

The Greening of Industrial Jobs



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"Green" vs. "Greening" of Jobs

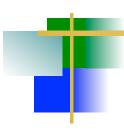
- Common notion of "green" jobs: clean energy & energy efficiency
- **Brookings report:** Sizing the Clean Economy
 - Jobs in clean energy companies and establishments
 - 26% manufacturing
- MSSC GPM is about the "greening" of jobs
- GPM skill standards and training apply to:
 - Frontline workers across manufacturing spectrum
 - Helping employers comply with environmental regulations
 - Helping employers implement energy efficiency improvements in industrial facilities and processes.



GPM & Environmental Compliance

- Keyed to federal, state and local environmental laws
- U.S. environmental regulatory system began with NEPA and EPA under Nixon in early 1970s
- Environmental statutes apply to businesses, federal facilities, local governments, tribes
 - Limit pollution and hazardous materials released into air, water, ground
 - Main statutes applied to manufacturing: CAA, CWA, RCRA, TSCA, CERCLA ("Superfund"), EPCRA, climate change





EXAMPLES OF HAZARDOUS WASTE GENERATED BY INDUSTRIES AND BUSINESSES:

WASTE GENERATOR	WASTE TYPES			
Chemical Manufacturers	Acids and Bases Spent Solvents Reactive Waste	Wastewater Containing Organic Constituents		
Printing Industry	Heavy Metal Solutions Waste Inks Solvents	Ink Sludges Containing Heavy Metals		
Petroleum Refining Industry	Wastewater Containing Benzene & other Hydrocarbons	Sludge from Refining Process		
Leather Products Manufacturing	Toluene and Benzene			
Paper Industry	Paint Waste Containing Heavy Metals	Ignitable Solvents		
Metal Manufacturing	Sludges containing Heavy Metals	Cyanide Waste Paint Waste		

Source: Environmental Protection Agency, Solving the Hazardous Waste Problem: EPA's RCRA Program (Washington, DC: EPA, November 1986), 8

Selected Examples of EPA Compliance and Enforcement Violations and Settlements Involving Manufacturing Facilities

EPA establishes and					
enforces regulations					
—works with states,					
localities (which also					
have regulations)					
Employers must					
comply or face					

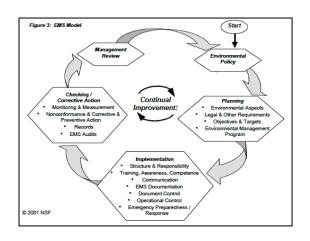
Employers must comply or face financial (tens of thousands to millions of dollars) and criminal penalties

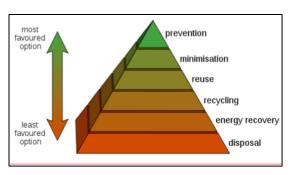


Company (location)	Products	Violations	Penalties	Corrective Actions
Edge Tech Industries (Davenport, IA)	Printed-circuit boards	Violated EPCRA* for 2006, 2007, 2008: failure to submit reports to EPA and state authorities of regulated chemicals released into environment	\$26,000 civil penalty	Filed required reports in full compliance of EPCRA
Air Products LLC (Pasadena, TX)	Chemicals	RCRA violations for sending hazardous spent acid stream to nearby Agrifos fertilizer plant	\$1.5 million civil penalty	Agrees to manage spent acid on- site and not ship it to Agrifos or other plants
Bayer CropScience LP (Kansas City, MO)	Pesticides (35 million lbs annually)	CAA violation—failure to implement risk management program to prevent and respond to chemical accidents and releases	\$37,790 civil penalty	Spending \$100,000 on air monitors to aid chemical release detection
Western Sugar Cooperative (Scottsbluff, NE)	Sugar beet processing	CWA violation—excessively high discharges of fecal coliform bacteria in wastewater	\$56,736 civil penalty	\$350,000 plant upgrades to cut pollution, save water and energy
Lifoam Industries (Vernon, CA)	Polystyrene	CAA and state air quality violations	\$450,000	Must vent all manufacturing emissions through air pollution control device
Cardi Materials, LLC (Warwick, RI)	Concrete	CWA violations—unpermitted process water and stormwater discharges and failure to develop and implement a spill prevention control and countermeasure plan	\$55,000 civil penalty	\$168,500 project to eliminate all process water discharges; comprehensive environmental audit and additional monitoring and reporting; hire certified stormwater management personnel; provide training for all operational employees
McWane Inc. (28 facilities in 14 states; HQ: Birmingham, AL)	Cast iron pipes, valves, fittings, fire hydrants, propane & compressed air tanks	> 400 violations of federal and state environmental laws: includes CAA, CWA, RCRA, EPCRA, TSCA and several state laws	\$4 million	7 environmental projects valued at \$9.1 million; corporate-wide environmental management system (EMS); and audit to evaluate EMS adequacy**

Sources: US EPA Compliance and Enforcement 2010 News Releases

Company Environmental Compliance





- Environmental Management Systems (EMS)
- Auditing, monitoring, reporting
- Identify problems and implement compliance procedures
 - E.g., managing hazardous wastes used in production
- GPM skill standards and curriculum train and certify frontline workers in these areas

Energy Efficiency Opportunities

- Industrial energy efficiency (IEE) not mandated by government:
 - DOE's IEE programs developmental and promotional
- Energy costs, a bottom-line concern of manufacturers
 - Volatile energy prices, supply, security concerns
 - EITE manufacturers, certain operations in nonenergy-intensive firms
- Identify IEE problems and solutions:
 - Auditing, assessment of facilities/processes; recommend solutions
 - Energy support systems (motors, compressors, pumps, fans, data centers, HVAC, lighting etc.) and process-specific applications (heating, power, feedstock)
 - Waste heat recovery, CHP, more efficient equipment





MSSC[™] GPM Standards & Curriculum

- Basic knowledge about environmental laws, statutes, regulations
- Company compliance requirements, strategies, and procedures
 - Auditing, monitoring, reporting, emergency responses, etc.
- Basic knowledge of and ability to identify IEE opportunities
- Basic knowledge of external sources of assistance (EPA, DOE)

Importance of Frontline Workers

- Environmental compliance and IEE typically concern of managers and engineers
- First line of compliance and identifying IEE opportunities
 - Identify problems/solutions in support of managers and engineers
 - First to see problems and opportunities for IEE and environmental improvements within facilities and workplaces
- Work with hazardous chemicals, materials and products—also S&H threats—need to understand appropriate procedures





Benefit

- Benefits to Employers
- Successful implementation of EMS and energy management plans to achieve company goals
- Effective implementation in plants and on the line requires involvement of well-informed, trained, skilled workforce
 - Managers, engineers set goals, design processes, systems, procedures, products—workers implement
- Bottom-line benefits:
 - Cost savings in regulatory compliance, IEE
 - Avoided penalties; regulations less onerous; lower energy costs
 - Healthier workforce: environmental/H&S hazards often the same
 - Better community relations: good marketing and corporate citizenship