



State of Ohio Environmental Protection Agency

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APR 09 2008

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Ms. Catherine Clark
Lane Avenue 450, LLC
c/o Ramco-Gershenson Properties, L.P.
31500 Northwestern Highway
Suite 300
Farmington Hills, MI 48334

Mr. Brian Bennett
UAP Columbus Joint Venture 326132
c/o Northwestern Mutual Insurance Co.
720 East Wisconsin Avenue
Milwaukee, WI 53202-4797

**Re: Voluntary Action Program Audit of No Further Action Letter for
Lane Avenue Shopping Center Property
No. 06NFA244
Upper Arlington / Franklin County
Project ID # 125-002273-004**

Dear Ms. Clark and Mr. Bennett:

The purpose of this letter is to notify you that Ohio Environmental Protection Agency (Ohio EPA) has completed an audit of the no further action (NFA) letter issued under the authority of Chapter 3746 of the Revised Code for the Lane Avenue Shopping Center property, located at 1557-1735 West Lane Avenue, Upper Arlington, Franklin County, Ohio. Attached is the audit report conducted on the above referenced NFA letter, which lists the findings of the audit. As you are aware, Mr. Christopher W. Krumm, certified professional (CP No. 177) for the property, submitted the NFA letter, dated June 28, 2006, to Ohio EPA on June 30, 2006, with a request for a covenant not to sue (CNS) on behalf of UAP Columbus Joint Venture 326132.

Ohio Revised Code (ORC) Section 3746.17(B) requires that Ohio EPA conduct audits of at least 25 percent of the NFA letters issued during the calendar year previous to the year in which the audits are conducted. The audits conducted by Ohio EPA in 2007 were of those properties for which NFA letters were issued in 2006. The property was selected for audit from the "Priority Audit Pool" defined in Ohio Administrative Code (OAC) rule 3745-300-14, and a Tier I audit was conducted in accordance with the procedures established in that rule.

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

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UAP Columbus Joint Venture 326132
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In accordance with the ORC Chapter 3746 and OAC rule 3745-300-14, the audit was conducted to 1) determine whether the property meets applicable standards established in the Voluntary Action Program (VAP) rules; 2) review the qualifications and work performed by the certified professional (CP) to determine whether the CP's performance resulted in the issuance of an NFA letter that is not consistent with applicable standards; and 3) review the qualifications and work performed by the certified laboratory to determine whether its performance resulted in the issuance of an NFA letter that is consistent with applicable standards.

Summary of Audit Findings

After review of the NFA letter and supplemental information, no significant findings related to the property were found as a result of the Tier I audit. The NFA letter audit demonstrates that the NFA letter as amended was issued in accordance with the requirements set forth in ORC Chapter 3746 and OAC Chapter 3745-300.

1. Compliance with Applicable Standards

The generic numerical standards presented in OAC 3745-300-08(B)(1)(a) were determined to be the applicable standards for assessing the potential threat of direct contact exposure to contaminated soil. When remediation is complete, soil and ground water objectives will be achieved and the Lane Avenue Shopping Center property will remain compliant with VAP applicable standards. A final property-specific risk assessment based on a multi-chemical adjustment is required to demonstrate compliance with applicable standards for ground water. The final property-specific risk assessment will need to demonstrate that the active ground water remedy has achieved compliance with applicable standards for the human exposure to COCs in ground water via vapor intrusion to indoor air including off-property vapor migration and excavation and construction worker direct-contact pathways impacted pathways.

It was determined that institutional controls are required to prevent human exposure to ground water in excess of unrestricted potable use standards per OAC 3745-300-10(F)(6)(a)(i) and that remediation activities performed at the property would need to protect against non-potable exposure to ground water per OAC 3745-300-10(F)(6)(a)(ii).

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The operation of the ground water remediation system and performance monitoring will continue until the ground water cleanup objectives are met. A multi-chemical adjustment evaluation is required to be submitted when post-remediation ground water monitoring begins following completion of the enhanced reductive dechlorination injections. The ground water remedy is required to be completed within three years of issuance of the April 26, 2007 CNS. The ground water remediation system was operational and functional by October 2002. The ventilation system continues to operate as of the January 2008 property walkover. The building sub-slab vapor barrier and subsurface ventilation system as specified in the O&M plan renders the pathway incomplete. This engineering control will be in place until completion of the active ground water remediation and the final property-specific risk assessment following OAC 3745-300-09 determines the engineering control is no longer necessary.

2. Certified Professional

Through the NFA audit, the VAP audit team determined that the CP's performance resulted in the issuance of an NFA letter, which "as amended," is consistent with the VAP applicable standards contained in ORC Chapter 3746 and OAC Chapter 3745-300.

3. Certified Laboratory

The two primary CLs held VAP certification per OAC 3745-300-04 for conducting analyses of samples for all analytical parameters in all environmental media presented in support of the NFA letter and appropriately performed all analyses as required under OAC 3745-300-04(E)(1) and (E)(2).

4. Additional Items Noted

- During the property walkover, Ohio EPA noted that many of the monitoring wells on the property were missing bolts to secure the flush mounted protector covers. The cover to one monitoring well was upside down, and a crack in the well riser and a loose gasket seal were noted. The monitoring wells must be maintained per the O&M plan.

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- It was also noted that Lane Avenue 450 LLC as the owner or UAP Columbus Joint Venture 326132 as the volunteer/operator of the underground injection wells on the property are obligated to demonstrate continuous compliance with Ohio EPA's Underground Injection Control regulations set forth in OAC Chapter 3745-34.
- Any modifications to the ground water remediation system may require prior Ohio EPA approval.
- When the wells are no longer needed, they will need to be abandoned in accordance with Ohio EPA rules (OAC 3745-9-03 Monitoring Wells and OAC 3745-9-10 Abandoned well sealing).
- Until remediation is complete, monthly progress reports will need to be submitted as set forth in the O&M agreement.
- When ground water remediation standards are achieved and it is determined that continued performance of the operation and maintenance activities are no longer necessary, you will need to inform Ohio EPA of your desire to cease active ground water remediation on the property.

