

US EPA ARCHIVE DOCUMENT

Mining and Mineral Processing Compliance Assistance Resources for the Gold and Copper Industries

- **This document provides web links for easy access to key assistance resources**
- **It is designed to be used by the public, states, tribes, and regulated entities**
- **Users should contact the appropriate state, tribe and EPA region for all applicable requirements**

Mining and Mineral Processing Compliance Assistance Resources for the Gold and Copper Industries

This document provides web links for easy access to some of the key compliance assistance resources related to the gold and copper mining and mineral processing industries. EPA developed this document to assist the public, the states, the tribes, and the regulated community. This document can be used as the first step to locate useful compliance assistance information. However, using it does not guarantee full compliance with EPA, state, and tribal requirements. The regulated community should contact the appropriate state, tribe and EPA region to determine which regulation applies to their operations.

The tools and resources in this document are presented in table format and organized into three parts. Part I presents important regulations, supporting documents, and judicial decisions. Part II contains a list of compliance assistance resources developed by EPA, states, and other organizations that are involved in gold and copper mining and processing. For each tool, the table lists the name of the assistance tool, the URL where it can be found electronically, and a checklist of environmental focus areas the tool addresses. Part III identifies other federal, state and tribal agencies with regulatory oversight of mining and mineral processing of gold and copper.

To help keep the information in this document up-to-date and accurate, EPA will make its best effort to update the table regularly. The reader should always check with the appropriate regulatory agency for further guidance. Some documents may be dated, but are included to provide background information.

EPA does not endorse or guarantee the accuracy or completeness of the non-EPA tools included in this document. The resources included in this document were updated on March 13, 2007.

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Part I. Selected Regulations and Supporting Documents

This section provides a list of important environmental regulations and supporting documents that may apply to the gold and copper mining and mineral processing industries. This list does not include every environmental regulation that potentially applies to these two sectors, but only the major regulations. Depending on the operations at any particular mining or mineral processing facility, some or all of the following regulatory provisions could potentially apply. Therefore, facility owner/operators and other interested parties may wish to review the regulations listed below to determine whether they are applicable. In addition, the owner/operators and other interested parties may want to consult their EPA region, state or tribal agencies to determine if regulations other than those listed in this section are also applicable to their operations. Some of these documents may be dated; however, they still provide useful background information for those who are not familiar with the gold and copper mining/processing operations or the regulations that affects these operations.

The following table is organized by statute (e.g., Resource Conservation and Recovery Act, Clean Water Act, Clean Air Act). The table lists the pertinent regulatory sections for each statute along with the associated URL. The table also lists the relevant supporting documents and associated URLs.

This part also presents selected judicial decisions associated with the mining and mineral processing industry. These particular judicial decisions clarify EPA's definitions of solid waste and discarded materials under the Resource Conservation and Recovery Act (RCRA).

Table I. Selected Regulations and Supporting Documents¹

Regulation/Supporting Document	Location
Resource Conservation and Recovery Act (RCRA):	
Key sections of RCRA that may apply to gold and copper mining and mineral processing facilities: • 40 CFR 260-299 - Treatment, storage, and disposal of solid waste • 40 CFR 261 – Identification and listing of hazardous waste • 40 CFR 261.4 - Solid wastes which are not hazardous wastes, including 40 CFR 261.4(b)(7) exclusions for solid wastes from the extraction, beneficiation, and processing of ores and minerals, except as provided in §266.112 • 40 CFR 262 – Standards applicable to generators of hazardous waste • 40 CFR 263 – Standards applicable to transporters of hazardous waste • 40 CFR 264 – Standards for owners and operators of hazardous waste treatment, storage, and disposal facilities • 40 CFR 265 – Interim status standards for owners and operators of hazardous waste treatment, storage, and disposal facilities • 40 CFR 266 – Standards for the management of specific hazardous wastes and specific types of hazardous waste management facilities • 40 CFR 267 – Standards for owners and operators of hazardous waste facilities operating under a standardized permit (70 FR 53453, September 8, 2005) • 40 CFR 268 – Land disposal restrictions (63 FR 28555 – Land disposal restrictions for other mineral processing wastes) • 40 CFR 270 – EPA administered permit programs: The Hazardous Waste Permit Program	These sections can be found at the Code of Federal Regulations GPO Access: http://www.access.gpo.gov/nara/cfr/cfr-table-search.html#page1 Search Title 40 – Protection of the Environment. Federal Register (FR) notices can be found at the FR Main Page: http://www.gpoaccess.gov/fr/index.html
EPA 1990 Report to Congress on Special Wastes from Mineral Processing (1990)	http://www.epa.gov/epaoswer/other/mineral/officialsummary.pdf
Final Regulatory Determination for Special Wastes From Mineral Processing (Mining Waste Exclusion, established in response to the Bevill Amendment) (1991)	http://www.epa.gov/epaoswer/other/mineral/061391.pdf
Regulatory Determination on Wastes from Mineral Processing (1986)	http://www.epa.gov/epaoswer/other/mineral/070386.pdf

