February 25, 2004

**MEMORANDUM**

**Subject:** Response to Public Comments on Proposed Industrial, Commercial, and Institutional Boilers and Process Heaters NESHAP

**From:** Jim Eddinger, ESD Combustion Group

**To:** Robert Wayland, ESD Combustion Group

On January 13, 2003, the U.S. Environmental Protection Agency (EPA) proposed national emission standards for hazardous air pollutants (NESHAP) for Industrial/Commercial/Institutional Boilers and Process Heaters. The proposed rule fulfills the requirements of the Clean Air Act (CAA), which requires EPA to regulate emissions of hazardous air pollutants (HAP) listed in section 112(b) of the CAA.

This document contains summaries of the public comments that EPA received on the Industrial, Commercial, Institutional Boilers and Process Heaters proposal to establish NESHAP for Industrial/Commercial/Institutional Boilers and Process Heaters. In this document, EPA responds to the public comments. This summary of public comments and EPA responses serves as the basis for revisions made to the Industrial/Commercial/Institutional Boilers and Process Heaters between proposal and promulgation.

The EPA received 191 comment letters for the Industrial, Commercial, Institutional Boilers and Process Heaters proposed rule before the comment period closed on March 14, 2003. These comments are contained in Docket ID No. OAR-2002-0058 (formerly Docket No. A-96-47). Eight comments were received shortly after the March 14, 2003 deadline. These comments are contained in the same docket. The commenter, affiliation, and item number in Docket ID No. OAR-2002-0058 are listed in Table 1.

Table 1. List of Commenters on the Proposed NESHAP for Industrial, Commercial, and Institutional Boiler and Process Heaters

| Docket No. | Docket ID No. OAR-2002-0058 | Commenter, Address, Title or Description |
|---|---|---|
| | 295 | jeanpublic@yahoo.com |
| A-96-47, IV-D-17 | 296 | S. Kaderly<br>Nebraska Department of Environmental Quality<br>Lincoln, NE |
| A-96-47, IV-D-07 | 297 | R.C. Abrams<br>Kimberly-Clark Corporation<br>Everett Mill, Everett, WA |
| A-96-47, IV-D-18 | 320 | C. Cary<br>Biomass Combustion Systems, Inc.<br>Princeton, MA |
| | 331 | R. W. Gore<br>Alabama Department of Environmental Management<br>Montgomery, AL |
| A-96-47, IV-D-08 | 332 | J.F. Stahl<br>Los Angeles County Sanitation Districts<br>Los Angeles, CA |
| A-96-47, IV-D-20 | 333 | J. Wallen<br>Hambro Forest Products, Inc.<br>Crescent City, CA |
| | 334 | G. Banks |
| | 335 | J. Olashuk<br>National Steel Corporation<br>Mishawaka, IN |
| A-96-47, IV-D-21 | 336 | J. Olashuk<br>National Steel Corporation<br>Mishawaka, IN |
| A-96-47, IV-D-12 | 337 | H.G. Moore<br>International Carbon Black Association<br>Alpharetta, GA |

| Docket No. | Docket ID No. OAR-2002-0058 | Commenter, Address, Title or Description |
|---|---|---|
| A-96-47, IV-D-11 | 338 | J.T. Clapacs<br>Indiana University<br>Bloomington, IN |
| A-96-47, IV-D-10 | 339 | H. Abrams<br>R.J. Reynolds Tobacco Co.<br>Winston-Salem, N.C. |
| A-96-47, IV-D-14 | 340 | J.T. Higgins<br>New York Department of Environmental Conservation<br>Albany, NY |
| A-96-47, IV-D-09 | 341 | L. Eagan<br>STAPPA/ALAPCO<br>Washington, D.C. |
| A-96-47, IV-D-15 | 342 | D. Young<br>Menasha Utilities<br>Menasha, WI |
| A-96-47, IV-D-16 | 343 | E.M. Adamo<br>Air Products and Chemicals<br>Allentown, PA |
| A-96-47, IV-D-01 | 344 | P. Mayberry<br>INDA Association of the NonWoven Fabrics Industry<br>Falls Church, VA |
| A-96-47, IV-D-24 | 345 | Randy Putnam<br>Aurora, CO |
| A-96-47, IV-D-13 | 346 | G.A. Wilkins<br>Marathon Ashland Petroleum LLC<br>Findlay, OH |
| A-96-47, IV-D-25 | 347 | L. Knee<br>Bowels Rice, McDavid Graff & Love PLLC<br>Charleston, WV |
| A-96-47, IV-D-04 | 348 | J. Jackson<br>Cumberland Lumber & Mfg. Co., Inc.<br>McMinnville, TN |
| A-96-47, IV-D-05 | 349 | L. Eagan<br>State of Wisconsin Department of Natural Resources<br>Madison, Wisconsin |

| Docket No. | Docket ID No. OAR-2002-0058 | Commenter, Address, Title or Description |
|---|---|---|
| A-96-47, IV-D-06 | 350 | J. Paul<br>Regional Air Pollution Control Association<br>Dayton, Ohio |
| A-96-47, IV-D-03 | 351 | T. Pugh<br>American Public Power Association<br>Washington, DC |
| A-96-47, IV-D-02 | 352 | J. Bardi<br>American Society for Testing and Materials (ASTM)<br>W. Conshohocken, PA |
| A-96-47, IV-D-57 | 353 | A.R. Heighway<br>Eli Lilly and Company<br>Indianapolis, IN |
| A-96-47, IV-D-56 | 354 | N.J. House<br>BAE Systems Ordnance Systems Inc.<br>Holston Army Ammunition Plant<br>Kingsport, TN |
| A-96-47, IV-D-36 | 356 | J. Allen<br>Rochester Gas and Electric Corporation<br>Rochester, NY |
| A-96-47, IV-D-35 | 357 | D. Reiter<br>U.S. Enrichment Corporation's Paducah Gaseous Diffusion Plant,<br>Paducah, KY |
| A-96-47, IV-D-37 | 358 | D. S. Hedrick<br>Associated Electric Cooperative, Inc.<br>Springfield, MO |
| | 359 | S. Frey<br>Wisconsin Public Power Inc.<br>Sun Prairie, WI |
| | 360 | C.P. Feerick<br>Exxon Mobil |
| | 361 | J.L. Nitzschke<br>Deere & Company<br>Moline, IL |

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|---|---|---|
| | 362 | J.L. Nitzschke<br>Deere & Company<br>Moline, IL |
| | 363 | R. Merriman<br>Peru Utilities<br>Peru, IN |
| A-96-47, IV-D-123 | 364 | Attachments to OAR-2002-0058-0366 |
| A-96-47, IV-D-102 | 365 | D. Kolaz<br>Illinois Environmental Protection Agency<br>Springfield, IL |
| A-96-47, IV-D-123 | 366 | T.G. Hunt<br>American Forest & Paper Association, Inc.<br>Washington, DC |
| A-96-47, IV-D-102 | 367 | D. Kolaz<br>Illinois Environmental Protection Agency<br>Springfield, IL |
| A-96-47, IV-D-123 | 368 | Attachments to OAR-2002-0058-0366 |
| | 369 | D.R. Schregardus<br>Department of the Navy<br>Washington, DC |
| | 370 | P.A. Reinhardt<br>University of North Carolina at Chapel Hill<br>Chapel Hill, NC |
| | 371 | M.C. Frank<br>Boeing Company<br>Arlington, VA |
| | 372 | M.R. Weber<br>CMS Generation Co.<br>Dearborn, MI |
| | 373 | D.G. Koster<br>Holland Board of Public Works<br>Holland, MI |

