Experience Reporting Orientation

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The Materials

- These materials will be posted to the APEGS website for download by Friday, November 15.
- Please do not disturb the fellow attendees to take photos of the slides.

Audience

- Engineers-in-Training/Geoscientists-in-Training
- Internationally Educated Applicants Reporting Work-Experience to Waive Confirmatory Examinations
- Supervisors

Scope

- For Engineers-in-Training/International Engineering Applicants we will be discussing the Competency Based Assessment system.
  - We will not be discussing the Legacy Paper Based system, the information is available on the APEGS website and staff will help you locate it and answer any questions you may have.
- For Geoscientists-in-Training/Geoscience Applicants we will be discussing the Paper Based reporting systems.
- Supervisors of Either.

A Note for Geoscientists Regarding CBA

- Geoscientists Canada has completed preparation of Geoscience Competencies for CBA.
- A pilot was conducted which APEGS participated in using the competencies.
- You can expect a CBA bylaw amendment at the 2020 Annual Meeting for Geoscience CBA.
- Expect special presentations detailing the program in early 2020.
- Contact Kate MacLachlan P.Geo. or Tina Maki P.Eng. for more information.

Outline

1. Reporting Engineering Work Experience
   a) What is CBA
   b) Does CBA apply to me?
   c) Completing the Assessment-Step By Step
   d) Assessments for Waiving Confirmatory Exams
   e) Changes/Developments
2. Reporting Geoscience Work
   a) Sections of the Paper Report
3. Claimable Experience
4. Q&A
5. Individual Q&A

What Is Competency-Based Assessment?

- Competencies defined are observable and measurable skills, knowledge, abilities, motivations or traits required for professional registration.
- Demonstrated through the actions and behaviours of the applicant.
- Competency Based Assessment is a formalized system to allow applicants to demonstrate their ability to Practice (Engineering) through guided submission of work experience.
- It is currently implemented as an Online System hosted by EGBC.
- The engineering CBA system uses 34 competencies divided into 7 categories which are scored.

Does CBA apply to me?

- For Engineers.
- If you have not submitted a report in the Legacy Paper System:

CBA applies to you.

- For those who have submitted a report in the Legacy Paper Based system:

You may choose to switch CBA.

- Speak with staff for details if you are interested in switching.

Completing the Assessment-Step By Step

Step 1:

Become familiar with the Competency Based Assessment Guide and Supporting Documentation:

https://www.apegs.ca/Portal/Pages/work-experience-reporting-engineering

Completing the Assessment-Step By Step

Step 2:

Register for a Competency Based Assessment Account

- Go to: https:/competencyassessment.ca.
- Select the “Applicants” section.
- Read and follow the instructions on screen.
- Set your Registration ID as your 5-digit APEGS User ID (registration number or application file number). Choose “Association of Professional Engineers and Geoscientists of Saskatchewan” as your jurisdiction.

Completing the Assessment-Step By Step

Step 3:

Wait for the account to be approved:

- Staff regularly check and approve accounts during business hours.
- You should expect approval with in 2 business days.
- Accounts will only be approved for individuals who are eligible to report work experience.
  - No Exceptions

Completing the Assessment-Step By Step

Step 4:

Fill out your Employment History Table:

- Include all relevant positions.
- Be mindful of the rules for how much credit can be obtained for different types of work (Discussed Later, common to both Engineering and Geoscience).

Completing the Assessment-Step By Step

Step 5:

Enter Competency/Validator Information:

- Can be an incremental process.
  - You should be reporting your best work.
- Examples may fit in to multiple competencies.
- Can be edited until a competency is validated.
- Do not submit your competencies for validation until you are satisfied with your submission.
- Choose appropriate validators.

Reporting Competencies - Method

- 3 Step Approach (Technical Competencies)
  - Problem
    - Clearly explain the situation and supporting factors requiring engineering work to be performed.
  - Action(Solution)
    - Discuss Methods.
    - Reference Engineering Theory.
      - This means application of science
      - Do not discuss project management.
  - Result
    - Clearly explain the result of the Action/Solution

Reporting Competencies - Example

- 1.4 – Apply engineering knowledge to design solutions.
- 1.5- Be able to understand solution techniques and independently verify results.
- 1.7- Demonstrate understanding of systems as well as of components of systems
- 1.8 Exposure to all stages of the process/project life cycle from concept and feasibility analysis through implementation.
- 1.9 Understand the concept of quality control during design and construction including independent design check and independent reviews of design, field checks and reviews.

