Endnotes

INTRODUCTION

1 U.S. Census Bureau. Statistics for Industry Groups and Industries: 2001, Annual Survey of Manufacturers, for gross domestic product, and fuels and energy purchases - available at: http://www.census.gov/prod/2003pubs/m01as-1.pdf. U.S. Census Bureau. County Business Patterns: 2001, for the number of facilities and number of employess - available at: http://www.census.gov/epcd/cbp/view/cbpview.html.

2 U.S. Environmental Protection Agency. 2003. Toxics Release Inventory Public Data Release: 2001. Data freeze: March 7, 2003

AGRIBUSINESS

1 U.S. Census Bureau. 2001. County Business Patterns. For the number of employees and number of establishments. Available at: http://www.census.gov/epcd/cbp/view/cbpview.html. U.S. Census Bureau. 2001. Statistics for Industry Groups and Industries, Annual Survey of Manufactures. For value of shipments. Available at http://www.census.gov/prod/2003pubs/m01as-1.pdf.

2 Standard Industrial Classification (SIC) codes used to define the economic activities of the industries or business establishments in this sector: 2011, 2013, 2015, 2021- 2024, 2026, 2032 - 2035, 2037, 2038, 2041, 2043 - 2048, 2051 - 2053, 2064, 2066 - 2068, 2079, 2082, 2086, 2087, 2091, 2092, 2095, 2096, 2098, and 2099. Corresponding North American Industry Classification System (NAICS) codes: 311320, 311330, 311340, 311520, 311822, 311823, 311911, 311919, 311920, 311930, 311941, 311942, 311991, 311999, 312111, 312112, and 312120.

3 U.S. Census Bureau. 2001. County Business Patterns. Available at: http://www.census.gov/epcd/cbp/view/cbpview.html.

4 U.S. Census Bureau. 2001. County Business Patterns. Manufacturing Establishments by Employment Size, derived from: http://censtats.census.gov/cgi-bin/cbpnaic/cbpcomp.pl.

5 American Meat Institute. See http://meatami.com.

6 National Food Processors Association. See http://www.nfpa-food.org/.

7 U.S. Census Bureau. 2001. Statistics for Industry Groups and Industries, Annual Survey of Manufactures. For value of shipments. Available at http://www.census.gov/prod/2003pubs/m01as-1.pdf.

8 U.S. Environmental Protection Agency. Permit Compliance System (PCS), IDEA refresh as of December 12, 2003.

9 U.S. Environmental Protection Agency. 2003. Toxics Release Inventory (TRI) Public Data Release: 2001. Data freeze: March 7, 2003.

10 U.S. Environmental Protection Agency. Sector Strategies Program, Environmental Management System (EMS) Implementation Guide for the Meat Processing Industry. Available at: http://www.epa.gov/sectors/agribusiness/agri_ems.html#ems.

11 AMI Master Achiever Pioneer Star Program (MAPS). See http://www.meatami.com/Content/NavigationMenu/Labor_Environment/Environmental_MAPS_Program/Environmental_MAPS_Program.htm.

12 Leaverton, Sue. Advance Brands. 2003. Conversation with sector point-of contact, September 15, 2003.

13 Frotz, Dave. Excel Corporation. 2003. Conversation with sector point-of contact, September 15, 2003.

14 Western Iowa Livestock External Stewardship Pilot Project (WILESPP). 2004. Laying the Groundwork for a Future of Effective Nutrient Management, DRAFT - FINAL REPORT.

CEMENT

1 van Oss, Hendrik G. 2004. U.S Geological Survey, Mineral Commodity Summaries. p. 42.

2 Standard Industrial Classification (SIC) code used to define the economic activities of the industries or business establishments in this sector: 3241, and the corresponding North American Industry Classification System (NAICS) code: 327310.

3 van Oss, Hendrik G. 1997 and 2002. U.S Geological Survey, Cement Yearbook. Available at http://minerals.usgs.gov/minerals/pubs/commodity/cement/.

4 Portland Cement Association. U.S. and Canadian Portland Cement Industry: Plant Information Summary Survey. p. 2-3.

5 Carter, Tom, Portland Cement Association. May 2004. Interview.

6 Portland Cement Association. U.S. and Canadian Labor-Energy Input Survey. p. 2.

7 Ibid., p. 2 and 7.

8 Ibid.

9 Portland Cement Association. U.S. and Canadian Portland Cement Industry: Plant Information Summary Survey. p. 3.

10 Energy Star web site at http://www.energystar.gov,and click on "Energy Star Industry Partners" for complete list.

11 NEI Emission Trends Data and Estimation Procedures, Criteria Pollutant Data, Average Annual Emissions, All Criteria Pollutants Years Including 1970 - 2001, Updated August 2003. Available at http://www.epa.gov/ttn/chief/trends/.

Note: State and local emissions inventories are submitted to EPA once every three years (e.g., 1996 and 1999) for most of the point sources contained in NEI. EPA estimated emissions for any jurisdiction that did not submit an emissions inventory. Similarly, emissions for the years in between submissions were estimated by EPA. These estimates may not reflect changes in the industry, such as pollution prevention or compliance efforts. The 2002 inventory is scheduled for release in 2005.

12 van Oss, Hendrik G. and Amy C. Padovani. 2003. "Cement Manufacture and the Environment – Part II: Environmental Challenges and Opportunities." Journal of Industrial Ecology. Volume 7, Number 1, page 101.

13 NEI Emission Trends Data and Estimation Procedures, Criteria Pollutant Data, Average Annual Emissions, All Criteria Pollutants Years Including 1970 - 2001, Updated August 2003. Available at http://www.epa.gov/ttn/chief/trends/.

14 Ibid.

15 Energy Information Administration, Department of Energy. U.S. Anthropogenic Carbon Dioxide Emissions, 1990-2002. Accessed from EIA web site: http://www.eia.doe.gov/oiaf/1605/ggrpt/carbon.html in May 2004. See also van Oss and Padovani, page 104.

16 van Oss, Hendrik G. and Padovani.

17 Energy Information Administration, Department of Energy.

18 Climate VISION, Program Mission. Available at http://www.climatevision.gov/mission.html. The specific cement sector commitment is found at http://www.climatevision.gov/sectors/cement/. Accessed May 2004.

19 U.S. Department of Energy, Energy Information Administration. 2002. Voluntary Reporting of Greenhouse Gases Program: Available at: http://www.eia.doe.gov/oiaf/1605/frntvrgg.html. Accessed May, 2004.

20 U.S. Department of Energy, Energy Information Administration. 2002. Voluntary Reporting of Greenhouse Gases. Available at http://www.eia.doe.gov/oiaf/1605/TableB2_2002.html. Accessed May, 2004, Table B2.

