FOURTH QUARTER 2003 PROGRESS REPORT
VERNAY LABORATORIES, INC.
PLANT 2/3 FACILITY
YELLOW SPRINGS, OHIO

Project No. 0292.11.26

January 14, 2004

Prepared For

VERNAY LABORATORIES, INC.
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Prepared By

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AM Priority

January 14, 2004

United States Environmental Protection Agency
Region 5
Corrective Action Section, DW-8J
77 West Jackson
Chicago, Illinois 60604

Attention: Ms. Patricia J. Polston, Project Manager
Waste Management Branch

Reference: Quarterly Progress Report (Fourth Quarter 2003)
Administrative Order on Consent
Vernay Laboratories, Inc.
Yellow Springs, Ohio
Project No. 0292.11.26

Dear Ms. Polston:

The Payne Firm, Inc. (Payne Firm) is pleased to submit, on behalf of Vernay Laboratories, Inc. (Vernay), the attached Progress Report for the Fourth Quarter 2003, as required by the Administrative Order on Consent (AOC) journalized by the United States Environmental Protection Agency (US EPA) on September 27, 2002.

We understand that the US EPA plans to provide this quarterly progress report on the US EPA's website at www.epa.gov/region5/sites/vernay. The electronic version of this quarterly progress report is also included on a CD-Rom in Appendix I.

Should you have any questions regarding the enclosed document, please contact either of us at (513) 489-2255 or via e-mail at dcc@paynefirm.com or ddw@paynefirm.com.

Sincerely,

The Payne Firm, Inc.

David C. Contant, C.P.G.
Project Manager

Daniel D. Weed, C.P.G.
Principal

cc: Mr. Doug Fisher – Vernay Laboratories, Inc.
Mr. Joseph Lonardo – Vorys, Sater, Seymour and Pease
Mr. Rob Hillard – Village of Yellow Springs
Ms. Connie Collett – Yellow Springs Community Library

PROGRESS REPORT - FOURTH QUARTER 2003
Vernay Laboratories, Inc. RCRA Corrective Action
Yellow Springs, Ohio

A. IDENTIFICATION OF FACILITY AND ACTIVITY

Vernay Laboratories, Inc. (Vernay) agreed to an Administrative Order on Consent (AOC), journalized September 27, 2002, to complete a United States Environmental Protection Agency (US EPA) Resource Conservation and Recovery Act (RCRA) Corrective Action for the Vernay Facility located at 875 Dayton Street in Yellow Springs, Ohio.

B. STATUS OF WORK AT THE FACILITY AND PROGRESS DURING THE QUARTER

The status of the work at the Facility and a summary of the progress made during the quarter are presented below.

1. A Geoprobe® sampling event was conducted on and off the Facility in November 2003. Water samples were colleted and analyzed for volatile organic compounds (VOCs) from the upper Cedarville Aquifer and saturated sand seams within the Unconsolidated Unit. Soil samples were analyzed for VOCs from the Unconsolidated Unit adjacent to the Dayton Street sewers off the Facility. On the Facility, soil samples from the Unconsolidated Unit were collected and analyzed for a combination of VOCs, semi-volatile organic compounds (SVOCs), and metals (arsenic, copper, and zinc).

   The completed Geoprobe® borings were abandoned to the ground surface in accordance with state guidelines and Payne Firm standard operating procedures (SOPs). Upon completion, a licensed surveyor located the coordinates and elevations of each Geoprobe® boring location (Table 1). Sample collection, quality assurance/quality control procedures, employment of data quality objectives, and containment of drilling wastes were coordinated by a Payne Firm geologist in accordance with the Payne Firm's SOPs and site-specific Quality Assurance Project Plan (QAPP).

   The laboratory analytical reports are included on a CD-Rom in Appendix I. Ground water sampling forms were included in the *RCRA Corrective Action, Technical Memorandum No. 3, Ground Water Monitoring,* dated December 22, 2003, which is included on the CD-Rom in Appendix I. Boring logs from the third and fourth quarter Geoprobe® investigations are included in Appendix II.

   The following subsections describe the Geoprobe® sampling locations, objectives, and sampling methodology for each medium that was investigated.

