

Trainee:

Training Checklist for SEM/EDX Elemental Analysis

Module 1 – Introduction to SEM/EDX System

Read and compile literature pertaining to:

	<u>Date</u> <u>Completed</u>	<u>Initials</u>
Electron Beam Formation		
Specimen excitation/interaction with the beam		
Image formation in the SEM		
X-ray production/spectra interpretation		

EXERCISES

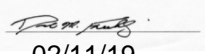
	<u>Date</u> <u>Completed</u>	<u>Initials</u>
Identify components of SEM (column, controls, EDX, stage controller)		
Demonstrate proficiency in running system, venting, changing samples, saturation of filament, alignment, etc.		
Discuss and practice (if possible) changing a filament and reinstalling in SEM		
Discuss and practice (if possible) cleaning cathode and anode assembly and reinstalling in SEM		

Module 2- Overview of Elemental Analysis

Read and compile literature pertaining to:.

	<u>Date</u> <u>Completed</u>	<u>Initials</u>
Read and Compile literature		
Examine known particles for 300 seconds, vary accelerating voltage, observe effects (powders, metals, paints, explosives)		
Examine each sample, generate X-ray spectra and ID elements		
Vary SEM parameters and observe effects on samples		

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Trainee:

Document and summarize results		
Discuss SEM results compared to other instrumental analysis		

EVALUATION

Date
Completed

Initials

Identify elemental composition of 10 unknown samples		
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Module 3 - Casework

EXERCISES

Date
Completed

Initials

Discuss proper note taking and marking of evidence		
Discuss proper procedures for handling, preparing and analyzing standards and unknown samples		
Discuss proper procedures for collecting particles from evidence		
Discuss proper packaging for evidence		
Discuss proper conclusions and report writing		
Discuss interpretation of elemental analysis		

EVALUATION

Complete Mock Case		
Complete Laboratory Report		

Module 4 – Final Evaluation & Preparation for Court

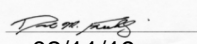
Read and compile literature pertaining to:

Date
Completed

Initials

Daubert vs. Merrill Dow Pharmaceuticals		
Frye vs. United States		
Courtroom Testimony Techniques		

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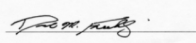
EXERCISES

	<u>Date</u> <u>Completed</u>	<u>Initials</u>
Prepare or update CV		
Prepare series of qualifying questions and answers		
Observe pretrial conferences and/or courtroom testimony (if possible)		

EVALUATION

Complete Moot Court or Roundtable Discussion		
Complete Final Written Competency Test		

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