RECYCLING METALS
FROM INDUSTRIAL WASTE

A Short Course and Workshop
with Emphasis on Plant Practice

June 27 - 29, 2017
Golden, Colorado
25th Year

Sponsored by the Colorado School of Mines
Course Organizer: Paul B. Queneau, Adjunct Professor

PURPOSE AND SCOPE

This program focuses on current plant practices to convert metal-containing wastes to products. Processors, raw materials, and markets are identified and quantified. Speakers with decades of hands-on experience detail multiple approaches to recycling metals and associated materials — backed up by slides, videos, and the syllabus.

Particular emphasis is given to combinations of physical, hydrometallurgical, and pyrometallurgical processing, along with associated regulations, to facilitate economical recycling. The presentations are on a practical level, focusing on plant operations, with ample opportunity for interaction by the course participants.
PROGRAM OUTLINE AND SCHEDULE

Tuesday Morning, June 27, 2017

7:45  Registration

8:30  Twenty-Five Years of Recycling at Stillwater Mining’s Smelter
     Kendra Meier and Matt Stevens, Recycling and Metallurgical Process
     Coordinators, Stillwater Mining, Columbus, MT

9:00  Recycling Silver
     Roger Neuscheler, Director of Engineering, Silver Anvil Engineering,
     Lone Tree, Colorado

9:30  Break

9:45  Environmental Compliance: What You Don’t Know Can Hurt You!
     David Wagger, Chief Scientist / Director of Environmental Management,
     Institute of Scrap Recycling Industries, Washington, DC

10:15 Think Your Waste Stream is Hard to Recycle? Think Again.
      Darci Ray-Ackerman, VP & Director of Growth & New Ventures,
      The Heritage Group, Indianapolis, IN

10:45 Break

11:00 Maximizing Recovery: Secondary Impacting and Material Shaping
      Peter Schirk, Recycling Division Sales Manager, BHS-Sonthofen,
      Charlotte, NC

11:30 Networking Time, Followed by Lunch
      Colorado School of Mines Green Center

Tuesday Afternoon, June 27, 2017

1:00  Three Decades of Hydrometallurgical Recycling of Non-ferrous Materials
      at Hydrometal
      Faidjiba Loe-Mie, Sales and Technical Engineer, Jean Goldschmidt
      International, Brussels, Belgium

1:30  Application of Hydrometallurgy for Extraction of Lead from Galena Ore
      Tim Hymer, Manager of Research and Technical Development,
      The Doe Run Company, St. Louis, MO

2:00  Break

2:15  The Invisible Threat: Fatigue Risk Management
      Mitch Cowart, Safety Services Account Manager, Caterpillar,
      Albuquerque, NM

3:15  Break

3:30  Keep Your Plant from Failing Due to Poor Pilot Design
      David Sanguinetti, President, Sanguinetti Engineering, Vancouver, BC

4:00  Social at the Colorado School of Mines’ Coolbaugh Hall Atrium
Wednesday Morning, June 28, 2017

8:30  *Aurubis Multi-Metal Recycling: An Update*
Trevor Landry, Manager, Recycling and Precious Metals, Aurubis AG, Buffalo, NY

9:00  *Precious Metals: Global Challenges, Consequences, and Prospects*
Mike Mooiman, President, Argo Advisors International, North Attleboro, MA

9:30  Break

9:45  *Transformation: Entrepreneur to Project Management*
Tom Delia, Recycling Specialist, Gratiam Inc., Hudson, NY

10:15  *Synergy: The Cement and Aluminum Industries*
Dave Gossman, Chief Investigator, Gossman Forensics, Maquoketa, IA

10:45  Break

11:00  *The Critical Aspect of Capital Cost Estimation & Project Execution Failures*
Corby Anderson, Harrison Western Professor, Kroll Institute for Extractive Metallurgy, Colorado School of Mines, Golden CO

11:30  Networking Time, Followed by Lunch
Colorado School of Mines Green Center

Wednesday Afternoon, June 28, 2017

1:00  *25-Year Metal Recycling Workshop: Retrospective, and the Next 25*
Phil Mackey, President, P.J. Mackey Technology, Montreal, QC
Joe Ferron, President, HydroProc Consultants, Peterborough, ONT

