BEFORE

THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Application of Duke Energy Ohio, Inc., for an Adjustment to Rider MGP Rates.)))	Case No. 20-0053-GA-RDR
In the Matter of the Application of Duke Energy Ohio, Inc., for Tariff Approval.))	Case No. 20-0054-GA-ATA

DIRECT TESTIMONY OF

TODD L. BACHAND

ON BEHALF OF

DUKE ENERGY OHIO, INC.

TABLE OF CONTENTS

PAGE

I.	INTRODUCTION AND PURPOSE	1
II.	BACKGROUND AND HISTORY OF MGP SITES	5
III.	INVESTIGATION AND REMEDIATION AT EAST END AND WEST END SITES	. 13
IV.	CONCLUSION	. 31

:

Attachments:

- TLB-1: Summary Timeline of Investigation and Remediation Activities for East End and West End Sites
- TLB-2: East End Site Property Map/Phase 2 Area

TLB-3: Summary of Costs Apportioned to Area West of the West Parcel and Ohio River

CONFIDENTIAL TLB-4: Haley & Aldrich Invoice IN00037560 for Groundwater Monitoring at the East End Site

CONFIDENTIAL TLB-5: Haley & Aldrich Invoice IN00039231 for Groundwater Monitoring at the East End Site

CONFIDENTIAL TLB-6: EMS Inc./HEPACO Invoice FY19-011531REV (pages 1-2 of 22) for Riverbank Investigation at the East End Site

CONFIDENTIAL TLB-7: Haley & Aldrich Invoice IN00042448 (pages 1-3 of 19) for Remedial Construction and Site Restoration in Phase 1, 4, and 5 at the East End Site

TLB-8: East End Site Plan Map showing Remediation Phases

CONFIDENTIAL TLB-9: Haley & Aldrich Invoice IN00045385-RET for Remedial Construction and Site Restoration in Phase 1, 3, 4, and 5 at the East End Site

CONFIDENTIAL TLB-10: EMS Inc./HEPACO Invoice FY19-007720 (pages 1-2 of 19) for Limited Riverbank Remediation in the Area West of the West Parcel at the East End Site

I. INTRODUCTION AND PURPOSE

1 Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Todd L. Bachand, and my business address is 139 East Fourth Street,
Cincinnati, Ohio 45202.

4 Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by Duke Energy Business Services LLC (DEBS) as a Principal
Environmental Specialist for the Remediation Group, which is part of
Environmental Services at Duke Energy Corporation (Duke Energy). DEBS
provides various administrative and other services to Duke Energy Ohio, Inc.,
(Duke Energy Ohio or Company) and other affiliated companies of Duke Energy.

10 Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND 11 PROFESSIONAL EXPERIENCE.

12 A. I received my Bachelor of Science degree in Environmental Sciences from Springfield 13 College, located in Springfield, Massachusetts, in 1985. From 1985 to 1992, as an 14 Environmental Scientist with Baystate Environmental Consultants, Inc. (East 15 Longmeadow, MA), I was responsible for conducting site assessments, performing 16 feasibility studies, and managing construction, dredging and remediation projects. 17 From 1992 to 1996, as the manager of Technical Services for Nuclear Energy 18 Services, Inc. (Danbury, CT), I was responsible for overseeing and managing a wide 19 variety of site assessments and remediation projects. I was responsible for managing 20 a team of environmental scientists and geologists primarily working on sites 21 throughout the East Coast focusing on petroleum-impacted properties. From 1996 to 22 1998, as the Mid-West Operations Manager for Nuclear Energy Services, Inc.,

Integrated Environmental Services Division (Blue Ash, OH), I was responsible for
 managing a team of environmental scientists, geologists, and engineers. I managed
 projects that dealt with environmental assessments, real estate due diligence (Phase I
 Environmental Site Assessments), risk assessments, underground storage tank
 remedial actions, and remedial actions relating to chlorinated solvents, mercury, and
 polychlorinated biphenyls (PCBs).

From 1998 to 2009, as the Vice President of NEES, LLC (West Chester, OH),
I managed a team of environmental professionals and I was responsible for projects
focusing on site assessments, property transactions, remediation projects, U.S. Army
Corps of Engineers permitting and compliance, and cultural resources assessments.
Projects that I personally managed focused on site assessments (Phase I, Phase II, and
Phase III), remediation, risk analysis, environmental permitting, environmental
auditing, and environmental compliance.

14 From 2009 to 2013, as the Director of Environment, FirstGroup America 15 (Cincinnati, OH), I had all environmental responsibility for the company, which 16 included the operating companies of Greyhound Bus, Greyhound Canada, 17 Americanos, First Student, First Canada, First Transit, and First Vehicle Services. 18 The occupational footprint included Mexico, Puerto Rico, the United States and 19 Canada. My responsibilities focused on ensuring compliance with all 20 environmental regulatory programs from city, county, state, and federal agencies in 21 the United States and city, provincial, and the Ministry of Environment in Canada. 22 Compliance included over 3,000 storage tanks and issuance of annual permits for 23 each location (1,500+ locations). Additional responsibilities focused on real estate

1 holdings throughout North America and the environmental due diligence aspect of 2 acquisitions and dispositions for both leased and owned properties. I was also 3 responsible for managing multiple Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites where the company had 4 5 liabilities, as well as managing multiple environmental remediation projects, 6 focusing on petroleum, chlorinated solvents and PCB impacts to both soils and 7 groundwater. In addition, I was responsible for ensuring that all operating permits 8 were up-to-date and that all federal, state and local Emergency Planning and 9 Community Right-to-Know Act Tier II reports were filed as required.

10 From June 2014 to the present, I have been with Duke Energy in the Remediation Group and my title is currently Principal Environmental Specialist. I 11 12 am responsible for managing remediation projects within the states of Ohio, 13 Kentucky, and Indiana. I have extensive experience in site assessments and 14 remediation that I employ while managing the various projects in these states. 15 Currently, I am managing the site assessment and remediation of contaminants 16 from two former manufactured gas plant (MGP) sites in Cincinnati, Ohio (the East 17 End and West End sites) for Duke Energy Ohio. I also represent Duke Energy on 18 the Indiana Energy Association – MGP Remediation Work Group and I am a 19 member of the MGP Consortium, which is a group comprised of 28 utilities where 20 lessons learned and best practices are shared among utility project managers on the 21 investigation and remediation of former MGP sites.

Q. PLEASE SUMMARIZE YOUR RESPONSIBILITIES AS A PRINCIPAL ENVIRONMENTAL SPECIALIST WITHIN THE REMEDIATION GROUP.

A. As a Principal Environmental Specialist in the Remediation Group, I provide
project management and technical oversight for Duke Energy's environmental
liabilities at power plants and other properties that any Duke Energy entity or
predecessor company either owned, operated and/or sent material to and that is now
subject to remediation obligations.

9 My job responsibilities, which are similar to the responsibilities of other 10 project managers in the Remediation Group, include interaction and coordination 11 with many different groups within and outside of Duke Energy, including: senior 12 leadership; legal; finance; business units such as gas operations and transmission, 13 customer delivery, and generation; ratepayers and community groups; local, state, 14 and federal governmental or regulatory officials; and consultants, contractors, and 15 site/construction workers. We prepare bid documents that detail Duke Energy's 16 requirements and expectations for remedial work and we provide the technical 17 evaluation of the proposals received. During the execution of site work, we actively 18 review, comment on, and approve all plans, scope or design changes, and final 19 documents prepared by environmental consultants. We regularly visit sites during 20 active investigation and remediation activities to oversee work and ensure that 21 Duke Energy's expectations are being met.

1Q.HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE PUBLIC2UTILITIES COMMISSION OF OHIO?

A. Yes. I submitted written testimony in Case Nos. Case Nos. 15-0452-GA-RDR, *et al.*; Case Nos. 16-0542-GA-RDR, *et al.*; Case Nos. 17-0596-GA-RDR, *et al.*; Case Nos. 18-283-GA-RDR, *et al.*; and Case Nos. 19-174-GA-RDR, *et al.*, which were
consolidated (Consolidated Rider MGP Proceedings). I provided oral testimony
during the hearing for the Consolidated Rider MGP Proceedings, which took place
November 19- 21, 2019.

9 Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY IN THESE 10 PROCEEDINGS?

11 A. I am the project manager for the MGP investigation and remediation projects at the 12 East End and West End sites in Duke Energy Ohio's service territory. The purpose 13 of my direct testimony is to describe the environmental investigation and 14 remediation activities that occurred at the East End and West End sites in 15 Cincinnati, Ohio, through calendar year 2019. In so doing, my testimony will 16 support the recovery of such expenditures that are included in Duke Energy Ohio's 17 requested update to Rider MGP, as authorized by the Commission.

II. BACKGROUND AND HISTORY OF MGP SITES

18 Q. PLEASE SUMMARIZE YOUR EXPERIENCE WITH THE COMPANY'S

19 INVESTIGATION AND REMEDIATION OF ITS TWO CINCINNATI MGP

- 20 SITES, THE EAST END SITE AND WEST END SITE.
- A. Since 2014, I have been the project manager for the investigation and remediation
 of the East End site and West End site. I have been providing direct testimony in

1 each of the previously filed cases since 2015 and supplemental direct testimony in 2 the Consolidated Rider MGP Proceedings wherein Duke Energy Ohio is seeking 3 approval for recovery of costs related to investigation and remediation of impacts 4 associated with the former MGP operations at the East End and West End sites. I 5 previously provided oral and written testimony in the Consolidated Rider MGP 6 Proceedings that details my responsibilities and my experience with respect to the 7 investigation and remediation of the East End and West End sites at issue in these 8 proceedings.

9

Q. PLEASE SUMMARIZE YOUR EXPERIENCE WITH MGP SITES.

A. In addition to acting as project manager for the remediation of the East End and
West End sites, I also participate and serve in organizations dedicated to addressing
environmental conditions at former MGP sites. In particular, I am currently Vice
Chair of the MGP Consortium, and a member of the technical review committee
for the GEI Consultants MGP Conferences.

