGENCY

In the Matter of:	:	
PPG Industries, Inc. Circleville, Ohio	:	Director's Final Findings and Orders
RESPONDENT	:	
Ohio Revised Code Chapter 3734 and Section 6111.03(H)	:	

ADMINISTRATIVE ORDER ON CONSENT

I. JURISDICTION

The Administrative Order on Consent (Consent Order) is issued pursuant to the authority vested in the Director of the Ohio Environmental Protection Agency (OEPA) by Ohio Revised Code (ORC) Chapter 3734 and Section 6111.03(H). Respondent does not admit any of the jurisdictional bases of this Consent Order as recited herein; however, Respondent will not contest the jurisdiction of the Director of the Environmental Protection for purposes of this Consent Order or its enforcement.

II. STATEMENT OF PURPOSE

In entering into this Consent Order, the mutual objectives of OEPA and Respondent are (1) to implement a remedial action to address environmental contamination at Respondent's Circleville, Ohio Site consistent with the requirements of applicable federal, state and local law, (2) monitor the effectiveness of the selected remedial action and thereafter to make appropriate changes if or when necessary

to attain the desired effectiveness, and (3) to perform additional soils, ground water, and surface water sampling and analysis, to better define the extent and chemical characteristics of contamination.

III. DEFINITIONS

As used in this Consent Order and the Workplan, to be developed and incorporated herein, the following shall be defined terms:

A. "The Contractor" shall mean a qualified Contractor retained by Respondent pursuant to this Consent Order, and any subcontractor, representative, agent or designee thereof.

B. The term "OEPA" shall mean the Ohio Environmental Protection Agency and its designated representatives.

C. The term "Respondent" shall mean PPG Industries, Inc.

D. The term "the parties" shall mean Respondent and OEPA.

E. "Documents" shall mean any correspondence, narrative reports, information which is stored on computer discs, tapes, or other computer storage devices, and all documentary evidence, of any kind, reflecting any information concerning Site conditions. The term "document" shall be construed broadly to promote the effective sharing of information and views concerning the work to be done between the Respondent and OEPA.

IV. FINDINGS OF FACT, DETERMINATIONS, AND CONCLUSIONS OF LAW

OEPA has determined that all findings of fact necessary for the issuance of this Consent Order pursuant to ORC Chapters 3734 and 6111

have been made and are outlined below. Respondent, by entering into this Consent Order does not admit the findings set forth below. Specifically, Respondent neither admits nor denies that any threat to the public health, safety, welfare or to the environment exists requiring remedial action, and denies any legal liabilities associated with the Circleville, Ohio Site.

A. The overall site (hereinafter "Site") consists of the entire PPG Industries, Inc. property and adjacent areas determined to be affected or likely to be affected by groundwater contamination originating at the PPG property. The Site includes the subsurface geology and groundwater beneath the area. The Site is located in Pickaway County approximately two miles south of the City of Circleville, Ohio.

B. The PPG Circleville plant treated its wastewater through an infiltration lagoon system (1962-1973) and later an extended aeration bio-oxidation lagoon system (1973-1980). OEPA records, beginning in 1972, show that these systems received only pretreated wastewaters which would not be classified as hazardous waste under current regulations. Both systems operated under permits issued by Ohio pollution control agencies.

C. When the infiltration lagoon system was removed in 1973, the sludge from the lagoon bottom was removed and buried in a borrow pit 140 by 300 feet in the southeast corner of the plant property. The approximately 8000 cubic yards of material contains solvents in the following concentrations:

Ethylbenzene	3,000 ppm

Toluene	2,000 ppm
Xylenes	15,000 ppm

In 1980 PPG removed the extended aeration lagoon system and converted to a totally enclosed, above-ground wastewater storage and treatment system. All lagoon lining material from this system was removed and disposed in a permitted waste management facility.

D. PPG began hydrogeologic investigations in 1979. The first investigation was conducted from early 1979 to late 1980 to assess the effect on groundwater quality from the lagoon wastewater treatment system. After the extended aeration lagoons were closed in 1980, a follow-up study was conducted in 1982 and 1983. In 1984, the follow-up monitoring suggested offsite migration of contaminants might have occurred.

E. To address questions on the nature and extent of offsite groundwater contamination, PPG developed plans for a groundwater investigation of the property west of the PPG Site, and met with OEPA in early 1985 to discuss the additional investigatory studies subsequently undertaken. Generally, the investigation identified groundwater contamination as indicated by COD and/or low level (ug/l or ppb) volatile organic compounds in the shallow and intermediate aquifers, some of which are listed in Table IV -1, below. In 1986, additional monitoring wells were installed on PPG property. All onsite and offsite wells were monitored to assess the extent of onsite and offsite contamination in the shallow, intermediate and deep aquifers. In May, 1987, a joint sampling effort was conducted by the

Pickaway County Health Department, OEPA, and PPG. Several residential wells and one commercial well were sampled and analyzed for a variety of parameters including volatile organic compounds (VOCs). Locations of the sample sites were northwest, west, and southwest of PPG property. Results of this sampling show that the 1,4 dioxane compound has been detected at a point 4500 feet west- northwest of the old PPG lagoon area. The data collected from the 1987 sampling events shows inter alia the following concentrations onsite and offsite in each of the three aquifer zones.

TABLE IV-1

Parameter	Range of Concentrations (ppm) Offsite	Onsite	
Ethylbenzene	ND	ND - 400	(S)
	ND	ND	(I)
	ND	ND	(D)
Toluene	ND	ND - 110	(S)
	ND	ND	(I)
	ND	ND	(D)
Xylene	ND	ND - 3,700	(S)
	ND	ND - 0.21	(I)
	ND	ND	(D)
1,4-Dioxane	ND	ND - 0.08	(S)
	ND - 0.42	ND - 0.10	(I)
	ND - 3.60	ND - 0.27	(D)
4-Methyl-2-Pentanone	ND	ND - 18	(S)
	ND	ND	(I)
	ND	ND	(D)

S-Shallow I-Intermediate D-Deep

ND - Nondectectable

F. A pumping well has been installed in the intermediate aquifer to recover and control groundwater flow from a portion of the intermediate aquifer. Pursuant to OEPA approvals, Respondent has conducted short-term pump tests to determine the pumping rate

necessary to achieve recovery and control of offsite migration. An application for approval to discharge the pumped water to Respondent's NPDES outfall has been filed and will be acted on by OEPA.

G. The materials described in C and E above, are "industrial wastes" as that term is defined in ORC Section 6111.01 and/or "solid wastes" as that term is defined in ORC Section 3734.01, and/or "hazardous substance" as defined in Section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended ("CERCLA").

H. The Site is a "facility" as defined in ORC Section 3734.01(N).

I. The migration and threatened migration of the wastes referenced in paragraph G. above, into the soil, groundwater, and surface water at or from the Site constitute a discharge of hazardous substances, pollutants, or contaminants into "waters of the state," as that term is defined in Section 6111.01(H) of the Ohio Revised Code.

J. The actions to be taken pursuant to this Consent Order are reasonable and necessary to protect the public health or welfare or the environment. Such actions may include, but will not necessarily be limited to, the remedial activities described more fully in the attachments to this Consent Order.