21 van Oss and Padovani. page 97.

22 Portland Cement Association, Cement Kiln Dust Surveys, memo: May 2004.

23 St. Lawrence Cement Group. 2003. Sustainable Development Report. Page 4. Available at http://www.holcim.com/Upload/CA/Publications/SD%20Report_ENG.pdf.

24 Ibid.

COLLEGES & UNIVERSITIES

1 U.S. Census Bureau. County Business Patterns: 2001, for the number of establishments, available at: http://www.census.gov/epcd/cbp/view/cbpview.html.

2 National Center for Education Statistics. Enrollment in Postsecondary Institutions, Fall 2003 and Financial Statistics, Fiscal Year 2003, December 2003, for value of shipments.

3 National Center for Education Statistics. Enrollment in Postsecondary Institutions, Fall 2001 and Financial Statistics, Fiscal Year 2001, December 2003, for the number of employees, available at http://nces.ed.gov/pubs2004/2004155.pdf.

4 Standard Industrial Classification (SIC) codes used to define the economic activities of the industries or business establishments in this sector: 8221 and 8222. Corresponding North American Industry Classification System (NAICS) codes: 611210 and 611310.

5 National Center for Education Statistics. Digest of Education Statistics: 2002. Chapter 3. Accessed January 5, 2004. Available at: http://nces.ed.gov/.

6 Partnerships: The American Council on Education (ACE) is the nation's coordinating higher education association. Its approximately 1,800 members include accredited, degree-granting colleges and universities from all sectors of higher education and other education and education-related organizations. Additional information available at: www.ace.org.

The Association of Higher Education Facilities Officers (APPA) is an international association dedicated to maintaining, protecting, and promoting the quality of educational facilities. The nearly 4,500 individuals who comprise APPA are facilities professionals from public and private, two-year and four-year, colleges and universities. Additional information is available at: www.appa.org.

The Campus, Safety, Health and Environmental Management Association (CSHEMA), a division of the National Safety Council, is dedicated to assisting its membership in advancing safety, health and environmental quality in institutions of higher education. Additional information is available at: www.cshema.org.

The Campus Consortium for Environmental Excellence (C2E2) is a college and university member supported not-for-profit organization. The mission of the C2E2 is to support the continued improvement of environmental performance in higher education. Additional information is available at: www.c2e2.org.

The Howard Hughes Medical Institute (HHMI) is a medical research organization whose principal mission is the conduct of biomedical research. Approximately 320 Hughes investigators lead medical research laboratories at 68 of the nation's leading research centers and universities. Additional information is available at: www.hhmi.org.

The National Association of College and University Business Officers (NACUBO) is a nonprofit professional organization representing chief administrative and financial officers at more than 2,100 colleges and universities across the country. Additional information is available at: www.nacubo.org.

7 Rebuild America. Colleges & Universities Program Brief, October 2003. For additional information, please visit: www.rebuild.gov.

8 Dave Newport, University of Florida. Electronic communications with EPA sector point-of-contact, January 23, 2004.

9 For more information about EPA's Energy Star Program, please visit www.energystar.gov.

10 For more information about Dutchess Community College, please visit http://www.sunydutchess.edu.

11 For more information on the New Jersey Institute of Technology's Sustainability Greenhouse Gas Initiative, please visit http://www.njit.edu/.

12 Dave Newport, University of Florida. Electronic communications with EPA sector point-of-contact, January 23, 2004.

13 Terrance Alexander, University of Michigan. Electronic communications with EPA Sector Strategies Division, January 27, 2004. Additional information is available at: http://www.p2000.umich.edu/.

14 Ibid.

15 For more information on the College and University Recycling Council (CURC) benchmarking tool, please visit: http://www.nrc-ecycle.org/councils/CURC/projects.html.

16 Dave Wergin, University of Colorado Boulder. Electronic communications with EPA Sector point-of-contact, January 22, 2004.

17 Dwight Hagihara, Washington State University. Electronic communications with EPA Sector point-of-contact, January 27, 2004.

18 U.S. Environmental Protection Agency's National Environmental Performance Track Program, available at: http://www.epa.gov/performancetrack.

CONSTRUCTION

1 U.S. Census Bureau. County Business Patterns: 2001, for the number of employees and number of establishments - available at: http://www.census.gov/epcd/cbp/view/cbpview.html. U.S. Census Bureau. Statistics for Industry Groups and Industries: 2001, Annual Survey of Manufactures, for value of shipments – available at http://www.census.gov/prod/2003pubs/m01as-1.pdf.

2 U.S. Census Bureau. Industry Economic Accounts, 2002 – available at: http://www.bea.gov/bea/dn2.htm.

3 Standard Industrial Classification (SIC) codes used to define the economic activities of the industries or business establishments in this sector: all of 15, 16 and 17. Corresponding North American Industry Classification System (NAICS) codes: 233110, 233210, 233220, 233310, 233320, 234110, 234120, 234910, 234920, 234930, 234990, 235110, 235210, 235310, 235410, 235420, 235430, 235510, 235520, 235610, 235710, 235810, 235910, 235920 - 235950, and 235990.

4 U.S. Census Bureau. County Business Patterns: 2001, available at: http://www.census.gov/epcd/cbp/view/cbpview.html.

5 U.S. Census Bureau. "Manufacturers' Shipments, Inventories, and Orders: December 2003," – available at www.census.gov/indicator/www/m3/prel/pdf/dec.pdf.

6 The Associated General Contractors of America website: http://www.agc.org/index.ww;jsessionid=aqfYQ96JU414.

7 U.S. EPA. Characterization of Building-Related Construction and Demolition Debris in the United States, June 1998. Report #EPA530-R-98-010. Prepared for U.S. EPA by Franklin Associates, Prairie Village, KS.

8 Ibid.

9 Ibid.

10 EPA's Resource Conservation Challenge website: http://www.epa.gov/epaoswer/osw/conserve/.

11 Associated General Contractors. "Recycling Foundry Sand in Highway Construction", CONSTRUCTOR Magazine, January 2003.

12 U.S. Green Building Council, "Why Build Green", available at: www.usgbc.org/aboutus/whybuildgreen.asp.

13 Study Shows Green Building Investments Yield High Returns, available at GreenBiz.com, Oct. 20, 2003.

14 Leadership in Energy and Environmental Design (LEED) website: http://www.usgbc.org/leed/leed_main.asp.

15 Construction Industry Compliance Assistance Center, available at: http://www.cicacenter.org/.

16 AGC's environmental services web page, available at: http://www.agc.org/page.ww?section=Environmental&name=About+Environmental.

