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**A report by the Staff of the  
Public Utilities Commission of Ohio**

In the Matter of the Investigation of the  
Dominion East Ohio Gas Company Relative  
to its Compliance with the Natural Gas Pipeline  
Safety Standards and Related Matters.

Case Number 12-380-GA-GPS

January 23, 2012

PUCO

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In the Matter of the Investigation of )  
the Dominion East Ohio Gas Company )  
Relative to its Compliance with )  
the Natural Gas Pipeline Safety )  
Standards and Related Matters. )

Case No. 12-380-GA-GPS

To the Honorable Commission:

Staff has conducted an investigation in the above matter and hereby submits its findings and recommendations in this Gas Pipeline Safety Staff Report.

The findings and recommendations reached in this Staff Report are presented for the Commission's consideration and do not purport to reflect the views of the Commission, nor should any party consider the Commission as bound in any manner by the findings and recommendations set forth herein.

Respectfully submitted,



Peter A. Chace  
Chief, Gas Pipeline Safety Section  
Service Monitoring and Enforcement Department

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### EXHIBITS

## **I. Background**

Dominion East Ohio Gas Company (DEO) provides natural gas service to more than 1.2 million customers through 19,669 miles of pipeline. DEO is a natural gas company subject to the jurisdiction of the Public Utilities Commission of Ohio (Commission) under Title 49 of the Ohio Revised Code (R.C.) and rules adopted by the Commission in the Ohio Administrative Code (O.A.C.).<sup>1</sup> This case was initiated after Gas Pipeline Safety Staff (Staff) investigated a pipeline safety incident<sup>2</sup> located in the Village of Fairport Harbor, Ohio that occurred on January 24, 2011. As a result of this investigation, Staff issued a Notice of Probable Noncompliance (Notice) to DEO.<sup>3</sup>

## **II. Staff Investigation**

Staff investigated a series of fires that occurred in the Village of Fairport Harbor, Ohio on January 24, 2011 beginning at approximately 6:37 a.m. Eleven homes were severely damaged, 150 homes required appliance repair or replacement resulting from what was identified as a major gas leak.<sup>4</sup> Thirteen local fire departments responded;<sup>5</sup> estimated property damage of the incident was nearly \$1,300,000.<sup>6</sup> DEO provided telephone notice of the incident to the chief of gas pipeline safety, at approximately 9:30 a.m. on January 24, 2011.

Natural gas is supplied to Fairport Harbor by DEO through three district regulator stations located on the Northeast (Third and East Station), East (Fairport Station), and Southwest (High Street Station) areas of the village. Investigation revealed that the Low Pressure (LP) regulator located at the High Street Station (hereinafter referred to as LS-5473) was designed to reduce inlet pressure of approximately 190 pounds per square inch gauge (psig) to a distribution pressure of 6.5 ounces. Two regulating devices, the LP control regulator and the LP monitor regu-

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<sup>1</sup> Chapter 4901:1-16 (Gas Pipeline Safety) and Title 49 of the Code of Federal Regulations (C.F.R.) Part 191 and 192 (the "Pipeline Safety Regulations") as enabled through R.C. 4905.91 and O.A.C. 4901:1-16-03.

<sup>2</sup> An "incident" under Part 191.3 means any of the following events: (1) An event that involves a release of gas from a pipeline or of liquefied natural gas or gas from an LNG facility and (i) A death, or personal injury necessitating in-patient hospitalization; or (ii) Estimated property damage, including cost of gas lost, of the operator or others, or both, of \$50,000 or more. ...

<sup>3</sup> Citing noncompliance with the Pipeline Safety Regulations, sections 192.13(c), 192.603(b), 192.619(a)(1), 192.739(a) and 192.739(a)(4).

<sup>4</sup> Munson Fire Department Report 11-0000062 (January 24, 2011) (see Appendix: Exhibit 1).

<sup>5</sup> Fire Departments included: Chardon, Concord, Perry, Euclid, Geneva, Grand River, Hampden, Kirtland, Madison, Munson, Wickliffe, Waite Hill, and Willowick.

<sup>6</sup> DEO Incident Report #20110034-15331 Part D at 3 (see Appendix: Exhibit 2).

lators (LP regulators), are located at station LS-5473.<sup>7</sup> At the time of the incident the set point of the LP control regulator was 6.5 ounces and the set point of the LP monitor regulator was 8.5 ounces. The LP regulators at LS-5473 failed at approximately 6:37 a.m. on January 24, 2011 due to the presence of pipeline fluids<sup>8</sup> in the regulators. This failure permitted the pressure in the LP system to increase beyond the set point of the regulators. A relief valve located at the Fairport Station was activated which limited the increase in system pressure to approximately 8.5 psig.

Fairport Harbor is an LP system in which all pressure regulation is performed by the three district regulator stations and none of the homes in Fairport Harbor have individual pressure regulators. Customer appliances are typically designed to operate at 6.5 ounces of line pressure so when exposed to a line pressure of approximately 8.5 psig, they were over-pressurized leading to appliance damage and multiple structural fires. By 7:15 a.m. DEO personnel closed the inlet valve to the High Street Station and by 8:05 a.m. verified that pressure returned to 6.5 ounces.<sup>9</sup>

The failed regulators were sent to independent laboratory Gas Technology Institute<sup>10</sup> for examination and investigation. The laboratory cleaned pipeline fluid out of both the LP regulator's control and monitor components and tested each for proper operation. Once cleaned, according to DEO's Incident Report *"(t)he regulating equipment was found to operate properly with the fluids removed. It is currently believed that the presence of pipeline fluids and a gas temperature drop across the regulators caused the regulators to malfunction."*<sup>11</sup>

Staff's investigation of the incident concluded that DEO was in violation of several sections of Pipeline Safety Regulation Part 192, as well as company standard operating procedures and design and construction practices regarding the design and operation of regulator station LS-5473.

### III. Discussion of Violations

Through its investigation, Staff determined that DEO violated a number of sections of Pipeline Safety Regulations Part 192. Staff issued a Notice of Probable Noncompliance (Notice) to DEO

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<sup>7</sup> The control regulator is the primary regulator. The monitor regulator has a higher set point and takes over if the control regulator fails.

<sup>8</sup> DEO Incident Report #20110034-15331 Part H at 10.

<sup>9</sup> *Id.* at 10.

<sup>10</sup> Gas Technology Institute Final Report "Investigation of Fairport Harbor, High Street Station Gas System Regulator Components" issued September 16, 2011 (see Appendix: Exhibit 3).

<sup>11</sup> DEO Incident Report #20110034-15331 Part H at 10.

on October 20, 2011. The Notice outlined Staff's findings that DEO failed to comply with Part 192 sections: 192.13(c), 192.619(a)(1), 192.739(a)(1), 192.739(a)(4), and 192.603(b).<sup>12</sup>

- A. Part 192.13(c): Each operator shall maintain, modify as appropriate, and follow the plans, procedures, and programs that it is required to establish under this part.

DEO through its Standard Operating Procedures (SOP) and Design and Construction Manual (DCM) had required plans, procedures, and programs, but failed to follow them in the design and operation of LS-5473.

- B. Part 192.619(a)(1): No person may operate a segment of steel or plastic pipeline at a pressure that exceeds a maximum allowable operating pressure determined under paragraph (c) or (d) of this section, or the lowest of the following: (1) The design pressure of the weakest element in the segment, determined in accordance with subparts C and D of this part....

SOP Section: 190/Maximum Allowable Operating Pressure (MAOP) 01/Steel and Plastic Pipelines III. (A) Except as provided in Part III. C. of this procedure, the MAOP of a pipeline shall not exceed the lowest of the following: 1.) The design pressure of the weakest element in the segment....

DCM Section 6.1.1 Pressure Regulation: Each piping system, supplied from a source which is at a higher pressure of the system, or some other predetermined value established by other than strength considerations, shall be equipped with pressure-regulating devices or other positive means of preventing over pressure. These regulating devices shall have adequate capacity and be designed to meet the pressure load and other services limitations under which they will have to operate, and be designed to prevent accidental over pressuring.

The actual operating inlet pressure at this station at the time of the incident was 190 psig with a 260 psig MAOP. The LP regulators at LS-5473 were designed for a maximum inlet pressure of 150 psig. DEO did not properly operate or design the LP regulators at station LS-5473, in violation of SOP 190.01 III. (A), DCM Section 6.1.1 and Part 192.619(a)(1).

- C. Part 192.739(a)(4): Each pressure limiting station, relief device (except rupture discs), and pressure regulating station and its equipment must be subjected at intervals not exceeding 15 months, but at least once each calendar year, to inspections and tests to determine that it is- (4) Properly installed and protected from dirt, liquids, or other conditions that might prevent proper operation.

<sup>12</sup>

The Public Utilities Commission of Ohio Gas Pipeline Safety Section Notice of Probable Non-Compliance issued to Dominion East Ohio October 20, 2011 (see Appendix: Exhibit 4).

SOP Section 210/Measurement and Regulation 02 Pressure Limiting, Regulation and Compressor Stations- Inspections and Tests II (C)(4): Inspections and tests are necessary to ensure equipment is, (4) Properly installed and protected from dirt, liquids, or other conditions which may prevent proper operation.

DCM Section 6.8 Filters (Cleaners or Strainers) (A): Gas Filters are recommended at the following locations: (1) Stations feeding into a distribution system which are fed from a transmission or gathering system, (4) A separator or filter-separator is recommended at locations that experience "wet" gas....

DEO was aware that pipeline fluid was found in the LS-5473 intermediate pressure (IP) regulators during an inspection conducted on October 19, 2010. Once the DEO technicians made this discovery, they "changed (the) boot in the IP monitor regulator (and) removed oil from (the) IP side control lines" however the technicians "(d)id not tear down the LP side."<sup>13</sup> Staff believes that after DEO discovered oil or pipeline fluid in the IP regulators, they should also have disassembled the parallel LP regulators and checked for pipeline fluids. DEO instead conducted an inspection of the LP regulator that did not require disassembly. DEO did not perform the appropriate inspections and tests necessary to ensure the LP regulators at LS-5473 were properly installed and protected from dirt, liquids, or other conditions which may prevent proper operation in violation of SOP Section 210.02(C)(4) and Part 192.739(a)(4).

In addition, DEO did not design the LP regulators at LS-5473 with the proper filter system for inlet gas to prevent pipeline fluids from accumulating in the regulators. DEO knew that pipeline fluids were found in the parallel IP regulators but failed to install the proper filter system to protect the regulators at station LS-5473 in violation of DCM Section 6.8 (A)(1) & (4) and Part 192.739(a)(4).

- D. Part 192.739(a): Each pressure limiting station, relief device (except rupture disks), and pressure regulating station and its equipment must be subjected at intervals not exceeding 15 months, but at least once each calendar year to inspections and tests to determine that it is- (1) In good mechanical condition.

SOP Section 210/Measurement and Regulation 02 Pressure Limiting, Regulation and Compressor Stations II (B): Each calendar year at intervals not exceeding 15 months, inspections and tests shall be conducted of each: (1) Pressure-limiting station and its equipment and pressure regulating station and its equipment.

<sup>13</sup>

DEO Regulating Station Annual Inspection Report Station LS-5473 (October 19, 2010) (see Appendix: Exhibit 5).

LS-5473 was installed in 1999 and according to the Pipeline Safety Regulations and DEO's standard operating procedures, should have been inspected at intervals not exceeding 15 months, but at least once each calendar year. LS-5473 was first inspected on October 26, 2009, approximately 10 years after installation in violation SOP 210.02 II(B)(1) and Part 192.739(a).

- E. Part 192.603(b): Each operator shall keep records necessary to administer the procedures established under §192.605.<sup>14</sup>

SOP Section 210/ Measurement and Regulation 02 Pressure Limiting, Regulation and Compressor Stations-Inspections and Tests II(B): Each calendar year at intervals not exceeding 15 months, inspections and tests shall be conducted of each (1) Pressure-limiting station and its equipment and pressure regulating station and its equipment.

DEO established standard operating procedures to ensure that regulator stations were inspected in compliance with the Pipeline Safety Regulations. However DEO failed to keep records to verify that LS-5473 was inspected in compliance with those procedures and had no record that LS- 5473 was inspected from its installation in 1999 until October 2009. DEO failed to keep adequate records necessary to administer procedures for appropriate regulator inspection in violation of Part 192.603(b).

#### **IV. DEO Response**

On November 8, 2011, Steve Buck, on behalf of Dominion East Ohio Senior Vice President and General Manager Anne E. Bomar responded to the Notice.<sup>15</sup> The response did not provide any additional documentation or evidence to dispute Staff's conclusions about the cause of the Fairport Harbor incident.

In the response to the Notice of violation of Parts 192.619(a)(1), and 192.739(a)(4), as well as associated SOP and DCM requirements, that require each operator to maintain and follow plans, procedures and programs to ensure that pipelines are not operated in excess of maximum allowable operating pressure or the design pressure of the weakest element in the system, and are properly installed and protected from dirt, liquids, or other conditions that might prevent proper operation, DEO wrote:

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<sup>14</sup> Part 192.605 Procedural manual for operations, maintenance, and emergencies.

<sup>15</sup> Dominion East Ohio Probable Non-Compliance Response, Fairport Harbor Incident, October 20, 2011 (November 8, 2011) (see Appendix: Exhibit 6).



Dominion removed LS-5473 on January 25, 2011 and will not place the station back in service without modifications that meet Dominion's Design and Construction Manual. Dominion is currently reviewing the design of all pressure regulating devices in our system as previously agreed with PUCO. This will identify any additional pilot regulators not rated for current MAOP. The review is scheduled to be completed by December 2012, as directed by the PUCO.

DEO did not provide any additional information to establish that they had plans, procedures, and programs at the time of the incident to ensure that failed LP regulator station LS-5473 was properly designed and operated not in excess of maximum allowable operating pressure. Staff must conclude that this station was neither properly designed nor operated, in violation of Part 192.619(a)(1) and 192.739(a)(4).

In response to the Notice of violation of Part 192.13(c), as well as associated SOP and DCM requirements that each operator maintain and follow plans, procedures, and programs that it is required to establish under this part, DEO wrote:

Dominion has determined the preferred location for removal of fluids would be the production feeds into Dominion delivery systems. Dominion has enhanced the enforcement policy for fluid found at or beyond the production meters supplying gas to Dominion delivery systems. These actions will allow Dominion to shut off production sites in violation of equipment standards or gas quality standards from producers supplying gas to Dominion. Dominion will perform a design review upon discovery of fluids to determine the best possible remedial action to mitigate fluids found. The fluid found at LS-5473 in the IP run on October 19, 2010 was mitigated through cleaning the filters and removing fluid from the regulator supply lines. Dominion inspected all the filters on the LP run on October 19, 2010 and found no evidence of fluids.

DEO did not provide any additional information to establish that they had plans, procedures, and programs at the time of the incident that ensured the regulators at LS-5473 were protected from dirt or liquids that might prevent proper operation. Staff must conclude that DEO did not have appropriate plans, procedures, and programs in place to prevent fluids from compromising LS-5473 in violation of Part 192.13(c).

In response to the Notice of violation of Part 192.13(c), 192.603(b) and 192.739(a), as well as associated SOP and DCM requirements that each operator maintain and follow plans, procedures and programs to ensure that pressure regulating stations and their equipment are inspected at least once a year not to exceed intervals of 15 months, and keep records necessary to administer these procedures, DEO wrote:

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..

Dominion placed LS-5473 in our Compliance Tracking System immediately upon discovery that the station inspections were not being tracked by the system. Dominion also performed inspections of LS-5473 immediately upon discovery in October 2009 and again in October 2010, in compliance with code requirements, and has supplied documentation of the inspections to the PUCO.

DEO did not provide any additional information to counter the fact that LS-5473 had not been inspected from installation in 1999 to October 2009 or that they kept records to ensure that it was inspected at least once a year, not to exceed intervals of 15 months as required by law. Staff must conclude that DEO did not keep records to confirm implementing of plans, procedures, and programs to timely inspect this station in violation of Part 192.13(c), 192.603(b), and 192.739(a).

Finally, Staff notes that on October 12, 2011 DEO representatives met with Staff to review specific actions DEO had taken to prevent a recurrence of a low pressure system over-pressurization due to regulator failure. These actions consist of:

- 1) Completion of 452 accelerated inspections of low pressure regulator stations and the identification and re-design of eight regulator stations found to have a configuration similar to LS-5473;
- 2) Inclusion of 287 low pressure stations into a program to install remote pressure monitoring and alarm equipment and;
- 3) Strengthening their fluid management procedures and training related to the inspection of production stations for fluid and the enforcement of gas quality standards for local Ohio production.

