SHORT COURSE
IN THE
THEORY AND PRACTICE OF COAL PETROLOGY
FOR
Your Company
By:
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EMS Energy Institute

Date

Day 1 & Date

Preliminary Information
Agenda
Personal Profile – Gareth Mitchell
Short Bibliography

SESSION 1 – Coal Fundamentals

Glossary of Terms #1 & #2
8:30 - 9:45 Lecture – Origin of Coal Room
10:00 - 10:30 Lab 1 – Coal Rank & Type Lab
Glossary of Terms #3
10:45 - 11:45 Lecture - Coal Characterization & Classification Room
12:00 - 12:30 Lab 2 – Coal Lithotypes Lab
12:30 – 1:30 Lunch

SESSION 2 – Introduction to Petrography

2:00 - 3:00 Lecture – Coal Petrographic Terminology & Tech. Room
3:15 – 4:00 Lab 3 – Sample Preparation Lab
4:15 – 5:00 Lab 4 – Introduction to the Reflectance Microscope; Lab
Glossary of Terms #4
Day 2, Date

SESSION 3 – Maceral Identification

8:30 - 11:45 Lab 5 – Maceral Identification; Petrographic Lab Classifications; Influence of Rank; Introduction to Coal Minerals; Anthracite

12:00 - 1:00 Lunch

SESSION 4 – Reflectance & Fluorescence Microscopy

1:30 – 3:00 Lab 6 – Reflectance & Maceral Analysis - Demo Lab
3:30 – 5:30 Lab 7 - Fluorescence Microscopy – Lecture & Demo; Maturation and Identification of Organic Sediments Lab

Day 3, Date

SESSION 5 – Petrographic Methods & Applications

8:30 – 9:30 Lecture – Cokemaking; Coal-to-coke Transformation Room
10:00 – 11:45 Coals from Different & Distant Lands - Diversity Lab

12:00 - 1:00 Lunch

1:30 – 5:00 Introduction to Microlithotype Analysis; Continue Studying Coal Macerals – point counting Lab

Day 4, Date

SESSION 6 – Coal Forensics & Preservation

8:30 - 10:30 What is Wrong with My Coal?? (To be handed out) Lab
10:45 - 12:00 Coal Weathering & Oxidation; Penn State Coal Sample Bank Storage & Preservation - lecture Lab

12:00 - 1:30 Lunch
SESSION 7 – Petrographic Methods Applied to Other Materials

1:30 – 2:00
Petrography of Metallurgical Coke; Influence of Magmatic Intrusion on Coal – Lecture & Demo Lab

2:15 – 3:15
Petrography of Petroleum Coke; Classifications & Optical Texture Index (OTI) – Lecture & Demo Lab

3:00 – 5:00
Application – Petrography of PCC Fly Ash; Other Important Combustion Tests – Lecture & Demo Lab

Miscellaneous Information; International Committee For Coal and Organic Petrology (ICCP); The Society For Organic Petrology; American Standards for Testing and Materials (ASTM)

Day 5, Date
Dedicated to participants specific needs. Possibilities include

1) Geology of PA coal measures bituminous and anthracite outcrops – field trip

2) Visit to operating coal mine – strip or underground

3) Visit an operating, production-oriented, coal characterization/petrographic lab servicing the metallurgical coal industry.

4) More intensive petrographic laboratory study – could include samples brought and prepared by participants.

5) More extensive laboratory study may be arranged for longer periods where minimal guidance can be provided. Have run week-long lab practicums.