

**BEFORE  
THE PUBLIC UTILITIES COMMISSION OF OHIO**

In the Matter of the Application of Duke )  
Energy Ohio, Inc. for an Increase in Gas ) Case No.12-1685-GA-AIR  
Rates. )

In the Matter of the Application of Duke ) Case No. 12-1686-GA-ATA  
Energy Ohio, Inc., for Tariff Approval. )

In the Matter of the Application of Duke )  
Energy Ohio, Inc. for Approval of an ) Case No. 12-1687-GA-ALT  
Alternative Rate Plan for Gas Distribution )  
Service. )

In the Matter of the Application of Duke )  
Energy Ohio, Inc., for Approval to ) Case No. 12-1688-GA-AAM  
Change Accounting Methods. )

**(PUBLIC VERSION)**

**DIRECT TESTIMONY  
OF  
JAMES R. CAMPBELL**

**On Behalf of**  
**The Office of the Ohio Consumers' Counsel**  
*10 West Broad Street, Suite 1800*  
*Columbus, Ohio 43215-3485*  
*(614) 466-8574*

***February 25, 2013***

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JRC-1	Resume of Dr. James R. Campbell
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JRC-15	Burns and McDonnell Phase II Property Assessment Report East End Gas Works East Parcel (September 2009) [CONFIDENTIAL]

- JRC-16 Burns and McDonnell Phase II Property Assessment Report East End Gas Works West Parcel (September 2009) [**CONFIDENTIAL**]
- JRC-17 AECOM Groundwater Assessment Summary (March 2011) [**CONFIDENTIAL**]
- JRC-18 Newfields East End Gas Works Hydrocarbon Characterization of NAPL and Soil Final Report (July 31, 2008) [**CONFIDENTIAL**]
- JRC-19 VAP Technical Guidance Compendium (August, 2003)
- JRC-20 VAP Technical Guidance Compendium (January, 2010)
- JRC-21 Duke Response to OCC INT 10-418
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- JRC-24 Duke Response to OCC INT 11-450
- JRC-25 AECOM Basis of Design Memorandum (June, 2010) [**CONFIDENTIAL**]

**I. INTRODUCTION**

***Q1. PLEASE STATE YOUR NAME, ADDRESS AND POSITION.***

***A1.*** My name is James R. Campbell. My business address is Engineering Management, Inc., 1500 Ardmore Blvd., Suite 502, Pittsburgh, PA 15221. I am the President of Engineering Management, Inc. ("EMI").

***Q2. WOULD YOU PLEASE BRIEFLY SUMMARIZE YOUR EDUCATIONAL AND PROFESSIONAL EXPERIENCE?***

***A2.*** I have a Bachelor of Engineering degree in Civil Engineering from Youngstown State University (1978), Master of Science (1980) and Ph.D. (1983) degrees in Civil and Environmental Engineering from Carnegie Mellon University. I have been a registered Professional Engineer since 1991.

My professional work experience is detailed on my Resume, provided as Attachment JRC-1. I have significant experience addressing environmental issues associated with Manufactured Gas Plant (MGP) and coal tar industry sites. That experience spans more than three decades. I began working with coal conversion wastewaters in 1978 while in graduate school and my graduate studies dealt with treatment of coal conversion wastewaters and understanding the environmental chemistry affecting the fate and transport of coal conversion contaminants. I worked for Koppers Company, Inc. ("Koppers") during the 1980s and early 1990s. Koppers designed and built many of the MGPs in North America.

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Koppers also previously operated MGPs and, through subsidiaries, sold gas as a utility. In addition, Koppers operated allied coal tar industry facilities such as tar distillation works and wood treating plants. While at Koppers I worked on over 50 MGP/coal tar sites. Experience at those sites includes investigation, design and remediation activities for tar impacted soil, impacted groundwater, and tar as a dense non-aqueous phase liquid ("DNAPL") – a contaminant commonly found at MGP Sites. I managed all of Koppers' legacy (non-operating) sites on a program level, including reporting on cash flow forecasting and reserve analysis to senior Koppers management (CEO and COO). I started EMI in 1992 to provide project management and expert services related to environmental liabilities. Over my 30 year career I have worked on the analysis and/or environmental assessment and cleanup of over 100 sites and have provided expert analysis in approximately 20 Superfund cases, 12 of which were MGP Sites. My experience includes working with, and interpreting, many federal and state environmental regulations.

***Q3. WHAT ARE YOUR RESPONSIBILITIES AS PRESIDENT OF EMI?***

***A3.*** I am responsible for EMI's technical and business affairs. I specialize in providing management and negotiation services associated with environmental liabilities as well as expert services for environmental related dispute resolution. Management activities include coordination and oversight of investigation, design, construction, emergency response and operation and maintenance work. Negotiation services include development of management strategies and

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negotiation support for technology applications and remedy selection,  
construction claims and other disputes. Expert services include analysis, expert  
reports and testimony regarding industrial operations, environmental conditions,  
and allocation claims.

***Q4. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY OR TESTIFIED  
BEFORE THIS COMMISSION?***

***A4.*** No.

***Q5. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY BEFORE ANY  
OTHER STATE REGULATORY COMMISSION?***

***A5.*** No. I have provided testimony in the U.S. Court of Claims and served as an  
expert in various Comprehensive Environmental Response, Compensation, and  
Liability Act ("CERCLA") cost recovery claims.

***Q6. WHAT DOCUMENTS HAVE YOU REVIEWED IN THE PREPARATION OF  
YOUR TESTIMONY?***

***A6.*** I have reviewed relevant parts of Duke Energy Ohio Inc.'s ("Duke", "DEO" or  
"Utility") Application, and Prefiled Direct Testimony of Jessica Bednarcik and  
Andrew Middleton. I have reviewed Duke's responses to OCC and Staff  
discovery and data requests, including multiple environmental reports and cost  
summaries. I have reviewed the Ohio Environmental Protection Agency ("Ohio

1 EPA”) Voluntary Action Program (“VAP”) Rules.<sup>1</sup> I have also reviewed relevant  
2 related documents and industry publications.  
3

4 **II. PURPOSE OF TESTIMONY**

5  
6 ***Q7. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS***  
7 ***PROCEEDING?***

8 ***A7.*** The purpose of my testimony is to render an opinion on the scope and necessity of  
9 the MGP-related investigation and remediation activities at the East End and West  
10 End MGP Sites (MGP Sites). I also render an opinion on the prudence of the  
11 resultant costs that Duke is seeking to recover from customers in this proceeding.  
12 The MGP-related investigation includes activities Duke performed to identify the  
13 nature and extent of the contamination at the MGP Sites. The MGP-related  
14 remediation includes activities that Duke performed to clean up the MGP Sites.  
15 Duke is seeking to collect \$65.3 million from customers for MGP Site  
16 investigation and remediation.

17  
18 OCC witness Bruce Hayes provided testimony (in support of OCC Objection No.  
19 25) that the Commission should not allow Duke to recover from customers any of  
20 the investigation and remediation costs incurred at the MGP Sites. However, in  
21 the event the PUCO adopts the recommendation in the Staff Report (allowing for  
22 Duke to charge some of the costs to customers), my testimony demonstrates that

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<sup>1</sup> “VAP Rules” Ohio Adm. Code 3745-300, et seq.

Duke's expenditures were excessive and imprudent for MGP remediation. Indeed, it would have been prudent for Duke to have developed remedial action plans incorporating cost-effective, protective measures for the MGP Sites, instead of the much more expensive excavation and disposal approach employed by Duke. My testimony supports OCC Objection No. 26. In my opinion, Duke chose to spend significantly more dollars --\$65.3 million<sup>2</sup> -- for remediation of the MGP Sites than is required under Ohio EPA's VAP Rules. The PUCO should not allow Duke to collect these excessive remediation costs from customers. In my opinion, Ohio EPA's VAP Rules provide for protective remedial alternatives that are far less costly than the remedial alternatives chosen by Duke.

### **III. ANALYSIS OF OHIO EPA'S VAP RULES**

***Q8. DID THE STAFF REPORT ADDRESS THE SCOPE AND NECESSITY OF THE INVESTIGATION AND REMEDIAL MEASURES PERFORMED BY DUKE AT THE MGP SITES UNDER OHIO EPA'S VAP RULES?***

**A8.** No. In fact, the Staff Report specifically states that the Staff did not include these topics as part of the Staff's investigation in this case. The Staff Report notes:

“The Staff's determination of the reasonableness of the MGP-related expenses was limited to verification and eligibility of the expenses for recovery from natural gas distribution rates. **The**

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<sup>2</sup> Includes investigation, remediation and carrying costs for both MGP Sites.



1           **Staff did not investigate or make any finding or**  
2           **recommendations regarding necessity or scope of the**  
3           **remediation work that Duke performed.** For example, the Staff  
4           offers no opinion as to whether ISS [in-situ solidification] might  
5           have been adequate and less costly than excavation and soil  
6           replacement in a particular area, or that excavation to a depth of 35  
7           feet was sufficient to address MGP impacts as opposed to the 40  
8           feet that Duke determined.”<sup>3</sup>

9  
10   ***Q9. DO YOU BELIEVE THE SCOPE AND NECESSITY OF DUKE’S***  
11   ***INVESTIGATION AND REMEDIATION EFFORTS SHOULD BE AN***  
12   ***IMPORTANT CONSIDERATION IN THE REVIEW OF THE UTILITY’S***  
13   ***REMEDIATION WORK AND THE UTILITY’S PROPOSAL TO CHARGE***  
14   ***COSTS TO CUSTOMERS?***

15   ***A9.*** Yes.

16  
17   ***Q10. WHY SHOULD THE COMMISSION BE CONCERNED WITH THE SCOPE***  
18   ***AND NECESSITY OF THE REMEDIATION WORK?***

19   ***A10.*** Reviewing the scope and necessity of the remediation work is an important step in  
20           ascertaining the prudence of the dollars spent by Duke to investigate and  
21           remediate the MGP Sites. Duke is seeking to recover \$65.3 million in MGP Site  
22           investigation and remediation costs from gas customers in this case. Had the Staff

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<sup>3</sup> Staff Report at 40 (January 4, 2013) (emphasis added).

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1 investigated the scope and necessity of the remediation measures implemented by  
2 Duke, in my opinion, the recoverable costs would be significantly less. On advice  
3 of counsel and my own reading of the provision, I understand that Ohio law (R.C.  
4 4909.154) provides that rates be just and reasonable and that any costs that are  
5 determined to be imprudent are not recoverable from customers.

6  
7 In this case, Duke employed a remediation approach that was far in excess of  
8 more cost effective and reasonable remedial options provided for in Ohio EPA's  
9 VAP Rules. In doing so Duke spent significantly more money than was necessary.  
10 The Utility's management decision to exceed reasonable, cost effective and  
11 protective VAP requirements, and to spend excessively to conduct remediation  
12 that was not necessary under Ohio EPA's VAP Rules, constitutes imprudence on  
13 Duke's part. Therefore, in my opinion, the PUCO should deny Duke the  
14 opportunity to collect from customers costs that were imprudently spent by the  
15 Utility in furtherance of management policies designed to conduct remediation  
16 that is not required by the VAP Rules.

17  
18 ***Q11. HAVE YOU REVIEWED THE SCOPE OF DUKE'S REMEDIATION***  
19 ***EFFORTS RELATIVE TO OHIO EPA'S VAP RULES?***

20 ***A11.*** Yes.

1    ***Q12. WHAT HAVE YOU DETERMINED?***

2    ***A12.*** The VAP Rules do not require the extensive remediation efforts that Duke elected  
3           to implement. Had Duke more reasonably interpreted and applied the VAP Rules,  
4           more cost effective and protective MGP Site remedies could have, and should  
5           have, been implemented. The Utility could have avoided making the imprudent  
6           expenditures that it did.

7  
8           My testimony outlines a more reasonable and cost effective remedial approach  
9           that is consistent with the VAP Rules and protective of human health and the  
10          environment. This remedial approach includes use of engineering controls <sup>4</sup> and  
11          institutional controls <sup>5</sup> that are widely employed in the environmental remediation  
12          industry. In fact, such controls are specifically called for, under certain  
13          circumstances, in Ohio EPA's VAP Rules.

14  
15   ***Q13. DO OHIO EPA'S VAP RULES SPECIFY HOW OR WHEN REMEDIATION***  
16   ***SHOULD BE CONDUCTED?***

17   ***A13.*** No. The VAP Rules require that a remedy be implemented for a site if chemicals  
18          of concern<sup>6</sup> are present in soil, sediment or groundwater (media) at concentrations

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<sup>4</sup> VAP Rule 3745-300-01 defines an engineering control as "any structure, system, or barrier that effectively and reliably eliminates or mitigates human or important ecological resource exposure to hazardous substances or petroleum on, underlying or emanating from a property, which is protective of human health, safety and the environment."

<sup>5</sup> VAP Rule 3745-300-01 defines an institutional control as "a restriction that is recorded in the same manner as a deed which limits access to or use of the property such that exposure to hazardous substances or petroleum are effectively and reliably eliminated or mitigated. Examples of institutional controls include land and water use restrictions."

