

BEFORE

THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Application of Duke)
Energy Ohio, Inc., for an Adjustment to) Case No. 20-0053-GA-RDR
Rider MGP Rates.)

In the Matter of the Application of Duke)
Energy Ohio, Inc., for Tariff Approval.) Case No. 20-0054-GA-ATA

DIRECT TESTIMONY OF

SHAWN S. FIORE

ON BEHALF OF

DUKE ENERGY OHIO, INC.

_____ Management policies, practices, and organization
_____ Operating income
_____ Rate Base
_____ Allocations
_____ Rate of return
_____ Rates and tariffs
 X Other: Manufactured Gas Plant Site Remediation

March 31, 2020

TABLE OF CONTENTS

	<u>PAGE</u>
I. INTRODUCTION AND PURPOSE	1
II. ENVIRONMENTAL REMEDIATION ACTIVITIES	4
III. THE OHIO VOLUNTARY ACTION PROGRAM	6
IV. CONCLUSION.....	23

Attachments:

SSF-1	Curriculum Vitae
SSF-2	2019 Phase II Property Assessment Work Plans and Reports
SSF-3	Reports on Remedial Alternatives Analysis of East End and West End Sites
SSF-4	OEPA Notice of Response and Regulatory Interest Regarding East End Site Riverbank Release Notification
SSF-5	OEPA Spill No 1907EPA1217 IRMM 30 Day Notice

I. INTRODUCTION AND PURPOSE

1 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND POSITION.**

2 A. My name is Shawn S. Fiore. My business address is 6500 Rockside Road, in
3 Independence, Ohio. My position is Senior Vice President at Haley & Aldrich, Inc.

4 **Q. PLEASE BRIEFLY SUMMARIZE YOUR EDUCATIONAL AND**
5 **PROFESSIONAL EXPERIENCE.**

6 A. I earned a Bachelor of Science Degree in Geochemistry from Bowling Green State
7 University, in Bowling Green, Ohio, in May 1986. I earned a Master of Science
8 Degree in Geology from Bowling Green State University in August 1993. I am a
9 licensed Professional Geologist in Indiana and Pennsylvania, and a Voluntary Action
10 Program (VAP) Certified Professional (CP), in Ohio. I have been a CP since 1996. I
11 have more than 30 years of experience working in the environmental consulting
12 industry. I began my career as an environmental geologist for Engineering-Science
13 Inc. (later Parsons Corporation), in 1988, in Chicago, Illinois, and continued to work
14 with this company until 2002, when I joined Haley & Aldrich. I have worked
15 predominantly on environmental investigation and remediation projects during my
16 career, focusing on Manufactured Gas Plant (MGP) projects for the past fifteen years.
17 I have completed professional assignments, including investigation and remediation
18 projects, throughout the United States and in Canada, Mexico and other countries. I
19 have presented at several professional conferences, seminars and meetings, including
20 those at the invitation of the Ohio Environmental Protection Agency (Ohio EPA),
21 Fortune 50 Companies and non-profit groups, as listed in my Curriculum Vitae,
22 provided as Attachment SSF-1.

1 **Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY OR TESTIFIED**
2 **BEFORE THE PUBLIC UTILITIES COMMISSION OF OHIO?**

3 A. Yes, I filed written testimony and testified during the hearings on behalf of Duke
4 Energy Ohio, Inc. (Duke Energy Ohio) in the 2012 Natural Gas Rate Case, Case
5 Nos. 12-1685-GA-AIR, *et al.* (2012 Natural Gas Rate Case) and in 2019 in the
6 Consolidated Rider MGP Proceeding, Case Nos. 14-375-GA-RDR, *et al.*; Case
7 Nos. 15-0452-GA-RDR, *et al.*; Case Nos. 16-0542-GA-RDR, *et al.*; Case Nos. 17-
8 0596-GA-RDR, *et al.*; Case Nos. 18-283-GA-RDR, *et al.*; and Case Nos. 19-174-
9 GA-RDR, *et al.*, which were consolidated (collectively, the Consolidated Rider
10 MGP Proceedings).

11 **Q. WHAT DOCUMENTS HAVE YOU REVIEWED IN THE PREPARATION**
12 **OF YOUR TESTIMONY?**

13 A. I have been involved as the CP for the work at the East End site since 2009 and
14 consulted on VAP issues at the West End site since 2012 and have been serving as
15 the CP for the West End site since 2019. I am very familiar with the nature and
16 extent of the work that has been performed by the Company at the two sites and
17 have reviewed numerous documents that have been prepared in connection with the
18 investigation and remediation of the East End and West End sites. With respect to
19 work performed in 2019, documents prepared by Haley & Aldrich in 2019 and
20 provided in Attachment SSF-2, include the “VAP Phase II Property Assessment
21 Work Plan for Additional Sediment Investigation of Ohio River” prepared for West
22 End Site, dated August 2019; the “VAP Phase II Property Assessment Work Plan
23 for Additional Sediment Investigation of the Ohio River” prepared for the East End

1 site, dated July 2019; “Addendum No. 1 to the Phase II Property Assessment Work
2 Plan for Additional Sediment Investigation,” prepared for the East End site, dated
3 September 26, 2019; and the “2018 Groundwater and NAPL Monitoring Report”
4 prepared for the East End site, dated March 20, 2019. Although I was not as
5 involved with the investigation and the remediation work at the West End site,
6 except for the Phase II Property Assessment of the Ohio River, I have reviewed
7 documents prepared for Duke Energy Ohio by other consultants in accordance with
8 the Ohio VAP and in my role as a CP. Review of reports prepared by other
9 consultants is a common practice and expressly contemplated under the Ohio VAP.
10 In addition to the above, I have also participated in numerous on-site meetings and
11 conference calls regarding the investigation and remediation work at both sites.

