July 26, 2007

To: Participants of ASME QRO Training/Workshop conducted on June 22, 2007

Subject: Distribution of Notes

Dear Participants,

A set of notes from the training conducted on June 22, 2007 is attached. These notes provide topics that were discussed at the session. They are not a list of absolute determinations. Changes to letters, procedures, and Interview Guide may be forthcoming. Some issues may require QRO Committee consideration.

Please call me if you have any questions.

Yours truly,

John Millman
Project Engineering Administrator
(212) 591-8584
millmanj@asme.org

E-Mailed to participants present:

cc:
A. Bagner, E. Buxton, S. Burkhart, A. Moskie, David Wizda, B. Young, A. Miller, T. Maillet, R. Hasemeier
NOTES
Training/Workshop for QRO Consultants
Friday, June 22, 2007

ASME
3 Park Avenue
New York, NY 100016 (Board Room A)

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These notes provide topics that were discussed at the meeting. They are not a list of absolute
determinations. They do not capture all of the discussion. Changes to letters, procedures, and Interview
Guide may be forthcoming. Some issues may require Committee consideration.
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1. The meeting was called to order at 9:10 AM
   Participants were introduced. The list of participants is provided as Attachment __1__.

2. Overview of QRO Operator Program

2.1. Establish whether an individual working at the level of Shift Supervisor or Chief Facility Operator
   has the required knowledge of the subject. Operator Certification indicates that operators have
demonstrated the required knowledge in accordance with our objective standards.

2.2 Provide for a fair, reliable, objective evaluation of the candidate's knowledge.
   -The knowledge to be tested for shall be representative of what the operator needs to know.
   -A set of objective standards and procedures were developed:
     -QRO-1 Standard
     -Protocol document
     -Interview Guide (developed by the QRO Subcommittee on Testing)
     -Independent evaluations are made by the Board Members, applying the objective standards and
       procedures.
     -Consistent application of the procedures and objective standards provides for
       repeatability/reliability.

2.3 Capsule of the QRO Operator Certification Program is provided in Attachment __2__.
   This includes a summary of the Practice for Exam Content and Grading.

2.4 Exam Content; Knowledge Areas and Dimensions is provided in Attachment __3__.

3. References
   -QRO-1-2005 Standard; Excerpt 2.1 & 3.2
   -Protocol Document
   -Interview Guide
   -Guideline
   -Excerpt of Certification Procedures (Par. 5.2, Qualifications of Board Members)

4. Conduct of an examination
4.1 Board of Examiners makeup
4.2 Test schedule
No tests the first day
2 tests on second day
Subsequent days may include a third test if the Board of Examiners is comfortable with that number.

4.3 Preparation; Distribution of work/question writing
The ASME member generally will prepare questions on Safety and assist the Regulatory Member who may not have experience in the QRO testing Protocol.
The Regulatory Member is generally given Refuse and Waste Handling as well as Environmental controls
The Industry Member tends to be given the largest question writing assignment Combustion Processing, Steam Cycle, Electrical

It was suggested that the ASME Member after guiding/assisting the Regulatory member may be able to assist the Industry Member.

4.4 Manuals and facility provided documents corresponding to Exam Content (Attach 6)
Tests will be developed using the facility provided manuals.
Plant manager may be requested to provide additional information as needed.
Actual observation during plant tour can supplement manuals
The exam is at risk if a question/topic is not in the operating manuals.
Potentially, an examination could be cancelled.

It was observed that annual training on CAA requirements is required.
Is the EPA required review current? When did facility do their last EPA update?

It was noted that the QRO exam is a knowledge based test, not a "stress test".

4.5 Evaluation/ Test questions and the expected answers
There is no "I'll pass on that one" option. If a candidate does not wish to answer a question, he/she will be deemed to have failed that dimension. The introduction should not use "pass on" terminology as it may give the candidate the sense that he/she can cherry pick the questions, while in fact they are failing by default.

Repeated use of questions
With a limited number of dimensions and corresponding questions, re-use of questions will occur. Attempt to create different overall tests which may contain some reused question. When a question must be reused, try to use different follow-ups.

Use of identical tests back to back with no break in between. This practice should be avoided if possible.

A discrete method for moving to a third dimension when necessary would be to pose the following to the other Board members"
"Are we ready to move on to the next area/dimension?"