<sup>6</sup> e.g., polycyclic aromatic hydrocarbons (PAHs) common to MGP tars.

1       above applicable standards.<sup>7</sup> Applicable standards for a remedy are developed  
2       based on existing or reasonably anticipated future exposure pathways<sup>8</sup> for each  
3       media. However, the VAP Rules do not mandate a specific approach or time  
4       frame for how and when remediation should be conducted. Instead, the entity that  
5       is implementing VAP Rules is responsible for determining what specific actions  
6       are necessary, and when. My experience with MGP-related remedial activities  
7       that have not involved public utilities is that such remedies are conducted in a  
8       more practical, cost effective manner. Duke's approach to remediation of the  
9       MGP Sites does not appear to have emphasized or considered cost as a relevant  
10      factor.

11  
12   ***Q14. HOW IS THE SCOPE OF A REMEDY DETERMINED UNDER OHIO***  
13   ***EPA'S VAP?***

14   **A14.** Under the VAP Rules, applicable standards and points of compliance are  
15       developed for each media (e.g., soil or groundwater) to guide the scope and extent  
16       of the remediation necessary for a site.<sup>9</sup>

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<sup>7</sup> VAP Rule 3745-300-07 (Phase II Property Assessments).

<sup>8</sup> An exposure pathway is an environmental term of art that describes how a person (or flora or fauna) could be exposed to contaminated media. For example, a construction worker could be exposed to contaminated soil through direct dermal contact or inhalation of dust. These exposure pathways would be referred to as direct contact and inhalation exposure pathways.

<sup>9</sup> VAP Rule 3745-300-08 (Generic Numerical Standards).

**Q15. DID DUKE USE THE APPROPRIATE POINTS OF COMPLIANCE FOR  
REMEDiation BASED ON DIRECT CONTACT WITH SOIL?**

**A15.** No. [REDACTED]

[REDACTED]  
[REDACTED] The VAP  
Rules identify the soil media points of compliance that can be applicable -- **but  
may be modified** -- to these exposure pathways as follows:<sup>11</sup>

- If institutional controls limiting a property's land use are applied, the point of compliance is from the ground surface to a minimum depth of two feet and at depths greater than two feet when it is reasonably anticipated that exposure to soil will occur through excavation, grading or utilities maintenance.
- Where it is reasonably anticipated that excavation, grading, or other construction activities will occur, the point of compliance is from the ground surface to a minimum depth equal to the maximum depth reasonably anticipated for activities at the property.

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<sup>10</sup> See Attachment JRC – 16 (DEO-MGP 001262); See also Attachment JRC – 15 (DEO-MGP 002006); See also Attachment JRC – 11 (DEO-MGP 014095) (Confidential Responses).

<sup>11</sup> VAP Rule 3745-300-07 (Phase II Property Assessments).

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1 [REDACTED]  
2 [REDACTED]  
3 [REDACTED]  
4 [REDACTED]  
5 [REDACTED] However, in doing so, Duke failed to use  
6 more reasonable and cost-effective approaches available under Ohio EPA's VAP.  
7 For example, by applying institutional controls and adopting commonly used risk  
8 mitigation measures, soil remediation could have been accomplished much more  
9 cost-effectively (i.e., without significant excavation) by construction of soil  
10 covers.<sup>15</sup> The soil covers will prevent human exposure to contaminated soil.  
11

12 ***Q16. DO OHIO EPA'S VAP RULES ALLOW RISK MITIGATION MEASURES TO***  
13 ***BE USED FOR REMEDIATION IN LIEU OF EXCAVATION?***

14 ***A16.*** Yes. The VAP Rules allow risk mitigation measures (as described below) to be  
15 undertaken in lieu of excavation.<sup>16</sup> One less expensive alternative to the more  
16 extensive and expensive approach taken by Duke is to control direct contact  
17 exposure to contaminated soils by constructing engineering controls such as soil  
18 covers or asphalt paving. Institutional controls can then be established to limit

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<sup>12</sup> Duke's excavation entailed excavation to depths of 20 to 40 feet below ground surface, excavation shoring, water management and disposal, off-site disposal of soil, security, air and vibration monitoring.

<sup>13</sup> See Attachment JRC – 19 (Haley & Aldrich Invoice at 19 (December 17, 2011)) (Confidential Response).

<sup>14</sup> See Attachment JRC – 16 (DEO-MGP 001262); See also Attachment JRC – 15 DEO-MGP 002006), See also Attachment JRC – 25 (DEO MGP 0039497) (Confidential Responses).

<sup>15</sup> VAP Rules 3745-300-07 (Phase II Property Assessments) and 3745-300-11 Remediation.

<sup>16</sup> VAP Rule 3745-300-11 (Remediation).

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1 future uses of the site to those that are consistent with the engineering controls  
2 and future commercial/industrial use assumptions. Institutional controls can also  
3 prohibit excavation of contaminated soil without proper personnel protective  
4 equipment (“PPE”) and establish soil handling controls to protect workers and the  
5 environment. Specification of PPE and soil handling requirements can be  
6 accomplished through a soil management plan linked to the institutional control.  
7 Soil management plans are commonly accepted exposure control mechanisms  
8 used in environmental remediation. Soil management plans are accepted by both  
9 industry and regulatory agencies, and would have been a more reasonable  
10 remediation measure for Duke at the MGP Sites.  
11 Ohio EPA’s VAP Guidance provides additional explanation of this approach  
12 using a residential scenario example (while residential exposures do not apply to  
13 the MGP Sites, the example is still illustrative).<sup>17</sup>

14  
15 A property meets unrestricted land use when residential direct  
16 contact soil standards are achieved to a minimum depth of 10 feet  
17 below ground surface. However, in some cases it may not be  
18 **economically or technically feasible** for residential properties to  
19 be cleaned up to the 10-foot depth for unrestricted use. In such  
20 cases, the VAP will consider a modified residential POC [point of

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<sup>17</sup> Keep in mind, a residential site would require more aggressive remediation efforts than a commercial or industrial site, and Duke’s remediation efforts are for a commercial/industrial site.

1 compliance] shallower than 10 feet, if an appropriate POC can be  
2 justified and controls added to ensure it is maintained.

3  
4 Direct contact soil standards for residential receptors can be met in  
5 a number of ways. First, for any property not meeting a 10-foot  
6 POC, a use restriction must be placed in an environmental  
7 covenant for the property. This restriction should reflect the  
8 property use assumptions upon which the POC was established,  
9 e.g., if we concluded a 2-foot POC is reasonable because it is  
10 unlikely there will be any digging as we are building high rise  
11 apartments, the property must be restricted to high rise apartments.  
12 Second, the volunteer must establish the appropriate remedy  
13 needed. This can be done through construction of a physical  
14 barrier that eliminates contact with soil above applicable standards  
15 such as hard surface engineering controls or a soil cover cap. An  
16 O&M [Operation & Maintenance] plan is necessary to see that  
17 these controls are maintained.

18  
19 A risk mitigation plan may be included that would allow  
20 excavation below the point of compliance. Provisions in the risk  
21 mitigation plan must contain language which provides that the



engineering control will be replaced following excavation activities.<sup>18</sup>

***Q17. WHAT CAN BE LEARNED FROM OHIO EPA'S VAP GUIDANCE DISCUSSED IN THE PREVIOUS ANSWER?***

***A17.*** The preceding testimony shows the flexibility provided for in the VAP Rules for soil remediation. Duke should have taken advantage of that flexibility to implement a more reasonable remediation approach of using soil covers, engineering controls and institutional controls. Extensive soil excavation was not necessary for protection from commercial and industrial use soil exposure pathways, including construction and excavation exposures.<sup>19</sup>

***Q18. HAD DUKE ALREADY EMPLOYED SOME OF THESE SOIL MANAGEMENT TECHNIQUES AT THE MGP SITES PRIOR TO CONDUCTING THE REMEDIATION ACTIVITIES THAT RESULTED IN THE COSTS IT NOW SEEKS TO COLLECT FROM CUSTOMERS?***

***A18.*** Yes. Duke's response to OCC Interrogatory No. 653 states: "The two Duke Energy Ohio MGP Sites were initially considered lower priority sites because a) they were owned by Duke Energy Ohio or predecessor companies and therefore Duke was able to limit access to the potential residual by-products on the sites; b) groundwater was not used as a source of drinking water at the sites or by the surrounding properties; c) **the sites were essentially "capped" by asphalt,**

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<sup>18</sup> See Attachments JRC-19 and JRC-20 VAP Technical Guidance Compendium VA30007.10.001 ("Restricted" (Modified) Residential Properties) (emphasis added).

<sup>19</sup> VAP Rule 3745-300-11 (Remediation).

1        **concrete, or soil layers (for example, the permitted Clean Hard Fill located**  
2        **on the east parcel of East End), which limited human contact with potential**  
3        **residuals.”<sup>20</sup>** Duke, therefore, already had engineering controls in place at the  
4        MGP Sites. Under Ohio EPA’s VAP Rules those engineering controls should  
5        have limited the scope of the remediation.

6  
7        ***Q19. DO THE VAP RULES ADDRESS SOIL REMEDIATION FOR***  
8        ***PROTECTION OF GROUNDWATER?***

9        ***A19.*** Yes. The VAP Rules include a pathway for leaching of chemical(s) of concern  
10       from soils to groundwater. [REDACTED]

11       [REDACTED]

12  
13       The VAP Rules also include groundwater protection “soil saturation”  
14       concentrations for some contaminants.<sup>23</sup> Single compound soil saturation  
15       concentrations apply to compounds that are liquids at ambient temperature. Soil  
16       saturation concentrations are meant to be an indicator for when pure organic  
17       liquids (e.g., a solvent such as acetone (nail polish remover)) could be present and  
18       thus be a threat to groundwater quality. Contamination at the MGP Sites is the  
19       result of releases of tar, a mixture of multiple compounds (most of which are

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<sup>20</sup> Emphasis added.

<sup>21</sup> See Attachment JRC – 16 (DEO-MGP 001262); See also Attachment JRC – 15 (DEO-MGP 002006) (Confidential Response).

<sup>22</sup> See Attachment JRC – 11 (DEO-MGP 023230) (Confidential Response).

<sup>23</sup> VAP Rule 3745-300-08 (Generic Numerical Standards).

1 solids at ambient temperature). As such, single compound saturation does not  
2 apply to the MGP Sites. The VAP Rules also apply “soil saturation” to petroleum  
3 releases,<sup>24</sup> [REDACTED]

4 [REDACTED]  
5 [REDACTED]  
6 [REDACTED]  
7 [REDACTED]  
8 [REDACTED]

9 [REDACTED] In addition, costs associated with [REDACTED]  
10 [REDACTED] would not be recoverable because it is not within the areas that the PUCO  
11 Staff determined to be used and useful for providing natural gas distribution  
12 service (see Part IV of this testimony for discussion of the Staff determination).

13  
14 ***Q20. WHAT IS YOUR OPINION REGARDING THE NECESSITY AND SCOPE***  
15 ***OF THE SOIL REMEDIATION EFFORTS EMPLOYED BY DUKE AT THE***  
16 ***MGP SITES?***

17 ***A20.*** The scope of Duke’s soil remediation efforts for the exposure pathways described  
18 above was excessive and imprudent and resulted in Duke spending considerably  
19 more than was necessary under the VAP Rules.

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<sup>24</sup> VAP Rule 3745-300-08 (Generic Numerical Standards).  
<sup>25</sup> See Attachment JRC – 16 (DEO-MGP 001248) (Confidential Response).  
<sup>26</sup> See Attachment JRC – 18 (DEO-MGP 044402-044449) (Confidential Response).

1 ***Q21. DID DUKE APPLY THE APPROPRIATE POINT OF COMPLIANCE FOR***  
2 ***GROUNDWATER REMEDIATION?***

3 ***A21.*** No. [REDACTED]  
4 [REDACTED]  
5 [REDACTED]  
6 [REDACTED] Duke consistently failed to use more cost-effective approaches  
7 available under the VAP Rules. Duke's inappropriate application of the [REDACTED]  
8 significantly increased the costs of remediation at the MGP Sites.  
9

10 ***Q22. WHAT DO OHIO EPA'S VAP RULES PROVIDE FOR REGARDING THE***  
11 ***POINT OF COMPLIANCE FOR GROUNDWATER REMEDIATION?***

12 ***A22.*** The VAP Rules provide for use of institutional controls, Urban Setting  
13 Designations ("USDs") and variances to affect how and where groundwater  
14 standards are applied. [REDACTED]  
15 [REDACTED]

16 [REDACTED] For critical zone groundwater where the  
17 contaminant source areas are on the property [REDACTED] the VAP Rules<sup>31</sup>  
18 require implementation of institutional controls (e.g., use restrictions) or

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<sup>27</sup> See Attachment JRC – 16 (DEO-MGP 001261), See also Attachment JRC – 15 (DEO-MGP 002005); See also Attachment JRC – 11 (DEO-MGP 014094) (Confidential Responses).