12 **Q. WHAT IS THE PURPOSE OF YOUR PREFILED DIRECT TESTIMONY?**

13 A. The purpose of my direct testimony is to describe Ohio’s VAP, Duke Energy Ohio’s
14 compliance with VAP requirements with respect to the work performed at the East
15 End and West End sites, and the prudence of the plans developed and actions taken in
16 2019, as related to applicable environmental programs, Ohio VAP requirements and
17 practical considerations.

18 **Q. PLEASE SUMMARIZE YOUR PREFILED DIRECT TESTIMONY.**

19 A. My direct testimony focuses on a description of the Ohio VAP and regulation of
20 VAP CPs, provides a discussion of VAP applicable standards associated with the
21 environmental investigation and remediation activities, as relevant to Duke Energy
22 Ohio’s East End and West End sites, and provides a discussion on the prudence and
23 reasonableness of investigation and remediation work completed by Duke Energy

1 Ohio in 2019 at these two sites. I previously prepared pre-filed testimony and
2 provided oral testimony in the past Natural Gas Rate Case and Consolidated Rider
3 MGP Proceeding. This previous testimony remains accurate today, and this current
4 testimony will be focused on activities that have occurred since my previous
5 testimony in 2013 and 2019 involving the two former MGP cleanups at the East
6 End site and the West End site.

II. ENVIRONMENTAL REMEDIATION ACTIVITIES

7 **Q. PLEASE DESCRIBE YOUR EXPERIENCE IN INVESTIGATING AND**
8 **REMEDIATING CONTAMINATED PROPERTIES.**

9 A. During my approximately 30-plus-year professional career, I have predominantly
10 focused on investigation and remediation of contaminated sites. I have completed
11 hundreds of professional assignments on contaminated properties in Ohio and
12 beyond, including more than 20 Comprehensive Environmental Response,
13 Compensation and Liability Act (CERCLA) and Superfund Sites (which are some
14 of the most contaminated sites in the country), more than 50 former industrial
15 properties or “brownfield sites,” more than 200 active industrial facilities, more
16 than 100 commercial facilities, several former wood preserving facilities, more than
17 20 Department of Defense (DOD) facilities and on MGP sites in Ohio,
18 Pennsylvania, Indiana, and Michigan. Specifically, in Ohio, I have conducted
19 investigations and remediations on multiple contaminated sites regulated by the US
20 EPA, including CERCLA and Superfund sites, Resource Conservation and
21 Recovery Act (RCRA) sites, formerly used DOD sites, hazardous waste landfills,
22 and other sites. I have conducted investigations and remediations on sites regulated

1 by the Ohio EPA, including active and inactive industrial facilities, landfills,
2 commercial properties, brownfield sites, residential properties, abandoned /
3 undeveloped properties, and MGP sites. I have completed investigation and
4 remediation projects in all five Ohio EPA districts. I have also conducted
5 investigations and remediations on other contaminated sites in Ohio regulated by
6 the Bureau of Underground Storage Tank Regulations (BUSTR). I have been
7 involved with the investigation and remediation of the East End and West End sites
8 since 2009.

9 **Q. PLEASE DESCRIBE YOUR INVOLVEMENT WITH THE OHIO**
10 **VOLUNTARY ACTION PROGRAM (VAP).**

11 A. I was certified by the Ohio EPA as a CP in 1996. I have been re-certified by the
12 Ohio EPA every year since. I have actively participated in the VAP in a number of
13 ways including practicing as a VAP CP for more than 24 years on more than 50
14 properties, obtaining recertification annually through participation in ongoing
15 professional development training as required by the VAP, providing comments
16 and input to Ohio EPA on proposed rule changes regarding the VAP, participating
17 in Ohio EPA-led training sessions to enhance my knowledge of the VAP rules and
18 requirements, working with the Ohio EPA through Technical Assistance to identify
19 and solve complex project-related issues not directly included in the rules,
20 participating on multi-disciplinary tasks groups (including Total Petroleum
21 Hydrocarbons and Background Metals concentrations), participating in and
22 providing feedback as part of a multidisciplinary stakeholder review process
23 implemented by the Ohio EPA, and presenting at CP training sessions and other

1 Ohio EPA-led meetings designed to provide additional and ongoing training for
2 VAP CPs. I have also been contacted by other VAP CPs, working on MGP sites in
3 Ohio, to provide advice and information on mitigation of MGP-related wastes
4 under the VAP.

5 **Q. HAVE YOU BEEN INVOLVED IN INVESTIGATING AND**
6 **REMEDIATING ANY MGP SITES IN OHIO?**

7 A. Yes. I have been involved in investigating and remediating MGP sites in Ohio since
8 2005. I have investigated more than 20 MGP sites in Ohio and have been involved
9 in the remediation of eight MGP sites, to date, with two more in the planning or
10 design stage, which, I believe makes me the CP with the most experience in
11 investigating and remediating MGPs under the Ohio VAP.