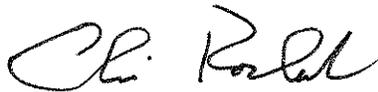
The request for a CNS was approved on April 26, 2007. Based upon the information reviewed in the Tier I audit, Ohio EPA was able to conclude the property meets the applicable standards established in the VAP rules. Therefore, Ohio EPA decided not to conduct a Tier II audit, which would involve physical investigation of the property. UAP Columbus Joint Venture 326132 has satisfied all applicable VAP rules as they apply to the property. As long as the property's use continues to comply with the conditions of the CNS, including but not limited to the terms and conditions of the O&M agreement as agreed to by Lane Avenue 450 LLC, the release of liability provided by Ohio EPA will remain in good standing.

If you have any questions concerning this letter, or any audit findings made by Ohio EPA, please contact Ms. Amy Yersavich, Manager of the VAP, at (614) 644-2285 or Mr. Robin Roth at (614) 466-2476.

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Lane Avenue 450, LLC

Mr. Brian Bennett
UAP Columbus Joint Venture 326132
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Sincerely,



Chris Korleski
Director

Enclosure: Audit Findings Report

- c: Christopher W. Krumm, Stantek, CP#177 w/o enclosure
- Jim Davis, TestAmerica Analytical Testing Inc., w/o enclosure
- Dorothy Lesson, TestAmerica Analytical Testing Inc.-North Canton, w/o enclosure
- William Golla, ARCADIS
- Sharon Clouse, ARCADIS, w/o enclosure
- Deborah Strayton, DERR/CDO
- Robin Roth, DERR/CDO
- Amy Yersavich, Manager DERR/VAP
- Frank Robertson, DERR/CO/VAP
- Martin Smith, DERR/CO/VAP
- Ann Fischbein, OLS
- Files, DERR/CO and DERR/CDO 06NFA244



State of Ohio
Environmental Protection Agency

Division of Emergency and Remedial Response
Voluntary Action Program

NFA Letter Audit Report - Tier I
Lane Avenue Shopping Center
Upper Arlington, Ohio



March 2008

Governor Ted Strickland
Director Chris Korleski

**Voluntary Action Program
NFA Letter Audit - Tier I
NFA Letters Submitted in 2006**

**Lane Avenue Shopping Center
Upper Arlington, Ohio
No Further Action Letter No. 06NFA244
AUDIT REPORT – March 20, 2008**

Franklin County

Project ID: 125002273004

**Voluntary Action Program
NFA Letter Audit -Tier I
NFA Letters Submitted in 2006**

**Lane Avenue Shopping Center, Upper Arlington, OH
No Further Action Letter No. 06NFA244
AUDIT REPORT – March 12, 2008**

Name and Address of Property: Lane Avenue Shopping Center
1557-1735 West Lane Avenue
Upper Arlington, OH 43221

Name and Address of Volunteer: UAP of Columbus Joint Venture 326132
Northwestern Mutual Insurance Co.
720 East Wisconsin Ave.
Milwaukee, WI 53202-4797

Certified Professional: Christopher W. Krumm, CP No. 177
R.D. Zande & Associates, Inc. (now known as
Stantec)

Certified Laboratories: TestAmerica Analytical Services, Inc.-Dayton,
CL No. CL0018
Severn Trent Laboratories (STL)–North Canton,
(now known as TestAmerica Analytical Services,
Inc.-North Canton), CL No. CL0024

Date NFA Letter Submitted: June 30, 2006 (date received by Ohio
EPA/CDO)

County and Ohio EPA District: Franklin County, Central District Office (CDO)

INTRODUCTION

Ohio EPA is required by Ohio Revised Code (ORC) 3746.17(B) to conduct audits of the no further action (NFA) letters received by the Ohio EPA Voluntary Action Program (VAP) during the preceding calendar year. The audit selection is required to include at least 25% of those NFA letters that relied upon a remedy and 25% of those that did not. The Lane Avenue Shopping Center NFA letter submitted on June 30, 2006 entered the "priority audit pool" as defined by rule and was selected in accordance with the procedures described in Ohio Administrative Code (OAC) 3745-300-14 for the selection of NFA letters for auditing. The selections were made based on ordering the audit pools using the random number generator formula within the Microsoft's Excel spreadsheet software. Additionally, OAC

3745-300-14 describes the purposes for conducting audits and the scope of activities that may be conducted by Ohio EPA as part of an audit.

NFA letter audits can be conducted for one or a combination of the following purposes: (1) to determine whether the properties comply with VAP applicable standards; (2) to review the qualifications and performance of the certified professionals (CP) who issued the NFA letters; and (3) to review the qualifications and performance of the certified laboratories (CL) that performed work to support the NFA letters. The audit rule makes the distinction between Tier I and Tier II audit procedures in describing the variable levels of effort that NFA letter audits may be conducted. Tier I audits may be limited to a review of all pertinent documents that were utilized by the CP in issuing an NFA letter, but may also include a property inspection (*i.e.*, property walkover per OAC 3745-300-14(H)(1)(c)(iii)) and review of additional records held by the volunteer, CL, or property owner. Tier II audits involve additional activities that can include additional property inspections and sampling activities, which are needed to determine whether the property complies with VAP applicable standards.

A Tier I audit was conducted on the Lane Avenue Shopping Center NFA letter. As previously stated, a Tier I audit consists principally of a document review and a property walkover. Prior to beginning the Tier I audit, Ohio EPA sent audit notification letters dated May 15, 2007 to the following individuals:

- Brian Bennett of UA [*sic*] of Columbus Joint Venture 326132, Northwestern Mutual Insurance Co. (volunteer and former property owner)
- Christopher W. Krumm (CP #177) of R.D. Zande & Associates, Inc. (now known as Stantec)
- Dorothy Lesson of STL–North Canton (CL #CL0024)
- Jim Davis of TestAmerica Analytical Testing, Inc. – Dayton (CL #CL0018)

The NFA letter audit for the property consisted of a visual property inspection and a review and analysis of the NFA letter ground water components documentation to determine compliance with the applicable standards defined in ORC Chapter 3746 and OAC Chapter 3745-300. The following documents were reviewed:

- NFA Letter Form (NFA Checklist including Executive Summary) dated June 28, 2006 as amended
- Phase I Property Assessment dated October 25, 2005
- Phase II Property Assessment dated June 28, 2006