<sup>28</sup> See Attachment JRC – 15 (DEO-MGP 002006); See also Attachment JRC – 16 (DEO-MGP 001262); See also Attachment JRC – 11 (DEO-MGP 014095) (Confidential Responses).

<sup>29</sup> See Attachment JRC – 16 (DEO-MGP 001269); See also Attachment JRC – 15 (DEO-MGP 002011); See also Attachment JRC – 11 (DEO-MGP 014093) (Confidential Responses).

<sup>30</sup> VAP Rule 3745-300-10 (Ground Water Classification and Response Requirements).

<sup>31</sup> VAP Rule 3745-300-10 (Ground Water Classification and Response Requirements).

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1 engineering controls (e.g., fences, soil covers) to prevent on-site exposure to  
2 contaminated groundwater. The VAP Rules<sup>32</sup> then require that groundwater  
3 emanating from the property must not exceed UPUS, except where groundwater  
4 discharges to surface water, in which case applicable surface water standards  
5 apply. If UPUS or surface water standards are not exceeded at the property  
6 boundary, no additional groundwater remedy (i.e., in addition to institutional  
7 controls and engineering controls) is required. If an USD has been granted for the  
8 area around the property, then the same requirements apply except that the point  
9 of compliance is the USD area boundary (or a maximum of 0.5 miles from the  
10 property boundary). If UPUS are or will be exceeded at the property, surface  
11 water or USD area boundary, the VAP Rules<sup>33</sup> require that groundwater beyond  
12 the boundary be restored to UPUS or a reliable alternate water supply be provided  
13 to affected users. This means that the remedy needs to be sufficient to prevent  
14 exceedance of UPUS at the property or USD area boundaries (or an alternate  
15 water supply needs to be provided to any users in the affected area).

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<sup>32</sup> VAP Rule 3745-300-10 (Ground Water Classification and Response Requirements).

<sup>33</sup> VAP Rule 3745-300-10 (Ground Water Classification and Response Requirements).

**Q23. DOES THE GROUNDWATER EMANATING FROM THE MGP SITES  
CURRENTLY EXCEED APPLICABLE STANDARDS?**

**A23.**

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] However, given the  
proximity to the Ohio River, it is unlikely that groundwater flows across side  
gradient boundaries (eastern and western) to any great extent. [REDACTED]

[REDACTED]

<sup>34</sup> See Attachment JRC – 15 (DEO-MGP 002004); See also Attachment JRC – 16 (DEO-MGP 003641-4); See also Attachment JRC – 14 (DEO-MGP 002963-6); See Attachment JRC – 11 (DEO-MGP 014092); See also Attachment JRC – 17 (DEO-MGP 007387-92) (Confidential Responses).

<sup>35</sup> See Attachment JRC – 14 (DEO-MGP 002963-6); See Attachment JRC – 13 (DEO-MGP 003641-4); See also Attachment JRC – 17 (DEO-MGP 007387-92) (Confidential Responses).

<sup>36</sup> See Attachment JRC – 14 (DEO-MGP 002963-6); See Attachment JRC – 13 DEO-MGP 003641-4); (Confidential Responses).

<sup>37</sup> See Attachment JRC – 17 (DEO-MGP 007387-92) (Confidential Response).

1 [REDACTED] However, there are not enough monitoring wells installed  
2 at or beyond the property boundaries to rule out that UPUS could be exceeded at  
3 the eastern or western property boundaries. If there is, or could be, an exceedance  
4 at the eastern or western boundaries, a USD could be used to expand the point of  
5 compliance beyond the exceedance. However, Duke did not apply for an USD<sup>39</sup>  
6 and the remedy chosen by Duke (excessive soil excavation and solidification) for  
7 the MGP Sites far exceeded the applicable requirement, i.e., protection of  
8 groundwater at the property or USD area boundaries, and this was an imprudent  
9 decision which resulted in significantly higher remediation costs which Duke is  
10 trying to collect from customers.

11  
12 ***Q24. UNDER WHAT CONDITIONS DO OHIO EPA'S VAP RULES ACCEPT AN***  
13 ***URBAN SETTING DESIGNATION FOR GROUNDWATER COMPLIANCE?***

14 ***A24.*** VAP Guidance provides additional explanation of how and where the USD can be  
15 applied. These conditions apply to the MGP Sites.

16  
17 An urban setting designation involves a formal recognition by the  
18 Ohio EPA that ground water in qualifying urban areas is not  
19 currently used as a source of drinking water and is not expected to  
20 be needed to meet the demands for public water supplies in the  
21 foreseeable future. An approved urban setting designation

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<sup>38</sup> See Attachment JRC – 14 (DEO-MGP 002967-70); See also Attachment JRC – 13 (DEO-MGP 003645-8); See also Attachment JRC – 17 (DEO-MGP 007393) (Confidential Response).

<sup>39</sup> See Attachment JRC – 23 (Duke Interrogatory Response OCC-INT-11-439); See Attachment JRC – 24 (Duke Interrogatory Response OCC-INT-450).

1 provides exceptions to certain response requirements for Critical  
2 Resources or Class A ground water in the designated areas.

3  
4 A USD may be requested for properties when there is no current or  
5 future use of ground water by local residents for the purpose of  
6 drinking, showering, bathing, or cooking. There are areas within  
7 Ohio where, because of the urban nature of land use and the  
8 reliance on alternative community water systems to supply  
9 residents with safe drinking water, ground water is not used as a  
10 potable water supply. Thus, ground water that contains chemicals  
11 from prior industrial activities poses no potable use risk to the  
12 community because it is not used and will not likely be used by  
13 humans. In these locations, **an approved USD would lower the**  
14 **cost of cleanup** and thereby promote economic redevelopment  
15 while still protecting public health and safety. Voluntary actions  
16 within USD areas must protect ecological receptors and humans  
17 from any exposures including exposures to ground water not  
18 related to drinking, showering, bathing, or cooking.<sup>40</sup>

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<sup>40</sup> See Attachments JRC-19 and JRC-20, VAP Technical Guidance Compendium VA30010.09.006 (Urban Setting Designation Notification Letter: Purpose of USD and Standards) (emphasis added).



**Q25. DO THE VAP RULES ADDRESS “FREE PRODUCT” IN THE GROUND?**

**A25.** Yes. The VAP Rules<sup>41</sup> define free product (e.g., liquid, mobile tar) as “a separate liquid hydrocarbon phase that has a measurable thickness of greater than one one-hundredth of a foot.” Such measurements are collected in groundwater monitoring wells. However, the VAP Rules only specifically mention petroleum free product. Since tar is not mentioned in the VAP Rules, it may not be directly applicable.

**Q26. WAS FREE PRODUCT IDENTIFIED AT THE MGP SITES**

**A26.**

**Q27. DOES THE EXISTENCE OF FREE PRODUCT REQUIRE REMEDIATION?**

**A27.** Yes, but the remedial approach can be limited. The requirement under the VAP Rules applies only to the extent that groundwater beyond the property or USD area boundaries may be affected. As mentioned earlier in my testimony, groundwater quality may not exceed UPUS at the property boundaries and would not exceed UPUS at appropriate USD boundaries. As such, under the VAP Rules

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<sup>41</sup> VAP Rule 3745-300-01(Definitions).

<sup>42</sup> See Attachment JRC – 17 (DEO-MGP 007349-007499) (Confidential Response).

<sup>43</sup> See Attachment JRC – 14 (DEO-MGP 002997-002943) (Confidential Response).

<sup>44</sup> See Attachment JRC – 13 (DEO-MGP 003604-003704) (Confidential Response).

1 the presence of free product does not require the extensive and imprudent soil  
2 remediation conducted by Duke. However, as a practical matter remediation of  
3 tar wastes usually includes excavation of at least some mobile tar. [REDACTED]

4 [REDACTED]

5 [REDACTED]

6 [REDACTED]

7

8 ***Q28. DO OHIO EPA'S VAP RULES ALLOW FOR VARIANCES THAT LIMIT***  
9 ***THE SCOPE OF REMEDIATION FOR FREE PRODUCT?***

10 ***A28.*** Yes. Even if free product affected groundwater quality at the property or USD  
11 boundaries, Duke could have applied for a variance under the VAP Rules to limit  
12 the scope of the remediation. The VAP Rules<sup>45</sup> allow for a variance from  
13 established standards, such as groundwater UPUS, based on: 1) technical  
14 infeasibility or if the cost substantially exceeds the economic benefits; 2) if the  
15 proposed remediation method (e.g., institutional controls and engineering  
16 controls) of addressing the issue will ensure that public health and safety will be  
17 protected; and 3) and if the proposed remediation method is necessary to preserve,  
18 promote, protect or enhance employment opportunities or the reuse of the affected  
19 property.

---

<sup>45</sup> VAP Rule 3745-300-12 (Variances from Generic Numerical Standards or Property-Specific Risk Assessment Procedures).

1 The 2012 VAP Annual Certified Professional training program (run by Ohio  
2 EPA) indicates that USD and DNAPL variances can be granted<sup>46</sup> under the VAP.  
3 One of the training topics was entitled “Free Product Considerations Under  
4 Ohio’s VAP”. The training module provides a case study for a manufacturing  
5 facility that is applicable to the MGP Sites. This manufacturing site had  
6 measurable levels of free product in monitoring wells (up to several feet thick);  
7 however, the free product was viscous and was not mobile. The proposed  
8 remedial approach included development of a risk mitigation plan and an  
9 application for an USD (this approach is consistent with discussion in my  
10 testimony). Because this proposed approach was included in a VAP training  
11 program that was sponsored by Ohio EPA, this remedial approach is embraced by  
12 Ohio EPA, at least for appropriate site conditions. This example also supports  
13 remedial efforts to address only the mobile tar in the subsurface and further  
14 demonstrates the imprudence of Duke’s remediation decisions which result in  
15 significantly higher costs which Duke is trying to collect from customers.

16  
17 ***Q29. WHAT ARE OHIO EPA’S VAP REQUIREMENTS FOR GROUNDWATER***  
18 ***PROTECTION AND REMEDIATION AT THE MGP SITES?***

19 ***A29.*** The preceding testimony shows that the points of compliance for groundwater are  
20 the property or USD area boundaries. Remediation is only required to the extent  
21 needed to meet applicable UPUS at the boundaries. Groundwater standards may  
22 not be exceeded at the property boundaries, and would not be exceeded at

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<sup>46</sup> (<http://epa.ohio.gov/derr/contact/training.aspx>).

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1 appropriate USD boundaries. Therefore, at the MGP Sites remediation beyond  
2 engineering controls and institutional controls is not required to meet UPUS  
3 inside those boundaries. In addition, a variance suspending or modifying UPUS  
4 within the boundaries or beyond the boundaries could have been applied for.

5  
6 It appears that Duke conducted soil excavation below 20 feet bgs and in-situ  
7 solidification of shallow (0-20 feet bgs) and deeper (>20 feet bgs) soil to address  
8 groundwater,<sup>47</sup> although this is never explicitly stated. As explained above, such  
9 remediation is not required by the VAP Rules to address soil and groundwater at  
10 the MGP Sites; therefore, Duke far exceeded reasonable VAP requirements.

11 There is a cost to Duke for exceeding VAP requirements, and that cost is  
12 significant as discussed below in my testimony. An appropriate, cost-effective  
13 remedy for groundwater under the VAP Rules includes remediation of mobile tar  
14 and application of use restrictions through institutional controls and engineering  
15 controls along with periodic groundwater monitoring.

16  

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<sup>47</sup> See Attachment JRC – 21 (Duke Response to OCC Interrogatory No. 418) and See Attachment JRC –22 (Duke response to OCC Interrogatory No. 432).

**IV. REVIEW OF RECOMMENDED RECOVERABLE INVESTIGATION AND  
REMEDATION EXPENSES**

***Q30. DID THE STAFF REPORT PROVIDE A RECOMMENDATION FOR  
RECOVERABLE INVESTIGATION AND REMEDIATION EXPENSES?***

***A30.*** Yes. The Staff Report limited the recoverable costs to those associated with investigation and remediation of portions of the MGP Sites “that are used and useful for providing natural gas distribution service.”<sup>48</sup> The Staff Report also provided a specific evaluation of recoverable costs.<sup>49</sup>

***Q31. HAVE YOU REVIEWED THE PUCO STAFF’S SPECIFIC EVALUATION?***

***A31.*** Yes.

***Q32. WHAT HAVE YOU DETERMINED?***

***A32.*** As noted in the Staff Report, “[t]he Staff did not investigate or make any finding or recommendations regarding necessity or scope of the remediation work that Duke performed.”<sup>50</sup> But, for costs that are recommended for recovery from customers, such an investigation (regarding the scope of remediation and whether remediation was necessary) is an essential part of determining whether Duke’s expenditures are reasonable and prudent, and whether the expenditures may be

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<sup>48</sup> Staff Report at 41-45 (January 4, 2013).

<sup>49</sup> Staff Report at 45-52 (January 4, 2013).

<sup>50</sup> Staff Report at 40 (January 4, 2013).

1 charged to customers. Thus, a recommendation for recoverable costs should  
2 include an analysis of remediation work performed by Duke compared to an  
3 interpretation of the VAP Rules regarding necessity and scope of remediation, as  
4 provided earlier in my testimony.