## **V. Conclusions and Recommendations**

The Staff through its investigation concludes that DEO has not complied with 49 C.F.R. 192.13(c), 192.603(b), 192.619(a)(1), 192.739(a), and 192.739(a)(4). Staff also concludes that DEO's failure to follow their own plans and procedures for the design and operation of LS-5473 caused the Fairport Harbor incident. Design and operation failures allowed pipeline fluid into the station which caused the LP regulator at LS-5473 to fail, leading to the over-pressurization which caused the incident in Fairport Harbor.

Staff recognizes that DEO has taken actions intended to prevent recurrence of an incident similar to Fairport Harbor and believes these actions are reasonable. Staff has the following additional recommendations to prevent recurrence of a similar incident:

- 1) Staff recommends that DEO conduct a complete inventory of all regulator stations in its Ohio systems which provide gas to its distribution systems. This inventory should determine whether the regulator stations are properly designed and provide protection from pipeline fluids when there is a reasonable expectation that the station could be exposed to pipeline fluids. Improperly designed or protected regulator stations should be redesigned and replaced. DEO must submit a summary report describing the identified regulator stations and provide a proposed schedule for redesign and replacement by December 31, 2012.
- 2) Staff recommends that DEO modify its SOP to specifically require that an annual internal regulator inspection be performed when fluids are suspected in the upstream pipeline. An internal regulator inspection involves partially disassembling the regulator to inspect for fluids or contaminants on the diaphragm, orifice and seat. If the regulator is pilot<sup>16</sup> operated, all upstream control lines must be inspected. DEO should clearly define the conditions where fluids are “suspected”, to include situations where pipeline fluid has been discovered in other regulator stations being supplied from a common source. Staff further recommends that the Company provide a copy of the modified SOP to Staff within 60 days of the Finding and Order in this case.
- 3) Staff recommends that DEO develop a written fluid mitigation program designed to detect and remove fluids from its pipeline system. This program should address the monitoring of transfer points from production operations and the assessment of lines for the presence of pipeline fluids through monitoring of drips, internal inspection, or other methods based on sound engineering principles. Staff further recommends that the Company provide a copy of this written fluid mitigation plan for review by Staff within 60 days of the Finding and Order into this case.
- 4) Staff recommends that DEO compare the regulator stations identified in their Strategic Asset Management System (SAMS) database with the Regulator Station Inspection Database (RSID) utilized by DEO to track maintenance requirements for regulator stations. Any discrepancies between the two databases should be investigated and corrected. Staff further recommends that the Company report on this comparison within 60 days of the Finding and Order in this case.
- 5) Staff recommends that DEO devise and implement a written plan to provide additional overpressure protection for all low pressure distribution systems from any similar overpressure occurrence where production fluid may interfere with the workings of both the control and monitor regulators. Any proposed additional overpressure protection must be based on sound engineering principles and resistant to failure due to a buildup of production fluids. Staff further recom-

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<sup>16</sup>

A pilot is a small, sensitive, direct-operated regulator that is used to control the loading pressure on the main regulator diaphragm.

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mends that the Company provide to Staff a copy of this plan within 60 days of the Finding and Order in this case.

- 6) Finally, given the number and severity of the violations, Staff recommends that a forfeiture of \$500,000 be assessed pursuant to O.R.C. 4905.95(B)(1)(b) against DEO for failure to comply with Pipeline Safety Regulations requirements for the design and operation of regulator stations.

## **APPENDIX**

- |                  |   |
|------------------|---|
| <b>Exhibit 1</b> | <b>Munson Fire Department Report 11-0000062</b>   |
| <b>Exhibit 2</b> | <b>DEO Incident Report #20110034-15331</b>  |
| <b>Exhibit 3</b> | <b>Gas Technology Institute Final Report “Investigation of Fairport Harbor, High Street Station Gas System Regulator Components”</b>  |
| <b>Exhibit 4</b> | <b>Public Utilities Commission of Ohio Gas Pipeline Safety Section Notice of Probable Non-Compliance issued to Dominion East Ohio</b> |
| <b>Exhibit 5</b> | <b>DEO Regulating Station Annual Inspection Report Station LS-5473</b>  |
| <b>Exhibit 6</b> | <b>DEO Response to the Notice of Probable Non-Compliance</b>  |

**Exhibit 1**

**Munson Fire Department Report 11-  
0000062**

## EXHIBIT 1

|                                   |  |                                   |  |  |  |                                     |  |                    |  |
|-----------------------------------|--|-----------------------------------|--|--|--|-------------------------------------|--|--------------------|--|
| A                                 |  | MM DD YYYY                        |  | 11-0000052   |  | 0001                                |  | WRITES - 1         |  |
| 28122                             |  | 01 24 2011                        |  | 1  |  | 11-0000052                          |  | 0001               |  |
| FDID *                            |  | Incident Date *                   |  | Station  |  | Incident Number *                   |  | Exposure *         |  |
| B                                 |  | Location *                        |  | Richmond   |  | Fairport Harbor                     |  | East ST            |  |
| C                                 |  | Incident Type *                   |  | E1 Date & Times  |  | Midnight is 0000                    |  | E2 Shift & Alarms  |  |
| 1212                              |  | Law Leak (Natural gas or LPG)     |  | Check boxes if dates are the same as above   |  | Month Day Year                      |  | Local Option       |  |
| D                                 |  | Aid Given or Received *           |  | Arrival *  |  | 01 24 2011 08:15:00                 |  | B 01 09            |  |
| 1                                 |  | Manual aid received               |  | Arrival *  |  | 01 24 2011 08:36:00                 |  | E3 Special Studies |  |
| 2                                 |  | Automatic aid received            |  | Arrival *  |  | 01 24 2011 15:31:00                 |  | Local Option       |  |
| 3                                 |  | Manual aid given                  |  | Arrival *  |  | 01 24 2011 15:31:00                 |  | Special            |  |
| 4                                 |  | Automatic aid given               |  | Arrival *  |  | 01 24 2011 15:31:00                 |  | Study              |  |
| 5                                 |  | Other aid given                   |  | Arrival *  |  | 01 24 2011 15:31:00                 |  | Value              |  |
| F                                 |  | Actions Taken *                   |  | G1 Resources *   |  | G2 Estimated Dollar Losses & Values |  | G3 Special Studies |  |
| 173                               |  | Provide manpower                  |  | Check this box and enter the number of personnel or resources if an apparatus or personnel |  | Property \$                         |  | Losses \$          |  |
| 174                               |  | Provide apparatus                 |  | Apparatus Personnel  |  | Contents \$                         |  | Contents \$        |  |
| Additional Action Taken (2)       |  |                                   |  | Other 0001 0003  |  | Property \$                         |  | Contents \$        |  |
| Additional Action Taken (3)       |  |                                   |  | Other 0001 0003  |  | Property \$                         |  | Contents \$        |  |
| Completed Modules H1 * Casualties |  | H2 * Deaths Injuries              |  | H3 Hazardous Materials Release   |  | I Mixed Use Property                |  |                    |  |
| 1                                 |  | 1                                 |  | 1  |  | 1                                   |  |                    |  |
| 2                                 |  | 2                                 |  | 2  |  | 2                                   |  |                    |  |
| 3                                 |  | 3                                 |  | 3  |  | 3                                   |  |                    |  |
| 4                                 |  | 4                                 |  | 4  |  | 4                                   |  |                    |  |
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| 7                                 |  | 7                                 |  | 7  |  | 7                                   |  |                    |  |
| 8                                 |  | 8                                 |  | 8  |  | 8                                   |  |                    |  |
| 9                                 |  | 9                                 |  | 9  |  | 9                                   |  |                    |  |
| 10                                |  | 10                                |  | 10   |  | 10                                  |  |                    |  |
| 11                                |  | 11                                |  | 11   |  | 11                                  |  |                    |  |
| J                                 |  | Property Uses                     |  | K  |  | L                                   |  |                    |  |
| 131                               |  | Church, place of worship          |  | 341  |  | Catholic/clinic type auxiliary      |  | 538                |  |
| 161                               |  | Restaurant or cafeteria           |  | 342  |  | Catholic/clinic type auxiliary      |  | 539                |  |
| 162                               |  | Bar/restaurant or nightclub       |  | 343  |  | Catholic/clinic type auxiliary      |  | 540                |  |
| 213                               |  | Elementary school or kindergarten |  | 344  |  | Catholic/clinic type auxiliary      |  | 541                |  |
| 215                               |  | High school or junior high        |  | 345  |  | Catholic/clinic type auxiliary      |  | 542                |  |
| 241                               |  | College, adult education          |  | 346  |  | Catholic/clinic type auxiliary      |  | 543                |  |
| 311                               |  | Care facility for the aged        |  | 347  |  | Catholic/clinic type auxiliary      |  | 544                |  |
| 331                               |  | Hospital                          |  | 348  |  | Catholic/clinic type auxiliary      |  | 545                |  |
| 124                               |  | Playground or park                |  | 349  |  | Catholic/clinic type auxiliary      |  | 546                |  |
| 655                               |  | Crops or orchard                  |  | 350  |  | Catholic/clinic type auxiliary      |  | 547                |  |
| 656                               |  | Forest (timberland)               |  | 351  |  | Catholic/clinic type auxiliary      |  | 548                |  |
| 7                                 |  | Outdoor storage area              |  | 352  |  | Catholic/clinic type auxiliary      |  | 549                |  |
| -9                                |  | Dump or sanitary landfill         |  | 353  |  | Catholic/clinic type auxiliary      |  | 550                |  |
| 931                               |  | Open land or field                |  | 354  |  | Catholic/clinic type auxiliary      |  | 551                |  |
|                                   |  |                                   |  | 355  |  | Catholic/clinic type auxiliary      |  | 552                |  |
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|                                   |  |                                   |  | 376  |  | Catholic/clinic type auxiliary      |  | 573                |  |
|                                   |  |                                   |  | 377  |  | Catholic/clinic type auxiliary      |  | 574                |  |
|                                   |  |                                   |  | 378  |  | Catholic/clinic type auxiliary      |  | 575                |  |
|                                   |  |                                   |  | 379  |  | Catholic/clinic type auxiliary      |  | 576                |  |
|                                   |  |                                   |  | 380  |  | Catholic/clinic type auxiliary      |  | 577                |  |
|                                   |  |                                   |  | 381  |  | Catholic/clinic type auxiliary      |  | 578                |  |
|                                   |  |                                   |  | 382  |  | Catholic/clinic type auxiliary      |  | 579                |  |
|                                   |  |                                   |  | 383  |  | Catholic/clinic type auxiliary      |  | 580                |  |
|                                   |  |                                   |  | 384  |  | Catholic/clinic type auxiliary      |  | 581                |  |
|                                   |  |                                   |  | 385  |  | Catholic/clinic type auxiliary      |  | 582                |  |
|                                   |  |                                   |  | 386  |  | Catholic/clinic type auxiliary      |  | 583                |  |
|                                   |  |                                   |  | 387  |  | Catholic/clinic type auxiliary      |  | 584                |  |
|                                   |  |                                   |  | 388  |  | Catholic/clinic type auxiliary      |  | 585                |  |
|                                   |  |                                   |  | 389  |  | Catholic/clinic type auxiliary      |  | 586                |  |
|                                   |  |                                   |  | 390  |  | Catholic/clinic type auxiliary      |  | 587                |  |
|                                   |  |                                   |  | 391  |  | Catholic/clinic type auxiliary      |  | 588                |  |
|                                   |  |                                   |  | 392  |  | Catholic/clinic type auxiliary      |  | 589                |  |
|                                   |  |                                   |  | 393  |  | Catholic/clinic type auxiliary      |  | 590                |  |
|                                   |  |                                   |  | 394  |  | Catholic/clinic type auxiliary      |  | 591                |  |
|                                   |  |                                   |  | 395  |  | Catholic/clinic type auxiliary      |  | 592                |  |
|                                   |  |                                   |  | 396  |  | Catholic/clinic type auxiliary      |  | 593                |  |
|                                   |  |                                   |  | 397  |  | Catholic/clinic type auxiliary      |  | 594                |  |
|                                   |  |                                   |  | 398  |  | Catholic/clinic type auxiliary      |  | 595                |  |
|                                   |  |                                   |  | 399  |  | Catholic/clinic type auxiliary      |  | 596                |  |
|                                   |  |                                   |  | 400  |  | Catholic/clinic type auxiliary      |  | 597                |  |
|                                   |  |                                   |  | 401  |  | Catholic/clinic type auxiliary      |  | 598                |  |
|                                   |  |                                   |  | 402  |  | Catholic/clinic type auxiliary      |  | 599                |  |
|                                   |  |                                   |  | 403  |  | Catholic/clinic type auxiliary      |  | 600                |  |
|                                   |  |                                   |  | 404  |  | Catholic/clinic type auxiliary      |  | 601                |  |
|                                   |  |                                   |  | 405  |  | Catholic/clinic type auxiliary      |  | 602                |  |
|                                   |  |                                   |  | 406  |  | Catholic/clinic type auxiliary      |  | 603                |  |
|                                   |  |                                   |  | 407  |  | Catholic/clinic type auxiliary      |  | 604                |  |
|                                   |  |                                   |  | 408  |  | Catholic/clinic type auxiliary      |  | 605                |  |
|                                   |  |                                   |  | 409  |  | Catholic/clinic type auxiliary      |  | 606                |  |
|                                   |  |                                   |  | 410  |  | Catholic/clinic type auxiliary      |  | 607                |  |
|                                   |  |                                   |  | 411  |  | Catholic/clinic type auxiliary      |  | 608                |  |
|                                   |  |                                   |  | 412  |  | Catholic/clinic type auxiliary      |  | 609                |  |
|                                   |  |                                   |  | 413  |  | Catholic/clinic type auxiliary      |  | 610                |  |
|                                   |  |                                   |  | 414  |  | Catholic/clinic type auxiliary      |  | 611                |  |
|                                   |  |                                   |  | 415  |  | Catholic/clinic type auxiliary      |  | 612                |  |
|                                   |  |                                   |  | 416  |  | Catholic/clinic type auxiliary      |  | 613                |  |
|                                   |  |                                   |  | 417  |  | Catholic/clinic type auxiliary      |  | 614                |  |
|                                   |  |                                   |  | 418  |  | Catholic/clinic type auxiliary      |  | 615                |  |
|                                   |  |                                   |  | 419  |  | Catholic/clinic type auxiliary      |  | 616                |  |
|                                   |  |                                   |  | 420  |  | Catholic/clinic type auxiliary      |  | 617                |  |
|                                   |  |                                   |  | 421  |  | Catholic/clinic type auxiliary      |  | 618                |  |
|                                   |  |                                   |  | 422  |  | Catholic/clinic type auxiliary      |  | 619                |  |
|                                   |  |                                   |  | 423  |  | Catholic/clinic type auxiliary      |  | 620                |  |
|                                   |  |                                   |  | 424  |  | Catholic/clinic type auxiliary      |  | 621                |  |
|                                   |  |                                   |  | 425  |  | Catholic/clinic type auxiliary      |  | 622                |  |
|                                   |  |                                   |  | 426  |  | Catholic/clinic type auxiliary      |  | 623                |  |
|                                   |  |                                   |  | 427  |  | Catholic/clinic type auxiliary      |  | 624                |  |
|                                   |  |                                   |  | 428  |  | Catholic/clinic type auxiliary      |  | 625                |  |
|                                   |  |                                   |  | 429  |  | Catholic/clinic type auxiliary      |  | 626                |  |
|                                   |  |                                   |  | 430  |  | Catholic/clinic type auxiliary      |  | 627                |  |
|                                   |  |                                   |  | 431  |  | Catholic/clinic type auxiliary      |  | 628                |  |
|                                   |  |                                   |  | 432  |  | Catholic/clinic type auxiliary      |  | 629                |  |
|                                   |  |                                   |  | 433  |  | Catholic/clinic type auxiliary      |  | 630                |  |
|                                   |  |                                   |  | 434  |  | Catholic/clinic type auxiliary      |  | 631                |  |
|                                   |  |                                   |  | 435  |  | Catholic/clinic type auxiliary      |  | 632                |  |
|                                   |  |                                   |  | 436  |  | Catholic/clinic type auxiliary      |  | 633                |  |
|                                   |  |                                   |  | 437  |  | Catholic/clinic type auxiliary      |  | 634                |  |
|                                   |  |                                   |  | 438  |  | Catholic/clinic type auxiliary      |  | 635                |  |
|                                   |  |                                   |  | 439  |  | Catholic/clinic type auxiliary      |  | 636                |  |
|                                   |  |                                   |  | 440  |  | Catholic/clinic type auxiliary      |  | 637                |  |
|                                   |  |                                   |  | 441  |  | Catholic/clinic type auxiliary      |  | 638                |  |
|                                   |  |                                   |  | 442  |  | Catholic/clinic type auxiliary      |  | 639                |  |
|                                   |  |                                   |  | 443  |  | Catholic/clinic type auxiliary      |  | 640                |  |
|                                   |  |                                   |  | 444  |  | Catholic/clinic type auxiliary      |  | 641                |  |
|                                   |  |                                   |  | 445  |  | Catholic/clinic type auxiliary      |  | 642                |  |
|                                   |  |                                   |  | 446  |  | Catholic/clinic type auxiliary      |  | 643                |  |
|                                   |  |                                   |  | 447  |  | Catholic/clinic type auxiliary      |  | 644                |  |
|                                   |  |                                   |  | 448  |  | Catholic/clinic type auxiliary      |  | 645                |  |
|                                   |  |                                   |  | 449  |  | Catholic/clinic type auxiliary      |  | 646                |  |
|                                   |  |                                   |  | 450  |  | Catholic/clinic type auxiliary      |  | 647                |  |
|                                   |  |                                   |  | 451  |  | Catholic/clinic type auxiliary      |  | 648                |  |
|                                   |  |                                   |  | 452  |  | Catholic/clinic type auxiliary      |  | 649                |  |
|                                   |  |                                   |  | 453  |  | Catholic/clinic type auxiliary      |  | 650                |  |
|                                   |  |                                   |  | 454  |  | Catholic/clinic type auxiliary      |  | 651                |  |
|                                   |  |                                   |  | 455  |  | Catholic/clinic type auxiliary      |  | 652                |  |
|                                   |  |                                   |  | 456  |  | Catholic/clinic type auxiliary      |  | 653                |  |
|                                   |  |                                   |  | 457  |  | Catholic/clinic type auxiliary      |  | 654                |  |
|                                   |  |                                   |  | 458  |  | Catholic/clinic type auxiliary      |  | 655                |  |
|                                   |  |                                   |  | 459  |  | Catholic/clinic type auxiliary      |  | 656                |  |
|                                   |  |                                   |  | 460  |  | Catholic/clinic type auxiliary      |  | 657                |  |
|                                   |  |                                   |  | 461  |  | Catholic/clinic type auxiliary      |  | 658                |  |
|                                   |  |                                   |  | 462  |  | Catholic/clinic type auxiliary      |  | 659                |  |
|                                   |  |                                   |  | 463  |  | Catholic/clinic type auxiliary      |  | 660                |  |
|                                   |  |                                   |  | 464  |  | Catholic/clinic type auxiliary      |  | 661                |  |
|                                   |  |                                   |  | 465  |  | Catholic/clinic type auxiliary      |  | 662                |  |
|                                   |  |                                   |  | 466  |  | Catholic/clinic type auxiliary      |  | 663                |  |
|                                   |  |                                   |  | 467  |  | Catholic/clinic type auxiliary      |  | 664                |  |
|                                   |  |                                   |  | 468  |  | Catholic/clinic type auxiliary      |  | 665                |  |
|                                   |  |                                   |  | 469  |  | Catholic/clinic type auxiliary      |  | 666                |  |
|                                   |  |                                   |  | 470  |  | Catholic/clinic type auxiliary      |  | 667                |  |
|                                   |  |                                   |  | 471  |  | Catholic/clinic type auxiliary      |  | 668                |  |
|                                   |  |                                   |  | 472  |  | Catholic/clinic type auxiliary      |  | 669                |  |
|                                   |  |                                   |  | 473  |  | Catholic/clinic type auxiliary      |  | 670                |  |
|                                   |  |                                   |  | 474  |  | Catholic/clinic type auxiliary      |  | 671                |  |
|                                   |  |                                   |  | 475  |  | Catholic/clinic type auxiliary      |  | 672                |  |
|                                   |  |                                   |  | 476  |  | Catholic/clinic type auxiliary      |  | 673                |  |
|                                   |  |                                   |  | 477  |  | Catholic/clinic type auxiliary      |  | 674                |  |
|                                   |  |                                   |  | 478  |  | Catholic/clinic type auxiliary      |  | 675                |  |
|                                   |  |                                   |  | 479  |  | Catholic/clinic type auxiliary      |  | 676                |  |
|                                   |  |                                   |  | 480  |  | Catholic/clinic type auxiliary      |  | 677                |  |
|                                   |  |                                   |  | 481  |  | Catholic/clinic type auxiliary      |  | 678                |  |
|                                   |  |                                   |  | 482  |  | Catholic/clinic type auxiliary      |  | 679                |  |
|                                   |  |                                   |  | 483  |  | Catholic/clinic type auxiliary      |  | 680                |  |
|                                   |  |                                   |  | 484  |  | Catholic/clinic type auxiliary      |  | 681                |  |
|                                   |  |                                   |  | 485  |  | Catholic/clinic type auxiliary      |  | 682                |  |
|                                   |  |                                   |  | 486  |  | Catholic/clinic type auxiliary      |  | 683                |  |
|                                   |  |                                   |  | 487  |  | Catholic/clinic type auxiliary      |  | 684                |  |
|                                   |  |                                   |  | 488  |  | Catholic/clinic type auxiliary      |  | 685                |  |
|                                   |  |                                   |  | 489  |  | Catholic/clinic type auxiliary      |  | 686                |  |
|                                   |  |                                   |  | 490  |  | Catholic/clinic type auxiliary      |  | 687                |  |
|                                   |  |                                   |  | 491  |  | Catholic/clinic type auxiliary      |  | 688                |  |
|                                   |  |                                   |  | 492  |  | Catholic/clinic type auxiliary      |  | 689                |  |
|                                   |  |                                   |  | 493  |  | Catholic/clinic type auxiliary      |  | 690                |  |
|                                   |  |                                   |  | 494  |  | Catholic/clinic type auxiliary      |  | 691                |  |
|                                   |  |                                   |  | 495  |  | Catholic/clinic type auxiliary      |  | 692                |  |
|                                   |  |                                   |  | 496  |  | Catholic/clinic type auxiliary      |  | 693                |  |
|                                   |  |                                   |  | 497  |  | Catholic/clinic type auxiliary      |  | 694                |  |
|                                   |  |                                   |  | 498  |  | Catholic/clinic type auxiliary      |  | 695                |  |
|                                   |  |                                   |  | 499  |  | Catholic/clinic type auxiliary      |  | 696                |  |
|                                   |  |                                   |  | 500  |  | Catholic/clinic type auxiliary      |  | 697                |  |
|                                   |  |                                   |  | 501  |  | Catholic/clinic type auxiliary      |  | 698                |  |
|                                   |  |                                   |  | 502  |  | Catholic/clinic type auxiliary      |  | 699                |  |
|                                   |  |                                   |  | 503  |  | Catholic/clinic type auxiliary      |  | 700                |  |
|                                   |  |                                   |  | 504  |  | Catholic/clinic type auxiliary      |  | 701                |  |
|                                   |  |                                   |  |  |  |                                     |  |                    |  |