15 Q. PLEASE EXPLAIN WHAT YOU MEAN BY THE TERM MGP SITES.

16 A. Duke Energy Ohio owns and utilizes the East End MGP site and West End MGP 17 site for utility operations that previously were used for MGP operations long ago. 18 Both the East End MGP site and West End site have been subdivided over time for 19 purposes of investigation and remediation under the Ohio Environmental 20 Protection Agency's (Ohio EPA) Voluntary Action Program (VAP). These 21 subdivided areas were referred to as "parcels." "Parcels" were not defined based on 22 real property boundaries, but were based on areas requiring investigation and, if 23 necessary, remediation for MGP impacts from the legacy operations. The term

1 "MGP sites" when referring to East End and West End has the meaning typically 2 used in the environmental remediation industry—the area that may be impacted or contaminated from the former MGP operations and which requires investigation 3 4 and, in some instances, remediation under state and federal environmental laws and 5 regulations. Duke Energy Ohio's investigations have determined that MGP impacts 6 at the MGP sites must be remediated under applicable environmental laws. As the 7 Company first explained in its 2012 natural gas rate case, Case No. 12-1865-GA-AIR, et al., (Natural Gas Rate Case) and in subsequent related cases, and in 8 9 subsequent related cases, MGP impacts have by-products and other waste 10 materials, including tar-like material (TLM) and oil-like material (OLM), with a 11 number of chemicals, including benzene and polyaromatic hydrocarbons. These 12 contaminants are not stable, but rather mobile and can migrate through soils and dissolve into the groundwater at concentrations above applicable standards.¹ Both 13 14 the East End site and West End site are located on the Ohio River and the mobile 15 free product could migrate into the riverbanks, sediments, and surface water body.² 16 Investigation and remediation of MGP contaminants is required to address the 17 Company's liability under state and federal environmental laws and to meet 18 applicable standards under the Ohio EPA's VAP. Therefore, the term "MGP sites" 19 refers to the areas where MGP contaminants are present and must be remediated 20 under CERCLA and in accordance with the Ohio VAP to address Duke Energy 21 Ohio's liability for those conditions.

¹ In the Matter of the Application of Duke Energy Ohio, Inc., for an Increase in its Natural Gas Distribution Rates, Case No.12-1865-GA-AIR, et al., Opinion and Order pg. 32 (November 13, 2013); See also, Direct Testimony of Shawn S. Fiore at 18 (April 22, 2013). ² Id.

1Q.PLEASE DESCRIBE THE CORPORATE STRUCTURE AND2MANAGEMENT OVERSIGHT OF THESE TWO MGP SITES.

3 A. These two remediation sites are managed by Duke Energy Environmental Services 4 as part of the Environmental Health and Safety Department in Regulated Utilities. 5 Environmental Services is headed by a Vice President who oversees Directors who 6 are appointed to manage various disciplines/media programs. Within the 7 Remediation Group, I review project scopes and activities with each consultant's 8 individual project manager on a minimum bi-weekly basis, which I then review 9 verbally with my management on a minimum bi-weekly basis. Information on the 10 status and activities on the East End and West End sites is periodically reviewed 11 with higher levels of management and the financial department. Known and 12 anticipated activities, including cost estimates, are reviewed with levels of senior 13 management at least semi-annually and whenever significant decisions are required 14 on strategy or anticipated costs. Each level of management has limited authority to 15 approve activities and authorize the expenditure of funds. For new purchase orders, 16 approval also must be obtained from Duke Energy's sourcing department. Over the 17 course of 2019, I met with several members of Duke Energy management to discuss 18 the status of the projects, seek input on certain decisions, and obtain approval of 19 spending requests, as necessary.

Q. THE COMMISSION'S ORDER IN THE 2012 NATURAL GAS RATE CASE
 DETAILS THE HISTORY OF MANUFACTURED GAS PLANTS, AS
 WELL AS THE PROCESS TO INVESTIGATE AND REMEDIATE
 FORMER MGP SITES. IS THERE ADDITIONAL INFORMATION TO
 SUPPLEMENT THAT DETAIL?

A. No. Information on the background of manufactured gas and its history in
southwest Ohio is described at length in the Commission's Opinion and Order in
the 2012 Natural Gas Rate Case (Commission's Order).³ Likewise, the
Commission's Order provides details of typical investigation and remediation
activities and a description of the impact of Ohio laws and regulations and the Ohio
EPA clean-up programs on the management of the environmental conditions at
Duke Energy Ohio's MGP sites, especially the VAP.

13 Q. WHAT IS YOUR UNDERSTANDING OF THE SCOPE OF DUKE ENERGY

14 OHIO'S LIABILITY AND OBLIGATION TO INVESTIGATE AND

15 **REMEDIATE THE ENVIRONMENTAL IMPACTS ASSOCIATED WITH**

16 THE FORMER MGP OPERATIONS AT THE EAST END AND WEST END

17 **SITES?**

Based on my more than thirty years of experience as an environmental remediation professional, my work with environmental consultants and others in the environmental field, the training I have received, and review of the record in the 20 2012 Natural Gas Rate Case, it is my understanding that the Company is liable

³ See e.g., In the Matter of the Application of Duke Energy Ohio, Inc., for an Increase in its Natural Gas Distribution Rates, Case No.12-1865-GA-AIR, et al., Supplemental Direct Testimony of Jessica Bednarcik, (February 23, 2013); Id., Direct Testimony of Shawn S. Fiore (April 22, 2013); and Id. Opinion and Order (November 13, 2013).

1 under state and federal environmental laws for the remediation of all impacts 2 associated with the former MGP operations at the East End and West End sites, regardless of the precise location of those impacts.⁴ As noted in the Commission's 3 4 Order, this means that the Company has a legal and societal obligation to remediate areas that have been contaminated by the former MGP operations⁵ even when those 5 6 impacts extend beyond Duke Energy Ohio's current property boundary. This 7 liability is not limited to current or historical property boundaries, as Duke Energy 8 Ohio is responsible for any cleanup required on-site or off-site of the Company's 9 current property boundaries that can be causally linked to the former MGP 10 operations conducted under the ownership of Duke Energy Ohio or its predecessors.⁶ 11

12 As approved by the Commission, Duke Energy Ohio is addressing its 13 liability under these state and federal environmental laws by investigating and 14 remediating the consequences of MGP operations at the East End and West End 15 sites under the Ohio VAP. Duke Energy Ohio has continued its approach of 16 investigating and remediating MGP impacts from the sites in the same iterative 17 manner that was determined by the Commission to be reasonable and prudent in the Commission's Order.⁷ The costs to investigate and remediate contamination 18 19 from the Company's former MGP operations are costs of doing business as the

⁴ <u>Id</u>.

⁵ In the Matter of the Application of Duke Energy Ohio, Inc., for an Increase in its Natural Gas Distribution Rates, Case No.12-1865-GA-AIR, et al., Opinion and Order (November 13, 2013) at 58-59.

⁶ 42 U.S.C. 9601(9)(b); see 84 Fed. Reg 60339, 60340 (Nov. 8, 2019) (defining a "facility" to "include any area where a hazardous substance has 'come to be located").

⁷ In the Matter of the Application of Duke Energy Ohio, Inc., for an Increase in Gas Rates, Case No. 12-1685-GA-AIR, et al., Opinion and Order (Nov. 13, 2013) at 73.

1 Company has liability under federal and state environmental laws regardless of 2 whether the contamination occurs inside or outside an arbitrary geographic 3 boundary.⁸

The Company is required to investigate and address all such impacts, 4 5 including the impacts in the area of the East End site referred to as the "Area West of the West Parcel." In 2014, Duke Energy Ohio completed environmental 6 7 investigations that determined MGP contamination was present at the East End site 8 and that remediation was necessary in parts of the Area West of the West Parcel 9 (referred to as "Phase 2 Area" for remediation purposes). During remediation, the 10 foundation of a former iron tar tank was discovered in the Area West of the West 11 Parcel, confirming that MGP equipment was also formerly located in that area.

12 Similarly, the Company must investigate and remediate, if necessary, 13 impacts in the Ohio River sediments as its responsibility does not end at the river 14 bank. Under CERCLA and the VAP, the Company is required to evaluate whether 15 the former MGP operations have impacted the Ohio River and whether there is a risk to human health and the environment associated with any such impacts.⁹ If the 16 17 results of the required investigations demonstrate that remediation is necessary, the 18 Company will need to address these impacts. Duke Energy Ohio's liability is not 19 based on current or historical property boundaries, but is based on where the 20 contamination migrated and whether there is an unacceptable level of risk to human 21 health or the environment associated with that contamination.

⁸ 42 U.S.C. 9601(9)(b); see 84 Fed. Reg 60339, 60340 (Nov. 8, 2019) (defining a "facility" to "include any area where a hazardous substance has 'come to be located'").

⁹ Ohio Adm.Code 3745-300-08(A)(3).

1 The MGP contamination, wherever it exists, was a result of the operation of 2 those MGP facilities that, at one time, served customers. As Duke Energy Ohio 3 witness Fiore describes in his direct testimony, Duke Energy Ohio has performed 4 its investigation and remediation in accordance with the Ohio VAP under the 5 guidance and oversight of VAP Certified Professionals (CPs).

BRIEFLY SUMMARIZE THE 6 **O**. PLEASE INVESTIGATION AND 7 REMEDIATION ACTIVITIES THAT DUKE ENERGY OHIO PERFORMED AT THE EAST END AND WEST END SITES FROM 2013 8 9 **THROUGH 2018.**

10 A. Investigation and remediation activities at the East End and West End sites were 11 sequenced in phases as is typical for remediation of MGP impacts at similar sites 12 and to facilitate ongoing on-site utility operations. It is very common to address 13 large remediation projects in phases for both efficiency and effectiveness. This is 14 also consistent with the testimony I provided in the Consolidated Rider MGP 15 Proceedings and as noted in the Commission's Order. I have prepared Attachment 16 TLB-1, which includes a summary timeline of the investigation and remediation 17 activities conducted at the East End and West End sites for each year from 2013 18 through 2018 (and supplemented for activities in 2019, as discussed below).