- Operation and Maintenance (O&M) Plan dated April 5, 2007
- NFA Letter Addendum #1 dated October 30, 2006
- NFA Letter Addendum #2 dated November 9, 2006
- NFA Letter Addendum #3 dated March 20, 2007
- NFA Letter Addendum #4 dated April 6, 2007
- Risk Mitigation Plan (RMP) dated October 31, 2006
- O&M Agreement entered Director's Journal April 26, 2007
- Source area excavation data and documentation submitted to Ohio EPA on or before June 18, 2007
 - Field notes for March through August 2002
 - *Assessment of Environmental Conditions and Remedial Program Development* by Civil & Environmental Consultants, Inc. dated March 4, 2002
 - *Status Report for Soil Excavation* by ARCADIS G&M, Inc. dated May 13, 2002
 - *Phase II Limited Subsurface Investigation Report, with Draft and Draft-Addendum* by Gaia Tech Inc. dated June 29, August 28 and 30, 2000, respectively
- *Property-Specific Risk Assessment for Selected Volatile Organic Compounds in Soil and Groundwater* by ARCADIS U.S., Inc. dated June 29, 2007
- *Notice regarding the transfer of Property subject to an O&M Agreement, Being Part of "The Shops at Lane Avenue" 1557-1735 West Lane Avenue, Upper Arlington, Ohio and Conveyance of Property Subject to Activity and Use Limitations – NFA Letter No. 06NFAA244* from UAO Columbus Joint Venture 326132 and received by Ohio EPA on November 1, 2007
- Other documentation contained in Ohio EPA/DERR/CDO project files

The property walkover was completed on January 15, 2008 by members of the audit team including the lead reviewer, risk assessor and ground water reviewer. Also in attendance were the CP, Christopher W. Krumm, and William Golla and Tricia Trommer of ARCADIS, and a representative of the maintenance staff of the shopping center.

Ohio EPA's Division of Drinking and Ground Waters (DDAGW) completed a review and analysis of the NFA letter on August 2, 2007 to determine compliance with the applicable standards under ORC Chapter 3746 and OAC Chapter 3745-300.

Ohio EPA's Division of Emergency and Remedial Response (DERR), Central Office, completed a risk assessment review of the NFA letter on January 16, 2008 to determine whether the NFA letter or property assessment complied with all applicable standards.

The next O&M report is due in March 2008.

PROPERTY BACKGROUND

The Lane Avenue Shopping Center was located at 1555-1735 West Lane Avenue, Upper Arlington, Franklin County, Ohio. A dry cleaner known as Swan Cleaners occupied the 1655 West Lane Avenue address in the central portion of the main shopping center from 1957 to 1985. A second dry cleaner also occupied the 1689 West Lane Avenue (a.k.a. 2394 Wellesley Lane) address from 1957 to 1975; this location is currently located beneath the parking lot east of the main shopping center. Release(s) of dry cleaning fluids composed of chlorinated volatile organic compounds (VOCs) were discovered at the property. The main solvent used in these dry cleaning operations was tetrachloroethene (*i.e.*, perchloroethylene or PCE). The breakdown products of PCE include trichloroethene (TCE) and vinyl chloride, which are known to be carcinogenic.

According to the information submitted to Ohio EPA in the *Notice regarding the transfer of Property subject to an O&M Agreement, Being Part of "The Shops at Lane Avenue" 1557-1735 West Lane Avenue, Upper Arlington, Ohio and Conveyance of Property Subject to Activity and Use Limitations – NFA Letter No. 06NFAA244* from UAP Columbus Joint Venture 326132, the closing date of the transfer of ownership of the property was October 25, 2007. The new owner of the property and transferee of the O&M agreement is:

Lane Avenue 450, LLC
c/o Ramco-Gershenson Properties, L.P.
31500 Northwestern Hwy., Suite 300
Farmington Hills, MI 48334
Attn: Catherine Clark – Senior Vice President Acquisitions.

On October 29, 2007, the Lane Avenue Shopping Center was purchased by Lane Avenue 450 LLC from UAP Columbus Joint Venture 326132 based on information available on the Franklin County Recorder Public Web Access. The VAP property is 11.417 acres out of a 12.481 acre tract and is subject to an environmental covenant (*i.e.*, institutional control) dated April 26, 2007, recorded in the deed or official records of the Franklin County Recorder on May 14, 2007. This commercial shopping center was later renamed "The Shops on Lane Avenue" and remains as a commercial land use. Adjacent properties are residential land use on three sides.

The notification included the following attachments:

- Limited warranty deed with attached Schedule 1 for 1666, 1674 and 1682 Berkshire Road, Upper Arlington, Ohio.
- Assignment and assumption of escrow agreement executed October 25, 2007 between UAP Columbus and JV 326132 and Lane Avenue 450 LLC with remediation agreements including an escrow agreement dated April 26, 2007 as financial assurance in the amount of \$172,800.00 for the benefit of Ohio EPA as reasonable and adequate funds to comply with the O&M agreement.
- Transfer of remediation obligations executed on October 23, 2007 between UAP Columbus and JV 326132 and Lane Avenue 450 LLC for The Shops at Lane Avenue located at 1557-1735 West Lane Avenue, Upper Arlington, Franklin County, Ohio acknowledging receipt of a *Phase I Environmental Site Assessment for The Shops on Lane* by ARDACIS U.S., Inc. dated March 27, 2007 (not reviewed), with attached Schedule 1 and sales agreement with an effective date of August 30, 2007, as amended.
- Alta/ACSM land title survey by Evans, Mechwart, Hambleton & Tilton, Inc. and dated May 15, 2007 describing six parcels comprising 12.481 acres (which encompassed the 11.417 acres VAP property).

Primarily as the result of due diligence for a prospective buyer, various soil and limited subsurface investigations, including the installation and sampling of ground water monitoring wells, took place in the area of the property from May 1997 through January 2001. Assessment of the potential threat posed by vapor intrusion into basements of 1666, 1674, and 1682 West Lane Avenue was performed during the months of January through February 2001. An engineering evaluation/cost analysis was completed on August 7, 2001, to evaluate active soil and ground water remediation at 1655 West Lane Avenue and active ground water remediation south of 1655 West Lane Avenue and in the northern portion of 1674 West Lane Avenue.