|       |    |    |    |      |   |           |     |           |
|-------|----|----|----|------|---|-----------|-----|-----------|
| 28121 | OH | MM | DD | YYYY | 1 | 11-000062 | 000 | Complete  |
| 28121 | OH | 1  | 24 | 2011 | 1 | 11-000062 | 000 | Narrative |

**Narrative:**

On 01/24/2011 at 08:15:00 dispatched To Richmond St & East St /Fairport Harbor, OH 44077.  
 Location is a staging area. The incident was determined to be a gas leak (natural gas or LPG). Mfd responded to Fairport City for multiple fires from a major gas leak. A request from Fairport F.D. to have Geauga County Fire Departments response to the staging area at High St. and East St. in Fairport. 4044 with a crew of 3 and 4056 with a crew of 2 responded. Upon arrival 4044 staged with other aerial apparatus, 4056 reported to staging with other squads. Squad crew was used to transport (Euclid and Madison personnel) from the fire scene to rehab area. 4044 staged for the entire time it was there. 4044 was only to be used if an aerial was needed. 4044 was released at 1135hrs. 4056 crew remained on scene in the staging area. 4056 received 22 gallons of fuel. At 1531hrs squad was released from scene and return to station. No equipment was used on either 4044 or 4056.

08:36:00 arrived on scene.

The following actions were performed on scene:

- Provide manpower
- Provide apparatus

Units responding were:

- Unit 4044 responded.
- Unit 4056 responded.

fuel aid given:

report

15:31:00 all units back in service.


01/24/2011 18:33:47 Lynn



| A                       |  | 28121  |  | 10H             |  | 11/24/2011     |  | 11-0000062        |  | 000          |  | NRIS - 10        |  |
|-------------------------|--|--|--|-----------------|--|----------------|--|-------------------|--|--------------|--|------------------|--|
| FDID *                  |  | Date *   |  | Incident Date * |  | Station        |  | Incident Number * |  | Supplies *   |  | Change           |  |
| B Apparatus or Resource |  |  |  |                 |  |                |  |                   |  |              |  |                  |  |
| Resource                |  | Check if same as above   |  | Date and Times  |  | Month Day Year |  | Hour/Min          |  | Sent         |  | Number of People |  |
| ID 4044                 |  | Dispatch <input checked="" type="checkbox"/> Arrival <input checked="" type="checkbox"/> Clear <input checked="" type="checkbox"/> |  | 11/24/2011      |  | 08:16          |  | 08:38             |  | 11:35        |  | 3                |  |
| Type 13                 |  | Clear  |  | 11/24/2011      |  | 11:35          |  | 11:35             |  | 11:35        |  | 11:35            |  |
| C Personnel             |  |  |  |                 |  |                |  |                   |  |              |  |                  |  |
| ID                      |  | Name   |  | Rank or Grade   |  | Attend         |  | Action Taken      |  | Action Taken |  | Action Taken     |  |
| 105                     |  | Lynn, Mark   |  | AC              |  | X              |  | X                 |  | X            |  | X                |  |
| 219                     |  | Bennett, Michael   |  | FF/MEDIC        |  | X              |  | X                 |  | X            |  | X                |  |
| 309                     |  | Swanek, Michael  |  | FF/MEDIC        |  | X              |  | X                 |  | X            |  | X                |  |
| D Personnel             |  |  |  |                 |  |                |  |                   |  |              |  |                  |  |
| ID 4056                 |  | Dispatch <input checked="" type="checkbox"/> Arrival <input checked="" type="checkbox"/> Clear <input checked="" type="checkbox"/> |  | 11/24/2011      |  | 08:15          |  | 08:36             |  | 15:31        |  | 2                |  |
| Type 76                 |  | Clear  |  | 11/24/2011      |  | 15:31          |  | 15:31             |  | 15:31        |  | 15:31            |  |
| Personnel ID            |  | Name   |  | Rank or Grade   |  | Attend         |  | Action Taken      |  | Action Taken |  | Action Taken     |  |
| 318                     |  | Krebs, Richard   |  | PT/MED          |  | X              |  | X                 |  | X            |  | X                |  |
|                         |  | Feldman, William   |  | PT/MEDIC        |  | X              |  | X                 |  | X            |  | X                |  |
| E Personnel             |  |  |  |                 |  |                |  |                   |  |              |  |                  |  |
| ID 00                   |  | Dispatch <input checked="" type="checkbox"/> Arrival <input checked="" type="checkbox"/> Clear <input checked="" type="checkbox"/> |  | 11/24/2011      |  | 08:15          |  | 08:36             |  | 15:31        |  | 9                |  |
| Type 00                 |  | Clear  |  | 11/24/2011      |  | 15:31          |  | 15:31             |  | 15:31        |  | 15:31            |  |
| Personnel ID            |  | Name   |  | Rank or Grade   |  | Attend         |  | Action Taken      |  | Action Taken |  | Action Taken     |  |
| 100                     |  | Hatchar, Bernard   |  | FIRE            |  | X              |  | X                 |  | X            |  | X                |  |
| 182                     |  | Merros, Nicholas   |  | CHIEF           |  | X              |  | X                 |  | X            |  | X                |  |
| 212                     |  | Zivcic, Michael  |  | CAPTAIN         |  | X              |  | X                 |  | X            |  | X                |  |
| 227                     |  | Hartman, Matthew   |  | CAPTAIN         |  | X              |  | X                 |  | X            |  | X                |  |
| 272                     |  | Mancuso, Robert  |  | CAPTAIN         |  | X              |  | X                 |  | X            |  | X                |  |
| 279                     |  | Schantz, David   |  | FF/MEDIC        |  | X              |  | X                 |  | X            |  | X                |  |
| 281                     |  | Kovanssek, Nicholas  |  | FF/EMT          |  | X              |  | X                 |  | X            |  | X                |  |
| 307                     |  | Ford, Brian  |  | FF/MEDIC        |  | X              |  | X                 |  | X            |  | X                |  |
| 309                     |  | Buehner, Jeff  |  | PT/MED          |  | X              |  | X                 |  | X            |  | X                |  |

**Exhibit 2**

**DEO Incident Report #20110034-  
15331**

|  |   |  |        |
|--|---|--|--------|
| <b>NOTICE:</b> This report is required by 49 CFR Part 191. Failure to report can result in a civil penalty not to exceed 100,000 for each violation for each day that such violation persists except that the maximum civil penalty shall not exceed \$1,000,000 as provided in 49 USC 60122.  |   | OMB NO: 2137-0522<br>EXPIRATION DATE: 01/31/2013 |        |
|  U.S. Department of Transportation<br>Pipeline and Hazardous Materials Safety Administration  | <b>Report Date:</b>   | 02/23/2011                                       |        |
|  | <b>No.</b>  | 20110034 - 15331                                 |        |
|  |   | (DOT Use Only)                                   |        |
| <b>INCIDENT REPORT - GAS DISTRIBUTION SYSTEM</b>   |   |  |        |
| <p>A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2137-0522. Public reporting for this collection of information is estimated to be approximately 10 hours per response, including the time for reviewing instructions, gathering the data needed, and completing and reviewing the collection of information. All responses to this collection of information are mandatory. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: Information Collection Clearance Officer, PHMSA, Office of Pipeline Safety (PHP-30) 1200 New Jersey Avenue, SE, Washington, D.C. 20590.</p> |   |  |        |
| <b>INSTRUCTIONS</b>  |   |  |        |
| <p><b>Important:</b> Please read the separate instructions for completing this form before you begin. They clarify the information requested and provide specific examples. If you do not have a copy of the instructions, you can obtain one from the PHMSA Pipeline Safety Community Web Page at <a href="http://www.phmsa.dot.gov/pipeline">http://www.phmsa.dot.gov/pipeline</a>.</p>  |   |  |        |
| <b>PART A - KEY REPORT INFORMATION</b>   |   |  |        |
| Report Type: (select all that apply)   | Original:   | Supplemental:                                    | Final: |
|  |   | Yes  | Yes    |
| Last Revision Date   | 10/14/2011  |  |        |
| 1. Operator's OPS-issued Operator Identification Number (OPID):  | 4060  |  |        |
| 2. Name of Operator  | DOMINION EAST OHIO  |  |        |
| 3. Address of Operator:  |   |  |        |
| 3a. Street Address   | 1201 EAST 55TH STREET   |  |        |
| 3b. City   | CLEVELAND   |  |        |
| 3c. State  | Ohio  |  |        |
| 3d. Zip Code   | 441031028   |  |        |
| 4. Local time (24-hr clock) and date of the Incident:  | 01/24/2011 06:37  |  |        |
| 5. Location of Incident:   |   |  |        |
| 5a. Street Address or location description   | High Street District Regulator Station                                    |  |        |
| 5b. City   | Fairport Harbor   |  |        |
| 5c. County or Parish   | Lake  |  |        |
| 5d. State:   | Ohio  |  |        |
| 5e. Zip Code:  | 44077-5521  |  |        |
| 5f. Latitude:  | 41.7431   |  |        |
| Longitude:   | -81.2744  |  |        |
| 6. National Response Center Report Number:   | 965512  |  |        |
| 7. Local time (24-hr clock) and date of initial telephonic report to the National Response Center:   | 01/24/2011 09:29  |  |        |
| 8. Incident resulted from:   | Reasons other than release of gas   |  |        |
| 9. Gas released:   | Natural Gas   |  |        |
|  | - Other Gas Released Name:  |  |        |
| 10. Estimated volume of gas released - Thousand Cubic Feet (MCF):  | 75.00   |  |        |
| 11. Were there fatalities?   | No  |  |        |
| - If Yes, specify the number in each category:   |   |  |        |
| 11a. Operator employees  |   |  |        |
| 11b. Contractor employees working for the Operator   |   |  |        |
| 11c. Non-Operator emergency responders   |   |  |        |
| 11d. Workers working on the right-of-way, but NOT associated with this Operator  |   |  |        |
| 11e. General public  |   |  |        |
| 11f. Total fatalities (sum of above)   |   |  |        |
| 12. Were there injuries requiring inpatient hospitalization?   | No  |  |        |
| - If Yes, specify the number in each category:   |   |  |        |
| 12a. Operator employees  |   |  |        |
| 12b. Contractor employees working for the Operator   |   |  |        |
| 12c. Non-Operator emergency responders   |   |  |        |
| 12d. Workers working on the right-of-way, but NOT associated with this Operator  |   |  |        |
| 12e. General public  |   |  |        |
| 12f. Total injuries (sum of above)   |   |  |        |
| 13. Was the pipeline/facility shut down due to the incident?   | No  |  |        |
| - If No, Explain:  | Regulator station was shut down and is unnecessary to maintain operations |  |        |

