

US EPA ARCHIVE DOCUMENT

Response to Public Comments: Phase IV Land Disposal Restrictions for TC Metals Final Rule RIA

In August 1995 EPA completed its Regulatory Impact Analysis (RIA) for the Phase IV Land Disposal Restriction proposed rule for the proposed universal treatment standards (UTS) for TC metals wastewaters and nonwastewaters for eight toxicity characteristic (TC) metal wastes: arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. The Agency stated that its analysis found the proposed UTSs for TC metals wastewaters and nonwastewaters could be achieved through existing technology at a minimal cost. In April 1997 the U. S. Environmental Protection Agency issued its RIA for the Phase IV Land Disposal Restrictions (LDRs) for the Second Supplemental Proposed Rule. This RIA focuses on TC metal hazardous wastes and newly identified hazardous mineral processing wastes. In response to the two RIAs, the Agency has received some comments from industry challenging the previous finding that the proposed UTS could be achieved at minimal cost. EPA has carefully considered the information provided by the public commenters to both RIAs, reviewed the evidence on treatment methods, conducted additional analyses, and developed revised treatment standards judged protective of the environment and attainable with little or no adjustment in waste treatment methods from those needed to meet current requirements. This document reviews the public comments relevant to the TC metals requirements and provides the Agency's rationale for reaching its conclusion.

(Note: EPA received two sets of comments in response to two proposals on the application of UTS to TC metal hazardous wastes, the original proposal in August 22, 1995 and the second supplemental proposal of May 12, 1997. Commenters in this document are identified by their comment number followed by the suffix "95" or "97" to indicate which proposal they responded to. Two lists of commenters to both the 95 and 97 proposals follow this document.)

1. Comment: Representatives for industries that treat their hazardous wastes on site, individual generators, commercial vendors of treatment reagents, and one commercial treatment company have argued that the UTSs for TC metals are not technically feasible or if they can be achieved they will require managers of these wastes to incur additional treatment costs either for on-site treatment or for commercial treatment. One commenter has specifically, singled out high chromium- and high lead-bearing wastes (i.e., greater than 1 percent total lead or chromium) as being particularly problematic. (Comm 26-95, Comm. 38-95, Comm 45-95, Comm 77-95 Comm 78-95, Comm 81-97, Comm 86-97)

Response: The Agency has considered the issue of achieving the proposed UTSs for TC metal constituents without incremental treatment cost. The Agency has revised its proposed standards for lead from 0.37 to 0.75 mg/l. Further, the Agency has evaluated the effectiveness of current treatment methods and finds that the standard is achievable using those methods.

Current treatment methods to meet the characteristic requirements typically include stabilization of the waste followed by disposal of the stabilized waste and reagent. Portland cement is usually the stabilization reagent of choice although in some cases phosphate chemicals are employed as an alternative or additional form of treatment to stabilization. A commercial waste treatment facility examined by EPA currently employs 20 to 25 percent portland cement in its treatment of hazardous wastes (i.e. binder to waste ration of 25%). The treated wastes are sampled to determine their compliance with the existing treatment standards. Only a very small share of the wastes fail to meet current standards. Batches that fail are then retreated. The company reports that they do not have any difficulty in reaching, with current treatment recipes, the previously proposed UTS level for lead of 0.37 mg/l or 0.86 mg./l for chromium even when these wastes contain percent levels of these constituents. Indeed, they find that they often achieve levels an order of magnitude lower than that value. Thus, they would not expect to need to modify its existing treatment process to meet the proposed UTS.¹ In addition, data that the Agency has reviewed from industries generating high-lead wastes show that these wastes can be treated by on-site stabilization systems to below the final UTS for lead of 0.75 mg./l.² Given the experience of both this commercial treatment firm and industries generating high-lead TC metal nonwastewaters, the Agency judges that similar results are achievable without incremental treatment costs by other managers of TC metals wastes.

2. Comment: One commenter stated that it is concerned that hazardous wastes generated by the foundry industry such as baghouse dust generated by ferrous foundries and sands generated by nonferrous foundries may be subject to significant costs and economic impacts to the foundry industry resulting from the application of the proposed UTS to foundry sand wastes. The commenter also stated that EPA had not prepared an adequate RIA because it was not based on data. The commenter stated that EPA had made its statement based on “guesswork” rather than empirical review of data. The commenter added that EPA lacked data to complete an RIA. (Comm 77-95)

Response: EPA disagrees with the commenter that there may be significant costs and economic impacts to the foundry industry resulting from the Phase IV LDR final rule. First, as discussed above, EPA's review of data from commercial treaters and generators of high lead-bearing hazardous waste using on-site stabilization systems indicates that these handlers can achieve the final UTS numbers promulgated in today's rule without modifying treatment recipes and incurring incremental treatment costs.