The Phase I property assessment (performed between November 2003 and October 2005) established that a release of hazardous substances occurred at two locations. These locations were designated as Identified Area I – former 1655 West Lane Avenue and Identified Area II – former 1689 West Lane Avenue. Property records provide documentation of a release of PCE at the property in 1981 (Area I).

Based on the review of the 1950 Sandborn Fire Insurance Maps, there was a movie theater on a portion of the property. By 1964, the configuration of the property and surrounding areas were similar to their present-day configuration. By 1985, several of the residential addresses were listed in the Haines Criss-Cross Directory. By 1995, several

commercial businesses were listed as occupants at the property, with Swan Cleaners listed by 2003 at 1543 West Lane Avenue.

The Phase I property assessment per OAC 3745-300-06 included the following conclusions:

- Property is eligible for the VAP in accordance with ORC 3746.02 and OAC 3745-300-02.
- Evidence of release of hazardous substances based on impacted soil and ground water in two portions of the property.
- Need for VAP Phase II property assessment.
- Limits of contamination were identified during the Phase II property assessment.

The Phase II property assessment was performed between October 2000 and April 2002. Primary chemicals of concern (COCs) detected in soils and ground water on the property include PCE, TCE, 1,1-dichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene and vinyl chloride. Ground water was encountered at depths of approximately six to 14 feet below the land surface. Ground water (*and soil vapor*) contamination extends to the south of the property on three adjacent residential properties including 1674 Berkshire Road located south of the parking lot behind Identified Area I.

Source removal activities in Identified Area I (1655 West Lane Avenue) took place between March 21 and June 26, 2002. The objective of these activities was to remove unsaturated soil that had been impacted by historic release(s) of PCE and served as a source of PCE leaching to ground water. Impacted soils were direct-loaded into roll-off boxes and transported to the Environmental Quality Company hazardous waste disposal facility in Bellville, Michigan and later to the Waste Management hazardous waste disposal facility in Model City, New York. An additional five cubic yards of soil was transported to Ross Incineration in Grafton, Ohio. It was reported that approximately 988 cubic yards of soil were removed and disposed as a Resource, Conservation and Recovery Act (RCRA) F002 hazardous waste, during source area excavation activities in 2002 from Identified Area I. The risk based goal used during these source removal activities for PCE in soil was 5.0 mg/kg. Contaminated soil at a depth of six to eight feet at Soil Boring SB-11 immediately west of Identified Area I remained in place due to the presence of a municipal storm sewer (later this preferential pathway was sealed).

Excavation water was directly pumped into a vacuum tanker trailer or staged in a temporary on-site 4,000-gallon steel storage tank. A total of 7,996 gallons of water was transported to Ross Incineration during the summer of 2002.

The former Swan Cleaners facilities were RCRA large quantity generators (LQG) of hazardous waste from April 2002 through 2004. The generator closure of the former LQG

hazardous waste storage area had to comply with requirements of OAC 3745-66-11, OAC 3745-66-14 and OAC 3745-66-97. The LQG status was changed to small quantity generator status in 2005.

Remedial actions at the property include installation of a two - foot thick clay cap and ventilation system to address methane and VOC vapors until the ground water remedy is complete. The ground water remedy consists of *in-situ* reactive zones (IRZs) to support enhanced reductive dechlorination of VOCs by injecting an organic carbon solution into laterals and introduction points. Start up of the ground water remediation system began in August through October 2002 and is on-going. IRZs were also installed at the 1674 Berkshire Road property to remediate the off-property plume.

The Phase II property assessment per OAC 3745-300-07 included the following conclusions:

- Soil and ground water within Identified Area I and to the south were impacted with chlorinated VOCs from dry cleaning fluids released to the environment.
- Soil and ground water within Identified Area II were impacted with chlorinated VOCs from a release(s) of dry cleaning fluids.
- There were no completed exposure pathways at the property that pose an actual risk to potential receptors.
- Ground water at the property is VAP Class B ground water with flow slightly east of due south with a westerly component of ground water flow from a mounding effect due to recharge in backyard lawns from adjacent residential areas.
- The ground water plume has not migrated beneath homes on Berkshire Road, but was detected off property (three downgradient residential properties were purchased by the volunteer and later by the current owner of the VAP property).
- For Identified Area I, COCs in ground water are confined to thin, saturated sand units above a depth of 20 feet beneath the shopping center and the Berkshire Road residential properties.
- There is more than 30 feet of impermeable glacial till between the sand units and the lower ground water gravel unit or the regional bedrock aquifer.
- PCE-containing soil beneath the floor slab of the former 1655 West Lane Avenue address was removed and transported off site for disposal in 2002, and backfilled with low permeability clay after carbon-introduction laterals were installed for ground water remediation and the area covered with a concrete slab.

- Ground water remediation in Identified Area I and downgradient has been operating since August 2002 with a goal of reaching attainment within five years and under an O&M plan.
- In Identified Area II, no soil or ground water remediation is necessary because COCs were only detected in one location (CO-10) in July 2004 and are not migrating off-property.

Based on information provided during the property walkover, four additional temporary injection points were installed during February 2007 in Identified Area I and are located to the south of the building in the vicinity of Monitoring Well MW-32. Carbon injections were reported as being completed monthly.

The O&M plan (OAC 3745-300-15) is dated April 5, 2007 and the O&M agreement (ORC 3746.10(C)(2) or 3746.12(A)(2) and OAC 3745-300-15(A)(3) and 3745-300-15(F)(4)) is dated April 26, 2007. The O&M plan and agreement cover the continued operation and maintenance of the engineering controls consisting of both a sub-slab ventilation system and an active ground water remediation system with performance criteria and ground water monitoring requirements.

The property is subject to the environmental covenant (ORC 5301.80 to 5301.92) recorded May 17, 2007 including 5.222 acres subject to the RMP. The RMP describes the potential health risks that could result from contact with COCs in ground water during possible excavation activities or to utility workers through the incidental ingestion, direct dermal contact, or inhalation routes of exposure and the current techniques to mitigate these potential health risks.