¹ The regulations listed in Table I are only a selected list of key federal regulations that may apply to the gold and copper mining and processing industries. Each facility should carefully evaluate its operations and may want to consult with its EPA region, state or tribal agencies to make site-specific determination on which regulations affect its operations.

Table I. Selected Regulations and Supporting Documents (Continued)

Regulation/Supporting Document	Location
Clean Water Act (CWA):	
Key sections of CWA that may apply to mining and mineral processing facilities: • 40 CFR 100-149 and 40 CFR 400-471 - Discharges of pollutants into the waters of the United States • 40 CFR 440 - Ore Mining and Dressing Point Source Category; including acid mine drainage, froth flotation, cyanidation, and process wastewater; Subpart J – Copper, Lead, Zinc, Gold, Silver, and Molybdenum Ores Subcategory; Subpart M – Gold Placer Mine Subcategory • CWA Section 402 - National Pollutant Discharge Elimination System (NPDES); also see 40 CFR 122 (including storm water regulations) and 40 CFR 125 • CWA 307(b) - Pretreatment Effluent Standards (introduction of pollutants into Publicly Owned Treatment Works – POTW); also see 40 CFR 122 • CWA 311 – Oil and Hazardous Substance Liability; also see 40 CFR 112 – Spill Prevention Control and Countermeasure Plans (SPCC Plans)	These sections can be found at the Code of Federal Regulations GPO Access: http://www.access.gpo.gov/nara/cfr/cfr-table-search.html#page1 Search Title 40 – Protection of the Environment. These CWA sections can be found at: http://www.epa.gov/region5/water/cwa.htm#ECWA
Development Document for Effluent Limitations Guidelines and Standards for the Ore Mining and Dressing Point Source Category (1982)	National Environmental Publications Information System; Search EPA # 440182061 http://nepis.epa.gov/
Development Document for Effluent Limitations Guidelines and Standards for the Nonferrous Metals Manufacturing Point Source Category Volume I General Description, Volume III Primary Copper Smelting (1989)	National Environmental Publications Information System; Search EPA # 440189019.1 (Volume I), 440189019.3 (Volume III): http://nepis.epa.gov/
Underground Injection Control (UIC) Program, established under the Safe Drinking Water Act:	
40 CFR 144 - Underground Injection Control Program. This sets forth minimum requirements for the UIC program promulgated under Part C of the Safe Drinking Water Act.	http://www.access.gpo.gov/nara/cfr/waisidx_02/40cfr144_02.html
40 CFR 146 - Underground Injection Control Program Criteria & Standards. This sets forth the technical standards to follow when implementing the UIC program.	http://www.access.gpo.gov/nara/cfr/waisidx_02/40cfr146_02.html
40 CFR 148 - Hazardous Waste Injection Restrictions	http://www.access.gpo.gov/nara/cfr/waisidx_02/40cfr148_02.html
Statement of Basis and Purpose: Underground Injection Control Regulations, EPA Office of Drinking Water May, 1980	http://www.epa.gov/safewater/uic/pdfs/statement_of_basis_and_purpose_uic_1980.pdf

Table I. Selected Regulations and Supporting Documents (Continued)