Endnotes

CONSTRUCTION *(continued)*

[17] Associated General Contractors. "Constructing a Green Building for EPA", CONSTRUCTOR Magazine, February 2003.

[18] Associated General Contractors. "EMS in Action on Construction Projects", CONSTRUCTOR Magazine, November 2002.

[19] Katayama, Roy and Craig Harvey, EPA Office of Transportation and Air Quality. Discussion with Sector point-of-contact about draft table of Emission Totals by SCC and Pollutant; model run, January 12, 2004.

[20] Voluntary Diesel Retrofit Program is available at: http://www.epa.gov/otaq/retrofit/.

[21] Hakel, John, Executive Director, AGC of California. Discussion with EPA sector point-of-contact, Feb. 2004.

[22] Performance Track Network Partners, available at: http://www.epa.gov/performancetrack/particip/trade.htm

[23] Hector E. Valdez and Abdol R. Chini. "ISO 14000 Standards and the US Construction Industry", Environmental Practice, Vol. 4, No. 4, Dec. 2002, pp. 210-219.

FOREST PRODUCTS

[1] U.S. Census Bureau. County Business Patterns: 2001, for the number of employees and number of establishments - available at: http://www.census.gov/epcd/cbp/view/cbpview.html. U.S. Census Bureau. Statistics for Industry Groups and Industries: 2001, Annual Survey of Manufactures, for value of shipments – available at http://www.census.gov/prod/2003pubs/m01as-1.pdf.

[2] Standard Industrial Classification (SIC) codes used to define the economic activities of the industries or business establishments in this sector: 2421, 2426, 2429, 2431, 2435, 2436, 2439, 2491, 2493, 2611, 2621, 2652, 2653, 2655 - 2657, and 2671 - 2679. Corresponding North American Industry Classification System (NAICS) codes: 321113 321114, 321211 - 321214, 321219, 321912, 321918, 322110, 322121, 322122, 322130, 322211 - 322215, 322221 - 322224, 322226, 322231 - 322233, 322291, and 322299.

[3] U.S. Census Bureau. County Business Patterns: 2001, for the number of employees - available at: http://www.census.gov/epcd/cbp/view/cbpview.html.

[4] Compiled market trend data from American Forest & Paper Association, electronic communication to sector point-of-contact, January 16, 2004.

[5] American Forest & Paper Association Membership Department Data, electronic communication to sector point-of-contact, May 2004.

[6] U.S. Department of Energy Industrial Technologies Program. Forest Products Annual Report Fiscal Year 2003, 2003, available at: http://www.oit.doe.gov/pdfs/100903_news.pdf.

[7] American Forest & Paper Association. Environmental Health and Safety Verification Program Year 2000 Report. 2002, available at: http://www.afandpa.org/Content/NavigationMenu/Environment_and_Recycling/Environment,_Health_and_Safety/Reports/EHSFullReportFinal.pdf.

[8] Ibid.

[9] American Forest & Paper Association research and development data, available at: http://www.afandpa.org/Template.cfm?Section=Policy_Issues&template=/TaggedPage/TaggedPageDisplay.cfm&TPLID=6&OriginalID=2&InterestCategoryID=291&ExpList=2,286.

[10] American Forest & Paper Association. Environmental Health and Safety Verification Program Year 2000 Report, 2002, available at: http://www.afandpa.org/Content/NavigationMenu/Environment_and_Recycling/Environment,_Health_and_Safety/Reports/EHSFullReportFinal.pdf.

[11] Climate VISION (Voluntary Innovative Sector Initiatives: Opportunities Now), available at: http://www.climatevision.gov/.

[12] Ibid.

[13] Chicago Climate Exchange, available at: http://www.chicagoclimateexchange.com.

[14] U.S. Environmental Protection Agency. Toxics Release Inventory (TRI) Public Data Release: 2001, data freeze: March 7, 2003.

[15] American Forest & Paper Association. Environmental Health and Safety Verification Program Year 2000 Report, 2002, available at: http://www.afandpa.org/Content/NavigationMenu/ Environment_and_Recycling/Environment,_Health_and_Safety/Reports/EHSFullReportFinal.pdf

[16] American Forest & Paper Association recycling data, available at: www.afandpa.org.

[17] American Forest & Paper Association. 2003 Fiber Consumption Survey Report.

[18] Department of Energy Center for Waste Reduction Technologies. Water Use in Industries for the Future, July 2003, available at: http://www.oit.doe.gov/pdfs/100903_news.pdf.

[19] American Forest & Paper Association. Environmental Health and Safety Verification Program Year 2000 Report, 2002, available at: http://www.afandpa.org/Content/NavigationMenu/Environment_and_Recycling/Environment,_Health_and_Safety/Reports/EHSFullReportFinal.pdf.

[20] American Forest & Paper Association. Forest & Paper Industry at a Glance, 2001, available (hardcopy) from the American Forest and Paper Association.

[21] Sustainable Forestry Initiative data, available at: http://www.aboutsfi.org.

[22] ISO 14001 Registered Company Directory North America, Volume 4, Number 2: 2003; published by QSU Publishing Company.

[23] EPA Performance Track Program 2004, available at: http://www.epa.gov/performancetrack/.

IRON & STEEL

[1] MacDonald, Robert, Director of Statistics, American Iron & Steel Institute (AISI). 2004. E-mail communication with sector point-of-contact, May 2004.

[2] Standard Industrial Classification (SIC) code used to define the economic activities of the industries or business establishments in this sector: 3312, and the corresponding North American Industry Classification System (NAICS) code: 331111.

[3] U.S. Geological Survey (USGS) Mineral Commodity Summary. 2004. Iron and Steel. See http://minerals.usgs.gov/minerals/pubs/commodity/iron_&_steel. For production statistics, USGS cites American Iron & Steel Institute (AISI). 2003 production and employment data from electronic communication from Robert MacDonald, Director of Statistics, AISI, to Tom Tyler, US EPA. May 4, 2004.

[4] USGS. Mineral Commodity Summaries. 1999-2004. USGS cites US Bureau of Labor Statistics (BLS).

[5] USGS. Mineral Commodity Summaries. 1999-2004. USGS cites US Bureau of Labor Statistics (BLS). 2003 employment number of 127,000 was reported by BLS and confirmed by AISI, above.

[6] American Iron & Steel Institute (AISI). See http://www.steel.org/. Steel Manufacturers Association, See http://www.steelnet.org/.