12 **Q. HAVE YOU BEEN INVOLVED IN INVESTIGATING AND**
13 **REMEDIATING ANY MGP SITES IN OHIO UNDER THE VAP?**

14 A. Yes, the sites indicated in my response to the previous question have been or are
15 being investigated and/or remediated following VAP rules.

III. THE OHIO VOLUNTARY ACTION PROGRAM

16 **Q. THE COMMISSION'S ORDER IN THE NATURAL GAS RATE CASE**
17 **DETAILS THE VAP REQUIREMENTS, THE PROCESS OF OBTAINING**
18 **A NO FURTHER ACTION (NFA) LETTER AND REQUESTING A**
19 **COVENANT NOT TO SUE (CNS). HAVE THERE BEEN ANY CHANGES**
20 **TO THE VAP PROGRAM OR PROCESS SINCE YOU PREVIOUSLY**
21 **TESTIFIED BEFORE THE COMMISSION?**

22 A. No. Information on the VAP's purpose, requirements, process for obtaining a NFA

1 letter and a CNS, as well as how the program applies to the East End and West End
2 sites is described at length in the Commission's November 13, 2013 Opinion and
3 Order in the Natural Gas Rate Case (Opinion and Order).¹ Likewise, the
4 Commission's Opinion and Order provides descriptions of the impact of Ohio rules
5 and the Ohio EPA cleanup program under the VAP.²

6 This information remains accurate today and, as such, I will focus my
7 testimony on activities occurring during the period relevant to this proceeding. As
8 described in the Commission's Opinion and Order, because CPs act as agents of
9 the State within the VAP program, the VAP also contains a comprehensive program
10 regulating CPs, which includes verification of educational and work experience,
11 certification criteria, initial and ongoing training requirements (initially and
12 annually), a determination of professional competence, regulation of conduct, and
13 other items.³

14 **Q. HAVE THERE BEEN ANY RECENT CHANGES TO THE**
15 **REQUIREMENTS TO BECOME A VAP CP, TO MAINTAIN VAP CP**
16 **CERTIFICATION, OR TO THE PROFESSIONAL STANDARDS TO**
17 **MEET THE OBLIGATIONS OF A VAP CP SINCE YOU PREVIOUSLY**
18 **TESTIFIED BEFORE THIS COMMISSION?**

19 A. Generally, no. The VAP rules undergo regular review and amendment by the
20 Agency. However, the general criteria to become a VAP CP has not materially
21 changed from the process that existed in 2012 when I first testified before this

¹ *In the Matter of the Application of Duke Energy Ohio, Inc., for an Increase in its Natural Gas Distribution Rates*, Case No. 12-1685-GA-AIR *et al.*, (Opinion and Order at 23-31) (November 13, 2013).

² *Id.*

³ *Id.* at 30.

1 Commission and when I testified most recently in 2019. A person must meet several
2 criteria to become a VAP CP specified in OAC Rule 3745-300-05(A) and (B),
3 including: (1) hold a bachelor's degree from an accredited school in an appropriate
4 engineering or science discipline; (2) have 8 years of professional experience
5 related to cleanup work, including three years as a supervisor or project manager;
6 (3) possess good moral character; (4) possess the professional competence and
7 knowledge to perform the tasks required of a CP; and (5) take the initial training
8 class offered by the Ohio EPA. In order to maintain that certification, specific
9 criteria must be met in accordance with OAC Rule 3745-300-05(C), including
10 meeting performance criteria and taking relevant professional development classes
11 acceptable to Ohio EPA, one half of which must actually be provided directly by
12 the Ohio EPA. As noted above, I have been a CP since 1996 and have obtained re-
13 certification every year.

14 **Q. HAVE THERE BEEN ANY CHANGES TO THE VAP REQUIREMENTS**
15 **TO DETERMINE WHETHER AN NFA LETTER MAY BE ISSUED FOR A**
16 **PROPERTY SINCE YOU PREVIOUSLY TESTIFIED?**

17 A. As discussed above, Ohio EPA reviews and amends the VAP rules on a regular
18 basis, but there have not been significant changes to the process for determining
19 whether an NFA letter may be issued for a property. In order to determine whether
20 an NFA letter may be issued, the CP must follow the VAP rules to: confirm that
21 the property is eligible for participation in the VAP; ensure that the property is
22 investigated in accordance with the VAP rules while utilizing analytical data from
23 a VAP-certified laboratory; identify all applicable VAP standards; and determine

1 whether all applicable VAP standards have been met, and, if not, ensure that
2 remediation required to meet applicable standards has been completed. All
3 information obtained under the VAP must be certified to truth, accuracy and
4 completeness by way of an affidavit. Once applicable standards have been met, an
5 NFA letter may be issued for the property by the CP under affidavit. It is also
6 important to note that the NFA letter applies to the work conducted and conditions
7 known to exist at the time it is issued. In the event that the CP learns subsequent
8 to the date that a CP issues an NFA letter that relevant facts, data or other
9 information existed at the time the NFA letter was issued which indicate that
10 applicable standards were not met, the CP must: (1) promptly notify the remediating
11 party, or the owner or operator of the property, if different, that the applicable
12 standards were not met and of the need to notify the Director of Ohio EPA; and (2)
13 notify the Director of Ohio EPA that applicable standards were not met if the
14 remediating party, or the owner or operator of the property, if different, does not
15 submit written confirmation to the CP within thirty days of learning of the relevant
16 facts, data, or other information, that the Director has been notified.

