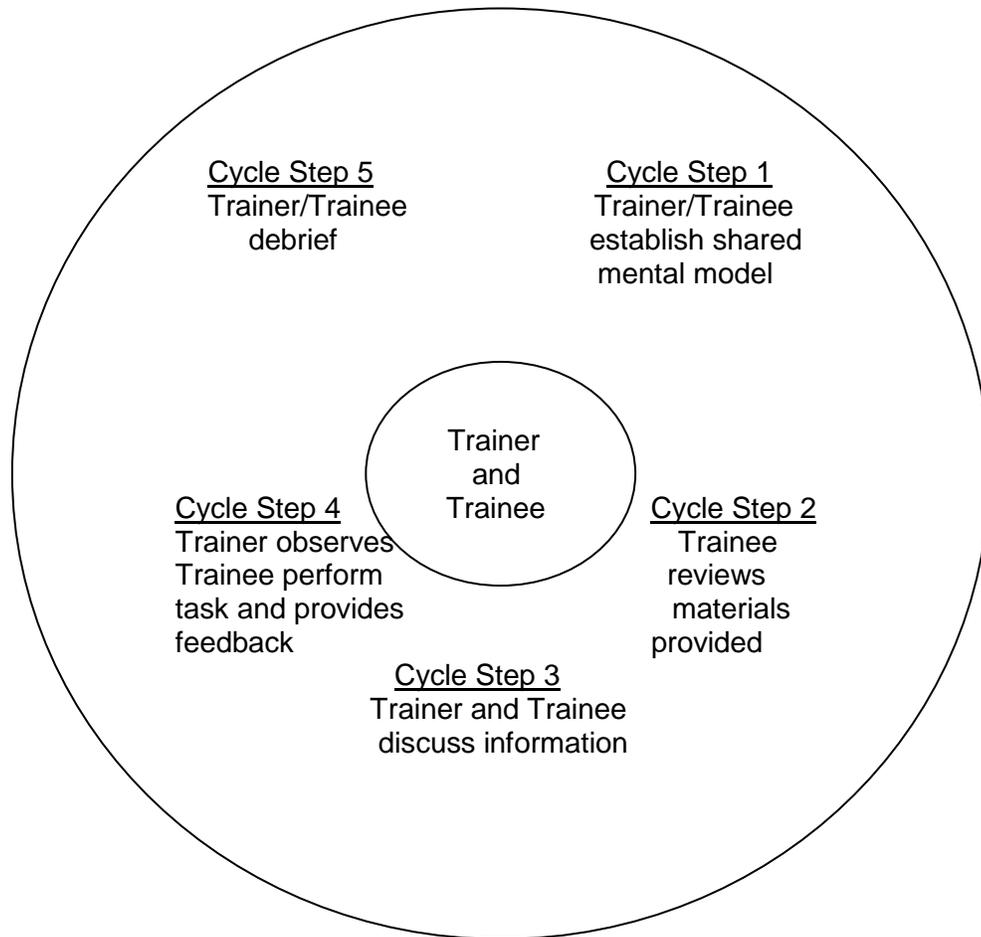


## OJT Training Module Cover Sheet

|   |
|---|
| <b>Title:</b> 801 Understand EMI technology.  |
| <b>Type:</b> <input type="checkbox"/> Skill <input checked="" type="checkbox"/> Knowledge   |
| <b>Performance Objective:</b> Trainee will be able to: <ul style="list-style-type: none"><li>• Recognize the EMI acronyms and their definitions.</li><li>• Describe how EMI works.</li><li>• Understand the uses and limitations of EMI in their survey area.</li></ul>   |
| <b>Target Proficiency:</b><br><input type="checkbox"/> Awareness <input checked="" type="checkbox"/> Understanding <input type="checkbox"/> Perform w/ Supervision<br><input type="checkbox"/> Apply Independently <input type="checkbox"/> Proficiency, can teach others   |
| <b>Trainer Preparation:</b> <ul style="list-style-type: none"><li>• Trainer should be familiar with the assigned reading/review material in the lesson plan that follows.</li><li>• Must be knowledgeable about EMI systems and theory.</li><li>• Have local EMI investigation reports available for use as examples.</li></ul> |
| <b>Special Requirements:</b><br>Initiate an external learning request with a SF-182 in Aglearn for this activity. Instructions and a template are located on the training webpages for OJT modules.   |
| <b>Prerequisite Modules:</b><br>None  |
| <b>Notes:</b><br>None   |
| <b>Authors:</b><br>Wes Tuttle<br>Marc Crouch  |
| <b>Approved by:</b><br>Shawn McVey  |