1:30  *Emergency Response to Release of Hazardous Substances*
Bill Krulac, President, Complete Waste Management, Pittsburgh, PA

2:00  Break

2:15  *Co-Product Development in the Processing of Titanium Ores*
Tom Battle, Consulting Metallurgical Engineer, Tom Battle and Associates, Charlotte, NC

2:45  *Indium Recovery from Waste LCD Screens*
Tom Boundy, Research Assistant, Colorado School of Mines, Golden, CO

3:15  Break

3:30  *Tungsten and Molybdenum Powders / Specialty Products*
Tony Smith, R&D Manager, Global Tungsten and Powders, Towanda, PA

4:00  Social at the Colorado School of Mines’ Geology Museum
Thursday Morning, June 29, 2017

8:30  *Metals from Water Treatment and Ion Exchange*
     Jerry Downey, Professor, Montana Tech, Butte, MT

9:00  *Silver, Zinc, Fertilizers, and Related Technologies & Products*
     John W. Whitney, President, Itronics, Inc., Reno, NV

9:30  Break

9:45  *Spent Refinery Catalyst Processing*
     Dave Lewis, Director of Technical Services, AMG Vanadium,
     Cambridge, OH

10:15 *Secondaries Out of Trail*
     Tammy Salway, Senior Engineer – Raw Materials, Teck Resources,
     Trail, BC

10:45 *What a New CSM MetE Graduate Does*
     Joe Grogan, Director R&D, Gopher Resource, Eagan, MN

11:15 *Adjourn*
COMMENTS FROM PAST PARTICIPANTS

This is my third year attending this short course; I plan to return in 2017. Presentation topics and contents were excellent. It’s amazing to see year after year the world-class companies, as well as so many of the brightest minds in industry.

Jason Evens, General Manager, US Ecology, Canton, OH

The best conference about recycling & metal processing; perfectly organized. It is a wonderful opportunity to share experiences with people from very diverse horizons.

Patrick Weerts, Commercial Manager, Fortis Metals, Mortsel, Belgium

CSM provides an excellent forum for industry to share knowledge, experience and friendship. I plan to attend future conferences.

Bruce Kasen, Vice President, ShoreMet LLC, Valparaiso and Nabb, Indiana

This short course’s most significant strengths are the variety of topics, the variety of participants, lots of time for socializing and networking, in Golden...What a magnificent setting!

Charles Geenen, Director Technology, Metallo-Chimique, Nieuwe, Belgium

My favorite short course / conference to attend. The business that I do always pays for the trip. The old friends that I see are fun to interact with.

Leon Welgs, VP Business Development, Blue Line Corp., San Antonio, TX

The one course that I must attend each year...Expertise, diversity of speakers, ability to network.

Dennis Rodal, Director R&D, ELG Haniel Metals, McKeesport, PA

I have enjoyed this meeting very much, and found it incredibly interesting and useful. It is without a doubt one of the best specialist meetings that I have ever attended in my career.

Herman Potgieter, Professor, Manchester Metropolitan University, Manchester, UK
REGISTRATION INFORMATION

Cost
The registration fee is:
- $1495 if registering by April 24
- $1595 after April 18 and by May 22
- $1695 after May 22
Included are the syllabus, continental breakfasts, luncheons, and socials. Assistance may be available to self-employed sole consultants, retired, or unemployed attendees — Contact space@mines.edu for details.

Cancellations and Attendee Substitution Policy
Modification, including cancellation, of your registration requires written notice that must be emailed (space@mines.edu) or faxed (303.277.8683) to Professional Event Services (PES).
- Attendee substitutions may be made without cost penalty at any time up to the date of the start of the event.
- Cancellations will be accepted if notice of cancellation is received at the PES at least five (5) working days prior to the date of the start of the event. Registrants who cancel within this period will be charged a $275 service fee.
- No refunds will be made to registrants who fail to cancel within the specified cancellation period.

Credits
CSM awards two Continuing Education units for this course.

Location and Attire
Golden and the Colorado School of Mines (CSM) are located at the foot of the Rockies 15 miles west of Denver. The area is steeped in western history. Mountain hiking and biking trails begin in town along Clear Creek and the whitewater park. Attire is casual.