¹ December 19, 1996 letter to Anita Cummings, USEPA, Office of Solid Waste from Michael G. Fusco, director of Regulatory Analysis, Rollins Environmental Inc., p.4 of edited draft EPA trip report letter to Rollins Highway 36 facility in Colorado.

² October 9, 1996 letter to Anita Cummings, USEPA, Office of Solid Waste from Steve Emmons, Battery Council International Environmental Committee chair and Earl Cornette, Chairman, Association of Battery Recyclers, Inc.

Second, as a result of the comments received from the foundry industry EPA reviewed and evaluated the impacts of the revised UTSs on this industry segment. Information provided by the American Foundrymen's Society (November 27, 1995) indicate that as many as 528 foundries may be using iron filings to treat hazardous foundry sands for TC metals. The Agency's examination of this treatment method does find that it would not be suitable to meet the UTSs -- it is an inappropriate type of treatment because it fails to minimize threats, given that the key constituent in the wastes (lead) will not have its mobility significantly reduced and cadmium mobility also will not be reduced -- and that there would be costs to the industry to substitute portland cement. However, there are two important implications regarding the use of iron filings. First, and more important, iron filings do not appear to meet the Agency's current requirements for treating these wastes. Thus, any costs incurred to substitute, for example, portland cement would not be attributable to the Phase IV rule but to meeting current requirements. Second, even assuming that the costs are attributable to this rule (not the Agency's view, as just noted), the Agency has quantified these costs and provided its analysis as an appendix to the RIA. This analysis finds that the costs of substituting portland cement for iron filings would represent about 2 percent of current industry revenues, and 8 per cent of profits. The industry would not be expected to absorb all these costs, however, as some share would be passed along to consumers in the form of higher prices. Thus, these represent extreme values in terms of their impact on the industry. Even so, the costs are fairly small, especially when considered in light of the normal industry fluctuations in revenues and profits.

Third, EPA's disagrees with the commenter's characterization of the August 22, 1995 RIA statement on TC metals as "guesswork". The statements in the August 22, 1995 RIA for the proposed rule reflects the professional judgement, knowledge and experience of EPA environmental professionals with many years of experience in evaluating commercial and noncommercial hazardous waste treatment practices over a wide variety of industries. The specific statement that little incremental cost and economic impact would result from the proposed UTS is based upon the fact that many treaters of hazardous waste overtreat their wastes in order to account for the variability of their waste streams. Since the proposed UTS numbers were in many cases within or close to one order of magnitude of the current treatment standard, EPA officials believed that the overtreatment of wastes would result in compliance with the proposed UTS standards. As discussed previously, EPA has corroborated this statement with data provided by commercial hazardous waste treaters and other handlers of TC metal hazardous wastes. Finally, EPA has used data provided by the commenter and others to complete its RIA for today's rule.

3. Comment: One commenter stated that the proposed UTS from the second supplemental proposal of 0.07 ppm for antimony in nonwastewaters would result in incremental costs for stabilization of its incinerator ash. The ash generated from several of the commenters incinerators is currently disposed of in a hazardous waste landfill. The ash is not stabilized. However, treatment to meet the proposed UTSs would require, the commenter believes, stabilization either by the generator or by a commercial manager. The commenter questions the environmental benefits of this additional treatment. (Comm 81-97)

Response: The Agency has revised the UTS for antimony nonwastewaters to 1.15 ppm. EPA has contacted the commenter. The commenter has stated that its incinerator ash can meet this level without stabilization and thus will not incur incremental costs from the Phase IV rule. (4/3/98 Memorandum from Paul A. Borst, USEPA Office of Solid Waste to RCRA Docket on Record of Communication with Eastman Chemical).

4. Comment: One commenter stated that additional reagents would be required to meet the proposed UTS for silver of 0.11 ppm. The commenter stated that this would result in larger waste disposal volumes without additional environmental benefit. (Comm 86-97)

Response: As stated above, available data suggests that no incremental treatment reagent is required to achieve the proposed UTS levels for TC metal wastes. EPA's revised UTS for silver of 0.14 should be achievable without the need for additional treatment reagent. The Agency also notes that the commenter failed to providing supporting documentation of what treatment levels and volumes of its silver-bearing TC metal wastes are currently be managed.