19 Q. ARE THE BOUNDARIES OF THE UPLAND PORTIONS OF THE EAST 20 END AND WEST END SITES IDENTICAL TO THOSE THAT EXISTED

21 **AT THE TIME THOSE PLANTS WERE OPERATING?**

A. No, they are not. In fact, a significant portion of the land that comprised the facilities
when the MGPs were operational is now located beneath the waterline of the Ohio

1 River. This is because the water level in the Ohio River today is much higher than 2 it was decades ago. The low-water mark of the Ohio River was historically at the 3 Kentucky and Ohio border, which in some areas is as much as 200 feet south of the 4 current riverbank. The East End site operated as an MGP from 1884 to 1909, and 5 again from 1925 to 1963. The West End site operated as an MGP from 1843 to 6 1909, and again from 1918 to 1928. The southern boundary of the East End and 7 West End sites changed significantly following the completion of the construction of the Markland locks in 1959 and the dam in 1964. The construction of the 8 9 Markland locks and dam significantly raised the Ohio River water level after the 10 MGP operations ceased at East End and West End sites. Attachment TLB-2 shows 11 the historical water edge at the East End site in 1962, which was located 12 approximately 200 feet to the south in what is the current Ohio River.

III. <u>INVESTIGATION AND REMEDIATION AT EAST END AND WEST</u> END SITES

13 Q. PLEASE DESCRIBE THE COMPANY'S GENERAL USE OF THE EAST 14 END AND WEST END SITES IN 2019.

A. Both the East End and West End facilities continued to be used as plant in service
for utility service by Duke Energy Ohio. At the East End site, the facility continues
to be used as a synthetic natural gas peaking station with significant above and
underground facilities throughout the area, especially in the location referred to as
the "Middle Parcel."

At the West End site, Duke Energy's Transmission and Distribution Group continues to operate the electrical substations. The Company continues to own and operate two 12-inch diameter gas transmission pipelines that enter Ohio at the West End site. At the valve pit on the riverbank, the two lines combine into one 20-inch pipeline. There is also a gas measurement station at this location. This building also houses the Remote Terminal Units (RTU) equipment, which is part of the Supervisory Control and Data Acquisition (SCADA) system that monitors and controls the natural gas distribution system. This line supplies approximately 20,000 customers in a peak hour.

7 Q. DID DUKE ENERGY OHIO CONDUCT INVESTIGATION AND 8 REMEDIATION ACTIVITIES IN 2019 AT THE EAST END AND WEST 9 END SITES?

10 A. Yes, the Company conducted investigation and remediation activities in 2019 at the
11 East End and West End sites.

Q. PLEASE GENERALLY DESCRIBE THE INVESTIGATION AND REMEDIATION WORK AT THE EAST END AND WEST END SITES DURING 2019.

15 As in prior years, the environmental work at the East End and West End sites 16 continued to be performed by environmental consulting firms experienced in MGP 17 site investigation and remediation and under the oversight of Ohio EPA VAP CPs, 18 whose role is to ensure activities are compliant with Ohio EPA's VAP regulations. 19 The Ohio EPA VAP CPs and environmental consultants hired to perform activities 20 at the two sites continue to work with me to ensure that the work complies with the 21 VAP and meets all applicable local, state, and federal standards, as well as to ensure 22 that the environmental conditions at the sites are protective of human health and the 23 environment, both short term and long term.

Q. PLEASE IDENTIFY THE ACTIVITIES CONDUCTED IN 2019 THAT RELATE TO THE INVESTIGATION AND REMEDIATION OF ENVIRONMENTAL CONDITIONS RESULTING FROM THE FORMER EAST END MGP OPERATIONS.

5 A. Attachment TLB-1 provides a summary of the investigation and remediation 6 activities performed at the East End site from 2007 through 2019. All upland work 7 at the East End site performed in 2019 was conducted under my supervision, along 8 with the oversight of an Ohio EPA VAP CP employed by the firm of Haley & 9 Aldrich, Inc. (Haley & Aldrich). As noted in testimony in the Consolidated Rider 10 MGP Proceeding, the only area where active remediation activities, (i.e., soil 11 excavation and *in situ* solidification (ISS)), was performed in the "Area West of the 12 West Parcel" at the East End site was in what is referred to as the "Phase 2 Area." 13 As described in the Consolidated Rider MGP Proceedings, all active remediation 14 in the Area West of the West Parcel was completed in 2017.

15 In 2019, there was no active remediation measures implemented in the 16 Phase 2 Area or elsewhere within the Area West of the West Parcel. Soil excavation 17 and ISS activities were performed in the Phase 4 and Phase 5 Areas, which are 18 located in the Middle Parcel. The only 2019 work in the Area West of the West 19 Parcel involved the limited remediation of the riverbank, which included placing 20 aquagate and an organoclay mat on an area where MGP impacts were observed and 21 work that was performed on a site-wide basis. Work that was performed site-wide, 22 but also included the Area West of the West Parcel, consisted of: site-wide quarterly 23 groundwater monitoring, site restoration work (*i.e.*, seeding, grading, and in some instances, installing gravel base and re-paving access roads that had been removed
during remediation) in the Phase 2 Area in the Area West of the West Parcel and in
the Phase 1, 3, 4, and 5 Areas of the Middle Parcel, and the investigation along the
riverbank, which included the installation of two borings in the Area West of the
West Parcel out of ten total borings at the East End site.

6 During the remedial activities in the Middle Parcel, consistent with previous 7 work, precautions were taken to ensure that the critical infrastructure at the East 8 End site was not damaged. Duke Energy contracted with Terracon Consultants, Inc. 9 to conduct vibration monitoring of the critical infrastructure during the active 10 remediation work. Ambient air monitoring activities continue to be conducted by 11 AECOM to monitor the perimeter ambient air quality during active remedial 12 activities in the Middle Parcel.

In addition, a Remedial Design Package was prepared for areas in the Middle Parcel that are inaccessible due to sensitive underground infrastructure and propane peaking facilities in operation at the East End site. These areas will be identified as Phase 7 and Phase 8 Areas, which are located in the Middle Parcel.

In 2019, Haley & Aldrich also performed the next phase of Ohio River investigation. Haley & Aldrich's Ohio EPA VAP CP is overseeing the work to ensure that the activities are compliant with Ohio EPA's VAP regulations and is consistent with the work that has been performed in the uplands, the portions of the East End site that is not in the Ohio River. Haley & Aldrich's work involving the Ohio River included the installation of borings and the collection of samples for laboratory analysis within the Ohio River. All work conducted within the Ohio

1 River was completed within the State of Ohio and within the geographical 2 boundaries of the historical MGP facility. As noted earlier, because of the 3 construction of the Markland Dam in the 1960s, the elevation of the Ohio River is 4 much higher today than it was during the operation of the MGP at the East End site 5 decades ago. As such, in some areas, the original riverbank of the East End site is 6 now located more than two hundred feet further south into the current Ohio River 7 due to the higher water levels.

8 Q. PLEASE IDENTIFY THE ACTIVITIES CONDUCTED IN 2019 THAT 9 RELATE TO THE INVESTIGATION AND REMEDIATION OF 10 ENVIRONMENTAL CONDITIONS RESULTING FROM THE FORMER 11 WEST END MGP SITE.

A. Attachment TLB-1 provides a summary of the investigation and remediation
activities performed at the West End site from 2009 through 2019.

In 2019, remedial activities included the excavation of contaminated soils 14 15 in the Tower Area and excavation of contaminated soils and ISS in the Phase 3 16 Area. The work was completed by Northstar and Arcadis, and Silar Services 17 provided construction oversight during the project. During the remedial activities, 18 consistent with previous work, precautions were taken to ensure that the critical 19 infrastructure at the site was not damaged. Duke Energy contracted with Terracon 20 Consultants, Inc. to conduct vibration monitoring of the critical infrastructure 21 during the active remediation activities. Ambient air monitoring activities continue 22 to be conducted by AECOM to monitor the perimeter ambient air quality during 23 active remedial activities.

1 In addition, AECOM conducted quarterly groundwater sampling of all 2 groundwater monitoring wells at the West End site.

3 Duke Energy Ohio engaged Haley & Aldrich to perform the next phase of 4 Ohio River investigation at the West End site. Haley & Aldrich's Ohio EPA VAP 5 CP is overseeing the work to ensure that the activities are compliant with Ohio 6 EPA's VAP regulations and is consistent with the work that has been performed in 7 the uplands. In 2019, Haley & Aldrich's work included the installation of borings 8 and the collection of samples for laboratory analysis within the Ohio River. All 9 work conducted within the Ohio River in 2019 was completed within the State of 10 Ohio and within the geographical boundaries of the historical MGP facility. As 11 noted above, because of the construction of the Markland Dam in the 1960s, the 12 elevation of the Ohio River today is much higher today than it was during the 13 operation of the MGP at the West End site decades ago. As such, in some areas, the 14 original riverbank of the West End site is now located more than two hundred feet 15 further into the current Ohio River due to the higher water levels.

16 **O**. PLEASE DETAIL THE 2019 COSTS INCURRED AT BOTH THE EAST 17 END AND WEST END SITES FOR WHICH DUKE ENERGY OHIO IS 18 **SEEKING RECOVERY THROUGH RIDER MGP.**

19 A. In 2019, Duke Energy Ohio incurred, in investigation and remediation costs, 20 approximately \$13.5 million at the East End site and \$25.5 million in investigation 21 and remediation costs at the West End site, which total approximately \$39 million 22 in total MGP costs at the East End and West End sites. The recovery mechanism 23 for the costs incurred in 2019 is discussed in the Direct Testimony of Duke Energy

1 Ohio witness Sarah E. Lawler. The categories of costs that are described at length 2 in the Commission's Order are applicable to the investigation and remediation 3 activities that occurred in 2019.

External costs included: environmental consultants used for the investigation of the soil, groundwater and sediment impacts; environmental consultants used to perform oversight during remedial actions; environmental contractors and subcontractors used to perform excavation and ISS; waste disposal costs; restoration work, and analytical laboratories that analyzed soil and groundwater samples.