   Geoprobe® Water Sampling in the Cedarville Aquifer
   Ground water samples from the upper portion of the Cedarville Aquifer were collected from 22 Geoprobe® locations on the Facility and off the Facility on the north side of Dayton Street, on the 825 Dayton Street Property, Limestone Street, Green Street, the property located at 1 Lawson Place, Omar Circle, West South College Street, and Wright Street (Figure 1). Water samples were analyzed for VOCs from each location. A complete list of VOCs and results from the ground water samples is included on Table 2.

The objective of this sampling event was to collect sufficient data to make the appropriate determinations required by the RCRA Ground Water and Human Health Environmental Indicators, to support the baseline risk assessment, to determine the extent of VOC distribution in the upper portion of the Cedarville Aquifer and to determine the optimum locations for additional monitoring wells to be installed in 2004 to support the Phase I Facility Investigation.

Once the top of the Cedarville Aquifer was encountered, a water sample was collected directly from within the borehole (if saturated) and analyzed for VOCs. The following boring installation and water sampling methodology was performed at each Geoprobe® direct-push sampling location.

- The boring was initiated by driving the probe rods and sampling device down to the top of the Cedarville Aquifer. The drillers stopped driving at the inferred top of the Cedarville Aquifer based on probe driving resistance and lithologic data identified by the Payne Firm geologist. Soil samples from the borings were collected continuously through a dual tube soil sampling system, assuring the integrity of the sample and minimizing cross contamination. The direct-push sampling equipment consisted of a two-inch by four- or five-foot long, dual cased steel rod and plastic sleeve liner.
- Following the extraction of soil and logging of the core (Appendix II), a stainless steel screen at depth was then exposed by retracting the protective outer drilling sleeve approximately 0.5 feet.
- Prior to water sample collection, the ground water in the borehole was purged with a peristaltic pump and dedicated Teflon® tubing at each location prior to sampling to minimize fine sediment and turbidity in the water sample based on visual observation. The purging volume usually consisted of 0.5 to two gallons prior to sampling. In cases where recharge was abundant, a stainless steel bailer was used to collect the ground water sample. Where low yields were encountered, the ground water samples were collected from Teflon® tubing and a check valve ball or peristaltic pump.
- Water samples were labeled and then packaged into an ice-packed cooler prior to shipment to the laboratory in conformance with Payne Firm SOPs.
- Upon completion of the sampling and removal of the drilling rods, the boring was backfilled with bentonite chips and the surface location patched following Payne Firm SOPs. Purge water was transferred to a holding tank for proper disposal.
- The direct-push stainless steel screen and drilling rods were decontaminated after each location in accordance with the Payne Firm SOPs. Rinsate samples were periodically collected over the sampling equipment as specified in the project QAPP for quality control. Other quality control samples included trip blanks, duplicates, field blanks, and matrix spike/matrix spike duplicates as specified in the RCRA CA QAPP.

Geoprobe® Water Sampling in Saturated Sand Seams

If saturated sand seams were encountered in the borehole during the Geoprobe® investigation on and off of the Facility, water samples were also collected from these discontinuous sand seams within the Unconsolidated Unit. The objective of collecting these water samples from isolated sand seams was to collect sufficient data to make the appropriate determinations required by the RCRA Ground Water and Human Health Environmental Indicators and the Facility Investigation and to support the baseline risk assessment. During the Geoprobe® investigation, a total of 42 borings were installed on and off of the Facility; out of the 42 total borings, 22 boring locations either did not encounter a sand seam or encountered a dry sand seam, and 20 borings encountered a sand seam where a water sample was collected (Figure 2).

The boring installation and water sampling methodology was conducted consistent with the methods described above. The only difference is that a new boring was drilled adjacent to the

original boring location for each separate sand seam identified by a Payne Firm geologist. Each sand seam boring location was initiated by driving the probe rods and sampling device down to the bottom of the sand seam interval to collect a VOC water sample. A complete list of VOCs and results from the sand seam water samples is included on Table 3.