An environmental covenant was recorded on May 14, 2007 in the Franklin County Auditor's Office pursuant to ORC 5301.80 to 5301.92 with the restrictions listed below:

- Approximately 5.222 acres of the 11.417-acre property restricted to commercial or industrial uses only, the standards consist of the generic numerical standards from Table III of OAC 3745-300-08. The standards apply at a point of compliance from the ground surface to a depth of two feet.
- Residential land use standards for direct contact with COCs related to hazardous substances in the soil in the remaining 6.195 acres of the 11.417-acre property. The standards consist of the generic numerical standards from Table III of OAC 3745-300-08. The standards apply to all points underlying the property.
- Soil and ground water standards for direct contact by construction or excavation workers to COCs in soil and ground water. The standards consist of the generic numerical standards from Table IV of OAC 3745-300-08 for soil and standards derived through preliminary property-specific risk assessment procedures in

accordance with OAC 3745-300-09(D) for ground water, and apply to all points below the ground surface. For the approximate 5.222-acre commercial/industrial land use restriction area, if the RMP is implemented as required for subsurface activities occurring at any depth below two feet from the ground surface, then the pathway for direct contact by construction or excavation workers to COCs in soil and shallow ground water is rendered incomplete.

- Unrestricted potable use standards for COCs in ground water in the lower sand zone, consists of generic numerical standards from Tables VI and VII of OAC 3745-300-08, at all points underlying the property. The lower sand zone will maintain continued compliance with unrestricted potable use standards on the weight of evidence demonstrated in accordance with OAC 3745-300-07(D)(4)(a)(ii).
- Ground water standards based on non-potable use for COCs in the shallow "Class B" ground water zone for ground water emanating from the property. The human exposure to COCs in ground water via vapor intrusion to indoor air and excavation and construction worker direct-contact pathways are not reasonably anticipated in the interim time period until completion of the active ground water remedy. The final property-specific risk assessment will demonstrate that the active ground water remedy has achieved compliance with applicable standards for these pathways.
- Soil and ground water standard(s) for vapor intrusion to indoor air to human receptor populations, to be derived through property-specific risk assessment procedures in accordance with OAC 3745-300-09(D), at all points underlying the property. The use of an engineering control within the approximate 5.222-acre commercial/industrial land use restriction area consisting of a building sub-slab vapor barrier and subsurface ventilation system as specified in the O&M plan renders the pathway incomplete. This engineering control will be in place until completion of the active ground water remediation and the final property-specific risk assessment determines the engineering control is no longer necessary.

A multi-chemical adjustment evaluation is required to be submitted when post-remediation ground water monitoring begins following completion of the enhanced reductive dechlorination injections. The ground water remedy is required to be completed within three years of issuance of the April 26, 2007 covenant not to sue (CNS). The ground water remedial system was operational and functional by October 2002. The ventilation remedial system continues to operate at the time of the January 2008 property walkover.

The objective of the June 2007 property-specific risk assessment was to calculate applicable standards to ensure that the concentrations of COCs at the property are protective of human health. Ten sub-surface soil samples were collected on February 23, 2007 for analysis of geotechnical parameters and eight samples for analysis of total organic carbon. A risk assessment was prepared to evaluate exposure to COCs in ground water via the vapor intrusion pathway and non-potable direct ground water exposures for

utility workers resulting in risk-based remediation goal for each COC. Figure A-1, Geotechnical Data Sampling Location, shows the location of Monitoring Well MW-32 and four temporary injection points installed in February 2007.

VAP Technical Assistance

Ohio EPA received two separate requests for VAP technical assistance (TA) from two different CPs. These requests were tracked as TA #04TA018 and TA #05TA005, respectively.

VAP TA Account #04TA018

- VAP TA was requested by Kenneth H. Stroebel, CP #251, ARCADIS G&M, Inc., in a letter received by Ohio EPA in April 2004 followed by the Ohio EPA cost estimate on August 30, 2004. The requested TA included a review of the VAP Phase I property assessment report, the VAP Phase II property assessment report (including Johnson and Ettinger risk modeling), portions of the O&M plan, and two meetings to discuss the property.
- Technical assistance reviewers were Mike Ebner – DERR-CDO (Lead) and Jason Reed - DDAGW-CDO (Ground Water).
- Ohio EPA provided the CP with an example of an O&M plan.
- Ohio EPA also provided several examples of “Declaration of Use Restrictions” for properties in the Ohio EPA’s VAP.

VAP TA Account #05TA005

- VAP TA was requested by Christopher W. Krumm, CP #177, R.D., Zande & Associates, Inc., in a letter received by Ohio EPA dated January 13, 2005, and was followed by the Ohio EPA cost estimate on January 26, 2005. The requested TA included a review of the risk assessment and the O&M plan as well as a pre-submittal meeting.
- Technical assistance reviewers were Ray Moreno – DERR-CDO (Lead), Ken Schultz – DERR-CDO (Manager), Jason Reed - DDAGW-CDO (Ground Water), Linnea Saukko – DDAGW-CDO (Manager), Martin Smith – DERR-CO (Risk) and Ann Fischbein – Legal.
- In a March 7, 2005 Ohio EPA letter, VAP TA comments were provided to the CP on the draft Phase I property assessment report, draft Phase II property assessment report (excluding Appendices A, B, F, G and H) and draft O&M plan with an environmental covenant.

- A copy of the *Operation and Maintenance Agreement – 6/18/04 Final Draft Template* was provided to the CP.

NFA Letter Overview

Ohio EPA Notice of Deficiencies and Reviewer Comments

On September 1, 2006, the *Ohio EPA Notice of Deficiencies and Reviewer Comments* letter was sent to the CP. There were a large number of comments on the NFA letter. See attached September 1 2006 letter.

Addendum #1

On October 30, 2006, Ohio EPA received a letter from the CP with *Addendum to NFA* dated October 27, 2006. The addendum included nine attachments with the CP affidavit pursuant to OAC 3745-300-13(P) and 3745-300-05 (F)(4). The response included a large quantity generator report, legal surveys and descriptions (property and RMP area), first and second quarter 2006 ground water data, STL Laboratory affidavit, revised executive summary, revised O&M plan with RMP and miscellaneous items.

Addendum #2

On November 14, 2006, Ohio EPA received a letter from the CP with *Addendum to NFA* dated November 9, 2006. The correct Figure 1, LQG Hazardous Storage Area, for the addendum in response to the September 1, 2006 comment letter was submitted.