10 Internal costs included: expenses for Duke Energy employees working on 11 the projects; oversight by the Duke Energy Analytical Laboratory located in 12 Huntersville, North Carolina that performed audits of the analytical laboratories 13 and performed quality control and review of analytical data; oversight and 14 coordination by Duke Energy Power Delivery and Gas Operations personnel while 15 working in close proximity to sensitive electrical and/or gas utilities; survey 16 support; and project management oversight.

17 Although Duke Energy Ohio's responsibility is to remediate all impacts 18 associated with the former MGP operations to the extent required under applicable 19 environmental laws, in 2019 all costs incurred for both the East End and the West 20 End sites are associated with activities conducted within the original MGP facility 21 operational boundaries.

As I testified during the Consolidated Rider MGP Proceedings, most of the investigation and remediation activities were not invoiced or scoped based on

1		individual "parcel" as the required approach is to address the entire East End site
2		and the West End site. As such, many scopes of work involved multiple "parcels"
3		at the sites for purposes of effectiveness, efficiency and also reduced some costs.
4		However, I have reviewed all of the 2019 costs and prepared an allocation
5		calculation based on reasonable assumptions, as summarized below and in more
6		detail in the tables provided in Attachment TLB-3.
7 8 9 10 11		 Area West of the West Parcel (East End Site) Groundwater Monitoring: \$10,000 Riverbank Investigation: \$77,000 Phase 2 Area Restoration: \$76,000 Limited Riverbank Remediation: \$340,000
12 13		 East End Site River Investigation: \$2.05 million West End Site River Investigation: \$1.25 million
14		The remainder of the costs incurred at the East End and West End sites, which are
15		approximately \$10.9 million and \$24.3 million, respectively, were for investigation
16		and remediation work in the upland areas that were not in dispute in the
17		Consolidated Rider MGP Proceedings.
18	Q.	PLEASE DESCRIBE THE GENERAL PROCESS USED TO ENSURE THE
19		REASONABLENESS OF COSTS INCURRED TO INVESTIGATE AND/OR
20		REMEDIATE THE EAST END AND WEST END SITES, INCLUDING
21		WORK PERFORMED AT THE AREA WEST OF THE WEST PARCEL
22		AND IN AND ALONG THE RIVER.
23	A.	As detailed in the Commission's Order, Duke Energy Ohio employs and has
24		continued to employ a number of procedures to ensure that the scope of
25		investigation and cleanup work is appropriate and that the cost to perform that work
26		is reasonable and prudent. Duke Energy project managers work closely with Ohio

1 EPA VAP CPs and experienced environmental consultants to evaluate different 2 options based on various criteria, including compliance with environmental 3 regulations, protection of human health and the environment, best practices, 4 feasibility, constructability, safety, prior experience, and cost. These considerations 5 are built into the solicitation of bids and estimates through Duke Energy's "Request 6 for Proposals" process. Bids are screened first on their technical merit, and then 7 evaluated for cost. Work that is awarded without going through all aspects of this 8 process must be justified to and approved by Duke Energy management. Scope 9 modifications that are made in the field due to new or changing field conditions 10 must be approved by Duke Energy project managers and may also require approval 11 from Duke Energy management and/or Duke Energy's finance department 12 depending on the extent of the modification and other circumstances.

Q. DOES DUKE ENERGY OHIO HAVE INVOICES TO SUPPORT THE INVESTIGATION AND REMEDIATION WORK PERFORMED BY CONTRACTORS?

16 A. Yes, it does.

Q. DID THESE INVOICES INDICATE THE PHASE OF WORK FOR WHICH COSTS WERE INCURRED AND THE AREA IN WHICH THE WORK WAS PERFORMED AT THE EAST END SITE?

A. Many of the investigation and remedial activities involved the entire East End site or multiple "parcels" which comprise the East End site. As is customary with environmental projects such as this, the invoices are structured to coincide with the contracts and workplans, which were broken out by task.

1		Some of the invoices specifically reference the phase of work that was being
2		performed or referenced the contract or scope of work that described the specific
3		phase of work or area in which the work was performed. The only active
4		remediation work that occurred in the Area West of the West Parcel was performed
5		in the Phase 2 Area, and was completed in 2017. However, invoices related to the
6		site restoration work identified costs by "phase", including the Phase 2 Area.
7		There are several tasks that were performed on a site-wide basis, including
8		groundwater monitoring and the riverbank investigation, which could not as easily
9		be identified by specific area or phase, but can be reasonably allocated based upon
10		the nature and scope of the work being performed, as summarized above.
11	Q.	HAS DUKE ENERGY OHIO SEGREGATED THE EAST END SITE COSTS
12		OUT BY PARCEL FOR THIS PROCEEDING?
13	A.	Not for all costs. It is impractical, if not impossible, to separate all costs by parcel
14		as the East End site investigation and remediation projects did not do so from the
15		beginning and all tasks were not scoped on a parcel-by-parcel basis. However, I
16		have reviewed the invoices for costs incurred in 2019 and have prepared a
17		reasonable allocation calculation, which is summarized in TLB-3.
18		To the extent possible, I have identified costs specifically related to the Area
19		West of the West Parcel. For example, some of the costs were tasked and invoiced
20		separately, like the limited remediation of the riverbank at the East End site, so the

In other instances, some invoices identified that the work was done in the "Phase 2 Area" at the East End site (which is mostly in the Area West of the West Parcel, although some of it is in the West Parcel). While I can identify those costs,
I can understand how it can be confusing to others who are not as familiar with the
work as I am. Similarly, the limited remediation of the riverbank was only in the
Area West of the West Parcel, so those costs were allocated in the Area West of the
West Parcel. These costs are shown on the table contained in Attachment TLB-3.

6 Some of the work that was performed was on a site-wide basis, for example, 7 the groundwater monitoring. Groundwater monitoring costs were apportioned 8 based on the percentage of wells that were sampled in the Area West of the West Parcel as compared to the total number of wells across the entire site. There are two 9 10 wells in the Area West of the West Parcel and 14 total wells were sampled across 11 the entire East End site. Similarly, the costs associated with the sampling work 12 along the riverbank was apportioned based on the number of borings located in the 13 Area West of the West Parcel compared to the number across the entire site. There 14 were two borings installed on the riverbank in the Area West of the West Parcel 15 and ten total borings across the entire East End site. These costs and the 16 apportionment are explained on the table for the Area West of the West Parcel in 17 Attachment TLB-3

18 Q. HOW ARE YOU ABLE TO IDENTIFY WHAT COSTS WERE INCURRED

19 IN THE AREA WEST OF THE WEST PARCEL AT THE EAST END SITE?

A. As I testified earlier, active upland remediation was completed in the Area West of
 the West Parcel in 2017. I identified costs associated with the Area West of the
 West Parcel by reviewing invoices for work performed in 2019. TLB-1 provides a
 summary timeline of when work was performed and TLB-3 provides a summary of

2019 costs allocable to the Area West of the West Parcel. On TLB-3, the Area West
 of the West Parcel costs/invoices fall within four task categories: (1) groundwater
 monitoring; (2) riverbank investigation; (3) Phase 2 Area restoration; and (4)
 limited riverbank remediation. Example invoices referenced on TLB-3 are attached
 in CONFIDENTIAL TLB-4 through TLB-10, highlighted in pertinent areas, and
 discussed in the questions below.

Q. PLEASE PROVIDE EXAMPLES OF HOW YOU ALLOCATED COSTS TO THE AREA WEST OF THE WEST PARCEL FOR GROUNDWATER MONITORING.

10 A. Groundwater monitoring is performed on a site-wide basis, and only two out of 11 total fourteen wells are in the Area West of the West Parcel at the East End site. 12 The first invoice listed on TLB-3 and attached as CONFIDENTIAL TLB-4 is Haley & Aldrich IN00037560 dated 3/7/2019 for \$1,869.25. On the invoice, the project 13 14 name is "Duke EEGW Consulting and Investigation" and the work is conducted 15 under Purchase Order 5771836, which is the purchase order for groundwater 16 monitoring. The total cost reflects Haley & Aldrich's costs incurred in 2019 to write 17 the 2018 annual groundwater report. To calculate the allocated cost for the Area 18 West of the West Parcel, the total invoice was multiplied by 2/14 (the number of 19 wells in the Area West of the West Parcel divided by the total number of wells 20 sampled), resulting in \$267.04, as shown on TLB-3.

The third invoice listed on TLB-3 and attached as CONFIDENTIAL TLB-5, IN00039231 dated 4/29/2019 for \$16,465, reflects Haley & Aldrich's costs to conduct quarterly groundwater monitoring fieldwork at the East End site. The same method of allocation was used where the total invoice was multiplied by 2/14 (the
 number of wells in the Area West of the West Parcel divided by the total number
 of wells sampled), so \$2,352.14 was allocated to the Area West of the West Parcel,
 as shown on TLB-3.

5 Q. PLEASE PROVIDE AN EXAMPLE OF HOW YOU ALLOCATED COSTS 6 FOR THE AREA WEST OF THE WEST PARCEL ON THE RIVERBANK 7 INVESTIGATION INVOICES.

8 On TLB-3, the first "EMS Inc./HEPACO" invoice, FY19-011531REV dated A. 9 12/10/2019 for \$175,000, and attached as CONFIDENTIAL TLB-6, is for the 10 riverbank investigation fieldwork performed at the East End site. Ten borings were 11 installed across the East End site riverbank and two were in the Area West of the 12 West Parcel. To calculate the cost to be allocated to the Area West of the West 13 Parcel, the total invoice was multiplied by 2/10 (the number of wells in the Area 14 West of the West Parcel over the total number of riverbank wells sampled), 15 resulting in \$35,000.

16 Q. PLEASE PROVIDE EXAMPLES OF HOW YOU ALLOCATED COSTS

FOR THE AREA WEST OF THE WEST PARCEL ON THE PHASE 2 RESTORATION INVOICES.

