

# **The Future of Training and Operator Qualification**

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# Agenda

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- What happened
- Implications
- Future of online testing
- Additional Regulatory Concerns
- Considerations for training
- FAQs

# December 2016

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- December 6 – NGA summoned to NY PSC offices. PSC was investigating an anonymous letter which was accompanied by approximately 20 study guides directly connected to NGA exams.
- Investigations launched by the NY PSC and impacted LDCs.
- NGA directed to suspend online testing in NY.

# January 2017

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- January 3 – NGA informed of a second incident in NY involving a different company and an apparent breach of online exams.
- Investigations launched by the NY PSC and impacted LDCs.
- NGA suspends online testing until a new slate of exams can be introduced with enhanced security measures.
- Later in January, a NYC based investigative reporter submits copies of OQ paper exams to the NYS PSC.

# February 2017

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- NGA informed of alleged compromises of online exams in the state of Virginia potentially involving multiple contractors.
- NGA had provided OQ consulting services to VA operators and thus there was concern that NGA's new exams may have been compromised.
  - NGA's newly released exams were not compromised.

# Implications

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- Integrity of testing process was compromised.
- Presumption that all online exams could have been compromised.
- Presumption by some regulatory officials that dissemination of exam content could have been widespread.
- Raises concern over the quality and workmanship of pipeline installations.

# How Did the Compromises Occur?

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- We believe that various methods were used to compromise exams (investigations ongoing). These include:
  - 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.
  - Information then compiled into training guides/manuals.
- This understanding of the methods used to compromise exams drove policy decisions relative to the degree of control required over test computers and networks for online exams.
  - Lockdown browser (interim measure)
  - Further enhancements to security (long-term)

# Future of Online Testing

- Exploring 4 Options:
  - 1) Status quo – 2 proctors, restrict testing to LDC or NGA test centers, Lockdown browser.
  - 2) 3<sup>rd</sup> Party IT Partner with enhanced technology to secure computers and networks at remote test locations
  - 3) 3<sup>rd</sup> Party Professional Testing Partner
  - 4) Hybrid solution – combination of one or more of the above
- Presented progress with the analysis of the above options to NGA's Board in both February and March.
- Looking to establish a balance between:
  - Security
  - Flexibility
  - Credibility
  - Cost
- **Emphasis on flexibility to return to testing at Contractor sites.**



# 3<sup>rd</sup> Party IT Partner for Enhanced Network Security

- 3<sup>rd</sup> Party IT Partner to deploy advanced network security options, such as:
  - Advanced Network Architecture:
    - Replaces network layers (3-7) with secure one-hop network fabric
    - Profile management, rapid remote device configurations
    - Security analytics and Intrusion Detection System (IDS)
  - Managed End-Points:
    - Profile management, network configuration management
    - IDS, behavior analysis
  - Thin Client:
    - Server-side/datacenter processing, less capable clients. (DoD model).
- NGA and IT Partner would establish test center requirements
  - IT specifications for local computers, servers, networks, firewalls, software
  - Audio/video recording equipment, security protocols, proctor protocols

## 3<sup>rd</sup> Party Testing Partner

- Started with 5 industry leading firms, narrowed to 2 leading contenders, focus currently on one firm (Prometric).
- Standard business model allows for testing to be performed at:
  - Brick & Mortar test centers
  - Utility and Contractor facilities
  - Other venues
- Mature and proven processes in secure delivery of online tests.
- All testing venues would utilize exactly the same security measures.
  - Digital security – hardware, software, servers, network security, etc.
  - Physical security – ID verification, physical measures, audio/video, remote auditing, certified proctors, etc.