17 **Q. WHY IS IT DESIRABLE TO FOCUS REMEDIATION EFFORTS ON**
18 **OBTAINING AN NFA LETTER?**

19 A. An NFA letter is desirable in that it is written confirmation by the CP that the
20 environmental condition of a site meets all applicable standards under the VAP
21 rules for current and reasonably anticipated future land users.⁴ The entire VAP
22 process is focused on meeting applicable standards and the NFA letter serves as

⁴ Id. at 31.

1 documentation that these standards have been achieved. In other words, the NFA
2 letter is a formal statement by the CP that the property has been investigated and
3 remediated to meet the State of Ohio's cleanup standards. In addition, an NFA letter
4 is required to obtain liability relief, if desired, in the form of a CNS from the State
5 of Ohio. Further, the Ohio EPA offers some enforcement relief for remediating
6 parties working under the VAP rules and working toward meeting all applicable
7 standards and ultimately achieving an NFA letter. The Ohio EPA generally will not
8 issue an enforcement order for properties on which work is being undertaken in
9 conformance with the VAP.

10 **Q. ONCE A SITE IS EVALUATED, HOW ARE OPTIONS FOR**
11 **REMEDATION SELECTED?**

12 A. The VAP does not specify or prescribe required remedial options.⁵ The VAP sets
13 forth applicable standards and specifies that all applicable standards, as related to
14 current and reasonably anticipated land users, must be achieved. The remediating
15 party, in consultation with the CP, determines the remedial approach required to
16 meet all applicable VAP standards. Typically, several remedial options are
17 evaluated in order to select a remedy. These remedial options are often evaluated
18 with respect to protectiveness of human health and the environment, the long- and
19 short-term effectiveness and permanence, implement ability, suitability,
20 compliance (with rules), and costs in meeting these standards. Quite frequently,
21 several remediation techniques are combined to provide a remedial approach that
22 allows a site to achieve all applicable standards.

⁵ Id.

1 With respect to the East End and West End sites, Duke Energy Ohio
2 considered several remedial alternatives at each “phase” of the remediation,
3 evaluating a number of criteria as noted above. Both the East End and West End
4 sites were sub-divided into areas or “phases” for purposes of investigation and
5 remediation, which is a common approach utilized in contaminated site cleanups
6 and in the VAP, particularly at very large and complicated sites such as these two
7 sites. These evaluations have been documented in various reports for work that has
8 been conducted at the sites, which are contained in Attachment SSF-3. The
9 remedial approach at both the East End and West End sites have followed and
10 continue to follow the same approach that was used since remediation began at the
11 two sites, and that was determined by the Commission to be prudent in the Natural
12 Gas Rate Case.⁶

13 **Q. HOW IS COST CONSIDERED IN DETERMINING COMPLIANCE WITH**
14 **THE VAP?**

15 A. The VAP establishes applicable standards that must be met to allow for issuance of
16 an NFA letter and a CNS from Ohio EPA.⁷ It is up to the remediating party to
17 determine how best to achieve those standards following the VAP regulations, as
18 well as to meet other applicable criteria as described above. The VAP allows the
19 use of different remedial approaches to address a variety of site conditions and
20 exposure pathways. These different remedial approaches carry with them different
21 costs. For example, *in situ* stabilization is generally less costly than excavation and,
22 if used within the appropriate site conditions, is as effective as excavation in

⁶ Id. at 63-65

⁷ Id. at 30.

1 meeting specific applicable standards within those conditions. That being said, the
2 objective of remediation conducted on VAP sites is to achieve all applicable VAP
3 standards.

4 For the East End and West End sites, the remedial work completed in 2019
5 (and previously) has included the mitigation of significant volumes of free product
6 (coal tar) in order to achieve applicable VAP standards. These actions do not only
7 serve to meet soil direct contact standards, but rather to meet all applicable VAP
8 criteria, including leaching to groundwater, surface water protection and protection
9 of groundwater meeting potable use standards (POGWMPUS), for example,
10 removal or stabilization of the coal tar was necessary. Utilization of other
11 potentially less costly remedial measures, such as environmental covenants or
12 surface capping, would allow the site to meet some applicable standards, but not all
13 applicable standards (particularly those requiring protection of the critical resource
14 groundwater underlying the sites and the Ohio River) and, thus, by themselves,
15 would also not be protective of human health and the environment and not be
16 sufficient to allow for issuance of an NFA letter or a CNS.

17 Although the VAP does not require consideration of cost, cost was one of
18 the factors that was considered in assessing remedial alternatives at both sites as
19 reflected in the reports in Attachment SSF-3. Other factors included: protectiveness
20 of human health and the environment, the long-and short-term effectiveness and
21 permanence, implement ability, suitability, and compliance with VAP rules. These
22 are appropriate and customary factors to include in evaluating remedial alternatives.
23 Based on the reports I have reviewed and the work I have performed, the remedial

1 activities performed at the East End and West End sites were selected based on an
2 evaluation of these factors, with the focus of meeting all applicable VAP standards.

