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DUKE ENERGY OHIO EXHIBIT _____

BEFORE

THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Application of Duke Energy Ohio, Inc., for an Increase in Gas Rates.)	Case No. 12-1685-GA-AIR
)	
In the Matter of the Application of Duke Energy Ohio, Inc., for Tariff Approval.)	Case No. 12-1686-GA-ATA
)	
In the Matter of the Application of Duke Energy Ohio, Inc., for Approval of an Alternative Rate Plan for Gas Distribution Service.)	Case No. 12-1687-GA-ALT
)	
In the Matter of the Application of Duke Energy Ohio, Inc., for Approval to Change Accounting Methods.)	Case No. 12-1688-GA-AAM
)	

DIRECT TESTIMONY OF

JESSICA L. BEDNARCIK

ON BEHALF OF

DUKE ENERGY OHIO, INC.

PUCO

2012 JUL 20 PM 3:08

RECEIVED-SOCKETING DIV

_____	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

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Attachments:

JLB-1:	History Appendix
JLB-2	Aerial Photograph of West End Plant, circa 1935
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JLB-5	Current Aerial Photograph of East End Site, with MGP Structures Superimposed

I. INTRODUCTION AND PURPOSE

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

2 A. My name is Jessica Lyn Bednarcik, and my business address is 526 South Church
3 Street, Charlotte, North Carolina 28202.

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

5 A. I am employed by Duke Energy Business Services LLC (DEBS) as a Senior
6 Engineer in the Waste and Remediation Management Group, which is part of
7 Corporate Environmental, Health and Safety. DEBS provides various
8 administrative and other services to Duke Energy Ohio, Inc., (Duke Energy Ohio
9 or Company) and other affiliated companies of Duke Energy Corporation (Duke
10 Energy).

11 **Q. PLEASE BRIEFLY SUMMARIZE YOUR EDUCATIONAL**
12 **BACKGROUND AND PROFESSIONAL EXPERIENCE.**

13 A. I received my Bachelors of Science degree in Chemical Engineering from Clemson
14 University, located in Clemson, South Carolina, on May 11, 2001. I am a registered
15 Professional Engineer in North Carolina and South Carolina.

16 I am Duke Energy's representative on the Electric Power Research Institute
17 (EPRI) Program 50: Manufactured Gas Plant (MGP) Site Management committee. I
18 was on the steering team of EPRI's 2010 MGP Symposium and am also on the
19 steering team for the EPRI 2013 MGP Symposium. I am Duke Energy's
20 representative on the Utility Solid Waste Action Group, Remediation Response
21 Committee, where I serve on the following Issue Teams: MGP Survey/
22 Communication Team, Due Diligence, Polycyclic Aromatic Hydrocarbons (PAH)

1 Risk Analysis, Soil Vapor Intrusion, and Continuing Obligations. I am the vice-
2 chair of the MGP Consortium, a group comprised of twenty-eight utilities where
3 lessons learned and best practices are shared among utility project managers. I am
4 also chair of the North Carolina MGP Group.

5 From 2001-2002, as an Associate Engineer for Duke/Fluor Daniel
6 (Charlotte, NC), I designed processes for new combined cycle power generation
7 plants, with a focus on water treatment. From 2003-2004, as an Associate
8 Engineer for Southerland Associates (Charlotte, NC), I worked on numerous
9 design engineering projects. From 2004-2005, as an Associate Engineer for
10 WPC, Inc., in Charlotte, North Carolina, my responsibilities included
11 environmental compliance and design, including Phase I Environmental Site
12 Assessments; Underground Storage Tank Remediation; development of Spill
13 Prevention, Control and Countermeasure Plans and Storm Water Pollution
14 Prevention Plans; and Air Permits applications. In 2005, I joined the
15 Environmental Engineering group at Duke Energy, which became the Waste and
16 Remediation Management Group after the Duke Energy merger with Cinergy
17 Corp. in 2006.

18 **Q. PLEASE DESCRIBE YOUR RESPONSIBILITIES AS SENIOR**
19 **ENGINEER, WASTE AND REMEDIATION MANAGEMENT.**

20 A. As a Senior Engineer in the Waste and Remediation Management Group, I
21 provide project management and technical oversight for a number of Duke
22 Energy's MGP sites. I also provide project management and technical oversight
23 for significant remediation projects at our power plants and the historic liabilities

1 at properties that any Duke Energy entity or predecessor company either owned,
2 operated, and/or sent material to and that is now part of either a federal- or state-
3 led remediation site.

4 My job responsibilities include interaction and coordination with senior
5 leadership; legal; finance; business units such as gas operations and transmission,
6 power delivery, and generation; ratepayers and community groups; local, state,
7 and federal governmental or regulatory officials; and consultants, contractors, and
8 site/construction workers. I prepare bid documents that detail Duke Energy
9 entities' requirements and expectations for remedial work and provide the
10 technical evaluation of proposals. During the execution of site-work, I actively
11 review, comment on, and approve all plans, scope or design changes, and final
12 documents prepared by environmental consultants. I regularly visit sites during
13 active investigation and remediation activities, in order to oversee work and
14 ensure that it is meeting Duke Energy's expectations.

15 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE PUBLIC**
16 **UTILITIES COMMISSION OF OHIO?**

17 A. No.

18 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THESE**
19 **PROCEEDINGS?**

20 A. I am the Project Manager for the MGP Investigation and Remediation Projects in
21 Duke Energy Ohio's service territory. I will explain the background of Duke
22 Energy Ohio's former MGP sites and the reason for and nature of its cleanup
23 activities at those sites. In so doing, I will support the recovery of such

1 expenditures through base distribution rates.

II. SCHEDULES AND FILING REQUIREMENTS
SPONSORED BY WITNESS

2 **Q. PLEASE DESCRIBE THE INFORMATION CONTAINED IN THE**
3 **SCHEDULES THAT YOU SPONSOR.**

4 A. I sponsor Schedule C-3.2 and its related workpapers.

5 **Q. PLEASE DESCRIBE SCHEDULES C-3.2.**

6 A. Schedule C-3.2 reflects the adjusted operating income for recovery of MGP costs
7 over a three-year amortization period. The amount is based on actual expenses
8 incurred for the clean-up of the MGP sites through March 31, 2012, and
9 additional projected amounts for spend through the end of 2012.

III. BACKGROUND AND HISTORY OF MGP SITES

10 **Q. PLEASE EXPLAIN THE NATURE OF MANUFACTURED GAS AND**
11 **THE ROLE IT FORMERLY PLAYED IN SOUTHWEST OHIO.**

12 A. Manufactured gas is a man-made product that was developed in the middle of the
13 nineteenth century, primarily for use in lighting, heating, and cooking. Duke
14 Energy Ohio witness Andrew C. Middleton, Ph.D. provides a detailed explanation
15 of the history of the manufactured gas industry in the United States, industry
16 practices with regard to generating and managing residuals during the time when
17 the MGP sites were operational, the development of understanding with regard to
18 resultant contaminants, and current industry practices with regard to remediation.

19 **Q. PLEASE EXPLAIN THE HISTORY OF THE VARIOUS PROCESSES**
20 **USED TO CREATE MANUFACTURED GAS.**

21 A. MGPs used several processes, including coal carbonization, a carbureted water

1 gas process, and an oil gas process. Duke Energy Ohio witness Middleton
2 provides a more detailed explanation of these processes.

