Investment Recovery Association

Scrap, Recycling and Environmental Issues

We live in a disposable society. It's easier to throw things out than fix them. We even give it a name – we call it recycling.

Neil LaBute

INVESTMENT RECOVERY ASSOCIATION®

Promoting Professional Management of Surplus Assets

Topics

- Governing Laws, Regulations & Acts
- Recycling Process
- Identification
- Determining Value
- Risk
- Design for Environment

Governance - US

- Occupational Safety and Health Admin (OSHA)
- Hazardous Materials Transportation Act (HMTA)
- Comprehensive Environmental Responsibility Compensation and Liability Act (CERCLA)
- Resource Conservation and Recovery Act (RCRA)

Governance - Canada

- Canadian Environmental Protection Act (CEPA)

http://laws-lois.justice.gc.ca/en/C-15.31

- Waste Management Act
- Transportation of Dangerous Goods Act

www.tc.gc.ca/tdg/en/menue.htm

- International Air Transportation Act (IATA)

CERCLA | Managing Hidden Risks

- Generation & removal is heavily regulated by EHS Policies & Procedures
  - Governed by checks & balances
  - To minimize risk of personal injury
  - To reduce damage to the environment
  - Accountability cradle to grave, not because you have to, but because you want to
- Programs must address the potential liability of all factors for future reference
- CERCLA's compliance officer can implement rulings to enforce existing laws AND make it retroactive to when you shipped the material
  - What was in compliance today, might not be so in 10 years

Risk Measurement & Management

- Could you be named as a Potential Responsible Party (PRP) a decade later for implementing procedures that were legal at that time?
- How can you prove that scrap metal being sent to a recycling facility was not yours in the event of a CERCLA inquiry?
- How can you prove that injuries sustained in a scrap recycling facility was not due to handling your scrap?

Enhancing An Existing Recycling Program

- To increase amount recycled
- Reduce landfill materials
- CERCLA: Comprehensive Environmental Response Compensation and Liability Act of 1980

Proving:

What you did 10 years ago ***As well as…***

What you did not do 10 years ago

What's Leaving In Your Scrap Box?
When was the last time you checked what was leaving your facility in a scrap box?

You are normally paid for steel, but you may be shipping materials that are either much more valuable or pose a liability risk.

What kind of safeguards are implemented at the scrap yard once the materials leave your facility?

Trapped Hydrocarbons

NORM

Pyrophoric Chemicals

Asbestos

Lead Based Paint

Chromium

PCB's

Chemical Reactions

Product trapped in manifolds, blind flanges, and closed containers

What's Arriving In Your Scrap Box?

When was the last time you checked what was being brought into your facility in a scrap box?

If the box was not "completely" empty when it was brought into your facility did it contain someone else's hazards that you could be liable for?

Establishing an Asset Recovery Program

What's in YOUR Scrap Box
Unrecognized Assets = Lost Revenues

Unrecognized Assets

- Non-Ferrous Metals
- Process Equipment
- Valves & Pumps
- Tools
- Electric Equipment
- Instruments
- Warehouse Parts
- Pipe

Risks & Liabilities

- Paint Cans
- Trash
- Process Residue
- Asbestos
- Intellectual Data
- Computers
- Concrete
- Chemical Drums

Are the risk and liabilities yours, or was the box dirty when it came into your facility?

Enhancing Your Existing Waste Stewardship Program

- Reduce what goes into a landfill;
- Maximize what is being recycled;
- Use the revenues generated from the program to perpetuate improvements;
- Ensure worker protection and training is not one dimensional;
- Make sure scrap boxes are completely clean when brought into your facility;
- Have a qualified person regularly inspect what is put in the scrap box to identify and remove hazards before they are covered up or leave the facility;
- Make periodic visits to the scrap recycling facility to perform QA/QC inspections;
- Follow-up to ensure that all known hazards have been communicated to the scrap yard workers and appropriate protection measures are in place

Recycling

Institute of Supply Management (ISM) definition:

The practice of turning usable materials cast off from a process into a production stream for another use.