|  |   |
|--|---|
| - If Yes, complete Questions 13a and 13b: (use local time, 24-hr clock)  |   |
| 13a. Local time and date of shutdown:  |   |
| 13b. Local time pipeline/facility restarted:   |   |
| - Still shut down? (* Supplemental Report Required)  |   |
| 14. Did the gas ignite?  | No  |
| 15. Did the gas explode?   | No  |
| 16. Number of general public evacuated:  | 1,505   |
| 17. Time sequence (use local time, 24-hour clock):   |   |
| 17a. Local time operator identified Incident:  | 01/24/2011 06:37  |
| 17b. Local time operator resources arrived on site:  | 01/24/2011 07:15  |
| <b>PART B - ADDITIONAL LOCATION INFORMATION</b>  |   |
| 1. Was the Incident on Federal land?   | No  |
| 2. Location of Incident  | Utility Right-of-way / Easement   |
| 3. Area of Incident:   | Aboveground   |
|  | Specify: Typical aboveground facility piping or appurtenance (e.g. valve or regulator station, outdoor meter set) |
|  | If Other, Describe:   |
|  | Depth of Cover:   |
| 4. Did Incident occur in a crossing?   | No  |
| - If Yes, specify type below:  |   |
| - If Bridge crossing –   |   |
| Cased/ Uncased:  |   |
| - If Railroad crossing –   |   |
| Cased/ Uncased/ Bored/drilled  |   |
| - If Road crossing –   |   |
| Cased/ Uncased/ Bored/drilled  |   |
| - If Water crossing –  |   |
| Cased/ Uncased   |   |
| Name of body of water (If commonly known):   |   |
| Approx. water depth (ft):  |   |
| <b>PART C - ADDITIONAL FACILITY INFORMATION</b>  |   |
| 1. Indicate the type of pipeline system:   | Natural Gas Distribution, privately owned   |
|  | - If Other, specify:  |
| 2. Part of system involved in Incident:  | District Regulator/Metering Station   |
|  | - If Other, specify:  |
| 2a. Year "Part of system involved in Incident" was installed:  | 1999  |
|  | Unknown?  |
| 3. When "Main" or "Service" is selected as the "Part of system involved in Incident" (from PART C, Question 2), provide the following: |   |
| 3a. Nominal diameter of pipe (in):   |   |
| 3b. Pipe specification (e.g., API 5L, ASTM D2513):   |   |
|  | Unknown?  |
| 3c. Pipe manufacturer:   |   |
|  | Unknown?  |
| 3d. Year of manufacture:   |   |
|  | Unknown?  |
| 4. Material involved in Incident:  | Other   |
|  | - If Other, specify:  |
| 4a. If Steel, Specify seam type:   | Regulator Station   |
|  | None/Unknown?   |
| 4b. If Steel, Specify wall thickness (inches):   |   |
|  | Unknown?  |
| 4c. If Plastic, Specify type:  |   |
|  | - If Other, describe:   |
| 4d. If Plastic, Specify Standard Dimension Ratio (SDR):  |   |
|  | Or wall thickness:  |
|  | Unknown?  |
| 4e. If Polyethylene (PE) is selected as the type of plastic in Part C, Question 4.c:   |   |
| - Specify PE Pipe Material Designation Code (i.e. 2406, 3408, etc.)  |   |
|  | Unknown?  |
| 5. Type of release involved :  | Other   |
| - If Mechanical Puncture - Specify Approx size:  |   |
|  | Approx. size: in. (axial):  |
|  | in. (circumferential):  |
| - If Leak - Select Type:   |   |
|  | - If Other, Describe:   |

|  |  |
|--|--|
| - If Rupture - Select Orientation:     |  |
| - If Other, Describe:                  |  |
| Approx. size: (widest opening):        |  |
| (length circumferentially or axially): |  |
| - If Other - Describe:                 | Operating pressure exceeded MAOP, warning device relief released gas |

|   |                  |
|---|------------------|
| <b>PART D - ADDITIONAL CONSEQUENCE INFORMATION</b>  |                  |
| 1. Class Location of Incident :   | Class 3 Location |
| 2. Estimated cost to Operator :   |                  |
| 2a. Estimated cost of public and non-Operator private property damage paid/reimbursed by the Operator | \$ 1,220,000     |
| 2b. Estimated cost of gas released  | \$ 413           |
| 2c. Estimated cost of Operator's property damage & repairs  | \$ 0             |
| 2d. Estimated cost of Operator's emergency response   | \$ 73,000        |
| 2e. Estimated other costs   | \$ 0             |
| - Describe:   |                  |
| 2f. Estimated total costs (sum of above)  | \$ 1,293,413     |
| 3. Estimated number of customers out of service:  |                  |
| 3a. Commercial entities   | 100              |
| 3b. Industrial entities   | 0                |
| 3c. Residences  | 1,200            |

|  |   |
|--|---|
| <b>PART E - ADDITIONAL OPERATING INFORMATION</b>   |   |
| 1. Estimated pressure at the point and time of the Incident (psig):  | 8.50  |
| 2. Normal operating pressure at the point and time of the Incident (psig):   | .50   |
| 3. Maximum Allowable Operating Pressure (MAOP) at the point and time of the Incident (psig):   | 1.00  |
| 4. Describe the pressure on the system relating to the Incident:   | Pressure exceeded 110% of MAOP  |
| 5. Was a Supervisory Control and Data Acquisition (SCADA) based system in place on the pipeline or facility involved in the Incident?  | No  |
| - If Yes:  |   |
| 5a. Was it operating at the time of the Incident?  |   |
| 5b. Was it fully functional at the time of the Incident?   |   |
| 5c. Did SCADA-based information (such as alarm(s), alert(s), event(s), and/or volume or pack calculations) assist with the detection of the Incident?  |   |
| 5d. Did SCADA-based information (such as alarm(s), alert(s), event(s), and/or volume calculations) assist with the confirmation of the Incident?   |   |
| 6. How was the Incident initially identified for the Operator?   | Other   |
| 6a. If "Controller", "Local Operating Personnel, including contractors", "Air Patrol", or "Ground Patrol by Operator or its contractor" is selected in Question 6, specify the following:            |   |
| - If Other, Specify:   | System is monitored by Hi- Low Pressure Alarms                                    |
| 7. Was an investigation initiated into whether or not the controller(s) or control room issues were the cause of or a contributing factor to the Incident?   | No, the facility was not monitored by a controller(s) at the time of the Incident |
| - If No, the operator did not find that an investigation of the controller(s) actions or control room issues was necessary due to: (provide an explanation for why the operator did not investigate) |   |
| - If Yes, Specify investigation result(s) (select all that apply):   |   |
| - Investigation reviewed work schedule rotations, continuous hours of service (while working for the Operator), and other factors associated with fatigue  |   |
| - Investigation did NOT review work schedule rotations, continuous hours of service (while working for the Operator), and other factors associated with fatigue                                      |   |
| - Provide an explanation for why not:  |   |
| - Investigation identified no control room issues  |   |
| - Investigation identified no controller issues  |   |
| - Investigation identified incorrect controller action or controller error   |   |
| - Investigation identified that fatigue may have affected the controller(s) involved or impacted the involved controller(s) response   |   |
| - Investigation identified incorrect procedures  |   |
| - Investigation identified incorrect control room equipment operation  |   |
| - Investigation identified maintenance activities that affected control room operations, procedures, and/or controller response  |   |
| - Investigation identified areas other than those above  |   |
| Describe:  |   |

| PART F - DRUG & ALCOHOL TESTING INFORMATION  |                        |
|--|------------------------|
| 1. As a result of this Incident, were any Operator employees tested under the post-accident drug and alcohol testing requirements of DOT's Drug & Alcohol Testing regulations?   | No                     |
| - If Yes:  |                        |
| 1a. Specify how many were tested:  |                        |
| 1b. Specify how many failed:   |                        |
| 2. As a result of this Incident, were any Operator contractor employees tested under the post-accident drug and alcohol testing requirements of DOT's Drug & Alcohol Testing regulations?  | No                     |
| - If Yes:  |                        |
| 2a. Specify how many were tested:  |                        |
| 2b. Specify how many failed:   |                        |
| PART G - CAUSE INFORMATION   |                        |
| Select only one box from PART G in shaded column on left representing the Apparent Cause of the Incident, and answer the questions on the right. Describe secondary, contributing, or root causes of the Incident in the narrative (PART H). |                        |
| Apparent Cause:  | G6 - Equipment Failure |
| <b>G1 - Corrosion Failure</b> – only one sub-cause can be picked from shaded left-hand column  |                        |
| Corrosion Failure Sub-Cause:   |                        |
| - If External Corrosion:   |                        |
| 1. Results of visual examination:  |                        |
| - If Other, Specify:   |                        |
| 2. Type of corrosion:  |                        |
| - Galvanic   |                        |
| - Atmospheric  |                        |
| - Stray Current  |                        |
| - Microbiological  |                        |
| - Selective Seam   |                        |
| - Other  |                        |
| - If Other, Describe:  |                        |
| 3. The type(s) of corrosion selected in Question 2 is based on the following:  |                        |
| - Field examination  |                        |
| - Determined by metallurgical analysis   |                        |
| - Other  |                        |
| - If Other, Describe:  |                        |
| 4. Was the failed item buried under the ground?  |                        |
| - If Yes:  |                        |
| 4a. Was failed item considered to be under cathodic protection at the time of the incident?  |                        |
| - If Yes, Year protection started:   |                        |
| 4b. Was shielding, tenting, or disbonding of coating evident at the point of the incident?   |                        |
| 4c. Has one or more Cathodic Protection Survey been conducted at the point of the incident?  |                        |
| If "Yes, CP Annual Survey" – Most recent year conducted:   |                        |
| If "Yes, Close Interval Survey" – Most recent year conducted:  |                        |
| If "Yes, Other CP Survey" – Most recent year conducted:  |                        |
| - If No:   |                        |
| 4d. Was the failed item externally coated or painted?  |                        |
| 5. Was there observable damage to the coating or paint in the vicinity of the corrosion?   |                        |
| 6. Pipeline coating type, if steel pipe is involved:   |                        |
| - If Other, Describe:  |                        |
| - If Internal Corrosion:   |                        |
| 7. Results of visual examination:  |                        |
| - If Other, Describe:  |                        |
| 8. Cause of corrosion (select all that apply):   |                        |
| - Corrosive Commodity  |                        |
| - Water drop-out/Acid  |                        |
| - Microbiological  |                        |
| - Erosion  |                        |
| - Other  |                        |
| - If Other, Specify:   |                        |

|  |  |
|--|--|
| 9. The cause(s) of corrosion selected in Question 8 is based on the following: <i>(select all that apply)</i> :  |  |
| - Field examination  |  |
| - Determined by metallurgical analysis   |  |
| - Other  |  |
| - If Other, Describe:  |  |
| 10. Location of corrosion <i>(select all that apply)</i> :   |  |
| - Low point in pipe  |  |
| - Elbow  |  |
| - Drop-out   |  |
| - Other  |  |
| - If Other, Describe:  |  |
| 11. Was the gas/fluid treated with corrosion inhibitor or biocides?  |  |
| 12. Were any liquids found in the distribution system where the incident occurred?   |  |
| <b>Complete the following if any Corrosion Failure sub-cause is selected AND the "Part of system involved in incident" (from PART C, Question 2) is Main, Service, or Service Riser.</b> |  |
| 13. Date of the most recent Leak Survey conducted  |  |
| 14. Has one or more pressure test been conducted since original construction at the point of the incident?   |  |
| - If Yes:  |  |
| Most recent year tested:   |  |
| Test pressure:   |  |
| <b>G2 – Natural Force Damage – only one sub-cause can be picked from shaded left-handed column</b>   |  |
| <b>Natural Force Damage – Sub-Cause:</b>   |  |
| <b>- If Earth Movement, NOT due to Heavy Rains/Floods:</b>   |  |
| 1. Specify:  |  |
| - If Other, Specify:   |  |
| <b>- If Heavy Rains/Floods:</b>  |  |
| 2. Specify:  |  |
| - If Other, Specify:   |  |
| <b>- If Lightning:</b>   |  |
| 3. Specify:  |  |
| <b>- If Temperature:</b>   |  |
| 4. Specify:  |  |
| - If Other, Specify:   |  |
| <b>- If High Winds:</b>  |  |
| <b>- Other Natural Force Damage:</b>   |  |
| 5. Describe:   |  |
| <b>Complete the following if any Natural Force Damage sub-cause is selected.</b>   |  |
| 6. Were the natural forces causing the incident generated in conjunction with an extreme weather event?  |  |
| 6.a If Yes, specify <i>(select all that apply)</i> :   |  |
| - Hurricane  |  |
| - Tropical Storm   |  |
| - Tornado  |  |
| - Other  |  |
| - If Other, Specify:   |  |
| <b>G3 – Excavation Damage – only one sub-cause can be picked from shaded left-hand column</b>  |  |
| <b>Excavation Damage – Sub-Cause:</b>  |  |
| <b>- If Excavation Damage by Operator (First Party):</b>   |  |
| <b>- If Excavation Damage by Operator's Contractor (Second Party):</b>   |  |
| <b>- If Excavation Damage by Third Party:</b>  |  |
| <b>- If Previous Damage due to Excavation Activity:</b>  |  |
| <b>Complete the following ONLY IF the "Part of system involved in incident" (from Part C, Question 2) is Main, Service, or Service Riser.</b>  |  |
| 1. Date of the most recent Leak Survey conducted   |  |
| 2. Has one or more pressure test been conducted since original construction at the point of the incident?  |  |
| - If Yes:  |  |