5. Comment: Several commenters stated that the proposed UTS standards for TC metal wastes (in particular lead and selenium) would result in severe economic burden to the secondary lead industry resulting from incremental costs to treat and dispose of secondary lead slags and contaminated soils. These commenters state that these costs would result from either having to procure additional stabilization equipment for on-site treatment or ship their lead-bearing D008 wastes off-site for commercial treatment at higher costs. (Comm. 38-95, Comm 78-95, Comm 45-95)

Response: As stated under Comment 1, based on data provided by the commenters, one of whom is a secondary lead smelter and the other a one commercial treatment facility, all D008 process waste can and is currently being treated to the final lead and selenium standards of 0.75 ppm and 5.7 ppm respectively. Lead contaminated soils identified by the commenters will be subject to less stringent alternative standards previously proposed under the HWIR media rule. These alternative standards will allow the clean up of these lead-contaminated soil to either 90 percent reduction in total concentration of hazardous constituents or ten times the UTS standards finalized in today's rule. Because all of the TC metal UTS standards except silver are more than one tenth of the TC level, ten times the UTS number is less stringent than the current metal treatment standards promulgated in the "Third-Third" LDR rulemaking. Those treatment standards are identical to the current characteristic level for D004 through D011 wastes.

6. Comment: One commenter to EPA's original proposal commented that the proposed UTS of 0.025 ppm for non-retorting mercury residues would be technology forcing thus delaying the clean up of mercury-contaminated soils proximate to natural gas pipelines. (Comm. 86-95)

Response: Mercury-contaminated soils identified by the commenter will be subject to less stringent alternative standards previously proposed under the HWIR media rule. These alternative standards will allow the clean up of these mercury-contaminated soils to either 90 percent reduction in total concentration of hazardous constituents or ten times the UTS standards finalized in today's rule. Because all of the TC metal UTS standards except silver are more than

one tenth of the TC level, ten times the UTS number is less stringent than the current metal treatment standards promulgated in the “Third-Third” LDR rulemaking. Those treatment standards are identical to the current characteristic level for D004 through D011 wastes.

7. Comment: One commenter to EPA’s original proposal commented that the presence of organic underlying hazardous constituents in TC metal wastes would result in large volumes of these wastes to be incinerated rather than stabilized . (Comm. 48-95)

Response: EPA has analyzed data from its National Hazardous Waste Constituent Survey to assess the likelihood of organic underlying hazardous constituents being present above UTS levels in TC metal wastes. The results of this analysis demonstrate that it is very unlikely that TC metal wastes will contain organic underlying hazardous constituents in levels sufficient to require combustion. Of 181 waste streams examined, only 3 contained organic constituents above UTS levels. Of those 3, none was present in levels sufficiently high to warrant combustion.

In addition, EPA notes that it is permissible to drive organics off during the stabilization process provided the organics are captured and destroyed (for example, as a result of compliance with the subpart CC standards). It also may be appropriate to obtain a treatment variance in the case of wastes which are predominantly inorganic and treatment of organic underlying hazardous constituents otherwise would require combustion (particularly if the organic hazardous constituents are in low concentrations, are not volatile, and might have lower mobility as a result of treatment). See 62 FR at 64505 (Dec. 5, 1997).

8. Two commenters to EPA’s original proposal stated that the Agency’s regulatory impact assessment (RIA) violates E.O. 12866 because they claim it was not developed through reasoned decision making, rather through guesswork. These commenters state that the RIA is not based on data and fails to account for incremental costs to the iron and steel industry from the Phase IV rule. The commenters state that Phase IV costs to the iron and steel industry include extensive R&D on wastes and waste treatment technologies, additional expenditures for waste treatment and stabilization technologies used to treat underlying hazardous constituents and the potential shutdown of operations for those facilities that cannot afford R&D and waste treatment costs. (Comm. 83-95, Comm. 84-95, Comm. 104-95, Comm. 105-95)

Response: EPA disagrees these commenters that the RIA was developed through guesswork rather than reasoned decision making. The Agency’s carefully considered basis for assigning no treatment cost to TC metal wastes in the 1995 proposal RIA was that the UTS levels proposed for TC metals were often within one order of magnitude of the TC /3rd 3rd standard levels. EPA believed that commercial treaters and generator treating their own waste typically overtreat these wastes in order to assure compliance with existing LDR treatment standards. EPA has since verified this assumption empirically (see Response to Comment 1 above).

