# Purpose

The purpose of this micro-credential is to provide a competency-based evaluation. Earning a micro-credential shows mastery of a skill set and supports professionals in their careers in the wind energy industry.

# Scope

This micro-credential describes the minimum criteria for an individual to demonstrate proficiency when an oil sample is required.

# MICRO-CREDENTIAL Gear Box Oil Sample

* 1. Does the candidate possess the required safety training to demonstrate the task?
     1. Candidate SHALL
        1. Have completed ALL required safety training topics prior to attempting this competency
           1. These topics shall at a minimum meet the requirements of the authority having jurisdiction or the company policies; whichever is more protective
  2. Did the candidate perform the required steps for work at the turbine?
     1. Candidate SHALL
        1. Verbalize and/or demonstrate the steps that are required prior to shutting off the machine and climbing
  3. Did the candidate perform a hazard assessment for the work about to be demonstrated?
     1. Candidate SHALL
        1. Perform a hazard assessment for the area in which they are to demonstrate this competency
        2. Use safety glasses as a minimum requirement for PPE
        3. Verbally communicate to the evaluator and include all recognized hazards
     2. Proper PPE SHALL
        1. Be selected and inspected for the hazards identified
     3. Assessment SHALL
        1. Include environmental concerns such as fluid disposal and spill contingency plans
  4. Did the candidate select and inspect the needed PPE?
     1. Candidate SHALL
        1. Have safety glasses
        2. Use fall protection/prevention methods when required
  5. Did the candidate(s) assemble all needed tooling and equipment prior to entering the turbine nacelle?
     1. Candidate SHALL
        1. Select all needed materials and tools prior to starting the repair
  6. Did the first candidate(s) into the nacelle correctly identify what safety equipment is installed in the turbine?
     1. First candidate in the nacelle SHALL
        1. Identify if and what safety equipment is installed in the nacelle and communicate this information to their service partner
  7. Did the candidate(s) take the oil sample per approved work instruction?
     1. For example:
        1. Did the candidate(s) pin the rotor prior to starting the gear box work?
           1. Rotor locking method SHALL

Be engaged prior to commencing work on the gear box

* + - 1. Did the candidate demonstrate cutting the paint seal and cleaning the cover prior to removal (if required)?
         1. Candidate(s) SHALL

Identify the location for the oil sample collection (sump, tap, other)

Demonstrate cutting the paint seal and cleaning the top of the gear box prior to removal of the cover (if required to remove)

Take steps to ensure that nothing can fall into the gear box while the lid is removed for sampling (if required to remove)

Ensure the sample port is clean of debris (if sampling from port)

Ensure the sample hose/straw is clean/flushed per instructions

Remove all tools and parts from the top of the gear box prior to lid removal (if required to remove)

* + - 1. Did the candidate(s) take a clean sample using the vacuum method (if this method is required)?
         1. Candidate(s) SHALL

Ensure that the sample tube, bottle and pump are clean prior to taking a sample

Place the lid on the sample as soon after it is drawn to avoid contamination

Fill the bottle to 4/5th of capacity

* + - 1. Did the candidate(s) install the lid and torque the bolts properly?
         1. Candidate(s) SHALL

Install the lid and torque the bolts to specifications

For purposes of training the evaluator may assign a lower than required torque values to reduce wear on the training parts

* 1. Did the candidate collect a sample from the sampling port properly?
     1. Candidate SHALL
        1. Ensure hose/straw was flushed properly
           1. Explain to the evaluator why this step is required
        2. Ensure no foreign material is allowed to contaminate the bottle/lid/sample stream
           1. Explain to the evaluator how this is ensured
  2. Did the candidate(s) fill out the required paperwork?
     1. Candidate(s) SHALL
        1. Complete a service report
        2. Turn in a copy of the report
        3. Make a notation on the paperwork what the gear box oil level is after sampling
     2. Oil sample SHALL
        1. Have paperwork stating the date, technician, turbine number, hours of production, oil brand name and the component the sample came from
  3. Was the turbine made ready to return to service?
     1. Candidate(s) SHALL
        1. Ensure that all tools and equipment were removed from the nacelle
        2. Ensure that the lock pin was removed and placed in the proper storage location
        3. Ensure that the nacelle is cleaned and in good order
        4. Note gearbox oil level and any other problems that may be present in the nacelle area on the service reports
        5. Notify operations that work is complete and make the machine ready to start
  4. Did the candidate(s) return all tools to the proper storage locations?
     1. Tools and Equipment SHALL
        1. Be returned to their proper storage locations
        2. Be stored in proper storage condition
  5. Did the candidate(s) perform all tasks safely?
     1. Candidate(s) SHALL
        1. Demonstrate the task safely
        2. Incorporate all identified PPE from the hazard assessment in Step C