3 **Q. PLEASE IDENTIFY THE STANDARDS THAT MUST BE EVALUATED**
4 **TO DETERMINE WHETHER A PROPERTY COMPLIES WITH ALL**
5 **APPLICABLE VAP STANDARDS SUCH THAT AN NFA LETTER MAY**
6 **BE ISSUED UNDER THE VAP.**

7 A. In order to prepare an NFA letter for a property, a CP is required to identify all
8 applicable standards for that property. Applicable standards must be determined for
9 all chemicals of concern, for all relevant site media (*e.g.* soil, groundwater, soil
10 vapor, *etc.*) with respect to all current and reasonably anticipated future land use
11 and exposure pathways determined to be complete.

12 Applicable standards may include, but are not limited to, standards derived
13 from generic numerical standards (as adjusted for the presence of multiple
14 chemicals), UPUS, non-potable groundwater use standards, vapor intrusion
15 screening levels (VISL) and standards, as well as soil leaching to groundwater,
16 POGWMPUS, comparisons to background conditions, and standards related to
17 migration or transport of chemicals to surface water and sediment (both human and
18 ecological), as well as those standards derived through property specific or
19 ecological risk assessment. As indicated previously, once all applicable standards
20 are identified and once it is determined that a property meets all applicable
21 standards, an NFA letter may be issued by the CP under affidavit.

1 **Q. WHAT ARE THE VAP STANDARDS APPLICABLE TO THE EAST END**
2 **AND WEST END SITES?**

3 A. In general, the standards applicable to these sites are the same standards applicable
4 to most VAP sites. These standards include: generic numerical standards (as
5 adjusted for the presence of multiple chemicals); UPUS for groundwater; vapor to
6 indoor air standards; leaching to groundwater standards; POGWMPUS;
7 comparisons to background conditions; surface water standards; as well as
8 standards derived from human health and ecological risk assessments, and others.
9 Further, the remedial actions selected and undertaken at each site, in and before
10 2019, have been successful in moving these sites closer to meeting applicable VAP
11 standards for not just direct contact to soil, but also, groundwater, soil vapor and
12 other site media. To be clear, the remedial work undertaken to date, including in
13 2019, are not just soil remedies, but remedies designed to meet all applicable
14 standards across multiple site media.

15 **Q. HOW HAVE THE REMEDIAL ACTIONS UNDERTAKEN AT THE EAST**
16 **END AND WEST END SITES MOVED THE SITES CLOSER TO**
17 **MEETING ALL APPLICABLE STANDARDS FOR ALL SITE MEDIA?**

18 A. The remedial activities completed to date have moved these VAP sites closer to
19 meeting all applicable standards for soil, groundwater, and soil vapor. Remedial
20 activities have involved the removal and off-site disposal and in situ treatment of
21 impacted soil and the *in situ* treatment of mobile MGP residuals, including oil-like
22 material (OLM) and tar-like material (TLM). The removal and treatment of soil and
23 mobile MGP residuals, has directly moved the sites closer to meeting all applicable

1 standards related to soil and soil vapor and has worked to eliminate the migration
2 of chemicals of concern from soil and mobile MGP residuals into critical resource
3 groundwater, thus moving the sites closer to meeting all applicable groundwater
4 standards. Further, because the uplands areas contain mobile MGP residuals, which
5 may act as source material for impacts to the Ohio River, removing and treating
6 these impacts have also moved the sites closer to meeting all applicable standards
7 related to protection of the Ohio River and associated sediment.

8 **Q. HAVE THE VAP REQUIREMENTS FOR ADDRESSING MGP**
9 **RESIDUALS AT A PROPERTY CHANGED SINCE THE NATURAL GAS**
10 **RATE CASE?**

11 A. No. MGP residuals include, among other contaminants, OLM and TLM, which
12 contain a number of chemicals, including benzene and polyaromatic hydrocarbons.
13 The OLM and, in some areas, TLM present at the sites are considered “free
14 product” as defined by Ohio EPA: “a separate liquid hydrocarbon phase that has a
15 measurable thickness of greater than one one-hundredth of a foot.” In general, the
16 VAP assumes that properties with free product exceed the unrestricted potable use
17 standard (UPUS) for ground water (OAC 3745-300-08(B)(2)(c)). It should be noted
18 that the presence of OLM and TLM may also exceed other applicable VAP
19 standards, such as POGWMPUS, leaching to groundwater, vapor intrusion, direct
20 contact standards, and others.

21 **Q. HAS THE APPROACH FOR REMEDIATING THE EAST END AND WEST**
22 **END SITES CHANGED SINCE THE NATURAL GAS RATE CASE?**

23 A. No. The approach for remediating the East End and West End sites, in 2019 and

1 previously, has followed the same general process as was described in the Natural
2 Gas Rate Case and determined by the Commission to be prudent.⁸ At the East End
3 and West End sites, the MGP residuals must be remediated to meet applicable VAP
4 standards for several reasons. The MGP residuals at the East End and West End
5 sites have and will impact groundwater in excess of applicable standards.
6 Moreover, the MGP residuals at the two sites have migrated in the subsurface (for
7 example, they have migrated down to bedrock at a depth of nearly 100 feet below
8 ground surface at the East End site), which would likely cause failures of other
9 applicable standards including POGWMPUS, leaching to groundwater standards,
10 surface water quality standards, ecological and human health risk-based standards,
11 off-site direct contact standards, and others, thus making issuance of an NFA letter
12 impossible without excavation and/or treatment of the OLM and TLM.