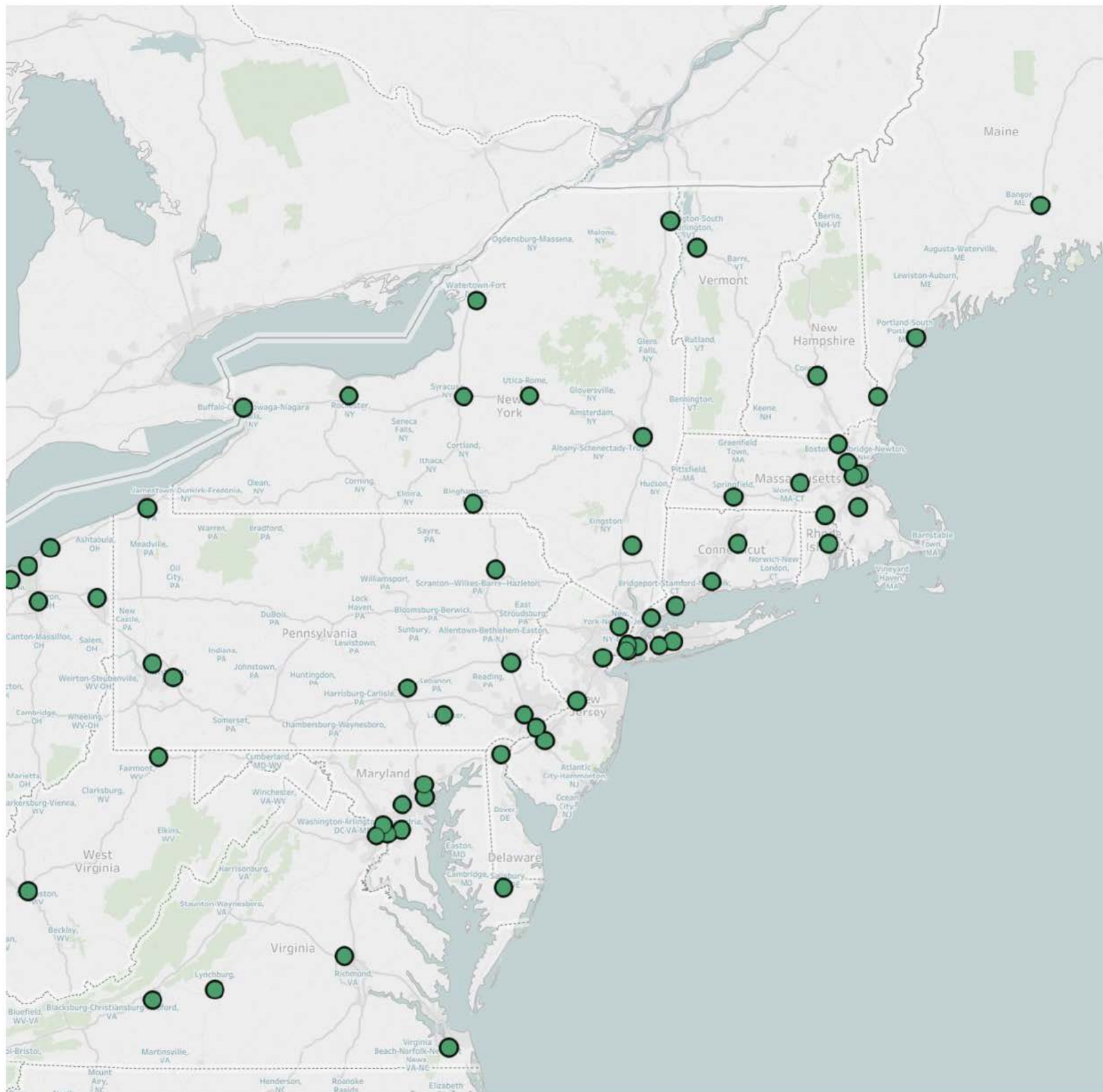
## Options for Testing

# 3<sup>rd</sup> Party Testing Partner

- 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.
- Utility and Contractor test centers:
  - Dedicated to online testing.
  - Built to Prometric specifications.
  - Approximately \$50k for a 15 seat test center (electronic equipment and installation)
- Other venues:
  - Hotels, conference centers, utility/contractor sites.
  - NGA may purchase a few “Event Kits” for temporary testing needs.
  - Higher cost per event or per person but eliminates investment in an onsite test center.

NGA Coverage			
Range	#	%	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%
Total	41		

## Prometric Test Centers in the Northeast U.S.





Integration with ITS Onboard Learning Management System

## 3<sup>rd</sup> Party Testing Partner

- Prometric will open a secure portal to the ITS system through their “*Weblaunch*” product.
- Testing will be conducted through the ITS system, as is currently done today.
- ITS Onboard system will continue:
  - As the database of record
  - To determine eligibility to test on each exam
  - As the platform for online testing and training
  - To provide reports and tools for managing the qualification process
- Integration points between Prometric and ITS:
  - *Weblaunch* authentication with ITS and security certificates
  - Proctor password process
  - Test session timeout process (at Prometric test centers)
  - Scheduling process for examinees
  - Etc.