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|---|---|---|
| | 374 | D.M. Chari<br>Rohm and Haas Company<br>Philadelphia, PA |
| | 375 | C. Clapsaddle<br>MSI/Mechanical Systems Inc.<br>Raleigh, NC |
| | 376 | J. Shefchek<br>Alliant Energy<br>Madison, WI |
| | 377 | T. LaFond<br>Battery Council International<br>Washington, DC |
| | 378 | R.G. Rao<br>Indiana Municipal Power Agency<br>Carmel, IN |
| A-96-47, IV-D-34 | 379 | J.P. Witkowski<br>South Carolina Chamber of Commerce<br>Columbia, SC |
| | 380 | L. Beal<br>Interstate Natural Gas Association of America<br>Washington, DC |
| | 381 | H.P. Quinn, Jr.<br>National Mining Association<br>Washington, DC |
| | 382 | J.C. deRuyter<br>DuPont Engineering<br>Wilmington, DE |
| | 383 | R. Kaufmann and L. Otwell<br>Georgia-Pacific Corp.<br>Atlanta, GA |
| | 384 | S. Davis<br>Pinnacle West Capital Corporation<br>Phoenix, AZ |

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|---|---|---|
| | 385 | S. Davis<br>Pinnacle West Capital Corporation<br>Phoenix, AZ |
| | 386 | S. Davis<br>Pinnacle West Capital Corporation<br>Phoenix, AZ |
| A-96-47, IV-D-122 | 387 | R. Brear<br>Domtar Industries Inc.<br>Ashdown, AR |
| | 388 | Attachments to OAR-2002-0058-0389 |
| A-96-47, IV-D-60 | 389 | J. Summers<br>Textile and Carpet Industry MACT Coalition<br>Atlanta, GA |
| | 390 | N. Burwell<br>Lansing Board of Water and Light<br>Lansing, MI |
| | 391 | Attachments to OAR-2002-0058-0389 |
| | 0392 | Attachments to OAR-2002-0058-0389 |
| A-96-47, IV-D-108 | 393 | Debra J. Jezouit<br>Counsel to the Class of '85 Regulatory Response Group<br>Washington, DC |
| A-96-47, IV-D-62 | 394 | Springs Industries |
| A-96-47, IV-D-121 | 395 | P. Maciejewski<br>General Motors Corporation<br>Troy, MI |
| | 396 | D.F. Hunter<br>ConocoPhillips<br>Houston, TX |
| | 397 | W. O'Sullivan<br>New Jersey Department of Environmental Protection<br>Trenton, NJ |

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|---|---|---|
| | 398 | M.F. Nitchals<br>Willmar Municipal Utilities<br>Willmar, MN |
| A-96-47, IV-D-61 | 399 | J.M. Geers<br>Cinergy Corp.<br>Cincinnati, OH |
| | 400 | R.D. Langford<br>Celanese Americas Corporation<br>Narrows, VA |
| A-96-47, IV-D-59 | 401 | D.C. Reeves<br>American & Efird, Inc.<br>Mt. Holly, NC |
| | 402 | K. Evans<br>Phelps Dodge Corporation<br>_____, __ |
| | 403 | S.E. Woock<br>Weyerhaeuser<br>New Bern, NC |
| | 404 | T.S. Van Til<br>Primary Power International<br>Ithaca, MI |
| | 405 | J. Wittenborn<br>Counsel to Specialty Steel Industry of North America<br>Washington, DC |
| A-96-47, IV-D-26 | 406 | J.A. Fanjul<br>Atlantic Sugar Association, Inc.<br>Belle Glade, FL |
| A-96-47, IV-D-93 | 407 | W.A. Raiola<br>United States Sugar Corporation<br>Clewiston, FL |
| A-96-47, IV-D-104 | 408 | J. Alvarez<br>Sugar Cane Growers Cooperative of Florida<br>Belle Glade, FL |

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|---|---|---|
| | 409 | W.D. Herrin<br>Southern Company<br>Birmingham, AL |
| | 410 | R. Karp<br>American Petroleum Institute<br>Washington, DC |
| | 411 | Attachment to OAR-2002-0058-0410 |
| A-96-47, IV-D-72 | 412 | M. Johnston<br>Michigan Manufacturers Association<br>Lansing, MI |
| | 413 | G. Calvo<br>Utility Air Regulatory Group<br>Washington, DC |
| | 414 | M.W. Stroben<br>Duke Energy<br>Charlotte, NC |
| A-96-47, IV-D-58 | 415 | M. Murray<br>National Wildlife Federation<br>Ann Arbor, MI |
| A-96-47, IV-D-120 | 416 | T.R. Weeks<br>San Diego County Air Pollution Control Board<br>San Diego, CA |
| | 417 | D.A. McWilliams<br>Counsel to American Municipal Power-Ohio, Inc.<br>Columbus, OH |
| | 418 | D.A. McWilliams<br>Counsel to Blast Furnace Operator Group<br>Cleveland, OH |
| | 419 | E.H. McMeekin<br>PPG Industries, Inc.<br>Allison Park, PA |
| A-96-47, IV-D-40 | 420 | T. Woods<br>Downingtown, PA |

| Docket No. | Docket ID No. OAR-2002-0058 | Commenter, Address, Title or Description |
|---|---|---|
| A-96-47, IV-D-41 | 421 | N. Kothari<br>Manitowoc Public Utilities<br>Manitowoc, WI |
| A-96-47, IV-D-42 | 422 | J. Hunter<br>City of Shelby<br>Shelby, OH |
| A-96-47, IV-D-43 | 423 | M. Green<br>Central Electric Power Cooperative<br>Chamois, MO |
| A-96-47, IV-D-44 | 424 | C. Hornback<br>Association of Metropolitan Sewerage Agencies<br>Washington, DC |
| A-96-47, IV-D-45 | 425 | J. Shumaker<br>International Paper<br>Memphis, TN |
| A-96-47, IV-D-46 | 426 | P.T. Cavanaugh<br>ChevronTexaco<br>Washington, DC |
| A-96-47, IV-D-50 | 427 | B.C. Thomas<br>Alyeska-Pipeline<br>Valdez, AK |
| A-96-47, IV-D-47 | 428 | M.Y. Kinter<br>The Graphic Arts Coalition<br>Fairfax, VA |
| A-96-47, IV-D-51 | 429 | R. McMahon<br>City of Painesville<br>Painesville, OH |
| A-96-47, IV-D-52 | 430 | R. Rawson<br>American Boiler Manufacturers Association<br>Arlington, VA |
| A-96-47, IV-D-53 | 431 | D.C. Ailor<br>American Coke and Coal Chemicals Institute<br>Washington, DC |

| Docket No. | Docket ID No. OAR-2002-0058 | Commenter, Address, Title or Description |
|---|---|---|
| A-96-47, IV-D-54 | 432 | J.M. Meriwether<br>New Hope Power Partnership<br>South Bay, FL (cover letter to 433) |
| A-96-47, IV-D-54 | 433 | J.M. Meriwether<br>New Hope Power Partnership (NHPP)<br>South Bay, FL |
| A-96-47, IV-D-112 | 434 | M. Vignovic<br>Weirton Steel Corporation<br>Weirton, WV |
| | 435 | D.G. Pauken<br>Muscatine Power and Water (MPW)<br>Muscatine, IO |
| A-96-47, IV-D-111 | 436 | M. Cooke<br>Counsel to Florida Citrus Processors Association<br>Tampa, FL |
| | 437 | S. Felton<br>AK Steel<br>Middletown, OH |
| | 438 | Arch Coal, Inc.<br>St. Louis, MO |
| A-96-47, IV-D-116 | 439 | M.C. Malott<br>Delphi Automotive Systems, LLC<br>Troy, MI |
| | 440 | R. Fellows<br>Transprint USA<br>Harrisonburg, VA |
| | 441 | J. Idzorek<br>NRG Energy, Inc.<br>Minneapolis, MN |
| A-96-47, IV-D-118 | 442 | K. Finemore<br>New Hampshire Department of Environmental Services<br>Concord, NH |
| | 443 | D.J. Krouskop<br>MeadWestvaco<br>MD |

