

BEFORE

THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Application of Duke)
Energy Ohio, Inc., for an Adjustment to) Case No. 19-174-GA-RDR
Rider MGP Rates.)

In the Matter of the Application of Duke)
Energy Ohio, Inc., for Tariff Approval.) Case No. 19-175-GA-ATA

DIRECT TESTIMONY OF

DAN B. BROWN

ON BEHALF OF

DUKE ENERGY OHIO, INC.

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

March 29, 2019

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ATTACHMENT:

DDB-1: Curriculum Vitae

I. INTRODUCTION AND PURPOSE

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

2 A. My name is Dan B. Brown. My business address is 31100 Solon Road, Suite G, Solon,
3 Ohio. I am the President of Partners Environmental Consulting, Inc.

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

6 A. I received a B.S. in Geology from Fort Lewis College in Durango, Colorado in 1987.
7 Beginning in January 1988, I began working in the environmental field with my first
8 job being as a water sampling technician at Handex of Maryland, Inc. I worked at
9 Handex between 1988-1992, through a steadily increasing level of responsibility,
10 advancing to Hydrogeologist and eventually Senior Hydrogeologist. Initially, my
11 work involved the sampling of groundwater monitoring wells and operation of
12 groundwater remediation systems. Starting in late 1988/early 1989, I was trained as a
13 hydrogeologist, installing soil borings and monitoring wells, primarily at operating
14 retail gasoline service stations. This work included many investigations of releases of
15 petroleum hydrocarbon contamination in soil and groundwater, report writing and
16 regulatory interpretation. My work included investigations in Maryland, Delaware,
17 Pennsylvania, West Virginia and Virginia. As my experience built, I became involved
18 in the remediation of such sites. I was trained in the completion of pumping tests, slug
19 tests and other hydrogeologic studies used in the development of groundwater
20 remediation systems. I further advanced my abilities through the design of and the
21 supervision during, installation of soil and groundwater remediation systems. These
22 remediation systems were primarily related to the cleanup of petroleum hydrocarbons

1 at retail gasoline service stations throughout the Mid-Atlantic states. Eventually, my
2 work also included the investigation of other types of sites, including industrial
3 properties, chemical facilities, bulk petroleum storage facilities and petroleum
4 pipeline sites.

5 As my experience increased, I became directly involved with the
6 programmatic management of projects for my clients, including many major oil
7 companies. I served as a project manager and program manager for several major
8 retail petroleum clients, managing in excess of \$1,000,000 annually in project work.

9 In 1992, I was hired by Groundwater Technology, Inc. (GTI) and relocated to
10 Cleveland, Ohio. I was hired at GTI as a Senior Project Manager, but quickly
11 advanced to Territory Manager, supervising all work in the Ohio Region. While my
12 work continued with major oil companies, I was also supervising and associated with
13 many other projects including sophisticated remediation projects and cleanups of
14 various contaminants including volatile organic compounds (VOCs), metals,
15 petroleum products and others. During this time, I also became first involved in the
16 Ohio Brownfield program as it was developing. In 1994, I was asked by the Ohio
17 Environmental Protection Agency (EPA) to chair a sub-committee that was tasked
18 with the development of the original Voluntary Action Program (VAP) rules. I worked
19 on that sub-committee until completion in 1996, developing portions of the original
20 VAP rules. I also obtained my initial license as a Certified Professional (CP) in 1994
21 under the original VAP rules and, in 1996, transitioned that license to the final rules.
22 I have maintained that license in good standing continuously since that time.

23 With the advent of the VAP and the creation of a brownfield regulatory program in

1 Ohio and nationally, I focused my practice in the area of brownfields.

2 In 1996, I joined BHE Environmental and became their Director of Northern
3 Ohio Operations. In that role, I started the Cleveland Office for BHE and managed
4 staff in both Cleveland and Columbus, Ohio. My work was primarily focused on
5 brownfields and providing environmental services in real estate transactions, but
6 eventually expanding into investigation and cleanup work at steel manufacturing
7 facilities and other manufacturing sites. It was also during this time that I began to
8 serve as an expert in support of environmental litigation matters.

9 While working at BHE, I became involved with a very broad range of
10 environmental projects, including projects related to the Resource Conservation and
11 Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation
12 and Liability Act (CERCLA or Superfund) and other state and federal regulatory
13 programs. My responsibilities included the investigation and remediation of such
14 sites, regulatory interfacing and client management. My region grew to between 20-
15 30 personnel that I supervised, working on a broad range of projects across a wide
16 range of environmental disciplines. In addition, my experience and involvement in the
17 VAP, in Ohio, and brownfields, regionally, continued to grow, as I worked on some
18 of the early projects in the brownfield arena.

19 In 1999, I left BHE and founded Partners Environmental Consulting, Inc.,
20 where I have served as its President ever since. Partners provides environmental,
21 safety, engineering and surveying services throughout the U.S. and globally. Through
22 my leadership at Partners, we have grown to be a regional firm, with about 40 staff
23 members and projects that reach far across the many aspects in the environmental

1 field. During this growth, I have served as the Technical Director and/or Project
2 Manager on a wide variety of projects that expanded my experience to include
3 ecological investigations and cleanups, manufactured gas plant investigations and
4 clean up design, demolition of structures, asbestos investigation and abatement,
5 polychlorinated biphenyl (PCB) investigation and cleanup, lead based paint
6 investigation and cleanup, chlorinated solvent investigation and cleanup, and projects
7 involving civil engineering, professional land surveying and safety.

8 During my employment at Partners, I have also regularly been called upon to
9 support litigation of environmental matters, including trial testimony and testimony in
10 front of governmental bodies (*e.g.*, Ohio Environmental Review Appeals Commission
11 [ERAC]), for both plaintiffs and defendants, at bench and jury trials and ranging
12 across such disciplines as hydrogeology, costs of remediation, applicable regulatory
13 standards, ecological matters, sources of contamination, risk assessment, insurance
14 claims and others.

15 As a result of the creation of the Clean Ohio Revitalization Fund, the U.S.
16 EPA's Brownfield program and many other state and local brownfield funding
17 programs, I became heavily involved with the successful pursuit of funding for
18 brownfield cleanups. This work required preparation of detailed applications for
19 funding, accurately determining cleanup costs and to adequately defend such costs for
20 purposes of obtaining publicly subsidized grants. That experience honed my skills in
21 the evaluation of applicable regulatory programs and costs associated with
22 environmental cleanups, including for manufactured gas plant (MGP) sites.

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

3 A. No.

4 **Q. WHAT DOCUMENTS HAVE YOU REVIEWED IN THE PREPARATION**
5 **OF YOUR TESTIMONY?**

6 A. I have reviewed environmental reports related to both the East End and West End
7 former MGP sites, invoices from the projects, testimony filed before the Public
8 Utilities Commission of Ohio (Commission) by Jessica Bednarcik, Shawn Fiore
9 and Todd Bachand on behalf of Duke Energy Ohio, Inc. (Duke Energy Ohio), the
10 Ohio VAP and other state and federal regulations, and publicly available
11 information on a variety of other cleanup projects, including MGP sites.

12 **Q. WHAT IS THE PURPOSE OF YOUR PRE-FILED TESTIMONY?**

13 A. The purpose of my testimony is to describe Ohio's VAP and its applicability to the
14 East End and West End sites, Duke Energy Ohio's compliance with VAP
15 requirements beginning in 2013 to date and the prudence of the plans developed and
16 actions taken to investigate and remediate the East End and West End sites, as related
17 to Ohio requirements and practical considerations. My testimony also addresses issues
18 that I understand have been raised by the parties involved in this case regarding Duke
19 Energy Ohio's work that was performed in the Area West of the West Parcel at the
20 East End site and in the Ohio River at both the East End and West End sites.

21 **Q. PLEASE SUMMARIZE YOUR PRE-FILED TESTIMONY.**

22 A. It is my opinion that the actions and costs associated with the ongoing investigations
23 and cleanups at the East End and West End sites have been reasonable and

1 necessary because: (1) Duke Energy Ohio has liability for the environmental
2 conditions at both sites due to its long history of ownership and operation of MGP
3 facilities on these sites; (2) Duke Energy Ohio conducted its investigation and
4 remediation in accordance with a reasonable set of goals and objectives that were
5 appropriate given the site conditions; (3) Ohio's VAP provided the most
6 appropriate environmental regulatory mechanism for the cleanup of the sites; (4)
7 cleanup was required to meet applicable standards under the VAP and to meet the
8 reasonable goals and objectives established by Duke Energy Ohio; (5) complex site
9 conditions have resulted in unique circumstances that had to be addressed as part
10 of the required cleanup and to achieve Duke Energy Ohio's established goals and
11 objectives; and (6) the costs incurred by Duke Energy Ohio to conduct the cleanups
12 are consistent with cleanup costs incurred at similarly contaminated sites and
13 consistent with the costs to conduct cleanups at comparable MGP sites.

14 **II. ENVIRONMENTAL REMEDIATION ACTIVITIES**

15 **Q. PLEASE DESCRIBE YOUR EXPERIENCE IN INVESTIGATING AND
16 REMEDIATING CONTAMINATED PROPERTIES.**

17 A. I have been involved with the investigation and cleanup of contaminated sites
18 throughout my entire working career, starting in 1988 and continuing today, a period
19 spanning over 31 years and including the creation of the brownfield program in Ohio
20 and nationally.

21 Beginning with my initial training as a hydrogeologist, I have personally
22 performed the installation of several hundred soil borings and monitoring wells,
conducted many geologic and hydrogeologic studies, including the completion of

1 pumping tests, slug tests and various other hydrogeologic and geologic tests,
2 collected thousands of laboratory samples of soil, groundwater, sediment, surface
3 water and air, evaluated tens of thousands of individual laboratory reports and
4 authored hundreds of written reports for the purpose of regulatory submittal and
5 approval.