Accommodations available until May 15, if blocks are not full
Blocks of rooms in Golden are at the Dove Inn (Tel: 303-278-2209; Fax: 303-273-5272), Table Mountain Inn (Tel: 303-277-9898; Fax: 303-271-0298), and the Golden Hotel (Tel: 303-279-0100; Fax: 303-215-1010). The rooms are under the designation “Recycling Short Course.”
Golden is a popular summer destination, so book your reservation early.

Course Content Details
Paul Queneau at The Bear Group: 303-854-2036; fax 303-273-0494; e-mail: pqueneau@mines.edu

Registration Information
Professional Event Services (PES) at CSM: 303-279-5563; fax: 303-277-8683; e-mail: space@mines.edu; http://www.csmspace.com/
REPRESENTATIVE LIST OF PAST ATTENDEES

Agmet
Air Products
Aleris
Alpha Metals
AMAG Austria Metall
AMG Aluminum
AMG Vanadium
Apex Materials Technology
Asahi Refining
Aurubis AG
Batrec
Battery Solutions
Bear Group
Befesa Steel
BioteQ
Blue Line
Boliden
Brick Recycling
Cal-Chem Metals
Catalytic Innovations
Chevron Energy
Christian Doppler Lab
Colonial Metals
Colt Refining
CONCETUS
CRI Metal Products
CSM/Kroll Institute
CUPROSA
Delft University
DH Catalyst
Doe Run
Dowa International
Eastern Alloys
ECS Refining
E.I. DuPont
ELG Haniel Metals
Energy Fuel Resources
Engitec Technologies
Erachem Comilog
EVRAZ Stratcor
Exotech
5N Plus
Fortis Metals
Francis Pitard Sampling
Franklin Pierce University
Freepor McMoRan
Gannon & Scott
Garrison Minerals
Genesis Recycling Tech
GFE Metalle und Materials
GF Industries
Glencore Technology
Global Steel Dust
Global Tungsten & Metal.
Gopher Resource
Greenville Metals
Hansen Consultants
Harsco Metals
Hazen Research
H.C. Starck
 Heraeus Precious Metals
Heritage Environmental
Huron Valley Steel
Hussey Copper
Hydrometals
HydroProc Consultants
IBM
INMETCO
IPM Services
IPMI
Jean Goldschmidt Intl.
J.E. Litz & Associates
Johnson Matthey
Kalumetals
KGHM Matraco S.A.
Korea Inst GeoSci & MinRes
Langeloth Metallurgical
Lanxess Sybron
LithChem Energy
M&M Metals International
Manchester Metro. Univ.
Marcuson & Associates
Masterloy Products
Metal & Catalyst Resources
Metallica Commodities
Metallo-Chimique
Metal Solutions
Metal Tech
Micronutrients/Heritage
MoReW-Refractory Metals
Morris Equipment Sales
Music City Group
Natural Resources Canada
Network Enviro Services
Nickelhuette Aue
Ocean Partners
Omnisonce
Omnium - Dodge City
Outotec
Patrick Weerts Consulting
Paul Wurth S.A.
Penoles
Philip Services
Phoenix Automotive Cores
Pillar Induction
P.J. Mackey Technology
P. Kay Metal
PM Recovery
Porocel/Catalyst Recovery
Praxair
Precision Cast Parts
Queens University
RSR Technologies
RHI AG
Sabin Metal
Saltire Services
Sanguinetti Engineering
ScanArc Plasma Tech.
Shell
ShoreMet
Silver Anvil Engineering
SINTEF
Sipi Metals
Solumet
Southeastern Minerals
Stillwater Mining
Stoller
Sumitomo
Sustainable Management
Teck Metals
Tetra Tech
Tetronics International
Tin Technology & Refining
Tonolli Canada
Torma Sorting Solutions
Treibacher Industrie
TTM Technologies
Umicore
U. of Leoben
US Ecology
U.S. EPA
USGS
U.S. Steel
U.S. Zinc
Vale Inco
Veolia
Wilming[ton Iron & Metal
WM Mercury Waste
Zinc Nacional