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|---|---|---|
| A-96-47, IV-D-115 | 444 | J. Jackson<br>Boise Cascade Corporation<br>Boise, ID |
| | 445 | J.W.Shipp<br>Tennessee Valley Authority<br>Chattanooga, TN |
| | 446 | T.P. Walmsley<br>Fibrowatt LLC<br>Yardley, PA |
| | 447 | T. J. Norberg<br>Rubber Manufacturers Association<br>Washington, DC |
| A-96-47, IV-D-96 | 448 | J. Walke<br>Natural Resources Defense Council<br>Washington, DC |
| A-96-47, IV-D-119 | 449 | Council of Industrial Boiler Owners |
| | 450 | M.A. Peters<br>Counsel to American Airlines Inc.,<br>OK |
| A-96-47, IV-D-113 | 451 | EarthJustice<br>Washington, DC |
| A-96-47, IV-D-106 | 452 | G. Gesell<br>American Ref-Fuel Company<br>Montvale, NJ |
| A-96-47, IV-D-49 | 453 | Attachment to OAR-2002-0058-0454 |
| A-96-47, IV-D-49 | 454 | G. Narum<br>Simpson Tacoma Kraft Company, LLC<br>Tacoma, WA |
| A-96-47, IV-D-49 | 455 | Attachment to OAR-2002-0058-0454 |
| | 456 | M. Round<br>Northeast States for Coordinated Air Use Management<br>Boston, MA |

| Docket No. | Docket ID No. OAR-2002-0058 | Commenter, Address, Title or Description |
|---|---|---|
| | 457 | Attachment to OAR-2002-0058-0456 |
| | 458 | Attachment to OAR-2002-0058-0456 |
| | 459 | Attachment to OAR-2002-0058-0456 |
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| | 466 | Attachment to OAR-2002-0058-0456 |
| | 467 | Attachment to OAR-2002-0058-0456 |
| A-96-47, IV-D-92 | 468 | B. Sorensen<br>Packaging Corporation of America<br>Lake Forest, IL |
| A-96-47, IV-D-94, IV-D-95 | 469 | M.R. Perry<br>City of Hamilton<br>Hamilton, Ohio |
| A-96-47, IV-D-91 | 470 | D.R. Steiner<br>City of Orrville<br>Orrville, Ohio |
| A-96-47, IV-D-90 | 471 | G. Freewalt<br>City of St.Mary's<br>St. Mary’s, Ohio |
| A-96-47, IV-D-89 | 472 | S. Rentfrow<br>Crisp County Power Commission<br>Cordele, GA |
| A-96-47, IV-D-88 | 473 | J.D. Bassett<br>Vaughn-Bassett Furniture<br>Galax, VA |
| A-96-47, IV-D-87 | 474 | D.P. Maddox<br>Stanley Furniture Company<br>Stanleytown, VA |

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|---|---|---|
| A-96-47, IV-D-32 | 475 | M. Hohman<br>US Steel Corporation<br>Clairton, PA |
| A-96-47, IV-D-86 | 476 | P.A. Lacey<br>American Gas Association<br>Washington, DC |
| A-96-47, IV-D-85 | 477 | C. Jones<br>Ohio Environmental Protection Agency<br>Columbus, OH |
| A-96-47, IV-D-84 | 478 | E. Clark<br>Synthetic Organic Chemical Manufacturers Association<br>Washington, DC |
| A-96-47, IV-D-83 | 479 | N. Dee<br>National Petrochemical & Refiners Association<br>Washington, DC |
| A-96-47, IV-D-82 | 480 | T. Shonkwiler<br>Duncan, Weinberg, Genzer and Pembroke<br>Washington, DC |
| A-96-47, IV-D-81 | 481 | R.P. Hornrighausen<br>City of Dover<br>Dover, OH |
| A-96-47, IV-D-80 | 482 | D.R. Adams<br>Wisconsin Electric Power Company<br>Milwaukee, WI |
| A-96-47, IV-D-33 | 483 | O.M. Dominguez<br>National Aeronautics and Space Administration<br>Washington, DC |
| A-96-47, IV-D-38 | 484 | J.J. Lyphout<br>University of Notre Dame<br>Notre Dame, IN |
| A-96-47, IV-D-79 | 485 | M.Martinez<br>Merck & Co., Inc.<br>Whitehouse Station, NJ |

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|---|---|---|
| A-96-47, IV-D-78 | 486 | R.J. Barkanic<br>PPL Services Corp.<br>Allentown, PA |
| A-96-47, IV-D-77 | 487 | W.C. Herz<br>The Fertilizer Institute<br>Washington, DC |
| A-96-47, IV-D-29 | 488 | J.R. Strenkowski<br>Counsel to Association of Battery Recyclers Inc.<br>Washington, DC |
| A-96-47, IV-D-76 | 489 | R.P. Streiter<br>The Aluminum Association, Inc.<br>Washington, DC |
| A-96-47, IV-D-75 | 490 | G.J. Dana<br>Alliance of Automobile Manufacturers<br>Washington, DC |
| A-96-47, IV-D-74 | 491 | R.W. Schenker<br>General Electric Company<br>Fairfield, CT |
| A-96-47, IV-D-73 | 492 | J.J. Mayhew<br>American Chemistry Council<br>Arlington, VA |
| | 493 | Attachment to OAR-2002-0058-0448 |
| | 494 | Attachment to OAR-2002-0058-0448 |
| | 495 | Attachment to OAR-2002-0058-0448 |
| | 496 | Attachment to OAR-2002-0058-0448 |
| A-96-47, IV-D-39 | 497 | B. Perdue<br>American Furniture Manufacturers Association<br>High Point, NC |
| A-96-47, IV-D-109 | 498 | J.W. Snyder<br>The Corn Refiners Association, Inc.<br>Washington, DC |
| A-96-47, IV-D-117 | 499 | P.F. Faggert<br>Dominion<br>Glen Allen, VA |