6 As a manager and, over the last 20 years as an owner of an environmental
7 consulting practice, I have overseen thousands of individual projects, either directly
8 or indirectly and/or provided my peer review during such projects. These projects
9 have included complex site redevelopment and remediation projects, including
10 projects on water bodies and along the Ohio River. Some of my experience also
11 includes the investigation and design of remediation alternatives for MGPs sites,
12 including MGP sites located along a major water body.

13 I have designed over 50 separate remediation systems and directed the
14 cleanup at hundreds of sites. I have experience in many aspects of physical
15 remediation including capping systems, containment systems, groundwater
16 pumping and treatment systems, soil vapor extraction systems, sub-slab
17 depressurization systems (SSDS), soil stabilization, thermal desorption, air and
18 ozone sparging, electrical currents used in soil cleanup, de-chlorination of solvents
19 in groundwater, high vacuum extraction, landfill disposal, nuclear remediation
20 projects, carbon filter groundwater treatment, injection systems, vapor treatment
21 with thermal oxidizers and others.

22 I have often conducted and led negotiations with environmental regulatory
23 agencies, providing opinions in regard to many of the federal and state

1 environmental programs. This experience has included negotiations, settlement and
2 litigation specifically related to regulatory agency interpretation and rules. I have
3 also prepared, or reviewed thousands of reports that were submitted to regulatory
4 agencies for review, comment and/or approval.

5 **Q. PLEASE DESCRIBE YOUR INVOLVEMENT WITH THE OHIO VAP.**

6 A. I have been very involved in the Ohio VAP since its inception. Just after the statute
7 was passed in 1994, I was selected by the Ohio EPA to chair one of the original
8 rule writing sub-committees. My role included chairing the group that developed
9 the actual regulations related to no further action letters (NFA letter), Auditing and
10 Fees. During that time, I also obtained my initial license under the VAP, as one of
11 the first 10 people licensed as a Certified Professional (CP) in Ohio (CP#0007).
12 After the completion of the final rules, I transferred my initial license to the final
13 program as CP#127, which I have maintained continuously since that time.

14 I have supported multiple rule revisions and working groups within the
15 VAP, working hand in hand with the Ohio EPA staff, developing deep relationships
16 and resources that supported my training as an expert in the use and implementation
17 of the VAP rules.

18 In the early 2000s, I was asked by the Ohio EPA to support the training
19 program for new CPs. My filmed training course on the Phase II Property
20 Assessment rules is used to this day for new CPs, all of whom are required to go
21 through the initial CP training.

22 I have personally authored ten NFA letters, with eight of those NFA letters
23 leading to issuance of a Covenant Not-to-Sue (CNS) by Ohio EPA. None of the

1 NFA letters that I have prepared have been denied. While President of Partners,
2 several other CPs have worked for the firm, two which are currently licensed as
3 CPs today. Similarly, these CPs have also participated in working groups, rule
4 revisions and support for the Ohio EPA within the VAP, bringing additional
5 knowledge, training and resources forward that have kept me in close
6 communication with the program throughout my career.

7 Collectively, the CPs from Partners have authored over 36 NFA letters
8 throughout its history. In addition to the VAP projects that have progressed through
9 the entire VAP to the completion of an NFA letter and CNS, I have personally
10 worked on more than 100 projects and my company has worked on hundreds of
11 projects that involved some aspect of the VAP, either by following the VAP process
12 or using the VAP rules in some aspect of the project.

13 I have also prepared expert reports, testified or been deposed in regard to
14 various aspects of the VAP, including evaluation of risk-based standards and the
15 use of the applicable standards under the VAP. On several occasions, I was brought
16 into a VAP project for the specific purpose of assessing and maintaining
17 compliance with the rules of Sufficient Evidence.

18 My firm and I have regularly participated in rule revisions and strategy
19 sessions in concert with and at the request of the Ohio EPA. I have participated in
20 multiple 5-year rule revisions and participated regularly in the annual CP training
21 and/or regional CP Coffee training sessions. I have spoken about projects I have
22 conducted using the Ohio VAP in Ohio at state brownfield programs, bar
23 association programs, water quality programs, in some cases put on by the Ohio

1 EPA. On multiple occasions, I have had presentations accepted by the U.S. EPA
2 and presented at the National Brownfield Conference regarding brownfield
3 investigation and cleanup matters.

4 **Q. HAVE YOU BEEN INVOLVED IN THE INVESTIGATION AND**
5 **REMEDATION OF DUKE ENERGY OHIO'S TWO OHIO FORMER**
6 **MGP SITES?**

7 A. No. I understand that other consultants have performed investigation and
8 remediation activities at the East End site and West End site. I have reviewed
9 numerous reports and documents that have been prepared for Duke Energy Ohio
10 by its consultants, visited both Ohio former MGP sites, and have had conversations
11 about the investigation and remediation activities that have been performed at the
12 sites with Todd Bachand of Duke Energy Ohio and Shawn Fiore, the VAP CP
13 overseeing the remediation of the East End site.

14 **Q. IS DUKE ENERGY OHIO RESPONSIBLE FOR CLEANING UP THE**
15 **OHIO MGP SITES?**

16 A. Yes. Duke Energy Ohio and its predecessor entities have owned and operated the
17 East End and West End sites for the provision of utility services since the 1800s.
18 Starting in the early years of their operation and continuing until the mid-1900s,
19 both sites were operated, wholly or in part, as MGPs. MGP operations were
20 initiated at the East End site in 1884 and continued to 1909, and then again from
21 1925 until 1963 and MGP operations were conducted at the West End site between
22 1843 and 1909 and again from 1918 to 1928. These facilities were used to
23 manufacture gas through various processes and conduct related activities.

1 Since Duke Energy Ohio or its predecessor entities were the owner and
2 operator of both sites during the period of MGP operations, which took place
3 generally from the mid-1800s to the early-to-mid 1900s, releases of by-products
4 and other contaminants resulting from those operations, whether located on- or off-
5 property currently owned by Duke Energy Ohio, are directly related to the
6 Company's use of the East End and West End sites. Duke Energy Ohio is also the
7 current owner of the East End and West End sites, and as such, has responsibility
8 for the cleanup and liability for the contamination on or emanating from those sites.

9 **Q. DID DUKE ENERGY OHIO HAVE TO CLEAN UP THE EAST END AND**
10 **WEST END SITES?**

11 **A.** Yes. Once Duke Energy Ohio discovered the presence of MGP residuals at the East
12 End and West End sites, something had to be done. Based on my experience, had
13 Duke Energy Ohio not done anything, it is likely that Ohio EPA would have ordered
14 the Company to proceed with a cleanup under its Surface Water and/or Emergency
15 and Remedial Response programs. Agency enforcement often leads to litigation
16 and increased legal oversight and could have subjected Duke Energy Ohio to fines
17 and penalties in addition to increased cleanup costs and many other restrictions
18 from both Ohio EPA and possibly the Ohio Attorney General's Office.
19 Enforcement would have only served to add administrative, reporting, legal and
20 other costs to the eventual cleanup, while not serving to increase any actual cleanup
21 activity. For these reasons, doing nothing and awaiting formal enforcement by the
22 Agency were options that were easily ruled out.

23 Had Duke Energy Ohio attempted to ignore the site conditions and an

1 environmental regulatory agency ordered a cleanup of the sites (including wherever
2 contaminants from those former operations may have migrated), Duke Energy Ohio
3 would have been the entity cited as responsible for the cleanup. Ignoring the site
4 conditions would only have served to increase the potential for fines, legal action
5 and aggressive regulatory oversight, as well as allow the contamination to get
6 worse, possibly creating larger and more expensive problems.

7 **III. THE OHIO VOLUNTARY ACTION PROGRAM**

8 **Q. WAS IT APPROPRIATE FOR DUKE ENERGY OHIO TO INVESTIGATE**
9 **AND REMEDIATE THE EAST END AND WEST END SITES UNDER THE**
10 **OHIO VAP?**

11 **A.** Yes. The Ohio VAP is a program that was created by the Ohio EPA to replace other
12 outdated cleanup programs and to avoid the unnecessary use of enforcement and/or
13 excessive oversight, where the regulated party loses control over the cleanup
14 process. Unlike other regulatory programs, the VAP affords Duke Energy Ohio
15 with greater control over the process, which was important as both the East End
16 site and West End site continue to operate as natural gas and electrical distribution
17 facilities. Duke Energy Ohio needed to select a cleanup program that fit its goals
18 and objectives, including, but not limited to: (1) satisfying the requirements of the
19 VAP and preserving an option that allowed for regulatory sign off and obtaining a
20 CNS from Ohio EPA; and (2) reliably maintaining its utility service operations
21 throughout the cleanup effort.

1 **Q. PLEASE GENERALLY DESCRIBE THE VAP PROCESS AND THE**
2 **REQUIREMENTS THAT WOULD NEED TO BE MET TO OBTAIN AN**
3 **NFA LETTER.**

4 **A.** Clean-up under the VAP generally must be conducted under the oversight of a VAP
5 CP. As the VAP CP is responsible for determining whether a site meets all
6 applicable standards, Ohio law requires that VAP CPs meet certain criteria in order
7 to be certified. These criteria require that a CP: (1) hold a bachelor's degree from
8 an accredited school in an appropriate engineering or science discipline; (2) have a
9 minimum of 8 years of professional experience related to cleanup work, including
10 three years as a supervisor or project manager; (3) possess good moral character;
11 (4) possess the professional competence and knowledge to perform the tasks
12 required of a CP; and (5) take the initial training class offered by the Ohio EPA.