K. A reasonable time for beginning and completing the actions required by this Consent Order is provided herein.

L. Respondent has developed, proposed, and agreed to undertake only those actions required of it by the terms and conditions of this Consent Order.

V. COMMITMENT OF RESPONDENT

A. Respondent consents to and will not challenge OEPA's jurisdiction to enter into this Consent Order and does hereby agree to undertake all actions required by the terms and conditions of this Consent Order within the time frames specified herein.

B. Respondent shall undertake and assure, at its expense, the implementation of its obligations under this Consent Order.

VI. PARTIES BOUND

This Consent Order shall apply to and be binding upon Respondent and OEPA, their agents, successors, and assigns and upon all persons, contractors, and consultants acting on behalf of OEPA or Respondent. Respondent agrees to provide copies of this Order to all contractors performing any work called for by this Order.

VII. SITE ACCESS

To the extent that portions of the Site or other areas where work is to be performed pursuant to the terms of this Consent Order are presently owned by parties other than those bound by this Consent Order, Respondent has obtained or shall use its best efforts to obtain voluntary site access agreements from the present owners within thirty (30) days of the approval by OEPA of the work plans submitted for Task 1, Section VIII, below, including any agreements necessary to provide access to OEPA and its authorized representatives pursuant to Section XI of this Consent Order. These agreements are attached or shall be attached as Attachments hereto. In the event that site access agreements are not obtained within the time referenced above, Respondent shall notify OEPA regarding lack of such agreements as soon as possible after passage of the thirty (30) days, and in no event

more than fifteen (15) days after the end of the thirty (30) day time period. In the event Respondent is unable to obtain such access, Respondent shall promptly notify OEPA regarding both the lack of access agreements and of the efforts made to obtain such access agreements and OEPA will contact the landowners and/or exercise its statutory authority in accordance with Sections 3734.20 and 6111.05 of the Ohio Revised Code.

All parties with access to the Site pursuant to this paragraph shall comply with all approved health and safety plans, including PPG's safety rules for activities on PPG property. A copy of the safety rules shall be provided to OEPA. Nothing herein shall act to limit the statutory authority of OEPA to conduct inspections and gather information.

VIII. WORK TO BE PERFORMED

OEPA and Respondent agree on the scope of work and the specific remedial activities addressed by this Consent Order, and based on facts presently known, believe that the work to be performed hereunder is consistent with the National Contingency Plan (NCP).

All work performed pursuant to this Consent Order shall be under the direction and supervision of a qualified professional engineer or a certified geologist with expertise in groundwater and waste Site cleanup. Prior to the initiation of work, Respondent shall notify OEPA in writing regarding the identity of such engineer or geologist and of any contractors and/or subcontractors to be used in carrying out the terms of this Consent Order.

Moreover, all actions required to be taken pursuant to this Consent Order shall be undertaken in accordance with the requirements of all applicable local, state, and federal laws and regulations unless an exemption from such requirements is specifically provided herein. OEPA will cooperate to expedite all required permit processing.

Based on the foregoing, it is hereby AGREED TO AND ORDERED that the following work shall be performed:

A. Thirty (30) days from the effective date of this Consent Order the Respondent shall submit for approval by OEPA a schedule for submission of detailed workplans for Tasks identified in Section VIII paragraph B.

B. In accordance with the schedule for implementation required by Section VIII paragraph A. above, the Respondent shall submit, for approval by OEPA, a proposed detailed Workplan for each of the Tasks identified below. Each Task may be considered a separate operable unit for which a discrete or separate workplan may be developed and submitted.

Task 1 Design and implementation of investigation/assessment activities directed to identifying the chemical composition and extent (both vertical and horizontal) of the contaminant plume(s) in the groundwater. This Task may include the installation of additional monitoring wells and/or sampling and analysis of any potable and production wells downgradient or potentially downgradient of the Site.

Task 2 Design and implementation of investigation and assessment activities to identify the chemical composition and extent (both vertical and horizontal) of soils on the PPG property which are contaminated as a result of past disposal activities or chemical spill incidents. These activities will include, but not be limited to, soil sampling at the Site of the old wastewater aeration pond systems, the burial pond sludge disposal site, Building #1 tank farm, Building #2 tank farm, maintenance and workshop area, old contractor work area, and in areas where raw materials and wastes (solvents, PCBs, etc.) were spilled or disposed of, and near monitoring wells where PCBs have been detected.

Task 3 Conduct a groundwater evaluation to determine the effectiveness of recovery well #1 (RW-1) in reducing migration of the parameters of concern. If the results of this evaluation indicate to Ohio EPA that RW-1 is effective in reducing migration of the parameters of concern, then respondent shall operate RW-1 in a manner that reduces such migration as an interim remedial measure and shall continue operation of RW-1 until such time as determined under paragraph VIII.G.

Task 4 Determine, in accordance with the guidance, described as Tasks 8-15 included as Attachment A, what remedial action alternatives are needed to reach an acceptable Site clean-up. Other remedial actions to be considered should include, but not be limited to:

- FS study

a. Design, installation, and operation of additional groundwater recovery wells in any of the aquifer zones within limits of the Site.

b. Remediation of contaminated soils on the Site, including determination and implementation of acceptable soil treatment and/or disposal alternatives.

c. Identification and implementation of feasible groundwater treatment methodologies which may be necessary to comply with the requirements of ORC 6111.04 or 6111.042, if applicable.

Task 5 a. Development and implementation of a routine groundwater monitoring program (compliance wells) to evaluate the effectiveness of all the remedial actions. This Task may include the installation of additional monitoring wells.

b. Development and implementation of an appropriate groundwater model to assist in the evaluation of the remedial actions, to predict the length of time required for groundwater clean-up, and to predict pollutant loads which may be discharged to surface waters as a result of remedial actions. The groundwater model selected by the Respondent shall be subject to Ohio EPA review and approval.

C. Respondent shall design, construct, maintain, and operate the groundwater monitoring wells, recovery wells, and treatment system(s) as required in Tasks 1, 3, 4, and 5 in accordance with plans, which shall be first approved by OEPA, and installed at locations to be

approved by OEPA. Upon approval by OEPA, said plans and well locations shall be incorporated into this Consent Order as Attachments hereto.

D. Respondent shall utilize, for all sample collection and analysis, the applicable protocols specified in: (1) Test Methods for Evaluating Solid Waste, USEPA, SW-846; (2) Methods for Organic Analysis of Municipal and Industrial Wastewater, 600/4-82-057; or (3) Ohio Administrative Code Rule 3745-81-28.

E. Respondent shall apply for any required revisions to its Ohio National Pollutant Discharge and Elimination System permit ("NPDES permit") to discharge wastewater pursuant to the provisions of Chapter 6111 of the Ohio Revised Code, and required wastewater and air permits to install and air permits to operate in accordance with Chapter 3704 of the Ohio Revised Code. OEPA will review and issue said permits in a timely fashion, and will issue said permits as final actions of the Director pursuant to Section 3745.04 of the Ohio Revised Code.

F. Respondent shall collect groundwater samples from the groundwater compliance wells established pursuant to Task 5. Sampling shall be quarterly, unless OEPA determines that quarterly sampling is not representative or otherwise sufficient to measure the effectiveness of remedial actions.