## Business Model

# 3<sup>rd</sup> Party Testing Partner

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- NGA would contract with the 3<sup>rd</sup> Party Testing Partner
- Costs would flow through NGA to LDC or Contractor
- Implementation and any ongoing operating costs would be reflected in annual per person fees.
  - Currently estimated at \$200k for integration of Prometric with ITS.
- Testing costs (preliminary):
  - Essentially buying seat time per examinee.
  - Approximately \$65 for a four hour test session (per person).
  - Costs include a Prometric proctor.
  - Testing costs are the same regardless of test venue.

# OQ Testing Security Considerations

Security Measure	Current Model	Prometric Test Center	Prometric Center Located at Utility or Contractor Site	Temporary Prometric Center at 3rd Party Location <sup>1</sup>	Existing Model with Enhanced Security (Avaya Fabric)
<b>Computer / Network Security</b>					
Locked down workstations	X	X	X	X	X
3rd party administration and control over computer hardware/software		X	X	X	X
Real time monitoring of computer network and activity during testing		X	X	X	X
Secure/encrypted network from test computer to test server		X	X	X	X
Audio/video recording of test sessions		X	X	X	X
<b>Proctoring</b>					
Proctored test session	X	X	X	X	X
Proctor certified by 3rd party		X	X	X	
Proctor provided by 3rd party		X	X	X	
Proctor provided by NGA	X				X
<b>Physical Security</b>					
Picture ID verification	X	X	X	X	X
Fingerprint for ID validation		X	X	X	
Wanding, emptying of pockets before entering test room		X	X	X	
Inspect eyewear, hair/clothing accessories, etc. for cameras		X	X	X	

Preliminary Recommendation

# 3<sup>rd</sup> Party Testing Partner

- A 3<sup>rd</sup> party testing partner brings **credibility** in the secure delivery of online tests as they have decades of experience with proven and validated processes.
- A 3<sup>rd</sup> party testing partner provides **flexibility in test locations**.
- NGA believes this approach has the **highest likelihood of success to return to testing at contractor facilities**.
- NGA enlisted the services of Black & Veatch Consulting to further develop and analyze the options. Preliminary analysis points to 3<sup>rd</sup> Party Testing Partner as the highest rated option.
- NGA's recommendation to its Board was to focus efforts and complete the vetting process for the 3<sup>rd</sup> Party Testing Partner option.
- NGA will proceed along this path working towards a final report with recommendations to the Board in mid-May.



# Additional Regulatory Concerns and OQ Implications

- Vast majority of field violations relate to not following company operating procedures.
  - OQ Implication – Regulators pushing for OQ testing to company operating procedures. Primary concern is the contractor community.
  - NGA considering standardizing a contractor onboarding process with guidelines for minimum training requirements, some form of evaluation (performance test, challenge test, written test) which will need to be documented and auditable.
- Equipment specific qualifications
  - NGA program focuses on the task and process vs. equipment. Training should cover equipment and should be documented and auditable.
  - OQ Implication – are there certain types of equipment that are sufficiently different which warrant a new qualification?
- Performance Evaluations for all covered tasks
  - OQ Implication – review criteria for PE vs. WE, adjust if warranted.
- Training programs have regressed since the early 2000s