A. On TLB-3, the first "Phase 2 Area Restoration" invoice, IN00042448 dated
8/6/2019 for \$530,970.22, is actually an invoice for Haley and Aldrich's remedial
construction and site restoration work in the Middle Parcel and the Area West of
the West Parcel and is attached as CONFIDENTIAL TLB-7. As remedial
construction was only performed in the Middle Parcel during 2019, and site

1 restoration was the only work performed in the Area West of the West Parcel and 2 included in this invoice (and the other invoices listed under the same category), 3 these invoices have been categorized as Phase 2 Area Restoration. On pages 1 and 2 of this invoice, you will find shaded headers. The first shaded header states 4 5 "Remedial Construction Phase 1, (Duke Middle & West of the West Parcel), Cincinnati, OH"; the second shaded header says, "Remedial Construction Phase 2, 6 7 (Duke Middle & West of the West Parcel), Cincinnati, OH"; the third shaded header reads "Remedial Construction Phase 4, (Duke Middle & West of the West Parcel), 8 9 Cincinnati, OH": and the last shaded header on page 2 says "Remedial Construction 10 Phase 6, (Duke Middle & West of the West Parcel), Cincinnati, OH." The 11 numbered Phases correspond to the areas shown in TLB-8, which shows the various 12 remediation phases of the Middle Parcel and the Area West of the West Parcel at 13 the East End Site. As shown in TLB-8, only the Phase 2 Area is located in the Area 14 West of the West Parcel, and all the other phases are located in the Middle Parcel. 15 The reference to "Duke Middle & West of the West Parcel" is tied to the original 16 scope of work defined in the remedial design documents and proposals prepared by 17 Haley & Aldrich in 2014, but the specific location of the work is determined by the 18 reference to the phase.

\$530,970.22 was the total amount invoiced in CONFIDENTIAL TLB-7,
but the costs incurred in the Phase 2 Area were \$40,934.58 as shown on page 1 of
the invoice. I did not include the \$4,548.29 described as retainage on the invoice,
because retainage costs were paid in invoice IN00045385-RET received at the end
of 2019. The invoice for the retainage is attached as CONFIDENTIAL TLB-9,

which specifies the retainage that had previously been withheld for each phase,
including for the Phase 2 Area, and was disbursed in connection with this invoice.
Retainage is a portion of the contract price that is withheld until the work is
substantially complete, which is a standard practice in the construction industry to
assure that the project is completed.

6 Q. HOW WERE THE COSTS OF THE LIMITED RIVERBANK 7 REMEDIATION ALLOCATED?

8 A. The limited riverbank remediation addressed an area that was located in the Area 9 West of the West Parcel, as that was the area where impacts were observed and had 10 been reported to Ohio EPA. The source of impacts is not clear other than that they 11 are associated with the former MGP operation. Thus, the total cost included in the 12 limited riverbank remediation invoices was allocated to the Area West of the West 13 Parcel based on the location of the work. For example, the first EMS Inc./HEPACO 14 limited riverbank remediation invoice, FY19-007720 dated 8/20/2019 for 15 \$155,507.21, is attached as CONFIDENTIAL TLB-10. This invoice captured costs 16 for the Reactive Core Mat materials and installation activities along the riverbank 17 area of the Area West of the West Parcel. Thus, there was no allocation because the 18 entire invoice is for Area West of the West Parcel costs. This method applies to all 19 the other limited riverbank remediation invoices listed.

20 Q. HOW ARE YOU ABLE TO IDENTIFY WHAT COSTS WERE INCURRED

21 IN THE OHIO RIVER AT THE EAST END SITE AND WEST END SITE?

A. The Ohio River investigations for the East End site and the West End site wereperformed under separate purchase orders and scopes of work from the work

performed in the uplands, so it was much easier to identify the costs associated with
 the Ohio River at each site. TLB-3 includes all the 2019 costs that were incurred
 under the purchase orders associated with the Ohio River investigation at the East
 End site and the West End site.

5 Q. BASED ON YOUR EXPERIENCE, DID DUKE ENERGY OHIO 6 REASONABLY AND PRUDENTLY INCUR APPROXIMATELY \$39 7 MILLION IN INVESTIGATION AND REMEDIATION COSTS IN 2019?

8 A. Yes. These costs were incurred in the investigation and remediation of MGP 9 contamination at the East End and West End sites and were conducted consistent 10 with the procedures previously found reasonable and prudent by the Commission's 11 Order in the 2012 Natural Gas Rate Case. The approach and scope of the remedial 12 activity that has been conducted at the East End and West End sites in 2019 (and 13 all years prior) have been consistent with what was deemed to be reasonable and 14 prudent in the Commission's Order in the 2012 Natural Gas Rate Case involving, 15 among other things, excavation and ISS in areas with OLM and TLM. All expenses 16 incurred were in response to the Company's obligation to investigate and 17 remediation impacts that stem from the operation of the two former MGPs. All 18 costs included in the Company's application were for investigation and remediation 19 of MGP-related byproducts, contaminants, and impacts. Based on my experience 20 with remediating contaminated sites, including MGP sites like East End and West 21 End, the approximately \$39 million represents reasonable and prudent costs for the 22 work that was performed in 2019.

Q. PLEASE DISCUSS THE TIMING AND ACTIVITIES PLANNED TO BE PERFORMED AT THE EAST END AND WEST END SITES IN 2020.

3 A. These types of environmental projects are iterative in nature, particularly at sites 4 that are as large and complicated as the East End and West End sites. Duke Energy 5 Ohio has phased the remediation in a prudent fashion to avoid needless expense 6 and in a manner that protects the safety of Duke Energy Ohio's employees and the 7 community and avoids potential disruptions to natural gas and electric services. As is typical for these types of cleanups, the upland areas where the former MGP 8 9 processes were located are the first to be evaluated and remediated. Much of the 10 upland active remedial work has been completed. Duke Energy Ohio is in the process of evaluating potential impacts in the Ohio River at both the East End site 11 12 and West End site, to determine whether impacts are present and to determine what 13 remediation will be required, if any.

14 At the East End site, there is currently a high-risk gas facility with sensitive 15 underground propane infrastructure that continues to operate. This facility is 16 located in the East End Middle Parcel. This area, while currently inaccessible for 17 remediation, will require remediation once these facilities can be safely retired. On 18 November 21, 2019, the Ohio Power Siting Board issued an Opinion, Order and Certificate¹⁰ for the construction of the C314V Central Corridor Extension, which 19 20 when completed and in service, will allow the propane peaking equipment and 21 sensitive underground infrastructure to eventually be taken out of service and

¹⁰ In the Matter of the Application of Duke Energy Ohio, Inc. for a Certificate of Environmental Compatibility and Public Need for the C314V Central Corridor Pipeline Extension Project, Case No. 16-253-GA-BTX, Opinion, Order and Certificate (November 21, 2019).

1 decommissioned and, thereafter, allow for remediation in areas that were 2 previously inaccessible due to the sensitive infrastructure. Until that occurs, extra 3 security and safety precautions must be taken when remediating and investigating 4 this site to ensure the safety of Duke Energy Ohio's employees as well as the 5 surrounding community. Work planned in 2020 at the East End site includes the 6 installation of soil and bedrock borings along the southern border of the uplands 7 along the top of the riverbank. In addition, a series of groundwater monitoring wells 8 will be installed to replace those that had to be abandoned during recent remedial 9 activities. All site-wide groundwater monitoring wells will continue to be sampled 10 on a quarterly basis in 2020. The upland Remedial Action Completion Report will 11 be prepared to document the work that has been completed in the Middle Parcel 12 and Area West of the West Parcel. As discussed above, the Ohio River investigation 13 and evaluation at the East End site will continue, including preparation of 14 environmental reports.

At the West End site, the site-wide groundwater monitoring wells will continue to be sampled on a quarterly basis. The upland Remedial Action Completion Report will also be prepared to provide a summary of the remedial work completed in the Phase 3 and Tower Areas. As discussed above, the Ohio River investigation and evaluation at the West End site will continue, including preparation of environmental reports.

IV. <u>CONCLUSION</u>

1	Q.	WERE ATTACHMENTS TLB-1 THROUGH TLB-10 PREPARED BY YOU
2		OR AT YOUR DIRECTION AND UNDER YOUR CONTROL?
3	A.	Yes.
4	Q.	DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?
5	A.	Yes.

Year	East End Site
2007	 In summer, began initial soil and groundwater investigations on "West Parcel" based on historical review of MGP operations and proposed residential development on western adjoining property to generally assess environmental conditions. Work included test pits, NAPL (tars and oils) fingerprinting and a geophysical survey of the tar lagoon. Investigation extended to "East Parcel" based on historical review of MGP
2008	operations and proposed residential development on eastern adjoining property.
2008	 Additional forensic analysis of NAPL (tars and oils) samples. Development of VAP approach to addressing contamination at site. Commencement of VAP Phase I Property Assessment on East Parcel and West Parcel. Indoor air sampling in buildings at East End related to MGP contamination
2009	 Performed VAP Phase II Property Assessment work on East Parcel and West Parcels. Continued groundwater monitoring at site.
	 Development of Human Health Risk Assessment in accordance with VAP. Evaluation of options for remediation and preparation of Remedial Action Plan (RAP) for East Parcel and West Parcel.
2010	 Design work for implementation of RAP for East and West Parcels. Development of Ambient Air Monitoring Plan for remedial work. Obtained permits for remedial activities from Ohio EPA and City of Cincinnati and bond to secure work required by City. Bagan remedial activities at West Parcel
2011	 Continued remedial activities at west lateel. Continued remedial activities, which included excavation on West Parcel, and excavation and ISS on East Parcel. Duke Energy Ohio acquired the "Purchased Parcel" from DCI Properties, Inc. ("DCI") and began soil sampling in the "Area West of the West Parcel" as an extension of work on the West Parcel. VAP Phase I Property Assessment on "Middle Parcel."
	VAP Phase I Property Assessment of Purchased Parcel.
2012	 Completed excavation on West Parcel. Completed excavation and ISS on East Parcel. Performed VAP Phase II Property Assessment on Middle Parcel, including soil sampling, NAPL delineation and groundwater monitoring. Began VAP Phase II Property Assessment on the Purchased Parcel. Completion of West Parcel Remediation Construction Summary Report.
2013	 Continued Phase II Property Assessment soil and groundwater sampling on Middle Parcel, including installation of additional wells. Continued VAP Phase II Property Assessment soil and groundwater sampling on the Purchased Parcel (which was later refined to include only what became known as the "Riverside Drive Property" a/k/a "Keck Street Property").