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|---|---|---|
| A-96-47, IV-D-114 | 500 | J. Carson<br>Ispat Inland, Inc.,<br>East Chicago, IN |
| | 501 | D.A. Buff<br>The Florida Sugar Industry<br>Gainesville, FL |
| A-96-47, IV-D-55 | 502 | E. Bulgin<br>The Amalgamated Sugar Company, LLC<br>Nampa, ID |
| A-96-47, IV-D-23 | 503 | W.S. Kubiak<br>US Steel Corporation<br>Pittsburgh, PA |
| A-96-47, IV-D-27 | 504 | W.S. Unruh<br>US Steel Corporation<br>Fairfield, AL |
| A-96-47, IV-D-68 | 505 | J. Alexander<br>US Steel Corporation<br>Gary, IN |
| A-96-47, IV-D-67 | 506 | J.F. Stevens<br>City of Vero Beach<br>Vero Beach, FL |
| A-96-47, IV-D-66 | 507 | M.E. Ludecker<br>Wood Mode, Inc.<br>Kreamer, PA |
| A-96-47, IV-D-65 | 508 | C.R. Titus<br>Kitchen Cabinet Manufacturers Association<br>Reston, VA |
| A-96-47, IV-D-30 | 509 | W.E. Schwandt<br>Moorehead Public Service<br>Moorhead, MN |
| A-96-47, IV-D-64 | 510 | P.A. Bennett<br>Molded Fiber Glass Companies<br>Ashtabula, OH |

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|---|---|---|
| A-96-47, IV-D-132 | 511 | W.B. Vaughan<br>Vaughan Furniture Company<br>Galax, VA |
| A-96-47, IV-D-135 | 512 | A. Johnston<br>Clean Air Task Force<br>Boston, MA |
| A-96-47, IV-D-133 | 513 | J.R. Groves<br>Century Furniture Industries<br>Hickory, NC |
| A-96-47, IV-D-134 | 514 | P.W. Craymer<br>Bernhardt Furniture Co.<br>Lenoir, NC |
| A-96-47, IV-D-22 | 515 | R. Hahn<br>Jones-Hamilton Co.<br>Walbridge, OH |
| A-96-47, IV-D-99 | 517 | G.L. Kiser<br>La-Z-Boy, Inc.<br>Monroe, MI |
| A-96-47, IV-D-100 | 518 | J.H. Beall<br>Fairfield Chair Company<br>Lenoir, NC |
| A-96-47, IV-D-101 | 519 | D.L. Chapman<br>Goodyear Tire & Rubber Company<br>Akron, OH |
| A-96-47, IV-D-103 | 520 | A. Lawrence<br>Department of Energy (DOE)<br>Washington, DC |
| A-96-47, IV-D-97 | 521 | W. Kjonaas<br>Purdue University<br>West Lafayette, IN |
| A-96-47, IV-D-98 | 522 | R.M. Ridgway<br>Coalition of University Coal-fired Boiler Owners<br>West Lafayette, IN |

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|---|---|---|
| A-96-47, IV-D-72 | 523 | M. Johnston<br>Michigan Manufacturers Association<br>Lansing, MI |
| A-96-47, IV-D-107 | 524 | S. H. Bruntz<br>Alcoa Power Generating Plant - Warrick Power Plant<br>Newburgh, IN |
| A-96-47, IV-D-28 | 525 | T. Mangum<br>Drexel Heritage<br>High Point, NC |
| A-96-47, IV-D-124 | 526 | H. Martin<br>Pennsylvania House, Inc.<br>Lewisburg, PA |
| A-96-47, IV-D-125 | 527 | D.C. Foerter<br>Institute of Clean Air Companies, Inc.<br>Washington, DC |
| A-96-47, IV-D-126 | 528 | M. Carey<br>Ohio Coal Association<br>Columbus, OH |
| A-96-47, IV-D-127 | 529 | R.C. Methier<br>Georgia Dept. of Natural Resources<br>Atlanta, GA |
| A-96-47, IV-D-128 | 530 | M.R. Benoit<br>Cement Kiln Recycling Coalition<br>Washington, DC |
| A-96-47, IV-D-129 | 531 | S. M. Kincaid<br>Kincaid Furniture Company, Inc.<br>Hudson, NC |
| A-96-47, IV-D-130 | 532 | J. M. Daniel<br>Virginia Department of Environmental Quality<br>Richmond, CA |
| A-96-47, IV-D-131 | 533 | R. Purdue<br>Citizens Thermal Energy<br>Indianapolis, IN |

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|---|---|---|
| A-96-47, IV-D-63 | 534 | W.J. Haley<br>Miami University<br>Oxford, OH |
| A-96-47, IV-D-136 | 535 | P. McPherson<br>Michigan State University<br>East Lansing, MI |
| A-96-47, IV-D-48 | 536 | T. Pugh<br>American Public Power Association<br>Washington, DC |
| A-96-47, IV-D-105 | 537 | W.M. Barfield<br>South Carolina Pulp & Paper Association<br>Bennettsville, SC |
| A-96-47, IV-D-71 | 538 | D.J. Harvey<br>Louisiana Pacific Corporation<br>Portland, OR |
| | 539 | T.J. O'Toole<br>U.S. Steel - Mon Valley Works<br>Dravosburg, PA |
| | 540 | S.E. Woock<br>Weyerhaeuser<br>New Bern, NC |
| | 541 | W. OSullivan<br>New Jersey Department of Environmental Protection<br>Trenton, NJ |
| | 542 | Ohio Department of Development<br>_____, OH |

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- 16.1 Executive Order 12866
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- 17.3 Miscellaneous

## 3.0 Definitions

Comment: One commenter (343) requested that EPA clarify the definition for "reconstructed affected source." The commenter recommended that EPA add wording to clarify that if a facility reconstructed boilers or process heaters while an area source, that these units would also be classified as existing affected sources in the event that the facility's status later changes to a major source of HAP.

Response: The final rule clarifies the requirements for area sources that become major sources. In §63.7495(c)(2) of the final rule, EPA allows an existing boiler or process heater located at an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP to comply with the subpart within 3 years of the facility becoming a major source. The reconstructed source is defined in 63.7490(c) as "A boiler or process heater is reconstructed if you meet the reconstruction criteria as defined in §63.2 of subpart A of this part, you commence reconstruction after January 13, 2003, and you meet the applicability criteria at the time you commence reconstruction." The applicability criteria includes the provision that an affected source is located at a major source of HAP emissions. Therefore, if you reconstruct a boiler or process heater at an area source, then the source would not meet the definition of a reconstructed source for the purposes of this subpart since it did not meet the applicability criteria at the time you commenced reconstruction (i.e., it was not located at a major source of HAP emissions). In this case, the boiler or process heater would be considered an existing source in the event a facility later becomes a major source of HAP emissions since it did not meet the definition of reconstructed source under this subpart.

Comment: One commenter (491) stated that Subpart DDDDD inconsistently uses the terms "source" and "affected source." The commenter stated that the rule applies to an "affected source," a term defined in §63.2 of the General Provisions. The commenter stated that the term "source" is not defined and therefore has an uncertain meaning. The commenter stated that the rule should avoid use of the term "source" and be consistent and accurate in the appropriate use of the term "affected source."

Response: In the final rule, we clarified the definition of affected sources for the purposes of this subpart. For existing sources, the affected source is the collection of affected boilers and the collection of affected process heaters. For new sources, each boiler and process heater is considered an affected source. We also modified the language in the final rule to be more consistent with terminology and adopted the term "boiler or process heater" when discussing individual units.