|   |  |
|---|--|
| Most recent year tested:  |  |
| Test pressure:  |  |
| <b>Complete the following if Excavation Damage by Third Party is selected.</b>  |  |
| 3. Did the operator get prior notification of the excavation activity?  |  |
| 3a. If Yes, Notification received from: (select all that apply):  |  |
| - One-Call System   |  |
| - Excavator   |  |
| - Contractor  |  |
| - Landowner   |  |
| <b>Complete the following mandatory CGA-DIRT Program questions if any Excavation Damage sub-cause is selected.</b>  |  |
| 4. Do you want PHMSA to upload the following information to CGA-DIRT ( <a href="http://www.cga-dirt.com">www.cga-dirt.com</a> )?  |  |
| 5. Right-of-Way where event occurred (select all that apply):   |  |
| - Public  |  |
| - If Public, Specify:   |  |
| - Private   |  |
| - If Private, Specify:  |  |
| - Pipeline Property/Easement  |  |
| - Power/Transmission Line   |  |
| - Railroad  |  |
| - Dedicated Public Utility Easement   |  |
| - Federal Land  |  |
| - Data not collected  |  |
| - Unknown/Other   |  |
| 6. Type of excavator :  |  |
| 7. Type of excavation equipment :   |  |
| 8. Type of work performed :   |  |
| 9. Was the One-Call Center notified?  |  |
| 9a. If Yes, specify ticket number:  |  |
| 9b. If this is a State where more than a single One-Call Center exists, list the name of the One-Call Center notified:  |  |
| 10. Type of Locator:  |  |
| 11. Were facility locate marks visible in the area of excavation?   |  |
| 12. Were facilities marked correctly?   |  |
| 13. Did the damage cause an interruption in service?  |  |
| 13a. If Yes, specify duration of the interruption:  |  |
| 14. Description of the CGA-DIRT Root Cause (select only the one predominant first level CGA-DIRT Root Cause and then, where available as a choice, the one predominant second level CGA-DIRT Root Cause as well): |  |
| - Root Cause Description:   |  |
| - If One-Call Notification Practices Not Sufficient, specify:   |  |
| - If Locating Practices Not Sufficient, specify:  |  |
| - If Excavation Practices Not Sufficient, specify:  |  |
| - If Other/None of the Above (explain), specify:  |  |
| <b>G4 - Other Outside Force Damage - only one sub-cause can be selected from the shaded left-hand column</b>  |  |
| Other Outside Force Damage – Sub-Cause:   |  |
| - If Nearby Industrial, Man-made, or Other Fire/Explosion as Primary Cause of Incident:   |  |
| - If Damage by Car, Truck, or Other Motorized Vehicle/Equipment NOT Engaged in Excavation:  |  |
| 1. Vehicle/Equipment operated by:   |  |
| - If Damage by Boats, Barges, Drilling Rigs, or Other Maritime Equipment or Vessels Set Adrift or Which Have Otherwise Lost Their Mooring:  |  |
| 2. Select one or more of the following IF an extreme weather event was a factor:  |  |
| - Hurricane   |  |
| - Tropical Storm  |  |
| - Tornado   |  |
| - Heavy Rains/Flood   |  |
| - Other   |  |
| - If Other, Specify:  |  |
| - If Routine or Normal Fishing or Other Maritime Activity NOT Engaged in Excavation:  |  |
| - If Electrical Arcing from Other Equipment or Facility:  |  |
| - If Previous Mechanical Damage NOT Related to Excavation:  |  |



|  |  |
|--|--|
| Complete the following ONLY IF the "Part of system involved in Incident" (from Part C, Question 2) is Main, Service, or Service Riser. |  |
| 3. Date of the most recent Leak Survey conducted:  |  |
| 4. Has one or more pressure test been conducted since original construction at the point of the incident?                              |  |
| - If Yes:  |  |
| Most recent year tested:   |  |
| Test pressure (psig):  |  |
| <b>- If Intentional Damage:</b>  |  |
| 5. Specify:  |  |
| - If Other, Specify:   |  |
| <b>- If Other Outside Force Damage:</b>  |  |
| 6. Describe:   |  |
| <b>G5 - Pipe, Weld, or Joint Failure</b> - only one sub-cause can be selected from the shaded left-hand column                         |  |
| <b>Pipe, Weld or Joint Failure – Sub-Cause:</b>  |  |
| <b>- If Body of Pipe:</b>  |  |
| 1. Specify:  |  |
| - If Other, Describe:  |  |
| <b>- If Butt Weld:</b>   |  |
| 2. Specify:  |  |
| - If Other, Describe:  |  |
| <b>- If Fillet Weld:</b>   |  |
| 3. Specify:  |  |
| - If Other, Describe:  |  |
| <b>- If Pipe Seam:</b>   |  |
| 4. Specify:  |  |
| - If Other, Describe:  |  |
| <b>- If Threaded Metallic Pipe:</b>  |  |
| <b>- If Mechanical Fitting:</b>  |  |
| 5. Specify the mechanical fitting involved:  |  |
| - If Other, Describe:  |  |
| 6. Specify the type of mechanical fitting:   |  |
| - If Other, Describe:  |  |
| 7. Manufacturer:   |  |
| 8. Year manufactured:  |  |
| 9. Year Installed:   |  |
| 10. Other attributes:  |  |
| 11. Specify the two materials being joined:  |  |
| 11a. First material being joined:  |  |
| - Steel  |  |
| - Cast/Wrought Iron  |  |
| - Ductile Iron   |  |
| - Copper   |  |
| - Plastic  |  |
| - Unknown  |  |
| - Other  |  |
| - If Other, Specify:   |  |
| 11b. If Plastic, specify:  |  |
| - If Other Plastic, specify:   |  |
| 11c. Second material being joined:   |  |
| - Steel  |  |
| - Cast/Wrought Iron  |  |
| - Ductile Iron   |  |
| - Copper   |  |
| - Plastic  |  |
| - Unknown  |  |
| - Other  |  |
| - If Other, Specify:   |  |
| 11d. If Plastic, specify:  |  |
| - If Other Plastic, Specify:   |  |
| 12. If used on plastic pipe, did the fitting – as designed by the manufacturer – include restraint?                                    |  |
| 12a. If Yes, specify:  |  |

|  |                              |
|--|------------------------------|
| <b>- If Compression Fitting:</b>   |                              |
| 13. Fitting type:  |                              |
| 14. Manufacturer:  |                              |
| 15. Year manufactured:   |                              |
| 16. Year installed:  |                              |
| 17. Other attributes:  |                              |
| 18. Specify the two materials being joined:  |                              |
| 18a. First material being joined:  |                              |
| - Steel  |                              |
| - Cast/Wrought Iron  |                              |
| - Ductile Iron   |                              |
| - Copper   |                              |
| - Plastic  |                              |
| - Unknown  |                              |
| - Other  |                              |
|  | - If Other, specify:         |
| 18b. If Plastic, specify:  |                              |
|  | - If Other Plastic, specify: |
| 18c. Second material being joined:   |                              |
| - Steel  |                              |
| - Cast/Wrought Iron  |                              |
| - Ductile Iron   |                              |
| - Copper   |                              |
| - Plastic  |                              |
| - Unknown  |                              |
| - Other  |                              |
|  | If Other, specify:           |
| 18d. If Plastic, specify:  |                              |
|  | - Other Plastic, specify:    |
| <b>- If Fusion Joint:</b>  |                              |
| 19. Specify:   |                              |
|  | - If Other, Specify:         |
| 20. Year installed:  |                              |
| 21. Other attributes:  |                              |
| 22. Specify the two materials being joined:  |                              |
| 22a. First material being joined:  |                              |
|  | - If Other, Specify:         |
| 22b. Second material being joined:   |                              |
|  | - If Other, Specify:         |
| <b>- If Other Pipe, Weld, or Joint Failure:</b>  |                              |
| 23. Describe:  |                              |
| <b>Complete the following if any Pipe, Weld, or Joint Failure sub-cause is selected.</b>                   |                              |
| 24. Additional Factors (select all that apply):  |                              |
| - Dent   |                              |
| - Gouge  |                              |
| - Pipe Bend  |                              |
| - Arc Burn   |                              |
| - Crack  |                              |
| - Lack of Fusion   |                              |
| - Lamination   |                              |
| - Buckle   |                              |
| - Wrinkle  |                              |
| - Misalignment   |                              |
| - Burnt Steel  |                              |
| - Other  |                              |
| 25. Was the Incident a result of:  |                              |
| - Construction defect  |                              |
|  | Specify:                     |
| - Material defect  |                              |
|  | Specify:                     |
|  | - If Other, Specify:         |
| - Design defect  |                              |
| - Previous damage  |                              |
| 26. Has one or more pressure test been conducted since original construction at the point of the Incident? |                              |
| - If Yes:  |                              |
|  | Most recent year tested:     |
|  | Test pressure:               |

|  |   |
|--|---|
| <b>G6 - Equipment Failure</b> - only one sub-cause can be selected from the shaded left-hand column                                  |   |
| <b>Equipment Failure – Sub-Cause:</b>  | Malfunction of Control/Relief Equipment |
| <b>- If Malfunction of Control/Relief Equipment:</b>   |   |
| 1. Specify:  |   |
| - Control Valve  |   |
| - Instrumentation  |   |
| - SCADA  |   |
| - Communications   |   |
| - Block Valve  |   |
| - Check Valve  |   |
| - Relief Valve   |   |
| - Power Failure  |   |
| - Stopple/Control Fitting  |   |
| - Pressure Regulator   | Yes                                     |
| - Other  |   |
| - If Other, Specify:   |   |
| <b>- If Threaded Connection Failure:</b>   |   |
| 2. Specify:  |   |
| - If Other, Specify:   |   |
| <b>- If Non-threaded Connection Failure:</b>   |   |
| 3. Specify:  |   |
| - If Other, Specify:   |   |
| <b>- If Valve:</b>   |   |
| 4. Specify:  |   |
| - If Other, Specify:   |   |
| 4a. Valve type:  |   |
| 4b. Manufactured by:   |   |
| 4c. Year manufactured:   |   |
| <b>- If Other Equipment Failure:</b>   |   |
| 5. Describe:   |   |
| <b>G7 - Incorrect Operation</b> - only one sub-cause can be selected from the shaded left-hand column                                |   |
| <b>Incorrect Operation Sub-Cause:</b>  |   |
| <b>- If Damage by Operator or Operator's Contractor NOT Related to Excavation and NOT due to Motorized Vehicle/Equipment Damage:</b> |   |
| <b>- If Valve Left or Placed in Wrong Position, but NOT Resulting in an Overpressure:</b>  |   |
| <b>- If Pipeline or Equipment Overpressured:</b>   |   |
| <b>- If Equipment Not Installed Properly:</b>  |   |
| <b>- If Wrong Equipment Specified or Installed:</b>  |   |
| <b>- If "Other Incorrect Operation:</b>  |   |
| 1. Describe:   |   |
| <b>Complete the following if any Incorrect Operation sub-cause is selected.</b>  |   |
| 2. Was this Incident related to: (select all that apply)   |   |
| - Inadequate procedure   |   |
| - No procedure established   |   |
| - Failure to follow procedure  |   |
| - Other  |   |
| - If Other, Describe:  |   |
| 3. What category type was the activity that caused the Incident:   |   |
| 4. Was the task(s) that led to the Incident identified as a covered task in your Operator Qualification Program?                     |   |
| 4a. If Yes, were the individuals performing the task(s) qualified for the task(s)?   |   |
| <b>G8 - Other Incident Cause</b> - only one sub-cause can be selected from the shaded left-hand column                               |   |
| <b>Other Incident Cause – Sub-Cause:</b>   |   |
| <b>- If Miscellaneous:</b>   |   |
| 1. Describe:   |   |

- If Unknown:

2. Specify:

#### PART H - NARRATIVE DESCRIPTION OF THE INCIDENT

The Dominion network that is utilized to serve Fairport Harbor consists of steel and plastic low pressure distribution piping. Gas is supplied through three district regulator stations from the Northeast, East and Southwest areas of the village. These three stations contain two control/monitor regulators set at 6.5 ounces (oz) and 8.5 ounces per square inch gauge respectively. The Northeast station is equipped with a Hi-Lo for monitoring system pressure that is set at 8.5 oz and 4.5 oz respectively. The East station also contains a relief device for audible warning set at 12oz.

At approximately 6:37 a.m. on 01/24/2011, Dominion received a high alarm from the Hi-Lo monitor at the Northeast station. A technician was immediately dispatched to the area. The technician noted the relief blowing as he passed the East station and notified supervision. The technician arrived at the Northeast station at 7:15 a.m., and shut the inlet valve to the Northeast station. He proceeded to the East station, shut the inlet valve and obtained a system pressure reading of 8.5 psig. Supervision was updated that the Northeast and East stations were not supplying gas, and both stations had been shut-in.

Supervision advised the technician to open the inlet to the East station and proceed to the Southwest station. Upon arrival he noted the Southwest station was supplying gas and shut the inlet valve. Supervision advised him to return to the East station and monitor the system pressure. At 8:05 a.m. the technician returned to the East station and noted the relief had stopped blowing. He verified that system pressure had returned to 6.5oz.

Leak survey of the Fairport Harbor system was conducted on 01/24/2011 and repeated on 01/25/2011. Construction and Maintenance crews repaired all hazardous leaks upon discovery and continue to work on repair of non-hazardous leaks.

Dominion field personnel remained in the area over the next three days, restoring service to 1300 affected customers. Dominion has worked with Fairport Harbor village officials and the American Red Cross providing housing and short-term financial support for those in need until service restoration. Eleven homes received severe damage from fire and 150 homes required appliance repair or replacement. Dominion and its contractors have provided all necessary house line repairs, appliance repairs and replacement. For nine structures considered to be uninhabitable, Dominion continues to work through the process of resolving customer claims.

Dominion worked with the Public Utilities Commission of Ohio, Fairport Harbor Fire Department Investigators and the State Fire Marshal in removing the regulators and other associated equipment from the Southwest station. The station equipment has been taken to the Gas Technology Institute (GTI) for further examination and investigation.

After GTI removed an oily substance and cleaned the components with isopropyl alcohol, the regulators involved in the incident were tested in June and August with all other interested parties present. The regulating equipment was determined to function as designed during increasing and decreasing flow and pressure conditions. The regulating equipment was found to operate properly with the fluids removed. It is currently believed that the presence of pipeline fluids and gas temperature drop across the regulators caused the regulators to malfunction.

**File Full Name Note:** The users have to sign in to view the attachment if there is no current user session.

#### PART I - PREPARER AND AUTHORIZED SIGNATURE

|                                       |                       |
|---------------------------------------|-----------------------|
| Preparer's Name                       | Steven W. Buck        |
| Preparer's Title                      | Technical Consultant  |
| Preparer's Telephone Number           | 330-401-8033          |
| Preparer's E-mail Address             | steven.w.buck@dom.com |
| Preparer's Facsimile Number           | 866-521-4877          |
| Authorized Signature                  |                       |
| Authorize Signature's Name            | Steven W. Buck        |
| Authorized Signature's Title          | Technical Consultant  |
| Authorized Signature Telephone Number | 330-401-6033          |
| Authorized Signature's Email Address  | steven.w.buck@dom.com |
| Date                                  | 10/14/2011            |

**Exhibit 3**

**Gas Technology Institute Final  
Report “Investigation of Fairport  
Harbor, High Street Station Gas  
System Regulator Components”**

Energy to Lead



**FINAL REPORT**

GTI Project Number: 02222  
Sample Batch Number: 111108

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# **Investigation of Fairport Harbor, High Street Station Gas System Regulator Components**

**Report Issued:**  
September 16<sup>th</sup>, 2011

**Revision No.:**  
Final

**Prepared For:**

Mr. Brian D. Witte  
Pipeline and Safety Compliance  
Dominion East Ohio  
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**GTI Project Team:** Oren Lever, Brian Miller, Nick Daniels, Joe Baffoe, Brian Spillar, Dan Germata

**Gas Technology Institute**  
1700 S. Mount Prospect Rd.  
Des Plaines, Illinois 60018  
[www.gastechnology.org/gtilabs](http://www.gastechnology.org/gtilabs)

## **Legal Notice**

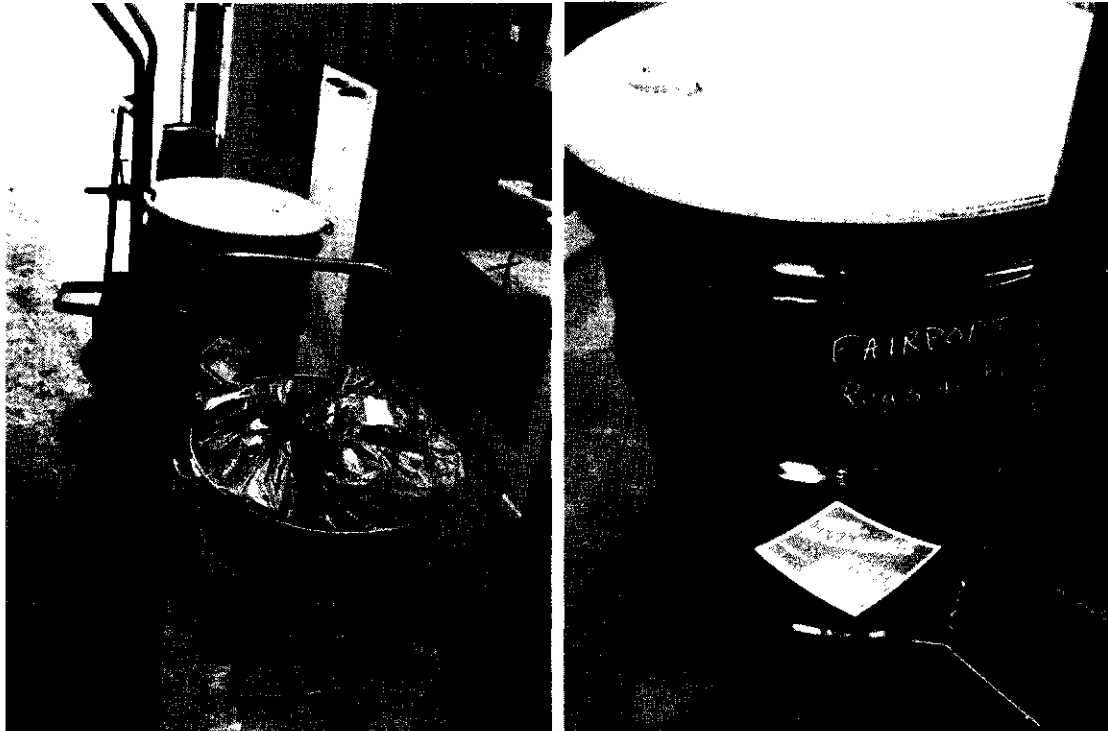
*This information was prepared by Gas Technology Institute ("GTI") for Dominion East Ohio.*

*Neither GTI, the members of GTI, the Sponsor(s), nor any person acting on behalf of any of them:*

- a. Makes any warranty or representation, express or implied with respect to the accuracy, completeness, or usefulness of the information contained in this report, or that the use of any information, apparatus, method, or process disclosed in this report may not infringe privately-owned rights. Inasmuch as this project is experimental in nature, the technical information, results, or conclusions cannot be predicted. Conclusions and analysis of results by GTI represent GTI's opinion based on inferences from measurements and empirical relationships, which inferences and assumptions are not infallible, and with respect to which competent specialists may differ.*
- b. Assumes any liability with respect to the use of, or for any and all damages resulting from the use of, any information, apparatus, method, or process disclosed in this report; any other use of, or reliance on, this report by any third party is at the third party's sole risk.*
- c. The results within this report relate only to the items tested.*

**Prior to Test Day:**

- The parts to be investigated were received from Dominion on 2/16/2011, and entered into the laboratory tracking system as batch 111108. See Figures 1-4.