[7] U.S. Department of Energy (DOE), Office of Industrial Technologies (OIT). "Industry Profile." Accessed May 24, 2004. See www.oit.doe.gov/steel/profile.shtml. See also DOE OIT. 200. Energy and Environmental Profile of the U.S. Iron and Steel Industry, DOE/EE-0229. Page 14. Available at same internet address. See also AISI Public Policy: Environment: Recycling. Accessed May 24, 2004. See www.steel.org/policy/environment/recycling.asp. Information confirmed in telephone voice message from Bill Heenan, Steel Recycling Institute, to Tom Tyler, US EPA, May 20, 2004.

[8] U.S. EPA WasteWise information about steel recycling at www.epa.gov/epaoswer/non-hw/reduce/wstewise/wrr/factoid.htm.

IRON & STEEL *(continued)*

[9] Steel Recycling Institute, press release, May 5, 2003. See www.recycle-steel.org/2002Rates.pdf, and www.recycle-steel.org/cars/index.html.

[10] Members are the Automotive Recyclers Association, the Clean Car Campaign, the Clean Production Network, Great Lakes United, the Ecology Center, Environmental Defense, the Institute of Scrap Recycling Industries, Inc., the Mercury Policy Project, the Steel Manufacturers Association, and the Steel Recycling Institute (affiliated with AISI). See www.cleancarcampaign.org/partnership.shtml.

[11] USGS Mineral Commodity Summaries. 2004. Iron and Steel Slag. Seehttp://minerals.usgs.gov/minerals/pubs/commodity/iron_&_steel_slag/festslmcs04.pdf.

[12] U.S. Environmental Protection Agency. 2003. Toxics Release Inventory (TRI) Public Data Release: 2001, data freeze: March 7, 2003.

[13] Ibid.

[14] Ibid.

[15] For additional information, please visit: www.climatevision.gov.

[16] January 8, 2004 Meeting with Jim Schultz, AISI, Bill Heenan, SRI, and sector point-of contact.

[17] DOE OIT. 2001. Steel Industry Profile (above). Table: DOE OIT, Steel – Industry of the Future. DOE/GO-102001-1159, page 2. See www.oit.doe.gov/steel/pdfs/steel_brochure.pdf.

[18] AISI, press release, May 3, 2004. See www.steel.org/news/pr/2004/pr040503.asp.

[19] For additional information about Climate VISION, please see: http://www.climatevision.gov/index.html.

[20] Department of Energy. 2003. An Assessment of Energy, Waste, and Productivity Improvements for North Star Steel Iowa, Subcontract No. 4000013389. See www.oit.doe.gov/bestpractices/factsheets/north_star_steel.pdf. Electronic correspondence from Chris Avent and John Skelley, North Star Steel, to Tom Tyler, US EPA, April 2004.

[21] "Jersey Shore Powers Reheat Furnace with Landfill Gas." Iron Age - New Steel. August 2001. See www.newsteel.com/articles/2001/August/NSX0108f3.htm.

[22] Estimate based upon information from trade associations, literature searches, web searches, and information provided by listing services and on company websites.

[23] For more information on each Performance Track Partner and their commitments and achievements, see www.epa.gov/performancetrack/particip/index.htm.

METAL CASTING

[1] U.S. Census Bureau. 2001. County Business Pattern. For the number of employees and number of establishments. See http://www.census.gov/epcd/cbp/view/cbpview.html. U.S. Census Bureau. 2001. Statistics for Industry Groups and Industries, Annual Survey of Manufactures. For value of shipments. See http://www.census.gov/prod/2003pubs/m01as-1.pdf.

[2] Standard Industrial Classification (SIC) codes used to define the economic activities of the industries or business establishments in this sector: 3321, 3322, 3324, 3325, 3363 - 3366, and 3369. Corresponding North American Industry Classification System (NAICS) codes: 331511 - 331513, 331521, 331522, 331524, 331525, and 331528.

[3] American Foundry Society. 2002. 2003 Metal Casting Forecast and Trends.

[4] The North American Die Casting Association (NADCA). See http://www.diecasting.org/.

[5] American Foundry Society (AFS). See http://www.afsinc.org/.

[6] U.S. Department of Energy, Industrial Technologies Program. Metal Casting Industry Research and Development Portfolio. See http://www.oit.doe.gov/metalcast/profile.shtml.

[7] U.S. Department of Energy, Industrial Technologies Program. See http://www.eere.energy.gov/industry/technologies/industries.html.

[8] Cast Metal Coalition of the American Foundrymen's Society, North American Die Casting Association, and Steel Founders' Society of America. 1998. Metalcasting Industry Technology Roadmap. See http://www.oit.doe.gov/metalcast/pdfs/roadmap.pdf.

[9] Ibid.

[10] Ibid.

[11] Ibid.

[12] U.S. Environmental Protection Agency. 2003. 2001 TRI Public Data Release, data freeze: March 7, 2003. Includes facilities listing SIC Code 332 and 336 as their primary activity on their Form R.

[13] Foundry Industry Recycling Starts Today (FIRST). See htttp://www.foundryrecycling.org/aboutfirst.html.

[14] Wisconsin Department of Natural Resources Bureau of Waste Management. 2002. Beneficial Use of Industrial Byproducts, 2000 Usage Summary. See http://www.dnr.wi.gov/org/aw/wm/publications/beneficial/beneficialuse2000report.pdf.

[15] U.S. Environmental Protection Agency, Sector Strategies Division. 2002. Beneficial Reuse of Foundry Sand: A Review of State Practices and Regulations.

[16] Lenahan, Michael, President, Resource Recovery Corporation. 2004. Conversation with and email from the EPA sector point-of-contact, February 4, 2004.

[17] Kennedy, Paul, Vice President, Kennedy Die Castings, Inc. 2004. Conversation with EPA sector point-of-contact, February 17, 2004.

[18] U.S. Environmental Protection Agency. 2003. 2001 TRI Public Data Release, data freeze: March 7, 2003. Includes facilities listing SIC Codes 332 and 336 as their primary activity on their Form R for regulated HAPs.

[19] Environmental Management Systems: Systematically Improving your Performance. See http://www.epa.gov/sectors/metalcasting/metcast_pdf/metcast_bizcase.pdf.

[20] Performance Track Network Partner list is available at: http://www.epa.gov/performancetrack/particip/trade.htm.

[21] Performance Track Annual Performance Report for Chicago White Metal Casting, Inc, Year 2, 2002. See https://yosemite.epa.gov/opei/ptrack.nsf/vAPRViewPrintView/BAF7C6D98AE345E285256DB8004FFDAA.

[22] Treiber, Eric, Vice President, Chicago White Metal Casting, Inc. 2004. Conversation with sector point-of contact, February 9, 2004.