Ohio EPA's Review of Voluntary Action Program, No Further Action Letter Addendum, Notice of Deficiencies and Reviewer Comments

On January 4, 2007, the *Ohio EPA's Review of Voluntary Action Program, No Further Action Letter Addendum, Notice of Deficiencies and Reviewer Comments* letter was sent to the CP. The letter included comments on the O&M plan and required revisions to the executive summary. The main issue of these comments was to ensure that the remedy was capable of attaining applicable standards within five years and provide for a contingent remedy if necessary.

Addendum #3

On March 21, 2007, Ohio EPA received a letter from the CP with *Addendum to the NFA Letter* dated March 20, 2007. There were eight items contained in the addendum including property legal surveys and descriptions, third and fourth quarter 2006 ground water data and laboratory affidavits, revised executive summary, revised O&M plan, environmental covenant and a CD with the addendum.

Ohio EPA's Review of Voluntary Action Program, No Further Action Letter Addendum,

Notice of Deficiencies and Reviewer Comments

On April 3, 2007, the Ohio EPA's *Review of Voluntary Action Program, No Further Action Letter Addendum, Notice of Deficiencies and Reviewer Comments* letter was sent to the CP. The letter included comments on the O&M plan, O&M agreement, financial assurance instrument, legal description and environmental covenant as well as several minor comments on the executive summary. Triggers for seeking approval of a contingent remedy were to be clarified. The need for Ohio EPA approval of statistical methods to evaluate trends in COC concentrations and for an alternative remedy schedule was identified. The requirements for the contingent remedy plan were given and a request for submittal of draft copies of the O&M agreement and environmental covenant was made.

Addendum #4

On April 13, 2007, Ohio EPA received a letter from the CP with *Replacement Page, NFA Letter* dated April 10, 2007. Ohio EPA received the fourth addendum on April 6, 2007 in a letter from the CP with *Addendum to the NFA Letter* dated April 5, 2007. There were five items contained in the addendum including revised executive summary, revised O&M plan and a CD with the addendum.

O&M Plan

The O&M plan contains a June 19, 2002 letter and a June 16, 2004 letter both from Ohio EPA, DDAGW, Underground Injection Control (UIC) Section, providing authorization under OAC 3745-34 and requiring monthly operating reports and the latitude and longitude measurements for each Class V well at the property.
VAP O&M Account #07OM039

Ohio EPA's letter dated April 26, 2007 provided *Notice of Periodic Ohio EPA Compliance Oversight & Request for Billing Contract Verification* under OAC 3745-300-03(E).

An Ohio EPA letter dated October 15, 2007 regarding *Review of Property-Specific Risk Assessment – June 2007*, clarified that a multi-chemical adjustment is required to demonstrate compliance with applicable standards.

AUDIT CRITERIA

On April 26, 2007, the director of Ohio EPA issued a CNS to UAP of Columbus Joint Venture 326132 for the property. The criteria for auditing the technical adequacy and completeness of the NFA letter are found in ORC Chapter 3746 and OAC Chapter 3745-300. The evaluation of whether the property meets VAP applicable standards included, but was not limited to, a determination of the performance of all NFA letter activities in relation to OAC Chapter 3745-300, and the CP's compliance with the requirements set forth in OAC 3745-300-05.

Phase I property assessments conducted under the VAP are required to be performed

following the standards set forth in OAC 3745-300-06. Phase II property assessments conducted under the VAP are required to be performed following the standards set forth in OAC 3745-300-07. A risk assessment conducted under the VAP must follow the requirements set forth in OAC 3745-300-09. A ground water evaluation conducted under the VAP must follow the requirements set forth in OAC 3745-300-10.

Based upon a review of the original and supplemental documents submitted by the CP in support of the NFA letter, the NFA letter demonstrates that the property meets applicable standards contained in OAC 3745-300-10. Remedial activities include removal of approximately 988 cubic yards of PCE-contaminated soil; disposal of about 8,000 gallons of excavation water; and construction and continued operation and maintenance of a ground water remediation system, with the property subject to an engineering control until the remedy is complete; and an environmental covenant.

OAC 3745-300-14(O) requires the director of the Ohio EPA to issue NFA letter audit findings that include a determination of whether VAP applicable standards, and all other requirements established under OAC Chapter 3745-300 or ORC Chapter 3746, have been met, and whether or not additional actions are required to attain compliance.

AUDIT FINDINGS

The findings of this Tier I audit are divided into three general categories 1) compliance with VAP applicable standards, 2) the performance of the CP, and 3) the performance of the CL.

Assessment of Property's Compliance with Applicable Standards

The property continues to be used as a commercial shopping center although the configuration has changed from an indoor mall to stores with individual storefronts. Area I is located below a garage area with a concrete floor and trash compacter, office space with a raised floor, corridors and commercial store space are above it. During the property walkover, the ventilation system blower was operating and venting to the outside. No residential uses were noted on the property. The three residential dwellings over the off-property plume remain unoccupied.

Four newer enhanced reductive dechlorination injection wells were present north of Monitoring Well CO-9 and just south of the garage entrance noted above. It was reported that the enhanced reductive dechlorination injections have decreased from monthly to occasional events. There were several new enhanced reductive dechlorination injection wells installed immediately south of Identified Area I and near existing Monitoring Well CO-9. According to Valerie J. Orr's, Class V Coordinator for the UIC Section, DDAGW, review of the monthly reports including the October-November 2007 report submitted to Ohio EPA on December 24, 2007, there are 23 injection points. Figure 3, Remediation System Layout, dated June 15, 2006, shows a total of 22 enhanced reductive dechlorination injection points (19 introduction points (3 are off-property) and 3 lateral headers) at the property. If additional Class V injection wells were installed at the property, the

owner/operator is obligated to demonstrate continuous compliance with the UIC regulations.

Also during the property walkover, it was noted that many of the monitoring wells included in the O&M plan, which are located in the parking lot (e.g., CO-06, CO-7 and CO-18), were missing bolts to secure the flush mounted protector covers. The cover to CO-18 was upside down, and a crack in the well riser and a loose gasket seal were noted.