EPA also disagrees with the commenters' unsupported assertion that the Phase IV LDR rule will impose a "dramatic adverse impact" on the steelmaking industry. First, EPA notes that the commenters failed to provide any data to support their claim demonstrating that the steelmaking industry generates large volumes of TC metal hazardous waste. Second, as noted above in the response to Comment 1 both R&D costs and incremental treatment costs are unlikely because the standards being promulgated in today's final rule can easily be achieved through existing portland cement stabilization.

9. Comment: One commenter stated that the proposed universal treatment standard for chromium for nonwastewaters of 0.86 mg./l would impose \$11 million of incremental cost to a ferrochromium producer without commensurate environmental benefit. The commenter stated that the ferrochromium producer would incur these one time costs as a result of having to retreat 40,000 tons of chromium wastes that were previously treated to below the characteristic level and current treatment level for chromium of 5.0 mg./l. The commenter states that this material must be relocated to a new land disposal site pursuant to a consent decree with the state of South Carolina. (Comm. 55-97)

Response: The Agency notes that the commenter failed to provide data about what level the chromium wastes were treated to below the characteristic level as well as the treatment reagent used. The commenter also failed to state the basis for the estimated \$11 million in treatment costs. Notwithstanding these omissions, EPA notes that one commercial treatment facility was able to consistently achieve treatment levels exceeding one order of magnitude below the proposed universal treatment standard of 0.86 mg./l.³ even the wastes contained high total levels of chromium or other TC metal constituents. (Note: the final UTS for chromium of 0.60 mg./l. is slightly lower than the proposed level of 0.86 mg./l.. Nevertheless, the treatment levels obtained by the commercial treater were also well below the final chromium UTS level for nonwastewaters). EPA also notes that the chromium wastes described in the comment would probably not be required to be retreated under federal law as a result from the UTS finalized in today's rule. This is so because the wastes originally treated to below the characteristic level would not be considered to be hazardous by virtue of exhibiting the characteristic previously unless they exhibited the characteristic at the point when they were actively managed for relocation to the new landfill.

³ December 19, 1996 letter to Anita Cummings, USEPA, Office of Solid Waste from Michael G. Fusco, director of Regulatory Analysis, Rollins Environmental Inc., p.4 of edited draft EPA trip report letter to Rollins Highway 36 facility in Colorado.

LIST OF PUBLIC COMMENTS**Original Phase IV proposal, August 22, 1995**

(This list was typed from a hardcopy of the Docket Tracking Log)

<u>Comment #</u>	<u>Commenter</u>
00001	Grady-White Boats
00002	Olympic Boat Company
00003	Sunfish Laser
00004	Larson Boats
00005	Arctco, Inc.
00006	Regal Marine Industries, Inc.
00007	Godfrey Marine
00008	Dept. Of Environmental Protection
00009	Nat'l Marine Manuf. Association
00010	Coalition on West Valley Nuclear Wastes
00011	Blue Water Boats, Inc.
00012	Coastal Corp.
00013	NY State DEC
00014	Silver Coalition
00015	BP Oil
00016	Universal Forest Products, Inc.
00017	Eastman Kodak Co.
00018	Mobile Oil Corp.
00019	ASARCO
00020	Exxon Company
00021	Georgia Pacific Corp.
00022	Phelps Dodge Corp.
00023	Beazer East, Inc.
00024	Union Comp.
00025	Magma Copper Co.
00026	TDI Group Inc.
00027	Rollins Env'l Inc.
00028	TU Services
00029	AN Group
00030	Nat'l Petroleum Refiner Assoc.
00031	Dept.of Energy
00032	Penta Task Force
00033	CMA/Carbon Disulfide Panel
00034	CMA/Undergrd. INJ. Control
00035	Utility Solid Waste Activities Grp.