3 **Q. PLEASE DESCRIBE THE HISTORY OF MGPs OPERATED BY DUKE**
4 **ENERGY OHIO OR ITS PREDECESSORS.**

5 A. On April 3, 1837, the Cincinnati Gas Light and Coke Company, a predecessor to
6 Duke Energy, was incorporated “to manufacture and sell gas to be made from any
7 or all of the substances, or a combination thereof, from which inflammable gas is
8 usually obtained” for the purpose of “lighting the City of Cincinnati, or the streets
9 thereof, and any buildings or houses, to erect the necessary works, and to lay
10 pipes in any of the streets or avenues of said city.” Construction of the first MGP
11 began during the summer of 1841 and the first commercial lighting by
12 manufactured gas in the city of Cincinnati occurred on January 14, 1843, with
13 manufactured gas from the West End plant located to the west of downtown
14 Cincinnati.

15 Construction of the gas plant at East End, located about four miles to the
16 east of downtown Cincinnati, began in 1882, with operations beginning in 1884.
17 Modifications were made at both locations throughout their operating lifetimes.
18 Manufactured gas production stopped in 1909, after natural gas arrived in
19 Cincinnati, but was reinstated in 1918 because the amount of natural gas delivered
20 to the city could not adequately supply the residents. According to the
21 Company’s annual reports, manufactured gas operations ended at East End in
22 1963 and at West End in 1967.

23 Additional information on the history of the sites can be found in

1 Attachment JLB-1, History Appendix. Aerial photographs of West End, circa
2 1935, and East End, circa 1947, are attached as JLB-2 and JLB-3, respectively. A
3 number of the historic structures of the West End MGP and the East End MGP
4 have been superimposed on the respective present-day aerial photographs in JLB-
5 4 and JLB-5.

6 **Q. PLEASE EXPLAIN THE SOURCE OF THE PRESENT-DAY**
7 **PHOTOGRAPHS THAT YOU ARE PRESENTING.**

8 A. I obtained aerial photographs of the areas comprising the East End and West End
9 sites from Google Earth.® Under my supervision, the general location and size of
10 historic equipment was superimposed on those photographs. While the
11 representations of that equipment may not be precise, it is provided in order to
12 give the Public Utilities Commission of Ohio (Commission) a better
13 understanding of the scope of the plants and remediation projects.

14 **Q. WHAT EQUIPMENT IS TYPICALLY FOUND AT MGP SITES?**

15 A. Equipment typically found at MGP sites includes, but is not limited to, gas
16 holders (also called gasometers), oil tanks, tar wells or ponds, purifiers, retorts,
17 coal storage bins, and generator houses.

18 **Q. PLEASE EXPLAIN THE IMPACT OF OHIO LAW AND OHIO**
19 **ENVIRONMENTAL PROTECTION AGENCY CLEAN-UP PROGRAMS**
20 **ON THE MANAGEMENT OF THE ENVIRONMENTAL CONDITIONS**
21 **AT DUKE ENERGY OHIO'S FORMER MGP SITES.**

22 A. I have been advised by legal counsel that Duke Energy Ohio is liable, under state
23 and federal laws for the conditions existing at its former MGP sites.

1 Environmental remediation, to address that liability, is primarily governed in Ohio
2 by the Ohio Environmental Protection Agency (EPA), under Ohio Revised Code
3 Chapter 3746. The Ohio EPA has promulgated detailed regulations governing the
4 investigation and cleanup of properties in rules codified at Ohio Administrative
5 Code 3745-300-01 through 3745-300-14.

6 Duke Energy Ohio is performing its cleanup work at both MGP sites
7 pursuant to this statutory and regulatory program, designated as the "VAP." In
8 accordance with Ohio EPA regulations, the cleanup work is being conducted
9 under the direction of an Ohio EPA Certified Professional (CP), employed by an
10 environmental consulting firm. The CP is responsible for verifying that the
11 applicable Ohio EPA regulations are being followed and that the properties are
12 cleaned up such that they meet the Ohio EPA's applicable standards for that
13 property. In so doing, Duke Energy Ohio is addressing its liability for the
14 environmental conditions present at each affected property.

IV. REMEDICATION AT EAST END AND WEST END MGP SITES

15 **Q. DESCRIBE HOW THE EAST END AND WEST END MGP SITES HAVE**
16 **BEEN USED IN RECENT TIMES.**

17 **A.** At West End, a portion of the 1916 generating station is still standing and is
18 currently used by Duke Energy Ohio for electrical storage and for housing
19 electrical relays. The property also contains transmission towers, two large
20 substations, and transformer bays. A gas pipeline that crosses the Ohio River,
21 directly to the east of the Brent Spence Bridge, enters Ohio at the West End site; a
22 gas generating/pump house is also located on the property. Until recently, a

1 portion of the property was also used as a parking facility for Duke Energy
2 employees.

3 The East End Gas Works currently is a Duke Energy gas operations
4 center. A portion of the property is also used by the construction and
5 maintenance division of the gas department for storage, staging of equipment, and
6 offices.

7 **Q. PLEASE EXPLAIN WHY CLEANUP HAS BEEN UNDERTAKEN AT**
8 **THE EAST END AND WEST END MGP SITES.**

9 A. Investigations began at East End and West End in 2006 and 2009, respectively,
10 due to changes in site conditions and the potential exposure pathways. At East
11 End, the planned residential development of adjoining properties and a related
12 easement across a portion of the property would have altered the exposure
13 controls on the site that limited accessibility to the site and the potentially
14 impacted material.

15 The expected site use and potential exposure pathways at the West End
16 site changed once the Ohio Department of Transportation (ODOT) and the
17 Kentucky Department of Highways (KY DOH) finalized the preferred location of
18 the new Brent Spence Bridge Corridor Project as directly crossing the West End
19 site. As part of the Brent Spence Bridge Corridor Project, Duke Energy Ohio
20 must relocate a large substation, a number of transformer bays, and underground
21 transmission lines, and must replace a transmission tower, as the locations of the
22 current structures are in conflict with the planned route of the new bridge and
23 associated approaches. Surface caps would be disturbed during construction.

1 activities for both the new electrical equipment and the new bridge, thereby
2 changing the probability of contact with potentially impacted soil.

3 **Q. ONCE THE INVESTIGATIONS BEGAN AT THE EAST END AND WEST**
4 **END SITES, DID DUKE ENERGY OHIO SEEK THE APPROVAL OF**
5 **THE COMMISSION TO DEFER CLEANUP COSTS FOR POSSIBLE**
6 **FUTURE RECOVERY?**

7 A. Yes. In 2009, Duke Energy Ohio filed an application with the Commission, in
8 Case No. 09-712-GA-AAM, asking for permission to modify its accounting
9 procedures to defer costs related to environmental investigation and remediation
10 at the former MGP sites. That application was granted by the Commission on
11 November 12, 2009, with recovery of the deferred amounts to be addressed in a
12 subsequent base rate case. The present application requests such recovery.