The property demonstrated compliance with VAP applicable standards for actual and reasonably anticipated exposure pathways. Compliance was demonstrated through the property-specific human health risk assessment and through the establishment of engineering or institutional controls. The ventilation system did not include real-time metering of air emissions, which may be considered a "data gap," and the O&M report was not available for review. Problems with monitoring wells included in the O&M plan are noted above. Although the organization of the documentation utilized to support the property's compliance with VAP applicable standards was lacking, based on this audit, the property demonstrates compliance.

Certified Professional's Performance

As part of the NFA audit, a review of the CP, Christopher W. Krumm, CP No.177, was conducted. The following findings were noted:

1. The CP was certified pursuant to OAC 3734-300-05 to issue and submit the NFA letter dated June 26, 2006 and the addenda submitted during the period from October 30, 2006 through April 6, 2007. The CP No.177 has been continuously certified since July 28, 2004 to present.
2. It is the obligation of a CP, as described in ORC 3746.11(A) and OAC 3745-300-13(A), to verify that a property complies with applicable standards, in order to issue an NFA letter. With respect to the NFA letter for the property, the CP's performance resulted in the issuance of an NFA letter, as amended, which is consistent with VAP applicable standards contained in ORC Chapter 3746 and OAC Chapter 3745-300.
 - The original NFA letter failed to adequately demonstrate VAP eligibility; provide an accurate legal description of the VAP property (Phase I property assessment); evaluate a potential preferential pathway (Phase II property assessment); provide a map with affected tax parcel numbers; and provide an affidavit from one of the listed CLs. There were significant issues with the O&M plan, RMP and remediation/O&M agreement.
 - Two more deficient NFA letter addenda submitted by the CP in support of the original NFA letter were corrected before the CNS was issued. These addenda covered the legal description of the VAP property and revisions to the O&M plan and environmental covenant.

- During the property walkover, it was reported that several new injections wells had been installed. On February 13, 2008, Ohio EPA reviewed the monthly operating reports submitted to the UIC Section. The most recent report was for October – November 2007. A total of twenty-three injections wells using molasses as the carbon source have been reported to date.
3. OAC 3745-300-05(F) provides standards of conduct that apply to a CP when the CP provides professional services under ORC Chapter 3746 and OAC Chapter 3745-300(F)(1). In summary, a CP must act with care and diligence and fully apply his knowledge and skill at the time that professional services are provided. Several deficiencies were noted with the NFA letter package as listed below:
- There were discrepancies in the documentation of the quantities of soil and ground water removed during the 2002 remedial work (1,678 tons versus 988 cubic yards and 8,267 gallons versus 7,996 gallons).
 - The property was identified as thirteen acres, instead of the 11.417-acre property identified in 1.a. of the VAP NFA letter form and in the introduction of the executive summary.
 - The VAP CP certification number was listed as VAP CP No. 117 instead of No. 177 in the VAP NFA letter form.
 - Item 7.j. in the VAP NFA letter form was left blank.
 - The executive summary includes data for Berkshire Road residential properties that are outside of the VAP property.
 - Section E of the VAP NFA letter form gives a date for the Phase I property assessment as October 12, 2005, while the document is dated October 25, 2005.
 - In Section 2.5 Remedial Activities of the executive summary, there was no mention of PCE contaminated soils (>5.0 mg/kg) remaining along the building footer design, in SB-11 from six to eight feet along a sewer line and in soil boring samples from MW-30 from five to seven feet and from MW-32 from six to seven feet or of the clay cap and ventilation system that were installed in Identified Area I. Instead, the executive summary states that the "...PCE-containing soil that was an on going source of PCE leaching to groundwater was adequately delineated and removed."
 - There is a misleading statement in the executive summary dated April 5, 2007. In Addendum #4, on page 13, in the middle of the final paragraph, is the following statement:

"...Vinyl Chloride and *cis*-DCE concentrations in Identified Area

1 [sic] ground water are on a decreasing trend.”

It is recognized that concentrations of PCE and TCE have decreased in ground water; however, as a result of bioremediation (*i.e.*, dechlorination process) an increasing trend in the concentrations of daughter products including *cis*-1-2-dichloroethene (*cis*-DCE) and vinyl chloride may occur. According to the *Third and Fourth Quarter 2006 Groundwater Data and Laboratory Affidavits* submitted in Addendum #4, the concentrations of *cis*-DCE and vinyl chloride are increasing in Monitoring Wells CO-18 and MW-32 during 2006, and are shown in the table below. Note that Monitoring Well MW-32 is located immediately downgradient of Identified Area I and Monitoring Well CO-18 is downgradient of the third *in-situ* reactive zone.

Sample Location	VOC (ug/l)	Date Sampled			
		3/29/06	6/26/06	10/5/06	11/21/06
CO-18	<i>cis</i> -DCE	370	23.6	34	116
	vinyl chloride	277	42.1	89.2	352
MW-32	<i>cis</i> -DCE	NA	4120	3510	4810
	vinyl chloride	NA	5750	4820	7290

Concentrations of *cis*-DCE and vinyl chloride in the March 21, 2007 ground water sample from Monitoring Well CO-18 increased to 508 ug/l and 1,120 ug/l, respectively, as reported in the June 2007 *Property-Specific Risk Assessment for Selected Volatile Organic Compounds in Soil and Groundwater*. Concentrations of *cis*-DCE and vinyl chloride in the MW-32 sample may appear to be decreasing based on the reported results of 1,860 ug/l and 2,860 ug/l, respectively. A sound statistical method could be used to demonstrate trends.

- The affidavit by “Other Person” pursuant to OAC 3745-300-13(O), lists a June 28, 2006 document as *Operations and Maintenance Report*; however, only an O&M plan dated April 5, 2007 was included in the NFA letter package.
- If additional Class V injection wells are installed at the property, such as those installed in February 2007, the owner/operator is obligated to demonstrate continuous compliance with the UIC regulations.
- Two major pieces of documentation, the case narratives and laboratory receipt checklists, were missing from the supporting information submitted by the CP. The case narratives would have highlighted anything of significance from the analyses. For example, it appears that many of the samples were diluted due to the high concentrations of PCE in the samples. As for the

laboratory receipt checklists, this is the document that tells what the cooler temperature is upon receipt; what the condition of the sampling jars, bottles and vials is upon arrival; the pH level of the preservative and whether additional preservative was needed, etc.