METAL FINISHING

[1] U.S. Census Bureau. 2001. County Business Patterns. For the number of employees and number of establishments. See http://www.census.gov/epcd/cbp/view/cbpview.html. U.S. Census Bureau. 2001. Statistics for Industry Groups and Industries, Annual Survey of Manufactures. For value of shipments. See http://www.census.gov/prod/2003pubs/m01as-1.pdf.

[2] Standard Industrial Classification (SIC) code used to define the economic activities of the industries or business establishments in this sector: 3471, and the corresponding North American Industry Classification System (NAICS) code: 332813.

[3] U.S. Environmental Protection Agency. 1995. Profile of the Fabricated Metal Products Industry. Pages 6-7.

[4] Surface Finishing Market Research Board, Metal Finishing Industry Market Survey Report #8. 2004, Contact: Bill Rosenberg, Columbia Chemical Corporation, 3097 Interstate Parkway, Brunswick, OH 44212, 330-225-3200. See http://www.columbiachemical.com.

Endnotes

METAL FINISHING *(continued)*

[5] Partnerships: The American Electroplaters and Surface Finishers Society, Inc. (AESF), http://www.aesf.org/.Metal Finishing Suppliers' Association (MFSA) http://www.mfsa.org/.National Association of Metal Finishers (NAMF) http://www.namf.org/.Surface Finishing Industry Council (SFIC).

[6] Strategic Goals Program (SGP). See http://www.strategicgoals.org. For a description of SGP goals, see http://www.strategicgoals.org/coregoals.cfm.

[7] Ibid. To view progress on pollution reduction, see http://www.strategicgoals.org/reports2/.

[8] U.S. Environmetnal Protection Agency. 2001. TRI Public Data Release, freeze date: March 7, 2003. Includes facilities that report primary SIC code 3471 on their Form R.

[9] Borst, Paul A. 1997. U.S. EPA, Office of Solid Waste, Recycling of Wastewater Treatment Sludges from Electroplating Operations, F006.

[10] California Environmental Protection Agency. 2003. Cal/EPA Environmental Management System Project. Appendix B: Artistic Plating Company. See http://www.calepa.ca.gov/EMS/Publications/2003/LegReport/.

[11] Edginton, Ross. 2004. Personal interview, 30 March 2004. Contact information: East Side Plating, Inc., 8400 SE 26th Place, Portland, OR 97202, 503-654-3774, ross@eastsideplating.com or see: http://www.eastsideplating.com.

[12] Promoting Environmental Management Systems. See http://www.epa.gov/sectors/metalfinishing/metfin_ems.html#bizcase.

[13] Richter, Christian. 2004. Phone conversation, May 25, 2004. Washington representative for National Association of Metal Finishers (NAMF) and sector point-of-contact.

[14] For more about Region 1 (New England) Corporate Sponsor Program, see http://www.epa.gov/region1/pr/2001/aug/010824.html.

[15] National Environmental Performance Track Program. See http://www.epa.gov/performancetrack/index.htm. For more information about the 2002 Performance Track Annual Performance Report for New Hampshire Ball Bearings, Inc., see https://yosemite.epa.gov/opei/ptrack.nsf/vAPRViewPrintView/5B510B9B608F432685256D3B006E57EE.

[16] Delawder, Tim. 2004. Personal interview with sector point-of-contact, March 15, 2004. Contact information: SWD, Inc., 910 Stiles Avenue, Addison, IL 60101-4913, 630-543-3003, tim@swdinc.com or http://www.swdinc.com.

[17] Imagineering Finishing Technologies. See http://www.strategicgoals.org/su14.cfm.

PAINT & COATINGS

[1] U.S. Census Bureau. 2001. County Business Patterns. For the number of employees and number of establishments. See http://www.census.gov/epcd/cbp/view/cbpview.html. U.S. Census Bureau. 2001. Statistics for Industry Groups and Industries Annual Survey of Manufactures. For value of shipments. See http://www.census.gov/prod/2003pubs/m01as-1.pdf.

[2] Standard Industrial Classification (SIC) code used to define the economic activities of the industries or business establishments in this sector: 2851, and the corresponding North American Industry Classification System (NAICS) code: 325510.

[3] Darling, David, National Paint and Coatings Association. 2004. Electronic communication to EPA sector point-of-contact, May 26, 2004.

[4] U.S. Environmental Protection Agency. 2003. Toxics Release Inventory (TRI) Public Data Release, data freeze: March 7, 2003.

[5] U.S. EPA, National Emission Inventory (NEI), Emission Factor and Inventory Group, OAQPS, data received: April 2004.

Note: State and local emissions inventories are submitted to EPA once every three years (e.g., 1996 and 1999) for most of the point sources contained in NEI. EPA estimated emissions for any jurisdiction that did not submit an emissions inventory. Similarly, emissions for the years in between submissions were estimated by EPA. These estimates may not reflect changes in the industry, such as pollution prevention or compliance efforts. The 2002 inventory is scheduled for release in 2005.

[6] U.S. Environmental Protection Agency. 2003. Toxics Release Inventory (TRI) Public Data Release, data freeze: March 7, 2003.

[7] Product Stewardship Institute. 2004. Paint Product Stewardship: A Background Report for the National Dialogue on Paint Product Stewardship. University of Massachusetts: Cowell, MA.

[8] National Paint and Coatings Association. 2001. Coatings Care: Manufacturing Management Implementation Guide – Environmental Management (Pollution Prevention / Waste Management) Washington, DC. Also see Coatings Care®: Providing for a Cleaner, Safer, Coatings Industry at http://www.paint.org/cc/index.cfm.

[9] National Environmental Performance Track Network Partner list is available at: http://www.epa.gov/performancetrack/particip/trade.htm.

[10] National Paint and Coatings Association. 2001. Coatings Care: Manufacturing Management Implementation Guide – Environmental Management (Pollution Prevention / Waste Management), Washington, DC. Also see: Coatings Care®: Providing for a Cleaner, Safer, Coatings Industry at: http://www.paint.org/cc/index.cfm.

[11] Darling, David, National Paint and Coatings Association. 2004. Electronic communication to EPA sector point-of-contact, February 6, 2004.

PORTS

[1] Chase, Tom, Director of Environmental Affairs, American Association of Port Authorities. 2004. Personal interview, January 2004.

[2] U.S. Census Bureau. 2001. County Business Patterns. For the number of employees and number of establishments . See http://www.census.gov/epcd/cbp/view/cbpview.html. U.S. Census Bureau. 1997. Economic Census. For value of shipments. See http://www.census.gov/epcd/cbp/view/cbpview.html.