Understanding Your Scrap Material

- Know the type of material that makes up your plant
  - Ferrous
  - Non-ferrous
  - Stock / Equipment

Understanding Your Scrap Material

- Ferrous

➢ Steel / Iron – Multiple Forms of Grading

- **P&S:** Cut structural and plate scrap, 5 feet and under not less than 1/4 inch thick.
- **HMS #1 and #2:** Heavy melting steel that does not meet P&S specifications
- **Cast:** Solid moldings weighing over 150 pounds, but not more than 500 pounds
- **Torch:** Pieces of steel which is unable to be cut and sized by mechanical means and requires the use of manual labor with a torch to size.
- **Lite Iron:** Homogeneous iron and steel scrap magnetically separated, miscellaneous baling and sheet scrap. Average density 70 pounds per cubic foot

Understanding Your Scrap Material

- Non-Ferrous
- ➢ Non-magnetic
  - Aluminum
  - Copper
  - Lead
  - Brass
  - Stainless – 304, 316, 410
  - Titanium

Structuring a Project to Maximize Return on Assets

- Recognize the value
- Communicate value to team members
- Design a schedule that complements the scope of work
- Be realistic on expectations of return
- Quantify the assets by value and commodity
- Establish a strong scrap handling protocol to protect against loss and theft
- Set the project up for success through a value engineering process
- Be receptive to alternatives that would add value to the bottom line of the project
- Promote ethical and transparent behavior through example
- Understand the true value of an asset by performing a cost/benefit analysis* on major items

*** What is a cost/benefit analysis in demolition estimating?**
The difference between the cost to salvage versus the cost to scrap compared to the value as salvage versus the value as scrap

Elements of Recycling Program

- Identify potential recyclable material
- Verify material is recyclable
- Segregate recyclables
- Determine quantities
- Solicit and pre-qualify potential buyers
- Evaluate and award recycling contracts
- Follow up and verify

Operating in the Recycling Markets

For maximum return on recyclables -

- Look for internal recycling opportunities.
- Determine the potential market value.
- Assess cost impact of recycling.
- How can we maximize value?
- Obtain highest value.
- Maintain lowest cost.
- Minimize company's liability.

Material Valuation

- Publications
  - » American Metals Market (AMM)
  - » London Metal Exchange (LME)
  - » Commodities Exchange (COMEX)
- Know Your Market
  - » Publications do not dictate local market values
  - » Additional Outlets
  - » Overseas
  - » Cross Country
  - » End Users
- Know your Dealer
  - » Experience
  - » Knowledge
  - » Reporting

Identification

Where to find recyclables in your company

- Manufacturing byproducts
  - Inherent value
  - Raw material for another process
- Waste bins
  - Paper
  - Plastic bottles
  - Aluminum cans