Regulation/Supporting Document	Location
Clean Air Act (CAA):	
Key sections of CAA that may apply to mining and mineral processing facilities: • 40 CFR 50-99 - National clean air standards and emissions limits • CAA Title 1 – Air Pollution Prevention and Control, including National Ambient Air Quality Standards (NAAQS) and New Source Performance Standards (NSPS); also see 40 CFR 60 Subparts Db, Dc, H, Ka, Kb, and LL • 40 CFR 63, Subpart QQQ and 40CFR 61, Subpart O - National Emission Standards for Hazardous Air Pollutants (NESHAP) for primary copper smelting industry	These sections can be found at the Code of Federal Regulations GPO Access: http://www.access.gpo.gov/nara/cfr/cfr-table-search.html#page1 Search Title 40 – Protection of the Environment. Clean Air Act (as amended in 1990): http://www.epa.gov/air/oaq_caa.html/
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA):	
Key sections of CERCLA that may apply to mining and mineral processing facilities: Title 42 Chapter 103– Comprehensive Environmental Response, Compensation, and Liability Act CERCLA Title I Title 40 Chapter I, Subpart J– Superfund, Emergency Planning, and Community Right-To-Know Programs • 40 CFR 302 Designation, Reportable Quantities, and Notification • 40 CFR 355 Emergency Planning and Notification	Title 42, Chapter 103 can be found at: http://www.access.gpo.gov/uscode/title42/chapter103_.html Comprehensive Environmental Response, Compensation, and Liability Act of 1980, including Sections 101 to 126, can be found at: http://ntl.bts.gov/lib/6000/6300/6324/cercla.pdf 40 CFR 300-399: Superfund, Emergency Planning, and Community Right-To-Know Programs http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?sid=401d1fa5a85e820674e669b8a3edf23b&c=ecfr&tpl=/ecfrbrowse/Title40/40cfrv27_02.tpl
Emergency Planning and Community Right-to-Know Act (EPCRA):	
Key sections of EPCRA that may apply to mining and mineral processing facilities: Title 40 Chapter I, Subpart J– Superfund, Emergency Planning, and Community Right-To-Know Programs • 40 CFR 370 Hazardous Chemical Reporting: Community Right-to-Know • 40 CFR 372 Toxic Chemical Release Reporting	This section can be found at the Code of Federal Regulations GPO Access: http://www.access.gpo.gov/nara/cfr/cfr-table-search.html#page1 40 CFR 300-399: Superfund, Emergency Planning, and Community Right-To-Know Programs http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?sid=401d1fa5a85e820674e669b8a3edf23b&c=ecfr&tpl=/ecfrbrowse/Title40/40cfrv27_02.tpl
EPCRA Section 313 Industry Guidance: Metal Mining Facilities	http://www.epa.gov/triinter/guide_docs/1999/99metal.pdf#search=%22epcra%20mining%22

Table I. Selected Regulations and Supporting Documents (Continued)

Regulation/Supporting Document	Location
National Environmental Policy Act (NEPA):	
Key sections of NEPA that may apply to mining and mineral processing facilities:	These parts can be found at the Code of Federal Regulations GPO Access:
Title 40 Chapter V Parts 1500-1508—Council on Environmental Quality	http://www.access.gpo.gov/nara/cfr/cfr-table-search.html#page1
Title 40 Chapter I Part 6—Procedures for Implementing the Requirements of the Council on Environmental Quality on the National Environmental Policy Act	Search Title 40 – Protection of the Environment.
EPA and Hard Rock Mining Source Book	See Chapter 4 – The National Environmental Policy Act http://yosemite.epa.gov/R10/WATER.NSF/00f6b5c32b6939ad8825659200781ff5/9146f45e21cbb1bf8825683f006eafb9/\$FILE/maintext.PDF
Council on Environmental Quality NEPanet	http://ceq.eh.doe.gov/nepa/nepanet.htm
Judicial Decisions	
Association of Battery Recyclers Inc. et. al. v. EPA, 208 F.3d 1047 (US Court of Appeals for the District of Columbia. April 21, 2000)	http://pacer.cadc.uscourts.gov/common/opinions/200004/98-1368a.txt
American Mining Congress v. EPA, 824 F.2d 1177 (US Court of Appeals for the District of Columbia, 1987)	Electronic link to Judicial Opinions for the United States Court of Appeals for the District of Columbia not available for 1987
Environmental Defense Fund v. EPA, 852 F.2d 1309 (US Court of Appeals for the District of Columbia, 1988)	Electronic link to Judicial Opinions for the United States Court of Appeals for the District of Columbia not available for 1988

Part II. EPA, State, Tribal, and Other Compliance Assistance Documents

In addition to the regulatory requirements listed in Part I, Part II contains a list of compliance assistance resources related to gold and copper mining and mineral processing, developed by EPA, states, tribes, and other organizations. This is not an exhaustive list of all available compliance assistance documents, but those that EPA identified through good faith effort by searching the Internet and working with the industry and its state partners. These resources were updated on March 13, 2007.

