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# **NGA**

# **Operator Qualification Program**

  

# **Security Considerations for**

# **Online Testing**

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*Paul Armstrong*  
*Vice President Training & Qualification Services*  
*Northeast Gas Association*

# Presentation Outline

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- NGA Overview
- OQ Security Incidents
- Security Enhancements
  - Interim Security Measures
  - Long-term Security Plan
  - Additional Security Measures
- Summary of Lessons Learned

# NGA

- The Northeast Gas Association (NGA) is a regional trade association that focuses on education and training, technology research and development, operations, planning, and increasing public awareness of natural gas in the Northeast U.S.
- NGA's mission is to promote and enhance the safe, reliable, efficient, and environmentally responsible delivery of natural gas to customers in the region, and to advocate for the industry from production to delivery.
- NGA members include natural gas distribution companies, transmission companies, liquefied natural gas importers, and associate member companies. These companies provide natural gas to over 13 million customers in nine states (CT, ME, MA, RI, NH, NJ, NY, PA, VT)

# NGA OQ Program

- NGA's OQ Program has been developed *by operators for operators* since its original inception in 2000 and is utilized by the majority of operators and contractors in the northeast.
- NGA has worked with membership to create an operator developed regional OQ plan framework.
  - Regional OQ Plan – Overseen by NGA's OQ Committee.
  - Common Learning Management System – Overseen by NGA's Training and Qualification Committee.
  - Common Evaluations – Overseen by NGA's OQ Committee, developed by utility subject matter experts.
  - NGA Pipe Joining Program – Overseen by NGA's Pipe Joining Committee.

# OQ Testing Incidents

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- December 2016 – January 2017
  - Multiple instances where knowledge exams were compromised.
- Various methods were used to compromise exams.
  - Intentional use of software running in the background of test computers to capture exam content.
  - Configuration of computer networks to print screen captures to remote printers.
  - Other?
  - Information then compiled into training guides/manuals.

# Interim Security Measures

- Understanding the methods used to compromise exams drove policy decisions relative to security measures and the degree of control required over test computers and networks for online exams.
- Interim security measures include:
  - Suspended online testing.
  - Released all new exams.
  - Lockdown browser to restrict computer functionality (interim measure).
  - Change from one to two proctors at all test sites. At least one of the proctors must be an NGA proctor (independent 3<sup>rd</sup> party).
  - Retrained all proctors.
  - Tightened security provisions (i.e. cell phone restriction, written test agreement, etc.)
  - Prohibited online testing at contractor facilities.
- Commenced evaluation of long-term security options.

# Long-Term Security Plan

- As directed by NGA's Board of Directors, established a relationship with Prometric, a respected professional testing firm for the secure delivery of all online exams.
  - Prometric Inc. – leader in the test delivery market delivering more than 9 million exams per year.
- Best in Class Security for online exams
- Flexibility in the delivery locations for online testing:
  - Prometric Test Centers
  - LDC Test Centers
  - Temporary/Portable Test Centers at neutral 3rd party sites
  - In 2018, providing Prometric meets expectations, consider expansion of test center options to include Union and Contractor facilities.
- Consistency in Security – Prometric is able to provide the same degree of security for online exams in all test environments.

# Consistent Security Measures

- Proctoring:
  - Utilize Prometric trained and certified proctors.
  - 2 proctors per test session – one to oversee testing, second to oversee the secure check in process and assist with test monitoring.
- Test Center Security includes:
  - ID verification; no personal electronic devices; metal detector wandling, checking shirt sleeves, pant cuffs, and pockets; checking glasses, jewelry and accessories for spy cameras
  - DVR recording of all examinees (video and audio) with real-time monitoring by the proctor; all recordings archived for 6 months.
- Data System Security:
  - Physically secured file server; dedicated data line; closed and secure local network; locked down workstations with minimal functionality; restricted USB and keyboard functionality; all data at rest and in transit is encrypted.



# Options for Testing

- Brick & Mortar test centers:
  - 41 test centers in the 9 state region.
  - 80% of LDC corporate offices are within 25 miles of a test center.
  - 90% are within 50 miles.

NGA Coverage			
Range (miles)	#	%	Cum %
0-10	20	48.8%	48.8%
11-25	12	29.3%	78.0%
26-50	5	12.2%	90.2%
51-75	4	9.8%	100.0%
<b>Total</b>	41		

- 3rd Party test centers:
  - Dedicated to online testing.
  - Built to Prometric specifications.
- Temporary test centers via “Event Kits”:
  - Hotels, conference centers, 3rd party sites.
  - NGA would purchase “Event Kit” hardware.
  - Prometric would install and commission security systems at each venue.
  - Higher cost per event or per person but eliminates investment in an onsite test center.



# Union and Contractor Online Testing

- Initial options for contractors and unions:
  - Test at Prometric test centers.
  - Test at LDC test centers.
  - Temporary test centers via “event kits” at neutral locations.
- Large unions and contractors have expressed a strong desire to build Prometric compliant test centers on their premises.
- Revisit the option of building a Prometric compliant test center on contractor and union premises later in 2018 once LDCs and regulators gain confidence in the Prometric security provisions and testing process.

# Rational for Long-Term Security Plan

- Establishing a balance between:
  - Security & Credibility
  - Flexibility
  - Cost
- **A professional, independent 3rd party testing partner brings credibility** in the secure delivery of online tests as they have security expertise with proven and validated processes.
- A 3rd party testing partner provides **flexibility in test locations** along with **consistency in security measures**.
- NGA enlisted the services of Black & Veatch Consulting to further develop and analyze the options. The B&V assessment concluded that the **optimal solution is provided by Prometric** due in large part to their **decades of experience with mature testing platforms as well as proven policies and procedures** with respect to test delivery.

# Additional Security Initiatives

- Cloning of exams:
  - NGA has contracted with a testing professional to clone the NGA exams. The cloned exams will serve as a risk mitigation measure and contingency plan should a breach in exam questions ever happen again. Work on cloning commenced in March 2017 and is actively ongoing.
- Forensic analysis pilot program to analyze exam results:
  - NGA has contracted with Caveon Test Security for an expanded pilot program where they would develop a data forensic analysis strategy and systematically perform data forensic analysis on exam results with the goal of identifying test anomalies. Examples include patterns with specific exams, companies, test centers, proctors, etc.

# Test Development & Administration

- Security of Exams must be considered in Test Development:
  - Restricted access to SME's.
  - Confidentiality agreement with SME's.
  - Secure file share system which tracks access and prevents downloading files (view only).
- Security of Exams must be considered with Test Results:
  - Restricted access to Exam results.
  - Reporting of exams results by Task Domain to provide coaching to companies/examinees on areas of weakness.

# Lessons Learned

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- Be diligent and vigilant with security measures and protocols as the integrity of your qualification process can be jeopardized.
- Establish a balance between:
  - Security & Credibility
  - Flexibility
  - Cost
- Consider security through your entire process - from exam development, through administration and reporting.
- Consider risk mitigation and program recovery strategies should a compromise occur.
- Consider partnering with a professional firm with expertise in the secure delivery of online exams.

**Thank You!**

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**Paul Armstrong**  
**Northeast Gas Association**  
**75 Second Ave.**  
**Suite 510**  
**Needham, MA 02494**  
[www.northeastgas.org](http://www.northeastgas.org)  
[parmstrong@northeastgas.org](mailto:parmstrong@northeastgas.org)