G. Respondent and Ohio EPA shall review the effectiveness of the remedial actions and shall determine if the objectives are being met at the compliance monitoring points, which are to be developed jointly by Respondent and OEPA, with final approval by OEPA. The remedial actions shall be continued until four quarters of monitoring data

demonstrate for each parameter of concern compliance with one (or a combination) of the following performance standards:

1) Groundwater quality meets or exceeds established drinking water standards for the parameter of concern; or

2) Groundwater quality reaches background or 1 x 10^{-6} cancer risk concentrations for the parameter of concern; or

3) Groundwater quality meets or exceeds alternate concentration limits as established under the procedure set forth in 40 CFR Section 264.94 and OAC 3745-54-94 and as further described in Attachment B.

H. The Respondent shall commence the work called for in this Consent Order in accordance with the schedule approved in paragraph VIII.A.

I. Respondent shall provide monthly written progress reports to OEPA beginning on the 15th of the month following the effective date of this Order and each month thereafter as required by this Consent Order for a period of six months. Thereafter, the written progress reports shall be submitted quarterly unless otherwise required by OEPA. At a minimum, these progress reports shall: (1) describe the actions which have been taken toward achieving compliance with the Consent Order during the previous reporting period; (2) include all results of sampling tests, and all other data received by Respondent; and (3) all plans and procedures completed subsequent to OEPA approval of the Work plan (or part thereof as described in the Tasks) approved during the past reporting period as well as such actions, data, and plans which are scheduled for the next reporting period.

J. In the event of disapproval of any work plan for any task described at Section VIII paragraph B. above, or report, Respondent may request a meeting with OEPA to discuss any disapproval and/or dispute any deficiencies specified or the necessity of any identified modification of any document under review. Such meeting shall be held within ten (10) business days, if possible, of such request, and may be conducted by telephone unless one of the parties requests a face-to-face meeting. Any face-to-face meeting shall be held in Columbus, Ohio. Respondent shall amend and submit to OEPA such revised reports and/or work plans within thirty (30) calendar days of receipt of OEPA notification disapproval or conclusion of the meeting, whichever is later.

IX. PROJECT COORDINATORS

The Respondent and OEPA shall each designate in writing a Project Coordinator and an alternate for the purpose of overseeing the implementation of this Consent Order. To the maximum extent possible, except as specifically provided in this Consent Order, communications between the Respondent and OEPA concerning the terms and conditions of this Consent Order shall be made between the Project Coordinators. Each Project Coordinator shall be responsible for assuring that all communications from the other parties are appropriately disseminated and processed.

Without limitation of any authority conferred on OEPA by statute or regulation, the OEPA Project Coordinator's authority includes, but is not limited to: (1) taking samples or, in accordance with the terms of the Work plan, directing the type, quantity and location of samples

to be taken by the Respondent; (2) observing, and taking photographs subject to Section XII below wherein PPG may assert a claim for confidentiality, and making such other reports on the progress of the work as the Project Coordinators deem appropriate; (3) directing that work stop for a period not to exceed 72 hours whenever the OEPA Project Coordinator determines that activities in the facility may present a danger to public health or welfare or the environment; (4) reviewing records, files and documents relevant to the Consent Order. OEPA agrees to make reasonable efforts to minimize any interference with the activities of the Respondent in carrying out the work required under this Consent Order.

The Respondent's Project Coordinator or alternate shall be onsite during all hours of work on the tasks except for the routine operation of the recovery well(s) called for under this Consent Order and shall make himself reasonably available for the pendency of this Consent Order. The absence of the OEPA Project Coordinator from the facility shall not be cause for stoppage of work unless otherwise provided.

OEPA and Respondent each have the right to change their respective Project Coordinator. Such a change shall be accomplished by notifying the other party in writing within ten (10) calendar days of the change.

X. REPORTING

Progress reports and any other documents, reports, approvals, or correspondence submitted pursuant to this Consent Order shall be sent by ordinary or express mail to the OEPA at the following addresses (or

to such other address as the OEPA may hereafter designate in writing):

Ohio Environmental Protection Agency
Central District Office
Post Office Box 2198
Columbus OH 43266-2198

All correspondence to the Respondent shall be directed to the following:

Manager
Environmental Control
PPG Industries, Inc.
P.O. Box 457
Circleville OH 43113

OEPA may, at its discretion, direct that reports or plans or proposals made pursuant to the Consent Order be submitted at extended intervals or that no further reports need be submitted.

XI. SAMPLING, ACCESS AND DATA/DOCUMENT AVAILABILITY

Respondent shall make available to OEPA the results of sampling, tests and/or other data generated by Respondent, or on its behalf, with respect to the implementation of this Consent Order and shall submit these results in progress reports as described in Section VIII, paragraph I. OEPA will make available to the Respondent the results of sampling, tests and/or other data similarly generated by OEPA.

At the request of OEPA, the Respondent shall allow split or duplicate samples to be taken by the OEPA and/or its authorized representatives of any samples collected by the Respondent pursuant to the implementation of the Consent Order. The Respondent shall notify the OEPA Project Coordinator prior to any such sample collection unless otherwise agreed. This notification shall be provided as part of the required progress reports.

OEPA or its authorized representative shall have the authority to enter and freely move about all property at the Site at all reasonable times for the purposes of, inter alia: inspecting and copying records, operating logs, and contracts related to the environmental assessment and remedial action required by this order at the Site; reviewing the progress of Respondent in carrying out the terms of this Consent Order; conducting such tests as the Project Coordinators deem necessary; and verifying the data submitted by Respondent to OEPA. OEPA access to areas of the Site not under the ownership and control of Respondent will be governed by Site access agreements with adjacent property owners and the independent inspection authority of OEPA .

Respondent shall preserve during the pendency of this Consent Order and for a minimum of seven years after its termination all records and documents within its possession or that of its division, employees, agents, accountants, contractors or attorneys which relate to actions performed under this Consent Order, despite any document retention policy to the contrary. After the seven year period, Respondent shall notify OEPA with 30 days prior to the destruction of any such documents. Upon request by OEPA, Respondent shall make available to OEPA, such records or copies of any such records unless otherwise privileged under law.

XII. CONFIDENTIAL INFORMATION

The Respondent may assert a claim of business confidentiality covering the information requested by this Consent Order, except for analytical data pursuant to Ohio Administrative Code Rule 3745-49-03(A). Information determined to be confidential by OEPA will be

afforded protection under Ohio Administrative Code Rule 3745-49-03. If no such claim accompanies the information when it is submitted to OEPA, it may be made available to the public by the OEPA without further notice to the Respondent.

XIII. REVIEW OF SUBMITTALS AND PROPOSED MODIFICATIONS, RESOLUTION OF DISPUTES

A. In the event of disapproval of any submittal, OEPA shall specify in writing the reasons for such disapproval and, if additional work is required to fulfill the terms of the Workplan, a schedule for completion. Respondent shall undertake such additional activities as set forth in the preceding sentence and shall submit a revised report within the time specified by OEPA. In the event of subsequent disapproval of any submittal or non-compliance with the terms of this Order, OEPA retains the right to conduct the work as set forth and described in this Consent Order.