Summary Evaluation
-The grading is pass/fail. Each Board of Examiners member independently determines whether a candidate passed the dimension. A candidate may fail a dimension within an area and still pass that area providing other dimensions within that area were answered satisfactorily. A candidate must pass all subject areas to pass the examination.
-Each member will evaluate the entire written record and independently rate the overall success of the applicant.
-The unanimous approval of all Board of Examiner members is required to pass a candidate.

Staff emphasized that:
"Upon completion of the examination, the applicant shall be excused, and each Examiner shall independently evaluate their personal notes (on checklist) and complete the Summary
Evaluation. Subsequently, the full board shall review the evaluations with each other to assure there were no misunderstandings. Where one or more members deem the applicant to have failed an area, the reason(s) for failure should be noted in the respective applicant checklist. (Consensus is not a requirement.) The respective Board Members shall then sign this form.”

Staff proposed that the Summary Evaluation form be revised to include these words. Refer to Attachment _4__.

5. Effective Communications, Listening, Evaluation, Consensus
Dr. Stan Cohen cautioned that the objective criteria should be used in evaluating the candidates.

6. Comment and discussion of issues including:
6.1 Observers
5.3.9 of QRO Certification Procedures provides for observers. The Examination Circular & Guideline that is provided to the facility includes the provisions regarding observers.
Observations are confidential.
Observers shall not comment or otherwise participate in the examination.
Observers cannot take notes.
Observers cannot take test for one year after observing exam.
Observers are not allowed in the executive session at the conclusion of the exam.
Observers would not attend the question preparation session. (unless specifically assigned by the QRO Committee or ASME staff)
Last minute observers should not be permitted.
Procedural requirements are provided in Attachment __5__.

Suggested that observers should already be certified, with an exception provided for trainers. In any case, observers may not test for one year after observing test.

Purpose of observer posed:
To assure fairness and an appropriate line of questioning.

6.1.1 Observer checklist
An observer checklist has been developed. Staff advised that the QRO Committee has endorsed this checklist and recommended it be used by observers.
The individuals present agreed that any observer should complete a checklist.
(Procedures would require that the checklist be completed after the exam has concluded.)
Observers checklist is provided in Attachment __6__.

6.2 Due process –Provision for appeals
The board should advise candidates of their right to appeal the results of the test.
Suggested:
“The candidate will be provided with the results of the test in writing, within 10 days of the test. In the event of a failure, the candidate will be advised of the Knowledge areas and particular Dimensions that were failed. A failed candidate may appeal the results within 30 days from the date of the ASME results letter. Additional information can be provided by ASME staff.”

The QRO Subcommittee on Certification has developed a procedure and timeline for addressing appeals. Refer to Attachment _7__.

Jim Wood noted that both the QRO Committee and its Subcommittee on Certification have balances membership. Therefore, not all of the members are technical experts. Evaluations will be based upon the record of the test including the paperwork and the audio tape.

NOTE: The balanced membership may include individuals in the categories of General Interest, Employee/Union, Insurance, Owner Operator, Designer Constructor, Manufacturer, and Regulatory. The number of members in any one category may not exceed one third of the overall membership.
6.3 QRO Committee responsibility for oversight

Feedback
The QRO Committee has an agenda item regarding feedback from the tests.
Feed back envisioned by the Committee may include:
- A conversation between a Committee member and the Plant Manager
- A Committee member may observe an exam
- A test record, checklist and tapes may be reviewed by the Committee

Noted: C. Tripp recommended that a form be provided to the facility for feedback rather than having a conversation.

Timeframe: It was suggested that the feedback be sought before the results are issued. That was not the original thinking and would require very prompt action after an exam as the results are to be mailed within 10 days of the test.

7. Adjournment
The meeting adjourned at approximately 2:00 PM.

Submitted by,

John Millman
Project Engineering Administrator
(212) 591 8584

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Participants present:

**ASME Consultants:**
- John Eppich (QRO Industry or ASME member)
- Kevin Wood (QRO Regulatory member)
- Leonard Grillo (QRO Industry member)
- Charles Tripp (QRO Industry member)
- Matthew Eaton (QRO Industry member)