Reporting Competencies - Example

- Problem:
  - For the Database Lifespan Project the client wanted a 3rd party evaluation of a new transactional database architecture. The client required this analysis to determine how long the purposed architecture would support their forecasted client growth to determine if they should invest in the architecture or identify an alternative that would better capitalize their investment.

Reporting Competencies - Example

- Solution:
  - To solve the problem I created a dynamic simulation which used previous transactions test incremental client loads. This was done by first creating three statistical traffic models from existing client transactions (ideal, average, and exceptional). Performance benchmarks were identified for the database from the clients current database solution. The simulation was then run for each traffic model on the clients existing database and for the new architecture for traffic representative of the clients growth.

Reporting Competencies - Example

- Result:
  - Our results showed that the new database architecture had medium/minor performance improvements under ideal loads, which would be negated with in 3 years if the clients growth schedule held. Under average to exceptional loads the new architecture failed to perform at the level of the existing conventional solution to the level of becoming non performant in 3-5 years. This result conflicted with the clients internal testing. Further analysis determined that the internal testing was highly optimistic as it only included one transaction of low complexity to simulate traffic. Based on our findings the client decided to not invest in the new database architecture saving them an estimated $500,000 which would be nullified in 3-5 years. The client instead decided to invest in developing new features to help retain existing clients and recruit new clients.

Selecting Validators

- The Validator for each example is the person who supervised you for the work you have chosen to use for that competency example, whether or not they were a professional engineer.
- If you do not wish to use your supervisor you require permission to be granted from APEGS.
  - You will be required to demonstrate exceptional circumstances.
  - For Example: Supervisor has died, would result in an approved alternate.
- Validators must have **DIRECT KNOWLEDGE** of the work performed.
- If being asked to serve as a validator for some one who you do not supervise contact the office to discuss the requirement.

Selecting Validators - Requirements

- Be aware:
  - 4 validators over all.
  - 2 must be P.Eng. or P.Geo. or equivalent (PE's from the United States)
- Validator do not necessarily have to validate a competency but they must have direct knowledge of the work performed.
- These are not character references.

Completing the Assessment-Step By Step

Step 6:

Perform self assessment and submit competencies for validation:

- Respond to feedback from validator and resolve any issues.

Performing a Self Assessment

- Competencies are scored using a 0-5 point rating scale.
- All competencies must have a minimum score of 1

AND

- All competency categories must have an average score above the category minimum.

Competency Categories

Category #	Category name	# of competencies
1	Technical competence	10
2	Communication	3
3	Project and financial management	5
4	Team effectiveness	2
5	Professional accountability	6
6	Social, economic, environmental and sustainability	5
7	Personal Continuing Professional Development (CPD)	3

Competency Rating Scale

- Competency Rating Scale (condensed):
  - 0 – little or no exposure to the competency
  - 1 – general appreciation and awareness
  - **2 – knowledge and understanding of objectives, uses standard engineering methods, limited scope and complexity**
  - **3 – moderate scope and complexity**
  - 4 – responsible, varied assignments, working at a professional level
  - 5 – mature professional level, independent

Performing a Self Assessment

- Use the Rating Scale to perform an informed assessment of your competencies.
- Your supervisors and the assessor rankings use the same scale.
- Assessors rankings are what counts but they do look at the other rankings to contribute to their assessment.
- Pro-Tip: Consider rankings other then 5.
  - The point is to accurately reflect on your abilities.

Validating an Assessment

- Work with the applicant to ensure the work experience is reported accurately.
- Use the rating scale to rate the work based on your assessment of the work preformed.
- Consider contributing information or rational for rating.
- Your rating does not have to match an applicants.
  - It is not uncommon for them to be higher or lower.
- Do not validate work that you do not have knowledge of.

Completing the Assessment-Step By Step

Step 7:

Wait for Assessment to Be completed:

- Once validation is complete
- Results are processed as part of committee meetings.
- Be aware of submission cut-off and results dates posted here:

  https://www.apegs.ca/Portal/Pages/work-experience-reporting

- Dates are non-negotiable.
- Results will not be released by phone or email until after the date.

Completing the Assessment-Step By Step

Step 8:

Receive results/feedback:

- Success
  - Feedback not required.
- Success + Unmet Requirements
  - Requirements disclosed, path to resolve unmet requirements disclosed in feedback
- Failure
  - Feedback to resubmit assessment.
  - May include submit alternative work experience.
- Report Tabled pending new Assessment
  - Reviewers disagree on the results, a new assessment scheduled to determine Success/Failure.
  - If you see this result, you may notify staff that you except the failure and may receive the feedback and submit a new assessment to resolve the issues.