13 The CP must follow the VAP rules to confirm that a property is eligible for
14 participation in the VAP. The CP must also ensure that the property is investigated
15 in accordance with the VAP rules, identify all applicable VAP standards, determine
16 whether all applicable VAP standards have been met and, if not, ensure that
17 remediation required to meet applicable standards has been completed. All
18 information obtained under the VAP must be certified as to truth, accuracy and
19 completeness by way of an affidavit. Once applicable standards have been met, an
20 NFA letter may be issued for the property by the CP under affidavit.

21 The process that is followed under the VAP generally involves the
22 following primary activities: (1) Phase I Property Assessment (Phase I); (2) Phase
23 II Property Assessment (Phase II); (3) Property Specific Risk Assessment (PSRA);

1 (4) Remediation; and (5) preparation of the NFA letter by a CP. Each of these
2 activities must be overseen by a CP and all analytical data must be generated by a
3 VAP Certified Laboratory (CL).

4 Among other things, the primary purpose of the Phase I is to: (1) establish
5 the Identified Areas (IAs), more generically understood to be those areas where
6 contamination might be expected; (2) to determine whether the site is eligible for
7 participating in the VAP; (3) state whether a Phase II is necessary; and (4) establish
8 the chemicals of concern (COCs) that must be investigated.

9 The primary purpose of the Phase II investigation is to collect the necessary
10 data to determine the nature and extent of any COCs and the site conditions such
11 that the Conceptual Site Model (CSM) can be developed. The purpose of the CSM
12 is to establish the exposure pathways, determine which may be complete and
13 support the development of the applicable standards that apply to the site. This
14 typically requires an extensive subsurface investigation of the physical site
15 conditions (*e.g.*, geologic, hydrogeologic, geographic, topographic, *etc.*),
16 potentially effected media, which can include any of the following media regulated
17 under the VAP: soil, groundwater, surface water, sediment and vapor, and COCs
18 present (*i.e.*, concentrations of analytes in effected media). All sampling is
19 conducted in accordance with a detailed Data Quality Objective (DQO) plan, which
20 includes that all analytical testing is conducted under strict quality
21 assurance/quality control (QA/QC) standards and is completed by a CL.

22 Once the analytical data and site-specific technical conditions are fully
23 understood, the CP must determine the applicable standards, which can include

1 generic standards published by the Ohio EPA within the VAP rules, or more
2 commonly resulting from a PSRA. A PSRA is used to establish site-specific
3 standards that are compared to analytical data to determine if remediation,
4 including through engineering controls or through the use of institutional controls,
5 is necessary to meet applicable standards.

6 An NFA letter cannot be issued until the property that is subject to the NFA
7 letter meets applicable standards. This can be achieved through remediation and/or
8 the recording of land use restrictions (deed restrictions) that prevent exposures on
9 or off-site to COCs in excess of applicable standards.

10 Although the VAP is a privatized program that relies on CPs to issue NFA
11 letters, the Ohio EPA offers the use of Technical Assistance (TA) to support the
12 interpretation of regulations and to obtain preliminary comments and input on the
13 various information included in a NFA letter. TA is paid for by the party seeking
14 the NFA letter, but is not required.

15 **Q. WHAT IS THE PROCESS TO OBTAIN A COVENANT NOT TO SUE**
16 **FROM OHIO EPA?**

17 A. After issuing a NFA letter, the CP must ask the party seeking the NFA letter
18 whether they want to submit the NFA letter to the Ohio EPA in order to obtain a
19 CNS. There is no requirement for the NFA letter to be submitted to the Ohio EPA
20 for a CNS. However, if desired by the party seeking the NFA letter, the CP then
21 submits the NFA letter (along with a fee paid by the party seeking the CNS) to the
22 Ohio EPA with a request for a CNS. If, after a thorough review, the Ohio EPA
23 agrees that the site meets all applicable standards, that all VAP rules have been

1 followed and that all required engineering controls and/or institutional controls are
2 in-place, then a CNS may be issued by the Ohio EPA for the property.

3 **Q. WHAT ARE THE BENEFITS OF REMEDIATING A PROPERTY UNDER**
4 **THE VAP?**

5 A. The NFA letter confirms that a site has been appropriately investigated and
6 remediated following the VAP rules and that there are no unacceptable risks to
7 current and reasonably anticipated future land users on- or off-property. The entire
8 VAP process is focused on meeting applicable standards to protect all current and
9 reasonably foreseeable potential receptors and the NFA letter serves as
10 documentation that such standards have been achieved, as the CP must certify that
11 the property meets all applicable standards via affidavit.

12 Although the VAP rules impose stringent requirements that must be met for
13 a CP to issue an NFA letter for the property, the NFA letter does not provide any
14 release of liability. In order to obtain a release of liability from the State of Ohio, a
15 party must request a CNS from Ohio EPA and submit the NFA letter and other
16 documentation. This release of liability from Ohio EPA is the highest standard in
17 the State of Ohio for regulatory liability relief. It is a release of liability for the
18 contamination described in the NFA letter forever into the future and is recorded
19 with the deed for the property.

20 Further, the Ohio EPA offers some enforcement relief for remediating
21 parties working under VAP rules and working toward meeting all applicable
22 standards and ultimately achieving an NFA letter. The Ohio EPA generally will not
23 issue an enforcement order on properties on which work is being undertaken in

1 conformance with the VAP. Because the VAP is a privatized program, it is possible
2 the Ohio EPA would not be aware that a property is proceeding under the VAP
3 before issuing an order or regulatory action. In such a case, the party issued the
4 order can make a claim of "Sufficient Evidence" and demonstrate that they were
5 already proceeding under the VAP and be allowed to continue in such a manner,
6 albeit with some additional oversight and reporting obligations to the Ohio EPA.

7 Because the VAP offers a formal release of liability from the State of Ohio
8 for all current and future land users, including for liability resulting from
9 contamination off-site that migrated from the property, it signifies that the
10 remediation is sufficient to protect human health and the environment. Therefore,
11 an added benefit of completing the VAP process is that the contamination has been
12 fully investigated and any necessary remediation performed. The fact that more is
13 known and understood about the contamination and that a remediation is complete,
14 logically establishes that there is less liability than an unknown, uncontrolled
15 circumstance.

IV. EAST END AND WEST END SITES

16 **Q. WHAT ARE THE APPLICABLE STANDARDS FOR THE EAST END AND**
17 **WEST END SITES UNDER THE OHIO VAP?**

18 **A.** The applicable standards for the East End site and West End site are similar,
19 because the processes that created the contamination, the uses of the site and the
20 natural site conditions are similar. The affected media for both sites includes soil,
21 groundwater, sediment, surface water, and vapor. The COCs are also similar at both
22 sites, primarily coal tar and MGP-related COCs. In addition, both sites are active

1 utility operations (gas and/or electrical distribution facilities) that will likely remain
2 active for the foreseeable future. While there are various site-specific conditions
3 that have complicated the cleanup of each site, the applicable standards are similar.

4 For soil, the primary exposure pathway is direct contact with soil by
5 industrial/commercial workers or construction/excavation workers. For
6 groundwater, potable use (*i.e.*, drinking water) is an applicable standard. Since both
7 sites adjoin the Ohio River, sediment and surface water standards are applicable for
8 off-site migration of COCs. In addition, for any buildings on property, or for
9 adjoining properties where COCs might migrate and because of the presence of
10 VOCs, indoor air exposure pathways would be applicable.

11 **Q. WHICH OF THESE STANDARDS ARE THE PRIMARY DRIVERS**
12 **REQUIRING REMEDIATION AT THE EAST END AND WEST END**
13 **SITES?**

14 A. Because of the presence of Critical Resource groundwater, as defined under the
15 VAP, and the adjoining Ohio River, the applicable standards for groundwater use,
16 surface water and sediment are the primary drivers of the requirement for
17 remediation at the East End site and West End site.

18 One of the critical aspects of determining what the cleanup options will be
19 under the VAP involves the classification of groundwater, as required under OAC
20 3745-300-10.

21 There are three possible classifications of groundwater under the VAP: (1)
22 Critical Resource groundwater (a highly protected and coveted resource of the
23 State); (2) Class A groundwater (typically groundwater that is viable for significant

1 public use); and (3) Class B groundwater (typically a poor source, usually only
2 suitable for very small residential use, if at all). Both the East End and West End
3 sites are underlain by Critical Resource groundwater.

4 After determining the classification of groundwater underlying the
5 property, the VAP requires a determination of the applicability of rule OAC 3745-
6 300-10(D), *Protection of Groundwater Meeting Unrestricted Potable Use*
7 *Standards* (POGWMPUS). This rule establishes that when the provisions for
8 protecting groundwater apply to a groundwater zone, then it must be demonstrated
9 that the COCs will not migrate to the groundwater zone at concentrations that
10 exceed the applicable standards.

11 Under OAC 3745-300-07(F)(4)(b), if it cannot be demonstrated in
12 accordance with paragraph (F)(4) of this rule that COCs will not leach or otherwise
13 migrate into the ground water zone underlying the property, a remedy shall be
14 implemented in accordance with rule OAC 3745-300-11 of the Administrative
15 Code that prevents chemicals and other materials in the ground water zone
16 underlying the property from exceeding unrestricted potable use standards. In the
17 case of the East End and West End sites, the first (*i.e.*, shallowest) groundwater
18 zones were impacted above applicable standards and, therefore, the next lower
19 zones must be protected.

20 Because both the East End and West End sites adjoin a surface water body
21 (*i.e.*, the Ohio River) and because it is possible that COCs could be migrating into
22 the Ohio River, the applicable standards under the VAP are not solely related to
23 potable use of groundwater, but are also based on the surface water standards that

1 apply to the Ohio River. Further, these applicable standards are not affected by
2 whether an Urban Setting Designation (USD) could be obtained for the site and
3 surrounding area. Even if a USD could have been obtained, the applicable standards
4 for groundwater would remain the surface water standards.