B. Except as otherwise provided in Section XXI below, no modification shall be made by the Respondent in the Workplan as approved and described in Section VIII without written notification to and written approval of the OEPA. The notification required by this section shall set forth the nature of and reasons for the requested modification.

C. The Project Coordinators shall, wherever possible, operate by consensus, and in the event that there is a disapproval of any report or disagreement about the conduct of the work performed under this Consent Order, the Project Coordinators shall negotiate in good faith for five (5) business days to resolve the differences.

In the event that the Project Coordinators are unable to reach consensus on the disapproval or disagreement in five (5) business days, then each Project Coordinator shall reduce his position to written form within five (5) days of the end of the good faith negotiations referenced above. Those written positions shall be immediately exchanged by the Project Coordinators. Respondent may also request a meeting with OEPA, in accordance with Section VIII paragraph J.

Following the exchange of written positions, the parties shall have an additional five (5) business days to resolve their differences. Respondent shall have the opportunity to discuss the dispute with the Chief, Remedial Response Section or his designee before the matter is referred to the OEPA Director for decision. The parties may by mutual agreement extend time periods for discussion of issues in dispute. If OEPA concurs with the position of the Respondent, OEPA will modify the Consent Order to include necessary extensions of time or variances of required work. If OEPA does not concur with the position of the Respondent, OEPA will resolve the dispute, based upon, and consistent with, the Consent Order and upon issuance of a final "action" of the OEPA Director pursuant to Section 3745.04 of the Revised Code.

The pendency of any dispute under this Section shall not affect Respondent's responsibility for timely performance of the work required by this Consent Order, except that the time period for completion of work affected by such dispute shall be extended for a period of time not to exceed the delay resulting from the resolution

of any good faith dispute in accordance with the procedures specified herein if the delay will not pose or increase a threat of harm to the public or environment and if the parties agree that the performance of such work could not reasonably continue during the pendency of such dispute. All elements of the work required by this Consent Order, which are not affected by the dispute, shall continue and be completed as scheduled.

XIV. OTHER CLAIMS

Nothing herein is intended to or shall release, discharge, or in any way effect any claims, causes of action or demands in law, or equity against any person, firm, partnership, or corporation not a signatory to this Consent Order from any liability it may have arising out of or relating in any way to the generation, storage, treatment, handling, transportation, release, or disposal of any materials or hazardous substances at, to, or from the Site. The parties to this Consent Order expressly reserve all rights (including any right to contribution possessed by the Respondent against any other parties who may be responsible for actual or threatened releases at the Site), claims, demands, and causes of action they have or may have against any and all other persons and entities who are not parties to this Consent Order. This Consent Order does not constitute any decision on preauthorization of funds under Section 111(a)(2) of CERCLA.

XV. DEED NOTICE, LAND USE AND CONVEYANCE OF TITLE

Respondent shall assure that no portion of the Site under the ownership or control of Respondent will be used in any manner which

would adversely affect the integrity of any monitoring system installed pursuant to this Consent Order or with the groundwater extraction and treatment system constructed and implemented pursuant to this Consent Order. Prior to the alienation of any of Respondent's interest in property that is a portion of the Site, Respondent shall make provision for continued operation and maintenance of any systems installed and/or constructed pursuant to this Consent Order for the period of time required by OEPA. Respondent shall notify OEPA by registered mail at least ninety (90) days prior to any alienation or an intent to alienate any interest in land which is known to comprise the Site owned or under the control of the Respondent and of the provision made for continued maintenance of the systems. Respondent shall assure that an appropriate notice shall be put in the deed as to the condition of the property. The notice shall first be approved by the OEPA. Respondent shall make all reasonable efforts to assure that similar restrictions govern the operation of any portions of the monitoring or remedial systems located on areas of the Site not under the ownership or control of the Respondent. Respondent's ability to assure such restrictions shall be given due consideration by OEPA in its review and approval of alternative monitoring and remedial systems for the Site.

XVI. REIMBURSEMENT OF COSTS

A. Within sixty (60) days of receipt by OEPA of a report from Respondent wherein Respondent describes compliance with the criteria in the manner set forth in Section VIII paragraph G. 1. through G.3.

above, OEPA shall submit to Respondent an accounting of all response and oversight costs incurred by OEPA after the effective date of and with respect to this Consent Order. Respondent shall, within thirty (30) calendar days of receipt of that accounting, remit a check to OEPA for the amount of those costs. For purposes of this Consent Order, "costs" are: (1) OEPA staff time computed on hourly wage rates plus 33% (fringe benefits), and may include hourly wages (plus fringe) at time-and-a-half if overtime compensation is required; (2) laboratory costs including OEPA equipment plus Ohio Department of Health invoiced costs per invoices submitted to OEPA; and (3) travel expenses incurred by OEPA. In no event shall the annual reimbursement to OEPA exceed $10,000.

B. Notwithstanding Section XVI paragraph A. above, OEPA reserves the right to seek all response and oversight costs which may be incurred by OEPA in the event OEPA brings an action to enforce this Consent Order.

C. Checks for OEPA reimbursement shall be made payable to: Treasurer, State of Ohio, Hazardous Waste Cleanup Special Account; shall identify the Site "PPG Circleville;" and shall be addressed to:

Ohio Environmental Protection Agency
Division of Solid and Hazardous Waste Management
Attn: OEPA Legal Section
P.O. Box 1049
Columbus OH 43266-0149

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: [signature] Date 12-21-99

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XVII. OTHER APPLICABLE LAWS

All actions required to be taken pursuant to this Consent Order shall be undertaken in accordance with the requirements of all applicable local, state and federal laws and regulations including all environmental laws and regulations.

XVIII. RESERVATION OF RIGHTS

A. Subject to compliance with Sections XXII and XXIV, below, nothing herein shall waive the right of OEPA to enforce this Consent Order under Chapter 3734, 3745 and 6111 of the Ohio Revised Code.

B. Subject to Sections XXII and XXIV, below, nothing herein shall waive the right of OEPA to take action pursuant to Section 107 of CERCLA/SARA, 42 U.S.C. S9607, or any other applicable law, or the right to take action pursuant to ORC Sections 3734.20 through 3734.26 or any other applicable law for any actions beyond the terms of this Consent Order.

XIX. INDEMNITY

A. The Respondent agrees to indemnify, save, and hold harmless OEPA from any and all claims or causes of action to the extent caused by the Respondent's negligent acts or omissions in carrying out any activities pursuant to this Consent Order. OEPA shall not be considered a party to and shall not be held liable under any contract entered into by the Respondent in carrying out the activities pursuant to this Consent Order. Consistent with federal, state, and common law, nothing in this Consent Order shall render Respondent liable for any act or omission of OEPA.

B. The parties agree to provide notice within thirty (30) days of receipt of any claim which may be the subject of the indemnity in paragraph A. above and to cooperate in the defense of any such claim or action against OEPA provided parties asserting claims or defenses against each other are excluded from this requirement to the extent of their dispute.