Results

- Results are determined by categories failing NOT individual competencies.
- Categories are failed by an assessor if you score a zero on one or more categories OR if you score below a category average.
- In the event that two assessors agree you have failed a category. You will be asked to resubmit the ALL competencies that can be improved.

Results

- Sometimes we receive an assessment that will not pass.
- Usually the applicant has not put in the work required or does not understand the competencies.
- In this case the committee will ask the applicant if they would like to proceed or if they would like to have the assessment opened up to put more work in.
  - If this happens to you the committee is trying to help you.
  - Please consider investing more time in the assessment, you are unlikely to succeed.

Assessments for Waiving Confirmatory Exams

- The ERC has determined that in order to waive confirmatory exams an applicant must needs to demonstrate category 1 technical competency.
- First you will be asked to complete an assessment including only category 1 technical competencies.
- If successful and you have no outstanding requirements you will be granted 36 months of credit, registered as an Engineer-in-Training and assigned a new assessment of categories 2-7.
- Some applicants in process may have been assigned all 34 competencies, you will be allowed to complete the full assessment, however anybody who has started the assessment after Febuary must complete the category 1 assessment first.

Changes/Developments

- Interim Assessments
  - Initially the process had a Interim submissions.
  - The ERC will no longer be doing official interim assessments as of Nov 15, 2019. A replacement for interim assessments is currently discussed.
  - The requirements to write the PPE will be updated in advance of the next sitting and you will informed as soon as council approves the updated requirements.

Changes/Developments

• Canadian Environment Competencies

Canadian Environment Competencies come into effect on Jan 1, 2020. This change affects all CBA applicants.

The details are as follows:

- All Engineers-in-Training and Engineer-in-Training applicants being assessed in the online CBA system are required to demonstrate the following eight competencies in a Canadian or Equivalent-to-Canadian work environment, effective January 1, 2020: 1.1, 1.6, 1.9, 2.1, 2.2, 2.3, 5.1, 6.2. Each of these competencies must be passed with a rating of the applicable Category average.
- Any competencies submitted to Validators for validation on or after January 1, 2020 are required to meet the new Canadian Environment Competency requirement. This includes competencies that need to be re-submitted and were ready for validation on or after January 1, 2020.
- Applicants may elect to change to Canadian Environment Competencies if they have previously been assessed using the 1 year Canadian Experience Requirement.

And now for something completely different…

GEOSCIENCE
WORK EXPERIENCE
REPORTING

Geoscience Work Experience Reporting

- Geoscience work experience is conducted in using the paper based system.
- Information on the system can be found here:

  https://www.apegs.ca/Portal/Pages/work-experience-reporting-geoscience

Geoscience Work Experience Reporting

- Geoscience reports are broken down into 3 sections each with defined subsections:
  - Part 1: Application of the Knowledge of Geoscience Principles and Practice

    Geoscience training and familiarization

    Technical geoscience experience

    Development of geologic concepts

    Mapping and systematic geoscience evaluation

    Identification of geological hazards and risk to the public and the environment

  -6 Examples recommended.

Geoscience Work Experience Reporting

- Geoscience reports are broken down into 3 sections each with defined subsections:
  - Part 2: Management of Geoscience
    Supervision
    Project Leadership
    Budgeting
    Other
  - 3 examples recommended.

Geoscience Work Experience Reporting

- Geoscience reports are broken down into 3 sections each with defined subsections:
  - Part 3: Social Implications of Geoscience

    The value or benefits of geoscience works to the public

    Safeguards

    Geoscience activity and the public at large

    Advancement of geoscience knowledge

    Interest and involvement in the broader social implications of geoscience

    Significance of regulatory agencies

  - 4 examples recommended.

Claimable Experience

- Common to both systems
- 1 year pre-graduate or technologist experience supervised by a P.Eng./P.Geo.
- 3 years combination of International and Engineering/Geoscience graduate studies combined.
  - 1 year Masters/2 years Phd, Max 2 years
- 1 year Canadian/Equivalent to Canadian Experience*
- CEC noted earlier to change this.

Teaching Experience

- Counts for CEQB/GKE materials.
- Must involve the application of engineering/geoscience principles.
  - Examples
    - sessional lecture who develops material would count.
    - Marker for a class from answer key would not.

Questions

- General questions for the group.
- Refrain from asking questions about your file.
- Refrain from asking specific questions about yourself.
- We will answer those in the breakout session afterwards, to give you the best response and respect our peers time.