00036	American Iron and Steel Inst.
00037	Natural Gas Pipeline Co. Of Amer.
00038	Association of Battery Recyclers
00039	American Wood Preservers Institute
00040	Interstate Natural Gas Assoc. of America(INGAA)
00041	Sterling Chemicals
00042	Monsanto
00043	Lead Industries Assoc.
00044	American Forest and Paper Assoc.
00045	Battery Council International (BCI)
00046	National Mining Assoc.
00047	Merck and CO.
00048	Chemical Waste Management
00049	Molten Metal Technology
00050	Natural Gas Pipeline Co. of America
00051	Ohio EPA
00052	Pacific Gas and Electric Co.
00053	Texaco Inc.
00054	Total Petroleum
00055	American Industrial Health Council
00056	Westinghouse Electric Corp.
00057	No Affiliation
00058	J.H. Baxter and Co.
00059	Exxon Chemical Americas
00060	American Dental Association
00061	BP Chemical
00062	Remediation Technologies, Inc.
00063	Laidlow Environmental Services
00064	Dow Chemical Company
00065	Safety - Kleen Corp.
00066	American Petroleum Institute
00067	Horsehead Resource Development
00068	Amerada Hess Corp.
00069	Steel Structurers Painting Council (SSPC)
00070	Doe Run Resources Corp.
00071	Synthetic Organic Chemical Manuf. Ass.
00072	Non-Ferrous Founders Society
00073	Outboard Marine Corp.
00074	Dept. of Defense
00075	EIF Atochem North America Inc.
00076	Society of the Plastics Industry
00077	American Foundryman's Society
00078	Battery Council International (BCI)
00079	Society of the Plastics Industry
00080	Eastman Chemical Company

00081	Rohm and Haus Company
00082	Brush Wellman, Inc.
00083	Steel Manufacturers Association
00084	Specialty Steel Industry
00085	Environmental Defense Fund
00086	American Gas Association
00087	The Doe Run Company
00088	Texas Utilities Services. Inc.
00089	ASTSWMO
00090	International Cadmium Association
00091	FMC Corporation
00092	Union Carbide Corp.
00093	Heritage Environmental Services
00094	General Motors Corp.
00095	General Electric Company
00096	International Metals Reclam. Co.
00097	Hazardous Waste Management Association
00098	NY State Dept. Of Environmental Protection
00099	Ohio State of Environmental Protection
00100	Phillips Petroleum Company
00101	Oregon Dept. of Environmental Quality
00102	Chevron
00103	Ciba - Geigy Corporation
00104	Specialty Steel Industry
00105	Steel Manufacturers Association
00106	PHRMA
00107	Uniroyal Chemical Company
00108	Tiara Yachts
00109	Ford Motor Company
00110	American Foundrymen Society
00111	Specialty Steel Industry
00012	Steel Manufacturers Ass.
00013	Chemical Manufacturers Ass.
00114	Chemical Manufacturers Ass.
00115	Courtaulds Filers, Inc.
00116	Accidental Chemical Corporation (oxychem)
00117	Boston Whaler
01118	FNC Corporation
00119	Rohn and Haas Company
L001.A	Office of the Secretary of Defense
L0001	Wrong docket - Univ of Rochester
L0002	Distilled Spirits Council of the U.S.

LIST OF PUBLIC COMMENTS

Second Supplemental Phase IV proposal, May 12, 1997

Commenter #	Commenter Name
COMM1001	ASARCO Incorporated
COMM1002	American Wood Preservers Institute
COMM1003	Chemical Products Corporation
COMM1004	Occidental Chemical Corporation (OxyChem)
COMM1005	American Chrome & Chemicals, L.P.
COMM1006	Marine Shale Processors, Inc. (MSP)
COMM1007	Frontier Technologies Inc. (FTI)
COMM1008	Florida Phosphate Council
COMM1009	World Resources Company
COMM1010	International Metals Reclamation Company, Inc. (INMETCO) and INCO United States, Inc.
COMM1011	CITGO Petroleum Corporation
COMM1012	The Ferroalloys Association (TFA)
COMM1013	GF Industries
COMM1014	Westinghouse Electric Corporation
COMM1015	Ms. Linda W. Pierce
COMM1016	Chemical Manufacturers Association
COMM1017	Battery Council International (BCI) and Association of Battery Recyclers (ABR)
COMM1018	Collier, Shannon, Rill & Scott, PLLC for Specialty Steel Industry of North America (SSINA)
COMM1019	The Doe Run Company (DRC)
COMM1020	American Portland Cement Alliance (APCA)
COMM1021	American Petroleum Institute
COMM1022	Eastman Kodak Company
COMM1023	U.S. Department of Energy (DOE)
COMM1024	Lead Industries Association, Inc. (LIA)
COMM1025	RSR Corporation
COMM1026	Homestake Mining Company
COMM1027	Solite Corporation
COMM1028	Laidlaw Environmental Services
COMM1029	Newmont Gold Company
COMM1030	Chemical Products Corporation (CPC)
COMM1031	Florida Institute of Phosphate Research (FIPR)
COMM1032	Savage Zinc, Incorporated
COMM1033	General Motors Corporation (GM)
COMM1034	ASARCO Incorporated
COMM1035	Utility Solid Waste Activities Group (USWAG)
COMM1036	Okanogan Highlands Alliance (OHA)
COMM1037	CF Industries, Inc.
COMM1038	The Fertilizer Institute
COMM1039	American Iron and Steel Institute (AISI)
COMM1040	Molycorp, Inc.
COMM1041	Cyprus Amax Minerals Company