	• Requested Technical Assistance from Ohio EPA related to the Riverside Drive
	Parcel, which was determined to not have MGP impacts based on VAP Phase II Property Assessment of Durchased Parcel
	 Performed initial remedial activities in gross where Duke Gas Department was
	• reformed initial femedial activities in aleas where Duke Gas Department was planning to install new vaporizers (West Parcel) and where new gas line was
	anticipated (East Parcel).
2014	• Performed a forensic analysis on DNAPL (tars and oils) in deep wells.
	• Continued performance of groundwater monitoring across the East End site.
	• Completion of VAP Phase II Property Assessment report on Middle Parcel,
	which included identifying remedial technologies to be implemented on the
	Middle Parcel and the portion of the Purchased Parcel, referred to as the "Area
	West of the West Parcel," where MGP contaminants were present in
	concentrations that exceeded applicable standards.
	• Completed Focused Remedial Alternatives Analysis (RAA) Report on the Middle Parcel and the Area West of the West Parcel.
2015	• Began Pre-Design Investigation for remediation focused on the Middle Parcel
	and Area West of the West Parcel.
	• Initiated Remedial Design for Middle Parcel and Area West of the West Parcel.
2016	Continued groundwater sampling across East End site.
2016	• Completed Pre-Design Investigation for remediation focused on the Middle
	Parcel and Area West of the West Parcel, including investigation of SBK01/02
	• Completed Remedial Design for Middle Parcel and Area West of the West
	Parcel.
	• Obtained all necessary permits for the remediation work in Middle Parcel and
	Area West of the West Parcel.
	• Performed excavation and ISS in Phase 1 Area (Middle Parcel) and Phase 2 Area
	(Area West of the West Parcel).
2017	Continued groundwater sampling across East End site.
2017	• Completed soil excavation, ISS and backfilled the Phase 2 Area (Area West of the West Parcel) in July 2017.
	• Installed shoring in Phase 3 Area (Middle Parcel).
	• High Pressure Gas Line "E" taken out of service in Phase 3 Area (Middle Parcel).
	• Began excavation and ISS activities in Phase 3 Area (Middle Parcel).
	• Continued groundwater sampling and further evaluation of NAPL conditions
	 Prepared work plan for sediment investigation in Obio River at the East End site
2018	 Completed excavation and ISS activities in Phase 3 Area (Middle Parcel)
2010	 Installed shoring in Phase 4 Area (Middle Parcel)
	 Initiated excavation and ISS activities in Phase 4 Area (Middle Parcel)
	 Initiated excavation and ISS activities in Phase 5 Area (Middle Parcel)
	 Completed excavation and ISS activities in Phase 6 Area (Middle Parcel)
	 Initiated top of riverbank soil investigation along the upland border at the East
	End site.

	• Continued groundwater sampling and further evaluation of NAPL conditions across the East End site.
	• Initiated next phase of sediment investigation in the Ohio River at the East End
	Site.
2019	• Completed excavation and ISS activities in Phase 4 Area (Middle Parcel).
	• Completed excavation and ISS activities in Phase 5 Area (Middle Parcel).
	• Completed restoration (<i>i.e.</i> , grading, seeding, installing gravel base, and repaying) of the Middle Parcel and Area West of the West Parcel.
	• Continued groundwater sampling and further evaluation of NAPL conditions across the East End site.
	• Performed TarGOST sediment investigation and installed sediment borings in Ohio River at the East End site.
	• Installed an organoclay-impregnated Reactive Core Mat (RCM) placed on an approximately 4-inch thick layer of Aquagate Organoclay on the riverbank as a limited remedial measure to mitigate MGP impacts near the river.
	• Prepared Remedial Design Package for areas that are inaccessible due to sensitive underground infrastructure and propane peaking facilities in operation; these will be Phase 7 and Phase 8 Areas.
	• Installed soil borings along the bottom of the riverbank.

Year	West End Site
2009	 Notified by ODOT and KY DOH that preferred route for the new Brent Spence Bridge Corridor Project crosses part of the West End site. The preferred route would require, among other things, the relocation of a major electric substation and other structures on the West End site. Began collecting background information on site.
2010	 Conducted VAP Phase I Property Assessment of the entire West End site. Conducted VAP Phase II Property Assessment involving soil and groundwater investigation on accessible portions of West End site. Continued groundwater monitoring across West End site. Performed Pre-Design Investigation of subsurface conditions for remedial activities. Obtained permits for remedial activities from Ohio EPA and City of Cincinnati for performance of the remedial action
2011	 Began implementation of remedial activities on Phase 1 and Phase 2 Areas. Performed excavation and off-site disposal of MGP impacted materials in Phase 1 Area. Began ISS and backfilling of Phase 1 Area. Performed Tar-specific Green Optical Screening Tool (TarGOST) investigations to assess the extent of tar-like material (TLM) and oil-like material (OLM) in the subsurface for remedial action in Phase 1 Area. Performed asphalt milling and demolition activities in Phase 2 Area.

	•	Performed excavation and off-site disposal of MGP impacted materials in Phase
	•	2 Area.
2012	•	
2012	•	Performed Pre-Design Investigation for remediation of the Phase 2A area and
		Geotechnical Supplemental Investigation needed for design of earth retention
		system.
	•	Performed PCB investigation in southwest corner of Phase 2A Area to define
		nimits of PCB-impacted materials that were required to be removed and managed
		Separately from the remainder of the MOP impacted materials.
	•	Completed ISS and heal-filling for Dhase 1 Area
	•	Completed ISS and backfining for Phase 1 Area.
	•	that could not be accessed with auger during ISS activities
	•	Began ISS and backfilling for Phase 2 Area
		Excavated and disposed of MGP impacted materials in Phase 2A Area
2013	•	Excavated and disposed of WOT-impacted materials in Thase 2A Area.
2013	•	TLM/OLM that could not be accessed with auger during ISS activities) and
		hackfilling
	•	Conducted remediation of areas where new electrical equipment would be
	-	installed to replace equipment that would be impacted by the construction of the
		new Brent Spence Bridge ("BSB") Corridor Project.
	•	Obtained permits and authorizations and perform limited sediment sampling to
		evaluate whether MGP impacts may be present in areas of the Ohio River
		associated with the West End site and in the footprint of proposed bridge. Work
		included forensic evaluation of selected sediment samples.
	•	Continued performance of groundwater monitoring across the West End site.
2014	•	Completed Remedial Action Completion Report for Phase 1, 2, and 2A Area.
	•	Continued performance of groundwater monitoring.
	•	Performed soil assessment along the eastern side of the Brent Spence Bridge
		right-of-way in the location of a new gas line which was expected to be installed
		in June 2015.
	•	Conducted limited sediment investigation in the proposed new Brent Spence
		Bridge location.
2015	•	Installed three additional monitoring wells on the northern "Front and Rose
		Parcel" to further evaluate groundwater impacts in that area of the site and
		conducted groundwater monitoring across the West End site.
2016	•	Continued groundwater sampling and further evaluation of NAPL conditions
		across the entire West End site.
2017	•	VAP Phase II Property Assessment of Phase 3 Area (areas that were not
		previously accessible, including under eastern substation and area on north side
		of Mehring Way) and Tower Areas.
	•	Completed Remedial Alternatives Analysis Report for the Phase 3 and Tower
		Areas.
	•	Continued groundwater sampling and further evaluation of NAPL conditions
		across the West End site.

	• Initiated sediment and surface water investigation in the Ohio River portion of the West End site.
2018	 Developed remediation design package for the Phase 3 and Tower Areas. Developed Ambient Air Monitoring Plan for remedial activities. Obtained all necessary permits for remedial activities. Obtained bids from contractors for the remedial activities in the Phase 3 and Tower Areas.
	 Completed the VAP Phase II Property Assessment of Phase 4 Area at the West End site. Continued groundwater sampling and further evaluation of NAPL conditions across the West End site. Continued sediment and surface water investigation in the Ohio River portion of the West End site.
2019	 Completed excavation and ISS activities in the Phase 3 Area. Completed excavation activities in the Tower Area. Continued groundwater sampling and further evaluation of NAPL conditions across the West End site. Initiated next phase of Ohio River sediment sampling and toxicity analysis at the West End site.