13 To be clear, receptors that could be impacted by migration of the free
14 product (OLM and TLM) at the East End and West End sites include the adjacent
15 surface water body (Ohio River). Unless controlled, the MGP residuals could
16 migrate into this surface water body, thus making issuance of an NFA letter not
17 possible without active remediation. Thus, remedial actions undertaken at both sites
18 have been successful in moving both sites closer to meeting all applicable standards
19 for complete exposure pathways identified in soil, groundwater, soil vapor and
20 other media, as required by the VAP and other environmental cleanup programs.
21 The remediation work completed at the East End and West End sites has not simply
22 been a soil remedy, but a remedy that addresses all other site media, as required

⁸ Id. at 63-65

1 under the VAP. The remedies were selected and designed to support meeting all
2 applicable standards under the VAP.

3 Other potential remedies that would not be sufficient to allow the sites to
4 meet all applicable standards were not selected, including some of those described
5 and evaluated in the reports contained in Attachment SSF-3. These insufficient
6 remedies would include partial remedies, such as implementation of only an asphalt
7 or concrete cap, implementation of only land use restrictions, or only installation of
8 an engineering control, such as a soil barrier consisting of two feet of soil. Further,
9 even combined, these remedies would be insufficient to meet all applicable
10 standards. Although land use restrictions and engineering controls will likely be
11 included in the final overall site remedy, in and of themselves, these remedial
12 activities are insufficient and will not allow these sites to meet all applicable
13 standards.

14 **Q. HAS THE WEST END SITE BEEN PROPERLY EVALUATED AND**
15 **REMEDIED BASED UPON THE OHIO VAP REGULATIONS?**

16 A. The VAP is an iterative process in which several rounds of investigation are often
17 needed to fully evaluate a property. If applicable standards are not met, remediation
18 activities are then planned such that when these activities are complete, all
19 applicable standards may be achieved.

20 The iterative investigation and remediation work at the West End site has
21 been conducted in a manner consistent with those previous efforts at the West End
22 site as was previously described and found reasonable in the Commission's

1 Opinion and Order.⁹ Active remediation of the Phase 3 and Tower Areas in the
2 uplands at the West End site was completed in 2019. Investigation in the Phase 4
3 Area was completed and investigation of the adjacent river bank and Ohio River
4 sediment and site-wide groundwater monitoring are ongoing. Thus, all applicable
5 standards have not yet been achieved, but substantial progress has been made
6 toward meeting all applicable VAP standards.

7 The remedial approach that was taken with respect to the Phase 3 and Tower
8 Areas and the investigation of the Phase 4 Area is similar to the approach that was
9 taken at other areas of the West End site that the Commission previously found
10 prudent in the Natural Gas Rate Case. Areas that were impacted with MGP
11 residuals, including OLM and TLM, were addressed with a combination of
12 excavation and in-situ stabilization. Based on the documents that I have reviewed,
13 the investigation and remediation work conducted at the West End site in 2019, was
14 consistent with previous investigation and remediation work, was prudent and
15 reasonable, and in conformance with VAP regulations.

16 **Q. HAS THE EAST END SITE BEEN PROPERLY EVALUATED AND**
17 **REMEDIED BASED UPON THE OHIO VAP REGULATIONS?**

18 A. As is the case with the West End site, the work at the East End site is ongoing and
19 is being conducted in a manner consistent with those previous efforts at this site as
20 described and found prudent in the Commission's Opinion and Order.¹⁰ Remedial
21 work in the Middle Parcel was completed in 2019, except for areas deemed
22 currently inaccessible by Duke Energy Ohio. Based on the investigations to date,

⁹ Id. at 31-36 and 43-46.

¹⁰ Id. at 36-43.

1 OLM and TLM are present in portions of the Middle Parcel that cannot presently
2 be accessed and remediated due to the sensitive underground infrastructure and
3 facilities present at the site that are necessary and integral to the propane peaking
4 operations conducted at the facility.

5 In developing the remedial approaches for the areas at the East End site that
6 were addressed in 2019, Duke Energy Ohio has continued to follow the same
7 general process that it had used to investigate and remediate MGP impacts in areas
8 of the East End site that were previously addressed. Areas that were impacted with
9 MGP residuals, including OLM and TLM, have been and continue to be addressed
10 with a combination of excavation and in situ stabilization. Based on the documents
11 that I have reviewed and my direct involvement with the East End site, the
12 investigation and remediation work conducted at the East End site was consistent
13 with previous investigation and remediation work, prudent and reasonable, and in
14 conformance with VAP regulations.

15 **Q. WHY DID DUKE ENERGY OHIO ASSESS THE OHIO RIVER BANK AND**
16 **THE OHIO RIVER SEDIMENTS AT THE EAST END AND WEST END**
17 **SITES?**

18 A. Results of investigation and remediation activities completed in the uplands areas
19 to date, on both the East End and West End sites, have indicated the potential for
20 the Ohio River bank and Ohio River sediments to be impacted by mobile MGP
21 residuals associated with the respective upland former MGP facilities. Under the
22 VAP, the extent of all contaminants of concern present on or emanating from a site
23 must be evaluated to ascertain whether applicable standards, including surface

1 water standards and those standards derived from ecological and human health risk
2 assessment, have been met for all potential receptors. Thus, these investigation
3 activities, as required by the VAP, were designed to provide the information needed
4 to understand site conditions as detailed in VAP Phase II Property Assessment
5 Work Plans prepared for both the East End and West End sites, as provided in
6 Attachment SSF-2.