XX. FORCE MAJEURE

The Respondent shall cause all work to be performed within the time limits set forth herein, unless performance is delayed by events which constitute a "force majeure." For purposes of this Consent Order, a "force majeure" is defined as any event arising from causes beyond the control of the Respondent, which cannot be overcome by due diligence and delays a performance date required by this Consent Order. Force majeure includes delays attributable to OEPA's failure to timely issue permits where required. Changed economic circumstances of the parties or increased costs of work shall not constitute force majeure. Respondent shall orally notify the OEPA Project Coordinator as soon as practicable after any event which Respondent contends constitutes a force majeure. Written notice shall be given within fourteen (14) business days of any event which constitutes force majeure. Such notice shall describe the anticipated length of the delay, the measures taken or to be taken by the Respondent to prevent or minimize the delay, and the timetable by which these measures will be implemented. In the event that OEPA agrees that the delay in question is attributable to a force majeure, the time period for performance under this Consent Order shall be extended for the time

period of delay attributable to the event constituting a force majeure. In the event OEPA does not concur that the time of performance under the Consent Order may be extended, this shall be deemed a dispute subject to resolution pursuant to the disputes resolution procedure set forth above, Section XIII.

XXI. EFFECTIVE DATE AND MODIFICATION

The effective date of this Consent Order shall be the date on which it is signed by the OEPA Director, who shall sign after Respondent.

This Consent Order may be amended by mutual agreement of OEPA and Respondent. Such amendments shall be in writing and shall have as the effective date, that date on which such amendments are signed by the last party. Minor modifications may be made by mutual agreement of the Project Coordinators. Such minor modifications shall be memorialized in an exchange of letters by the Project Coordinators.

XXII. RELEASE AND COVENANT NOT TO SUE

Upon termination of this Consent Order pursuant to Section XXIV of this Consent Order, and reimbursement to OEPA as provided in Section XVI, OEPA covenants not to sue Respondent for costs incurred by OEPA associated with the conduct and completion of the activities called for in this Consent Order and Respondent shall be released from obligations embodied in this Consent Order with the exception of maintenance, monitoring, and reporting requirements and subject to Section VIII., above.

XXIII. ADMISSIONS

Nothing in this Consent Order, including the Attachments attached hereto or to be attached hereto are intended by the parties to be, nor shall they be, an admission of facts or of law, ~~or legal liability~~ an estoppel or a waiver of defenses by the Respondent for any purpose and Respondent specifically does not admit that the conditions at the Site present a threat to public health, welfare or the environment. Participation in this Consent Order by the Respondent is not intended by the parties to be, and shall not be, an admission of fact or opinion developed by the Contractor in the completion of the work. The terms of this Consent Order, including the Workplan, shall not be construed more or less favorably for or against any party hereto.

XXIV. TERMINATION AND SATISFACTION

The provisions of this Consent Order shall be deemed satisfied upon Respondent's receipt of written approval from OEPA which shall not be unreasonably withheld or delayed.

IT IS SO ORDERED:

By: _____ DEC 2 1 1989

Richard L. Shank, Ph.D., Director Date

Ohio Environmental Protection Agency

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: _____ Date 12-21-89

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XXV. WAIVER

PPG Industries, Inc. has consented to the issuance of this Consent Order, and hereby waives any right it may have to appeal the issuance of this Consent Order. In the event that this Consent Order is appealed by any other party to the Environmental Board of Review or any court, nothing in this Consent Order shall preclude the right of PPG Industries, Inc. to intervene and participate in such an appeal.

IT IS SO AGREED:

PPG INDUSTRIES, INC.

By: E B [illegible] November 3, 1989

GROUP VICE PRESIDENT
COATINGS AND RESINS

Title

Date

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: Mary Cavin Date 12-21-89

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ATTACHMENT A

GENERIC STATEMENT OF WORK
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
STATE VERSION

REMEDIAL INVESTIGATION

PURPOSE:

The purpose of this remedial investigation is to determine the nature and extent of the problem at the site and to gather all necessary data to support the feasibility study. The Engineer shall furnish all personnel, materials, and services necessary for, or incidental to, performing the remedial investigation at [specific site].

SCOPE:

The remedial investigation consists of seven tasks:

Task 1 -- Description of Current Situation

Task 2 -- Investigation Support

Task 3 -- Site Investigations

Task 4 -- Site Investigation Analysis

Task 5 -- Laboratory and Bench-Scale Studies

Task 6 -- Final Report

Task 7 -- Additional Requirements

TASK 1 -- DESCRIPTION OF CURRENT SITUATION

The Engineer shall describe the background of the site and its problems and outline the purpose and need for remedial investigation of the site. Data gathered during previous investigations, site inspections, and other relevant activities shall be used. Previous investigations shall be summarized and referenced.

a. Site Background. Prepare a summary of the regional location, pertinent area boundary features, and general site physiography, hydrology, geology, and current and historic land and water use. The total area of the facility and the general history relative to the use of the facility for hazardous waste/hazardous substance activity should be defined.

b. Nature and Extent of Problem. Prepare a summary of actual and potential on-site and off-site health and environmental effects. This summary shall include: the types, physical states, and amounts of hazardous substances; the existence and condition of drums, tanks, landfills, surface ponding, and other containers; affected media and pathways of exposure; contaminated releases such as leachate and runoff; and any human or environmental exposure. Emphasis shall be placed on describing the threat or potential threat to public health and the environment.

c. History of Response Actions. Prepare a summary of any response actions conducted by Federal, State, local, or private parties. This summary shall include field inspections, sampling surveys, cleanup activities, and other technical investigations.

TASK 2 -- INVESTIGATION SUPPORT

The Engineer shall conduct preliminary work necessary to scope and conduct the site investigations and feasibility study.

a. Safety Plan. A safety plan shall be developed to protect the health and safety of personnel involved in the site investigations and the surrounding community. The plan will be consistent with:

Section 111(c)(6) of CERCLA

EPA Order 1440.3 -- Respiratory Protection

EPA Order 1440.2 -- Health and Safety Requirements for Employees Engaged in Field Activities

EPA Occupational Health and Safety Manual

EPA Interim Standard Operating Safety Procedures and other EPA guidance as developed by EPA

Site Conditions

The Safety Plan should identify problems or hazards that may be encountered and their solution. Safety procedures to be followed to protect third parties, such as visitors or the surrounding community, should also be provided.

b. Define Boundary Conditions. Establish facility boundary conditions to limit the area of remedial investigations. The boundary conditions shall be set so that subsequent investigations will cover the contaminated media in sufficient detail to support following activities, e.g. feasibility study. Boundary conditions will also be used to identify boundaries for site access control and site security.

c. Site Map. Prepare a facility map showing all wetlands, surface water features, tanks, buildings, utilities, paved areas, easements, right-of-ways, and other features. The map shall be of sufficient detail and accuracy to locate all current or future work performed at the facility.

d. Community Relations Plan. Prepare a plan, based on discussions with responsible local and State officials and interested community leaders, for the dissemination of information to the public regarding investigation and feasibility study activities and results. Opportunities for comment and input by citizen, community and other groups must also be identified and incorporated into the plan.

e. Pre-Investigation Evaluation. Prior to starting any remedial investigations, the Engineer shall assess the site conditions to identify potential remedial technologies applicable to the site and associated data needed to evaluate alternatives based on these technologies for the feasibility studies. A report shall be prepared for State review identifying broad categories of remedial technologies that may be applicable to the site and data needs.