Attachment TLB-2 Page 1 of 1

Duke Energy Ohio MGP Consol. Cases	
STAFF-INFORM-REQ-01-009 CONF Attach	

Invoice Date

2019 Investigation and Remediation Costs for Recovery - Area West of the West Parcel

Invoice #

Description/Task

Vendor

Explanation

Site-wide Groundwater Monitoring: Tech Staff preparing 2018 groundwater report. Pro 3/7/2019 Haley Aldrich IN00037560 Groundwater Monitoring 1,869.25 \$ 267.04 rated based upon 2 of 14 wells in the Area West of the West Parcel. 1,441.25 \$ 205.89 Site-wide Groundwater Monitoring; Tech Staff preparing 2018 groundwater report. Pro-rated based upon 2 of 14 wells in the Area West of the West Parcel. 4/29/2019 Haley Aldrich IN00039227 Groundwater Monitoring Ś Site-wide Groundwater Monitoring; Tech Staff conducting field work. Pro-rated based upon 16,465.00 \$ 2,352.14 2 of 14 wells in the Area West of the West Parcel. 4/29/2019 Haley Aldrich IN00039231 Groundwater Monitoring Site-wide Groundwater Monitoring; Tech Staff conducting field work. Pro-rated based upor 6/20/2019 Haley Aldrich IN00040907 Groundwater Monitoring 16,222.75 \$ 2,317.54 2 of 14 wells in the Area West of the West Parcel. Site-wide Groundwater Monitoring: Tech Staff conducting field work. Pro-rated based upon 8/23/2019 Haley Aldrich IN00043096 Groundwater Monitoring 15,685.50 \$ 2,240.79 2 of 14 wells in the Area West of the West Parcel. Site-wide Groundwater Monitoring; Tech Staff conducting field work. Pro-rated based upon 12/20/2019 Haley Aldrich IN00046999 Groundwater Monitoring 17.112.25 \$ 2.444.61 2 of 14 wells in the Area West of the West Parcel. Riverbank investigation field work. Pro-rated based upon 2 of 10 borings located in the Area 3/7/2019 Haley Aldrich IN00037561 **Riverbank Investigation** 3,409.25 Ś 681.85 West of the West Parcel. 111,455.11 \$ 22,291.02 Riverbank investigation field work. Pro-rated based upon 2 of 10 borings located in the Area 11/22/2019 Haley Aldrich IN00046030 **Riverbank Investigation** West of the West Parcel Riverbank investigation field work. Pro-rated based upon 2 of 10 borings located in the Area 12/10/2019 EMS Inc/HEPACO FY19-011531REV **Riverbank Investigation** 175,000.00 \$ 35,000.00 West of the West Parcel. Riverbank investigation field work. Pro-rated based upon 2 of 10 borings located in the Area 12/20/2019 Haley Aldrich IN00047006 Riverbank Investigation 16,584.40 \$ 3,316.88 West of the West Parcel. Riverbank investigation analytical samples for Borings SB19-51 and SB19-44 which were 11/8/2019 Pace Analytical Services LLC 1950124891 **Riverbank Investigation** 5.820.00 \$ 1.444.00 located in the Area West of the West Parcel. Allocation amount is equal to the charges only associated with these two borings. 5,391.24 \$ 5,391.24 Riverbank investigation analytical sample for Boring SB19-51 which was located in the Area West of the West Parcel. 11/15/2019 Pace Analytical Services LLC 1950125544 **Riverbank Investigation** Riverbank investigation analytical sample for Boring SB19-44 which was located in the Area 11/21/2019 Pace Analytical Services LLC 1950126093 **Riverbank Investigation** 8,908.68 \$ 8,908.68 West of the West Parcel. Total invoice is for remedial construction and site restoration in Phases 1, 4, and 5 (Middle Parcel) and Phase 2 (Area West of the West Parcel); allocation costs only include the costs 8/6/2019 Haley Aldrich IN00042448 Phase 2 Area Restoration Ś 530,970.22 \$ 40,934.58 (less retainage) associated with Phase 2 in the Area West of the West Parcel as shown on the Total invoice is for remedial construction and site restoration in Phases 1, 3, 4, and 5 (Middle Parcel) and Phase 2 (Area West of the West Parcel); allocation costs only include the costs IN00044331 10/2/2019 Haley Aldrich Phase 2 Area Restoration Ś 564,937.08 \$ 27,869.57 (less retainage) associated with Phase 2 in the Area West of the West Parcel as shown on the voice Fotal invoice is for remedial construction and site restoration in Phases 1, 3, 4, and 5 (Middle 11/5/2019 Haley Aldrich IN00045385 Phase 2 Area Restoration Ś 327,961.07 \$ 1,201.20 Parcel) and Phase 2 (Area West of the West Parcel); allocation cost only include the costs associated with Phase 2 in the Area West of the West Parcel as shown on the invoice. Total invoice is for remedial construction and site restoration in Phases 1, 3, 4, and 5 (Middle 12/10/2019 Haley Aldrich IN00045385-RET Phase 2 Area Restoration 1,109,649.38 \$ 6,037.78 Parcel) and Phase 2 (Area West of the West Parcel); allocation cost includes the retainage Ś release associated with Phase 2 in the Area West of the West Parcel as shown on the invoice moval of trees and brush to facilitate the installation of the Reactive Core Mat on the 8/2/2019 Lewis Tree Service 181689 Limited Riverbank Remediation 3,715.02 \$ 3,715.02 iverbank within the Area West of the West Parcel. Contractor's purchase of Reactive Core Mat materials and installation activities along 8/20/2019 EMS Inc/HEPACO FY19-007720 Limited Riverbank Remediation 155,507.21 \$155,507.21 iverbank area of the Area West of the West Parcel to perform limited remediation. Contractor installation of Reactive Core Mat along riverbank area of the Area West of the 8/28/2019 EMS Inc/HEPACO FY19-008077 Limited Riverbank Remediation 120,228.24 \$ 120,228.24 West Parcel. 53,864.01 \$ 53,864.01 Engineering fee for design services associated with the limited remediation of the riverbank area of the Area West of the West Parcel to perform limited remediation. 8/23/2019 IN00043105 Limited Riverbank Remediation Haley Aldrich Technical fee associated with sample data review associated with the limited remediation of 9/27/2019 Halev Aldrich IN00044229 Limited Riverbank Remediation 7.930.27 Ś 7.930.27 the riverbank area of the Area West of the West Parcel.

\$ 504,149.55

Total

Invoice Total Allocated Cost

Page 1 of 3

Duke Energy Ohio MGP Consol. Cases STAFF-INFORM-REQ-01-010 CONF Attach

2019 Investigation and Remediation Costs Submitted for Recovery- Ohio River at East End Site

Date	Vendor	Invoice #	Description	Total Invoice
8/30/2019	PACE ANALYTICAL SERVICES LLC	1950119398	East End MGP Sediment Sample Analysis	\$ 4,481.
9/4/2019	PACE ANALYTICAL SERVICES LLC	1950119042	East End MGP Sediment Sample Analysis	\$ 1,861.
9/4/2019	PACE ANALYTICAL SERVICES LLC	1950119043	East End MGP Sediment Sample Analysis	\$ 700.0
9/4/2019	PACE ANALYTICAL SERVICES LLC	1950119044	East End MGP Sediment Sample Analysis	\$ 1,400.0
9/4/2019	PACE ANALYTICAL SERVICES LLC	1950119045	East End MGP Sediment Sample Analysis	\$ 280.0
9/4/2019	PACE ANALYTICAL SERVICES LLC	1950119136	East End MGP Sediment Sample Analysis	\$ 2,100.
9/4/2019	PACE ANALYTICAL SERVICES LLC	1950119380	East End MGP Sediment Sample Analysis	\$ 1,820.0
9/4/2019	PACE ANALYTICAL SERVICES LLC	1950119489	East End MGP Sediment Sample Analysis	\$ 1,039.4
9/4/2019	PACE ANALYTICAL SERVICES LLC	1950119502	East End MGP Sediment Sample Analysis	\$ 8,875.3
9/4/2019	PACE ANALYTICAL SERVICES LLC	1950119611	East End MGP Sediment Sample Analysis	\$ 2,380.0
9/4/2019	PACE ANALYTICAL SERVICES LLC	1950119612	East End MGP Sediment Sample Analysis	\$ 1,260.0
9/1/2019	PACE ANALYTICAL SERVICES LLC	1950119613	East End MGP Sediment Sample Analysis	\$ 280.0
9/2/2019	PACE ANALYTICAL SERVICES LLC	1950119614	East End MGP Sediment Sample Analysis	\$ 1,820.0
9/5/2019	PACE ANALYTICAL SERVICES LLC	1950119812	East End MGP Sediment Sample Analysis	\$ 980.0
9/9/2019	PACE ANALYTICAL SERVICES LLC	1950120083	East End MGP Sediment Sample Analysis	\$ 11,812.
9/9/2019	PACE ANALYTICAL SERVICES LLC	1950120084	East End MGP Sediment Sample Analysis	\$ 18,986.
9/10/2019	PACE ANALYTICAL SERVICES LLC	1950120213	East End MGP Sediment Sample Analysis	\$ 8,748.
9/10/2019	PACE ANALYTICAL SERVICES LLC	1950120146	East End MGP Sediment Sample Analysis	\$ 6,465.
9/11/2019	PACE ANALYTICAL SERVICES LLC	1950120328	East End MGP Sediment Sample Analysis	\$ 3,641.
10/2/2019	PACE ANALYTICAL SERVICES LLC	1950121907	East End MGP Sediment Sample Analysis	\$ 901.3
10/2/2019	PACE ANALYTICAL SERVICES LLC	1950121908	East End MGP Sediment Sample Analysis	\$ 879.
10/2/2019	PACE ANALYTICAL SERVICES LLC	1950121909	East End MGP Sediment Sample Analysis	\$ 645.
10/2/2019	PACE ANALYTICAL SERVICES LLC	1950121910	East End MGP Sediment Sample Analysis	\$ 326.
10/3/2019	PACE ANALYTICAL SERVICES LLC	1950122003	East End MGP Sediment Sample Analysis	\$ 619.3
11/7/2019	PACE ANALYTICAL SERVICES LLC	1950124773	East End MGP Sediment Sample Analysis	\$ 16,332.
1/3/2020	PACE ANALYTICAL SERVICES LLC	1950129687	East End MGP Sediment Sample Analysis	\$ 18.0
1/3/2020	PACE ANALYTICAL SERVICES LLC	2050129688	East End MGP Sediment Sample Analysis	\$ 14.
11/26/2019	PACIFIC ECORISK INC	15938	East End MGP Sediment Sample Analysis	\$ 36,412.
12/4/2018	Anchor QEA	1905	East End MGP Sediment Investigation Work	\$ 53,731.
12/31/2018	Anchor QEA	1983	East End MGP Sediment Investigation Work	\$ 65,577.
1/23/2019	Anchor QEA	2056	East End MGP Sediment Investigation Work	\$ 71,903.
2/15/2019	Anchor QEA	2080	East End MGP Sediment Investigation Work	\$ 18,461.
7/16/2019	EMS Inc	20426	East End MGP Sediment Investigation Work - Field Boats & Barge	\$ 131,774.
7/31/2019	EMS Inc	20592	East End MGP Sediment Investigation Work - Field Boats & Barge	\$ 355,942.
10/22/2019	EMS Inc	20804	East End MGP Sediment Investigation Work - Field Boats & Barge	\$ 220,369.
12/6/2019	EMS Inc/HEPACO	FY19-011526	East End MGP Sediment Investigation Work - IDW Disposal Costs	\$ 2,584.
12/17/2019	EMS Inc/HEPACO	FY19-011953	East End MGP Sediment Investigation Work - Field Boats & Barge	\$ 5,112.
4/29/2019	Haley Aldrich Inc.	IN00039232	East End Sediment Investigation - Data Review	\$ 14,602.
6/3/2019	Haley Aldrich Inc.	IN00040435	East End Sediment Investigation - Data Review	\$ 42,220.
6/10/2019	Haley Aldrich Inc.	IN00040620	East End Sediment Investigation - Data Review	\$ 22,298.
6/20/2019	Haley Aldrich Inc.	IN00040908	East End Sediment Investigation - Data Review	\$ 14,372.
6/20/2019	Haley Aldrich Inc.	IN00040910	East End Sediment Investigation - Data Review	\$ 17,819.
7/26/2019	Haley Aldrich Inc.	IN00042181	East End Sediment Investigation - Field Work TarGOST Drilling	\$ 145,699.
8/23/2019	Haley Aldrich Inc.	IN00043101	East End Sediment Investigation - Field Work TarGOST Drilling	\$ 159,515.
8/23/2019	Haley Aldrich Inc.	IN00043110	East End Sediment Investigation - Field Work Sonic Drilling	\$ 299,297.
9/27/2019	Haley Aldrich Inc.	IN00044231	East End Sediment Investigation - Field Work Sonic Drilling	\$ 157,188.
9/27/2019	Haley Aldrich Inc.	IN00044225	East End Sediment Investigation - Data Review	\$ 6,191.
11/1/2019	Haley Aldrich Inc.	IN00045263	East End Sediment Investigation - Field Work Sonic Drilling	\$ 21,116.4
11/1/2019	Haley Aldrich Inc.	IN00045261	East End Sediment Investigation - Data Review	\$ 10,142.
11/22/2019	Haley Aldrich Inc.	IN00046028	East End Sediment Investigation - Field Work Boring Log Development	\$ 38,721.
11/22/2019	Haley Aldrich Inc.	IN00046027	East End Sediment Investigation - Data Review	\$ 10,883.
12/20/2019	Haley Aldrich Inc.	IN00047003	East End Sediment Investigation - Field Work Data Development	\$ 35,828.0
			Total	\$ 2,051,957.