5 Under OAC 3745-300-07(E)(6), the VAP requires the identification of all
6 current and reasonably anticipated property use and receptor populations. Among
7 the receptor populations that shall be identified and listed under paragraph (f) are
8 “important ecological resources.”

9 Once concluding there is an ecological receptor, under OAC 3745-300-
10 07(F)(1), the VAP requires a determination of whether the pathway is complete for
11 that receptor. In the cases of the East End and West End sites, the Ohio River is
12 identified as an important ecological receptor and groundwater has been shown to
13 be in communication with the Ohio River. This has necessitated Duke Energy Ohio
14 to commence investigations into whether MGP-related COCs could be present in
15 the sediment adjoining the East End site and the nature and extent of any impacts.

16 Next, under OAC 3745-300-07(I)(3), the VAP requires a demonstration of
17 compliance with applicable standards for all current exposure pathways and
18 reasonably anticipated exposure pathways determined to be complete. In the case
19 of the East End and West End sites, which adjoin the Ohio River, the applicable
20 standards include those related to important ecological receptors, *i.e.*, surface water
21 and sediment standards.

22 In summary, Duke Energy Ohio identified the presence of COCs above
23 applicable standards in affected media (*i.e.*, soil, groundwater, sediment and

1 possibly surface water) and had an obligation to conduct cleanup for any complete
2 exposure pathway. The presence of Critical Resource groundwater at both sites
3 elevated the cleanup priority of the groundwater and limited the options for
4 avoiding active cleanup. Further, the applicable standards include preventing
5 impacts to the adjoining Ohio River and, as such, would not have been affected by
6 the presence of a USD, if one could even be obtained at all.

7 The Ohio VAP requires that the remedy be implemented before submitting
8 the NFA letter. Under the VAP, a CP cannot prepare an NFA letter until all
9 applicable standards have been or will be met. Given this condition, it is common
10 under the VAP to have interim remedial measures undertaken concurrent with
11 investigative activities.

12 Some amount of active remediation was needed. Although the VAP allows
13 for the use of property specific risk assessments as a means of determining
14 applicable standards, risk assessments are not designed for use when complete
15 product saturation occurs (*i.e.*, free product), as it has in areas of the two former
16 MGP sites.

17 With the combined presence of free product, exposure pathways to
18 adjoining ecological receptors and obligations to protect underlying groundwater
19 zones in Critical Resource aquifers, remediation was necessary, particularly due to
20 site complexities relative to both sites.

1 **Q. WHAT WERE THE SITE COMPLEXITIES RELATIVE TO BOTH THE**
2 **EAST END AND WEST END SITES?**

3 **A. As Duke Energy Ohio proceeded to evaluate possible cleanup options, the range of**
4 **available choices was significantly affected by many complexities unique to the**
5 **East End and West End sites. As a public utility, Duke Energy Ohio needed to**
6 **remain in control of the cleanup, so that it could continue to reliably deliver**
7 **critically necessary utility services. Maintaining utility services impacted the timing**
8 **and staging of activities and supported various of the goals and objectives**
9 **established by Duke Energy Ohio.**

10 At both the East End site and the West End site, issues related to
11 contaminant mobility, proximity to the Ohio River and the characteristics of the
12 coal tar and oil-like material (OLM) complicated the possible cleanups and limited
13 the potential methods that would be viable.

14 Several other site complexities related to the East End site include:
15 encroaching residential development near the property; relocation of a major gas
16 pipeline; the proximity of the state boundary; protecting workers during
17 remediation; protection of site facilities during remediation; maintaining future
18 natural gas delivery and service; the presence of sensitive underground utility
19 infrastructure and a flooding risk.

20 Additional site complexities at the West End site include: the Brent Spence
21 Bridge expansion; relocation of a major electrical substation and towers; the
22 proximity of the state boundary; protecting workers during remediation; protecting

1 site facilities during remediation; maintaining future electricity delivery; and
2 flooding risk.

3 **Q. BASED ON YOUR REVIEW OF THE DOCUMENTS, HAS THE WEST**
4 **END SITE BEEN EVALUATED AND REMEDIATED CONSISTENT**
5 **WITH THE OHIO VAP REGULATIONS?**

6 A. Yes; based on my review of the various reports, the VAP process is being followed
7 at the West End site. There has been a Phase I Property Assessment report prepared
8 that establishes that the West End site is eligible for the VAP, that there are IAs,
9 determined the potential COCs and concluded that investigation following a Phase
10 II Property Assessment rules were necessary. As is typical in an on-going
11 assessment, and because the VAP is an iterative process, there have been multiple
12 Phase II Property Assessments conducted and reports prepared, while the Phase II
13 remains in process. CLs have been used that have provided VAP-certified data.
14 There has been a CP supervising each aspect of the project technical work. Based
15 on a review of the data, applicable standards were exceeded in multiple media
16 regulated under the VAP, necessitating remediation.

17 The process is yet to be completed, so a final PSRA, NFA letter and CNS
18 have not yet been prepared, but thus far the VAP has been followed.

19 **Q. BASED ON YOUR REVIEW OF THE DOCUMENTS, HAS THE EAST END**
20 **SITE BEEN EVALUATED AND REMEDIATED CONSISTENT WITH**
21 **THE OHIO VAP REGULATIONS?**

22 A. Yes; based on my review of the various reports the VAP process is being followed
23 at the East End site. There has been a Phase I Property Assessment report prepared

1 that establishes that the East End site is eligible for the VAP, that there are IAs,
2 determined the potential COCs and concluded that investigation following a Phase
3 II Property Assessment rules were necessary. As is typical in an on-going
4 assessment and because the VAP is an iterative process, there have been multiple
5 Phase II Property Assessments conducted and reports prepared, while the Phase II
6 remains in process. CLs have been used that have provided VAP-certified data.
7 There has been a CP supervising each aspect of the project technical work. Based
8 on a review of the data, applicable standards were exceeded in multiple media
9 regulated under the VAP, necessitating remediation.

10 The process is yet to be completed, so a final PSRA, NFA letter and CNS
11 have not yet been prepared, but thus far the VAP has been followed.

12 **Q. WOULD A CP BE ABLE TO ISSUE A NFA LETTER FOR THE EAST END**
13 **AND WEST END SITES BASED SOLELY ON IMPLEMENTATION OF**
14 **ASPHALT OR CONCRETE CAPPING?**

15 **A.** No. Asphalt or concrete capping are considered Engineering Controls under the
16 VAP. These types of Engineering Controls are typically used to eliminate exposure
17 to direct contact, typically for site workers and visitors. While this type of
18 Engineering Control can be used as an effective barrier for this single exposure
19 pathway, it would not have been sufficient as the sole remediation method for either
20 the East End site or the West End site. As was shown in prior testimony, other
21 exposure pathways are complete, for which an asphalt or concrete cap would not
22 have any effect.

23 A single example is the Ohio River, an important ecological receptor which

1 adjoins both the East End site and West End site. Because the COCs are mobile,
2 capping the soil areas of the sites would not have controlled the potential migration
3 of mobile COCs (and/or tar) off the property and into the Ohio River. Additionally,
4 given the active nature of the utility operations at the East End site and West End
5 site, capping may have created an on-going complication for any future subsurface
6 activities, because of the need to keep the cap intact and for the significant worker
7 protections that would have been necessary any time contamination was exposed.

8 **Q. WOULD A CP BE ABLE TO ISSUE A NFA LETTER FOR THE EAST END**
9 **AND WEST END SITES BASED SOLELY ON A GROUNDWATER**
10 **AND/OR LAND USE RESTRICTION?**

11 A. No. A groundwater or land use restriction are considered Institutional Controls
12 under the VAP. While an Institutional Control can be used as an effective tool to
13 eliminate an exposure pathway (*e.g.*, eliminating the use of groundwater for potable
14 purposes afforded by a USD), it would not have been sufficient as the sole
15 remediation method for either the East End site or West End site. As was shown in
16 prior testimony, other exposure pathways are complete, for which a groundwater
17 use or land use restriction would not have any effect.

18 A single example is the Ohio River, an important ecological receptor which
19 adjoins both the East End site and West End site. Because the COCs are mobile,
20 preventing the use of groundwater for drinking or limiting the use of the site for
21 just industrial purposes would not have controlled the potential migration of mobile
22 COCs (and/or tar) off the property and into the Ohio River.

1 **Q. WOULD A CP BE ABLE TO ISSUE A NFA LETTER FOR THE EAST END**
2 **AND WEST END SITES IF ONLY THE TOP TWO FEET OF SOIL WERE**
3 **EXCAVATED AND REMEDIATED AT THE SITES?**

4 A No. Excavation of soil is considered a remedy under the VAP. The consideration
5 of removing the top two feet of soil would presumably be intended to address the
6 point of compliance (POC) for direct contact by on-site workers at an industrial
7 property under the VAP. Because the direct contact POC is two feet, the VAP
8 theoretically allows for COCs below the POC to be left in-place. However, this
9 only applies to circumstances where the remaining COCs are not resulting in
10 complete exposure pathways with a receptor at levels above applicable standards.
11 In this case, the mobile COCs (and/or tar and OLM) located in the soils below two
12 feet and in the groundwater would continue to migrate, eventually to the Ohio
13 River, an adjoining sensitive ecological receptor. Further, because of the operating
14 nature of the utility operations at the East End and West End sites, leaving COCs
15 below the top two feet would mean that all future activities by workers below that
16 depth would encounter such materials. There would be substantial costs and risks
17 associated with managing contamination below two feet forever into the future.

18 **Q WOULD A CP BE ABLE TO ISSUE AN NFA LETTER FOR THE EAST**
19 **END AND WEST END SITES IF ALL THREE OF THE**
20 **AFOREMENTIONED REMEDIES WERE DONE?**

21 A. No. Although it is expected that all three of these remedies will be used eventually
22 to facilitate the issuance of an NFA letter at the East End site and West End site,
23 even if all three of these methods were used together, without excavation and/or

1 treatment of the mobile COCs, they would still not be sufficient to position the sites
2 to meet all applicable standards under the VAP. This is because none of these
3 methods would control the migration of mobile COCs (and /or tar and OLM) from
4 reaching the Ohio River, a sensitive ecologic receptor, and the underlying deeper
5 Critical Resource groundwater.