# OQ Roadmap

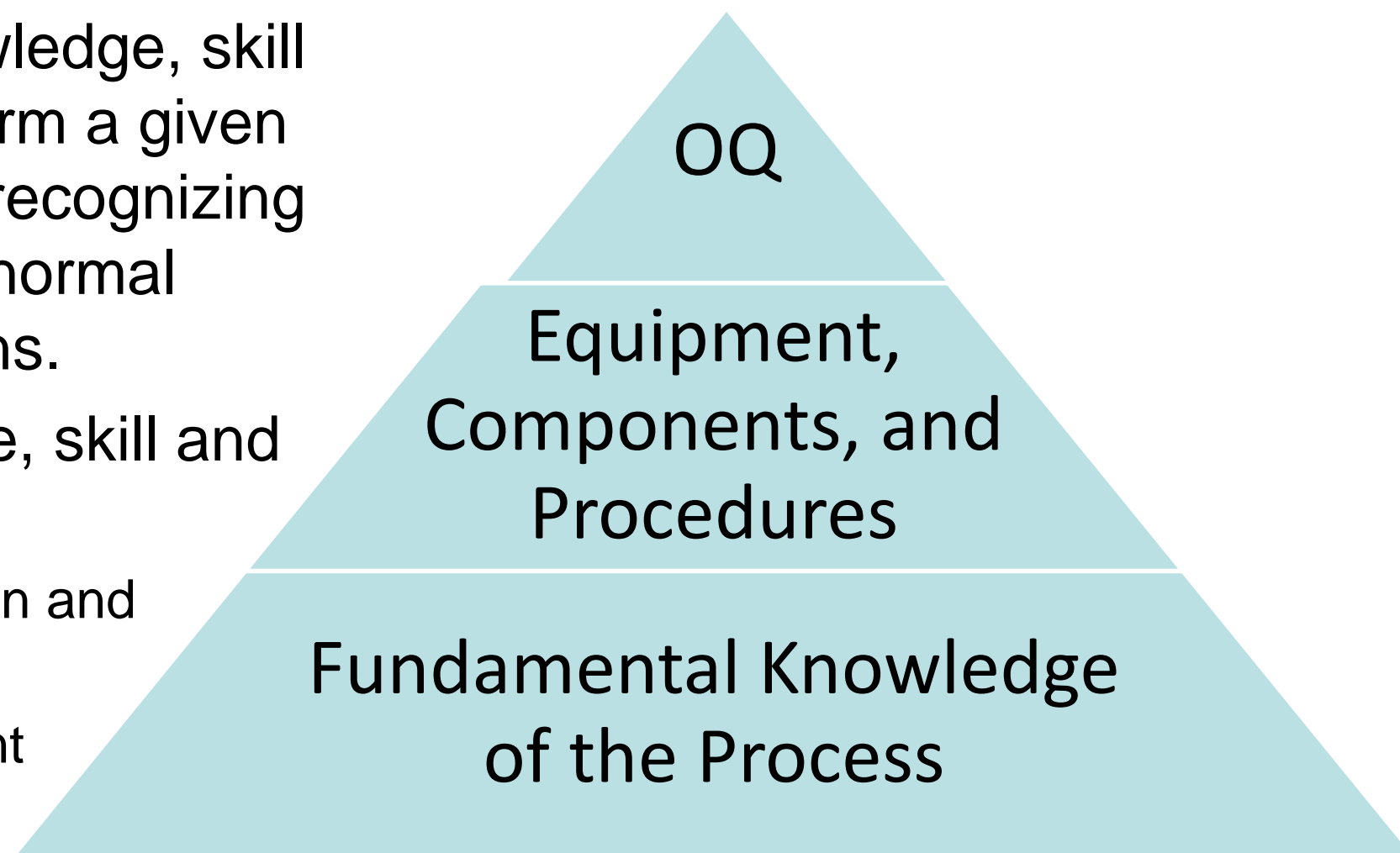
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- Regulatory concerns challenge the fundamental principles of a regional OQ program.
- Issues must be addressed with state regulators.
- NGA will be working with membership to develop a position on these and other fundamental issues so that productive discussions with regulators may be had.
- Outcomes from this process will be prioritized and form the basis of an OQ Roadmap which will be the blueprint for forthcoming changes to the NGA OQ Program.

# Considerations for Training

## Two major aspects of training:

1. Fundamental knowledge, skill and ability to perform a given process including recognizing and reacting to abnormal operating conditions.
2. Specific knowledge, skill and ability relative to:
  - Equipment operation and maintenance;
  - Fitting or component installation instructions;
  - Company specific procedures



# Training Documentation

- Must be documented and auditable:
  - Attendance
  - Agendas
  - Knowledge:
    - Curriculum with minimum time requirements
    - Fundamentals of each task
    - Specific requirements of equipment/fitting/company procedures
  - Demonstration of KSA:
    - Demonstration could be hands-on training, simulation, OJT, challenge tests, etc.
    - Proper use of tooling/equipment
    - Proper installation of component/fitting



If it's not documented, it never happened!