Comment: Several commenters (346, 360, 364, 382, 392, 387, 388, 399, 400, 410, 419, 449, 479, 490, 492, 498, 523, 524, 533) suggested that EPA revise the proposed definition of affected source to be consistent with the definition of affected source in the General Provisions. The commenters added that the affected source would then be the collection of industrial, commercial, or institutional boilers and process heaters located at a major source of HAP emissions. The definition in the rule is much more narrow than that in the General Provisions, even though the General Provisions states that each standard will redefine "affected source" based on published justification as to why the definition would result in significant administration, practical or implementation problems. The commenters argued that EPA failed

to provide justification for the proposed definition of affected source, which is narrower than the definition of affected source in the General Provisions.

Response: We agree with the commenters and in the final rule have incorporated the broader definition of affected source from the revised General Provisions. The General Provisions define the affected source as "the collection of equipment, activities, or both within a single contiguous area and under common control that is included in a section 112© source category or subcategory..." Therefore, the definition of existing affected source in the final rule is the collection of existing industrial, commercial, or institutional boilers and process heaters within a subcategory located at a major source of HAP emissions.

Comment: One commenter (491) stated that two or more boilers with a common fuel feed system, common baghouse and/or common stack should be considered a single affected source. The commenter stated that requiring separation of boiler coal feed and combustion emission streams just for the purpose of complying with a rule written with the perspective of a single boiler or process heater is onerous and unreasonable. The commenter suggested changing the definition of boiler in §63.7575 to read, "Boiler means an enclosed device using controlled flame combustion and having the primary purpose of recovering thermal energy in the form of steam or hot water. More than one enclosed device using controlled flame combustion and having the primary purpose of recovering thermal energy in the form of steam or hot water, and sharing the same fuel feed system, control equipment, and/or emissions stack are considered to be a boiler if designated as such in the Notification of Compliance Status. Waste heat boilers are excluded from this definition." In addition, the commenter stated that the information required to be included in the Notification of Compliance Status pursuant to §63.7545 needs to be expanded as follows: (f) If you designate two or more enclosed devices using controlled flame combustion and having the primary purpose of recovering thermal energy in the form of steam or hot water, that share the same fuel feed system, control equipment and/or emissions stack, to be a boiler, you must define those devices comprising the boiler in the Notification of Compliance Status report.

Response: In the final rule, we revised the definition of existing affected source to be the collection of existing industrial, commercial, or institutional boilers and process heaters within a subcategory located at a major source of HAP emissions. We believe this change will resolve the commenter's concerns. Furthermore, we modified the fuel monitoring provisions of the rule from requiring daily fuel monitoring to requiring monthly fuel monitoring. This should provide relief for facilities that have units that share various components.

Comment: The commenter (492) suggested the term "deviation" should be changed to "excursion" to avoid confusion with Title V operating permit requirements and for consistency with other NESHAP (e.g., HON).

Response: We disagree with the commenter's suggestion. We recognize that the term excursion was used in the HON and other MACT rules. However, EPA's current policy is to use the term deviation to describe variances from the regulation. Anything not meeting the requirements from the standard is considered a deviation from the standard. We would like to clarify that deviations are only considered violations if the regulatory authority determines them to be violations of the standard.

Comment: Two commenters (447, 519) expressed concern over the EPA proposed definition of distillate oil. The commenter explained that the proposed rule defines distillate oil

as fuel oil number 1 or 2 as defined by American Society for Testing and Materials (ASTM) with a nitrogen content of 0.05 or less. The commenters noted that the proposed rule references ASTM standard D396-78, which was the 1978 version. The commenters requested that EPA modify that reference to the most recent ASTM standard D396-02a. Secondly, the commenters noted that neither the specification nor the EPA includes a test method for determining nitrogen content. The commenters also questioned EPA's rationale in establishing a nitrogen content limit because EPA has not given any indication that nitrogen content is related to HAP emissions. The commenters believe that it is not appropriate to regulate distillate oils that have a nitrogen content higher than 0.05 percent as a residual fuel oil. The commenters requested that EPA delete any reference to nitrogen content in the distillate fuel oil definition. The commenter also stated that some fuel suppliers have been reluctant to certify that the oil they are supplying meets a certain ASTM specification. The commenters requested that EPA revise the proposed rule to allow for alternative means of demonstration that a boiler is consuming only non-residual, or distillate oil. One commenter (529) questioned the definitions of "distillate oil" and "residual oil", asking for the purpose of using nitrogen content to determine fuel oil categories. One commenter (478) requested that EPA revise the definition of residual oil to not include number 2 oil.

Response: In the final rule, we removed the nitrogen specifications that were contained in the proposed definitions of distillate and residual oil. We agree with the commenters that fuel oil should not be differentiated in this standard based on nitrogen content because such delineations are not appropriate for a standard regulating hazardous air pollutants. We also updated the ASTM standard reference for oil type determination. We believe that the proposed requirements for demonstrating whether you are not burning any residual oil is appropriate and did not change that requirement in the final rule. While fuel suppliers may not certify whether their oil meets an ASTM standard, suppliers typically categorize by ASTM oil numbers or by common names (e.g., residual oil, distillate oil, kerosene, diesel).

Comment: One commenter (491) stated that the inclusion of "spray dryer" in the definition of dry scrubber is not necessary and adds confusion regarding the activity that is being defined. The commenter stated that in chemical manufacturing operations, a spray dryer typically refers to a unit operation other than scrubbing or emissions control. The commenter suggested the definition be clarified by either removing "spray dryer" or replacing it with another descriptive term as shown below: Dry scrubber means an add-on air pollution control system that injects dry alkaline sorbent (dry injection) or sprays an alkaline sorbent (spray injection) to react with and neutralize acid gas in the exhaust stream, forming a dry powder material.

Response: We retain the term "spray dryer" in the definition of dry scrubber because in some cases it does refer to a type of emission control device. Since there are no regulatory impacts of keeping this term in the definition and the context in which it is discussed clearly categorizes it as an emission control device, we do not believe that removing the term is justified.

Comment: One commenter (370) requested clarification of the definition of dry scrubber, which does not clearly include dry sorbent injection in circulating fluidized-bed boilers as a dry scrubber. The commenter requested circulating fluidized-bed boiler units with limestone and caustic sorbent injection to be considered control for inorganic acid gases. If the EPA does not intend to include circulating fluidized-bed boilers with sorbent injection, then the

commenter requested modification of the definition or modification of the rule.

Response: In the final rule we included sorbent injection systems in fluidized bed boilers in the definition of dry scrubbers. Since this type of control may be used to achieve compliance with the emission limits in this NESHAP, including sorbent injection systems will result in the sorbent injection rate being considered an operating limit for the purposes of ongoing compliance demonstrations.

Comment: One commenter (358) contended that EPA has redefined a utility boiler incorrectly by applying heat input to generator output.

Response: The definition of electric utility steam generating unit in the proposal and in the final rule is consistent with the definition in section 112 of the CAA and in other EPA regulations. Since the definition is consistent with the CAA section that mandates the NESHAP program, we retain it in the final rule.

Comment: One commenter (529) questioned the definition of "biomass fuel," asking if wood residue and wood products include wood that contains some type of binder.

Response: In the final rule, we clarify that biomass fuel includes unadulterated wood products. Plywood, particle board, oriented strand board, and other types of wood products bound by glues and resins are included in this definition. If the wood residue or wood product contains only binders and is not painted, pigment-stained, or pressure treated with compounds such as chromate copper arsenate, pentachlorophenol, and creosote, then it is considered to be biomass.