For each document, the table lists the title, the URL where it can be found electronically, and a checklist of environmental focus areas the document addresses. The table is organized by document type (EPA documents, state documents and other resources). EPA documents are further organized by the waste media they primarily address. Older documents are included to provide background information; some of the documents and determinations may be superseded by more recent documents. EPA does not endorse or guarantee the accuracy or completeness of the non-EPA tools included in this table.

It is important to note that these tools provide guidance and do not constitute rulemaking by EPA and may not be relied on to create a substantive or procedural right or benefit enforceable by any other person. Only EPA, state, tribal, and other authorized local officials may make site-specific regulatory determinations.

Table II. EPA, State, Tribal, and Other Documents

Document Title (Date)	Waste Management					Water					Air				Other								Location	
	Solid Waste	Hazardous Waste	Bevill Exclusion	Other Regulatory/Permitting Requirements	Non-Regulatory Best Management Practices/ Pollution Prevention Opportunities (a)	Point Sources	Stormwater/Non-Point Sources	Other Regulatory/Permitting Requirements	Wetlands	Non-Regulatory Best Management Practices /Pollution Prevention Opportunities	Underground Injection Control (UIC)	Fugitive Dust/Non-Point Source Emissions	Solvent Extraction/Electrowinning Emissions	Other Regulatory/Permitting Requirements	Non-Regulatory Best Management Practices/ Pollution Prevention Opportunities	Process Description Information	Environmental Management Systems	Recycling/Reuse	TRI Reporting Guidelines	Mercury Recovery	Cyanide Cycle (b)	Copper Leach Cycle (c)		Non-Regulatory Best Management Practices/ Pollution Prevention Opportunities
U.S. EPA Documents– Solid Wastes – These documents provide an array of information related to solid waste issues at mining and mineral processing facilities, including regulatory discussions, best management practices and designs, and inactive and abandoned mine issues.																								
Bevill Amendment Issues Training (2006)	✓	✓	✓	✓																				http://www.epa.gov/compliance/assistance/sectors/minerals/processing/bevilltraining.html
Identification and Description of Mineral Processing Sectors and Waste Streams (1998)	✓	✓	✓													✓				✓	✓			http://www.epa.gov/compliance/assistance/sectors/minerals/processing/technicaldoc.html
Technical Report: Design and Evaluation of Tailings Dams (1994)	✓															✓								http://www.epa.gov/epaoswer/other/mining/techdocs/tailings.pdf
Technical Resource Document: Extraction and Beneficiation of Ores and Minerals - Volume 4 – Copper (1994)	✓	✓	✓	✓		✓		✓							✓	✓					✓			http://www.epa.gov/epaoswer/other/mining/techdocs/copper.pdf
Technical Resource Document: Extraction and Beneficiation of Ores and Minerals - Volume 6 - Gold Placers (1994)	✓		✓	✓	✓	✓		✓		✓														http://www.epa.gov/epaoswer/other/mining/techdocs/placer.pdf
Technical Resource Document: Treatment of Cyanide Heap Leaches and Tailings (1994)	✓			✓	✓	✓															✓			http://www.epa.gov/epaoswer/other/mining/techdocs/cyanide.pdf

Table II. EPA, State, Tribal, and Other Documents (Continued)

Document Title (Date)	Waste Management					Water					Air				Other							Location		
	Solid Waste	Hazardous Waste	Bevill Exclusion	Other Regulatory/Permitting Requirements	Non-Regulatory Best Management Practices/ Pollution Prevention Opportunities (a)	Point Sources	Stormwater/Non-Point Sources	Other Regulatory/Permitting Requirements	Wetlands	Non-Regulatory Best Management Practices /Pollution Prevention Opportunities	Underground Injection Control (UIC)	Fugitive Dust/Non-Point Source Emissions	Solvent Extraction/Electrowinning Emissions	Other Regulatory/Permitting Requirements	Non-Regulatory Best Management Practices/ Pollution Prevention Opportunities	Process Description Information	Environmental Management Systems	Recycling/Reuse	TRI Reporting Guidelines	Mercury Recovery	Cyanide Cycle (b)		Copper Leach Cycle (c)	Non-Regulatory Best Management Practices/ Pollution Prevention Opportunities
Technical Resource Document: Extraction and Beneficiation of Ores and Minerals - Volume 2 – Gold (1994)	✓	✓	✓	✓		✓		✓								✓					✓			http://www.epa.gov/epaoswer/other/mining/techdocs/gold.pdf
U.S. EPA Documents – Water – These documents provide information on water-related issues, including permitting guidance for mine sites, acid mine drainage issues, innovative management practices, and the design and performance of lined ponds and rock piles.																								
Class I Underground Injection Control Program: Study of the Risks Associated with Class I Underground Injection Wells (2001)	✓	✓				✓					✓													http://www.epa.gov/ogwdw/uic/classonestudy.pdf
Class V Underground Injection Control Fact Sheet: Mine Backfill Wells						✓					✓													http://www.epa.gov/safewater/uic/classv/pdfs/back-fact.pdf
Class V Underground Injection Control Fact Sheet: Solution Mining						✓					✓													http://www.epa.gov/safewater/uic/classv/pdfs/sol-fact.pdf
EPA and Hard Rock Mining: A Sourcebook for Industry in the Northwest and Alaska (2003)						✓		✓	✓			✓		✓										http://yosemite.epa.gov/R10/WATER.NSF/bbb2e0bec35db236882564f700671163/e4ba15715e97ef2188256d2c00783a8e?OpenDocument
EPA Underground Injection Control Program: Classes of Injection Wells						✓					✓													http://www.epa.gov/ogwdw/uic/classes.html
Managing Environmental Problems at Inactive and Abandoned Metals Mine Sites (1994)						✓				✓								✓			✓			http://www.epa.gov/ORD/NRMRL/pubs/625r95007/625r95007.htm