**Other participants**
- Joseph McCarthy CFO QRO-OP595; Eco/Pittsfield, LLC
- Steve Bossotti CFO QRO-OP716; Covanta

**ASME Test Advisor**
- Dr. Stan Cohen HSTC,

**ASME Staff:**
- John Millman QRO Committee
- Bibi Rahim Manager
- David Wizda Managing Director, present for start of meeting
- Cristine Bujal Manager, present for start of meeting
- Mathew Carnino Coordinator, present for start of meeting

**QRO Committee Members**
- Jim Wood Chair, QRO Committee
Capsule of Operator Program
The QRO -1 Standard provides is the basis for the program.
- The standard identifies the duties an Operator is expected to perform
- The standard requires that the subject matter of the examination cover the following areas:
  refuse and ash handling
  combustion processing
  steam cycle
  electrical
  environmental controls
  safety
  administrative policy (chief facility operator only)

Procedural guidance is provided in:
The Protocol
The Interview Guide
The Guideline for Examinations (reflects ASME Practice)

Expectations:
- The applicant has achieved the qualifications required by QRO-1. These qualifications include
  holding a QRO Provisional Certificate and attaining 6 months experience at the facility at the level
  of chief facility operator or shift supervisor (with the respective duties described in 2.1 of the QRO
  standard).
- The facility has provided an accurate material reference checklist to enable the Board members
  to locate site-specific conditions for question preparation.
- The Board of Examiners is properly constituted of ASME, Industry and Regulatory members
  with the respective qualifications required by ASME.
  (The qualification requirements are found in the QRO Certification Procedures. The qualifications
  of all new consultants are subject to acceptance by the Committee on Consultants and
  Designees, which reports to the Board on Council Operations.)

ASME Practice for Exam Content and Grading
- Candidates for Operator Certification must demonstrate knowledge of the 6 subject areas
  found in QRO-1, 3.2.2. (7 subject areas for CFO)
- Each subject area includes sub-tier dimensions.
- The Interview Guide developed by the Subcommittee on Testing recommends that a
  candidate establish knowledge of at least 2 dimensions within each knowledge area. This
  has been our practice and has been uniformly applied to all applicants.
  The Protocol provides that if a dimension is not adequately responded to one additional
  dimension should be explored to demonstrate competence within the subject area.
  (Protocol, Par. 7. (E))
- The grading is pass/fail. Each Board of Examiners member independently determines
  whether a candidate passed the dimension. A candidate may fail a dimension within an
  area and still pass that area providing other dimensions within that area were answered
  satisfactorily. A candidate must pass all subject areas to pass the examination.
- Each member will evaluate the entire written record and independently rate the overall
  success of the applicant.
- The unanimous approval of all Board of Examiner members is required to pass a candidate.
The applicant will be tested for the listed knowledge areas. Within each knowledge area, the test will include at least two sub-areas per knowledge area. (From Protocol document)

**Knowledge Areas (and sub-areas)**

**Refuse and Ash Handling**
- Ash Handling Systems
- Waste Preparation/Refuse Cranes
- Refuse Handling and Fuel Preparation
- Waste Composition; Policy and Procedure
- Waste Composition

**Combustion Processing**
- Auxiliary Fuel
- Combustion Temperature
- Combustion Fuel
- Combustion Air
- Theory

**Steam Cycle**
- Boiler Water Treatment
- Boiler Cleaning Equipment
- Steam Distribution
- Turbine Operations
- Feedwater/Condensate

**Electrical**
- Distribution
- Emergency Systems
- Generator

**Environmental Controls**
- Particulate Removal
- Acid Gas Removal
- Air Pollution Permit Limits
- Continuous Emissions Monitoring System
- Environmental Public Relations
- Waste Water Controls
- NOx Controls
- Mercury Controls

**Safety**
- Respirators (OSHA 1910.134)
- Emergency Response
- Noise Exposure (OSHA 1910.95)
- Fire Protection: Fire Brigades (OSHA 1910.156)
- Fire Protection: Fire Extinguishers (OSHA 1910.157)
- Fire Protection: Standpipe and Hose Systems (OSHA 1910.158)
- Hazard Communication Program (OSHA 1910.1200)
- Overhead Cranes (OSHA 1910.179)
- Powered Industrial Trucks (OSHA 1910.178)
- Control of Hazardous Energy Sources (Lockout/Tagout) (OSHA 1910.147)
- Confined Space Entry (OSHA 1910.146, 1910.94(d), 252(f)
- Hot Work Procedures (OSHA 1910.252)
- Electrical (OSHA 1910.333)
Administration; (chief facility operator only)
-Understanding of job duties and responsibilities of subordinates.
-Overall operation, maintenance, and performance of the facility.
-Formulation and updating of policies and procedures.
SUMMARY EVALUATION

Upon completion of the examination, the applicant shall be excused, and each Examiner shall independently evaluate their personal notes (on checklist) and complete the Summary Evaluation. Subsequently, the full board shall review the evaluations with each other to assure there were no misunderstandings. Where one or more members deem the applicant to have failed an area, the reason(s) for failure should be noted in the respective applicant checklist. (Consensus is not a requirement.) The respective Board Members shall then sign this form.