13 **Q. PLEASE EXPLAIN, IN DETAIL, THE STEPS THAT HAVE BEEN**
14 **TAKEN TO DATE TO INVESTIGATE AND REMEDIATE THE**
15 **ENVIRONMENTAL CONDITIONS RESULTING FROM THE FORMER**
16 **EAST END MGP.**

17 A. In 2006, Duke Energy Ohio (then known as The Cincinnati Gas & Electric
18 Company) was contacted by a developer who had recently purchased a number of
19 parcels of land located adjacent to the East End site. The developer indicated that
20 he planned a large residential development on his newly acquired property. The
21 developer had easements across a portion of the Duke Energy Ohio property for
22 ingress and egress and for utilities. The developer also had a landscape easement
23 on a part of the western portion of the East End property, to provide a buffer

1 between the residential development and the Duke Energy Ohio property and
2 operations. In light of the easements and the subsequent land disturbances that
3 would come with the development of the easements and the adjacent residential
4 project, the Company decided that environmental investigations would begin on
5 the areas potentially impacted by the easements and the proposed residential
6 development adjacent to the site. On-site soil and groundwater investigations of
7 the western portion of the East End property began in June 2007. By the end of
8 2007, the decision was made to extend the investigation to include the eastern
9 portion of East End, in light of the residential development beginning on the
10 adjacent property to the east of the Duke Energy Ohio property (Corbin Park).

11 As noted previously, work has been conducted under the direction of an
12 Ohio EPA CP. Because the applicable Ohio EPA regulations permit the
13 segregation of land into multiple "Identified Areas," or IAs, the decision was
14 made to separate the East End property into three smaller, more manageable IAs:
15 the middle portion, where investigation began in July 2012, and the eastern and
16 western portions. The eastern and western portions were given a higher priority
17 than the middle portion due to their proximity to planned residential
18 developments and the decision that they would act as a buffer between the
19 residents and potential future remedial action in the middle portion, if such action
20 was ultimately determined to be necessary.

21 Soil and groundwater investigations on the eastern and western portions of
22 East End occurred between 2007 and 2009, respectively. In conjunction with the
23 investigations, risk assessments were conducted to determine the potential risk to

1 human health due to impacts in the surface soil (considered the top two feet of
2 soil and typically encountered by trespassers and industrial workers) and
3 subsurface soil (considered the top 15 feet of soil, which is the typical depth of
4 construction activities). The risk assessment considered the possibility of
5 inhalation of fugitive dust, inhalation of chemicals of concern, ingestion of soil,
6 dermal contact with soil, and inhalation of chemicals of concern from
7 groundwater.

8 In 2009, a Remedial Action Plan was developed to address potential
9 environmental and human health impacts in the top 15 feet of the site and to
10 address potential environmental impacts in the form of Oil-Like Material (OLM)
11 and/or Tar-Like Material (TLM) below 15 feet. Analytical results were compared
12 to calculated, site-specific, remedial goals. Also during this time frame, air
13 samples were obtained within the Duke Energy Ohio on-site buildings and a
14 communications plan was developed and executed. Duke Energy Ohio held a
15 community open house, developed a website (www.duke-energy.com/eastend)
16 and fact sheets, and held meetings with a number of potential additional
17 stakeholders, including but not limited to the Cincinnati City Manager and
18 Assistant City Manager, the Cincinnati Health Department, the Hamilton County
19 Department of Environmental Services, the East End Community Council,
20 concerned and interested neighbors, and the Ohio EPA. Permits were obtained
21 from Ohio EPA and the city of Cincinnati to perform the work set forth in the
22 Remedial Action Plan.

23 On the western portion of East End, the decision was made to excavate

1 impacted material to a depth of approximately 40 feet in the southern half of the
2 western portion, due to the presence of deeper OLM and TLM impacts. Impacts
3 below that depth will be treated via another remedial action in the future phases of
4 site work, if required.

5 The excavation was also limited at the time the work was executed by the
6 property boundary to the west and the riverbank to the south. As the excavation
7 progressed, samples were collected at a predetermined frequency, based on linear
8 feet, in the side walls and at the floor of the excavation. These samples, as well as
9 additional soil and groundwater samples expected to be obtained during future
10 phases of the work, will be used when determining what type of additional
11 remedial actions, if any, are needed to the south, east, and west, and at depths
12 greater than the excavation depth. Excavated material was transported to a lined
13 landfill that is permitted to accept impacted soils.

14 As there are sensitive underground utilities and facilities near the western
15 portion, including but not limited to sewer and process lines, vibration monitors
16 were installed in the bedrock and on some surface structures to monitor both
17 horizontal and vertical vibrations during remediation. Vibrations were recorded
18 every minute, at a minimum, with alarm levels set at a level that was below what
19 would cause structural damage to dry wall (used as a base point). If vibrations
20 exceeded this set point, the construction manager was notified and activities were
21 altered to minimize vibrations.

22 To minimize vibrations during the installation of the earth retention
23 system, it was decided to use a drilled soldier pile and lagging system. The

1 excavation was divided into three phases: a southern phase that had tiebacks
2 installed on the northern and southern walls and corner braced on the eastern and
3 western walls; a northeastern phase that was supported with corner braces on all
4 sides; and a northwestern phase that was an open cut, as excavation in this area
5 was not planned to be as deep as the rest of the excavation that occurred within
6 the western portion. Corner braces were needed on the eastern side of the
7 excavation due to the presence of multiple underground lines that might have
8 been impacted with tie backs. Corner braces were needed on the western wall
9 because, when work was begun, Duke Energy Ohio did not own the adjacent
10 property.

11 On the eastern portion of East End, the decision was made to solidify
12 impacted material on-site using a combination of Portland cement and ground
13 blast furnace slag. This process is called in-situ solidification, or ISS. ISS can be
14 accomplished through mixing with a large-diameter auger, a high-pressure grout
15 line, or through mechanical mixing with the bucket of an excavator; mixing with
16 the bucket of the excavator was chosen for the eastern portion of East End.
17 Solidification occurred, generally, in the top 20 feet of the site in order to bind up
18 OLM and TLM, to minimize future leaching and dermal contact. ISS has depth
19 limitations depending on the type of equipment used (*i.e.*, excavator versus an
20 auger) and the presence of large obstructions in the subsurface. It is considered a
21 "greener" remedial technology since the material remains on-site and
22 contaminated materials are not being excavated, transported, and landfilled.
23 Solidification was not used on the western portion, due to the presence of

1 limestone boulders throughout the western portion, which would have made ISS
2 impractical.

3 During the remedial activities on the eastern and western portions of East
4 End, an independent environmental consulting firm was hired to monitor the
5 ambient air at the perimeter of the Duke Energy Ohio property, to ensure that
6 chemicals of concern and/or fugitive dust were not leaving the property
7 boundaries at levels that could potentially have adverse impacts on the
8 surrounding residents. An air monitoring model was developed to determine the
9 maximum concentration levels of chemicals of concern, mainly benzene and
10 naphthalene, which would ensure that there would be no adverse effect on the
11 closest neighbors. A dust action level was also established. A plan that describes
12 how dust, odors, and vapors would be managed at the site was provided to the
13 Hamilton County Department of Environmental Services and the Ohio EPA.

14 In 2010, the remedial action plans for both the eastern and western
15 portions were finalized, permits were acquired from Ohio EPA, the city of
16 Cincinnati, and others, and remediation began on the western portion. Activities
17 related to the excavation were finalized on the western portion in 2011.
18 Excavation and solidification on the eastern portion occurred between 2011 and
19 2012.

20 **Q PLEASE EXPLAIN WHY DUKE ENERGY OHIO PURCHASED**
21 **PROPERTY ADJOINING THE EAST END MGP SITE.**

22 **A.** In 2011, Duke Energy Ohio purchased approximately 9 acres of property adjacent
23 to the East End site. Impacts were present at the western property border;

1 therefore, it was likely that impacts were also present on the adjacent property.
2 An investigation in 2011 on a portion of the acquired property did indicate the
3 presence of MGP impacts. A more comprehensive investigation across the 7.6-
4 acre contiguous property is scheduled for 2012.