Table II. EPA, State, Tribal, and Other Documents (Continued)

Document Title (Date)	Waste Management					Water						Air				Other								Location
	Solid Waste	Hazardous Waste	Bevill Exclusion	Other Regulatory/Permitting Requirements	Non-Regulatory Best Management Practices/ Pollution Prevention Opportunities (a)	Point Sources	Stormwater/Non-Point Sources	Other Regulatory/Permitting Requirements	Wetlands	Non-Regulatory Best Management Practices /Pollution Prevention Opportunities	Underground Injection Control (UIC)	Fugitive Dust/Non-Point Source Emissions	Solvent Extraction/Electrowinning Emissions	Other Regulatory/Permitting Requirements	Non-Regulatory Best Management Practices/ Pollution Prevention Opportunities	Process Description Information	Environmental Management Systems	Recycling/Reuse	TRI Reporting Guidelines	Mercury Recovery	Cyanide Cycle (b)	Copper Leach Cycle (c)	Non-Regulatory Best Management Practices/ Pollution Prevention Opportunities	
The Feasibility of Lining Tailings Ponds (1997)	✓					✓				✓											✓	✓		http://www.epa.gov/epaoswer/hazwaste/ldr/mine/vantail1.pdf
The Class V Underground Injection Control Study Volume 10: Mining, Sand, or Other Backfill Wells						✓					✓											✓		http://www.epa.gov/ogwdw/uic/classv/pdfs/volume10.pdf
The Class V Underground Injection Control Study Volume 12: Solution Mining Wells						✓					✓													http://www.epa.gov/ogwdw/uic/classv/pdfs/volume12.pdf
The Underground Injection Control (UIC) Program Website						✓					✓											✓		http://www.epa.gov/safewater/uic/index.html
U.S. EPA Documents – Multimedia – These documents discuss mining and mineral processing topics related to air, water, and solid waste, including source reduction and recycling, the RCRA Mining Waste Exclusion, fugitive dust control, waste characterizations, and water management practices.																								
Abandoned Mine Lands Team Reference Notebook (2004)	✓					✓										✓					✓			http://www.epa.gov/superfund/programs/aml/tech/refntbk.htm
Innovative Methods of Managing Environmental Releases at Mine Sites (1994)	✓	✓			✓	✓		✓		✓														http://www.epa.gov/epaoswer/other/mining/techdocs/innovate.pdf
Mineral Processing Wastes Website (2006)	✓	✓	✓	✓	✓	✓		✓	✓	✓		✓		✓		✓	✓		✓					http://www.epa.gov/compliance/assistance/sectors/minerals/processing/index.html
Minerals, Mining, and Processing Website (2006)	✓	✓	✓	✓	✓	✓		✓	✓	✓		✓				✓	✓		✓					http://www.epa.gov/compliance/assistance/sectors/mineralsmining.html
Mining Wastes Website (2006)	✓	✓	✓	✓	✓	✓		✓	✓	✓		✓		✓		✓	✓		✓					http://www.epa.gov/epaoswer/other/mining/
Notification of Regulated Waste Activity (2006)	✓	✓															✓							http://www.epa.gov/epaoswer/hazwaste/data/form8700/forms.htm - icr