7 Investigation activities, which are currently underway, are being conducted
8 to determine whether applicable standards have been achieved. These investigation
9 activities were consistent with past investigation activities conducted at these sites
10 conducted under Ohio's VAP and were reasonable and prudent based on my
11 experience and as indicated in the Commission's Opinion and Order.

12 **Q. WHY DID DUKE ENERGY OHIO CONDUCT A REMEDIAL ACTION**
13 **ALONG THE OHIO RIVER BANK AT THE EAST END SITE AND HOW**
14 **WAS THIS AREA RELATED TO FORMER MGP OPERATIONS**
15 **CONDUCTED AT THE SITE?**

16 A. During river sediment investigation and remediation activities in the summer of
17 2019, an area of impacted material was observed on the East End site river bank
18 near the Ohio River. These observed conditions were reported by Duke Energy
19 Ohio to the Ohio EPA through their 24-hour emergency spill hotline and a written
20 follow up notification was submitted as provided in Attachment SSF-4.

21 As a result of evaluation of this area, it was determined that the material
22 encountered on the river bank was related to the former MGP operations at the East
23 End site. Based on this information, Duke Energy Ohio designed and implemented

1 an interim limited remedial action in this area that was reviewed and approved by
2 Ohio EPA, as summarized in the required 30-day report submitted to the Ohio EPA,
3 as described in Attachment SSF-5. Based on its evaluation, the Ohio EPA agreed
4 that the interim limited response was satisfactory and noted that the site was being
5 investigated and remediated under the VAP. Thus, this work, which was designed
6 to mitigate MGP residuals related to the former MGP operations, was completed in
7 a reasonable and prudent manner.

8 This portion of the East End site is part of the former MGP when it was in
9 operation in the late 1800s to mid-1900s. The low-water mark of the Ohio River
10 was historically at the Kentucky and Ohio border, which in some places is
11 approximately 200 feet south of the current low-water mark. The current river bank
12 and riverbed in this area were part of the East End site during its operation as an
13 MGP before the construction of the Markland locks and dam, which significantly
14 raised the water level in the River. This is consistent with field observations and
15 the extent of contamination that has been detected and observed in these areas at
16 the East End site.

17 **Q. DO YOU BELIEVE THAT THE INVESTIGATION AND REMEDIATION**
18 **ACTIVITIES THAT DUKE ENERGY OHIO COMPLETED IN 2019, AS**
19 **WELL AS IN PREVIOUS YEARS, ARE REASONABLE AND PRUDENT**
20 **IN WORKING TOWARD MEETING ALL APPLICABLE VAP**
21 **STANDARDS AT THE EAST END AND WEST END SITES?**

22 **A.** Yes. The activities completed by Duke Energy Ohio at both the East End and West
23 End sites in 2019 (and in previous years) focused on investigation of upland, river

1 bank and sediment areas to define the presence, extent and magnitude of MGP-
2 related constituents related to historic MGP operations and the remediation of
3 specific areas of both sites not meeting applicable VAP standards, including those
4 areas containing MGP-related wastes, such as mobile free product (OLM). This
5 work was performed consistent with and as required by the VAP.

6 On the East End site, mobile free product remains in certain portions of the
7 Middle Parcel, which are currently inaccessible due to essential utility services
8 associated with the East End Gas Works operations. These areas will need to be
9 addressed once the sensitive underground infrastructure and propane peaking
10 facilities can be taken out of service and decommissioned. While investigative and
11 remediation work in the accessible portions of the uplands areas on both sites have
12 essentially been completed, the investigation of the Ohio River near both sites is
13 ongoing.

14 This work, which is consistent with the investigative and remedial activities
15 determined to be reasonable and prudent in the Commission's Opinion and Order¹¹,
16 were reasonable and prudent to evaluate and mitigate site risks to address Duke
17 Energy Ohio's liability and to meet all applicable standards under the VAP. These
18 activities are also consistent with approaches taken at other similarly contaminated
19 properties. Not all VAP standards have been achieved yet and additional activities
20 will be needed, including addressing groundwater impacts, defining impacts in
21 river sediment, demonstrating POGWMPUS has been met, and others, before an
22 NFA letter can be issued.

¹¹ See *Id.* at 63-65.

IV. CONCLUSION

1 **Q. WERE THE ATTACHMENTS TO YOUR TESTIMONY PREPARED BY**
2 **YOU, UNDER YOUR DIRECTION AND SUPERVISION, OR REVIEWED**
3 **BY YOU IN YOUR ROLE AS A VAP CP?**

4 A. Yes. SSF-1 is my Curriculum Vitae. Confidential SSF-2 includes reports and work
5 plans prepared by Haley & Aldrich and other consultants under the VAP.
6 Attachment SSF-3 includes the remedial alternatives analysis reports, one of which
7 was prepared by Haley & Aldrich and the other by another consulting firm and
8 VAP CP. SSF-4 was issued by Ohio EPA in response to the report concerning
9 conditions on the river bank at the East End site. SSF-5 was prepared by Haley &
10 Aldrich and Duke. All those documents or portions of documents prepared by
11 Haley & Aldrich were prepared under my supervision and/or direction.