5 **Q. PLEASE EXPLAIN, IN DETAIL, THE STEPS THAT HAVE BEEN**
6 **TAKEN TO DATE TO INVESTIGATE AND REMEDIATE THE**
7 **ENVIRONMENTAL CONDITIONS RESULTING FROM THE FORMER**
8 **WEST END MGP.**

9 A. The Duke Energy Waste and Remediation Management Group was notified in
10 2009 that the ODOT and KY DOH had chosen a preferred route for the new Brent
11 Spence Bridge Corridor Project and that it would go through a portion of the West
12 End site. Since the surface cap that was present at the West End site, which
13 worked as an interim measure limiting contact with potentially impacted material,
14 would be disturbed with construction activities related to the bridge project and
15 the relocation of power delivery equipment, the decision was made to plan for a
16 phased remedial investigation. Work has been conducted within the Ohio EPA
17 cleanup regulations, under the direction of a CP. Similar to the strategy
18 implemented at East End, West End was parceled into multiple IAs. The first IAs
19 to be addressed were those where Duke Energy Ohio would be constructing the
20 new electrical equipment to replace equipment that would be impacted by the
21 bridge construction. In general, this included the area south of Mehring Way
22 (formerly known as Front Street), between the two substations (IA 1, also referred
23 to as Phase 1), and the majority of the area north of Mehring Way (IA 2, also

1 referred to as Phase 2), which, until the time of the remediation, has most recently
2 been used for employee parking. Background data was collected in 2009 and the
3 investigation was sent out for bid.

4 The majority of the soil and groundwater investigation for Phase 1 and
5 Phase 2 occurred in the first half of 2010. Throughout the rest of the year, the
6 remedial design was developed and consultants were contracted, through a
7 competitive bid process, for the detailed design, construction management, and
8 ambient/perimeter air monitoring. A communications plan was developed, which
9 included a website (www.duke-energy.com/westend) and the distribution of facts
10 sheets to surrounding businesses. Permits were obtained from Ohio EPA, the city
11 of Cincinnati, and other agencies.

12 Remedial action, which started in 2011, included excavation with off-site
13 disposal, ISS using an auger and a mixture of Portland cement and bentonite, and
14 air monitoring. The remedial action chosen included excavation of soil to a depth
15 of approximately 20 feet and ISS of deeper material impacted by OLM or TLM.
16 Since the ISS process results in material being added to the ground in the form of
17 water, cement, slag, and/or bentonite, excess material, many times referred to as
18 "fluff," is generated. The Company decided to excavate an additional 5 feet
19 below the typical 15-foot construction-worker zone, in order to allow the fluff
20 material to remain on-site; this decision also aided in the handling of material on
21 the property.

22 Remediation in Phase 1 and Phase 2 is continuing in 2012. In addition,
23 Duke Energy Ohio will be extending the remediation into Phase 2A in 2012;

1 Phase 2A is currently used as a staging area for equipment and the construction
2 trailers.

3 Similar to the work conducted on East End, an independent consultant was
4 contracted to perform perimeter air monitoring during the remedial work at West
5 End, to make sure that fugitive dust and/or chemicals of concern leaving the
6 property borders would not have an adverse impact to the businesses or people
7 surrounding the property.

8 **Q. PLEASE EXPLAIN THE ADDITIONAL STEPS THAT DUKE ENERGY**
9 **OHIO ANTICIPATES TAKING IN ORDER TO INVESTIGATE AND**
10 **REMEDiate THE ENVIRONMENTAL CONDITIONS PRESENT AT**
11 **THE FORMER EAST END MGP.**

12 A. At East End, soil and groundwater investigations are expected to occur in the third
13 quarter of 2012 for the middle portion and the property that Duke Energy Ohio
14 acquired in 2011. Based on the results of the soil and groundwater samples
15 obtained on these two separate IAs, a decision will be made regarding whether
16 remedial actions are required. Without additional information concerning the
17 presence or extent of impacts on these two IAs, estimates cannot be generated as
18 to how much a cleanup might cost.

19 On the eastern portion of East End, groundwater monitoring will
20 recommence in 2012 on a to-be-determined frequency, to evaluate whether
21 groundwater concentrations meet the Ohio EPA standards. If groundwater does
22 not meet applicable standards, additional groundwater remedial measures may be
23 required.

1 Excavation and ISS activities are planned for 2013 along Pittsburgh Street,
2 the abandoned road between the eastern portion and the middle portion of East
3 End. This remedial activity will allow for continual access to the property if
4 remedial activities are required in the middle portion in the future and if the other
5 entrance to the site is closed due to ongoing gas operations. Remedial activities
6 along Pittsburgh Street will also aid in the future replacement of a number of gas
7 transmission lines that traverse the property. It is expected that the remedy would
8 include a combination of excavation, slurry excavation, and ISS.

9 On the western portion, groundwater monitoring will recommence in
10 2012, on a to-be-determined frequency, to demonstrate whether groundwater
11 concentrations meet applicable Ohio EPA standards.

12 Potential off-site impacts will be evaluated once the areas where the main
13 former MGP processes were located have been evaluated and remediated, if
14 required.

15 **Q. PLEASE EXPLAIN THE ADDITIONAL STEPS THAT DUKE ENERGY**
16 **OHIO ANTICIPATES TAKING IN ORDER TO INVESTIGATE AND**
17 **REMEDiate THE ENVIRONMENTAL CONDITIONS PRESENT AT**
18 **THE FORMER WEST END MGP.**

19 **A.** The current remedial work south of Mehring Way is expected to be completed in
20 2012. Phase 2, north of Mehring Way, is scheduled to be completed by the end of
21 2012. Plans are underway to continue the remedial activities in Phase 2A, the
22 westernmost portion of the property north of Mehring Way, which is currently
23 being utilized for trailers and as a lay-down area during the first phase of

1 remediation. The schedule for that portion of the work is currently being
2 developed, but I expect it to be completed sometime in 2013.

3 Once Duke Energy Ohio completes the construction of the new electrical
4 equipment and the demolition of the current equipment, environmental work will
5 recommence. An investigation will occur under the easternmost substation and
6 transmission tower, in the path of the proposed Brent Spence Bridge Corridor
7 Project. The amount of remedial activity required and the time required to
8 complete the work is currently unknown.

9 Potential off-site impacts will be evaluated once the areas where the main
10 former MGP processes were located have been evaluated and remediated, if
11 required.

12 **Q. PLEASE DETAIL THE COSTS INCLUDED IN THE DEFERRAL FOR**
13 **BOTH EAST END AND WEST END.**

14 A. The deferral was authorized by Commission, allowing for deferral of all
15 environmental investigation and remediation costs incurred in respect to the East
16 End and West End sites. Costs are summarized on a yearly basis in Schedule C-
17 3.2. External costs include environmental consultants used for the investigation
18 of the soil and groundwater impacts; environmental consultants used to perform
19 perimeter air monitoring during remedial actions; site security while remedial
20 actions were ongoing to minimize the potential for thefts; analytical laboratories
21 that analyzed soil, groundwater, and ambient air samples; an environmental
22 contractor who was employed to assist in the management and review of reports
23 on the two sites; the environmental consulting firm that provided detailed

1 remedial design, oversight, and construction management, and who also
2 subcontracted construction firms to carry out the remedial actions; an engineering
3 consulting firm that provided the required vibration monitoring; fuel for on-site
4 construction equipment; and landfill disposal costs. Miscellaneous costs include,
5 but are not limited to, electricity, communications support and the manning of a
6 community hotline to address concerns raised by neighbors or other interested
7 parties, utility clearing services, street flaggers, the purchase of personal
8 protective equipment, and the rental of personal air monitoring equipment.