Table II. EPA, State, Tribal, and Other Documents (Continued)

Document Title (Date)	Waste Management					Water					Air				Other								Location	
	Solid Waste	Hazardous Waste	Bevill Exclusion	Other Regulatory/Permitting Requirements	Non-Regulatory Best Management Practices/ Pollution Prevention Opportunities (a)	Point Sources	Stormwater/Non-Point Sources	Other Regulatory/Permitting Requirements	Wetlands	Non-Regulatory Best Management Practices /Pollution Prevention Opportunities	Underground Injection Control (UIC)	Fugitive Dust/Non-Point Source Emissions	Solvent Extraction/Electrowinning Emissions	Other Regulatory/Permitting Requirements	Non-Regulatory Best Management Practices/ Pollution Prevention Opportunities	Process Description Information	Environmental Management Systems	Recycling/Reuse	TRI Reporting Guidelines	Mercury Recovery	Cyanide Cycle (b)	Copper Leach Cycle (c)		Non-Regulatory Best Management Practices/ Pollution Prevention Opportunities
Profile of the Metal Mining Industry (1995)	✓	✓	✓	✓	✓	✓		✓	✓	✓		✓	✓			✓			✓		✓			http://www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/mining.html
Profile of the Nonferrous Metals Industry (1995)	✓	✓	✓	✓	✓	✓		✓					✓	✓	✓	✓			✓					http://www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/nonferrous.html
State Documents: Alaska																								
Exempted Mine Wastes and Definitions of Surface and Hard Rock Mining (N/A)	✓	✓		✓														✓						http://www.dec.state.ak.us/eh/docs/sw/Mining_FS.pdf
State Documents: Arizona																								
Arizona Mining Guidance Manual BADCT (Best Available Demonstrated Control Technology) (2004)	✓	✓	✓	✓	✓			✓		✓				✓		✓		✓				✓		http://azdeq.gov/environ/water/wastewater/download/badctmanual.pdf
State Documents: California																								
Best Management Practices For Industrial Storm Water Pollution Control (N/A)							✓			✓														http://www.emd.saccounty.net/Documents/Info/Sacramento%20Industrial%20BMP%20Manual%20Nov.pdf
State Documents: Idaho																								
Air Quality in Idaho: Supplemental Fugitive Dust Control Information (N/A)												✓			✓									http://www.deq.state.id.us/air/prog_issues/pollutants/dust_control_plan.pdf

Table II. EPA, State, Tribal, and Other Documents (Continued)

Document Title (Date)	Waste Management					Water						Air				Other								Location
	Solid Waste	Hazardous Waste	Bevill Exclusion	Other Regulatory/Permitting Requirements	Non-Regulatory Best Management Practices/ Pollution Prevention Opportunities (a)	Point Sources	Stormwater/Non-Point Sources	Other Regulatory/Permitting Requirements	Wetlands	Non-Regulatory Best Management Practices /Pollution Prevention Opportunities	Underground Injection Control (UIC)	Fugitive Dust/Non-Point Source Emissions	Solvent Extraction/Electrowinning Emissions	Other Regulatory/Permitting Requirements	Non-Regulatory Best Management Practices/ Pollution Prevention Opportunities	Process Description Information	Environmental Management Systems	Recycling/Reuse	TRI Reporting Guidelines	Mercury Recovery	Cyanide Cycle (b)	Copper Leach Cycle (c)	Non-Regulatory Best Management Practices/ Pollution Prevention Opportunities	
State Documents: Montana																								
Hard Rock Mining Requirements (2005)	✓	✓		✓		✓				✓					✓	✓								http://www.deq.state.mt.us/hardrock/requirements.asp
State Documents: Nevada																								
Summary of Regulations For Mine Site Landfills (2004)	✓			✓																				http://ndep.nv.gov/bwm/docs/mine.html
A Guide to the Toxic Release Inventory for Nevada (2000)												✓							✓		✓			http://ndep.nv.gov/BWM/lication.pdf
State Documents: New Mexico																								
Permit Requirements for Energy and Minerals in New Mexico (2002)		✓		✓						✓						✓								http://www.emnrd.state.nm.us/ocd/documents/guide.pdf
State Documents: North Dakota																								
Storm Water Program Mining Permits (2006)						✓	✓	✓		✓														http://www.health.state.nd.us/wq/Storm/Mining/MINING.HTM
State Documents: Utah																								
Design and Construction Guidance Document for Precious Metals Heap Leach Extraction Facilities (1998)				✓	✓	✓		✓		✓											✓			http://www.waterquality.utah.gov/documents/Heapleach.final0698.PDF
State Documents: Wisconsin																								
Protecting Groundwater at Metallic Mining Sites (2003)							✓			✓														http://dnr.wi.gov/org/aw/wm/mining/metallc/infosheets/gwa-pro.pdf
The Permitting Process for a Metallic Mineral Mine (2003)				✓				✓						✓										http://dnr.wi.gov/org/aw/wm/mining/metallc/infosheets/dnr-per.pdf