12 **Q. IS THE INFORMATION CONTAINED IN THESE ATTACHMENTS**
13 **ACCURATE TO THE BEST OF YOUR KNOWLEDGE AND BELIEF?**

14 A. Yes.

15 **Q. DOES THIS CONCLUDE YOUR FILED TESTIMONY?**

16 A. Yes.
17

CURRICULUM VITAE
SHAWN S. FIORE., PG., CP

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Summary of Professional Expertise

Mr. Fiore is a Voluntary Action Program (VAP) Certified Professional (CP) in Ohio, as well as a licensed Professional Geologist (PG), in Indiana and Pennsylvania. He is experienced in the management, investigation and remediation phases of legacy environmental projects, including operating and former industrial facilities. Mr. Fiore has completed hundreds of professional assignments on contaminated properties in Ohio and beyond, including more than 25 Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and Superfund Sites, more than 50 former industrial properties or "brownfield sites," more than 200 active industrial facilities, more than 15 former Department of Defense (DOD) facilities, and more than 100 commercial facilities. Mr. Fiore has obtained two Covenants Not to Sue (CNS) and prepared four No Further Action (NFA) Letters, under Ohio's Voluntary Action Program, with several more in progress.

Mr. Fiore has conducted investigations and remediations on contaminated sites regulated by the US EPA, including CERCLA and Superfund Sites, Resource Conservation and Recovery Act (RCRA) Sites, formerly used defense sites, hazardous waste landfills, and other sites. He has also conducted investigations and remediations on sites regulated by the Ohio EPA, active and inactive industrial facilities, landfills, commercial properties, brownfield sites, residential properties, abandoned / undeveloped properties, and other sites. He has completed investigation and remediation projects in all five Ohio EPA districts. He has also conducted investigations and remediations on other contaminated sites in Ohio regulated by the Bureau of Underground Storage Tank Regulations (BUSTR).

Mr. Fiore has led and conducted hydrogeological investigations, aquifer and contamination assessments in a variety of technically challenging and complex geological regimes. Mr. Fiore's expertise includes the evaluation of contaminant migration pathways and characteristics, interaction of contaminant plumes and natural systems and assessment and implementation of multi-media remedial actions.

Mr. Fiore has been an expert, rebuttal and fact witness in proceedings in front of the Public Utility Commission of Ohio, testifying on the prudence of site investigation and remediation activities completed under Ohio's Voluntary Action Program. Further, Mr. Fiore has served as an expert witness in an insurance mediation case, seeking to settle a claim related to remediation of historical site contamination under Ohio's Voluntary Action Program.

Professional Experience Summary

Haley & Aldrich (2002 to Date)

- Senior Vice President, General Manager (2016 – Date)
- Vice President and Geologist (2004 – Date)
- Senior Environmental Geologist (2002- Date)

Parsons Corporation (1988 to 2002)

- Manager, Environmental Studies Department (2000 – 2002)
- Project Manager (1993 – 2002)
- Geochemist / Geologist / Senior Geologist (1988- 1993)

Education Summary

Bowling Green State University, B.S., Geochemistry, 1988

Bowling Green State University, M.S., Geology, 1993

Professional Registrations

- Professional Geologist: Pennsylvania (License PG-001770-G)
- Professional Geologist (by ASBOG Examination): Indiana (License 2382)
- Certified Professional: Ohio EPA Voluntary Action Program (CP #154)

Special Studies and Courses (abridged)

- Haley & Aldrich, Leadership Development Program
- Project Management Training Program
- Financial Management for Engineers and Scientists
- Probability, Statistics and Geostatistics
- OSHA Supervisor Training
- OSHA 40-Hour HAZWOPER Training
- OSHA HAZWOPER Annual Refresher Training
- Asbestos Awareness Training
- VAP Annual Certified Professional Training
- VAP Initial Certified Professional Training

Publications/Presentations (abridged)

- “Third Time’s A Charm,” MGP-2017 Conference, New Orleans, Louisiana, 2017
- “Remediation in Harsh Winter Conditions,” presented at the MGP-2015 Conference, Providence, Rhode Island, 2015.
- “How an Effective Communication Strategy Streamlined an MGP Cleanup,” presented at the 2012 Ohio Brownfields Conference, Newark, Ohio 2012.
- “Leveraging Partnerships to Create Adaptive Reuses of Brownfield Properties” presented at the 2011 Ohio Brownfields Conference, Newark, Ohio 2011.

- “Implementation of a Corporate Due Diligence Program,” presented at the 2008 Global EH&S Conference, San Minneapolis, Minnesota, 2008.
- “Manufactured Gas Plants,” presented at the Annual Voluntary Action Program Certified Professional Training Course, Newark, Ohio, 2007.
- “Case Study: Delaware, Ohio MGP,” presented at the Manufactured Gas Plant Training Course, Columbus, Ohio 2007.
- “Due Diligence and Liability Management,” presented at the 25th Annual Inland Spills Conference, Kings Island, Ohio, 2002.
- “Recovery of Highly Viscous NAPL, using Steam Injection and Vacuum Enhanced Vapor Extraction,” Proceedings at 2nd Conference on the Remediation of Chlorinated and Recalcitrant Compounds, Monterey, CA, 1998.

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Summary: Testimony Direct Testimony of Shawn Fiore electronically filed by Mrs. Debbie L Gates on behalf of Duke Energy Ohio Inc. and D'Ascenzo, Rocco O. Mr. and Kingery, Jeanne W and Vaysman, Larisa