9 Internal costs included expenses (air travel, rental cars, hotels, etc.) for
10 Duke Energy employees working on the project; oversight by the Duke Analytical
11 Laboratory located in Huntersville, North Carolina, which performed audits of the
12 analytical laboratories and performed quality control and review of analytical
13 data; oversight and coordination by Duke Energy power delivery and gas
14 operations personnel while working in close proximity to sensitive electrical
15 and/or gas utilities; survey support; and project management oversight.

16 **Q. DESCRIBE THE GENERAL PROCESS USED TO ENSURE THE**
17 **REASONABLENESS OF COSTS.**

18 A. Duke Energy employs a number of procedures to ensure that the scope of cleanup
19 work is appropriate and the cost to perform that work is reasonable. When
20 deciding upon the most prudent course of action for investigation and remedial
21 action scopes of work, the Company worked with the Ohio EPA CPs and
22 environmental consultants to evaluate different options based upon various
23 criteria, including but not limited to compliance with environmental regulations,

1 best practices, feasibility, constructability, safety, prior experience, and cost.
2 These considerations are built into Requests for Proposal (RFPs). RFPs are
3 generated, typically, prior to an investigation and for the detailed design and
4 construction management of the larger remedial actions. In some instance,
5 additional scopes of work may be awarded to a contractor already working on the
6 site based on the factors such as the historical site knowledge of the contractor,
7 the fact that equipment is already mobilized to the site, the timing of when
8 additional information is needed, and/or if the contractor agrees to substantially
9 maintain its rates and mark-ups negotiated through a competitive bid process. If a
10 scope of work is single-sourced, Duke Energy Ohio will often require the
11 environmental consultant to obtain competitive bids for the work that will be
12 subcontracted, which is typically the largest portion of the consultant's invoices.

13 When an RFP is issued, Duke Energy Ohio solicits bids from
14 environmental consultants who have a proven history of working successfully on
15 MGP sites. The minimum number of bidders for every RFP is three. Information
16 requested in the bid documents include but is not limited to: a summary of similar
17 work; the experience of personnel assigned to the project; MGP experience; Ohio
18 experience; the Ohio EPA CP or subcontracted CP experience; safety statistics;
19 summary of work requested to be performed on the site, including any best
20 practices or proposed changes to the scope of work; rate sheets and expected
21 hours for each personnel level; and rate sheets from any subcontractors. Due to
22 the complexity and technical nature of the required work, bids are initially
23 evaluated on their technical merits, without looking at the cost to perform the

1 work. After the technical screening and associated interviews with bidders, costs
2 are evaluated.

3 Although the scope documents are written with the best available
4 information at the time of their drafting, the nature of environmental investigation
5 and remediation requires flexibility. Changes occur in the field during the
6 execution of work due to weather, the discovery of unknown utilities and/or
7 subsurface obstructions, and the discovery of additional impacted material, just to
8 name a few. When issues arise, changes to the scope of work are again evaluated
9 using the same criteria stated earlier. To ensure that these changes to scope do not
10 become opportunities through which contractors and subcontractors can inflate
11 costs, during the RFP process Duke Energy Ohio requests rate sheets that clearly
12 state costs for additional scope items that typically occur on MGP sites. For
13 example, instead of asking for a lump-sum price for an investigation scope of
14 work, Duke Energy Ohio requests a cost to take a sample on a per-foot basis. If it
15 is necessary to go deeper in the ground for a sample than was originally
16 anticipated or if additional locations are added to the scope based upon results
17 obtained real-time, it is thereby predetermined how much that additional work
18 will cost. Therefore, during the initial review of bids, the evaluation considers the
19 cost-per-hour for the different levels of professionals who would be working on
20 the project, the anticipated breakdown in hours between junior and senior
21 personnel, mark-ups on subcontractors, and the per-unit rate for individual items
22 (*i.e.*, per diems, construction trailers, etc.).

1 Any changes to the initial scope of work require approval by Duke Energy
2 Ohio; therefore, Duke Energy Ohio representatives are actively involved in all
3 aspects of the work to make sure any additional scopes of work are justified.
4 Among other things, Duke Energy employs an on-site remediation construction
5 manager. By having a clear understanding of the site, the issues that are being
6 encountered, and the expected end results, the Company is able to weigh options
7 and changes to the scopes to ensure that the best decision is made, based on
8 available information.

9 The majority of the subcontractors on the site are managed through the
10 environmental consultant. For those subcontractors with larger scopes of work,
11 the environmental consultant is required to solicit multiple bids and to include
12 Duke Energy in the decision-making process. There are a number of
13 subcontractors that Duke Energy Ohio directly contracts with due to the nature of
14 the work or preferred pricing agreements.

15 There are limited instances where the Company will award sole-source
16 contracts. This typically happens only if it is a specialty contractor or if outside
17 forces require that the contract be made with a certain consultant. For example, at
18 East End, the vibration monitoring contract was issued to a consultant who had
19 performed similar monitoring on the sensitive utilities in the past.

20 **Q. DESCRIBE THE PROCESS USED SPECIFICALLY AT EAST END TO**
21 **ENSURE THE REASONABLENESS OF COSTS.**

22 **A.** The work performed prior to 2008 was sole-sourced to an environmental
23 consultant that was used by Duke Energy on other MGP sites. As this was the

1 first time that work was being conducted on any of the Ohio MGP sites, the
2 project manager at that time brought in a contractor that he had worked with in
3 the past to help him initiate the investigation. In 2008, proposals were solicited
4 from five environmental consultants to obtain additional soil and groundwater
5 samples, complete a human health risk assessment, and develop the conceptual
6 remedial action plan. The firm that was awarded the contract had an acceptable
7 technical approach and was also the lowest bidder.

8 In August 2009, two separate RFPs were issued for East End to five
9 environmental consultants using the Duke Energy purchasing platform; four were
10 the same contractors as the 2008 RFP for the investigation and one was a new
11 consultant. One RFP was for the detailed design of the remediation on the eastern
12 portion and the western portion, as well as the construction management. The
13 second RFP was for ambient air monitoring during the remedial activities. The
14 decision was made to separate the ambient/perimeter air monitoring from the
15 detailed design and construction management, in order to allow for an
16 independent, third party to monitor air emissions.

17 The detailed design and construction management proposals were
18 evaluated first. Bidders were evaluated from a technical standpoint; then pricing
19 was added to the evaluation. The successful bidders' technical approach to the
20 project, especially with respect to the design and execution of a significant and
21 complicated earth retention system, was ranked very high in the technical
22 evaluation. The winning bidder was the second lowest bidder, but won the
23 contract on the basis of the proposed design and execution of the earth retention

1 system. For the air monitoring contract, the successful detailed design/
2 construction management contractor was excluded from the bid evaluation as
3 Duke Energy Ohio wanted an independent air monitoring contractor. Of the
4 remaining bidders, they all submitted technically equivalent proposals; therefore,
5 the bid was awarded to the lowest bidder. During contract negotiations, Duke
6 Energy Ohio's purchasing agent was able to negotiate reduced rates and reduced
7 subcontractor markups for some items in the bids.