[3] Standard Industrial Classification (SIC) code used to define the economic activities of the industries or business establishments in this sector: 4491, and the corresponding North American Industry Classification System (NAICS) codes: 48831 and 48832.

[4] U.S. Army Corps of Engineers Navigation Data Center, Waterborne Commerce Statistics Center. 2002. Waterborne Commerce of the United States. Accessed January, 2004. www.iwr.usace.army.mil/ndc/wcsc/wcsc.htm.

[5] American Association of Port Authorities. 2004. U.S. Public Port Facts. Accessed May 2004. http://www.aapa-ports.org/industryinfo/portfact.htm.

[6] U.S. Department of Transportation, Maritime Administration, Office of Ports and Domestic Shipping. October 1998. A Report to Congress on the Status of the Public Ports of the United States 1996-1997.

[7] Chase, Tom, Director of Environmental Affairs, American Association of Port Authorities. 2004. Personal interview, January 2004.

[8] American Association of Port Authorities (AAPA). See http://www.aapa-ports.org/.

[9] Hopson, Coleen, Project Manager, Port Authority of New York and New Jersey. 2004. Telephone interview with Abt Associates, Inc., January 28, 2004.

[10] Parsche, Dave, Director of Environmental Affairs, Port of Tampa. 2004. Telephone interview with Abt Associates, Inc., January 26, 2004.

[11] Environmental Technology Program. See http://www.epa.gov/etv/index.html.

PORTS *(continued)*

[12] Port of Portland, Environment. Fall 2003. Natural Resource Assessment and Management Program. Accessed January 2004. http://www.portofportland.com/SelfPost/A_20031251016551003NRAMP.pdf.

[13] For additional information on the Sector Strategies Program with AAPA, see http://www.epa.gov/sectors/ports/index.html.

[14] Fiffick, Laura, Environmental Affairs Manager, Port of Houston Authority. 2004. Telephone interview with Abt Associates, Inc., February 25, 2004. See http://www.portofhouston.com/publicrelations/environment.html.

[15] Wetherall, Catherine, Chief of Environmental Management, and Jennifer Newcombe, Environmental Project Manager, Massport. 2004. Telephone interview with Abt Associates, Inc., January 29, 2004. See http://www.massport.com/business/envir.html.

SHIPBUILDING & SHIP REPAIR

[1] U.S. Census Bureau. 2001. County Business Patterns. For the number of employees and number of facilities. Available at: http://www.census.gov/epcd/cbp/view/cbpview.html. U.S. Census Bureau. 2001. Statistics for Industry Groups and Industries, Annual Survey of Manufactures, for value of shipments, available at: http://www.census.gov/prod/2003pubs/m01as-1.pdf.

[2] Standard Industrial Classification (SIC) code used to define the economic activities of the industries or business establishments in this sector: 3731, and the corresponding North American Industry Classification System (NAICS) code: 336611.

[3] U.S. Environmental Protection Agency. 1997. Profile of the Shipbuilding and Repair Industry. P. 7.

[4] "The Report on Survey of U.S. Shipbuilding and Repair Facilities". The Maritime Administration, 2003.

[5] Ibid.

[6] American Shipbuilding Association (ASA). See http://www.americanshipbuilding.com. Shipbuilders Council of America (SCA). See http://www.shipbuilders.org/.

[7] U.S. Environmental Protection Agency. 2003. Toxics Release Inventory (TRI) Public Data Release: 2001, data freeze: March 7, 2003.

[8] Killeen, Patrick, Manager, Environmental, Health and Safety, Signal International. 2004. Telephone interview with Dana Austin, Austin Environmental, January 30, 2004.

[9] The National Shipbuilding Research Program. See http://www.nsrp.org/.

[10] Dickinson, Vince, Environmental Manager, Bath Iron Works. 2003. Telephone interview with Stefanie Shull, ICF Consulting, June 5, 2003.

[11] The National Shipbuilding Research Program. See http://www.nsrp.org/, document ASE 006000.

[12] U.S. Environmental Protection Agency, Emission Factor & Inventory Group. 2004. Received data from Tom McMullen, received April 2004.

Note: State and local emissions inventories are submitted to EPA once every three years (e.g., 1996 and 1999) for most of the point sources contained in NEI. EPA estimated emissions for any jurisdiction that did not submit an emissions inventory. Similarly, emissions for the years in between submissions were estimated by EPA. These estimates may not reflect changes in the industry, such as pollution prevention or compliance efforts. The 2002 inventory is scheduled for release in 2005.

[13] U.S. Environmental Protection Agency. 2003. Toxics Release Inventory (TRI) Public Data Release: 2001, data freeze: March 7, 2003.

[14] Sector Strategies Program, Shipyard Stormwater BMP Project, sector point-of-contact Shana Harbour - harbour.shana@epa.gov.

[15] Sector Strategies Program EMS Implementation Guide for Shipbuilding Facilities. See http://www.epa.gov/sectors/shipbuilding/ship_ems.html#ems.

[16] Dickinson, Vince, Environmental Manager, Bath Iron Works. 3003. Telephone interview with Stefanie Shull, ICF Consulting, June 5, 2003.

[17] Morris, Jackie, Bender Shipbuilding & Repair Co. 2003. Telephone interview with Stefanie Shull, ICF Consulting, June 4, 2003.

[18] Chee, Mike, Environmental Department Manager, NASSCO. 2002. Telephone interview with Will Gibson, ICF Consulting & Dana Austen, Austen Environmental, Summer of 2002.

SPECIALTY-BATCH CHEMICALS

[1] Facility, employee and value of shipment numbers from Synthetic Organic Chemical Manufacturers Association (SOCMA), 2002, please visit web site for additional information: http://www.socma.com/about/index.htm

[2] Due to overlapping operations, it is difficult to identify specific specialty batch facilities from the larger universe within chemical manufacturing – SIC 28. The Standard Industrial Classification (SIC) code used to define the economic activities of the industries or business establishments in SIC 28 correspond to North American Industry Classification System (NAICS) codes: 325110, 325120, 325131, 325132, 325181, 325182, 325188, 325191, 325192, 325193, 325199, 325211, 325212, 325221, 325222, 325311, 325312, 325314, 325320, 325411, 325412, 325413, 325414, 325510, 325520, 325611, 325612, 325613, 325620, 325910, 325920, 325991, 325992, and 325998.

[3] Principal Findings: The U.S. Specialty Batch Chemical Industry, Draft Report, February, 2000, pg. 4; available at: http://www.epa.gov/sectors/sbchemical/sb_pdf/sbchem_PrincipalFindings.pdf

[4] Ibid.