- Not all chain-of-custody forms reported temperatures within the acceptable range of four degrees Celsius (C) (+/- two degrees). A few coolers had temperatures ranging from eight to 14 degrees C. Due to the relatively high concentrations of PCE in the samples, being outside of the acceptable temperature range should not adversely impact the analytical results.
- In 2004, a Level II data validation was conducted by William J. Ferguson, ARCADIS G&M, Inc., on much of the data but only a summary report was provided for individual batches. It's unknown whether the summary report was the only report or not. For the TestAmerica CL, not all coolers with samples contained trip blanks. Only three rinseate samples were collected and analyzed for soil and water samples. Only a few sample-sets included duplicate samples. Some summaries stated that the laboratory quality control results were not reported. Based on the data validation summary and explanations given, William J. Ferguson felt that there was no need for blanks.

Certified Laboratory Performance

Multiple CLs held VAP certification per OAC 3745-300-04 for conducting analyses of samples for all analytical parameters in all environmental media presented in support of the NFA letter unless otherwise noted below. CLs appropriately performed all analyses as required under OAC 3745-300-04(E)(1) and (E)(2) unless otherwise noted below.

The sampling results included data analyzed from 2000 through 2005. There were four analytical laboratories used: ATEL, DLZ, TestAmerica and STL (MW-4 Sept. 2003). However, most of the samples were analyzed by TestAmerica – Dayton, which was certified for Method 8260A on April 9, 1999, for Method 8260B on March 7, 2001, for manganese and iron by Method 6010B on March 7, 2001 and for nitrate and nitrites by Method 353.2 on January 3, 2005. ATEL-Melmore was certified for Method 8260 in early 2002. DLZ-Columbus was certified for Method 8260A in mid-2002. STL-North Canton was certified for Method 8260B on January 29, 1999 and re-certified for Method 8260A on March 22, 2000. Other laboratories not holding certification with the VAP included BBC&M for geotechnical analyses, HAS Engineers & Scientists with PEL Laboratories for modified Method 8021 analysis of active soil gas (vapor) sampling during a pilot test and Microseeps-Pittsburgh (June 11, 2002 water sample) for biogeochemical analyses following U.S. EPA SW-846 Methods.

Overall, the quality assurance/quality control sample results looked good. Some of the matrix spike/matrix spike duplicate results were out of range but the LCS (laboratory control samples) were in range. The high concentrations of PCE were probably a factor. The

blank sample results were acceptable when they were provided. No LCS duplicates were run.

The soil gas data was not reviewed during the performance of this audit, because this type of data are qualitative in nature and used for screening or comparative purposes.

CONCLUSIONS AND RECOMMENDATIONS

The NFA letter audit demonstrates that the NFA letter as amended was issued in accordance with the requirements set forth in ORC Chapter 3746 and OAC Chapter 3745-300.

1. Compliance with Applicable Standards

The generic numerical standards presented in OAC 3745-300-08(B)(1)(a) were determined to be the applicable standards for assessing the potential threat of direct contact exposure to contaminated soil. When remediation is complete, soil and ground water objectives will be achieved and the Lane Avenue Shopping Center property will remain compliant with VAP applicable standards. A final property-specific risk assessment based on a multi-chemical adjustment is required to demonstrate compliance with applicable standards for ground water. The final property-specific risk assessment will demonstrate that the active ground water remedy has achieved compliance with applicable standards for the human exposure to COCs in ground water via vapor intrusion to indoor air including off-property vapor migration and excavation and construction worker direct-contact pathways impacted pathways.

It was determined that institutional controls are required to prevent human exposure to ground water in excess of unrestricted potable use standards per OAC 3745-300-10(F)(6)(a)(i) and that remediation activities performed at the property would need to protect against non-potable exposure to ground water per OAC 3745-300-10(F)(6)(a)(ii).

The operation of the ground water remediation system and performance monitoring will continue until the ground water cleanup objectives are met. A multi-chemical adjustment evaluation is required to be submitted when post-remediation ground water monitoring begins following completion of the enhanced reductive dechlorination injections. The ground water remedy is projected to be complete within five years, and is required to be completed within three years of issuance of the April 26, 2007 CNS. The ground water remediation system was operational and functional by October 2002. The ventilation system continues to operate as of the January 2008 property walkover. The building sub-slab vapor barrier and subsurface ventilation system as specified in the O&M plan renders the pathway incomplete. This engineering control will be in place until completion of the active ground water remediation and the final property-specific risk assessment following OAC 3745-300-09 determines the engineering control is no longer necessary.

During the property walkover, it was noted that many of the monitoring wells, which are located in the parking lot (e.g., CO-06, CO-7 and CO-18), were missing bolts to secure the flush mounted protector covers. The cover to CO-18 was upside down, and a crack in the well riser and a loose gasket seal were noted. It is recommended that a letter be sent to the volunteer/owner reminding them that these monitoring wells need to be maintained per the O&M plan.

If additional Class V injection wells were installed at the property after June 16, 2004, it is recommended that a letter be sent to the volunteer/owner informing them of their obligation to demonstrate continuous compliance with the UIC regulations. It is also recommended that a letter be sent to the CP suggesting to the CP that he inform the volunteer/owner of their obligation to demonstrate continuous compliance with the UIC regulations.

2. Certified Professional

Because four addendums were needed to address the deficiencies noted in the NFA letter, it is recommended that a letter be sent to the CP listing the noted deficiencies (emphasizing that it is important that the analytical data set is complete with case narratives, laboratory receipt checklist, sufficient number of trip blanks, rinseate samples (e.g., equipment blanks) and duplicate samples); that the executive summary accurately portrays the investigations and monitoring of environmental media at the property; and that the NFA letter fully supports the determination that a property complies with VAP applicable standards for all exposure pathways and COCs pursuant to VAP rules.

Through the NFA letter audit, the VAP audit team determined that the CP's performance resulted in the issuance of an NFA letter, which "as amended," is consistent with the VAP applicable standards contained in ORC Chapter 3746 and OAC Chapter 3745-300.

3. Certified Laboratory

The two primary CLs held VAP certification per OAC 3745-300-04 for conducting analyses of samples for all analytical parameters in all environmental media presented in support of the NFA letter and appropriately performed all analyses as required under OAC 3745-300-04(E)(1) and (E)(2). The deficiencies noted were relatively insignificant, and there are no recommendations.