Table II. EPA, State, Tribal, and Other Documents (Continued)

Document Title (Date)	Waste Management					Water						Air				Other								Location
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Tribal Documents:																								
Navajo Nation Code: Title 4 Environment and Title 18 Mines and Mineral	✓			✓		✓	✓	✓			✓			✓										http://www.ongd.navajo.org/files/nnca.pdf
Publications on Mining Waste in Indian Country (1999)	✓	✓	✓	✓	✓	✓			✓	✓											✓			http://www.epa.gov/epaoswer/non-hw/tribal/pdftxt/biblio.pdf
U.S. Department of the Interior, Bureau of Land Management: Guidelines for Conducting Tribal Consultation																							✓	http://www.blm.gov/nhp/efoia/wo/handbook/h8120-1.pdf
Workshop on Mining Impacted Native American Lands, Reno September 2003 (CD-ROM)	✓	✓			✓			✓	✓	✓													✓	CD-ROM can be obtained from the Mid-Atlantic Regional Center for Environmental Information by methods listed in the following link: http://www.epa.gov/Region3/rcei/contacts2.htm
Other Resources:																								
Acid Drainage Technology Initiative: Metal Mining Sector (2005)					✓					✓														http://www.unr.edu/mines/adti/
Cyanide and Science Your Web Source for Reliable Technical Information About Cyanide (2006)																		✓			✓			http://www.cyantists.com/

Table II. EPA, State, Tribal, and Other Documents (Continued)

Document Title (Date)	Waste Management					Water					Air				Other								Location	
	Solid Waste	Hazardous Waste	Bevill Exclusion	Other Regulatory/Permitting Requirements	Non-Regulatory Best Management Practices/ Pollution Prevention Opportunities (a)	Point Sources	Stormwater/Non-Point Sources	Other Regulatory/Permitting Requirements	Wetlands	Non-Regulatory Best Management Practices /Pollution Prevention Opportunities	Underground Injection Control (UIC)	Fugitive Dust/Non-Point Source Emissions	Solvent Extraction/Electrowinning Emissions	Other Regulatory/Permitting Requirements	Non-Regulatory Best Management Practices/ Pollution Prevention Opportunities	Process Description Information	Environmental Management Systems	Recycling/Reuse	TRI Reporting Guidelines	Mercury Recovery	Cyanide Cycle (b)	Copper Leach Cycle (c)		Non-Regulatory Best Management Practices/ Pollution Prevention Opportunities
Dictionary of Mining, Mineral, and Related Terms from Hacette University Department of Mining Engineering Website (Information taken from U.S. Bureau of Mines, 1996)																✓								http://www.maden.hacettepe.edu.tr/dmmrt/
Global InfoMine: Environmental Technology for Mining (2006)					✓				✓			✓												http://technology.infomine.com/enviromine/
ICMI Implementation Guidance for the International Cyanide Management Code (2005)																					✓		✓	http://www.cyanidecode.org/pdf/Revised%20IGJan06.pdf
The Northern Miner: Glossary of Terms (2005)																✓								http://www.northernminer.com/Tools/glossary.asp
U.S. Geological Survey: Minerals Information Website (2006)																✓		✓						http://minerals.er.usgs.gov/minerals/

a – **Non-Regulatory Best Management Practices/Pollution Prevention Opportunities** – Best management practices are waste management procedures that are not regulatory in nature. These are usually the most effective, practical, and economical means to better manage wastes and prevent or reduce pollution. Under Section 6602(b) of the Pollution Prevention Act of 1990, Congress developed a policy stating that pollution should be prevented or reduced at the source whenever feasible, unpreventable pollution should be recycled, and all other pollution should be treated in an environmentally safe manner, with disposal or release to the environment employed only as a last resort.

b – **Cyanide Cycle** – The use of cyanide in gold production. Sodium cyanide solution dissolves the gold contained in the ore. Either zinc metal or activated carbon is then added to the gold-bearing (i.e., “pregnant”) solution to remove the gold from the solution. The residual or “barren” solution may be re-circulated to extract more gold or routed to a waste treatment facility.

c – **Copper Leach Cycle** – The use of weak acid solution in copper production. From the mine, leachable ore is placed directly on leach pads where a weak acid solution is sprayed on the surface of the heap. This solution percolates down through the pile of ore and dissolves the acid-soluble copper. The copper-bearing solution is collected and pumped to a solvent extraction plant where organic solvents extract the copper from the solution. The raffinate from the solvent extraction process is recycled to the leach pads for reuse.