6 **Q. DID DUKE ENERGY OHIO HAVE AN OBLIGATION TO REMEDIATE**
7 **THE AREA WEST OF THE WEST PARCEL AT THE EAST END SITE?**

8 A. Yes. The Area West of the West Parcel was impacted with MGP-related COCs
9 above applicable standards. The source of that impact was the operation of the MGP
10 by Duke Energy Ohio or its predecessor companies, beginning in the late 1800s
11 and continuing into the middle part of the 20th century. There are no other known
12 contributors of this contamination.

13 The Area West of the West Parcel was previously, and is currently, owned
14 by Duke Energy Ohio. There was an intervening period where a portion of that land
15 had been sold by Duke Energy Ohio to another party, but it was repurchased as a
16 result of the concern over the presence of the contamination.

17 Environmental regulations, whether federal or state, address the presence of
18 all contamination emanating for a source. Such regulations do not stop at property
19 lines, fence lines, parcel lines, municipal or state boundaries, roadways or other
20 administrative limits. Instead, environmental liability and remediation regulations
21 are designed to address the full extent of the contamination. In addition to requiring
22 responsible parties to determine the lateral extent of a release, this also includes
23 vertical migration, migration through the air, and/or migration through other

1 conduits, such as a utility, waterway or fractured bedrock.

2 In this case, Duke Energy Ohio is utilizing the VAP as the regulatory
3 program under which the investigation and cleanup are occurring. As a specific
4 example of how environmental regulations require the investigation and cleanup of
5 the full extent of impacts, the VAP establishes the procedures for investigations
6 under the Phase II Property Assessment rule (OAC 3745-300-07).

7 Under 3745-300-07(A)(1), the applicability of the Phase II Property
8 Assessment stems from the determination in a Phase I Property Assessment as to
9 whether “a release of hazardous substances or petroleum has or may have occurred
10 on or from the property”.

11 The Phase II Property Assessment rule goes on to discuss what receptors
12 (*i.e.*, populations) must be considered when conducting an investigation. Under
13 OAC 3745-300-07(E)(6), assessment must be performed of “Populations on or off
14 the property that may be exposed to chemical(s) of concern in environmental media
15 as a result of construction or excavation activities. (e) Populations on or off the
16 property that are reasonably anticipated to be exposed to chemicals of concern from
17 the property through ground water migration, surface water migration, dust
18 emissions, volatilization and other mechanisms which transport chemicals of
19 concern off the property.”

20 The VAP rules also describe what must be cleaned up before an NFA letter
21 can be issued. Under the VAP’s Phase II Property Assessment rule (OAC 3745-
22 300-07(I)(3)(a)), any receptor populations (on or off property) that have been or
23 will be exposed to COCs above applicable standards must be remediated.

1 Therefore, Duke Energy Ohio had an obligation to investigate and
2 remediate the MGP-related COCs in the Area West of the West Parcel for several
3 reasons, including that it has liability for these impacts because it owns the property
4 and its predecessor companies caused the impacts and environmental regulations
5 (specifically the VAP) required the cleanup.

6 **Q. DID DUKE ENERGY OHIO HAVE AN OBLIGATION TO ASSESS THE**
7 **OHIO RIVER BANK AND THE OHIO RIVER SEDIMENTS BORDERING**
8 **BOTH THE EAST END AND WEST END SITES?**

9 **A. Yes.** As with the discussion regarding the Area West of the West Parcel, Duke
10 Energy Ohio had an obligation to investigate and remediate MGP related impacts
11 that resulted from its operations.

12 The Ohio River is an important ecological receptor, located on and/or
13 adjoining both the East End and West End site. For example, because of the
14 changing high-water mark in the Ohio River and the construction of the Markland
15 Dam, the exact property line of the East End site has changed over time and portions
16 of the property that is currently under the Ohio River would have been part of the
17 East End site during its operation as an MGP. The investigation of the Ohio River
18 and its bank that are on or adjoining the current East End site was required because
19 the actual East End site extended further into the river at the time it operated as an
20 MGP, and given the nature of the MGP-related COCs, it is possible for the COCs
21 to have migrated onto, or otherwise be present in these areas. Recent investigations
22 have determined that the river bank and the sediments of the Ohio River may
23 contain MGP-related COCs.

1 Under the VAP, the investigation of important ecological receptors is of
2 primary concern, as evidenced by OAC 3745-300-07(E)(6)(f), where the rules
3 establish that such receptors must be investigated.

4 Therefore, Duke Energy Ohio had an obligation, generally under
5 environmental laws and specifically under the VAP, to investigate the Ohio River
6 and its bank. This investigation is ongoing today.

7 **Q. WERE THE SECURITY MEASURES, AIR MONITORING, AND**
8 **VIBRATION MONITORING THAT WERE IMPLEMENTED AND**
9 **PERFORMED DURING REMEDIATION REASONABLE AND**
10 **PRUDENT?**

11 **A.** Yes. There were unique conditions at the East End site and West End site that
12 required the need for security measures, air monitoring and vibration monitoring.

13 There is sensitive underground infrastructure that had to be protected at the
14 East End site. With the handling and storage of explosive gases commonplace at
15 the East End site, extraordinary methods to protect workers and neighboring
16 residents were required, which included the need for vibration monitoring to ensure
17 the sensitive infrastructure was not adversely damaged.

18 The COCs at both the West End and East End sites include volatile
19 constituents that could migrate through the air and off-property during remediation.
20 The COCs also tend to have a high degree of odor. Given the adjoining residential
21 sites and businesses near the East End site and West End site, air monitoring was
22 justified. In addition, workers performing the remediation required special safety
23 training and monitoring to determine applicable personal protective equipment

1 (PPE) required under the Occupational Safety and Health Administration (OSHA)
2 regulations. As well, the East End site and West End site are operational during the
3 remediation activities, so on-site utility workers also had to be protected, which
4 further justified the need for air monitoring.

5 Given the potential dangers, both physically due to the type of equipment
6 being used on site for the remediation and as a result of airborne and surface
7 contamination being handled, considerable security measures were justified at the
8 East End site and West End site.

9 **Q. HOW DO THE COSTS TO INVESTIGATE AND REMEDIATE THE EAST**
10 **END AND WEST END SITES COMPARE WITH OTHER CLEANUP**
11 **SITES?**

12 **A.** The costs that have been incurred in investigating and remediating the East End and
13 West End sites are comparable to other cleanup sites. Duke Energy Ohio proceeded
14 with investigating and remediating the sites under the VAP, which was the only
15 viable regulatory program for purposes of remediating these sites, and proceeded
16 with source removal and stabilization, which are the most efficient, proven,
17 remedial methods for cleanup of MGP sites. From multiple studies and actual
18 projects, the industry standard for MGP site cleanup when mobile tar is present has
19 been established as source area removal for shallow accessible materials and in-situ
20 stabilization for deeper contamination. However, these methods also had to account
21 for many substantial and material complexities at the sites, all of which served to
22 drive the level of effort and ultimately the costs of the cleanup.

1 For purposes of comparison, it is important to note that Duke Energy Ohio
2 had to clean up two unrelated and separate former MGP sites. Therefore, cost
3 comparisons should be analyzed on a site-by-site basis, not as a whole. So, each of
4 the sites below should be considered in the context of one or the other of the East
5 End or West End sites, not both together.

6 One factor in comparing costs is to make sure you are not comparing
7 “apples and oranges”. In evaluating the reasonableness of Duke Energy Ohio’s
8 costs for the cleanup of the East End and West End sites, it is critical to consider
9 other sites of a similar scale and complexity.

10 The East End and West End sites are faced with many complicating factors
11 and are well outside the conditions and hurdles anticipated at a “normal” or “your
12 average” MGP site. Therefore, to offer a macro level comparison of costs, various
13 information about U.S. EPA Hazardous Waste Site and Superfund cleanup sites
14 was reviewed, as they represent what are often regarded as complex sites. From a
15 list of many others (for example, there are thousands of open U.S. EPA Hazardous
16 Waste Superfund sites), the following examples highlight the scale of costs that can
17 be expected for complicated sites facing cleanup.

18 A 2009 report by Pacific Gas and Electric Company (PG&E) identified
19 anticipated annual costs for cleanup activities at its sites. While the reported costs
20 were related to both MGP and non-MGP sites, it offers a glimpse at what other
21 utility companies face in cleanup costs associated with complex sites. According to
22 the report, PG&E spent over \$49 million on hazardous substance cleanup costs in

1 2009. The primary site of significance was a location known as Topock Compressor
2 Station, where a total \$19 million was spent in 2009 alone.

3 As another specific example, in June 2016, the U.S. EPA announced its
4 preferred plan for the cleanup of the Portland Harbor Superfund Site, which is a
5 National Priority List (NPL) site that includes an in-river and an upland portion of
6 cleanup and was partially impacted by MGP site operations. For the in-river portion
7 alone, the U.S. EPA estimated the costs for the preferred alternative to be \$745
8 million. This project is of interest, as it shows the kind of effort that can result from
9 allowing contamination to enter waterways.

10 As illustrated by these examples, the costs for cleanup of complex sites can
11 be substantial.

12 **Q. HOW DO THE INVESTIGATION AND REMEDIATION COSTS AT THE**
13 **EAST END AND WEST END SITES COMPARE WITH OTHER MGP**
14 **SITES?**

15 A. I reviewed various other MGP site cleanups and their associated costs, also at a
16 macro-comparison level. While the fact patterns vary in each case and may not
17 exactly match the conditions encountered at the East End and West End sites, this
18 group of sites demonstrates that the remedial methods used by Duke Energy Ohio
19 and associated costs incurred by Duke Energy Ohio fall within the expected range
20 of cleanup methods and costs for other relatively similar sites.