Opportunities for Recycling

Partner with other departments-

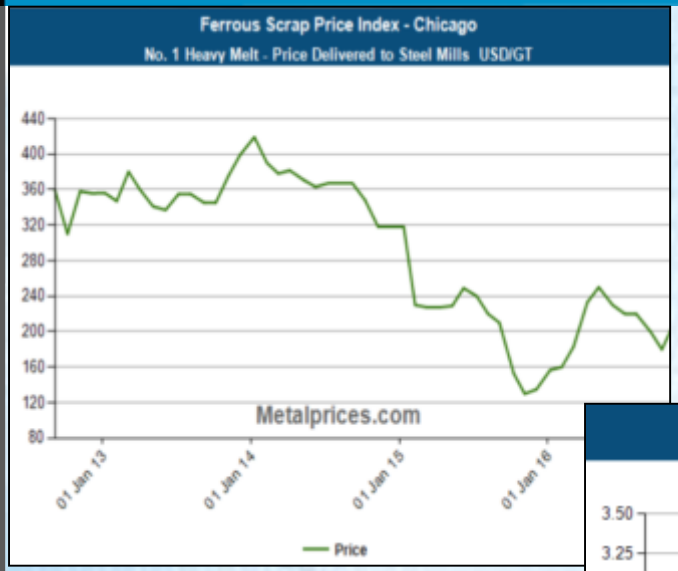
- Environmental
- Production
- Sourcing

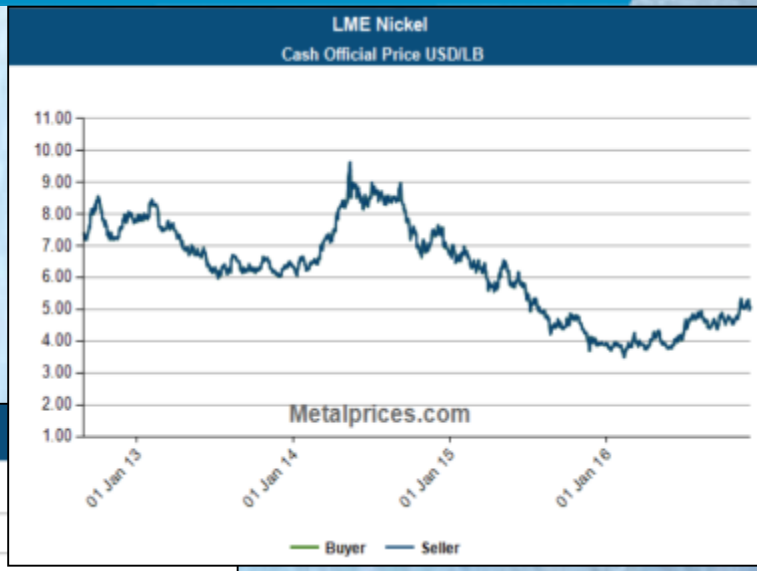
- Report and share results

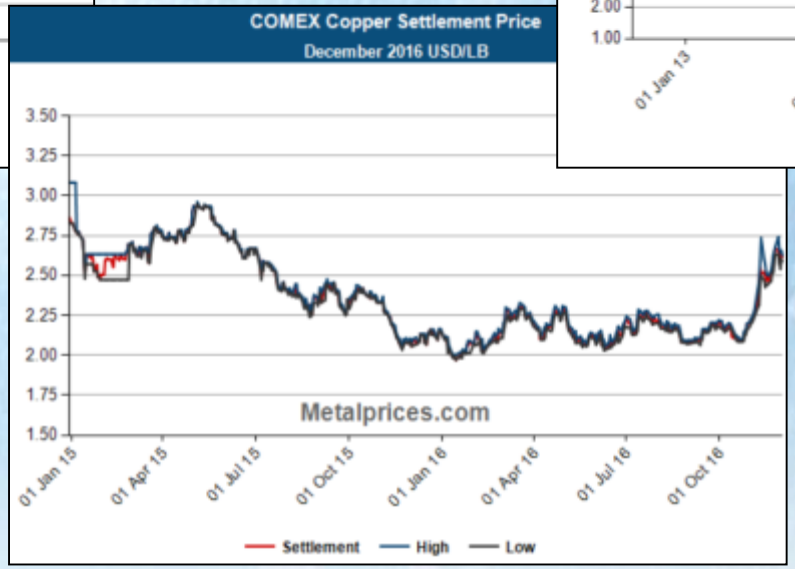
Sort Your Materials

Ferrous	Non-Ferrous	
Carbon Steel	Aluminum	Mercury
Cast Iron	Antimoney	Molydenum
Coresteel	Brass	Nickel
Iron	Chromium	Platinum
Mild Steel	Cobalt	Silver
Stainless Steel	Copper	Tin
Steel	Gold	Titanium
Tool Steel	Hastelloy	Tungston
Wrought Iron	Inconel	Vanadium
	Manganese	Zinc

Always be Aware of What the Scrap Market is Doing







Know Your Metals

How Non-Ferrous is Priced: Admiralty / Brass

443 (Admiralty)

$2.303 per lb.

Element**	Range %	Calc %	Value $/lb
Cu COMEX	70.0-73.0	71.5	2.6150
Zinc LME	Rem.	27.5	1.2240
Tin LME	.8-1.2	1	9.6638
Arsenic	.02-.06	0	0
Fe	.06	0	0
Pb	.07	0	1.0392
Total Intrinsic Value:		100	2.303
		Scrap %	100
US Dollar		Scrap Value:	2.303
lb kg		Calculate	Reset
Print Version		Save Calculation	

270 (Yellow)

$2.1282 per lb.

Element**	Range %	Calc %	Value $/lb
Cu COMEX	63.0-68.5	65	2.6150
Zinc LME	Bal	35	1.2240
Pb	0.10		0
Fe	0.07		0
Total Intrinsic Value:		100	2.1282
		Scrap %	100
US Dollar		Scrap Value:	2.1282
lb kg		Calculate	Reset
Print Version		Save Calculation	

How Non-Ferrous is Priced: Copper-Nickel Alloys

90-10 (C70600)

$2.1674 to $2.3926 per lb.

Element**	Range %	Calc %	Value $/lb
Nickel^ (LME + Prem)	9-11	9	5.4163
Cu COMEX	Bal	89	2.6150
Mn	1		0
Fe	1-1.8		0
Zn	1		0
Pb	0.05		0
Total Intrinsic Value:		98	2.8148
		Low	High
Scrap Discount:		77 %	85 %
US Dollar		2.1674	2.3926
lb kg		Calculate	Reset
Print Version		Save Calculation	

70-30 (C71500)

$2.5988 to $2.8688 per lb.