TASK 3 -- SITE INVESTIGATIONS

The Engineer shall conduct investigations necessary to characterize the site and its actual or potential hazard to public health and the environment. The investigations shall produce sufficient data to assess remedial alternatives and support the detailed evaluation of alternatives during the feasibility study.

a. The Engineer shall prepare and submit for State review and concurrence a detailed work plan outlining data needs for characterizing the site and for support of the feasibility study. The work plan shall include an outline of proposed investigation activities, a time schedule, personnel and equipment requirements. The work plan shall also include a sampling plan indicating rationals for sampling activities, location, quantity, and frequency of sampling, sampling and analysis methods, constituents for analysis, and quality assurance procedures. In addition to these general sampling plan elements, other requirements will be identified in the following subtasks as they apply.

   All sample analyses will be conducted at laboratories following EPA protocols while following strict chain-of-custody procedures.

   1. Chain-of-Custody. Any field sampling collection and analyses conducted shall be documented in accordance with chain-of-custody procedures as provided by EPA. The Engineer shall prepare and submit as part of the work plan a description of the chain-of-custody procedures to be used.

2. Quality Assurance/Quality Control (QA/QC). The Engineer shall prepare and submit as part of the work plan a Quality Assurance Project Plan for the sampling, analysis, and data handling aspects of the remedial investigation. The plan shall be consistent with the requirements of EPA's Contract Laboratory Program. The plan shall address the following points:

   a) QA Objectives for Measurement Data, in terms of precision, accuracy, completeness, representativeness, and comparability.

   b) Sampling Procedures

   c) Sample Custody

   d) Calibration Procedures and Frequency

   e) Internal QC Checks and Frequency

   f) QA Performance Audits, System Audits, and Frequency

   g) QA Reports to Management

   h) Preventive Maintenance Procedures and Schedule

   i) Specific procedures to be used to routinely assess data precision, representativeness, comparability, accuracy, and completeness of specific measurement parameters involved.

   j) Corrective Action

b. Waste Characterization. Develop and conduct a complete sampling and analysis program to supplement existing data and to physically and chemically characterize all potentially hazardous waste/hazardous substances at the site. This activity should include identification of the location and probable quantities of subsurface wastes using appropriate methods.

The sampling plan developed for this subtask shall address incompatibility testing of wastes (tank and drum opening procedures if necessary). Wastes shall be analyzed and grouped in compatibility classes to support any subsequent conclusions about segregating wastes on-site and developing remedial alternatives.

As part of this subtask, all containers of hazardous waste/hazardous substances such as drums, tanks, piles, abandoned vehicles, etc. must be located on the site map. The physical condition of each container, characteristics (color and type) as well as other identifying marks (labels, manufacturer's names, graffiti, etc.) must be recorded in an orderly fashion and should be correlated with the results of chemical analysis for each container when available. A photographic record of each container should also be prepared and included in the Remedial Investigation Report.

c. Hydrogeologic Investigation. Develop and conduct a program to determine the present and potential extent of groundwater contamination and to evaluate the suitability for on-site waste containment. A sampling program shall be developed to determine the location of water bearing strata and other subsurface geologic features, groundwater flow direction, vertical and horizontal distribution of contaminants, background levels of contamination, and the ability of the facility and local geology to control or contain the contaminants. Long-term disposition of contaminants will be evaluated based on mobility of the contaminants, attenuation capacity of local soils and other geologic features, regional flow direction and quantity, effects of local pumping, and the presence of discharge/recharge areas. Computer models of flow and contaminate transport may be used to demonstrate conclusions reached as a result of this investigation and predict effects of future remedial actions.

The sampling plan developed for this subtask shall define the type of well construction and any geophysical or modeling techniques proposed.

d. Soils Investigation. Develop and conduct a program to determine the nature and vertical and horizontal extent of contamination of surface and subsurface soils. Cores from groundwater monitoring wells may serve as soils samples.

e. Surface Water and Sediments Investigation. Develop and conduct a program to determine the nature and extent of contamination of surface water and sediments. This program shall also evaluate the impacts of the contaminants on the floral and faunal communities in the surface water, sediments, and any adjacent wetlands.

f. Air Investigation. Develop and conduct a program to determine the nature and extent of on-site and off-site contamination. This program shall also address the tendency of the substance identified through Waste Characterization to enter and disperse in the atmosphere, considering seasonal weather conditions and wind patterns.

The above tasks should be summarized in a single sampling plan which is to be included in the detailed work plan. (Other categories of investigations may be needed for specialized problems. These could include additional biological or radiological investigations.)

TASK 4 -- SITE INVESTIGATION ANALYSIS

The Engineer shall prepare a thorough analysis and summary of all site investigations and their results. The objective of this task will be to ensure that the investigation data are sufficient in quality and quantity to adequately describe the nature and extent of contamination and to support the feasibility study.

The results and data from all site investigations shall be organized and presented logically so that the relationships between remedial alternatives for each media are apparent.

a. Data Analysis. Analyze all site investigation data and develop a summary of the type and extent of contamination at the site. This analysis shall include all significant pathways of contamination and an exposure assessment. The exposure assessment shall describe any actual or potential threats to public health, welfare, and the environment.

b. Application of Potential Remedial Technologies. Analyze the results of the site investigations in relation to the potential remedial technologies applicable to the site. This analysis will determine the adequacy of data quality and quantity to support the feasibility study and will identify any additional data needs.

TASK 5 -- LABORATORY STUDIES AND BENCH-SCALE STUDIES (Optional)

The Engineer shall conduct any necessary laboratory and bench scale treatability studies required to evaluate the applicability of remedial technologies, e.g., leachate treatment, groundwater treatment, compatibility of waste/leachate with liners, cover, or other materials proposed for use in the remedy. The scope of this Task will depend on the results of Task 4. The Engineer will submit a separate work plan for any proposed laboratory studies for State concurrence.

TASK 6 -- FINAL REPORT

The Engineer shall prepare a final report covering the remedial investigations and submit copies to the Ohio EPA. The report shall include the results of Task 1 through 5.

TASK 7 -- ADDITIONAL REQUIREMENTS

a. Reporting Requirements. Monthly Technical Progress Reports are required of the Engineer.

Content. For each on-going work assignment, the Engineer shall submit progress reports with the following elements:

1. Identification of site and activity.
2. Status of work at the site and progress to date.
3. Percentage of completion.
4. Difficulties encountered during the reporting period.
5. Actions being taken to rectify problems.
6. Activities planned for the next month.
7. Changes in personnel.

The progress monthly report will list target and actual completion dates for each element of activity including project completion and provide an explanation of any deviation from the milestones in the work plan schedule.

FEASIBILITY STUDY

PURPOSE

The purpose of this feasibility study is to develop and evaluate remedial alternatives for [specific site].

The Engineer shall furnish the necessary personnel, materials, and services required to prepare the remedial action feasibility study.

SCOPE

The feasibility study consists of ten tasks:

Task 8 -- Description of Current Situation

Task 9 -- Work Plan

Task 10 -- Development of Alternative

Task 11 -- Initial Screening of Alternatives

Task 12 -- Detailed Analysis of Alternatives

Task 13 -- Evaluation and Selection of Cost-Effective Alternative

Task 14 -- Final Report

Task 15 -- Additional Requirements

TASK 8 -- DESCRIPTION OF CURRENT SITUATION

Any changes to the description of the current situation from Task 1 shall be presented. Justification for changes must be based on results of the remedial investigation.