# Frequently Asked Questions

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# When Will Updated Training be Available?

- **NGA Online Refresher Training**

- 15-20 minute refresher modules intended for experienced personnel
- eLearning or eBook modules will be available by April 24<sup>th</sup>.
- eBook modules being used as an interim step to expedite release of technical content.
- Schedule is posted on the NGA website at:  
[http://www.northeastgas.org/nga\\_oq.php](http://www.northeastgas.org/nga_oq.php)

- **GTI Field Skills Training Program**

- Comprehensive instructor-led training program covering the fundamentals needed to perform construction and O&M activities.
- 77 Modules with leader's guide, participant guide, presentation material, videos, hands-on activities, and knowledge checks.
- Available for license and download through GTI.  
Contact Vanessa O'Neil at [Vanessa.Oneil@gastechnology.org](mailto:Vanessa.Oneil@gastechnology.org)
- All modules have been updated to reflect content in the NGA exams.

# The New Exams are More Challenging. Are the Questions Being Reviewed?

- NGA has run Item Analysis Reports for all exams. This report provides pass/fail rates for all exams and all questions on each exam.
- SME teams have reviewed all exams (> 100 exams taken) and all questions with average score less than 75%.
- Adjustment to test questions have been made on 82 exams primarily to clarify the question and/or possible responses.
  - Typically 1-3 questions per exam
  - Scores have increased from 0 – 9%, typical is 1-3%.
  - Average test score has increased from 85.6% to 86.4%.
  - Results vary by exam, range from 74% - 96%.
- In many cases, the SME teams thought the question was appropriate and that additional training may be required.
- SME teams are beginning a second round of reviews.

# Who Do I Contact with Questions or to Schedule Evaluations?

- To schedule a Proctor for online evaluations, an Evaluator for performance evaluations, a Trainer for instructor led training or an interpreter:
  - [OQ@northeastgas.org](mailto:OQ@northeastgas.org)
- For questions regarding the ITS Onboard system or specific qualification questions:
  - [NGAQualificationServiceDesk@northeastgas.org](mailto:NGAQualificationServiceDesk@northeastgas.org)
- For issues that arise during online test sessions, such as test resets:
  - Call the NGA Service Desk at 781-455-6800, press 1 for the service desk.
  - The NGA Service Desk is open Monday – Friday, 7 am – 7 pm, and Saturdays 7 am – noon.
- For concerns with proctors, evaluators or testing protocols:
  - Steve Henry, 781-455-6800 x101, [shenry@northeastgas.org](mailto:shenry@northeastgas.org)



# What is the Lead-Time Required for Scheduling?

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- Schedule time at a test center: 5 – 10 business days depending on availability
- Schedule a proctor: 5 business days
- Schedule an evaluator: 10 business days
- Schedule a trainer: 15 business days
- Schedule an interpreter: 15 business days
- More notice is always better!

# Why Do I Need a Site Representative for Online Testing?

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- Feedback from multiple LDCs operating test centers have indicated this is a best practice to efficiently address issues as they arise with minimal disruption to the class, the proctor and LDC site representatives.

# What is the Status of Accelerated Retesting in New York?

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- NYS PSC has issued a mandate to restore the public confidence in the qualifications of the New York workforce.
- “Retest” not “Requalify”
- NGA and NYS LDCs presented multiple paths for which public confidence can be restored.
  - Performance exams
  - Documented progression or apprenticeship programs which do not rely solely on OQ online testing.
  - Documented training programs which do not rely solely on OQ online testing.
- Each NY LDC will work with the NYS PSC to put a plan in place for their contractor workforce.
- Once plans are firm, NGA will schedule a meeting with NY LDCs and Contractors to streamline scheduling and support processes.

# Why are Contractors No Longer Allowed to Participate on OQ Related Committees?

- NGA+ membership allowed contractors to have non-voting participation on certain NGA committees.
- Given the recent incidents and ongoing investigations, NGA has been advised by counsel that contractor participation on any committee that has direct influence or governance over qualification programs should be temporarily suspended.
- The impacted committees include the OQ Committee, the Training & Qualification Committee and the Pipe Joining Committee.
- **NGA values the contributions of the contractor community to our programs and we hope to return to an inclusive model as soon as possible.**