5  
6 ***Q33. DID THE STAFF RECOMMEND RECOVERY OF ANY COSTS FOR THE***  
7 ***WEST END MGP SITE?***

8 ***A33.*** No. The Staff Report “eliminated all expenses incurred at the West End site.”<sup>51</sup>

9  
10 ***Q34. DID THE STAFF RECOMMEND RECOVERY OF ANY COSTS FOR THE***  
11 ***EAST END MGP SITE?***

12 ***A34.*** Yes. The Staff Report recommended limited recovery of remediation costs for  
13 specific areas (adjacent to natural gas pipelines, a vaporizer building and sensitive  
14 infrastructure) of the East End MGP Site.<sup>52</sup>

15  
16 ***Q35. WHAT IS YOUR RECOMMENDATION FOR AN APPROPRIATE REMEDY***  
17 ***FOR THE EAST END MGP SITE?***

18 ***A35.*** Although the PUCO Staff did significantly reduce the level of recoverable costs  
19 from Duke’s request in its Application, as previously mentioned, the amount of  
20 money for this limited recovery should be adjusted downward based on an  
21 interpretation of the VAP Rules regarding necessity and scope of remediation.

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<sup>51</sup> Staff Report at 45 (January 4, 2013).

<sup>52</sup> Staff Report at 45-52 (January 4, 2013).

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As discussed earlier in my testimony, an appropriate remedy for the portions of the East End MGP Site “that are used and useful for providing natural gas distribution service” as determined by Staff should be limited to including:

- 1) Engineering controls in the form of maintaining the existing perimeter fence to limit and control access to the Site and construction of a two foot soil cover for protection of workers from direct contact with contaminated soils.
- 2) Institutional controls should be applied in the form of an Environmental Covenant restricting future use of the property to commercial/industrial uses, prohibiting use of groundwater, and requiring risk mitigation measures in the form of a Soil Management Plan.
- 3) [REDACTED]
- 4) Groundwater monitoring is not required for the limited portions of the Site “that are used and useful for providing natural gas distribution service” as determined by Staff.

1 The Soil Management Plan would provide procedures for any required future  
2 excavation in the area of the natural gas pipelines, vaporizer building and  
3 sensitive infrastructure. If and when soil in the vicinity of the natural gas  
4 pipelines or vaporizer building needed to be excavated (e.g., for repairs or  
5 expansion of the natural gas facilities), the work would be conducted in  
6 accordance with the procedures outlined by Duke in the Soil Management Plan.  
7 Such procedures would protect human health and the environment by specifying  
8 how the excavation should be completed, worker protection standards,  
9 requirements for management and disposal of contaminated soils, backfilling and  
10 replacement of the soil cover. Costs incurred in the future should be addressed  
11 based on future staff reviews for recovery of prudently incurred expenses in future  
12 rate proceedings, as recommended by the Staff.<sup>53</sup>

13  
14 ***Q36. WHAT IS YOUR RECOMMENDATION FOR RECOVERABLE***  
15 ***INVESTIGATION AND REMEDIATION EXPENSES?***

16 ***A36.*** The Staff Report discusses recoverable costs in relation to the three parcels at the  
17 East End MGP. To be consistent, I have followed the same breakdown.

18  
19 East and West Parcels -- The Staff Report identified a limited area around the  
20 natural gas pipelines and vaporizer building, totaling 53,532 square feet, that it  
21 recommended for recovery of remediation costs.<sup>54</sup> The appropriate remedy for

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<sup>53</sup> Staff Report at 47 (January 4, 2013).

<sup>54</sup> Staff Report at 46 (January 4, 2013).



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1       these areas does not involve excavation; therefore, based on my experience I  
2       maintain that many of the activities conducted by Duke were not necessary and  
3       should not be included in the recoverable amount. For example, activities such as  
4       security, air and vibration monitoring, excavation, excavation shoring, water  
5       management and disposal, off-site disposal of soil and solidification were not  
6       necessary. The limited areas available for recovery reduce the scope of  
7       investigation and design activities and hence the investigation and design costs.  
8       The small size of the affected area (1.2 acres) also means that the time required to  
9       complete the work would be much shorter, no more than 45 days. A two foot soil  
10      cover over 1.2 acres would require about 4,000 cubic yards of soil. This material  
11      could be placed within a few days, meaning the 45-day duration allowed for cost  
12      estimating purposes is very generous. The limited duration would minimize all  
13      time related costs such as Duke internal costs and construction management. As  
14      detailed on Attachment JRC-2, the estimated cost for investigation and  
15      remediation of the areas of East and West Parcels that are used and useful for  
16      providing natural gas distribution service is \$698,724.

17  
18      Central Parcel -- Duke has not yet completed investigation or conducted any  
19      remediation at this parcel. If there is any future investigation or remediation of  
20      this parcel, Duke should be limited to collecting only prudently incurred  
21      remediation costs from customers. Remediation costs incurred in the future

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1       should be addressed based on future staff reviews for recovery of prudently  
2       incurred expenses in future rate proceedings, as recommended by the Staff.<sup>55</sup>

3  
4       Other Infrastructure -- There is sensitive infrastructure located at the East End  
5       MGP Site that the PUCO Staff concluded is currently used and useful for  
6       providing natural gas distribution service to customers.<sup>56</sup> Costs for investigation  
7       and remediation in areas associated with this infrastructure, consistent with the  
8       remedial approach described in my testimony, are included on Attachment JRC-2.  
9       Remediation work includes excavation of a portion of the Tar Pit located above  
10      the sensitive infrastructure (see Attachment JRC-3 for location). The estimated  
11      cost for investigation and remediation of the area associated with sensitive  
12      infrastructure is \$465,420.

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<sup>55</sup> Staff Report at 47 (January 4, 2013).

<sup>56</sup> Staff Report at 43 (January 4, 2013).

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A comparison of my recommendations to the Company and Staff is shown in

Table 1 below:

**TABLE 1**  
**A SUMMARY OF INVESTIGATION AND REMEDIATION**  
**COSTS FOR THE USED AND USEFUL PORTIONS**  
**OF THE TWO MGP SITES**

MGP	Duke	Staff	OCC (JRC-2)
East End	N/A	\$5,757,023	\$998,640
East End Property Purchase	N/A	\$0	\$0
West End	N/A	\$0	\$0
Test Year Estimate East and West End	N/A	<u>\$0</u>	<u>\$0</u>
Subtotal	N/A	\$5,757,023	\$998,640
Carrying Charges	N/A	<u>\$610,701</u>	<u>\$165,504</u>
Total	N/A	\$6,367,724	\$1,164,144

**V. APPLICATION OF RECOMMENDED REMEDIAL APPROACH TO THE ENTIRETY OF BOTH MGP SITES**

***Q37. IF THE ENTIRETY OF THE EAST END MGP SITE WERE APPROVED BY THE COMMISSION FOR REMEDIATION, WHAT WOULD THE RECOMMENDED REMEDIATION BE?***

***A37.*** As discussed earlier in my testimony, a reasonable and appropriate remedy for the East and West Parcels of the East End MGP Site should include engineering controls in the form of maintaining the existing perimeter fence to limit and control access to the Site and construction of a two foot soil cover for protection of workers from direct contact with contaminated soils (see Attachment JRC-4 for location of soil cover). Institutional controls should be applied in the form of an Environmental Covenant restricting future use of the property to commercial/industrial uses, prohibiting use of groundwater, and requiring risk mitigation measures in the form of a Soil Management Plan. Limited soil excavation should be completed in the former Tar Pit (see Attachment JRC-4 for location) to remove soil containing mobile tar. Based on a review of the soil boring logs, excavation should be limited to the top of the clay layer at a depth of 20 feet. Any excavated soil that is only tar stained (i.e., does not contain mobile tar) should be placed back into the excavation. Groundwater monitoring should be performed in the future.

1 The Soil Management Plan would provide procedures for future excavation on the  
2 East and West Parcels. If and when contaminated soil needed to be excavated for  
3 repairs or expansion of the natural gas facilities, the work would be conducted in  
4 accordance with the procedures outlined in the Soil Management Plan. Such  
5 procedures would protect human health and the environment by specifying how  
6 the excavation should be completed, worker protection standards, requirements  
7 for management and disposal of contaminated soils, backfilling and replacement  
8 of the soil cover. Costs incurred in the future could be addressed based on future  
9 staff reviews for recovery of prudently incurred expenses in future rate  
10 proceedings, as recommended by the Staff.<sup>57</sup>

11  
12 Due to the practical excavation approach, this remedy would not require  
13 expensive shoring and tie-back walls or vibration monitoring.

14  
15 ***Q38. IF THE ENTIRETY OF THE EAST END MGP SITE WERE APPROVED BY***  
16 ***THE COMMISSION FOR REMEDIATION, WHAT WOULD YOUR***  
17 ***RECOMMENDATION FOR RECOVERABLE INVESTIGATION AND***  
18 ***REMEDiation EXPENSES BE?***

19 ***A38.*** As presented in Attachment JRC-5, the recommended recoverable cost for the  
20 remedial approach outlined in the response to the previous question is \$4,372,574.  
21 That cost is based on the actual unit and lump sum prices incurred at the East End

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<sup>57</sup> Staff Report at 47 (January 4, 2013).

1 MGP as documented by Duke and its contractors. The specific assumptions used  
2 to develop the cost are listed in Attachment JRC-5.  
3

4 ***Q39. IF THE WEST END MGP SITE WERE APPROVED BY THE COMMISSION***  
5 ***FOR REMEDIATION, WHAT WOULD THE RECOMMENDED***  
6 ***REMEDiation BE?***

7 **A39.** As discussed earlier in my testimony, a reasonable and appropriate remedy for the  
8 West End MGP Site should include engineering controls in the form of  
9 maintaining the existing perimeter fence to limit and control access to the Site and  
10 maintenance of previously existing engineered cover for the parcel north of  
11 Mehring Way [REDACTED]

12 [REDACTED]  
13 [REDACTED] The paving previously provided an effective engineering control for  
14 this property and should not have been disturbed. If and when plans for the new  
15 Brent Spence Bridge show that excavation of contaminated soil on this parcel is  
16 necessary, such excavation should be conducted in accordance with the soil  
17 management plan (see below). For the parcel south of Mehring Way,  
18 construction of an upgraded cover to provide a full two foot soil cover for  
19 protection of workers from direct contact with contaminated soils should be  
20 completed in areas where needed [REDACTED]  
21 [REDACTED]

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<sup>58</sup> See Attachment JRC – 10 (DEO-MGP 009651) (Confidential Response).

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1 [REDACTED] Soil excavation for  
2 relocation of the electrical substation should be conducted in accordance with the  
3 soil management plan (see below) once the specific plans are developed.  
4 Institutional controls should be applied in the form of an Environmental Covenant  
5 restricting future use of the property to commercial/industrial uses, prohibiting  
6 use of groundwater, and requiring risk mitigation measures in the form of a Soil  
7 Management Plan. [REDACTED]  
8 [REDACTED]  
9 [REDACTED]  
10 [REDACTED]  
11 Groundwater monitoring should be conducted in the future.  
12  
13 The Soil Management Plan would provide procedures for future excavation at  
14 West End MGP Site. If and when contaminated soil needed to be excavated as  
15 described above, the work would be conducted in accordance with the procedures  
16 outlined in the Soil Management Plan. Such procedures would protect human  
17 health and the environment by specifying how the excavation should be  
18 completed, worker protection standards, requirements for management and  
19 disposal of contaminated soils, backfilling and replacement of the soil cover.  
20 Costs incurred in the future could be addressed based on future staff reviews for

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<sup>59</sup> See Attachment JRC – 10 (DEO-MGP 009651) (Confidential Response).

<sup>60</sup> See Attachment JRC-6 (DEO-MGP 040423) (Confidential Response).

1 recovery of prudently incurred expenses in future rate proceedings, as  
2 recommended by the Staff.<sup>61</sup>  
3

4 Due to the practical excavation approach, this remedy would not require shoring  
5 and tie-back walls or vibration monitoring.  
6

7 ***Q40. IF THE WEST END MGP SITE WERE CONSIDERED, WHAT WOULD***  
8 ***YOUR RECOMMENDATION FOR RECOVERABLE INVESTIGATION***  
9 ***AND REMEDIATION EXPENSES BE?***

10 ***A40.*** As presented in Attachment JRC-7, the recommended recoverable cost for the  
11 remedial approach outlined in Answer 39 is \$3,654,825. The cost is based on unit  
12 and lump sum prices incurred at the West End MGP as documented by Duke and  
13 its contractors. The specific assumptions used to develop the cost are listed in  
14 Attachment JRC-7.  
15

16 ***Q41. HOW DO THE RECOMMENDED COSTS COMPARE WITH THE COSTS***  
17 ***INCURRED BY DUKE?***

18 ***A41.*** A comparison of my recommendations to the Company is shown in Table 2  
19 below:  
20

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<sup>61</sup> Staff Report at 47 (January 4, 2013).