8 In January 2010, a Request for Information (RFI) was sent out to eleven
9 subcontractors to gather information for the technical and construction
10 capabilities for the excavation and solidification contracts at East End. Although
11 these subcontracts would be held by the environmental consulting firm that was
12 awarded the detailed design/construction management contract, they used the
13 Duke Energy purchasing platform to solicit the information from the potential
14 subcontractors. In March 2010, bids were solicited from five environmental
15 construction companies for the work to be conducted on the western portion.
16 Again, the bids were evaluated by both Duke Energy Ohio and the environmental
17 consultant who would hold the subcontracts, with regard to both the proposed
18 execution of the work and the price. The bid was awarded to the second lowest
19 bidder. The probability of significant change orders from the lowest bidder based
20 on its approach to the remediation was the main reason the contract was not
21 awarded to the lowest bidder.

22 In January 2011, bids were solicited from five environmental construction
23 companies for the work to be conducted on the eastern portion. Only two bidders

1 submitted a proposal, with the contract being awarded to the lowest bid.

2 The environmental consultant who was awarded the detailed design and
3 construction management contract for the eastern and western portions has also
4 been contracted to conduct out-of-scope work, including the initial investigation
5 on the middle portion and the property purchased in 2011 and the construction
6 management of the Pittsburg Street remediation. The consultant is currently
7 obtaining competitive bids from subcontractors for the investigation work. It is
8 anticipated that RFPs will be issued, if remediation is required, on the middle
9 portion of East End and/or the property purchased in 2011.

10 The contract with the landfill, relating to the disposal of impacted soil, was
11 held directly by Duke Energy Ohio. The landfill has been audited by Duke
12 Energy Ohio in the past and is one of the Company's approved landfills in the
13 Midwest service territory. Prices from another landfill were also solicited for a
14 cost comparison, and the cost for disposal at the chosen landfill was competitive.

15 Contracts that were issued as sole-source contracts included those
16 addressing fuel, security, the analytical laboratory, and vibration monitoring.
17 With regard to fuel, Duke Energy Ohio has a negotiated rate with a fueling
18 company. Although fuel costs were initially included in the subcontractor's scope
19 of work, the Duke Energy Ohio purchasing agent determined that it was more cost
20 effective to pay for fuel directly. Duke Energy Ohio has a negotiated contract
21 with a security contractor for all of the Midwest facilities, which was extended for
22 the MGP sites.

23 An Ohio EPA-certified analytical laboratory is required to be used for the

1 work at both sites. Duke Energy has a corporate-wide negotiated rate for
2 analytical services with a certified lab, based on historic competitive bids;
3 therefore, the lab contact for soil and groundwater samples was also single-
4 sourced. For the analysis of the air monitoring samples, the lab used was
5 recommended by the air monitoring contractor.

6 The vibration monitoring at East End was a sole-source contract, as the
7 contracted company had a proven history.

8 In 2012, a contract for surveying support was issued to a local servicing
9 crew that had been audited by the internal Duke Energy surveying group in the
10 past and was under contract for other surveying needs within Duke Energy Ohio.

11 **Q. DESCRIBE THE PROCESS USED SPECIFICALLY AT WEST END TO**
12 **ENSURE THE REASONABLENESS OF COSTS.**

13 A. In 2009, a RFP was issued to six environmental consultants to perform the initial
14 investigation at West End. The initial investigation plan was developed internally
15 and refined as part of the RFP process. Therefore, as part of the bid process, Duke
16 Energy Ohio entertained revisions to the proposed scope of work, but required
17 costs for both the original scope of work and the revised scope, if proposed, be
18 provided to aid in the evaluation. Bids were evaluated on both a technical basis
19 and a cost basis. All bids were technically acceptable, although the approaches,
20 for a few of the bidders, varied. At the end of the evaluation, the firm with the
21 lowest bid was awarded the contract.

22 In 2010, two separate RFIs were issued for West End, to six
23 environmental consultants, using the Duke Energy purchasing platform; four were

1 the same contractors as the 2009 RFP for the investigation and two were new
2 consultants; one of the new consultants declined to bid. Similar to East End, one
3 RFP was for the detailed design and construction management of the remediation
4 in Phase 1 and Phase 2 of West End, and one was for the ambient/perimeter air
5 monitoring.

6 The detailed design and construction management proposals were
7 evaluated first. Bidders were evaluated from a technical standpoint; then pricing
8 was added to the evaluation. All proposals offered technically acceptable
9 approaches; therefore, the bid was awarded to the contractor with the lowest bid,
10 which also had the lowest subcontractor markup. For the air monitoring contract,
11 the successful detailed design/construction management contractor was excluded
12 from the bid evaluation, as Duke Energy Ohio wanted an independent air
13 monitoring contractor. Of the remaining bids, all submitted technically equivalent
14 proposals. Therefore, the contract was awarded to the lowest bidder.

15 **Q. EXPLAIN HOW THE WORK BEING CONDUCTED AT THE EAST END**
16 **AND WEST END SITES IS SIMILAR TO WORK DONE AT MGP SITES**
17 **OWNED BY OTHER UTILITIES.**

18 **A.** Duke Energy is part of a number of utility groups that share best practices and
19 remedial strategies. It also participates in national conferences on the
20 investigation and remediation of MGP sites. The MGP Consortium is a group of
21 28 utilities that meets three times a year to discuss case studies on the
22 investigation and remediation of MGP sites across the country. The other Ohio
23 utilities that participate in this group include the Columbia Gas and the

1 FirstEnergy utilities. Duke Energy, as well as the FirstEnergy operating
2 companies, AEP Ohio, and Columbia Gas, are also members of the EPRI
3 Program 50: Manufactured Gas Plants, where the members regularly share
4 information on the investigation and remediation of MGP sites. The
5 environmental consultants hired to perform the work on the Duke Energy Ohio
6 MGP sites are industry leaders in the investigation and remediation of MGP sites;
7 they are employed by several utilities across the country, have presented in
8 national and international MGP conferences, and participate in research projects
9 related to MGP sites.

10 Based on my participation in the industry groups and national conferences,
11 my understanding is that the work being conducted at the Duke Energy Ohio
12 MGP sites is consistent with the practices being undertaken by other utilities.

V. CONCLUSION

13 **Q. WERE ATTACHMENTS JLB-1 THROUGH JLB-5 PREPARED BY YOU**
14 **OR UNDER YOUR DIRECTION AND SUPERVISION?**

15 **A. Yes.**

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

18 **A. Yes.**

19 **Q. IS THE INFORMATION THAT YOU SPONSOR IN SCHEDULE C-3.2**
20 **ACCURATE TO THE BEST OF YOUR KNOWLEDGE AND BELIEF?**

21 **A. Yes.**

- 1 Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?
- 2 A. Yes.

Brief History of the Duke Energy Ohio Manufactured Gas Plants

On April 3, 1837, the Cincinnati Gas Light and Coke Company, a predecessor to Duke Energy, was incorporated “to manufacture and sell gas to be made from any or all of the substances, or a combination thereof, from which inflammable gas is usually obtained” for the purpose of “lighting the City of Cincinnati, or the streets thereof, and any buildings or houses, to erect the necessary works, and to lay pipes in any of the streets or avenues of said city.” Construction of the first MGP began during the summer of 1841 and the first commercial lighting by manufactured gas in the city of Cincinnati occurred at the W.H. Harrison Drug Store on the southwest corner of Fourth Street and Main Street from manufactured gas produced at “North Works,” which was later to be called the West End facility, on January 14, 1843.