**Figure 1: Containers Received by GTI**



Dominion Resources, Inc.  
Chain Of Custody

Name of Subject East and High Station Components 1 - 87<sup>6</sup>  
Date of Incident 01/24/11 Time 12:00 AM/PM (PM)  
Evidence Description Regulator and Station Components  
Location B 55th St (Basement Evidence Room)  
Received From Eric Sautman  
By Eric Sautman Eric Sautman  
Date 01/25/11 Time 01:01 AM/PM (PM)  
Received From Eric Sautman Eric Sautman  
By Dan Carroll Dan Carroll  
Date 1-26-11 Time 2:07 AM/PM (PM)  
Received From Dan Carroll Dan Carroll  
By Kerry Hara Scott Sautman Eric Sautman  
Date 02/16/2011 Time 8:51 AM AM/PM (AM)  
Received From Scott Sautman Eric Sautman Kerry Hara  
By Brian K Spillar Brian K Spillar  
Date 2/16/2011 Time 3:51 AM/PM (PM)

Figure 2: COC for Components Received at GTI

**Dominion Resources, Inc.**  
**Chain Of Custody**

Name of Subject Engine and High Pressure Filter (Bag A)  
Date of Incident 01/04/11 Time 2:00 AM PM  
Evidence Description Filter (Black)

Location Currently in vehicle 94502 - transferred to  
Box 6 55th St. Garland

Received From Eric Sadner  
By Rich Kamech R. D. Kamech  
Date 01/25/2011 Time 11:59 AM PM

Received From Rich Kamech R. D. Kamech  
By Karl H. H. Scott Sauter W. J. H.  
Date 03/16/11 Time 9:13 AM PM

Received From Scott Sauter W. J. H. Karl H. H.  
By BRADY SPENCER B. J. Spencer  
Date 2/16/2011 Time 3:57 AM PM

Received From \_\_\_\_\_  
By \_\_\_\_\_  
Date \_\_\_\_\_ Time \_\_\_\_\_

Figure 3: COC for Components Received at GTI

Dominion Resources, Inc.  
Chain Of Custody

Name of Subject Regulator Bodies (Bags - B+C)  
Date of Incident 01/24/11 Time 01:05 AM/PM (PM)  
Evidence Description Regulator Bodies (Bags - B+C)  
Location 101 E 55th St.

Received From Eric Saulnier  
By Rick Kaurichi Rimla Kaur  
Date 01/25/2011 Time 11:06 AM/PM (PM)

Received From Rick Kaurichi Rimla Kaur  
By Scott Santora HM  
Date 01/16/11 Time 9:13 AM/PM (PM)

Received From Scott Santora HM Rimla Kaur  
By Brian K. Spencer Rick Kaurichi  
Date 2/16/2011 Time 3:51 AM/PM (PM)

Received From \_\_\_\_\_  
By \_\_\_\_\_  
Date \_\_\_\_\_ Time \_\_\_\_\_ AM/PM \_\_\_\_\_

Figure 4: COC for Components Received at GTI

- Initial unpacking 3/14/2011
  - Items visually examined without opening the plastic bags. The examination indicated that the regulators were previously disassembled and that a brown liquid material was present on the external and internal surfaces of the components.
  - Developed protocol as represented below to aid in the execution of Task 3 of the proposed work:
    - 1) Collect specimens of the oily material and test for the presence of hazardous materials including PCBs.
    - 2) Using appropriate PPE wipe the exterior surface of all parts and dispose of the wipes consistent with the finding(s) of 1).
    - 3) Visually examine all interior surfaces that can be visually examined.
    - 4) Collect specimens of materials on the interior(s) surface(s) and catalogue.
    - 5) Cap all component openings. Then wash the exterior surfaces with isopropyl alcohol.
    - 6) With the exterior component surfaces clean, re-examine for distinguishing features and record.
    - 7) Make adjustments to descriptions in the laboratory tracking system.
    - 8) End Task 3.
    - 9) Begin Task 4.
- 4/18/2011 - Execution of Task 3 of the protocol:
  - Unpacking of the components from the plastic bags.
  - The exterior surfaces were wiped with clean paper towels.
  - No alcohol or other solvents were used.
  - Videotaped for documentation purposes.
  - Component part numbers were recorded when they were available.
  - The following components were recorded:

| <u>Monitor Regulator</u> | <u>Monitor Pilot</u>           | <u>Monitor Pilot Restrictor</u> |
|--------------------------|--------------------------------|---------------------------------|
| Manufacturer: FISHER     | Manufacturer: FISHER           | Manufacturer: FISHER            |
| SERIAL NO.: 15344714     | SERIAL/FS: 15344714 / 161AYM-2 | Model: TYPE 112                 |
| TYPE: 399A               | DATE: 6-99                     |                                 |
| DIAPH: E55               | TYPE: 161AYM                   |                                 |
| PRESS. UNITS: N/A        | PRESS UNITS: PSIG              |                                 |
| MIN SET POINT: N/A       | MAX INLET WITH ORIFICE: 150    |                                 |
| % CAP: 100               | ORIFICE: 3/32                  |                                 |
|                          | RANGE: 0.5-1.2                 |                                 |
|                          | MAX CASING: 150                |                                 |

**Working Regulator**

Manufacturer: FISHER

SERIAL NO.: 15344382

TYPE: 399A

DIAPH: E55

PRESS. UNITS: N/A

MIN SET POINT: N/A

% CAP: 100

**Secondary Monitor Pilot**

Manufacturer: FISHER

FS#: 161EB-4

DATE: 5-99

SPRING: 70-140 PSI

MAX INLET: 1500 PSI

MAX OUTLET: 750 PSI

**Working Pilot**

Manufacturer: FISHER

SERIAL/FS: 15344383 / 161AY

DATE: 6-99

TYPE: 161AY

PRESS UNITS: PSIG

MAX INLET WITH ORIFICE: 150

ORIFICE: 3/32

RANGE: 6-15" WC

MAX CASING: 150

**Working Pilot Restrictor**

Manufacturer: FISHER

Model: TYPE 112

**Other Parts included:**

- Filters for both Pilot Regulators
- Main line filter element
- Associated tubing

**Other observations:**

- Pilot regulators were in a loosely assembled condition.
- Main regulators were in a disassembled condition.



**Figure 5: Documentary Photograph of One of the Two Main Regulators**

- Parts were covered in a liquid. Subsequent review of a Dominion furnished report indicated that the brown liquid containing a variety of organic chemicals.
- GTI conferred with Dominion regarding field installation plumbing and operating conditions in order to correctly set up the test rig.
  - Confirmed that test rig did not have to mimic the components' orientation as installed in the field.
- Test rig was set up according to the regulator manufacturer's (Fisher) schematic for a working monitor installation. With the following deviations.
  - Working Pilot inlet was plumbed into the inlet stage, as in the installation site, instead of the inter-stage, as in the manufacturer's schematic. The regulator test rig schematically duplicated the regulator setup that existed in Dominion's Fairport Harbor Station.
  - Two shut-off valves were added in front of the pilot regulators to allow for simulation of an obstruction.
  - Pilot regulator filters were not used on the test rig due to them being filled with liquid.
- Main regulators were individually assembled immediately prior to assembly on the test rig.
- Pilot regulators were assembled during connection to the test rig.
- The monitor regulator is the first stage regulator, and the working regulator is the second stage regulator.
- Upon completion of the test rig assembly, no pressurization or flow test was carried out. See Figure 6.

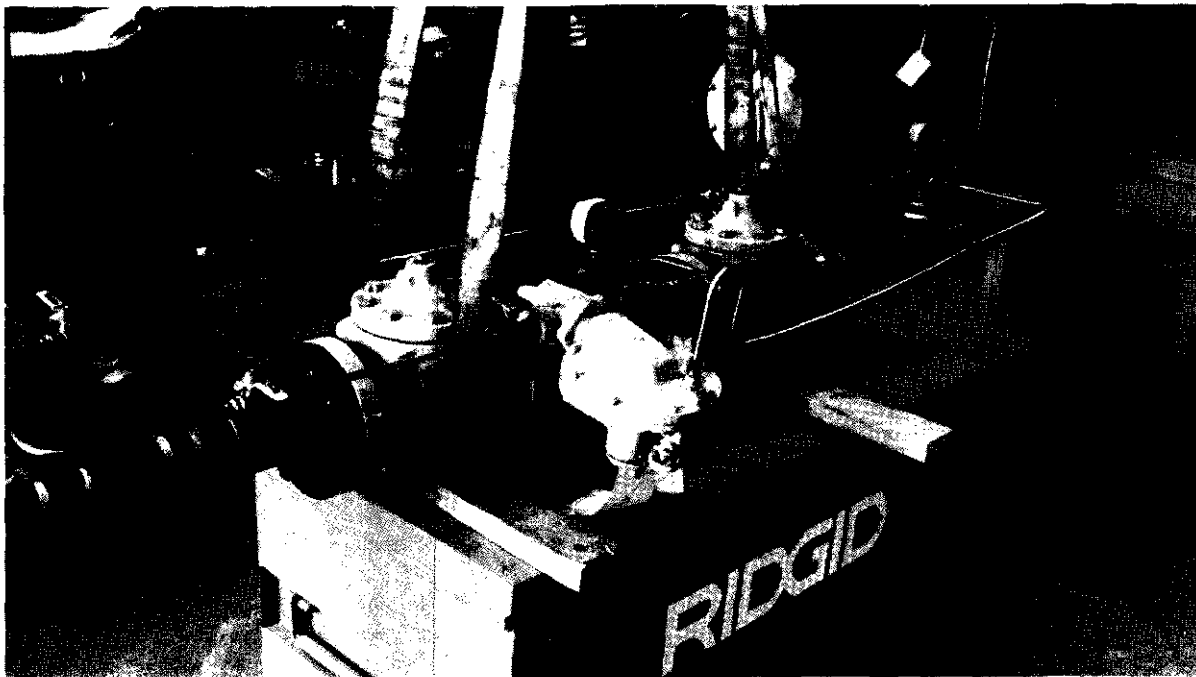
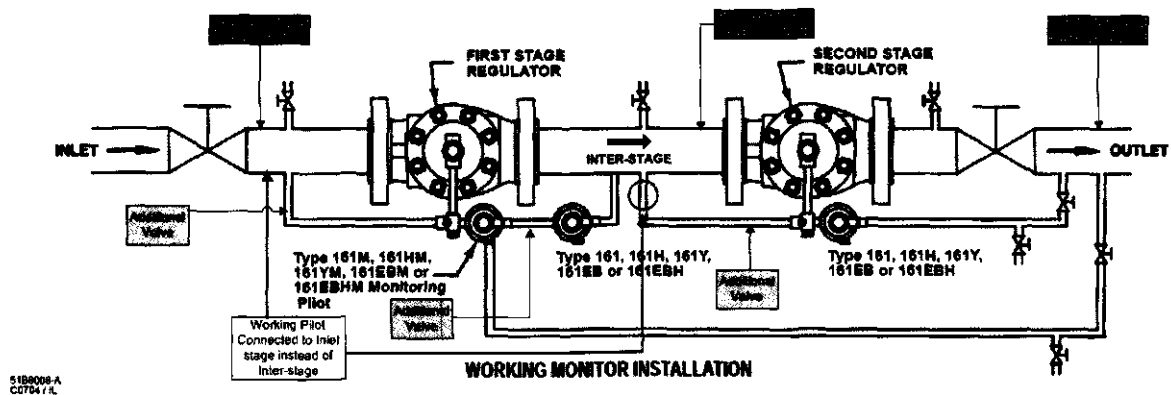


Figure 6: GTI Assembled Test Configuration for 22 JUN 2011



- A protocol for testing the assembly was developed:

### **Regulator Test Protocol**

#### **Startup Procedure**

1. With inlet valve shut off, turn on compressor and pressurize.
2. Set all valves to their nominal working positions.
3. Close outlet valve.
4. Open inlet valve slightly until all stages reach a steady pressure.
5. Check sensors.
6. Open inlet valve completely.

#### **Normal Flow Test**

1. Close outlet valve
2. Record sensor readings
3. Open outlet valve until flow reaches 20 SCFM.
4. Record sensor readings
5. Open outlet valve until flow reaches 40 SCFM.
6. Record sensor readings
7. Open outlet valve until flow reaches 60 SCFM.
8. Record sensor readings
9. Open outlet valve until flow reaches 80 SCFM.
10. Record sensor readings
11. Open outlet valve until flow reaches 100 SCFM.
12. Record sensor readings
13. Open outlet valve until flow reaches 120 SCFM.
14. Record sensor readings
15. Repeat steps 11 to 1 in reverse order.
16. Record sensor readings

#### **Monitor Pilot Restriction Test**

1. Close outlet valve
2. Record sensor readings
3. Open outlet valve until flow reaches a desired flow rate.
4. Record sensor readings
5. Close monitor pilot restriction valve 25%.
6. Record sensor readings
7. Close monitor pilot restriction valve 50%.
8. Record sensor readings
9. Close monitor pilot restriction valve 75%.
10. Record sensor readings



11. Close monitor pilot restriction valve 100%.
12. Record sensor readings
13. Repeat steps 3 to 12 for different flow rates, as needed.

#### **Working Pilot Restriction Test**

1. Close outlet valve
2. Record sensor readings
3. Open outlet valve until flow reaches a desired flow rate.
4. Record sensor readings
5. Close working pilot restriction valve 25%.
6. Record sensor readings
7. Close working pilot restriction valve 50%.
8. Record sensor readings
9. Close working pilot restriction valve 75%.
10. Record sensor readings
11. Close working pilot restriction valve 100%.
12. Record sensor readings
13. Repeat steps 3 to 12 for different flow rates, as needed.

#### **Secondary Monitor Pilot Restriction Test**

14. Close outlet valve
15. Record sensor readings
16. Open outlet valve until flow reaches a desired flow rate.
17. Record sensor readings
18. Close secondary monitor pilot restriction valve 25%.
19. Record sensor readings
20. Close secondary pilot restriction valve 50%.
21. Record sensor readings
22. Close secondary pilot restriction valve 75%.
23. Record sensor readings
24. Close secondary pilot restriction valve 100%.
25. Record sensor readings
26. Repeat steps 3 to 12 for different flow rates, as needed.