Duke Energy Ohio MGP Consol. Cases STAFF-INFORM-REQ-01-011 CONF Attach

Investigation and Remediation Costs - Ohio River at West End Site

Date	Vendor	Invoice Number	Description	Tota	al Invoice
01/03/2020	PACE ANALYTICAL SERVICES LLC	2050129686	West End MGP Sediment Sample Analysis	\$	7.44
09/10/2019	PACE ANALYTICAL SERVICES LLC	1950120133	West End MGP Sediment Sample Analysis	\$	290.00
09/11/2019	PACE ANALYTICAL SERVICES LLC	1950120220	West End MGP Sediment Sample Analysis	\$	700.00
09/13/2019	PACE ANALYTICAL SERVICES LLC	1950120462	West End MGP Sediment Sample Analysis	\$	1,705.00
09/13/2019	PACE ANALYTICAL SERVICES LLC	1950120463	West End MGP Sediment Sample Analysis	\$	915.00
09/17/2019	PACE ANALYTICAL SERVICES LLC	1950120612	West End MGP Sediment Sample Analysis	\$	13,321.56
09/19/2019	PACE ANALYTICAL SERVICES LLC	1950120868	West End MGP Sediment Sample Analysis	\$	12,747.84
09/20/2019	PACE ANALYTICAL SERVICES LLC	1950120977	West End MGP Sediment Sample Analysis	\$	2,598.60
09/20/2019	PACE ANALYTICAL SERVICES LLC	1950121000	West End MGP Sediment Sample Analysis	\$	2,400.00
09/23/2019	PACE ANALYTICAL SERVICES LLC	1950121092	West End MGP Sediment Sample Analysis	\$	10,607.52
09/23/2019	PACE ANALYTICAL SERVICES LLC	1950121093	West End MGP Sediment Sample Analysis	\$	1,270.00
10/01/2019	PACE ANALYTICAL SERVICES LLC	1950121581	West End MGP Sediment Sample Analysis	\$	4,157.76
10/01/2019	PACE ANALYTICAL SERVICES LLC	1950121763	West End MGP Sediment Sample Analysis	\$	594.00
10/02/2019	PACE ANALYTICAL SERVICES LLC	1950121899	West End MGP Sediment Sample Analysis	\$	6,236.64
10/02/2019	PACE ANALYTICAL SERVICES LLC	1950121900	West End MGP Sediment Sample Analysis	\$	8,315.52
10/02/2019	PACE ANALYTICAL SERVICES LLC	1950121901	West End MGP Sediment Sample Analysis	\$	4,157.76
10/03/2019	PACE ANALYTICAL SERVICES LLC	1950122004	West End MGP Sediment Sample Analysis	\$	6,876.36
10/04/2019	PACE ANALYTICAL SERVICES LLC	1950122111	West End MGP Sediment Sample Analysis	\$	8,304.36
10/22/2019	PACE ANALYTICAL SERVICES LLC	1950123442	West End MGP Sediment Sample Analysis	\$	582.60
10/22/2019	PACE ANALYTICAL SERVICES LLC	1950123443	West End MGP Sediment Sample Analysis	\$	1,209.84
10/22/2019	PACE ANALYTICAL SERVICES LLC	1950123444	West End MGP Sediment Sample Analysis	\$	660.72
10/22/2019	PACE ANALYTICAL SERVICES LLC	1950123445	West End MGP Sediment Sample Analysis	\$	304.32
10/22/2019	PACE ANALYTICAL SERVICES LLC	1950123446	West End MGP Sediment Sample Analysis	\$	1,465.80
10/22/2019	PACE ANALYTICAL SERVICES LLC	1950123447	West End MGP Sediment Sample Analysis	\$	326.64
10/30/2019	PACE ANALYTICAL SERVICES LLC	1950124106	West End MGP Sediment Sample Analysis	\$	337.80
10/30/2019	PACE ANALYTICAL SERVICES LLC	1950124107	West End MGP Sediment Sample Analysis	\$	901.80
10/30/2019	PACE ANALYTICAL SERVICES LLC	1950124108	West End MGP Sediment Sample Analysis	\$	586.32
10/30/2019	PACE ANALYTICAL SERVICES LLC	1950124109	West End MGP Sediment Sample Analysis	\$	883.20
10/30/2019	PACE ANALYTICAL SERVICES LLC	1950124114	West End MGP Sediment Sample Analysis	\$	1,168.92
11/07/2019	PACE ANALYTICAL SERVICES LLC	1950124774	West End MGP Sediment Sample Analysis	\$	5,586.60
01/10/2020	PACE ANALYTICAL SERVICES LLC	1950124988	West End MGP Sediment Sample Analysis	\$	5,633.00
01/10/2020	PACE ANALYTICAL SERVICES LLC	1950124990	West End MGP Sediment Sample Analysis	\$	6,772.00
01/10/2020	PACE ANALYTICAL SERVICES LLC	1950124991	West End MGP Sediment Sample Analysis	\$	12,207.00
01/10/2020	PACE ANALYTICAL SERVICES LLC	1950125045	West End MGP Sediment Sample Analysis	\$	7,175.00
12/18/2019	PACE ANALYTICAL SERVICES LLC	1950128325	West End MGP Sediment Sample Analysis	\$	17,251.00
12/19/2019	PACE ANALYTICAL SERVICES LLC	1950128423	West End MGP Sediment Sample Analysis	\$	9,940.00
12/19/2019	PACE ANALYTICAL SERVICES LLC	1950128424	West End MGP Sediment Sample Analysis	\$	4,345.00
12/19/2019	PACE ANALYTICAL SERVICES LLC	1950128425	West End MGP Sediment Sample Analysis	\$	6,405.00
01/02/2020	PACE ANALYTICAL SERVICES LLC	1950129299	West End MGP Sediment Sample Analysis	\$	3,471.00
01/27/2020	PACE ANALYTICAL SERVICES LLC	2050131300	West End MGP Sediment Sample Analysis	\$	210.00
11/26/2019	PACIFIC ECORISK INC	15976	West End Sediment Investigation	\$	85,750.90
12/04/2018	Anchor QEA	1906	West End Sediment Investigation	\$	61,210.50
12/31/2018	Anchor QEA	1984	West End Sediment Investigation	\$	37,136.61
1/23/2019	Anchor QEA	2057	West End Sediment Investigation	\$	50,446.25
1/29/2019	Anchor QEA	2073	West End Sediment Investigation	\$	9,969.75
2/15/2019	Anchor QEA	2079	West End Sediment Investigation	\$	23,724.75
3/14/2019	Anchor QEA	2147	West End Sediment Investigation	\$	7,457.25
9/25/2019	EMS Inc./HEPACO	FY19-009515	West End MGP Sediment Investigation Work - Field Boats & Barge	Ś	240.870.00
12/6/2019		EV10-011520	West End MGP Sediment Investigation Work - IDW Disposal Costs	ć	2 584 00
4/20/2019		F119-011323	West End Wort End Sodiment Investigation	ې د	2,304.00
4/29/2019		11100039224	West End Sediment Investigation	ې د	28,307.30
6/3/2013		11100040433	West End Sediment Investigation -Rick Analysis	ې د	2 761 00
6/10/2019		11100040013	West End Sediment Investigation	ې د	42 5 48 22
6/10/2015			West End Sediment Investigation -Rick Analysis	ې د	1 000 50
6/20/2019		1N00040905	West End Sediment Investigation	ې د	1,099.30
7/26/2019	Haley Aldrich	100040303	West End Sediment Investigation	ې د	6 077 50
0/27/2019	Haley Aldrich	IN00042173	West End Sediment Investigation	ç	221 706 40
9/2//2019		1N00044219	West End Sediment Investigation Field Work	ç ç	21 201 02
11/1/2019		11100045230	West End Codiment Investigation Field Work	ې د	31,201.05
12/20/2019		11100040023	West End Sediment Investigation Field Work	ې د	44 516 00
12/20/2019	Haley Aldrich	11100040994		ç ¢1	252 660 20
			TOLA	<i>i</i>	233,003.30



This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

4/1/2020 3:12:57 PM

in

Case No(s). 20-0053-GA-RDR, 20-0054-GA-ATA

Summary: Testimony Direct Testimony of Todd Bachand including his attachments 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