Comment: One commenter (491) requested that EPA clarify the definitions of fuels to indicate that solid, liquid, and gaseous fuels are fuels and are not chemical feedstocks or something else. The commenter suggested the following clarifications:

I. Solid fuel means fuel in solid form and includes, but is not limited to, coal, wood, biomass, tires, plastics, and other non-fossil solid materials.

II. Gaseous fuel means fuel in gaseous form and includes, but is not limited to, natural gas, synthetic natural gas, process gas, refinery gas, gasified coal, biogas, and landfill gas, but does not include process vent streams burned to achieve emission control.

III. Liquid fuel means fuel in liquid form and includes, but is not limited to, distillate oil, residual oil, waste oil, and process liquids.

Response: We do not agree with the commenter's suggestion and retain the proposed definition for solid, liquid, and gaseous fuels in the final rule. We intended for the terms solid, liquid, and gaseous fuels to mean anything that is burned in a boiler or process heater. For example, if we incorporated the commenter's suggestion, a boiler that burns solid chemical feedstock and natural gas would be considered a gaseous fuel-fired units, and would not have any emission limits. Since the solid chemical feedstock may contain regulated pollutants, by retaining the proposed definition of solid fuel, we at least require them to conduct a fuel analysis to determine if the pollutant content is lower than any applicable emission limit for solid fuel-fired units.

Comment: Two commenters (490, 491) stated that the definition of "gaseous fuel" needs to be modified to clarify that synthetic natural gas, gasified coal, and landfill gas are gaseous fuels so that boilers that fire these fuels will be considered to be in one of the gaseous fuel subcategories and not subject to emission limits. One commenter (490) stated that these fuels are gaseous and act like gaseous fuels in boilers. The commenter suggested revising §63.7575 as follows: Gaseous fuel means fuel in gaseous form and includes, but is not limited to natural gas, synthetic natural gas, process gas, refinery gas, gasified coal, biogas, and landfill gas, but does not include process vent streams burned to achieve emission control. The other commenter (491) suggested that §63.7575 be changed as follows: Coal means synthetic fuels, other than synthetic natural gas and gasified coal, derived from coal for the purpose of creating useful heat including, but not limited to, solvent-refined coal, coal-oil mixtures, and coal-water mixtures, are included in this definition for the purpose of this subpart. Two commenters (335,336) suggested that the definition of gaseous fuels should be revised by adding coke oven gas (COG) and blast furnace gas (BFG) to the list of included gases to avoid confusion.

Response: We agree with the commenters' suggestion for the definition of gaseous fuels and have modified the final rule to include these other gas types into the definition of gaseous fuel. With regard to blast oven gas, we have exempted units from this standard if they burn more than 90 percent blast furnace gas on an annual basis. Based on information provided by commenters, EPA agrees that blast furnace gas does not contain organic compounds and is comprised mostly of CO.

Comment: One commenter (491) urged EPA to provide that a process vent stream, which is routed to a boiler that serves as an emission control device, is not considered to be fuel for purposes of the boilers NESHAP. In addition, the commenter suggested that the gaseous fuel definition be changed to read, "Gaseous fuel includes, but is not limited to, natural gas, process gas, refinery gas, and biogas, but does not include process vent streams burned to achieve emission control."

Response: We disagree with commenters' suggestion for the definition of gaseous fuels. As we explained in the previous comment, we intended to consider any gas burned in a boiler or process heater as a fuel, with the exception of blast furnace case. We do not believe that this is an issue, since existing gaseous fuel-fired units do not have any emission limits, and new gaseous fuel-fired units only have a carbon monoxide work practice standard.

Comment: One commenter (529) stated that because the term "other gases" is not defined in §63.7575, it is assumed that the defined term "gaseous fuel" is consistent with the term "other gases." However, boilers and process heaters in one of the liquid fuel subcategories burning fossil fuels and other gases are not required to conduct a performance test. The commenter believed that allowing unspecified process gases to be combusted without determining compliance with standards provides no assurance of compliance.

Response: In the rule, the use of the term other gases was intended to mean gaseous fuels as defined in §63.7575. However, in developing the MACT floor for the boilers and process heaters subject to this NESHAP, there was no floor level of control. Therefore, no emission limits were applied to gaseous fuel-fired units.

Comment: Several commenters (374, 388, 416, 449, 478, 491, 492, 498, 524, 533) requested that EPA revise the definition of hot water heaters to include liquid fuel-fired hot water heaters and to adopt the higher pressure and temperature standards for hot water heaters

published by the American Society of Mechanical Engineers (i.e., 160 p.s.i. and 250 degrees Fahrenheit).

Response: In the final rule, we included liquid fuel-fired water heaters under the definition of hot water heaters. However, we have retained the proposed temperature and pressure limitations for hot water heaters.

Comment: Several commenters (347, 353, 360, 364, 374, 379, 382, 387, 388, 396, 399, 400, 410, 439, 447, 449, 479, 482, 483, 485, 487, 490, 491, 492, 498, 519, 523, 524, 533) requested that EPA revise the definition of gaseous fuel-fired units to allow a minimum annual capacity utilization (hours of operation per year) on fuel oil, below which the affected unit would be classified as a gaseous fuel unit. The commenters explained that liquid fuel is used for a backup during periods of gas curtailment, gas supply emergencies, and other gas supply issues. Several commenters stated that the rule should specifically redefine gaseous fuel units to include units that have an annual capacity utilization on fuel oil of less than or equal to 10 percent (876 hours per year). One commenter (487) also requested that this exemption include periodic testing to ensure available and reliable fuel switching when needed. One commenter (483) cited Model Unit Development Memorandum, Docket A-96-47 item II-B-6, because EPA concluded that units burning natural gas and Number 2 fuel oil would burn Number 2 fuel oil only as a backup fuel due to its costs and EPA assigned these units to the gas category. The commenter explained that incorrect assignment of these types of units into the liquid fuel subcategory would lead to unnecessary reporting and recordkeeping. One commenter (439) argued that imposing the particulate matter and hydrogen chloride limitations at all times for units that may burn liquid fuel less than one time annually is impractical and could result in higher emissions due to compliance testing that may take place more often than the alternative fuel is actually used. One commenter (410) noted that a number of California air pollution control districts provide for relaxation of emission limitations in recognition of natural gas curtailment.

Response: We agree with the commenters that an allowance needs to be made to deal with periods of gas curtailment and gas supply emergencies. We recognize that such situations do not constitute normal operation, but are the result of extreme situations that are not controlled by the unit operator. Therefore, the final rule allows gaseous fuel-fired boilers and process heaters to burn liquid fuel only during periods of gas curtailment or gas supply emergencies. We added a definition of "period of gas curtailment or supply interruption" and the final definitions of liquid fuel subcategory excludes units that burn liquid fuel during periods of gas curtailment or gas supply emergencies. We do not provide an allowance for units to test liquid fuel delivery systems as sources should maintain those systems during normal maintenance activities.

Comment: One commenter (519) requested that EPA modify the definition for new liquid fuel-fired units so that units that fire residual oil less than 10 percent of the unit's capacity utilization would be subject to only the limited use standards.

Response: We do not believe any change is necessary for the final rule. The proposed and final rule states that "Limited use liquid fuel subcategory includes any boiler or process heater that....has a federally enforceable annual average capacity factor of equal to or less than 10 percent." We consider the definition to clearly identify units that are a part of the limited use subcategory. We also disagree with redefining liquid subcategories based on residual oil use only. While distillate oil and other liquids fired in boilers and process heaters are exempt from many of the rule requirements, these fuels are still liquids and units burning them alone or in combination with a gaseous fuel should be considered when determining subcategories.