**TABLE 2**

**A SUMMARY OF INVESTIGATION AND REMEDIATION  
COSTS FOR THE TWO MGP SITES IN THEIR ENTIRETY**

MGP	Duke	OCC (JRC-5)	OCC (JRC-7)	OCC Total
East End	\$23,232,036	\$3,765,403	\$0	\$3,765,403
East End Property Purchase	\$2,336,460	\$0	\$0	\$0
West End	\$19,717,809	\$0	\$3,332,414	\$3,332,414
Test Year Estimate East and West	<u>\$15,000,000</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>
Subtotal	\$60,286,305	\$3,765,403	\$3,332,414	\$7,097,817
Carrying Charges	<u>\$5,047,112</u>	<u>\$607,171</u>	<u>\$322,411</u>	<u>\$929,582</u>
Total	\$65,333,417	\$4,372,574	\$3,654,825	\$8,027,399

**VI. CONCLUSIONS**

***Q42. WHAT IS YOUR RECOMMENDATION?***

***A42.*** For the portions of the property within the MGP Sites determined by the Staff to be used and useful, I recommend that the recoverable investigation and remediation costs be limited to \$1,164,144 (including the amount associated with sensitive infrastructure and carrying costs). This compares to Staff's recommendation for cost recovery for the two MGP-Sites of \$6,367,724.<sup>62</sup>

Alternatively, if the PUCO determines that the investigation and remediation activities implemented by Duke for the entire East and West End MGP Sites are to be reviewed for collection from customers, then I recommend that recoverable investigation and remediation costs should be limited to \$4,372,574 for the East End MGP and \$3,654,825 for the West End MGP (total amount for the East End

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<sup>62</sup> Duke did not have an estimate for the investigation and remediation costs of the portions of the MGP Sites Staff determined to be used and useful (See Table 1 above).

*PUBLIC VERSION*  
*Direct Testimony of James R. Campbell*  
*On Behalf of the Office of the Ohio Consumers' Counsel*  
*Case No. 12-1685-GA-AIR, et al.*

1           and West End MGP Sites of \$8,027,399). This compares to the Utility's total  
2           requested amount for investigation and remediation costs to be collected from  
3           customers of \$65.3 million.<sup>63</sup>

4

5    ***Q43. DOES THIS CONCLUDE YOUR TESTIMONY AT THIS TIME?***

6    ***A43.*** Yes. However, I reserve the right to incorporate new information that may  
7           subsequently become available through outstanding discovery or otherwise. I  
8           also reserve the right to supplement my testimony in the event that the PUCO  
9           changes any of the recommendation and conclusions in the Staff Report.

---

<sup>63</sup> Staff did not have an estimate for investigation and remediation costs of both MGP Sites (See Table 2 above).

## **CERTIFICATE OF SERVICE**

I hereby certify that a copy of the foregoing *Direct Testimony of James R. Campbell (Public Version)* was served on the persons listed below via electronic service this 25<sup>th</sup> day of February 2013.

/s/ Larry S. Sauer

Larry S. Sauer  
Assistant Consumers' Counsel

## **SERVICE LIST**

Samuel C. Randazzo  
Frank P. Darr  
Joseph E. Olikar  
Matthew R. Pritchard  
MCNEES WALLACE & NURICK LLC  
21 East State Street, 17TH Floor  
Columbus, Ohio 43215

Thomas McNamee  
Devin Parram  
Attorneys General  
Public Utilities Commission of Ohio  
180 East Broad Street 6<sup>th</sup> Floor  
Columbus, Ohio 43215

Douglas E. Hart  
441 Vine Street, Suite 4192  
Cincinnati, Ohio 45202

Thomas J. O'Brien  
Bricker & Eckler LLP  
100 South Third Street  
Columbus, Ohio 43215-4291

Kimberly W. Bojko  
Mallory M. Mohler  
Carpenter Lipps & Leland LLP

Amy B. Spiller  
Rocco O. D'Ascenzo  
Jeanne W. Kingery  
Elizabeth H. Watts  
Duke Energy Business Services, LLC  
139 East Fourth Street 1303 Main  
P.O. Box 961  
Cincinnati, Ohio 45201-0960

A. Brian McIntosh  
McIntosh & McIntosh  
1136 Saint Gregory Street, Suite 100  
Cincinnati, Ohio 45202

Colleen L. Mooney  
Ohio Partners for Affordable Energy  
231 West Lima Street  
Findlay, Ohio 45840

Mark S. Yurick  
Zachary D. Kravitz  
Taft Stettinius & Hollister LLP  
65 East State Street Suite 1000  
Columbus, Ohio 43215

Vincent Parisi  
Matthew White

280 North High Street  
Suite 1300  
Columbus, Ohio 43215

M. Howard Petricoff  
Stephen M. Howard  
Vorys, Sater, Seymour and Pease LLP  
52 East Gay Street  
PO Box 1008  
Columbus, Ohio 43216-1008

Andrew J. Sonderman  
Kegler, Brown, Hill & Ritter LPA  
Capitol Square, suite 1800  
65 East State Street  
Columbus, Ohio 43215

Interstate Gas Supply Inc.  
6100 Emerald Parkway  
Dublin, Ohio 43016

[Amy.spiller@duke-energy.com](mailto:Amy.spiller@duke-energy.com)  
[Elizabeth.watts@duke-energy.com](mailto:Elizabeth.watts@duke-energy.com)  
[Jeanne.kingery@duke-energy.com](mailto:Jeanne.kingery@duke-energy.com)  
[Rocco.dascenzo@duke-energy.com](mailto:Rocco.dascenzo@duke-energy.com)  
[sam@mwncmh.com](mailto:sam@mwncmh.com)  
[fdarr@mwncmh.com](mailto:fdarr@mwncmh.com)  
[joliker@mwncmh.com](mailto:joliker@mwncmh.com)  
[mpritchard@mwncmh.com](mailto:mpritchard@mwncmh.com)  
[Thomas.mcnamee@puc.state.oh.us](mailto:Thomas.mcnamee@puc.state.oh.us)  
[Devin.parram@puc.state.oh.us](mailto:Devin.parram@puc.state.oh.us)  
[brian@mcintoshlaw.com](mailto:brian@mcintoshlaw.com)  
[dhart@douglasshart.com](mailto:dhart@douglasshart.com)  
[cmooney2@columbus.rr.com](mailto:cmooney2@columbus.rr.com)  
[tobrien@bricker.com](mailto:tobrien@bricker.com)  
[myurick@taftlaw.com](mailto:myurick@taftlaw.com)  
[zkravitz@taftlaw.com](mailto:zkravitz@taftlaw.com)  
[bojko@carpenterlipps.com](mailto:bojko@carpenterlipps.com)  
[mohler@carpenterlipps.com](mailto:mohler@carpenterlipps.com)  
[vparisi@igsenergy.com](mailto:vparisi@igsenergy.com)  
[mswhite@igsenergy.com](mailto:mswhite@igsenergy.com)  
[mhpetricoff@vorys.com](mailto:mhpetricoff@vorys.com)  
[smhoward@vorys.com](mailto:smhoward@vorys.com)  
[asonderman@keglerbrown.com](mailto:asonderman@keglerbrown.com)

**Attachment JRC – 1**

**Resume of Dr. James R. Campbell**

**JAMES R. CAMPBELL, Ph.D., P.E.**

**EDUCATION**

Ph.D. Civil and Environmental Engineering, Carnegie-Mellon University  
M.S. Civil and Environmental Engineering, Carnegie-Mellon University  
B.E. Civil Engineering, Youngstown State University

**REGISTRATION**

Professional Engineer - Michigan, Pennsylvania

**EXPERIENCE**

Engineering Management, Inc. - 1992 - present

**Principal** - Owner of firm that specializes in management and negotiation services associated with construction and environmental liabilities as well as expert services for environmental and construction related dispute resolution. Management activities include coordination and oversight of investigation, design, construction, emergency response and operation and maintenance work. Negotiation services include development of management strategies and negotiation support for technology applications and remedy selection, construction claims and other disputes. Expert services include analysis, expert reports and testimony regarding industrial operations, environmental conditions, NCP consistency, allocation and construction claims.

Carnegie Mellon University - 2002 - 2010

**Adjunct Professor** – Team taught senior level engineering design course for the Department of Civil and Environmental Engineering. Prepared project assignments, presented lectures and worked with students in a studio setting regarding various design projects.

Beazer Environmental Services, Inc. - 1991 to 1992

**Director of Remedial Design** - Responsible for management of the remedial design phase for all internal and external projects. This included in-house development of conceptual designs as well as oversight of detailed design activities by subsidiary companies. The annual program budget for design activities was approximately \$5 million. Also provided management oversight for Beazer's technology joint venture company.

McLaren/Hart Environmental Engineering Corporation - 1990 to 1991

**Principal Engineer** - Responsible for client development and management of major projects with an emphasis on RCRA and CERCLA remedial actions. Client development activities included identification of sales leads, presentations, and preparation of proposals and qualification statements. Project activities included expert testimony, negotiation support, project direction, etc. Served as Trustee for a multi-million dollar PRP-led CERCLA remedial action.

Keystone Environmental Resources, Inc./Koppers Company, Inc. - 1984 to 1990

**Division Manager** - 1988 to 1990 - Managed Keystone's Environmental Science and Engineering Division that was comprised of approximately 55 professionals and technicians. The Division generated approximately \$5.5 million in annual net revenue through consulting services such as audits, site investigations, risk assessments, and feasibility studies. The Division's engineering services included treatability studies and conceptual designs for treatment of process wastewater, contaminated groundwater and soil. Development of proprietary treatment technologies was also handled within the Division. Accomplished goal of stabilizing the Division and returning it to profitability following the sale of Keystone.

**Assistant Manager, Corporate Environmental Programs** - 1988 - Responsible for managing Koppers' corporate environmental programs including RCRA, CERCLA, CWA, CAA, environmental auditing and training. Other responsibilities included acquisition/divestiture due diligence and management of environmental reserves.

**Manager, Previously Operated Properties** - 1986 to 1988 - Responsible for management of over 50 formerly owned/operated chemical plant sites and disposal sites having an annual program budget of approximately \$10 million. Environmental management responsibilities included oversight of investigatory and remedial activities, as well as negotiation of government orders and private party agreements. Other responsibilities included acquisition/divestiture due diligence, management of environmental reserves, negotiation of real estate transactions and coordination with counsel on environmental litigation and toxic tort actions.

**Project Manager** - 1984 to 1986 - Served as project manager for Superfund emergency response actions, RI/FS projects, and RCRA Part B permitting activities. Responsibilities included project budget and schedule considerations, negotiation of technical issues in government orders, work plans, and reports. Served as Koppers' representative in multi-PRP Superfund sites.

NUS Corporation - 1983 to 1984

**Project Engineer** - As a part of EPA Superfund contract work, responsibilities included process engineering, chemistry, and risk assessment portions of RI/FS projects. General duties included planning and scheduling of project activities as well as preparation of proposals and reports.

## **EXPERT ANALYSIS, REPORTS AND TESTIMONY**

- Cost Recover at Former Oil Recycling Site, Expert Analysis, United States of America v. AK Steel Corporation et al., United States District Court for the Western District of Pennsylvania, Civil Action No. 97-1863, 2010 and 2012.
- Cost Recover at Former Railcar Manufacturing and Repair Site, Expert Report and Deposition Testimony, Trinity Industries, Inc. v. Honeywell International, Inc., United States District Court for the Western District of Pennsylvania, Pittsburgh Division, Civil Action No. 2:08-cv-00211-DSC, 2009.
- Cost Recovery at Former Coke Plant and Tar Distillation Sites, Analysis of Coke Plant Operations, Declaration in Support of Motion to Intervene, United States of America v. ExxonMobil Corporation, U.S. District Court for the Northern District of West Virginia, Case No. 1:08-CV-124, 2009.
- Allocation Mediation at Former Manufactured Gas Plant/Tar Distillation Facility, Analysis of Tar Plant Operations, Expert Report, Mediation discussion support, 2009 (confidential).
- Cost Recovery at Landfill Site, Analysis of Remedial Options and Develop of Remedial Action Cost Estimate, Expert Report, Pennsauken Solid Waste Management Authority, et al. vs. James D. Morrissey, Inc., et al. in the Superior Court of New Jersey, Camden County: Law Division, Docket No. L-13345-91, 2008.
- Cost Recovery at Chemical Manufacturing Plant Site, Analysis of Necessity of Activities and Appropriateness of Response Cost, Expert Report and Deposition Testimony, Wacker Chemical Corporation vs. Bayer Cropscience, Inc., U.S. District Court for the Eastern District of Michigan, Southern Division, Case No. 2:05-CV-72207, 2006-2007.
- Allocation Arbitration at Former Coke Plant/Tar Distillation Facility, Analysis of Coke and Tar Plant Operations, Expert Report, Deposition and Arbitration Hearing Testimony, 2006-2007 (confidential).
- Cost Recovery at Industrial Park, Analysis of Plant Operations, Muniz et al. v. Rexnord et al. (Defendants) and Rexnord et al. (Third-Party Plaintiffs) v. Arrow et al. (Third-Party Defendants), in the United States District Court, Northern District of Illinois, Eastern Division, Civil Action No. 1:04-cv-02405, 2006.
- Cost Recovery at Former Coke Plant Site, Analysis of Plant Operations and Response Costs, Maxus Energy Corp., et al. v. Ace Lakefront Properties, Inc. et al., in the United States District Court, Northern District of Ohio, Civil Action No. 1:00CV972, 2005.