Test Day: 6/22/2011

- Testing for the day was videotaped for documentary purposes.
  - Test rig at GTI was pressurized and checked for leaks.
  - Several leaks were found not only during the initial leak test, but also during the initial test runs. These leaks were found on the GTI test rig. Leaks were not found in the field at the site where the regulators came from.
  - The globe valve at the outlet end was opened to 25% of its travel.
  - During these initial test runs the inlet and mid stage pressures were found to be equal at approximately 150-180psig with an outlet pressure greater than 14.31 psig.
  - The actual output pressure may have been higher since the gauge was at the maximum range.
  - More leak testing indicated leaks were found at threaded connections as well as at the pilot regulators.
  - The pilot regulator diaphragm housings had to be resealed at the sealing edge.
  - With these leaks repaired there were no changes in the pressures and adjustments to the system regulators did not make any observable change in pressures.

The globe valve was fully opened and it was noted that the inlet and mid-stage pressures were identical but the outlet pressure had dropped to approximately 0.13 psig. Slowly closing down the globe valve back to 25% of its travel indicated that the test pressures were stable holding these values. For all test conditions the inlet and mid-stage pressures remained equal and with the mid-stage pressures well above the reported 90 psig setting.

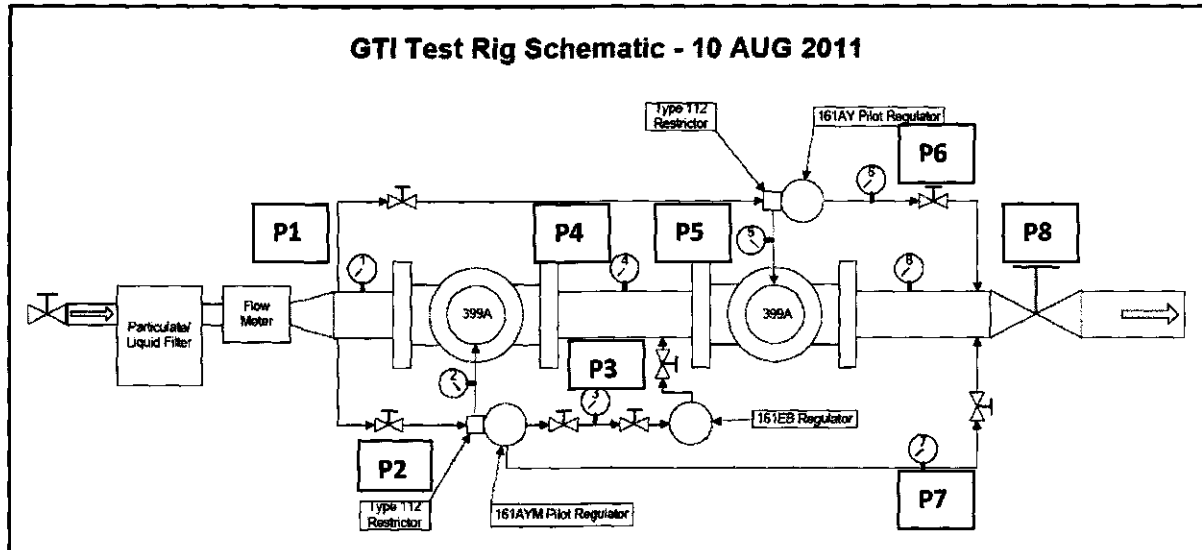
At the request of P.U.C.O. representative an auxiliary nitrogen line was plumbed into the monitor regulator pilot regulated at 6in WC. This required alteration to the test rig's piping. This had no effect on the previous readings.

- The results of the testing on 6/22/2011 indicated a consistently high mid-stage pressure equal to the inlet pressure and far in excess of the reported 90psig setting. This will require a more thorough component by component investigation. Therefore it is respectfully recommended that:
  1. The test rig piping will be modified for additional pressure gauges to monitor the inlet and outlet pressures of each of the pilot regulators along with valves to facilitate isolation and testing using ANSI B109 as a guide. Alternatively, each regulator could be removed from the

rig and mounted to facilitate testing. Should this testing indicate a malfunction, the regulators should be disassembled and subjected to forensic analysis.

2. If pilot regulator performance is verified. Reinstall them into the test rig and evaluate the system using the previously established protocol.
3. If the system is still not performing, isolate and test the monitor and worker regulators using (1) above.

Test Day: 8/10/11



**Figure 7: GTI Assembled Test Configuration for 10 AUG 2011**

8/10/11  
Dominion Regulator Testing

| Name             | Title                        | Company                     | Representation    |
|------------------|------------------------------|-----------------------------|-------------------|
| Tom Kocke        | Forensic Engineer            | Thomas Engineering          | Clauser           |
| Dennis Shelp     | Principal Engineer           | Advanced Engineering Inc.   | Hyde Farm, Et al. |
| Steve Bick       | Technical Consultant         | Dominion                    | Dominion          |
| Jim Griffin      | Product Safety Officer       | FAM Regulation Technologies | Fisher            |
| Brian Witte      | Consulting EGR.              | Dominion                    | Dominion          |
| Robert Giattelli | Senior Engineer              | Exponent                    | Dominion          |
| Joe Baffoe       | Engineer                     | GTI                         | ---               |
| Oren Lever       | Engineer                     | GTI                         | ---               |
| Brian Miller     | Chief Technologist           | GTI                         | ---               |
| Ken Weyers       | CGO / P.E. ENG<br>Roman Eng. | ROMAN                       | LATITUDE          |
| Mike Syler       | Attorney                     | MH                          | Dominion          |
| Mark Bohne       | "                            | MH                          | "                 |
| Eric Sauter      | Dominion Claims              | MH                          | Dominion          |
| Brian Mangum     | Dom/GMR                      | Dom                         | Dom               |

Figure 8: Sign-in Sheet for 10 AUG 2011

- The testing was videotaped for documentary purposes. Test rig was pressurized to 150 psig and checked for leaks. Eight (8) pressure gauges and one (1) flow-meter were used for this testing. All instrumentation is certified.
- Both pilot regulators were adjusted all the way out so that they only have atmospheric pressure. This is the beginning of the start-up procedure for the Fisher 399A regulators.
- Caps were unplugged on crosses from P6 and P7 from figure 7 in order to vent to atmosphere. Start-up was done by isolating the pilot regulators by closing their respective inlet and outlet valves while unpressurized. The main valve to the system inlet was then opened, introducing pressure to the system. The main outlet valve was then opened to induce flow through the 399A regulators. The valve to the outlet of the monitor pilot regulator was then opened, followed by the inlet valve to that pilot. Upon opening of the pilot inlet valve the monitor regulator locked-up.

- After the start-up procedure was completed, the pilot regulator on the monitor regulator was tested. See Test Run 1 in Table 1 for flow data. Figure 9 below shows a picture of the flow-meter.



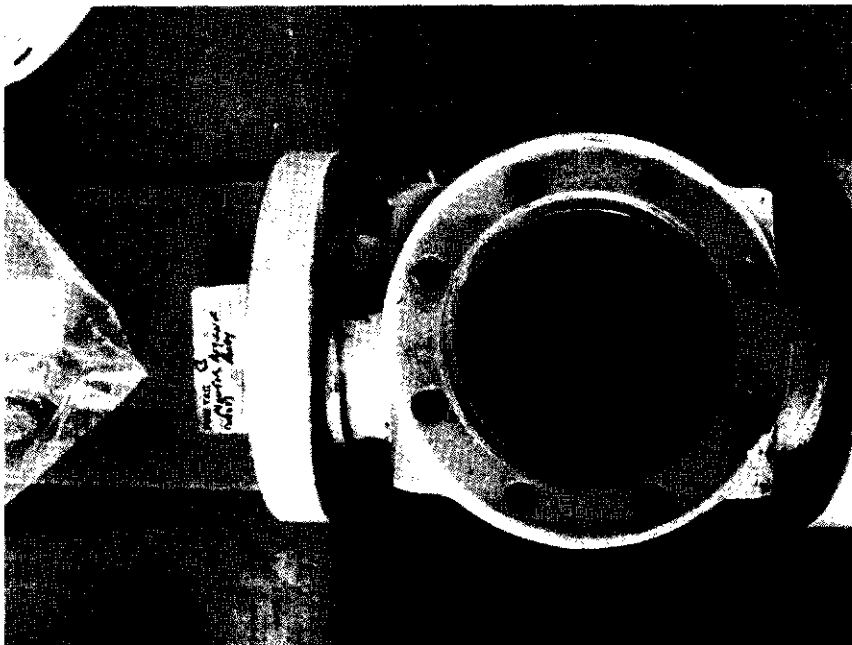
**Figure 9: Flow-meter used for regulator testing**

- The pilot regulator on the working regulator was tested in the same manner. The pilot shut off flow on the working regulator. See Test Run 2 in Table 1 for flow data.
- The working and monitor regulators were taken apart and inspected. It was found that the monitor regulator had a torn diaphragm. Figure 10 shows the tear in the diaphragm.



**Figure 10: Regulator Diaphragm on Monitor Regulator 10 AUG 2011. Note tear on right side.**

- After examining the pictures before assembly, it was determined that this tear occurred during assembly of the regulator for testing at GTI on 22 JUN 2011.



**Figure 11: Regulator Diaphragm inside of Monitor Regulator before testing on 22 JUN 2011.**

- In the afternoon, the working regulator was tested. The regulators were reassembled using grease along the diaphragm seal. The lug nuts along the edge of the regulator were tightened to a torque of 140 ft-lbs using a torque wrench. It was found after tightening that the specification calls for a 130 ft-lb torque.
- After reassembly, the pressure was restored to 145 psig. No leaks were detected. The pilot on the working regulator was adjusted half way down. Flow was introduced at 12 SCFM air with a pressure of 140 psig in the system. Flow was then taken up to 120 SCFM, and the pilot on the working regulator shuts off flow on the Fisher 399A working regulator. The pilot regulator was reset to the open position.
- Flow was adjusted to 80 SCFM. The working regulator was able to reduce the pressure to 12 psig. See Test Run 3 in Table 1 for flow data.
- At this point, it was agreed that we test the monitor regulator with the diaphragm from the working regulator. After changing it out and reassembling the regulators, the working regulator (downstream) was left wide open with no internal cage in order to test the flow on the monitor regulator alone. The restrictor was set to 2 on the dial of the pilot for the monitor regulator. The flow data is listed in Tables 2 and 3. P1 is the inlet pressure, and P8 is the outlet pressure of the system. Lock-up pressure of the regulator was also recorded, and is listed in Table 3.
- The data shows that the monitor regulator functioned as designed for 6 oz of outlet pressure during increasing and decreasing flow and pressure conditions.



**Table 1: Flow Data from 10 AUG 2011 for Pilot Regulators and Working Regulator**

| Test Run | Flow (SCFM air) | P <sub>1</sub> (psig) | P <sub>2</sub> (psig) | P <sub>3</sub> (psig) | P <sub>4</sub> (psig) | P <sub>5</sub> (psig) | P <sub>6</sub> (psig) | P <sub>7</sub> (psig) | P <sub>8</sub> (psig) |
|----------|-----------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1        | 15.15           | 147                   | 146                   | 44                    | 146                   | 146                   | 14.52*                | 14.50*                | 14.31*                |
| 2        | 16.90           | 152                   | 151                   | 151                   | 151                   | 151                   | 0.23                  | 0.08                  | 14.31*                |
| 3        | 80.14           | 151                   | 12                    | 151                   | 151                   | 151                   | 0.49                  | 0.08                  | 0.41                  |

\*Pressures were above the upper limit of the pressure gauge. Actual values are higher than reported.

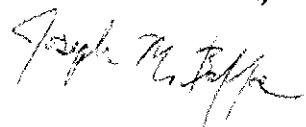
**Table 2: Flow Data from 10 AUG 2011 for Monitor Regulator with Increasing Flow**

| Flow<br>m³/s | Flow<br>m³/s | Flow<br>m³/s |
|--------------|--------------|--------------|
| 53.62        | 130          | 0.37-0.50    |
| 60.60        | 128          | 0.37-0.54    |
| 75.63        | 121          | 0.39-0.52    |
| 81.67        | 118          | 0.40-0.50    |
| 90.68        | 112          | 0.42-0.47    |
| 101.44       | 103          | 0.44-0.45    |
| 114.48       | 96           | 0.44         |
| 121.00       | 93           | 0.43-0.44    |

**Table 3: Flow Data from 10 AUG 2011 for Monitor Regulator with Decreasing Flow and Lock-up**

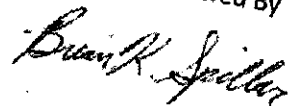
| Flow<br>(m³/s) | Pressure<br>(kPa) | Pressure<br>(kPa) |
|----------------|-------------------|-------------------|
| 121.00         | 93                | 0.43-0.44         |
| 109.50         | 99                | 0.43-0.44         |
| 100.20         | 105               | 0.43-0.44         |
| 90.36          | 113               | 0.42-0.46         |
| 80.55          | 118               | 0.40-0.49         |
| 70.49          | 122               | 0.39-0.55         |
| 60.54          | 128               | 0.39-0.53         |
| 47.91          | 132               | 0.37-0.66         |
| 40.31          | 134               | 0.36-0.57         |
| 31.25          | 137               | 0.35-0.61         |
| 0              | 150               | 0.45-0.46         |

Respectfully Submitted,



Joseph M. Baffoe

Reviewed By

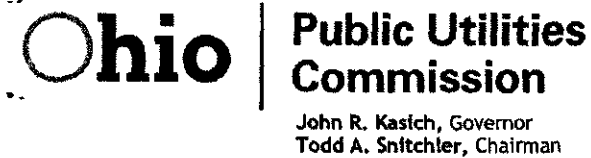


Brian K. Spillar

**END OF REPORT**

**Exhibit 4**

**Public Utilities Commission of Ohio  
Gas Pipeline Safety Section Notice of  
Probable Non-Compliance issued to  
Dominion East Ohio**



**Commissioners**

Paul A. Centolella  
Cheryl Roberto  
Steven D. Lesser  
Andre T. Porter

October 20, 2011

Anne E. Bomar  
Senior Vice President and General Manager  
Dominion East Ohio  
1201 East 55<sup>th</sup> Street  
Cleveland, OH 44103

Dear Ms. Bomar:

On January 24, 2011, a representative of the Public Utilities Commission of Ohio conducted a pipeline safety inspection of your pipeline facilities and records at Dominion East Ohio, pursuant to Section 4905.91(B) of the Ohio Revised Code.

As a result of the inspection, the Staff has issued the following Notice of Probable Noncompliance to Dominion East Ohio in accordance with Section 4901:1-16-09 of the Ohio Administrative Code, for review and written response within 15 days. The response is your opportunity to provide additional information for consideration by the Staff and/or to provide a proposed corrective action plan.

If you need more information, please call me at (614) 644-8983.

Sincerely,

A handwritten signature in black ink, appearing to read "Peter A. Chace".

Peter A. Chace, Program Manager  
Gas Pipeline Safety Section  
Facility and Operations Field Division

PC:jn  
Enclosure

**THE PUBLIC UTILITIES COMMISSION OF OHIO  
GAS PIPELINE SAFETY SECTION**

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

**NOTICE OF PROBABLE NONCOMPLIANCE**

Sent to Anne E. Bomar Title General Manager  
Operator Dominion East Ohio  
Address 1201 East 55<sup>th</sup> Street  
City Cleveland State Ohio Zip Code 44103  
Date of Inspection January 24, 2011 Place of Inspection Fairport Harbor Incident  
GPS Inspector Paul Hollinger, Keith Topovski, and Michael F. Purcell II

**DESCRIPTION**

ALL PROBABLE NONCOMPLIANCES LISTED BELOW SHOULD BE CORRECTED OR ACTION TAKEN TO CORRECT WITHIN 15 DAYS OF RECEIPT OF CERTIFIED LETTER.

- (1) Section 192.13(c) (49 C.F.R.); Title: What general requirements apply to pipelines regulated under this part?
- (2) Section 192.603(b) (49 C.F.R.); Title: General provisions.
- (3) Section 192.619(a)(i) (49 C.F.R.); Title: Maximum allowable operating pressure: Steel or plastic pipelines.
- (4) Section 192.739(a) (49 C.F.R.); Title: Pressure limiting and regulating stations: Inspection and testing.
- (5) Section 192.739(a)(4) (49 C.F.R.); Title: Pressure limiting and regulating stations: Inspection and testing.