Geoprobe® Soil Sampling in the Unconsolidated Unit

On the Facility, soil samples from material in the Unconsolidated Unit beneath the Facility were collected and analyzed for a combination of VOCs, SVOCs, and/or Metals (arsenic, copper, and zinc) at the locations shown on Figure 3. Soil samples for VOC analysis were collected via EnCore®. The objective of this soil sampling event was to collect sufficient data to make the appropriate determinations required by the RCRA Human Health Environmental Indicators, to support the baseline risk assessment and to determine the nature and extent of soil contamination beneath the Facility for the RCRA Facility Investigation. In general, borings were installed inside and outside Plant 3, outside of Plant 2 and in the undeveloped area on the western portion of the Facility. Sampling intervals included a zero to two-foot sample from all boring locations. The remaining sampling intervals were dependent on the headspace organic (HSO) measurements and sampling depth at each location determined by the Payne Firm geologist. HSO measurements are a field screening method for determining relative VOC concentrations emitted into the headspace of a soil sample container; these measurements were also recorded on the borehole log (Appendix II). A complete list of VOCs, SVOCs, and metals and results from the soil samples is included on Tables 4, 5, and 6, respectively.

Off the Facility, soil samples from native material in the Unconsolidated Unit (adjacent to the sewer backfill) were collected via EnCore® and analyzed for VOCs by US EPA Method SW846-8260B and preparation method SW846-5035 (Figure 3). The objective of this soil sampling was to collect sufficient data to make the appropriate determinations required by the RCRA Human Health Environmental Indicators and Facility Investigation and to support the baseline risk assessment by determining the soil contamination, if any, adjacent to the sewers. This investigation consisted of utilizing a direct-push Geoprobe® rig to complete borings into the Unconsolidated Unit which were logged by a Payne Firm geologist. These soil borings extend to the top of the bedrock (Cedarville Dolomite) at locations adjacent to the Dayton Street storm sewer and sanitary sewer which extends along Dayton Street from the middle portion of the Facility to a previous boring GP02-46. Laterally, the borings were installed approximately five feet to the north of the sewer location. Underground Detective of Cincinnati, Ohio identified the sewer locations and invert depths prior to drilling. Soil sampling intervals for laboratory analysis included: 1) the lowermost unsaturated interval at each boring; and 2) the unsaturated interval adjacent to the invert of the sewer. A complete list of VOCs and results from the soil samples is included on Table 4.

Boring installation at each Geoprobe® direct-push sampling location followed the same methodology described above. Prior to sample collection for laboratory analysis, the Payne Firm geologist screened each soil interval for HSO vapor measurements consistent with Payne Firm SOPs. The HSO measurements were used by the Payne Firm geologist to determine appropriate sampling intervals for laboratory analysis. Sample collection, quality assurance/quality control procedures, employment of data quality objectives, and containment of drilling wastes were coordinated by a Payne Firm geologist in accordance with the Payne Firm's SOPs and site-specific QAPP.

2. As required by AOC Section VI.13., Vernay completed a ground water monitoring event during the fourth quarter of 2003. The monitoring event was conducted between November 4, 2003 and November 6, 2003. The objective of the quarterly monitoring program is to collect sufficient data to make the appropriate determinations required by the RCRA Ground Water and Human Health Environmental Indicators, to support the baseline risk assessment, and to evaluate corrective measures including the existing ground water extraction interim measure.

   - The monitoring network consists of 20 monitoring wells on the Facility and 16 monitoring wells located off of the Facility, all of which are screened in the upper, middle, or lower portions of the Cedarville Aquifer or within sewer backfill. During this quarterly monitoring event, water samples were collected from all 20 monitoring wells on the Facility property, and from all 16 monitoring wells off of the Facility property. Additionally, a surface water and sediment sample were collected and analyzed for VOCs from the storm sewer outfall to the unnamed creek northeast of the Facility.
     The sediment sample was collected via EnCore®. Sampling locations from the fourth quarter are shown on Figure 4.
   - During this sampling event, water samples were analyzed for VOCs by US EPA Method SW846-8260B.
   - The field activities associated with this monitoring event followed the project QAPP and the Payne Firm SOPs, which are consistent with the May 2002 US EPA guidance document, entitled *Ground Water Sampling Guidelines for Superfund and RCRA Project Managers*.
   - Concentrations of VOCs from on- and off-Facility monitoring wells are summarized on Table 7. Detected concentrations of VOCs from QA/QC samples are also summarized on Table 8. Concentrations of VOCs from surface water and sediment at the outfall to the unnamed creek are summarized on Table 9. An electronic version of the laboratory analytical report is included on a CD-ROM in Appendix I.
   - The data quality assessment and validation process for the fourth quarter 2003 monitoring event followed procedures presented in Section 10.0 of the project QAPP. This process included the completion of a Data Validation Checklist , which is summarized in the Payne Firm January 14, 2003 Data Validation Memorandum (Appendix I). The data associated with the fourth quarter monitoring event exhibited acceptable levels of precision and accuracy, except for acetone, 2-butanone, and chloroform. Laboratory data associated with these compounds was rejected by the Payne Firm.