- Property Takings Claim, Trial Testimony, John R Sand and Gravel Company v. United States of America, United States Court of Federal Claims, Case No. 02-509L, 2004.
- Cost Recovery at Former Oil Refinery Site, Analysis of Facts and Events, USA v. Sprague Energy Corp., et al. v. ARCADIS Geraghty & Miller, Inc. et al., in the United States District Court, Eastern District of North Carolina, Southern Division, Civil Action No. 7:01CV-14-F(1), 2004.
- Cost Recovery at Former Manufactured Gas Plant/Tar Plant Site, Analysis of Plant Operations, Beazer East, Inc. v. KeySpan Energy Services, Inc. and KeySpan Corporation v. Beazer East, Inc. and Honeywell International, Inc. in the United States District Court, Eastern District of New York, Case No. 02-CV-3728, 2004.
- Cost Recovery at Former Manufacturing Site, Evaluation of Response Cost, Coordination of Experts, Expert Report and Mediation Presentation, Signature at Durant LLC v. General Motors Corporation, Case No. CO2-0938.SBA, United States District Court, Northern District of California, 2002.
- Cost Recovery at Former Manufactured Gas Plant Site, Analysis of Plant Operations, Expert Report and Deposition Testimony, New Jersey Natural Gas Company v. St. Paul Fire & Marine Insurance Company, et al., Docket No. OCN-L-859-95, Superior Court New Jersey, Law Division: Ocean County, 2002.
- Cost Recovery at Former Manufactured Gas Plant Site, Analysis of Plant Operations, Expert Report and Deposition Testimony, Niagara Mohawk Power Corporation v. Consolidated Rail Corporation et al., Case No. 98-CV-1039, United States District Court, Northern District of New York, 2001.
- Cost Recovery at Oil Recycling Facility, NCP Consistency and Cost Analysis, Expert Report and Deposition Testimony, Centerior Service Company and General Electric Company v. Acme Scrap Iron & Metal Corp et al., Case No. 1A:94-CV-1588 and consolidated cases, United States District Court, Northern District Of Ohio, Eastern Division, 2000.
- Cost Recovery at Oil Recycling Facility, NCP Consistency and Remedy Driver Analysis, Expert Report and Deposition Testimony, United States of America (Plaintiff) v. Alvin F. Laskin et al. (Defendant) v. General Motors, et al. (Defendants and Third-Party Plaintiffs) v. Abex Corporation et al. (Third-Party Defendants), Civil Action C84-2035Y, United States District Court, Northern District Of Ohio, Eastern Division, 2000.
- Allocation Mediation at Former Wood Treating and Manufactured Gas/Coke Plant Facility, Analysis of Wood Treating and Gas/Coke Plant Operations, Expert Report, Coordination of Experts and Presentation of Allocation Position to Participants and Mediator, 2000 (confidential).

- Cost Recovery at Manufacturing Facilities, Reports on Preliminary Analysis of Technical Position, 2000 (confidential).
- Cost Recovery at Gas Station, Expert Review of Facts, Kalkowski et al. v. Kellner Equipment Company, 1996.
- Cost Recovery at Glass Manufacturing Facility, NCP Consistency Expert Report, Cargill, Incorporated v. Libbey-Owens-Ford Co. and Kuhlman Corporation, Case Number 3:93CV7486, United States District Court, Northern District of Ohio, Western Division, 1995.
- Cost Recovery at Manufactured Gas Plant Site, NCP Consistency, Deposition Testimony, The Upjohn Company v. Consumers Power Company, Civil Action No. K88-227-CA 4, United States District Court, Western District of Michigan, Southern Division, 1990.

## PUBLICATIONS

### Peer Reviewed

Campbell, J. R. and R. G. Luthy, "Prediction of Aromatic Solute Partition Coefficients Using the UNIFAC Group Contribution Model," Environmental Science and Technology, 19, 980-985, 1985.

Campbell, J. R., R. G. Luthy, and M. J. T. Carrondo, "Measurement and Prediction of Distribution Coefficients for Wastewater Aromatic Solutes," Environmental Science and Technology, 17, 582-590, 1983.

Campbell, J. R., R. G. Luthy, and D. A. Dzombak, "Demineralization for Reuse of Coal Conversion Condensates," Industrial and Engineering Chemistry Process Design and Development, 22, 496-503, 1983.

Luthy, R. G., V. C. Stamoudis, J. R. Campbell, and W. Harrison, "Removal of Organic Contaminants from Coal Conversion Process Wastewaters," Journal Water Pollution Control Federation, 55, 196-207, 1983.

### Presented at Conferences

Carey, G. R., M. G. Mateyk, G. T. Turchan, E. A. McBean, J. R. Campbell and J. R. Murphy, "Application of an Innovative Visualization Method for Demonstrating Intrinsic Remediation at a Landfill Superfund Site," Presented at the 1996 Petroleum Hydrocarbons and Organic Chemicals in Groundwater Conference, Houston, TX, November 13-15, 1996.

Carey, G., M. Mateyk, E. McBean, G. Turchan, J. Campbell and F. Rovers, "Multiple Lines of Evidence for Evaluating Intrinsic Remediation at a Landfill Site," Presented at the Nineteenth International Madison Waste Conference, Madison, WI, September 25-26, 1996.

Campbell, J. R., B. D. Bloom, and M. D. Luetke, "Community Relations at Superfund Sites," Presented at the Eight Annual Ohio Environmental Law Seminar conducted by the Ohio State Bar Association, Toledo, OH, September 1992.

Campbell, J. R., J. K. Fu, and R. O'Toole, "Biodegradation of PCP Contaminated Soils Using In Situ Subsurface Bioreclamation," Presented at the Second National Conference on Biotreatment, Washington, D.C., November 1989.

Spencer, J. D., A. C. Middleton, J. R. Smith, J. R. Campbell, and J. D. Zeff, "Evaluation of Treatment Technologies for Contaminated Groundwater," Presented at the 1986 Annual Meeting of the Water Pollution Control Federation, Los Angeles, CA, October 1986.

Campbell, J. R. and R. G. Luthy, "Prediction of Aromatic Solute Partition Coefficients Using the UNIFAC Group Contribution Model," Presented at the 189th National Meeting of the American Chemical Society, Miami Beach, FL, May 1985.

Campbell, J. R., R. G. Luthy, and M. J. T. Carrondo, "Solvent Extraction Processing for Coal Conversion Wastewaters," Presented at the EPA Fuel Conversion Symposium, Denver, CO, October 1981.

Campbell, J. R. and R. G. Luthy, "Estimation of Distribution Coefficients for Wastewater Aromatic Solutes," Presented at the 182nd National Meeting of the American Chemical Society, New York, NY, August 1981.

Luthy, R. G., D. A. Dzombak, and J. R. Campbell, "Research on Wastewater Treatment and Reuse for Coal Gasification and Liquefaction," in Proceedings of the 2nd Wastewater Workshop, U.S. DOE, Wash. D.C., and Low-Rank Coal Workshop-Gasification Section, U.S. DOE, San Antonio, TX, June 1981.

Luthy, R. G. and J. R. Campbell, "Treatment of Phenolic Coal Gasification Effluents," Presented at the 2nd U.S. DOE Environmental Control Symposium, Reston, VA, March 1980.

#### Research Project Reports

Campbell, J. R., "Measurement and Prediction of Aromatic Solute Distribution Coefficients for Aqueous Systems," Ph.D. Dissertation, Department of Civil Engineering, Carnegie-Mellon University, 1983.

Luthy, R. G., V. C. Stamoudis, and J. R. Campbell, "Bench-Scale Treatability and Organics Removal Study Using GFETC's Run RA-52 Process Quench Water," Appendix in "Wastewater and Sludge Control-Technology Options for Synfuels Industries, Vol. 1: Slagging, Fixed-Bed Lignite Industries," Castaldi, F. J., W. Harrison, and D. L. Ford, Argonne National Laboratory/EES, Report for U.S. DOE, ANL/ES-115, Vol. 1, 1981.

Luthy, R. G., J. R. Campbell, L. J. McGlaughlin, and R. W. Walters, "Evaluation of Treatment Technologies for Water Reuse of Coal Gasification Wastewaters," Report to U.S. DOI, Wash., D.C., Office of Water Research and Technology, Report No. OWRT/RU-80/9, July 1980.

Campbell, J. R., "Treatment for Reuse of Coal Gasification Wastewater," M.S. Thesis, Department of Civil Engineering, Carnegie-Mellon University, 1980.

**Attachment JRC – 2**

**Estimate of Recoverable Costs "Used and Useful" Portions of the East & West  
Parcels of the East End MGP Site Including Sensitive Infrastructure Area  
(including carrying cost calculation)**

ATTACHMENT JRC-3

EAST END MGP TAR PIT LOCATION

CONFIDENTIAL

ATTACHMENT JRC-4

EAST END MGP SOIL COVER LOCATION

CONFIDENTIAL

**Attachment JRC – 5**

**Estimate of Recoverable Investigation and Remediation Costs Entirety  
of the East & West Parcels of the East End MGP Site  
(including carrying cost calculation)**



**ATTACHMENT JRC-6**

**WEST END MGP UTILITY TRENCH LOCATION**

**CONFIDENTIAL**

**Attachment JRC – 7**

**Estimate of Recoverable Investigation and Remediation Costs  
West End MGP Site  
(including carrying cost calculation)**

**Attachment JRC – 8**

**Relevant Pages from Haley & Aldrich Invoice dated December 17, 2011**

**Attachment JRC – 9**

**Relevant Pages from Burns & McDonnell Invoice dated December 3, 2012**

ATTACHMENT JRC-10

AECOM VAP PHASE I PROPERTY ASSESSMENT

(May 20, 2010)

DEO-MGP 009644, 009651 Redacted

CONFIDENTIAL

ATTACHMENT JRC-11

AECOM VAP PHASE II PROPERTY ASSESSMENT

(December 2010)

DEO-MGP 014071, 014092-14095, 023230 Redacted

CONFIDENTIAL

**ATTACHMENT JRC-12**

**HALEY & ALDRICH WEST PARCEL REMEDIATION CONSTRUCTION  
SUMMARY REPORT EAST END GAS WORKS**

**(November 2012)**

**DEO-MGP 011316, 011368- 011369 Redacted**

**CONFIDENTIAL**

**ATTACHMENT JRC-13**

**BURNS AND MCDONNELL QUARTERLY GROUNDWATER MONITORING  
SUMMARY EAST END GAS WORKS – WEST PARCEL**

**(December 11, 2009)**

**DEO-MGP 003604 - 003704 Redacted**

**CONFIDENTIAL**



**ATTACHMENT JRC-14**

**BURNS AND MCDONNELL QUARTERLY GROUNDWATER MONITORING  
SUMMARY EAST END GAS WORKS – EAST PARCEL**

**(December 11, 2009)**

**DEO-MGP 002943 - 002997 Redacted**

**CONFIDENTIAL**

**ATTACHMENT JRC-15**

**BURNS AND MCDONNELL PHASE II PROPERTY ASSESSMENT REPORT EAST  
END GAS WORKS EAST PARCEL**

**(September 2009)**

**DEO-MGP 001986, 002004 – 002006, 002011 Redacted**

**CONFIDENTIAL**

ATTACHMENT JRC-16

BURNS AND MCDONNELL PHASE II PROPERTY ASSESSMENT REPORT EAST  
END GAS WORKS WEST PARCEL

(September 2009)

DEO-MGP 001239, 001248, 001261, 001262, 001269 Redacted

CONFIDENTIAL

ATTACHMENT JRC-17

AECOM GROUNDWATER ASSESSMENT SUMMARY

(March 2011)

DEO-MGP 007349 - 007499 Redacted

CONFIDENTIAL

ATTACHMENT JRC-18

NEWFIELDS EAST END GAS WORKS HYDROCARBON CHARACTERIZATION OF  
NAPL AND SOIL FINAL REPORT

(July 31, 2008)

DEO-MGP 044402 - 044449 Redacted

CONFIDENTIAL

**ATTACHMENT JRC-19**  
**VAP TECHNICAL GUIDANCE COMPENDIUM**  
**(August, 2003)**

**TITLE:** Urban Setting Designation Notification Letter: Purpose of USD and Standards

**DATE  
EFFECTIVE:** August 2003

**HISTORY:** Update of VA30010.03.005 - Revision was necessary to reflect changes in the rule citations that became effective in March 2009.

**KEYWORDS:** Urban setting designation (USD), applicable standards, notification letter, ground water response requirement

**RULE/  
AUTHORITY:** OAC 3745-300-10(C)(2)(b)

**QUESTIONS:** What information should be included in the notification letter per OAC 3745-300-10(C)(2)(b) to 1) explain the purpose of the Urban Setting Designation (USD) and 2) explain what standards need to be met in the conduct of a voluntary action?