Part III. Federal, State, and Tribal Websites

In addition to EPA regulations, gold and copper mining and processing facilities are subject to the requirements of many other authorities. Table III identifies URLs for other relevant federal, state, and tribal agencies. Currently, gold and copper production in the U.S. occurs in Alaska, Arizona, California, Colorado, Idaho, Michigan, Montana, Nevada, New Mexico, Oregon, South Dakota, Texas, and Utah. Table III presents the URLs for the environmental departments for these states and territories.

Again, EPA does not endorse or guarantee the accuracy or completeness of the resources listed in this section. The readers are encouraged to contact these federal, state, and tribal agencies directly to determine which specific regulations apply to their operations. These resources were updated on March 13, 2007.

Table III. Federal, State, and Tribal Websites

Resource	Website
Federal Agencies	
U.S. Army Corps of Engineers	http://www.usace.army.mil/
U.S. Department of Agriculture Forest Service	http://www.fs.fed.us/
U.S. Department of Energy	http://www.energy.gov/
U.S. Department of the Interior Bureau of Land Management	http://www.blm.gov/nhp/index.htm
U.S. Department of the Interior Fish and Wildlife Service	http://www.fws.gov/
U.S. Department of the Interior Minerals Management Service	http://www.mms.gov/
U.S. Department of the Interior National Park Service	http://www.nps.gov/
U.S. Environmental Protection Agency Programs and Regional Offices	http://cfpub.epa.gov/npdes/linkresult.cfm?program_id=6&link_category=7&view=link
U.S. Geological Survey	http://www.usgs.gov/
State Departments/Programs for the States with Gold and Copper Mining and Processing Operations	
Alaska Department of Environmental Conservation	http://www.dec.state.ak.us/
Alaska Department of Natural Resources	http://www.dnr.state.ak.us/homepage/index_industry.htm
Arizona Department of Environmental Quality	http://www.azdeq.gov/index.html
California Environmental Protection Agency	http://www.calepa.ca.gov/
Colorado Department of Public Health and Environment	http://www.cdphe.state.co.us/cdphehom.asp
Idaho Department of Environmental Quality	http://www.deq.idaho.gov/
Idaho Department of Lands	http://www.idl.idaho.gov/
Michigan Department of Environmental Quality Office of Geological Survey	http://www.michigan.gov/deq/0,1607,7-135-3306_28607---,00.html
Montana Department of Environmental Quality Hard Rock Mining Program	http://www.deq.state.mt.us/hardrock/Index.asp
Nevada Division of Environmental Protection – Bureau of Mining Regulation and Reclamation	http://ndep.nv.gov/bmrr/bmrr01.htm
New Mexico Environment Department	http://www.nmenv.state.nm.us/
Oregon Department of Environmental Quality	http://www.deq.state.or.us/
South Dakota Department of Environment and Natural Resources Minerals and Mining Program	http://www.state.sd.us/denr/DES/Mining/mineprg.htm
Texas Commission on Environmental Quality	http://www.tceq.state.tx.us/
Utah Department of Environmental Quality	http://www.deq.utah.gov/
Utah Division of Oil, Gas and Mining	http://www.ogm.utah.gov/
Wisconsin Department of Natural Resources	http://dnr.wi.gov/org/aw/wm/mining/metallic/
Tribal Programs	
EPA American Indian Environmental Office; EPA Program Offices and Tribal Programs	http://www.epa.gov/owindian/programs.htm

Table III. Federal, State and Tribal Resources (Continued)

Resource	Website
The National Tribal Justice Resource Center	http://www.tribalresourcecenter.org/
Navajo Nation Environmental Protection Agency	http://www.navajonationepa.org/
The Hopi Tribe Department of Natural Resources: Office of Mining and Mineral Resources	http://www.hopi.nsn.us/mining.asp
National Tribal Environmental Council	http://www.ntec.org/