Comment: Several commenters (364, 382, 387, 388, 399, 440, 449, 473, 474, 479, 492, 497, 498, 511, 513, 514, 517, 518, 524, 525, 526, 531, 533 ) supported the inclusion of firetube boilers in the small solid fuel subcategory definition. In addition, many other commenters (343, 345, 382, 388, 440, 449, 479, 492, 498, 524, 533) requested that EPA add fire-tube boilers to the definition of small liquid- or gas-fueled units.

Response: We agree with the commenters' request to add firetube boilers to the definition of small liquid fuel and gaseous fuel subcategories and have incorporated these changes in the final rule.

Comment: One commenter (490) stated that according to §63.7575, "process heater means an enclosed device using controlled flame, and the unit's primary purpose is to transfer heat indirectly to a process stream (liquid, gas, or solid) or to a heat transfer material for use in a process unit instead of generating steam. Process heaters are devices in which the combustion gases do not directly come into contact with process materials." The commenter interpreted that units used for providing space heating are not process heaters. The commenter requested confirmation that this interpretation was correct. The commenter stated that if EPA should disagree with this interpretation, or for some reason decide to cover these space heaters in the rule, the Agency's cost analysis must be significantly revised upward due to the huge capital and recordkeeping costs that would be imposed. Two commenters (371, 428) recommended that the process heater definition be revised to exclude make-up air, room air, space, or comfort heaters, as well as heating devices for preparation of food. One commenter (428) recommended that the process heater definition be revised to include an explicit definition of a process unit. The commenter stated that without the definition of a process unit, there exists a very strong possibility that the regulation might be incorrectly applied to sources such as space and comfort heaters. One commenter (491) stated that the definition of "process heater" is sufficiently broad that one might interpret that indirect fired furnaces, autoclaves, dryers, etc. are process heaters. The commenter suggested revising §65.7575 as follows: "Process heater means an enclosed device using controlled flame, and the unit's primary purpose is to transfer heat indirectly to a process stream (liquid, gas, or solid) by way of a heat transfer material instead of generating steam. Process heaters are devices in which the combustion gases do not come in contact with process materials. Indirect fired process units such as furnaces, autoclaves, dryers, etc. are not process heaters."

Response: We agree that comfort heaters and other types of units discussed by the commenters should not be subject to this NESHAP. It was not EPA's intention to regulate such systems in this standard. The majority of these systems are gas-fired and are very small. Therefore, in the final rule we specifically excluded comfort heaters, space heaters, units used for food preparation for on-site consumption, and autoclaves from the definition of process heaters.

Comment: One commenter (488) stated that the definition of process heater would include any enclosed device using a controlled flame where the unit's primary purpose is to transfer heat indirectly to a process material, instead of generating steam. The commenter stated that this definition could be interpreted to suggest that the boiler NESHAP applies to refining kettles at secondary lead smelters, which are already subject to the Secondary Lead MACT. The commenter suggested changing the language in §63.7490(b)(9) to read "A refining kettle that is an affected source under 40 CFR part 63, subpart X."

Response: We do not intend for the boilers NESHAP to affect units that are already

regulated by another NESHAP. We clarified the applicability section of the final rule to ensure that this does not happen. Furthermore, §63.7490 (b)(9) specifically excludes refining kettles covered by 40 CFR part 63, subpart X. We believe this to be sufficient and do not believe any further explanation/changes are necessary for this specific piece of equipment.

Comment: One commenter (410) noted that the definition of process heater in §63.7485(a) is not identical to the one in the definitions section of the rule and requested that the definition include heat transfer fluids.

Response: We have removed the boiler and process heater definitions from §63.7485(a) and only provide definitions for boilers and process heaters in §63.7575.

## 4.0 APPLICABILITY

### 4.1 General

Comment: One commenter (427) suggested a model to discretely define high-risk urban areas at significantly lower costs than are in the proposed rule. The commenter also suggested limiting the rule's applicability to solid fuel fired sources. The commenter added that a facility would then be required to install whatever control device is necessary to comply and develop a site-specific operation and maintenance plan that details how the source will be monitored and the device maintained. The commenter continued that sources would perform an initial test to validate monitoring parameters, and compliance with the operation and maintenance plan would constitute compliance with the MACT standard. The commenter added that control device performance summaries and excess emission reports could be summarized and submitted on an annual basis.

Response: We disagree with the commenter. The CAA does not allow us to focus emission standards on only high-risk urban areas in the NESHAP program. Additionally, we do not believe there is any legal justification for regulating only solid fuel-fired units. The source category list does not differentiate boilers by fuel, but refers to all industrial boilers and all institutional and commercial boilers. We believe that the final rule meets the requirements of the CAA, but also limits the burden on subcategories where the MACT floor analysis indicates no emission reduction was determined. These subcategories include gas and liquid fuel-fired units. Under the residual risk program outlined in section 112(f) of the CAA, we will review emissions from this subcategory and promulgate additional standards if necessary to provide an ample margin of safety to protect public health. With regard to compliance, you may use whatever control device or strategy you choose to meet the emission limits of this rule. You are not required to use the MACT floor level of control, but you are required to meet the emission limits that were based on the MACT floor level of control. We also allow you to petition the Administrator for approval of an alternative monitoring plan under §63.8(f) of subpart A of part 63 if you want to develop a site-specific monitoring plan that is different from those contained in the final rule.

Comment: One commenter (491) stated that boilers and process heaters located at area sources of HAP do not significantly impact air quality. The commenter supports limiting the boilers NESHAP applicability to a boiler or process heater that is located at a major source of HAP. However, another commenter (397) noted that similar sources affected by the boilers NESHAP also exist at area sources and would not be regulated by this NESHAP. The commenter expressed concern that the health risks from units located at nonmajor sources would be the same as those located at major sources, yet would go unregulated.

Response: Per the requirements in section 112(d) of the CAA, the boilers NESHAP regulates only units located at major sources. We realize that similar sources affected by this rule also exist at area sources and are not regulated under this rule. However, EPA is also studying emissions from boilers and process heaters located at area sources. We will use the results of this study to make a decision on whether to regulate units located at area sources. We anticipate completing this study and determining if boilers and process heaters located at area sources should be regulated in the near future.

Comment: One commenter (491) stated that the boilers NESHAP attempts to establish rule applicability in §63.7485 and §63.7490. The commenter stated that this complicates the

understanding of applicability because it defines terms in the applicability sections that already have defined meanings arising from the definitions established in §63.7575 and §63.2. The commenter stated that terms appearing in applicable rule definition sections should not be redefined in another section of the rule. The commenter stated that redefining terms in §63.7485 creates confusion and adds unnecessary narrative. The commenter suggested that EPA clarify §63.7485 as follows: "You are subject to this subpart if you own or operate an industrial, commercial, or institutional boiler or process heater, as defined in §63.7575, that is located at, or is part of , a major source, as defined in §63.2, except as specifically exempted in §63.7490." In addition, the commenter stated that the above change would require that §63.7490(b) be revised as follows: "The affected source is each industrial, commercial, or institutional boiler or process heater, as defined in §63.7575, that is not one of the types of combustion units listed in §63.7490(b) (1) through (10)."