**BACKGROUND:** When a USD is requested, OAC 3745-300-10(C)(2)(b) specifies that the Certified Professional must notify the appropriate legislative authority or authorized representative of any host county, township, and municipality as well as any county, township and municipality whose boundaries are within ½ mile of the proposed USD area. The notice must be contemporaneous with the USD request to the Director and include pursuant to OAC 3745-300-10(C)(2)(b) at a minimum the following:

- An explanation of the Voluntary Action Program (VAP).
- The purpose of the USD.
- The USD threshold criteria and the fact that the Director must approve or disapprove the designation after consulting with the host city or township.
- A copy of the USD paragraph C of OAC 3745-300-10.
- Location and description of the property or properties for which the designation is being sought.
- The applicable standards for the ground water and source<sup>1</sup> or

source areas<sup>2</sup> of ground water contamination if approval is not received.

- The applicable standards for the ground water and source or source areas of ground water contamination if approval is received.
- A statement advising the legislative authority that the Director will consult with the authority regarding the designation, and encouraging the legislative authority to provide written comments or any information relevant to the Director's consideration.
- Notification that a decision may be made by the Director within 90 days of the consultation with the host city or township.

**ANSWERS:**

**What should the notice indicate regarding the purpose of an Urban Setting Designation?**

The following language can be used to explain the purpose of a USD:

An urban setting designation involves a formal recognition by the Ohio EPA that ground water in qualifying urban areas is not currently used as a source of drinking water and is not expected to be needed to meet the demands for public water supplies in the foreseeable future. An approved urban setting designation provides exceptions to certain response requirements for Critical Resources or Class A ground water in the designated areas.

A USD may be requested for properties when there is no current or future use of ground water by local residents for the purpose of drinking, showering, bathing, or cooking. There are areas within Ohio where, because of the urban nature of land use and the reliance on alternative community water systems to supply residents with safe drinking water, ground water is not used as a potable water supply. Thus, ground water that contains chemicals from prior industrial activities poses no potable use risk to the community because it is not used and will not likely be used by humans. In these locations, an approved USD would lower the cost of cleanup and thereby promote economic redevelopment while still protecting public health and safety. Voluntary actions within USD areas must protect ecological receptors and humans from any exposures including exposures to ground water not related to drinking, showering, bathing, or cooking.



**What should the notification letter indicate concerning applicable standards that apply to the ground water and source or source areas of ground water contamination if approval for USD is not received pursuant to OAC Rule 3745-300-10(C)(2)(b)(vi) and what standards apply if a USD is received as pursuant to 3745-300-10(C)(2)(b)(vii)?**

The notification letter should indicate that the following standards always need to be met when a NFA is issued, regardless of obtaining an USD Designation and should be conveyed in the notification letter.

1. Protecting Ground Water with Good Drinking Water Quality: Ground water zones that are of a suitable quality for drinking must retain this quality. A Volunteer will have to ensure that contaminants from sources on-property do not cause an exceedance of drinking water standards in any zones that meet the standard at the time the NFA is issued.
2. Keeping Property Safe: Conditions on the property have to be safe, both now and in the future. A Volunteer will have to ensure that people won't be drinking the ground water, either through a deed restriction prohibiting use, use of engineering controls like tap treatment, or actually remediating the ground water. The volunteer will also have to ensure that people will not come into contact with contaminated ground water inadvertently, such as, breathing vapors released from the subsurface into basements, contacting process water, or encountering contaminated ground water during excavations. Finally, the Volunteer will need to protect ecological receptors on the property from being exposed to contaminated ground water above acceptable risk levels.
3. Protecting off-property receptors: If the property has caused ground water contamination, a Volunteer may need to protect receptors off the property. One way to protect off-property receptors is to ensure that contaminated ground water that has left the property does not exceed drinking water standards when it reaches wells currently used for drinking, showering, bathing, or cooking. Alternatively, the Volunteer may implement other measures to ensure that off-property ground water users have a water supply that does not exceed drinking water standards. For example, if a current resident is or will be drinking contaminated water, the volunteer will have to provide tap treatment, an alternative supply, or remediate the ground water to ensure the well produces safe water. The volunteer will also have to ensure that people off the property will not come into contact with

contaminated ground water inadvertently, such as, breathing vapors released from the subsurface into basements, contacting process water, or encountering contaminated ground water during excavations. Finally, the Volunteer will need to protect important ecological receptors off the property from being exposed to ground water with contaminants above acceptable levels.

When contaminated ground water is or has been contributed to both on-property and off-property sources, there may not be an obligation to address off-property receptors. Protecting human and ecological receptors would need to be implemented when the individual or collective effect of on-property sources has caused, or is reasonably anticipated to cause, the applicable standards to be exceeded.

Other requirements and standards will be dictated by the classification of ground water and the location of the source of the contamination and whether an Urban Setting Designation is approved for the property. The discussion of what standards need to be met can be tailored for the property, or generalized.

Applicable standards if an Urban Setting Designation is not approved: The following language can be used to explain what standards need to be met if an USD is not approved. It should be modified to fit the property specific needs.

For Class A and Critical Resource ground water, if an Urban Setting Designation is not received, then the level of contaminants in ground water leaving the property must not exceed drinking water standards at the property boundary. Because of the high yielding nature of Critical Resource ground water, an additional requirement is that the Volunteer must protect future (as well as current) off-property users.

For a contaminant contributed by both on-property and off-property sources, a Volunteer would have to address the source of contamination in such a way that prevents those sources from leaching of chemicals of concern which results in exceedance of drinking water use standards at the property boundary.

Applicable standards if an Urban Setting Designation is approved: The following language can be used to explain what standards need to be met if an USD is approved. It should be modified to fit

the property specific needs.

For Class A ground water, a USD provides an exemption to meeting standards at the property boundary. For Critical Resource ground water, the concentrations of contaminants in ground water leaving the property must be such that drinking water standards will not be exceeded in the ground water at the USD boundary or ½ mile from the property boundary, which ever is greater, as a result of contamination from sources or source areas on the Property.

For chemicals of concern contributed by both on-property and off-property sources, the Volunteer may not need to address off-property human receptors. For Critical Resource ground water, instead of meeting drinking water standards in the ground water zone ½ mile from the property boundary, a Volunteer would have to address the source of contamination in a way that prevents those sources from leaching chemicals of concern at concentrations resulting in exceedance of unrestricted potable use standards ½ mile from the property boundary.

**OHIO EPA**  
**CONTACT:**

For any questions concerning this issue, please contact the VAP Central Office at (614) 644-2942 or DDAGW-VAP support staff at (614) 644-2752.

**ATTACHMENT JRC-20**  
**VAP TECHNICAL GUIDANCE COMPENDIUM**  
**(January, 2010)**

<b><u>TITLE:</u></b>	"Restricted" (Modified) Residential Properties <sup>1</sup> .
<b><u>DATE EFFECTIVE:</u></b>	January 2010
<b><u>HISTORY:</u></b>	New addition to the Technical Guidance Compendium
<b><u>KEYWORDS:</u></b>	Point of compliance, environmental covenant, residential land use, activity and use limitations, institutional control, engineering control, operation and maintenance, direct contact soil standards
<b><u>RULE/ AUTHORITY:</u></b>	Ohio Administrative Code (OAC) 3745-300-07, -08, -09
<b><u>QUESTION:</u></b>	What remedial activities may a volunteer implement to achieve VAP direct contact soil standards to support residential land uses for a shallower point of point of compliance (POC) less than 10 feet (the minimum depth for unrestricted land use)?
<b><u>BACKGROUND:</u></b>	Based on OAC 3745-300-07(I)(1) (effective 3/1/09), a property meets unrestricted land use when residential direct contact soil standards are achieved to a minimum depth of 10 feet below ground surface. However, in some cases it may not be economically or technically feasible for residential properties to be cleaned up to the 10-foot depth for unrestricted use. In such cases, the VAP will consider a modified residential POC shallower than 10 feet, if an appropriate POC can be justified and controls added to ensure it is maintained.
<b><u>ANSWER:</u></b>	To depart from the unrestricted residential use soil depth (10 feet) POC, a volunteer must establish and maintain a POC that supports future land use and takes into account potential exposure pathways and COCs. [OAC 3745-300-07(I)(1)(a)(i)]. Any modification of the unrestricted land use POC must be supported by property-specific information on end-use or redevelopment plans including subsurface structures and utilities. In other words, if a volunteer wishes to establish a residential direct contact POC less than 10 feet, the decision must be based on the property's anticipated end use. There must be a reasonable expectation that the modified POC is unlikely to be breached given the planned redevelopment, or the expected residential use. Only after this POC is established and it is shown that it can be properly supported should the volunteer go on to consider how this restriction is to be implemented and maintained.

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<sup>1</sup> This guidance applies only to the direct contact soil exposure pathway for residential receptors. All other pathways must be addressed in accordance with OAC 3745-300 (e.g., vapor intrusion to indoor air, construction/excavation pathways, and/or important ecological receptors).

Direct contact soil standards for residential receptors can be met in a number of ways. First, for any property not meeting a 10-foot POC, a use restriction must be placed in an environmental covenant<sup>2</sup> for the property. This restriction should reflect the property use assumptions upon which the POC was established, e.g., if we concluded 2' POC is reasonable because it is unlikely there will be any digging as we are building high rise apartments, the property must be restricted to high rise apartments.

Second, the volunteer must establish the appropriate remedy needed. This can be done through construction of a physical barrier that eliminates contact with soil above applicable standards such as hard surface engineering controls or a soil cover cap. An O&M plan is necessary to see that these controls are maintained. Alternatively, the activity prohibition can also be achieved through an EC that simply prohibits regrading and/or digging deeper than the POC.

Any modification of the unrestricted land use POC must be supported by property-specific information on end-use or redevelopment plans including subsurface structures and utilities. The VAP rules dictate separate verification criteria to demonstrate the remedy is complete and the long-term obligations required for maintenance of the selected remedy.

The discussion below focuses on the most typical scenario, restricted residential use properties, where the POC is not less than 2 feet, but not greater than 10 feet. Residential land use scenarios where the POC is shallower than two feet below ground surface or the POC is 10 feet or greater below ground surface is provided in Exhibit 1. Additionally, a residential land use scenario where the POC is 10 feet or greater below ground surface is considered an unrestricted land use. This remedy option and all long term obligations are also provided in Exhibit 1.

A separate determination that applicable standards are met is needed for other soil exposure pathways, such as construction / excavation activity or vapor intrusion, and for exposure to COCs in other environmental media at the property, such as surface water or ground water. Important ecological resources, if present at the property, need to be assessed in accordance with OAC 3745-300-08 and 09.

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<sup>2</sup> Use restrictions are termed institutional controls or "activity and use limitations" under Ohio's Voluntary Action Program (VAP). For sites seeking a covenant not to sue, activity and use limitations are established under an environmental covenant.

**“Restricted” Land Use Scenario (POC greater than two feet but less than 10 feet)***Examples:*

- Restricted residential uses - condominiums, apartments, and/or slab-on-grade residential developments with potential exposure pathways to soil.

*Point of compliance<sup>3</sup>:*

- No less than two- feet and no greater than 10 feet below ground surface. Soil from ground surface to two feet below ground surface must meet residential direct contact soil standards. A justification based on site-specific criteria is required to establish and maintain the property-specific POC. An elevation survey is required by VAP to document the POC pursuant to OAC 3745-300-07(J)(14) and OAC 3745-300-11(E)(1)(c)(iii).

*Typical scenario:*

- Residential uses with associated green space (e.g., lawns, parks, landscaped areas, recreational areas, backyards) with contaminated soil below the POC.
- Expectation that soil may be excavated within or below the applicable POC for activities such as landscaping or maintenance of infrastructure, like utilities. Once any excavation activity is completed, the soil barrier must be restored to maintain the POC in accordance with OAC 3745-300-07(I)(1)(a).

*Environmental covenant requirements:*

- Establishes activity and use limitations - restricting property to a prescribed land use. The environmental covenant declares that a central management entity is responsible for site construction and maintenance, fence installation and other activities that may result in disturbance of soil at the property.
- The volunteer or property owner must maintain compliance with the activity and use limitations prescribed in the environmental covenant.

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<sup>3</sup> Point of compliance in this scenario is the reasonably anticipated depth to which a resident might be expected to dig.