21 However, none of these sites involved the on-going operation of a public
22 utility with the critical infrastructure present at the East End and West End sites and
23 none of these sites included all the complications faced by Duke Energy Ohio, such

1 as were seen at the West End site, where a new bridge was to be constructed on the
2 site, or at the East End site, where residential development was encroaching. So,
3 while these examples are used for comparative purposes, Duke Energy Ohio's
4 considerations were more complex and warranted additional costs not
5 contemplated at these example sites.

6 A few of such examples are summarized below. In New York City, the
7 cleanup of Gowanus Canal, a site with upland MGP sources, was estimated at \$506
8 million according to the U.S. EPA Record of Decision (ROD), issued in September
9 of 2013. This selected remedy included in-situ Solidification/Stabilization (ISS),
10 capping, and dredging of sediments. In the case of the upland source remediation
11 for one of the adjacent MGP sites (Fulton Municipal Works MGP Site), the
12 estimated cost for the selected remedy is approximately \$55 million. The selected
13 remedy includes containment, tar recovery, and excavation/solidification. Of
14 additional interest for this site is the need for sediment cleanup, which Duke Energy
15 Ohio may also face at the East End and West End sites (thereby increasing its cost)

16 In Pawtucket, Rhode Island, the cleanup of the former Tidewater facility
17 was undertaken by The Narragansett Electric Company d/b/a National Grid in about
18 2011. It is the location of a former MGP and power plant site. The site was being
19 cleaned up following the Rhode Island Department of Environmental Management
20 (RIDEM) program. It is located along the Seekonk River and is mostly vacant.
21 Based on the Comparative Evaluation of Remedial Alternatives, the range of
22 estimated costs for the cleanup were between \$2.7 million (*i.e.*, no action) and \$78.8
23 million (significant source removal and engineered cap), with the recommended

1 alternative being a cost of \$25 million. Although the estimated range of costs is
2 somewhat less than the expected range for Duke Energy Ohio's costs, of significant
3 importance is that the site was vacant, making this cleanup substantially less
4 complex than either the East End or West End sites.

5 In Kingston, New York, the site of a former National Grid MGP facility
6 also located along a traditionally navigable waterway, ISS of approximately 20,000
7 cubic yards of upland soils was undertaken at a reported cost of approximately \$20
8 million. While \$20 million is less than the amount spent on the Duke Energy Ohio
9 sites, when interpolated to the scale of clean-up done by Duke Energy Ohio (based
10 on over ten times the amount of soils excavated and/or treated with ISS) the
11 Kingston site costs are comparable.

12 Utica, New York is the location of another former National Grid MGP site
13 located along a waterway. Like the East End and West End sites, this cleanup
14 included the combination of soil removal and ISS, with the excavation of 120,000
15 tons of soil and ISS of 90,000 cubic yards of impacted soils. The project was
16 completed in 2015. The U.S. EPA Record of Decision from March 2002 estimated
17 the selected remedy cost at approximately \$42 million, similar in scale to the East
18 End and West End sites.

19 As can be seen from this information, the cleanup of MGP sites can be
20 substantial even when the sites are not further complicated by ongoing utility
21 operations. The costs incurred at these other sites is generally in line with the
22 expenditures by Duke Energy Ohio.

1 As noted above, the investigation and remediation costs of the East End and
2 West End sites are comparable to other cleanup sites of the same scale and
3 magnitude, as well as with other former MGP sites.

4 Additionally, comparing unit costs for excavation and ISS activities at the
5 East End and West End sites against other published and reasonably available
6 expected ranges also demonstrates the reasonableness of the costs incurred by Duke
7 Energy Ohio, given their site conditions.

8 In the publication *A Resource for MGP Site Characterization and*
9 *Remediation*, prepared by the U.S. EPA and dated May 1999, the Agency
10 established a range of estimated costs for ISS to be \$40-\$60 per cubic yard. Since
11 this report was prepared in 1999, it could be assumed that these cost ranges would
12 be higher today, after accounting for inflation.

13 As an example of relative costs for soil disposal, in a 2013 Public Notice
14 for the *Proposed Remedial Action Plan and Public Comment Period for the Former*
15 *Kinston Manufactured Gas Plant Site* that was published by the North Carolina
16 Department of Environment and Natural Resources, disposal costs for MGP related
17 waste were in the range of \$32-\$65/ton.

18 Commercially available disposal costs for contaminated soil in the
19 Cincinnati area were also researched and found to currently range from about \$35-
20 \$55/ton. According to invoices provided by Duke Energy Ohio, the estimated costs
21 for soil disposal fell into a range of \$20-\$24/ton and the estimated costs for ISS fell
22 into a range of \$60-70 per cubic yard.

1 Although Duke Energy Ohio faced substantial complexities in trying to
2 remediate the East End and West End sites, even when evaluated at a unit costs
3 level (*i.e.*, a micro-level), the costs incurred by Duke Energy Ohio for remediation
4 activities are consistent with published industry standards for typical or expected
5 costs at MGP sites.

6 **Q. DO YOU BELIEVE THAT THE INVESTIGATION AND REMEDIATION**
7 **ACTIVITIES THAT DUKE ENERGY OHIO UNDERTOOK ARE**
8 **REASONABLE, PRUDENT AND NECESSARY IN WORKING TOWARD**
9 **MEETING APPLICABLE STANDARDS AT THE EAST END AND WEST**
10 **END SITES?**

11 **A.** Yes, It is my opinion that the actions and costs associated with the ongoing cleanups
12 at the East End site and West End site have been reasonable, prudent and necessary
13 because: (1) Duke Energy Ohio had liability for the conditions at both sites due to
14 its long history of ownership and operation of facilities on these sites; (2) Duke
15 Energy Ohio conducted its investigation and remediation in accordance with a
16 reasonable set of goals and objectives that were appropriate given the site
17 conditions; (3) Ohio's VAP provided the most appropriate environmental
18 regulatory mechanism for the cleanup of the sites and to address the Company's
19 liability at the sites; (4) cleanup was required to meet applicable standards under
20 the VAP and to meet the goals and objectives established by Duke Energy Ohio;
21 (5) complex site conditions have resulted in unique circumstances that had to be
22 addressed as part of the required cleanup and to achieve Duke Energy Ohio's
23 established goals and objectives; and (6) the costs incurred by Duke Energy Ohio

1 to conduct the cleanups are consistent with cleanup costs incurred at similarly
2 contaminated sites and consistent with the costs to conduct cleanups at comparable
3 MGP sites.

V. CONCLUSION

4 **Q. WERE THE ATTACHMENTS TO YOUR TESTIMONY PREPARED BY**
5 **YOU OR UNDER YOUR DIRECTION AND SUPERVISION?**

6 A. DDB-1 is my Curriculum Vitae and I prepared this attachment.

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

9 A. Yes.

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

11 A. Yes.



Dan B. Brown, CPG, CP 127
President

EDUCATION

BS, Geology, Fort Lewis College, Durango, Colorado, 1987
15 hours completed toward MBA, Concentration in Management, John Carroll University, Cleveland, Ohio

PROFESSIONAL TRAINING

Princeton Course, 1-week Groundwater Pollution and Hydrology
NGWA Course, 1-week IBM-PC Applications in Groundwater Pollution and Hydrology
Fifth and Seventh National Outdoor Action Conference
BUSTR Underground Storage Tank Rules Seminar
Bioremediation and Risk Assessment-BUSTR Conference
PUSTRCB/BUSTR New Rules Seminar
Ohio EPA Certified Professional Training (1997-2018)
OSHA 40-hour HAZWOPER Training and 8-hour Refresher Course (current)
OSHA Confined Space Entry Training, Competent Person Training, Managers Health and Safety Training, and Excavation and Trenching Training

CERTIFICATIONS/REGISTRATIONS/ORGANIZATIONS

Certified Professional Geologist, American Institute of Professional Geologists (#9270)
Certified Professional, State of Ohio, Voluntary Action Program (#CP127)
Voting Member, Cuyahoga River Area of Concern Advisory Committee
Member, National Groundwater Association Advisory Committee
Member ASTM International Committee D-18 on Rock and Soil
Advisory Board Member, Cuyahoga Community College, Environmental Health & Safety Technology Program (and past Chairman)
Chairman, Cuyahoga County Sewage Treatment Systems Board
Ohio EPA 5 Year Rule Review, Rule 10 Working Group (2018)
Industrial Wastewater Works Operator Class 3, State of Maryland (expired)
Council Member, Orange Village, Ohio (2001-2012)
Past Council President, Orange Village, Ohio (2009-2010)
Past Chairman, Brownfields Multidisciplinary Board, Administrative Procedures Subcommittee
Past Member, Cuyahoga County Planning Commission, Brownfield Working Group
Past Chairman, Cleveland Neighborhood Development Coalition, Industrial Committee
Past Chairman, Environmental Subcommittee, Ohio Housing Council
Past Member, Build Up Greater Cleveland, Sustainable Infrastructure Committee
Past Member, Economic Development Network, Greater Cleveland Growth Association
Past Advisory Board Member, Jewish Volunteers in Action
Past Member, Executive Committee, Chagrin River Watershed Partners (and Alternate Trustee, Orange Village)

PRESENTATIONS/PUBLICATIONS

7th Annual Business & Industry's Environmental Symposium "Ohio's Voluntary Action Program"
Akron Bar Association, "Role of the Certified Professional"
19th Annual Inland Spills Conference, "Role of the Certified Professional"
Federal Publications, Inc., New Developments in Ohio Environmental Law, "Case Study in the VAP Program"
Cleveland Bar Association, Environmental Law Group, "Basic Environmental Science"
Cleveland Neighborhood Development Corporation, "Urban Setting Designation"