**Describe Probable Noncompliance**

**192.13(c)** *Each operator shall maintain, modify as appropriate, and follow the plans, procedures, and programs that it is required to establish under this part*

Dominion East Ohio did not follow their policies and procedures for the following:

1. Measurement and Regulation Facility Design – 6.1.1 Dominion's procedure states, "These regulating devices shall have adequate capacity and be designed to meet the pressure (design pressure)." The regulator station LS-5473 did not meet the proper design pressure. The pilot regulators were designed for a maximum inlet of 150 psig and the inlet MAOP was 260 psig.
2. Design and Construction Manual – Section 6.8 Dominion's procedure states, "Stations feeding into a distribution system which are fed from a transmission or gathering system; A separator or filter-separator is recommended at locations that experience "wet" gas." Dominion found fluid in a parallel IP run at the High station on October 19, 2010. The IP station and LS-5473 low pressure station receive the same inlet transmission gas. The filter system used at LS-5473 was designed for particulates and not for removing fluid.
3. Standard Operating Procedure – 190.01(III) Dominion's procedure states that MAOP is determined by "the design pressure of the weakest element in the segment." Dominion did not follow their procedure when designing regulator station (LS-5473) in a segment of their system. Dominion installed a 150 psig pilot regulator in a 260 psig system and did not reduce the pressure for the weakest link.
4. Standard Operating Procedure – 210.02(B) Dominion's procedure states, "Each calendar year at intervals not exceeding 15 months, inspections and tests shall be conducted of each pressure-limiting station and its equipment." Dominion did not follow their procedure, when inspecting regulator station LS-5473. This station was installed in 1999 and was first inspected on October 26, 2009. This station was not inspected for approximately 10 years.
5. Standard Operating Procedure – 210.02(C) Dominion's procedure states that regulator stations must be "properly installed and protected from dirt, liquids, or other conditions, which may prevent proper operations." Dominion did not properly install pilot regulators at regulator station LS-5473. The pilot regulators were designed for a maximum inlet of 150 psig and were installed on a 260 psig MAOP system. Dominion did not install the proper filter system at regulator station LS-5473.

**192.603(b)** *Each operator shall keep records necessary to administer the procedures established under §192.605.*

Standard Operating Procedure – 210.02(B) Dominion's procedure states, "Each calendar year at intervals not exceeding 15 months, inspections and tests shall be conducted of each pressure-limiting station and its equipment." Dominion did not have records to show compliance with LS-5473 regulator station from 1999 until October 26, 2009.

**192.619(a)(1)** *No person may operate a segment of steel or plastic pipeline at a pressure that exceeds a maximum allowable operating pressure determined under paragraph (c) or (d) of this section, or the lowest of the following:*  
*(1) The design pressure of the weakest element in the segment, determined in accordance with subparts C and D of this part.*

Dominion did not follow the requirements in part 192.619(a)(1). Dominion installed a pilot regulator with a maximum inlet pressure rating of 150 psig, on a 260 psig transmission line (HP L#298) at regulator station LS-5473.

**192.739(a)** *Each pressure limiting station, relief device (except rupture disks), and pressure regulating station and its equipment must be subjected at intervals not exceeding 15 months, but at least once each calendar year, to inspections and test to determine that it is –*  
*(1) In good mechanical condition;*

Dominion did not inspect regulator station (LS-5473) for approximately 10 years. The LS-5473 was installed in 1999 and was first inspected on October 26, 2009.

**192.739(a)(4)** *Properly installed and protected from dirt, liquids, or other conditions that might prevent proper operation*

Dominion did not properly install regulators at station LS-5473. These regulators were designed for a maximum inlet pressure of 150 psig and were installed on a 260 psig system. Dominion did not have the proper filter installed to protect system from fluids. Dominion discovered fluids in the parallel I.P. run on October 19, 2010 and did not install the proper filter system to protect regulators at station LS-5473.

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Return written response within 15 days to:

Chief, Gas Pipeline Safety Section  
Public Utilities Commission of Ohio  
180 East Broad Street, 7th Floor  
Columbus, OH 43215-3793

For Other Information Call: Chief, Gas Pipeline Safety Section (614) 644-8983

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**Exhibit 5**

**DEO Regulating Station Annual  
Inspection Report Station LS-5473**

EXHIBIT 5

## REGULATING STATION ANNUAL INSPECTION REPORT

Form: P2859

Print Date: 09/27/2010

(by joanne9)

Station: LS-5473

HIGH STREET

Division:  
NORTHEAST

Due Date: 2010-10

Location: ESIDE HIGH NOE EAST / FAIRPORT

| REGULATORS   |       |           |            |              |             |              |                          |     |     |       |         |
|--------------|-------|-----------|------------|--------------|-------------|--------------|--------------------------|-----|-----|-------|---------|
| Manufacturer | Model | Pipe Size | Valve Size | Spring Color | Inlet Pres. | Outlet Pres. | Diaph/Actuator Size/Type | Run | Cut | M/W/R | Lock-Up |
| FISHER       | 399A  | 3         | 100%       | N/A          | 80 #        | 8.5 oz       | 3                        | 1   | 1   | M     | Y       |
| FISHER       | 399A  | 3         | 100%       | N/A          | 80 #        | 6.5 oz       | 3                        | 1   | 2   | W     | Y       |
| FISHER       | 399A  | 3         | 100%       | N/A          | 150 #       | 90 #         | 3                        | 2   | 1   | M     | Y       |
| FISHER       | 399A  | 3         | 100%       | N/A          | 150 #       | 80 #         | 3                        | 2   | 2   | W     | Y       |

| RELIEF VALVES |       |           |            |              |                   |                |         |     |     |
|---------------|-------|-----------|------------|--------------|-------------------|----------------|---------|-----|-----|
| Manufacturer  | Model | Pipe Size | Valve Size | Spring Color | Oil Seal Depth-IN | Act Set Verify | Max Set | Run | Cut |
| NONE          |       |           |            |              |                   |                |         |     |     |

| CLEANERS     |            |           |                    |                |      |            |
|--------------|------------|-----------|--------------------|----------------|------|------------|
| Manufacturer | Model      | Pipe Size | Internal Condition | Filter Changed | Date | Fill. Elem |
| SPARKS       | SERIES P30 | 3         |                    |                |      |            |
| SPARKS       | SERIES P30 | 3         |                    |                |      |            |

| RECORDING GAUGES |       |               |         |         |         |
|------------------|-------|---------------|---------|---------|---------|
| Manufacturer     | Model | Serial Number | 1st Pen | 2nd Pen | 3rd Pen |
| NONE             |       |               |         |         |         |

| PILOTS       |         |              |                |
|--------------|---------|--------------|----------------|
| Manufacturer | Model   | Spring Color | Run/Cut/Suffix |
| FISHER       | 161-AYM | CADMIUM      | 1/1/R          |
| FISHER       | 161-AY  | CADMIUM      | 1/2/R          |
| FISHER       | 161-EBM | CADMIUM      | 2/1/R          |
| FISHER       | 161-EB  | CADMIUM      | 2/2/R          |

Last Inspection: 10/26/2009 by JEFF068

FIREGATE VALVE(S): , , , , , ,

Remarks:

NEW STATION CILANGINA BOOT IN IP MONITOR RIG  
 REMOVED OIL FROM IP SIDE CONTROL LINES

Service Awareness:

*10/19/10*

Signed *[Signature]* Date

| INSPECTION ITEMS                            |       |       |
|---|-------|-------|
| CATEGORY                                    | Prev. | New   |
| Station Appearance                          | SAT   | S/N/A |
| Corr. Tech. Eval. Req.                      | NO    | Y/N   |
| Cleaners Intern. Cond.                      | N/A   | S/N/A |
| Station Signage                             | SAT   | S/N/A |
| Ventilators                                 | SAT   | S/N/A |
| Fence Cond.                                 | N/A   | S/N/A |
| Building Cond.                              | SAT   | S/N/A |
| Vault/Pit Cond.                             | N/A   | S/N/A |
| Vent Stacks                                 | N/A   | S/N/A |
| Station Piping Supports                     | SAT   | S/N/A |
| Control/ Sols/ Supp. Lines                  | SAT   | S/N/A |
| Gas Leakage                                 | NO    | Y/N/A |
| Cleaners- Elem. Changed                     | N/A   | Y/N/A |
| Valves Operating Properly                   | YES   | Y/N/A |
| By-Pass(es) Locked Closed                   | N/A   | Y/N/A |
| Rel. Valves Locked Open                     | N/A   | Y/N/A |
| Station Secure                              | YES   | Y/N/A |
| Dwg Avail.                                  | N/A   | Y/N/A |
| Dwg Accur.                                  | N/A   | Y/N/A |
| Rec. Gauges Calibrated                      | N/A   | Y/N/A |
| Transducer Calibrated                       | N/A   | Y/N/A |
| Hi-Lo Mon Perf. Test                        | N/A   | Y/N/A |
| Fire Gates Accessible                       | YES   | Y/N/A |
| Fire Gates Operated                         | YES   | Y/N/A |
| Fire Gates Lubricated                       | N/A   | Y/N/A |
| Fire Gates Tagged                           | N/A   | Y/N/A |
| Vault/Pit Standing H2o                      | N/A   | Y/N/A |
| Vault/Pit Gas Leakage                       | N/A   | Y/N/A |
| Vault/Pit Adequate Vent.                    | N/A   | Y/N/A |
| Vault/Pit Cover Safety Hazard               | N/A   | Y/N/A |
| Initial Install: Clean & Coated or Jacketed | N/A   | Y/N/A |

\*83241\*

**Exhibit 6**

**DEO Response to the Notice of  
Probable Non-Compliance**

Anne E. Bomar  
Senior Vice President & General Manager – Dominion East Ohio

Dominion Resources Services, Inc.  
1201 East 55<sup>th</sup> Street, Cleveland, OH 44103



November 8, 2011

Mr. Peter A. Chace  
Program Manager, Gas Pipeline Safety Section  
Public Utilities Commission of Ohio  
180 East Broad Street, 7<sup>th</sup> Floor  
Columbus, Ohio 43215-3793

**Subject: Probable Non Compliance Response, Fairport Harbor Incident, October 20, 2011**

Dear Mr. Chace:

This letter is in response to your letter of October 20, 2011 concerning the Gas Pipeline Safety Inspection conducted by Mr. Paul Hollinger, Mr. Mike Purcell and Mr. Keith Topovski at Fairport Harbor on January 24, 2011. The following information is provided for your review and consideration per your request. In your letter you stated that;

*192.13 (c) Each operator shall maintain, modify as appropriate, and follow the plans, procedures, and programs that it is required to establish under this part.*

DEOG did not follow their below referenced Standard Operating Procedures;

Section 6.1.1 Measurement and Regulation Facility Design

Dominion's procedures states, "These regulating devices shall have adequate capacity and be designed to meet the pressure (design pressure)." The regulator station LS-5473 did not meet the proper design pressure. The pilot regulators were designed for a maximum inlet of 150 psig and the inlet MAOP was 260 psig.

Section 6.8 Design and Construction Manual.

Dominion's procedure states, "Stations feeding into a distribution system which are fed from a transmission or gathering system; a separator or filter-separator is recommended at locations that experience "wet" gas." Dominion found fluid in a parallel IP run at the High station on October 19, 2010. The IP station and LS-5473 low pressure station receive the same inlet transmission gas. The filter system used at LS-5473 was designed for particulates and not for removing fluid.

Section 190.01(III) – Standard Operating Procedure

Dominion's procedure states that MAOP is determined by "the design pressure of the weakest element in the segment." Dominion did not follow their procedure when designing regulator station (LS-5473) in a segment of their system. Dominion installed a 150 psig pilot regulator in a 260 psig system and did not reduce the pressure for the weakest link.

Section 210.02(C) – Standard Operating Procedure

Dominion's procedure states that regulator stations must be "properly installed and protected from dirt, liquids, or other conditions, which may prevent proper operations." Dominion did not properly install pilot regulators at regulator station LS-5473. The pilot regulators were designed for a maximum inlet of 150 psig and were installed on a 260 psig MAOP system. Dominion did not install the proper filter system at regulator station LS-5473.

*192.619(a)(1) No person may operate a segment of steel or plastic pipeline at a pressure that exceeds a maximum allowable operating pressure determined under paragraph (c) or (d) of this section, or the lowest of the following: (1) The design pressure of the weakest element in the segment, determined in accordance with subparts C and D of this part.*

Dominion did not follow the requirements in part 192.619(a)(1). Dominion installed a pilot regulator with a maximum inlet pressure rating of 150 psig, on a 260 psig transmission line (HP L#298) at regulator station LS-5473.

*192.739(a)(4) Properly installed and protected from dirt, liquids, or other conditions that might prevent proper operation*

Dominion did not properly install regulators at station LS-5473. These regulators were designed for a maximum inlet pressure of 150 psig and were installed on a 260 psig system. Dominion did not have the proper filter installed to protect system from fluids. Dominion discovered fluids in the parallel IP run on October 19, 2010 and did not install the proper filter system to protect regulators at station LS-5473.

**Dominion East Ohio Operator Response**

**Dominion removed LS-5473 on January 25, 2011 and will not place the station back in service without modifications that meet Dominion's Design and Construction Manual. Dominion is currently reviewing the design of all pressure regulating devices in our system as previously agreed with the PUCO. This will identify any additional pilot regulators not rated for current MAOP. The review is scheduled to be completed by December 2012, as directed by the PUCO.**

The letter further stated that;

*192.13 (c) Each operator shall maintain, modify as appropriate, and follow the plans, procedures, and programs that it is required to establish under this part.*

DEOG did not follow their below referenced Standard Operating Procedures;

Section 6.8 Design and Construction Manual.

Dominion's procedure states, "Stations feeding into a distribution system which are fed from a transmission or gathering system; a separator or filter-separator is recommended at locations that experience "wet" gas." Dominion found fluid in a parallel IP run at the High station on October 19, 2010. The IP station and LS-5473 low pressure station receive the same inlet transmission gas. The filter system used at LS-5473 was designed for particulates and not for removing fluid.

#### **Dominion East Ohio Operator Response**

Dominion has determined the preferred location for removal of fluids would be the production feeds into Dominion delivery systems. Dominion has enhanced the enforcement policy for fluid found at or beyond the production meters supplying gas to Dominion delivery systems. These actions will allow Dominion to shut off production sites in violation of equipment standards or gas quality standards from producers supplying gas to Dominion. Dominion will perform a design review upon discovery of fluids to determine the best possible remedial action to mitigate fluids found. The fluid found at LS-5473 in the IP run on October 19, 2010 was mitigated through cleaning the filters and removing fluid from the regulator supply lines. Dominion inspected all the filters on the LP run on October 19, 2010 and found no evidence of fluids.

The letter further stated that;

*192.13 (c) Each operator shall maintain, modify as appropriate, and follow the plans, procedures, and programs that it is required to establish under this part.*

DEOG did not follow their below referenced Standard Operating Procedures;

#### Section 210.02(B) – Standard Operating Procedure

Dominion's procedure states, "Each calendar year at intervals not exceeding 15 months, inspections and tests shall be conducted of each pressure-limiting station and its equipment." Dominion did not follow their procedure, when inspecting regulator station LS-5473. This station was installed in 1999 and was first inspected on October 26, 2009. This station was not inspected for approximately 10 years.

*192.603(b) Each operator shall keep records necessary to administer the procedures established under §192.605.*

#### Section 210.02(B) – Standard Operating Procedure

Dominion's procedure states, "Each calendar year at intervals not exceeding 15 months, inspections and tests shall be conducted of each pressure-limiting station and its equipment." Dominion did not have records to show compliance with LS-5473 regulator station from 1999 until October 26, 2009.

*192.739(a) Each pressure limiting station, relief device (except rupture disks), and pressure regulating station and its equipment must be subjected at intervals not exceeding 15 months, but at least once each calendar year, to inspections and test to determine that it is –  
(1) In good mechanical condition;*

Dominion did not inspect regulator station (LS-5473) for approximately 10 years. The LS-5473 was installed in 1999 and was first inspected on October 26, 2009.

#### **Dominion East Ohio Operator Response**

Dominion placed LS-5473 in our Compliance Tracking System immediately upon discovery that the station inspections were not being tracked by the system. Dominion also performed inspections of LS-5473 immediately upon discovery in October 2009 and again in October 2010, in compliance with code requirements, and has supplied documentation of the inspections to the PUCO.

Mr. Peter A. Chace  
Page 4 of 4

If you have any questions or need additional information, please do not hesitate to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "A. E. Bomar".

On behalf of,  
Anne E. Bomar  
Senior Vice President & General Manager  
Dominion East Ohio

cc: Eric Hall  
Robert Majikas  
Steve Buck