**Remedial options:**

OPTION 1	OPTION 2
<p>An O&amp;M plan, comprised of maintenance of an engineering control or other protective soil barrier<sup>4</sup> to eliminate direct contact with soil above residential standards is required.</p> <p>Environmental covenant that establishes activity and use limitations - restricting the property to a prescribed land use and prohibiting fee simple, single family homes or duplexes, or 'stand alone' dwellings that are not condominium property pursuant to Ohio law. The environmental covenant declares that a central management entity is responsible for site construction and maintenance, fencing and other activities that may result in disturbance of soil at the property.</p> <p>A risk mitigation plan may be included that would allow excavation below the point of compliance. Provisions in the risk mitigation plan must contain language which provides that the engineering control will be replaced following excavation activities.</p>	<p>An environmental covenant including activity and use limitations to maintain the POC and prevent exposure to contaminated soil below the POC.<sup>5</sup> This option eliminates reliance on engineering controls or other barrier to prevent exposure below the POC.</p> <p>Examples of what the environmental covenant should require include the following:</p> <ul style="list-style-type: none"> <li>• An excavation depth restriction, which prohibits excavation below the POC.</li> <li>• Excavation of soil within the applicable POC may occur for activities such as landscaping or maintenance of infrastructure, but once any excavation activity is completed, the soil barrier must be restored to maintain the POC in accordance with OAC 3745-300-07(l)(1)(a).</li> <li>• Prohibition against subsurface structures including basements and utilities below the POC.</li> </ul> <p><b>NOTE:</b> This remedy is not suitable for properties that may undergo re-grading below the point of compliance or rely on a risk mitigation plan to comply with the demonstration of applicable standards. <b>Non compliance with the environmental covenant will result in an automatic voidance of the covenant not to sue (CNS).</b></p>

<sup>4</sup> Soil used as a barrier to underlying contaminated soil can constitute an engineering control. VAP statute ORC 3746.04(B)(2)(a)(iii) refers to engineering controls that contain or control the release of hazardous substances... in order to comply with applicable standards. Soil left in place for use as a protective cap can be considered an engineering control by its use and reliance as a barrier to COCs in soil.

<sup>5</sup> The effectiveness of relying on activity and use limitations as the sole remedy for the property to maintain compliance with direct contact soil standards requires a site-specific evaluation of anticipated land uses.



***Long-term obligations:***

OPTION 1	OPTION 2
<p>1. Requires regular O&amp;M (and risk mitigation plan, if needed) reporting requirements to the Agency on efficacy of engineering control cap (and implementation of RMP, if present).</p> <p>2. Breach of the cover or exposure to contaminated soil below the POC without the use of a risk mitigation plan triggers non-compliance with applicable standards. The O&amp;M plan provides the 'opportunity-to-cure process', pursuant to Ohio Revised Code (ORC) 3746.12(B), for the volunteer or central management entity that is responsible for the O&amp;M activities to return the property to compliance.</p> <p>3. Maintain compliance with the activity and use limitations prescribed in the environmental covenant.</p>	<p>1. Maintain compliance with the activity and use limitations prescribed in the environmental covenant.</p> <p>2. No O&amp;M plan is required. However, without an O&amp;M plan, violation of an activity and use limitation in the environmental covenant triggers automatic voidance of the CNS pursuant to ORC 3746.05. There is no 'opportunity-to-cure process' under ORC 3746.05.</p>

**SUMMARY:**

Restrictions must be placed on residential properties that do not meet direct contact soil standards within the 10-foot POC specified by OAC 3745-300-07(I)(1) (eff. 3/1/09) or in prior rule versions. The remedy at these "restricted" residential properties is guided by a combination of the final POC and anticipated [or desired] land use and activities. Associated benefits and uncertainties are associated with each potential remedy as described in this guidance. It is up to the volunteer to determine which remedy best suits the needs of the final use of the property.

**OHIO EPA  
CONTACT:**

For any questions concerning this issue, please contact the VAP central office at (614) 644-2924.

## EXHIBIT 1

Scenario discussions herein correspond to the schematic in Exhibit 2 where soils do not meet direct contact residential soil standards within two feet of ground surface (Scenario A) or the POC is 10 feet or greater (unrestricted land use) below ground surface (Scenario C).

**Scenario A: Condominiums or apartments, with maintenance of an appropriate cap such as a hard cover barrier (i.e., pavement or concrete) and no exposed soil**

*Direct contact soil point of compliance:*

- Shallower than two feet below ground surface.

*Typical scenario:*

- Downtown urban areas where there are no associated green spaces (e.g., lawns, parks, recreational areas, landscaped areas, recreational areas, backyards) except for those supported by a protective pavement or concrete cap or barrier to underlying soil exceeding direct contact soil standards.
- There is no opportunity for residential receptors to come into contact with soil.

*Remedy:*

- O&M plan comprised of maintenance of a pavement cap, concrete cap, or building slab that eliminates contact with soil above applicable standards.<sup>6</sup>
- Environmental covenant that establishes activity and use limitations - restricts the property to a prescribed land use and prohibits fee simple, single family homes or duplexes, or 'stand alone' dwellings that are not condominium property pursuant to Ohio law. The environmental covenant declares that a central management entity (e.g., homeowner/condo association) is responsible for site construction and maintenance, fencing and other activities that may result in disturbance of soil at the property.

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<sup>6</sup> A protective cap would be some type of competent barrier such as a concrete or asphalt engineering control that prevents contact with underlying soil.

*Long term obligations and risks:*

- Regular O&M plan and risk mitigation plan (if present) reporting requirements<sup>7</sup> to the Agency.
- Compliance with activity and use limitations prescribed in the environmental covenant must be maintained.
- Breach of the cap or exposure to contaminated soil below the POC triggers non-compliance with applicable standards. The O&M plan provides the 'opportunity-to-cure process', pursuant to ORC 3746.12(B), for the volunteer or central management entity that is responsible for the O&M activities to return the property to compliance.
- Violation of an activity and use limitation (i.e., non-compliant land use) triggers the automatic voidance of the CNS pursuant to ORC 3746.05.

**Scenario C: Single or multi-family dwellings, and/ or unknown residential land use (unrestricted land use)***Direct contact soil point of compliance:*

- Applicable standards are met in soils from the surface to 10 feet or greater below ground surface.

*Typical scenario:*

- Fee simple single or multi-family homes, sub-divisions or unknown residential land use.
- Expectation of residential receptors excavating soil to any depth.
- Whenever unrestricted land use is desired by the volunteer.

*Remedy:*

- None required to comply with direct contact standards for soil.
- Note that if COCs in another environmental media at the property should exceed standards, a remedy may be needed to comply with those standards.

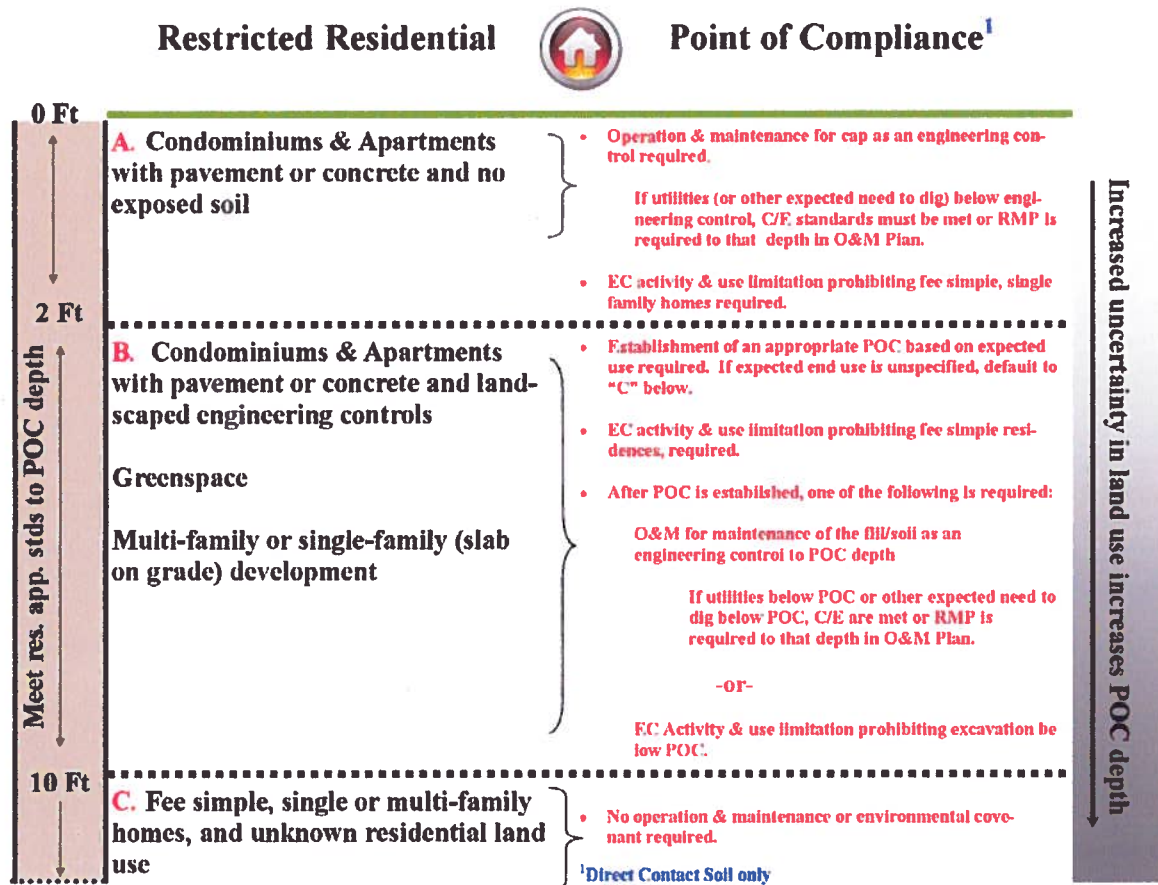
*Long term obligations/risks:*

- None, unrestricted land use allows for no long term obligations.

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<sup>7</sup> It is desirable to have one entity accept responsibility for maintenance of the O&M plan and/or the environmental covenant. This is because implementation of the O&M obligations or compliance with the environmental covenant by individual homeowners would be difficult to verify by the Agency, as well as cumbersome for individual property owners (e.g., annual reporting to the Agency).

Exhibit 2. Restricted Residential Point of Compliance Schematic



**ATTACHMENT JRC-21**

**Duke Response to OCC INT 10-418**

**Duke Energy Ohio**  
**Case No. 12-1685-GA-AIR**  
**OCC Tenth Set of Interrogatories**  
**Date Received: November 9, 2012**

**OCC-INT-10-418**

**REQUEST:**

What was the risk and/or regulatory basis for the decision to excavate and/or stabilize soil to a depth of 40 feet below ground surface? This depth is greater than typically employed for excavation or stabilization and is very costly. Was fate and transport and/or risk analysis done to justify this remediation depth?

**RESPONSE:**

Protection of groundwater is an important aspect of VAP standards. Free product is considered to exceed applicable potable use standards for groundwater. As free product and/or source material was present below the water table, remediation within the water table, at deeper depths, was deemed appropriate. Different methods of remediation within the water table were considered, based upon implementability, feasibility, and cost.

**PERSON RESPONSIBLE:**

Jessica Bednarcik

**ATTACHMENT JRC-22**

**Duke Response to OCC INT 10-432**

**OCC-INT-10-432**

**REQUEST:**

What was the risk and/or regulatory basis for the decision to excavate and/or stabilize soil to a depth of 20 feet below ground surface? This depth is greater than typically employed for excavation or stabilization and is very costly. Was fate and transport and/or risk analysis done to justify this remediation depth?

**RESPONSE:**

Protection of groundwater is an important aspect of VAP standards. Free product is considered to exceed applicable potable use standards for groundwater. As free product and/or source material was present below the water table, remediation within the water table, at deeper depths, was deemed appropriate. Different methods of remediation within the water table were considered, based upon implementability, feasibility, and cost.

At West End, another item driving the decision to perform work at deeper elevations was that fact that planned construction activities (i.e. the new substation) would make future work harder, and potentially more expensive to execute in the future.

**PERSON RESPONSIBLE:**

Jessica Bednarcik



**ATTACHMENT JRC-23**

**Duke Response to OCC INT 11-439**

**Duke Energy Ohio**  
**Case No. 12-1685-GA-AIR**  
**OCC Eleventh Set of Interrogatories**  
**Date Received: November 21, 2012**

**OCC-INT-11-439**

**REQUEST:**

Did Duke-Ohio or its consultants request an Urban Setting Designation for groundwater at the East End MGP site?

**RESPONSE:**

No.

**PERSON RESPONSIBLE:**  
Jessica Bednarcik

ATTACHMENT JRC-24

Duke Response to OCC INT 11-450

**Duke Energy Ohio**  
**Case No. 12-1685-GA-AIR**  
**OCC Eleventh Set of Interrogatories**  
**Date Received: November 21, 2012**

**OCC-INT-11-450**

**REQUEST:**

Did Duke-Ohio or its consultants request an Urban Setting Designation for groundwater at the West End MGP site?

**RESPONSE:**

No.

**PERSON RESPONSIBLE:**

Jessica Bednarcik

ATTACHMENT JRC-25

AECOM BASIS OF DESIGN MEMORANDUM

(June, 2010)

DEO-MGP 0039489, 039497 Redacted

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**This foregoing document was electronically filed with the Public Utilities**

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**Case No(s). 12-1685-GA-AIR, 12-1686-GA-ATA, 12-1687-GA-ALT, 12-1688-GA-AAM**

Summary: Testimony Direct Testimony of James R. Campbell (Public Version) on Behalf of the Office of the Ohio Consumers' Counsel electronically filed by Patti Mallarnee on behalf of Sauer, Larry S.