# The Five-Step OJT Cycle for Declarative Training (Knowledge)



## OJT Module Lesson

Title: **801 Understand EMI technology.**

| WHAT                           | WHY, WHEN, WHERE, HOW, SAFETY, QUALITY   |
|--------------------------------|--|
| Cycle step 1                   | Trainer and trainee review objectives of module.   |
| Cycle step 2                   | <p>Trainer and trainee read or review the attached:</p> <ul style="list-style-type: none"> <li>• <b>What is Electromagnetic Induction (EMI).pdf</b></li> <li>• <b>Paper-Mapping within field soil variability...using electromagnetic induction.pdf</b></li> <li>• <b>Paper-Comparison of EM and Direct sensing of soil EC.pdf</b></li> </ul> <p>Trainer and trainee should note the attached:</p> <ul style="list-style-type: none"> <li>• <b>Example EMI Investigations.pdf</b></li> </ul> <p>Trainer may also want to provide investigations completed locally as examples.</p> |
| Cycle step 3                   | Trainer leads the following discussions:   |
| 1. Describe how EMI works.     | <ul style="list-style-type: none"> <li>• Advantages of EMI assessments.</li> <li>• Current flow and responsive secondary electromagnetic field</li> <li>• Depths of observation in lateral and vertical modes</li> <li>• The soil properties that affect conductivity</li> <li>• Inference of other soil physical and chemical properties</li> <li>• Suitabilities of EMI for investigations</li> </ul>  |
| 2. Example site investigations | <ul style="list-style-type: none"> <li>• Using the attached <b>Example EMI Investigations.pdf</b> or trainer provided local investigation examples:</li> <li>• Review soil properties involved</li> <li>• Discuss influence on results</li> <li>• Discuss any other properties that may be inferred</li> </ul>   |
| Cycle step 4                   | <p>Trainer should provide pending local map units and/or MLRA projects. Trainer should ask the trainee to review each and:</p> <ul style="list-style-type: none"> <li>• Discuss soil properties that would affect an EMI investigation</li> <li>• Discuss any possible inference of other soil physical or chemical properties</li> <li>• Decide if an EMI investigation would benefit decisions pending for the map units/projects provided</li> </ul>  |

|              |   |
|--------------|---|
| Cycle step 5 | Trainer can debrief trainee and address any concerns. |
|--------------|---|

### **OJT Module Lesson Measurement of Learning**

|  |   |
|--|---|
| <b>Title: 801 Understand EMI technology.</b> |   |
| <b>WHAT</b>                                  | <b>WHY, WHEN, WHERE, HOW, SAFETY, QUALITY</b>   |
| Trainee's learning is measured.              | Have the trainee complete the attached quiz to reinforce the concepts in this module. |

### **SF-182**

|   |
|---|
| Trainee and/or supervisor access Aglearn to verify completion of the module via its SF-182. |
|---|

## Quiz

1. Apparent conductivity is a weighted, average conductivity measurement for a column of earthen materials to a:
  - A) Specific depth
  - B) Variable depth
2. Generally, apparent conductivity is:
  - A) A reflection of only one dominant soil property
  - B) A reflection of combined interaction of the soils properties
3. In any soil-landscape, variations in one or more of the factors (soluble salts, clay, and water contents) may dominate the EMI response?
  - A) True
  - B) False
4. Apparent conductivity can be an indirect indicator of other soil physical and chemical properties?
  - A) True
  - B) False
5. EMI investigations can be used to describe spatial variability (one or more of the following):
  - A) Within landscapes and landforms
  - B) Within a map unit
  - C) Between map units