COMM1042 Law Office of David J. Lennett (for Environmental Defense Fund, Mineral Policy Center, Southwest Research and Information Center, North Santiam Watershed Council, Pamlico-Tar River Foundation, Siskiyou Regional Education Project, Okanogan Highlands Alliance, and the Louisiana Environmental Action Network)

COMM1043 BHP Copper

COMM1044 National Lime Association

COMM1045 The Silver Council

COMM1046 Mineral Policy Center

COMM1047 American Gas Association (AGA)

COMM1048 National Mining Association

COMM1048-D National Mining Association

COMM1048-E National Mining Association

COMM1049 Lake Superior Alliance (LSA)

COMM1050 Reynolds Metals Company

COMM1051 Brush Wellman Inc.

COMM1052 Brush Wellman Inc.

COMM1053 Brush Wellman, Inc.

COMM1054 Kennecott

COMM1055 Mr. William R. Schneider, P.E. (Consultant to Macalloy Corp.)

COMM1056 Nexsen, Pruet, Jacobs & Pollard, LLP (Counsel to Macalloy Corporation)

COMM1057 Photo Marketing Association International

COMM1058 Menominee Indian Tribe of Wisconsin

COMM1059 Lake Michigan Federation

COMM1060 Mr. David Isbister

COMM1061 Ms. Marianne Isbister

COMM1062 Rolling Stone Lake Protection & Rehabilitation District

COMM1063 Ms. Laura Furtman

COMM1064 Mr. Gregory Furtman

COMM1065 Ms. Jennifer Pierce

COMM1066 Cement Kiln Recycling Coalition

COMM1067 Institute for Interconnecting and Packaging Electronic Circuits

COMM1068 Horsehead Resource Development Company, Inc.

COMM1069 Macalloy Corporation

COMM1070 Ms. Dori Gilels

COMM1071 Kenneth and Linda Pierce

COMM1072 Ms. Ellen Wertheimer

COMM1073 Mr. Earl Meyer

COMM1074 New York State Department of Environmental Conservation

COMM1075 United States Department of Defense (DoD)

COMM1076 Clean Water Action Council of Northeast Wisconsin, Inc.

COMM1077 Air Products and Chemicals, Inc.

COMM1078 EnviroSource Treatment and Disposal Services, Inc. (TDS)

COMM1079 Independence Mining Company Inc. (IMCI)

COMM1080 Uniroyal Chemical Company, Inc.

COMM1081 Eastman Chemical Company

COMM1082 Nevada Mining Association (NvMA)

COMM1083 Kerr-McGee Corporation

COMM1084 Elf Atochem North America Inc.

COMM1085 New Mexico Mining Association

COMM1086 DuPont

COMM1087 Waste Management
COMM1088 FMC Corporation
COMM1089 Phelps Dodge Corporation
COMM1090 Arizona Mining Association
COMM1091 Beazer East, Inc.
COMM1092 AlliedSignal Inc.
COMM1093 Placer Dome U.S., Inc.
COMM1094 Phosphorus Producers Environmental Council
COMM1095 U.S. Borax, Inc.
COMM1096 Appalachian Producers
COMM1097 Aluminum Company of America; Kaiser Aluminum & Chemical Corporation; Ormet Corporation; and Reynolds Metals Company.

COMM1098 AMAX Metal Recovery, Inc.
COMM1099 Barrick Resources, Inc.
COMM1100 Koppers Industries, Inc.
COMM1101 IMC-Agrico Company
COMM1102 Echo Bay Mines
COMM1103 Mining Impact Coalition of Wisconsin Inc.
COMM1104 Precious Metals Producers (PMP)
COMM1105 California Mining Association
COMM1106 Freeport-McMoRan
COMM1107 Shoshone-Bannock Tribe Land Use Department
COMM1108 Texaco
COMM1109 Occidental Chemical Corporation (OxyChem)
COMML1001 Photographic & Imaging Manufacturers Association, Inc.
COMML1002 Phosphorus Producers Environmental Council
COMML1003 Environmental Technology Council