<table>
<thead>
<tr>
<th>AREA EVALUATION</th>
<th>Pass</th>
<th>Fail</th>
<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Refuse and Ash Handling</td>
<td></td>
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<tr>
<td>2. Combustion Processing</td>
<td></td>
<td></td>
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<td>3. Steam Cycle</td>
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<td>4. Electrical</td>
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<td></td>
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<tr>
<td>5. Environmental Controls</td>
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<tr>
<td>6. Safety</td>
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<tr>
<td>7. Administration (CFO only)</td>
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</tbody>
</table>

**Overall Evaluation**

Candidate _________________________________________ □ Chief Facility Operator
Facility ___________________________________________ □ Shift Supervisor
Examiner (Printed): __________________________________________
Signature of Examiner: __________________________________________
Date: __________________________________________

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5.3.9 Observers at Site Specific Examinations. Only representatives of the owner/operator, regulatory authorities, ASME Subcontractors (ASME testing advisor), ASME Consultants, and ASME staff or Committee members may attend site specific examinations upon written request to ASME subject to the following:

(a) Advance notice shall be provided by ASME to the appropriate company contact and the candidate regarding the presence of named observers during an examination. Any objections to the observer must be presented in writing.
(b) Observers shall comply with the owner/operators request that they not be permitted access to certain portions of the facility.
(c) Observers shall not comment or otherwise participate in the examination.
(d) Observers shall not have any influence on the recommendations of the Board of Examiners.
(e) Observers shall not be present during the deliberation of the Board.
(f) All observations shall be considered confidential and treated as specified in Section 7.
ASME Site-Specific Examination
Room Requirements & Examination Conduct

1 Examination Room Requirements

1.1 The room should be adequate in size to comfortably fit the three-member Board of Examiners, applicant, and any observers.

1.2 Phones, beepers, paging systems, and any other potential sources of interruption should be removed from the room or disconnected.

1.3 A flip-chart should be provided for use by the Board and the applicant.

1.4 The documents listed in the Reference Material Checklist must be provided for use by the Board.

1.5 The Board shall have access to photocopying facilities.

2 Conduct of Examination

2.1 Prior to initiating examinations at a facility, the Board of Examiners will meet with applicants and representative(s) of the facility to explain the conduct of the examination and answer any questions. This will be done as a group presentation and repeated as necessary for individual examinations.

2.2 A sound recording of the entire session will be made by ASME. No other recording devices are permitted.

2.3 Access to manuals, drawings, specifications, and notes by the applicant will not be permitted except if specifically permitted by the Chairman of the Board of Examiners.

2.4 If clarification of a question is necessary, the Board may recess the examination to observe an area of the plant. Upon return to the examination room, the Board Chairman will summarize the conclusions of the recess for the audio report.

2.5 Applicants may use writing boards or paper to assist in answering, however they shall not remove any notes from the examination room.
3 Observers

3.1 The owner/operator may have one observer attend each examination, subject to the approval of the Board Chairman.

3.2 Representatives of regulatory authorities or ASME may also be present at examinations provided advance notice is provided to the owner/operator and the applicant. The owner/operator may request that observers be restricted in access to certain portions of the facility.