In 1857, ground was broken for a second plant, “South Works,” built adjacent to North Works. The capacity of the North Works plant was also increased. The two plants were consolidated in 1863. Between 1871 and 1873 the entire West End plant was reorganized: the whole work of coal distillation was moved to the river side of Front Street and all condensing, measuring, purifying, and exhausting apparatus were moved to the north side of Front Street. Two new retort houses, an additional coal elevator, and a new coalhouse were constructed on the south side. On the north side, a new condenser, engine, meter, scrubbers, valve house, three new holders, and tar tanks were constructed. In 1882, a coal gas plant began construction at East End Gas Works, with production beginning in 1884. The original plant consisted of two gas holders, a tar well, a retort house, coal yard, and a shed.

In 1889, the Cincinnati Gas Light and Coke Company began buying stock in the Cincinnati Electric Light Company and construction began on an electric generating station adjacent to the West End Gas Works.

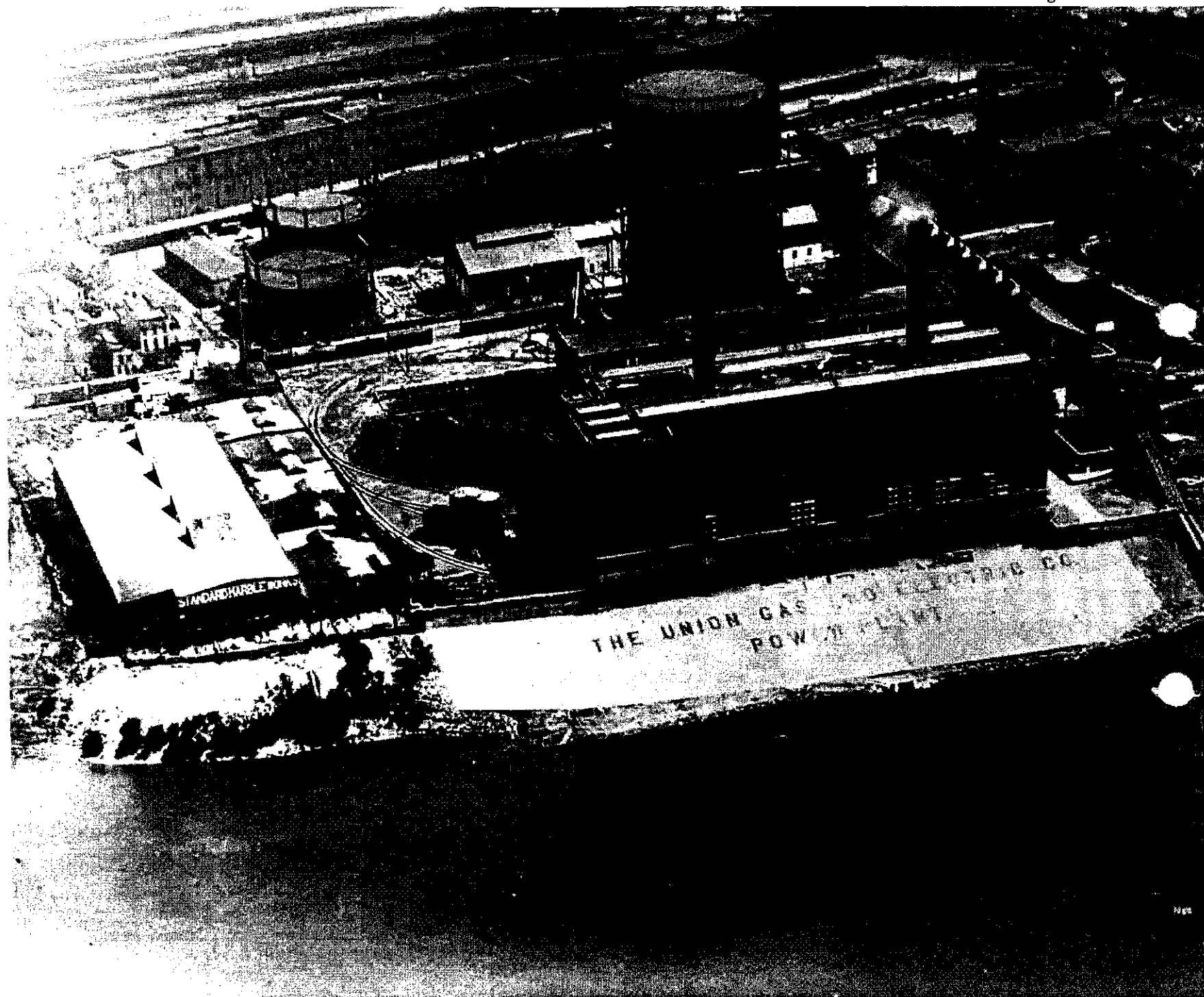
In 1893, a new water gas plant was constructed at West End. At first the water gas plant was only used "in emergencies," but it was put into continuous operation at the turn of the century.

In 1901, the Cincinnati Gas and Electric Company was formed to consolidate the various gas and electric companies in Cincinnati, including the Cincinnati Gas Light and Coke Company.

In 1909, the manufactured gas process at both sites stopped due to the arrival of natural gas from West Virginia. Gas production was reinstated in 1918 after a number of cold winters, during which the amount of natural gas delivered to the city could not adequately supply heat to the residents. A producer gas plant was constructed at West End to provide supplemental gas, in addition to natural gas, for peak demands during the heating season. A new electric generating station was also constructed at West End starting in 1916. Between 1904 and 1917 an additional gas holder was added to East End.

In 1925, a water gas plant was constructed at East End, with the manufactured gas being combined with natural gas. This plant was converted from water gas to oil gas in 1946, with additional oil tanks being added to the site. Propane gas was added in 1947 and oil gas generators were added in 1948. Gas generators were converted in 1951 to allow for oil firing instead of coke firing. The last modification to the MGP plant at East End included a new generator house, fuel bins, oil tanks, purifiers, a precipitator, propane storage and tar settling tanks.

The MGP equipment was removed from the East End site in the 1960s. The last time that manufactured gas was produced at East End, according to annual reports, was 1963. At West End, the last year when gas was manufactured was 1967.