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President

Chapter Contributor, *The Brownfields Handbook: How to Redevelop Contaminated Property*, published by the American Bar Association, 1997
Brownfields 2000, Poster Presentation, Redevelopment of Housing Adjacent to the Danton's Cleaners Superfund Site, Copley, Ohio
Brownfields 2001, Presenter, Redevelopment of Housing Adjacent to the Danton's Cleaners Superfund Site, Copley, Ohio
Cleveland Bar Association, 2003 Environmental Law Symposium, Presenter
Cleveland Bar Association, 2004 Environmental Law Symposium, Presenter
Ohio EPA New Certified Professional Training Video-Phase II Rule 2006
Akron Bar Association, 2010 Environmental Section Presenter-Environmental Issues with Oil and Gas Exploration in Ohio
Ohio Brownfield Conference 2011, 2016 Presenter
Ohio EPA Certified Professional Training 2012 and 2013, Presenter
Ohio Stormwater Conference, presenter 2015
Cleveland Bar Association, 2016 Real Estate Law Symposium, Presenter
Brownfields 2017, Presenter, Land Banks What a Great Idea.
Ohio Land Bank Conference, 2017 Presenter

AWARDS

Shell Oil Company, 3rd Quarter 1991 Recognition Award
Handex of Maryland, Outstanding Performance Award, 1991
Groundwater Technology, Inc., Spirit of Innovation Award, 1993
Groundwater Technology, Inc., Sunoco Account Outstanding Performance Award, 1994
Groundwater Technology, Inc., No Lost Time Accident Award, 1993, 1994

EMPLOYMENT HISTORY

Partners Environmental Consulting, Inc. (March 1999 – present)

Mr. Brown is the founder and President of Partners. In addition to his administrative duties as President, he is responsible for business development and senior client and project oversight. Mr. Brown directs regulatory negotiations regarding Environmental Response, Compensation, and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), Ohio Voluntary Action Program (VAP), Bureau of Underground Storage Tank Regulations (BUSTR) and other programs. He has often been called upon for expert testimony services and has provided environmental program development services to both regional and national corporations. He is experienced in solid and hazardous management and landfill permitting, investigation and regulations. Mr. Brown has also maintained his credentials as a Certified Professional since the inception of the VAP, directing work on various Brownfield projects, including the issuance of No Further Action (NFA) Letters and the receipt of Covenants Not-to-Sue (CNS).

BHE Environmental, Inc. (April 1995 – March 1999)

As Director of Northern Ohio Operations, Mr. Brown supervised operations and management of two environmental consulting offices. Mr. Brown opened the Cleveland office for BHE, which had not previously existed, in April 1995 and also assumed responsibility for their Columbus office. While in this role, Mr. Brown grew BHE's operations in Northern Ohio to about \$3,000,000 annually, representing over 30% of the corporation's revenue. Mr. Brown was also the Certified Professional responsible for all VAP projects conducted by BHE. Mr. Brown technically managed many of the projects directly and provided senior technical review for reports.

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Groundwater Technology, Inc. (April 1992 - April 1995)

Mr. Brown was hired by Groundwater Technology, Inc. (GTI) as a project manager. He initially handled the management of one major oil company client, which included over 50 individual projects. In 1993, Mr. Brown became Operations Manager of the Ohio territory for GTI. In that position he continued his project management role as well as gained responsibility for staff management, business development and senior technical oversight of all projects. During his tenure as Operations Manager, GTI's operation in Cleveland nearly tripled in size and he expanded the technical capability to include a broader range of clients.

Handex of Maryland, Inc. (January 1988 - April 1992)

Mr. Brown began his environmental career with Handex as a field technician. His responsibilities included operation and maintenance of remediation systems, groundwater sampling and field geology. During the next three years he held progressively more responsible positions as a hydrogeologist and project manager. His experience during that time included the design and installation of over 50 remediation systems, the installation of over 100 monitoring wells, the removal of over 50 underground storage tanks, conducting aquifer pumping tests, soil vapor extraction tests and the development of "new" remedial technologies. Mr. Brown was also responsible for the environmental program management of several large clients including various major oil companies; in some cases, representing 50-100 individual projects.

SELECTED PROJECT EXPERIENCE

Remediation

Development and Operation of a 40 cfm Thermal Oxidizer

Mr. Brown served as the project manager and senior hydrogeologist for the cleanup of a release of petroleum hydrocarbons from a retail gasoline service station. The cleanup was conducted for Amoco Oil Corporation and included the design and construction of a prototype 40 cfm thermal oxidizer. Mr. Brown conducted the pilot testing for both a pumping and soil venting system for the site and supervised its installation. The project has since reached closure.

Groundwater Modeling, Groundwater Pumping System Installation

Mr. Brown served as the project manager and senior hydrogeologist for the implementation of a groundwater-modeling program to aid in the operation of a groundwater pumping system. The model was used to develop the appropriate pumping parameters to ensure protection of a church located hydraulically downgradient of the subject site. The contaminants of concern were benzene, toluene, ethylbenzene and xylenes.

Emergency Response, Installation of a Groundwater Pumping and Soil Venting System

Mr. Brown served as the senior hydrogeologist for an emergency response regarding the catastrophic release of approximately 10,000 gallons of gasoline from an underground storage tank. The release had entered a nearby sewer and impacted a stream and had created a vapor hazard in an adjacent restaurant. Mr. Brown supervised the installation of over 20 monitoring and recovery wells, conducted pilot testing and supervised the installation of an emergency pumping and venting system at the site over the period of one month. This work was conducted on behalf of the State of Maryland and remediation has since been completed at the site.

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Manufactured Gas Plant (MGP) Investigation and Remedial Design

Mr. Brown served as the Certified Professional supervising the investigation and remedial design for a waterfront property adjoining a former MGP site located along Sandusky Bay. Working on behalf of the City of Sandusky, Mr. Brown led an investigation intended to support the redevelopment of the site into residential use. As a result of the discovery of coal tar and related constituents, a remedial system was designed to stabilize the soil, groundwater and sediment contamination and to facilitate redevelopment. Mr. Brown supported the successful application under the Clean Ohio Fund for a \$3 million grant.

Dechlorination of Trichloroethane and Groundwater Cleanup

Mr. Brown served as the Certified Professional and oversaw the cleanup of groundwater impacted by trichloroethane from a former manufacturing facility located in a residential neighborhood. The remedial design called for the installation of a recovery trench encircling the former plant and the injection of soy bean oil to degrade the solvents in the groundwater. Other aspects of the project included the closure of two (2) RCRA units, the removal of two (2) USTs, abatement of asbestos and building demolition activities. The work was conducted under a grant from the Ohio Department of Development, of which, Mr. Brown was the primary architect of the funding. Mr. Brown has prepared an NFA Letter under Ohio's VAP and the site has received a CNS.

Brownfields

USEPA Demonstration Pilot Program

On behalf of the City of Elyria, Mr. Brown prepared the application for a United States Environmental Protection Agency (USEPA) Brownfield Demonstration Pilot Project. The site included over 1,000,000 square feet under roof on over 45 acres of land. The site was a former furnace manufacturing facility, initially developed in the early 1900s. The Pilot project was awarded to the City of Elyria in May 2000. Mr. Brown developed an environmental strategy for the project and helped secure over \$500,000 in funding to support environmental investigation and remediation efforts. Partners also prepared specifications for asbestos removal activities and Mr. Brown served as the Certified Professional for the site.

Chairman, Administrative Procedures Subcommittee, Final VAP Rules

Mr. Brown served as the chairman for this subcommittee in the summer of 1995. Mr. Brown's role as mediator included presentations to the Multidisciplinary Board, providing monthly progress reports, maintaining a constructive atmosphere for development of the final rules and providing the proposed rules in draft form for final review by the Director of Ohio Environmental Protection Agency (EPA). Mr. Brown's subcommittee was the only subcommittee to complete their rules within the deadlines imposed by SB 221.

US EPA Comfort Letter

In support of a proposed development of a 15-acre former golf course into a new residential townhouse community, Mr. Brown pursued a Comfort Letter from the USEPA. The proposed development bordered and was impacted by a USEPA Superfund site, resulting from the release of dry cleaning solvents to the groundwater and soil. Through an innovative approach, utilizing risk assessment and modeling, Mr. Brown was able to demonstrate that the site met acceptable risk levels, both currently and in the future.

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CNS-Ohio EPA

Partners was hired by an investment firm to conduct due diligence activities during the acquisition of a manufacturing facility in Solon, Ohio. Initially, Partners conducted due diligence activities in accordance with a local lender's requirements. Based on the results of the preliminary investigations, Partners was engaged to take the project through the Ohio VAP. The resulting investigation uncovered the presence of elevated levels of chlorinated solvents in the soil and groundwater both on and off-site. After completing a comprehensive investigation that included VAP Phase I and Phase II Property Assessments, aquifer characterization, remedial cost estimates, physical remediation, fate and transport modeling and a human health risk assessment, Partners was able to prepare an NFA Letter for submittal to the Ohio EPA. The Ohio EPA subsequently issued a CNS for the site in 2008. Mr. Brown was the CP and prepared the NFA for this site.

Former Circuit Board Manufacturing Site-Virginia

Identified as the "Most Contaminated Site in the State of Virginia", Mr. Brown directed the investigation and eventual cleanup of this site for use as a commercial shopping center. The site was over 100 acres, including on-site buildings totaling over 700,000 square feet of space and was actively the subject of a US EPA Region 3 Corrective Action that was on-going for the remediation of volatile organic compounds in groundwater and soil. Mr. Brown designed a unique regulatory approach that resulted in the demolition of the building, removal of hazardous waste classified soil, the relocation of a groundwater pumping system and the construction of a shopping center containing over 1,000,000 square feet of retail space.