[5] Responsible Care® Management System (RCMS), information available at: http://www.socma.com/ResponsibleCare/rcms.htm

[6] Responsible Care metrics are available at: http://www.socma.com/PDFfiles/responsible_care/Metrics_Table.pdf

[7] Melissa Hockstead, SOCMA, Responsible Care, e-mail communication with sector point-of-contact on April 29, 2004.

[8] Performance Track Network Partner list is available at: http://www.epa.gov/performancetrack/particip/trade.htm

[9] EMS Implementation Guide for the specialty-batch chemicals is available at: http://www.epa.gov/sectors/sbchemical/sb_ems.html

[10] Performance Track Annual Performance Report for Baker Petrolite - Rayne Blend Plant, Year 2, 2002, available at: https://yosemite.epa.gov/opei/ptrack.nsf/vAPRViewPrintView/FC81E1FD39CE946F85256DB4006F0640; also see Baker Petrolite application at: http://www.epa.gov/performancetrack/apps/pdfs/A06-0016.pdf

[11] 2001 TRI Public Data Release (PDR), data freeze: March 7, 2003, and includes facilities that report primary SIC code 28 on their Form R.

Environmental Data Sources

DATA SOURCE: Toxics Release Inventory (TRI)

Environmental Impact Indicators: Chemical releases, waste managed on- and off-site of toxic chemicals.

Period Analyzed for Trends: 1993-2001

Next Data Release: In 2004 for 2002 data

Partner sectors presenting data:
**** Agribusiness***
**** Forest Products***
**** Iron & Steel***
**** Metal Casting***
**** Metal Finishing***
**** Paint & Coatings***
**** Shipbuilding & Ship Repair***
**** Specialty-Batch Chemicals***

Data Source Description: The Toxics Release Inventory (TRI) was established under the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986 and expanded by the Pollution Prevention Act of 1990. Following expansions of the reporting requirements in the past ten years, TRI now includes facilities with 10 or more employees in the manufacturing sectors (SIC code 20 - 39); federal facilities; metal mines; coal mines; electrical utilities that combust coal or oil; commercial hazardous waste treatment facilities; chemical wholesalers; petroleum bulk terminals and plants; and solvent recovery services who use, process, or manufacture more than a threshold amount of over 600 toxic chemicals. Facilities must report to TRI if they exceed the reporting threshold for manufacture or process (>25,000 lbs), or for otherwise use (>10,000 lbs). Reporting thresholds for persistent bioaccumulative toxic chemicals (PBTs) are lower. In 2001, 22,359 facilities filed a Form R, reporting a total of 6.2 billion pounds of on- and off-site releases and 26.7 billion pounds of releases and on- and off-site waste management to TRI.

Data Source Considerations: Several aspects of TRI influence the use of these data for EPA's Sector Strategies Program.

- *Small businesses not included:* TRI excludes smaller facilities, those with fewer than 10 employees. However, for any given sector, this source does include larger facilities, which can be expected to have greater environmental impacts.
- *Toxicity:* TRI releases and waste management activities are reported in absolute pounds. This does not take into account relative toxicity of a chemical. For example, a pound of a substance like mercury is more toxic than methanol. A facilities' progress in reducing higher toxicity substances does not receive credit when trend analyses are presented for cumulative pounds. Several EPA tools are available to translate TRI pounds to toxicity-weighted values. This tool may be applied in future Reports.
- *Data accuracy:* Data are reported by individual facilities, making TRI the most reliable data source available for chemical releases and waste management practices. On the other hand, data quality may suffer from changes in personnel, misunderstanding of the TRI data elements, or other sources of error. However, sources of error are being reduced with dissemination of reporting guidance, on-site data quality reviews, enforcement actions, improved reporting software, and TRI training courses.

Data Processing Steps:

- TRI data for reporting years 1993-2001 were provided by the TRI program (Office of Environmental Information) *frozen* as of March 7, 2003. The *frozen* data were used to ensure reproducibility and to support later revisions of the analysis. Documentation of TRI and the program can be found at http://www.epa.gov/tri.
- Extracted data elements for this Report include:
  Hazardous Air Pollutant (HAP) Releases to Air - stack and fugitive emissions of listed HAPs to air as reported in sections 5.1 and 5.2 of the TRI Form R.

  Releases - emissions to air, discharges to bodies of water, releases to land and into underground injection wells. This includes releases, spills, and remedial actions occurring at the facility (on-site) and off-site releases resulting from wastes transferred for disposal to waste management facilities as reported in sections 8.1 and 8.8 of the TRI Form R.

  Treatment - the quantity of chemicals destroyed in on- or off-site operations such as biological treatment, neutralization, incineration, and physical separation as reported in sections 8.6 and 8.7 of the TRI Form R.

  Energy Recovery - the quantity of the toxic chemicals that was combusted in an energy recovery device, such as a boiler or industrial furnace. These amounts are reported in sections 8.2 and 8.3 of the TRI Form R.

  Recycling - the quantity of the toxic chemical that was either recovered at the facility and made available for further use, or sent off-site for recycling and subsequently made available for use in commerce. These amounts are reported in sections 8.4 and 8.5 of the TRI Form R.
- Sector assignments were based on the facility's primary 4-digit SIC code reported on the Form R each year.
- Annual sector releases and waste managed totals were normalized using the sector's production, shipments, or value of shipments, with 1993 as the baseline year.
- Units of weight were converted for presentation purposes.

DATA SOURCE: National Emission Inventory (NEI)

Environmental Impact Indicators: Annual emissions of specific criteria air pollutants. Specific pollutants analyzed: Sulfur Dioxide; Nitrogen Oxides; Particulate Matter (<2.5 microns and <10 microns); and Volatile Organic Compounds.

Period Analyzed for Trends: 1996-2001

Next Data Release: In 2005 for years 2002-2004

Partner sectors presenting data:
*** Cement***
*** Paint & Coatings***
*** Shipbuilding & Ship Repair***

Data Source Description: EPA's Emission Factor and Inventory Group (EFIG) within the Office of Air and Radiation prepares a national database of the criteria air pollutant emissions based on input from numerous state, tribal, and local air pollution control agencies as well as industry-submitted data. State and local emissions inventories are submitted to EPA once every three years for most point sources contained in NEI. Through the 1999 NEI, EPA estimated emissions for any jurisdiction that did not submit an emissions inventory. Similarly, prior to 1999 NEI included emission projections for each intervening year based on year-to-year changes at the sector level. The emissions estimates maintained in NEI are in short tons per year.

Data Source Considerations: Several changes to NEI influence the appropriate use of these data for EPA's Sector Strategies Program.