3.3 All observers shall:
   (a) treat all observations as confidential;
   (b) not comment or otherwise participate in the examination except at the request of the Board Chairman;
   (c) not take any notes;
   (d) not have any influence on the recommendation of the Board of Examiners;
   (e) not be permitted to take the site specific examination for a period of one year.
Dates:         F:\Millman\J\QRO-BDEX\Observe; checklist.doc

Site:  

Observer:  

Purpose:
-to observe how Board of Examiners implement the Protocol for conducting tests
-to observe if any issues need attention and improvement
-to provide some feedback to board members regarding committee concerns
-to take some feedback to the committee from the exam

Prior to the exam the following list of items was prepared to provide a reference perspective for observing the test preparation and conduct of tests

A. Administrative
   -Board Members
   -Adequate test room
   -Copy machine available
   -Protocol Available
   -Interview guide available
   -Applicant Information available
   -Facility Manuals available

B. Introduction
   -General Introduction to facility and applicants
   -Intended schedule for test preparation, and test conduct including sequence of candidates
   -Advise that Results will be mailed within 10 days. In the event of a failure, due process is available. An appellant shall provide a basis before the Subcommittee will initiate a review of the test record. ASME will provide a summary of the process and timeline.

C. Test preparation
   -Assignment for question writing
   -Educate Regulatory Authority member
   -No Conflict of Interest (COI )
   -Adequacy of reference material provided by facility
- Time management

D. **Test Conduct** (this section may be completed on a per candidate basis)

- Candidates

- Areas/Dimensions addressed per Protocol

- Questioning style
  - Single/Multiple questions per dimension

- Follow-up questions

- Team participation

- Test Duration

- Evaluation Process

- Independent Review

- Opportunity to resolve differences of opinion (full board meeting at conclusion)

- Close out of test per candidate

- Test materials sealed and submitted to ASME

- Board departure from facility at conclusion of test series.

Other observations:
Appeal Process Summary
QRO Operator Exam
Submitted by John Millman
March 20, 2007

1. Appeal letter; Submit appeal with basis
   Appeal letter and exam record will be presented to the QRO Subcommittee on Certification. Once the Subcommittee has had an opportunity to review your correspondence, and the examination record, ASME staff will advise appellant regarding how the appeal should proceed.

2. Subcommittee Practice:
   - Establish that appellant was a proper applicant
   - Establish that the Board of Examiners was properly constituted
   - Establish that the oral examination was properly given
   - Establish that the candidate was properly advised of the results of the examination
   - Establish that the appeal was submitted in a timely fashion
   - Establish that the examination was conducted properly in the failed knowledge area
   - Base consideration only upon the failed knowledge areas

3. APPEAL TIMELINE DRAFT
   (Target Schedule, worst-case duration)

<table>
<thead>
<tr>
<th>Event (days)</th>
<th>Elapsed Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>On Site Test (T)</td>
<td>T</td>
</tr>
<tr>
<td>Applicant Notification of Test Results by ASME (R)</td>
<td>T+ 10 days= R</td>
</tr>
<tr>
<td>(Appeal Instructions Included)</td>
<td></td>
</tr>
<tr>
<td>Applicant Written Notification of Intent to Appeal to ASME (A)</td>
<td>R + 30 days = A</td>
</tr>
<tr>
<td>Acknowledgement of Applicant's Intention by ASME (AL)</td>
<td>A +14 days = A L</td>
</tr>
<tr>
<td>(Process Explanation and Timeline Included)</td>
<td></td>
</tr>
<tr>
<td>Initial Consideration of Appeal and Review of Test Results by Subcommittee (RM)</td>
<td>AL + 30 days = RM</td>
</tr>
<tr>
<td>(Subcommittee Conclusion Provided to Applicant in Writing by ASME)</td>
<td></td>
</tr>
<tr>
<td>Applicant Reviews Initial Consideration and Advises Appeal Process Should Continue (AP)</td>
<td>RM + 45 days = AP</td>
</tr>
</tbody>
</table>

Once an Applicant advises ASME the appeal process should continue, ASME will provide 30 days written notice of a formal hearing date, which will occur in NYC no later than 60 days from receipt of the applicant's advice to continue the appeal. During the notice period and upon a mutually agreed date and time, the applicant may review in
NYC the examiners' notes and the transcript (or original recording) of only those portions of the examination deemed to have been failed. The applicant may make notes, but may not make copies of any of the test materials. The applicant may be accompanied by up to 3 advisors, none of whom may be members, or former members of the Standards Subcommittees on Testing or Certification.

Hearing (H)  

The Hearing before the Subcommittee on Certification will be conducted in accordance with Paragraph 8.3 of the Certification Procedures, copy attached, and will consider only material relevant to the test questions deemed failed by the applicant.

Results of Hearing (RH)  

Following a closed session of the Subcommittee on Certification, the appellant will be advised of the Subcommittee decision in writing, within 10 days.

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