Element**	Range %	Calc %	Value $/lb
Nickel^ (LME + Prem)	29-33	29	5.4163
Cu COMEX	Bal	69	2.6150
Mn	1		0
Fe	1		0
Zn	1		0
Pb	0.05		0
Total Intrinsic Value:		98	3.3751
		Low	High
Scrap Discount:		77 %	85 %
US Dollar		2.5988	2.8688
lb kg		Calculate	Reset
Print Version		Save Calculation	

How Non-Ferrous is Priced: Stainless Steel

304

$0.5102 per lb.

Element**	Range %	Calc %	Value $/lb
Nickel^ (LME + Prem)	8-10.5	8	5.4163
Chrome in HC Ferrochrome	17-20	17	1.1100
SPI Chicago No 1 Dealer Bundles	Bal	74	0.1071
Mn	2		0
Si	1		0
C	0.08		0
P	0.045		0
S	0.03		0
Total Intrinsic Value:		99	0.7013
		Scrap %	72.75
US Dollar		Scrap Value:	0.5102
lb kg		Calculate	Reset
Print Version		Save Calculation	

316 L

$0.8768 per lb.

Element**	Range %	Calc %	Value $/lb
Nickel^ (LME + Prem)	10 - 14	11	5.4163
Chrome in LC .05 Ferrochrome	18 - 20	19	2.1250
Moly in Molybdenum Oxide	2 - 3	2	6.8000
SPI Chicago No 1 Dealer Bundles	Bal	65	0.1071
Mn	2	2	0
Si	1	1	0
P	0.045		0
C	0.03		0
S	0.03		0
Total Intrinsic Value:		100	1.2052
		Scrap %	72.75
US Dollar		Scrap Value:	0.8768
lb kg		Calculate	Reset
Print Version		Save Calculation	

Material Management

Financial attributes of the material

Material Preparation

- Prepared Material
- Unprepared Material

Contamination

- Manage potential deductions
- Dirt
- Debris
- Concrete
- Manage Unacceptable Materials and or Items
- Sealed Tanks
- Unknown liquids
- Oils / Fuels / Coolants
- Hazardous Materials

Material Management

- Transportation
  - »Rail Access
  - »Trucking
  - »Load Weights

- Material Grading
  - »Percentage of recoverable material
  - »Reduction for mixed materials
  - »Niton

Potential Market Value

Three important variables:

- Inherent value of byproducts
  - Cost of virgin raw material vs. use of byproducts
- Purity
  - Less contaminated/ greater market value
- Available volume
  - Low volume /less marketplace interest

Going to Market

- Monitor market indices
  - Many readily available tools
  - Tie bids to an index for long-term agreements
- Competitive bids
  - Pre-qualify bidders
  - Clarify service requirements, market restrictions
  - Provide best estimates of potential volumes, if possible.

Recycling Decision Hierarchy

- **Internal Recycling**
  - Use as is
  - Reprocess for internal use
- **External Sales**
  - Sell direct to user
  - Sell through broker
  - Sell to Dealer

Work with the Team

- **Minimize potential liability**
  - Cradle-to-grave responsibility
  - “Deep pocket” rulings
- **Work with others**
  - **Internal**
    - Safety
    - Environmental
    - Legal
    - Transportation
  - **External**
    - EPA
    - DOT

Protecting Your Organization

An organization shows ***Due Diligence*** if it can prove, on balance of probabilities, it took all reasonable steps to avoid a particular outcome.

- **Know your buyers**
  - Financial strength, industry experience and reputation/ethics
  - Price important but not everything; service may be more important
- **Protect your product markets**
  - Delineate market restrictions
  - Specify requirements in written agreements
  - Monitor for “leaks”
  - Whenever possible, sell directly to end user
- **Corporate image/reputation**
  - Cradle-to-grave; deep pocket ruling

Final Thoughts

- Design for Environment
  - Integrate product and process design into corporate system.
  - Provides competitive advantage and innovation
  - Enhances environmental responsibility
- Establish a team
  - Health and Safety
  - Environmental
  - Operations
  - Investment Recovery
- Educate, Report and Advise

Remember

Our obligation for the safety of others as well as the protection of the environment NEVER ends. We cannot legislate nor transfer our liability to others regardless of how many attorneys were used to write the contract. Our legal and moral obligations begin in the cradle and ends in the grave not only for ourselves, but our waste as well.

Questions or Comments

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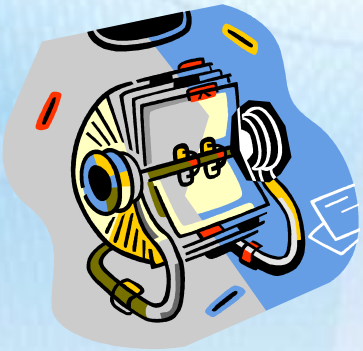

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