- *Changes in NEI:* EFIG does not recommend comparing NEI 1996 and later years to years prior to 1996 due to changes in their compilation and data filling methods.
- *Addition of PM2.5:* In 1997, EPA's Office of Air Quality Planning Standards established National Ambient Air Quality Standards for particulate matter less than 2.5 micrometers in diameter. As a consequence, NEI began to collect PM2.5 emissions estimates as of the 1999 inventory.
- *Improved methodology & regulatory amendments:* As a result of the Consolidated Emissions Reporting rule, the NEI updates for 2002 and beyond are expected to include data uploads from all jurisdictions. If so, EFIG's estimation of missing data emissions will not be necessary.

Data Processing Steps:

- NEI data obtained from EFIG staff (04/01/2004) and Trends1970_2001_toCHIEF082803.xls. Documentation available at: http://www.epa.gov/ttn/chief/trends/.
- Annual sector emission totals normalized using the sectors' production or value of shipments with 1996 as the baseline year.
- Units of weight were converted for presentation purposes.
- Paint and Coatings sector presents data based on 1996 and 2001 emission estimates.
- Shipbuilding and Ship Repair sector presents 1996 through 1999 and 2001 emission estimates. 2000 data are currently being processed by EPA.
- Cement sector presents 1999 through 2001 emission estimates. EPA projected 2000 emissions on inventories received in 1999 for the cement manufacturing sector.

Environmental Data Sources

DATA SOURCE: Effluent Data Statistics (EDS) System derivation of Permit Compliance System (PCS)

Environmental Impact Indicators: Annual direct wastewater discharges of Clean Water Act (CWA) conventional pollutants. Specific pollutants analyzed: Biochemical Oxygen Demand (BOD), Oil and Grease, and Total Suspended Solids (TSS).

Period Analyzed for Trends: 1994-2002

Next Data Release: In first quarter of 2005 for 2004 data

Partner sector presenting data:
**** Agribusiness***

Data Source Description: Under the Clean Water Act, all facilities discharging an aqueous waste stream directly into the waters of the United States are required to obtain a National Pollution Discharge Elimination System (NPDES) permit. Indirect dischargers, facilities discharging to a central treatment system (often called publicly owned treatment works, POTWs), are not typically included in PCS. PCS tracks permit data for approximately 50,000 active facilities, 6,500 of which are major dischargers. The PCS program's Effluent Data Statistics System process starts by extracting the reported DMR data that have been entered into PCS. These data are then processed through a software program to add the flow data to each record. This allows loadings to be calculated using flow and concentration whenever mass loading data have not been reported for a monitoring period. The effluent data are then converted into PCS standard units since the data can be reported in various units. After the data have been converted, they are processed by the EDS routines to calculate mass load totals.

Data Source Considerations: Limitations to PCS influence the use of these data for EPA's Sector Strategies Program.

- *Universe of reporting facilities:* Major facilities with a NPDES permit are required to submit monthly discharge monitoring reports to EPA or the authorized state or Regional office a facility's classification is based on several parameters, including amount of discharge per day, wastewater sources, and population affected by discharge). Minor facilities, however, are not required to submit these reports, although some states and Regional offices enter them anyway. Because inconsistencies in available data for minor facilities across states exist the trends analysis was limited to pollutant loadings from major NPDES permitted facilities.

Data Processing Steps:

- Obtained EDS file from Office of Compliance's Integrated Data for Enforcement Analysis (IDEA) system (12/12/2003 refresh). Contact U.S. EPA's PCS program for further information.
- Units of weight were converted for presentation purposes.

DATA SOURCE: Emissions of Greenhouse Gases in the United States Report

Environmental Impact Indicators: Annual emissions of carbon dioxide equivalents.

Period Analyzed for Trends: 1993-2001

Next Data Release: Preliminary 2002 data available.

Partner sector presenting data:
**** Cement***

Data Source Description: The Department of Energy's (DOE) Energy Information Administration (EIA) annually compiles and updates estimates for anthropogenic greenhouse gas emissions. Most greenhouse gases (GHGs) in the United States, including carbon dioxide, are emitted as the result of the combustion of fossil fuels. Global warming potentials (GWPs) are used to compare the abilities of different greenhouse gases to trap heat in the atmosphere. GWPs are based on the radiative efficiency (heat-absorbing ability) of each gas relative to that of carbon dioxide (CO_2), as well as the decay rate of each gas (the amount removed from the atmosphere over a given number of years) relative to that of CO_2. GHG emissions and energy use are highly correlated for most industry sectors. As a result, the Report develops emission estimates primarily from DOE's databases on energy use, the Manufacturing Energy Consumption Survey (MECS), and the Commercial Business Energy Consumption Survey (CBECS). A number of industrial sectors, including cement manufacturing, also emit ignificant quantities of GHGs from non-fuel combustion processes. For these sectors, which include just one of the partner sectors (cement manufacturing), the Report does include estimates of GHGs associated with non-fuel use.

Data Source Considerations: The methodology and level of data aggregation used in the Report influence the data available for EPA's Sector Strategies Program.

- *Availability of sector-level data:* GHG emissions are presented by general end use categories: residential, commercial, industrial, and transportation. GHG emissions are generally not available for individual industrial sectors with the exception of cement manufacture.

Data Processing Steps:

- GHG data were retrieved from EIA's Voluntary Reporting Program site at http://www.eia.doe.gov/oiaf/1605/1605a.html.
- Annual emission totals were normalized using cement production with 1993 as the baseline year.

DATA SOURCE: U.S. and Canadian Labor-Energy Input Survey: 2000 Survey (released March 2002), page 7, Portland Cement Association.

Environmental Impact Indicator: Energy consumed, in million Btus per equivalent ton.

Partner sector presenting data:
*** Cement***

DATA SOURCE: Cement Kiln Dust Surveys, memo: May 2004, Portland Cement Association.

Environmental Impact Indicator: Cement Kiln Dust managed, in metric tons.

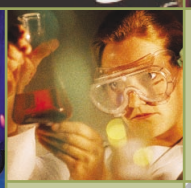
Partner sector presenting data:
*** Cement***

DATA SOURCE: Environmental Health and Safety Verification Program Year 2000 Report: Issued 2002, American Forest & Paper Association.

Environmental Impact Indicators:

- Nitrogen Oxide and Sulfur Dioxide emissions from pulp and paper mills, in pounds per ton of production;
- Wastewater discharges (Biochemical Oxygen Demand, Total Suspended Solids, Absorbable Organic Halides) from pulp and paper mills, in pounds per ton of production; and
- Percents of Waste managed (beneficially reused and landfilled, lagooned, or burned for disposal) by pulp and paper and wood products mills.

Partner sector presenting data:
*** Forest Products***



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