OLD EASTERN AVENUE GAS PLANT

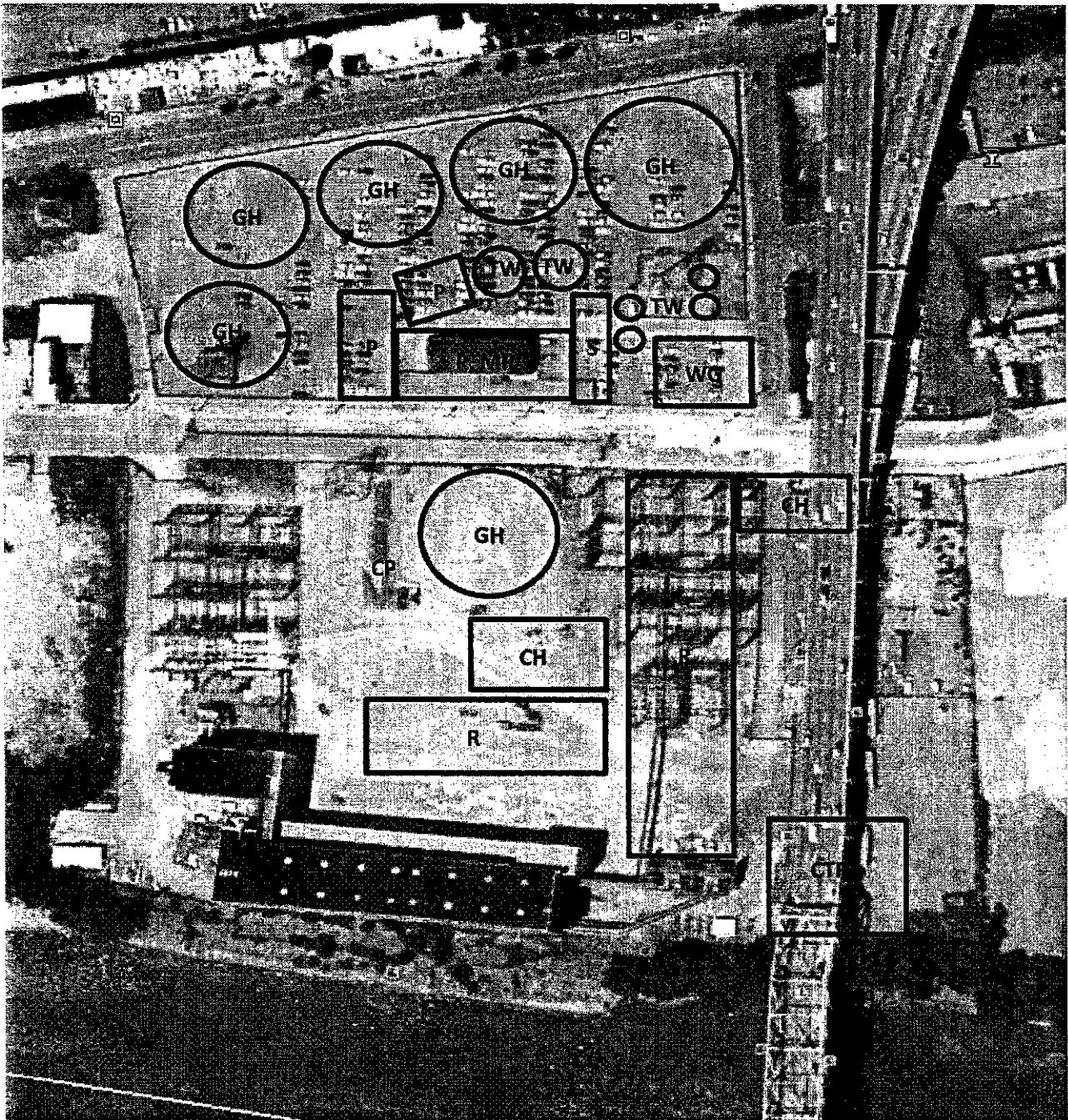


Image from Google Earth©

Locations and size of historic equipment are generalized.

All historic equipment may not be shown.

Key

GH = Gasholder	WG = Water Gas Producer
P = Purifiers	CH = Coal/Coke House
MR = Meter Room	R = Retorts
TW = Tar Wells	CP = Coal Piles
S = Scrubbers	CTR = Coal Tar Refining
C = Condensers	

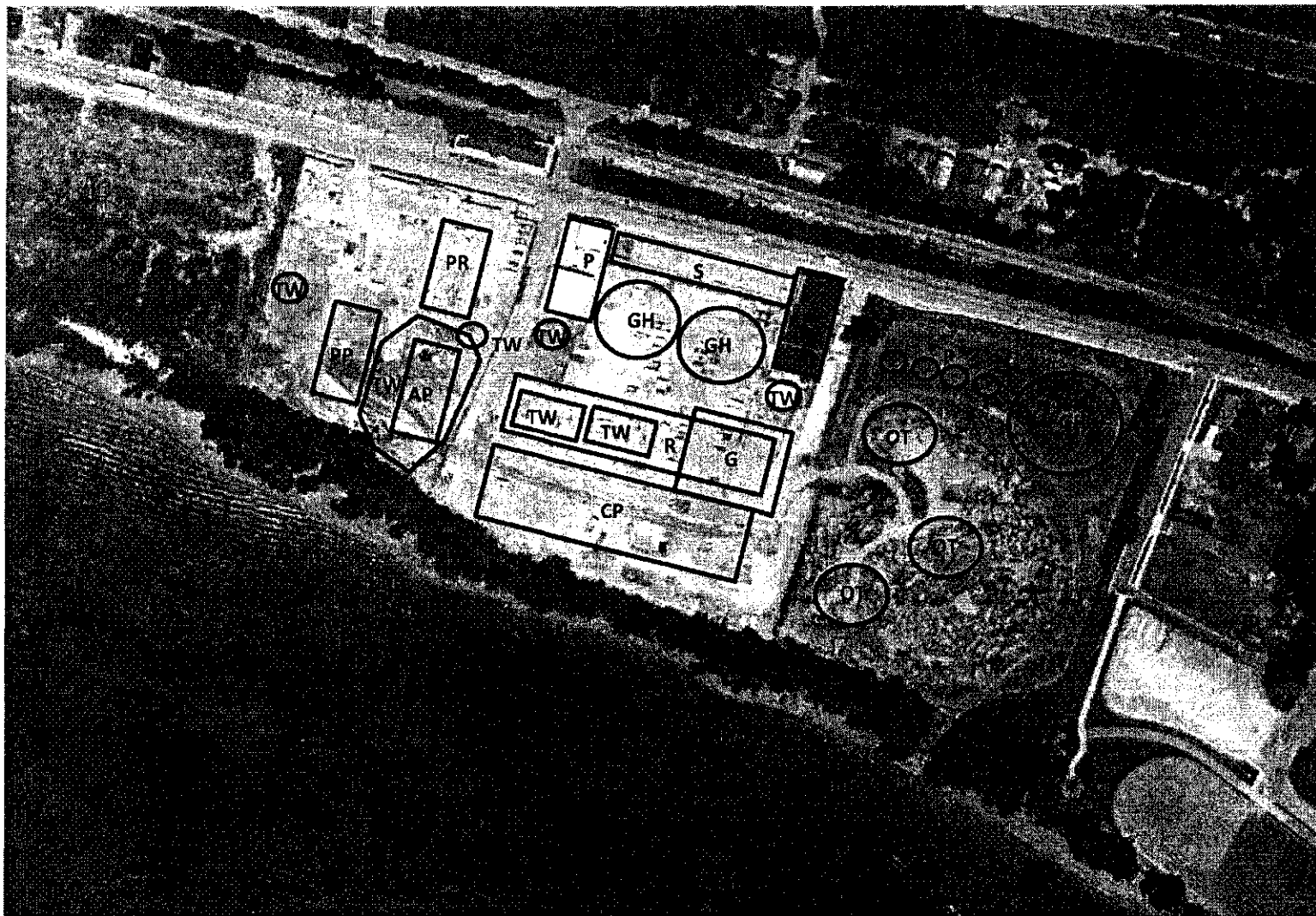


Image from Google Earth©

Locations and size of historic equipment are generalized.

All historic equipment may not be shown.

Key

GH = Gasholder

P = Purifiers

PR = Propane Tanks

CP = Coal Piles

S = Scrubbers

R = Retorts

G = Generator House

OT = Oil Tank

PP = Potash Plant

AP = Ammonia Plant

TW = Tar Wells/Tanks/Lagoon