3. Data associated with the existing ground water interim measure were collected. These data include water level measurements from the Facility monitoring well network and water samples analyzed for VOCs from the ground water treatment systems of the capture zone and the utility tunnel sump. Monthly water level elevations are summarized in Table 10.

   Water samples collected from the capture zone treatment system included: 1) a sample at each wellhead (CW01-01 and CW01-02); 2) a sample after the first carbon vessel; and 3) a system effluent sample after treatment. Likewise, samples collected from the utility tunnel sump treatment system included: 1) a pre-treatment sample; 2) a sample after the first carbon drum; and 3) a sample after the second carbon drum. The VOC data collected from the two treatment systems are summarized on Tables 11 and 12, respectively. Electronic copies of the laboratory analytical reports are included on a CD-Rom in Appendix I.

4. Vernay prepared the *RCRA Corrective Action, Technical Memorandum No. 2, Historical Data Usage in the RCRA Corrective Action,* dated December 12, 2003. This document was submitted to the US EPA on December 12, 2003, and an electronic version is included on a CD-Rom in Appendix I. The report was prepared following guidelines in the US EPA's May 8, 1998 *Region 5 Policy and Guidance Regarding Historical Data Usage in the RCRA Facility Investigation.*

   Included with the Technical Memorandum No. 2, Vernay requested that the US EPA complete a QAPP review of all past site investigation data collected by the Payne Firm in and around Vernay's Plant 2/3 Facility. Vernay proposed to use the historic data in the RCRA Corrective Action consistent with its intended purposes.

5. Vernay prepared the *RCRA Corrective Action, Technical Memorandum No. 3, Ground Water Monitoring,* dated December 22, 2003. This document was submitted to the US EPA on December 23, 2003. Copies of this report were also submitted to the Village of Yellow Springs and the Yellow Springs Community Library. The electronic version of Technical Memorandum No. 3 is included on a CD-Rom in Appendix I.

   Per Paragraph 13 of the AOC, Technical Memorandum No. 3 included the results of the quarterly ground water monitoring events, an evaluation of the efficacy of the ongoing ground water interim measures, well construction documentation, and ground water potentiometric surface depictions from 2003. It also included an update of the conceptual site hydrogeologic model for the Facility and surrounding area that was initially presented in the November 2002 Current Conditions Report, and identified additional data needed to complete the Phase I Facility Investigation in 2004.

6. On December 22, 2003, the Greene County Combined Health District (GCCHD), in cooperation with the Payne Firm, initiated a survey within a defined area in Yellow Springs to identify wells or other structures that may collect ground water. The survey is being conducted for Vernay as part of the RCRA Corrective Action. The objective of the Survey is to collect sufficient data to make the appropriate determinations required by the RCRA Human Health Environmental Indicators in order to demonstrate that all current human exposures to contamination at or from the Facility are under control before June 30, 2004. A copy of the GCCHD letter and questionnaire mailed to property owners in the Survey area is included in Appendix III. The Survey area is shown on Figure 5.

C. PROBLEMS ENCOUNTERED DURING THE QUARTER

No difficulties were encountered during this quarter.

D. ACTIONS TAKEN TO RECTIFY PROBLEMS

No actions to rectify problems were required this quarter.

E. PROJECT SCHEDULE

The following activities are planned for next quarter (Q1-2004).

- Conduct the quarterly monitoring event on and off the Facility.
- Continue monthly monitoring of existing interim measures.

- Manage responses from a water well and subsurface structure survey in the vicinity of the Vernay facility.
- Conduct additional Cedarville Aquifer investigation on and off the Facility.
- Conduct additional soil investigation on the Facility.
- Prepare for the Human Health Environmental Indicators report.
- Prepare for the Phase I Facility Investigation report.

A project schedule showing the percent project completed is included in Table 13.

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