Expert Services

Expert Services Chemical Manufacturing/Distribution Company

Mr. Brown provided expert services in support of litigation related to the historic release of volatile organic compounds, including chlorinated solvents, petroleum hydrocarbons and other hazardous substances from a chemical bulk storage facility. Mr. Brown provided hydrogeologic interpretations and fate and transport modeling services in support of this defendant. The case was successfully settled prior to trial; however, Mr. Brown was deposed as part of the trial preparation process.

Expert Testimony. Sines and Sons v. Shell Oil Company

Mr. Brown provided successful expert testimony services for this bench trial. His role specifically involved the evaluation of technical environmental investigations with regard to the original source of a release at the site. The specific contaminants include petroleum-based compounds resulting from the use of gasoline underground storage tanks. Mr. Brown provided both deposition and trial testimony as the expert witness for Shell Oil Company in this case.

Retail Gasoline Station-Trial Testimony

Mr. Brown provided expert testimony services in order to assign damage claims in a lawsuit involving a service station operator and the Major Oil Company that delivered fuel to the site. As a result of a fuel overflow, product reached a sewer system and caused an eventual explosion and fire in a residential community. Subsequent to the settlement of the private party claims, Mr. Brown provided jury trial testimony related to the costs associated with cleanup of the service station property. Mr. Brown successfully demonstrated that the fuel overflow did not contribute significantly to the prior contamination present at the site and caused by the owner.

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Expert Testimony Estate of Ida Shapiro v. - Amoco Oil Company

Mr. Brown provided expert testimony services for Amoco oil Company during a jury trial to determine the source and extent of a release of petroleum hydrocarbons in order to assign potential damages claims. Mr. Brown successfully defended this retail petroleum company; specifically utilizing a risk assessment to show that remediation was not warranted at the site.

Expert Testimony Shell Oil Company

Based on a lawsuit by a potential property owner, Mr. Brown defended Shell Oil Company against litigation related to a release of petroleum hydrocarbons from an underground storage tank system. The case involved four other major oil company defendants, all of which were joined separately in findings and orders with the Ohio EPA and BUSTR. The source of the release was potentially related to seven different parties, one of which was Mr. Brown's client. Mr. Brown's expert report was used to support settlement of this important case.

Foundry Sand Landfill-Ohio EPA Settlement Hearing

Mr. Brown initially served as the Certified Professional for this project under Ohio's VAP. The project involved the investigation and redevelopment of a 15-acre site used for the deposition of foundry sand in the early 1980s. Mr. Brown provided both technical investigative management and supported eligibility appeals in an attempt to successfully bring this site to regulatory closure. The project included the successful settlement of litigation with Ohio EPA to distinguish the site as an exempt landfill. Mr. Brown provided the technical support and expert testimony services for this settlement.

Multi-Site Settlement

As a result of the acquisition of 40 separate retail gasoline service station sites, Mr. Brown was utilized as an expert to determine the source, relative age and potential cleanup cost associated with six of the locations. Mr. Brown utilized both risk-based closure standards and analytical interpretation to develop his opinion, however, a formal expert report was not required.

Expert Services-Chevron Oil Company (Defendant)

Mr. Brown represented Chevron Oil Company in a case involving the infiltration of vapors into a bank branch building. Mr. Brown provided expert services to determine the suspected source of the release and its time frame. Mr. Brown's research and analytical interpretations were used to support Chevron's defense. The case was successfully settled prior to trial in 2003.

Landlord Impacted by Tenant- Settlement

Mr. Brown was hired by a Landlord to investigate suspected contamination resulting from the operations of a tenant on the property. The investigation was conducted at an automobile dealership and included the investigation of underground storage tanks, hydraulic lifts, drains, oil/water separators and storage areas. The information generated by Mr. Brown was used to determine environmental impacts and to support settlement of the litigation.

Landfill Owner v. Ohio EPA

Mr. Brown represented a landfill owner in litigation with the Ohio EPA regarding the Closure of a Solid Waste Landfill. Mr. Brown was retained to conduct all aspects of on-site compliance, as well as provide expert services in support of on-going litigation. The lawsuit involved establishing the 30-year Post Closure Care cost estimate and the necessary scope of work for adequately monitoring the landfill. Mr. Brown was relied upon to support efforts by the defendant to mitigate damages resulting from the State's

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successful effort to pierce the corporate veil. Mr. Brown provided active support during the initial two-week trial, including two (2) days of testimony for this bench trial.

Expert Report for the Petroleum Underground Storage Tank Reimbursement Compensation Board

Mr. Brown was retained to defend the Ohio Petroleum Underground Storage Tank Release Compensation Board (PUSTRCB) in litigation resulting from the release of petroleum hydrocarbons from a regulated and insured UST site. The Plaintiff prepared an expert report suggesting that the Ohio BUSTR cleanup levels allowed for contamination to remain on their adjoining site at concentrations that would affect their property value. Mr. Brown prepared an expert report supporting BUSTR's risk-based standards and demonstrating their applicability to the site. Mr. Brown was deposed in preparation for trial. Mr. Brown's services led to the successful settlement of the matter, with his Client released from the litigation.

Eminent Domain Proceeding

Mr. Brown provided expert services in support of a defendant in an eminent domain case in Toledo, Ohio. Mr. Brown's services included a detailed analysis of the plaintiff's proposed remediation costs. Through the use of risk-based standards, Mr. Brown was able to show a reduction of over \$400,000 from the plaintiff's estimate. Mr. Brown's deposition was so compelling, that the plaintiff did not utilize environmental conditions as part of their case to demonstrate the land value for the eminent domain proceedings. Therefore, Mr. Brown was not called to testify in the case, as no rebuttal was necessary.

Expert Services-VOC Release to Groundwater

Mr. Brown represented a Client that is located adjacent to an operating Hazardous Waste Disposal facility. During plans for expansion of his Client's facility, significant amounts of volatile organic compounds (VOCs) and other contaminants were identified in the soil and groundwater on their Property. Mr. Brown was instrumental in modifying the investigation efforts to determine the source of the contamination and disprove his Client's liability. Because of Mr. Brown's efforts, the Ohio EPA became actively involved in the matter and Mr. Brown worked with the Property owner to develop an appropriate cleanup strategy, serving as their Expert and supporting the environmental aspects of the settlement of the litigation.

Ohio EPA Negotiations-Sufficient Evidence Demonstration

Mr. Brown provided his services as a Certified Professional (CP), under Ohio EPA's VAP, to demonstrate compliance with the rules of Sufficient Evidence. This approach was being used in negotiation of pending Findings and Orders and threatened penalties by the Ohio Attorney General's (AG's) office. The project involved the investigation and remediation of former waste disposal areas, including the presence of petroleum-based and volatile compounds.

Chlorinated Solvent Cleanup-Litigation

Mr. Brown served as the CP for the successful cleanup of a chlorinated solvent release in soil and groundwater at a site under the Ohio Voluntary Action Program (VAP). Mr. Brown prepared an NFA Letter and the Ohio EPA issued a CNS for the site in 2006. The project involved the sale of the Property, with an escrow account established to fund the Cleanup. After successfully directing the cleanup, Mr. Brown's Client was sued by the seller over the cleanup costs. Because of conflicts, Mr. Brown did not serve as the Expert, but was a fact witness and was deposed in this case. Mr. Brown's knowledge of the project was critical to the settlement of the case.

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Municipality and Construction of a Police Station on a Landfill

Mr. Brown represented a municipality in their recovery of expenses related to the construction of a new police station on what turned out to be a landfill, discovered during construction. Mr. Brown provided expert opinions in the application and use of "Rule 13" of the Solid Waste Regulations in Ohio. His Opinion was used to gain a successful settlement of the litigation for the Municipality, which was suing the architectural firm that had managed the project.

Class Action-Chlorinated Solvents Under Residential Properties

Mr. Brown served as the Expert for a Defendant in a Class Action matter, being heard in Federal Court. The matter included an analysis and determination of the extent of contamination, potential human health impacts and remedial costs. Mr. Brown prepared an Expert Report in the matter, which supported its successful settlement in 2009.

Vapors in Apartment Building

Mr. Brown represented an insurance company, which was a Defendant in a case involving an alleged release of dry cleaning solvents from an operating dry cleaner that they insure. The release may have resulted in the presence of various volatile constituents in indoor air within the basement of an adjoining apartment building. Mr. Brown was instrumental in supporting the receipt of a grant from a county agency to cover the costs of replacing the floor in the basement and installing a sub-slab depressurization system (SSDS). The SSDS has resulted in the prevention of vapors from accumulating in the basement. The advent of this system has allowed his Client to move ahead with settlement, having effectively eliminated the impact from the alleged release.

Fly Ash Landfill Closure

Mr. Brown represented a multinational engineering company to defend them against allegations that their performance on a project was not adequate. This case involved both an understanding of Landfill regulations in Ohio and the management of contractual issues related to the engagement of the consultant by their Client. As a business owner of an Engineering Corporation, Mr. Brown's experience in contract management was an essential aspect of his opinion.

Salt Fill Closure

Mr. Brown is serving as an Expert for Co-Executors for an Estate in its litigation against Ohio EPA. Mr. Brown has submitted an Expert Report, an Addendum to his report, been deposed and participated in settlement discussions in the defense of his Client. The case is pending.

MGP Cleanup Insurance Claim

Mr. Brown represents a regional utility in their insurance claim for recovery of cleanup costs related to a former manufactured gas plant (MGP) site in southern Ohio. Mr. Brown has submitted an Expert Report and Rebuttal report in this matter. The case is pending.

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Summary: Testimony Testimony of Dan B. Brown electronically filed by Mrs. Debbie L Gates on behalf of Duke Energy Ohio Inc. and D'Ascenzo, Rocco O. Mr. and Watts, Elizabeth H