A site-specific statement of purpose for the response, based on the results of the remedial investigation, should be presented. The statement of purpose should identify the actual or potential exposure pathways that should be addressed by remedial alternatives. This statement of purpose shall be submitted to the State for concurrence before continuing the remaining tasks of the Feasibility Study.

TASK 9 -- WORK PLAN

A work plan that includes a detailed technical approach, personnel requirements, and schedules shall be submitted to the State for review and concurrence for the proposed feasibility study.

TASK 10 -- DEVELOPMENT OF ALTERNATIVES

Based on the results of the remedial investigation, the Engineer shall develop a limited number of alternatives for source control or off-site remedial actions, or both, on the basis of objectives established for the response.

a. Establishment of Remedial Response Objectives

Establish site-specific objectives for the response based on public health and environmental concerns, information gathered during the remedial investigation, Section 300.68 of the National Contingency Plan (NCP), EPA interim guidance, and the requirements of any other applicable Federal or State statutes. Preliminary cleanup objectives shall be developed in consultation with and for concurrence by the State.

b. Identification of Remedial Technologies

Based on the remedial response objectives established above and the statement of purpose identified in Task 8, identify appropriate remedial technologies as a basis for the development of remedial alternatives. These technologies shall be identified on a media-specific basis, although consideration should be given to the interrelationship of the media. The technologies should be able to meet the response objectives. The list of potential remedial technologies developed in Tasks 2e and Task 4b shall be considered a master list of applicable technologies and shall be screened based on site conditions, waste characteristics, and technical requirements, to eliminate or modify those technologies that may prove extremely difficult to implement, will require unreasonable time periods to implement, or will rely on insufficiently developed technology.

c. Identification of Remedial Alternatives

Develop alternatives to incorporate remedial technologies, response objectives, and other appropriate considerations into a comprehensive, site-specific approach. Alternatives developed should include the following:

1) Alternatives for off-site treatment or disposal;

2) Alternatives which attain applicable and/or relevant Federal and State public health or environmental standards;

3) Alternatives which exceed applicable and/or relevant Federal and State public health or environmental standards;

4) No action alternative for comparison with other developed alternatives.

There may be overlap among the alternatives developed. All alternatives except the no action alternative must meet the requirements of all applicable State and Federal environmental laws including permitting requirements. Alternatives shall be developed in close consultation with the State.

TASK 11 -- INITIAL SCREENING OF ALTERNATIVES

The alternatives developed in Task 10 shall be screened by the Engineer to eliminate alternatives, prior to detailed analysis, that are clearly not feasible or appropriate. All decisions made as a part of this screening of alternatives should be documented.

The following consideration shall be used as a basis for the initial screening:

1) Cost. An alternative that far exceeds the cost of other alternatives evaluated and that does not provide substantially greater public health or environmental benefits will usually be excluded from further consideration.

2) Effects of the Alternative. Only those alternatives that effectively contribute to protection of public health, welfare, and the environment will be considered further. Any alternatives that inherently present significant adverse effects will be excluded from further consideration.

3) Acceptable Engineering Practices. Alternatives that may prove extremely difficult to implement, will not achieve the remedial objectives in a reasonable time period, or that rely on unproven technologies will be excluded from further consideration.

TASK 12 -- DETAILED ANALYSIS OF ALTERNATIVES

The Engineer shall prepare a detailed analysis of the alternatives that pass through the initial screening in Task 11.

This detailed analysis shall consist of the following elements:

a. Detailed Description

The detailed description of each remaining alternative shall include as a minimum:

1) Description of appropriate treatment and disposal technologies.

2) Special engineering considerations required to implement the alternative, e.g., pilot treatment facility, additional studies needed to proceed with final remedial design.

3) Operation, maintenance, and monitoring requirements of the completed remedy.

4) Off-site disposal needs and transportation plans.

5) Temporary storage requirements.

6) Safety requirements for remedial implementation, including both on-site and off-site health and safety considerations.

7) An analysis of how the alternative could be phased into individual operations and a discussion of how these operations could best be implemented, individually or in groups, to produce significant environmental improvement.

8) A review of any off-site treatment or disposal facilities to ensure compliance with applicable RCRA, TSCA and State requirements, both current and proposed.

9) An analysis of the projected performance and expected results of the alternative with emphasis on potential for further future release of hazardous substances.

b. Environmental Assessment

An Environmental Assessment (EA) shall be performed for each alternative including, as a minimum, an evaluation of each alternative's environmental effects, an analysis of measures to mitigate adverse effects, physical or legal constraints, and compliance with Federal and State regulatory requirements.

Each alternative will be assessed in terms of the extent to which it will mitigate damage to, or protect, public health, welfare, and the environment, in comparison to the other remedial alternatives.

The no action alternative will be fully evaluated to describe the current site conditions and anticipate environmental conditions if no actions are taken. The no action alternative will serve as the baseline for the Environmental Analysis.

c. Cost Analysis

The present worth cost of implementing each remedial alternative (and each phase of the alternative) as well as the annual operating and maintenance cost shall be presented. The cost shall be provided as a total cost and on an annual cost basis.

TASK 13 -- EVALUATION AND SELECTION OF COST-EFFECTIVE ALTERNATIVE

The State shall review the results of the detailed analysis of alternatives prepared under Task 12 and select the cost-effective alternative. The lowest cost alternative that is technologically feasible and reliable and which effectively mitigates and minimizes damage to and provides adequate protection of public health, welfare, or the environment will be considered the cost-effective alternative.

The following considerations shall be used as the basis for selecting the cost-effective alternative:

1. Reliability. The alternatives that minimize or eliminate the potential for release of wastes into the environment will be considered more reliable than other alternatives.

2. Implementability. The alternatives most easily implemented shall be favored.

3. Effects of the Alternative. The alternatives posing the greatest improvement to (and least negative impact on) public health, welfare, and the environment will be favored.

4. Safety Requirements. The alternatives with the lowest adverse safety impacts and associated costs will be favored.

5. Cost. Total cost will include the cost of implementing the alternative and the cost of operation and maintenance of the proposed alternative.

TASK 14 -- FINAL REPORT

A final report shall be prepared for submission to the State, including the results of Task 8 through 13. Copies of the report shall be submitted to the State.

TASK 15 -- ADDITIONAL REQUIREMENTS

Monthly Technical Progress Reports are required of the Engineer. These documents are described in Task 7 of the remedial investigation scope of work.

The design and implementation of the selected alternative will follow this RI/FS process.

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Deliverables:

Remedial Investigation

1. Task 1a - Site Background
   b - Nature and Extent of Problem
   c - History of Response Actions

2. Task 2a - Safety Plan
   c - Site Map
   d - Community Relations Plan
   e - Pre-investigation Evaluation

3. Task 3a - Work Plan

4. Task 4 - Site Investigation Analysis

5. Task 5 - Work Plan for Laboratory and Bench Scale Studies (optional)

6. Task 6 - Final Remedial Investigation Report

7. Task 7 - Monthly Technical Progress Reports

   The State shall review and concur with Items 2 and 3 before field activities begin.

Feasibility Study

8. Task 8 - Statement of Purpose

9. Task 9 - Work Plan for Feasibility Study

10. Task 10a - Remedial Response Objectives
    c - Identified Remedial Alternatives

11. Task 12 - Detailed Analysis of Alternatives Including Decisions Documents

12. Task 14 - Final Feasibility Study Report

13. Task 15 - Monthly Technical Progress Reports

    The State shall review and concur with Items 8 and 9 before work on the feasibility study begins.

ATTACHMENT B

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§ 264.94 Concentration limits.

(a) The Regional Administrator will specify in the facility permit concentration limits in the ground water for hazardous constituents established under § 264.93. The concentration of a hazardous constituent:

(1) Must not exceed the background level of that constituent in the ground water at the time that limit is specified in the permit; or

(2) For any of the constituents listed in Table 1, must not exceed the respective value given in that table if the background level of the constituent is below the value given in Table 1; or

TABLE 1—MAXIMUM CONCENTRATION OF CONSTITUENTS FOR GROUND-WATER PROTECTION

Constituent	Maximum concentration [1]
Arsenic	0.05
Barium	1.0
Cadmium	0.01
Chromium	0.05
Lead	0.05
Mercury	0.002
Selenium	0.01
Silver	0.05
Endrin (1,2,3,4,10,10-hexachloro-1,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1, 4-endo, endo-5,8-dimethano naphthalene)	0.0002
Lindane (1,2,3,4,5,6-hexachlorocyclohexane, gamma isomer)	0.004
Methoxychlor (1,1,1-Trichloro-2,2-bis (p-methoxyphenyl)ethane)	0.1
Toxaphene ($C_{10}H_{10}Cl_8$, Technical chlorinated camphene, 67-69 percent chlorine)	0.005
2,4-D (2,4-Dichlorophenoxyacetic acid)	0.1
2,4,5-TP Silvex (2,4,5-Trichlorophenoxypropionic acid)	0.01

[1] Milligrams per liter.

(3) Must not exceed an alternate limit established by the Regional Administrator under paragraph (b) of this section.

(b) The Regional Administrator will establish an alternate concentration limit for a hazardous constituent if he finds that the constituent will not pose a substantial present or potential hazard to human health or the environment as long as the alternate concentration limit is not exceeded. In establishing alternate concentration limits, the Regional Administrator will consider the following factors:

(1) Potential adverse effects on ground-water quality, considering:

(i) The physical and chemical characteristics of the waste in the regulated unit, including its potential for migration;

(ii) The hydrogeological characteristics of the facility and surrounding land;

(iii) The quantity of ground water and the direction of ground-water flow;

(iv) The proximity and withdrawal rates of ground-water users;

(v) The current and future uses of ground water in the area;

(vi) The existing quality of ground water, including other sources of contamination and their cumulative impact on the ground-water quality;

(vii) The potential for health risks caused by human exposure to waste constituents;

(viii) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents;

(ix) The persistence and permanence of the potential adverse effects; and

(2) Potential adverse effects on hydraulically-connected surface-water quality, considering:

(i) The volume and physical and chemical characteristics of the waste in the regulated unit;

(ii) The hydrogeological characteristics of the facility and surrounding land;

(iii) The quantity and quality of ground water, and the direction of ground-water flow;

(iv) The patterns of rainfall in the region;

(v) The proximity of the regulated unit to surface waters;

(vi) The current and future uses of surface waters in the area and any water quality standards established for those surface waters;

(vii) The existing quality of surface water, including other sources of contamination and the cumulative impact on surface water quality;

(viii) The potential for health risks caused by human exposure to waste constituents;

(ix) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and

(x) The persistence and permanence of the potential adverse effects.

(c) In making any determination under paragraph (b) of this section about the use of ground water in the area around the facility the Regional Administrator will consider any identification of underground sources of drinking water and exempted aquifers made under § 144.8 of this chapter.

[47 FR 32350, July 26, 1982, as amended at 48 FR 14294, Apr. 1, 1983]

ATTACHMENT B

3745-54-94 Concentration limits.

(A) The facility permit will specify the concentration limits in the ground water for hazardous constituents established under rule 3745-54-93 of the Administrative Code. The concentration of a hazardous constituent:

(1) Must not exceed the background level of that constituent in the ground water at the time that limit is specified in the permit; or

(2) For any of the constituents listed in "Table I," must not exceed the respective value given in that table if the background level of the constituent is below the value given in "Table I"; or

(3) Must not exceed an alternate limit established in the permit under paragraph (B) of this rule.

(B) An alternate concentration limit will be established for a hazardous constituent if it is found that the constituent will not pose a substantial present or potential hazard to human health or the environment as long as the alternate concentration limit is not exceeded. In establishing alternate concentration limits, the director will consider the following factors:

(1) Potential adverse effects on ground water quality, considering:

(a) The physical and chemical characteristics of the waste in the regulated unit, including its potential for migration;

(b) The hydrogeological characteristics of the facility and surrounding land;

(c) The quantity of ground water and the direction of ground water flow;

(d) The proximity and withdrawal rates of ground water users;

(e) The current and future use of ground water in the area;

(f) The existing quality of ground water, including other sources of contamination and their cumulative impact on the ground water quality;

(g) The potential for health risks caused by human exposure to waste constituents;

(h) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents;

(i) The persistence and permanence of the potential adverse effects; and

(2) Potential adverse effects on hydraulically-connected surface-water quality, considering:

(a) The volume and physical and chemical characteristics of the waste in the regulated unit;

(b) The hydrogeological characteristics of the facility and surrounding land;

(c) The quantity and quality of ground water, and the direction of ground water flow;

(d) The patterns of rainfall in the region;

(e) The proximity of the regulated unit to surface waters;

(f) The current and future uses of surface waters in the area and any water quality standards established for those surface waters;

(g) The existing quality of surface water, including other sources of contamination and the cumulative impact on surface water quality;

(h) The potential for health risks caused by human exposure to waste constituents;

(i) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents;

(j) The persistence and permanence of the potential adverse effects.

TABLE I
Maximum Concentration of Constituents for Ground Water Protection

Constituent	Maximum Concentration (Milligrams Per Liter)
Arsenic	0.05
Barium	1.0
Cadmium	0.01
Chromium	0.05
Lead	0.05
Mercury	0.002
Selenium	0.01
Silver	0.05
Endrin (1,2,3,4,10,10-Hexachloro-1,7-Epoxy-1,4,4a, 5,6,7,8,9a, -Octahydro-1, 4-Endo, Endo-5,8-Dimethano Naphthalene)	0.0002
Lindane (1,2,3,4,5,6-Hexachlorocyclohexane, Gamma Isomer)	0.004
Methoxychlor (1,1,1-Trichloro-2,2-Bis) (P-Methoxyphenylethane)	0.1
Toxaphene ($C_{10}H_{10}CL_8$ Technical Chlorinated Camphene, 67-69-Percent Chlorine	0.005
2,4-D (2,4-Dichlorophenoxyacetic Acid)	0.1
2,4,5-TP Silvex (2,4,5-Trichlorophenoxypropionic Acid)	0.01

(Adopted July 30, 1984; effective August 30, 1984)

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: Mary Dunn Date 12-21-89

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