Response: We agree with the commenters that the applicability section and definitions in the proposed rule overlap and may not be consistent with each other. In the final rule, we removed definitions from the applicability section and present them in only the definitions section of the final rule or refer you to the definitions contained in the General Provisions (subpart A of part 63).

Comment: One commenter (485) noted that §63.7495(c)(1) is redundant with (a)(1) and (2), is unnecessary, and should be removed. The commenter also requested that §63.7495(c)(2) be included into §63.7495(b).

Response: We disagree with the commenter and made only minor changes to this section in the final rule. The provisions contained in §63.7495(c) address compliance schedules for facilities that are area sources at the time the final rule is promulgated, but become major sources at a later date. The provisions in §63.7495(a) and (b) outline the compliance schedule for sources at facilities that are major sources at the time the final rule is published.

Comment: One commenter (369) requested that EPA clarify that sources reconstructed before January 13, 2003 are subject to the proposed rule's existing affected source requirements and not subject to the proposed rule's reconstructed affected source requirements. The commenter pointed out that the rule's applicability to reconstructed affected sources would not be limited to those reconstructed after the proposed rule's publication date based on the proposed rule. The commenter believes this would unreasonably limit the number of affected sources that would qualify as an existing affected source.

Response: In the final rule, we clarify that sources that commence reconstruction before January 13, 2003 would be considered existing sources under this NESHAP. In the proposal, we inadvertently did not include a trigger date for reconstructed sources.

Comment: Two commenters (374, 400) requested that EPA clarify that if units that commence construction or reconstruction before January 13, 2003 and become subject to this standard after promulgation due to a change in operation (e.g., no longer burn hazardous waste) would fall under the existing source category and not be classified as a new source. One commenter (374) proposed rule language to address this clarification.

Response: In the final rule, §63.7490(d) and (e) state that you are a new or reconstructed source if you commence construction or reconstruction after January 13, 2003 AND you meet the applicability criteria at the time you commenced construction or reconstruction. Furthermore, §63.7490(f) states that a source is existing if it does not meet the definition of new

or reconstructed. Based on these revisions, it is clear that any source that commences construction or reconstruction on or before January 13, 2003 is considered an existing source. Also, since the source the commenter alluded to was considered a hazardous waste boiler at the time of construction or reconstruction, it would be considered an existing source because the definitions of new and reconstructed units contained in §63.7490(d) and (e) state that you must meet the applicability requirements of this NESHAP at the time you commenced construction or reconstruction. As the source was subject to the hazardous waste NESHAP at the time it commenced construction or reconstruction, and did not meet the applicability requirements of this NESHAP at that time, any change in operation that would result in that source becoming subject to this NESHAP as an existing source.

Comment: One commenter (492) suggested that EPA clarify for the boilers NESHAP that retrofitting and control costs to comply with the boilers NESHAP are not considered reconstruction costs. The commenter proposed that the boilers NESHAP include language similar to that found in the Hazardous Waste Combustor NESHAP (40 CFR 63.1206(a)(2)).

Response: We agree with the commenter that retrofits and control equipment costs incurred in complying with the boilers NESHAP should not be considered reconstruction costs. This consideration is consistent with previous EPA regulatory decisions.

Comment: One commenter (410) requested EPA clarify that the components to be considered in judging whether reconstruction has occurred should include the entirety of the boiler or process heater, and that reconstruction must involve replacement of boiler or heater components amounting to 50 percent or more of the cost of the entire comparable new boiler or heater. The commenter provided a list of equipment components that are part of boilers and process heaters.

Response: In the general provisions to 40 CFR part 63, reconstruction is defined as: *"Reconstruction,* unless otherwise defined in a relevant standard, means the replacement of components of an affected or a previously nonaffected source to such an extent that: (1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable new source; and (2) It is technologically and economically feasible for the reconstructed source to meet the relevant standard(s) established by the Administrator (or a State) pursuant to section 112 of the [Clean Air] Act. Upon reconstruction, an affected source, or a stationary source that becomes an affected source, is subject to relevant standards for new sources, including compliance dates, irrespective of any change in emissions of hazardous air pollutants from that source." Based on this definition and the definition of affected source in the final rule, you would have to spend 50 percent or more of the cost of the collection of all your affected existing boilers or the collection of all your existing process heaters to trigger reconstruction. Given the broad definition of existing affected source in the final rule, we do not specifically identify components that are considered in judging whether reconstruction has occurred. We have clarified in other responses to comments that retrofits and control equipment costs incurred in complying with the boilers NESHAP should not be considered reconstruction costs.

### 4.2 Exemptions

Comment: One commenter (491) stated that natural gas used to maintain coal boiler igniter/pilot flame controls should be excluded from the regulation. The commenter stated that requirements to account for such small uses of gas (e.g., in various recordkeeping, reporting,

compliance determinations, and calculations in §63.7530(c)) is onerous and has a negligible impact on environmental protection. The commenter suggested that EPA simplify recordkeeping, reporting, and compliance determination by excluding accounting for *de minimis* fuel burned for igniter/pilot flame controls from the rule.

Response: We do not specifically exclude fuel used to maintain pilots or for flame control. In the final rule, we most liquid and gaseous fuel-fired units are not subject to fuel monitoring requirements. We also reduced fuel monitoring frequency to once a month for sources that are required to monitor fuel use. Given these changes, we believe that the fuel monitoring burden is not significant. Furthermore, the amount of fuel used for these purposes may not be the same from source to source and some sources may also use these fuels as a significant source of heat input.

Comment: Several commenters (402, 410, 479, 490) requested that EPA exempt units that are used to achieve emission reductions or are required for emission control. Several commenters (410, 479, 490) requested an exemption for incinerators, thermal oxidizers, and flares that are required or selected to comply with pollution regulations. They also requested exemption for flares installed for safe disposal of flammable gases released from a process unit due to abnormal process conditions. One commenter (402) noted that pre-heaters for sulfuric acid plants used for emission control at copper smelting plants may be subject to the proposed NESHAP, but compliance with the emission standards and work practice requirements may interfere with the effectiveness of the acid plant as a pollution control device under the Copper Smelting NESHAP.

Response: The final rule clarifies that equipment that are included as part of the affected source in another NESHAP are not subject to the boilers NESHAP. However, we do not exempt boilers and process heaters that are used as control devices unless they are specifically considered part of another NESHAP's definition of affected source. Incinerators, thermal oxidizers, and flares do not generally fall under the definition of a boiler or process heater and would not be subject to this rule. However, if one of these types of units are subject to this rule, they typically burn gaseous and liquid fuels and existing sources firing gaseous and liquid fuels do not have any significant requirements under this NESHAP.

Comment: One commenter (491) supported the exclusion of waste heat boilers. Several commenters (360, 382, 388, 394, 449, 492, 498, 524, 533) recommended EPA exempt commercial and industrial solid waste incinerators (CISWI units) with energy recovery from the definition of affected source. The commenters cited preamble language in the proposed rule that indicates that CISWI units with energy recovery will not be regulated by the boilers NESHAP. The commenters noted that the proposed regulatory language is not clear and should be revised to specifically exclude these units. Several commenters (410, 436, 479) requested that EPA revise the definition of boilers and waste heat boilers to exclude waste heat recovery devices and waste heat evaporators. Two commenters (410, 479) requested that EPA exempt waste heat boilers that have supplemental firing as long as the primary heat input is from waste heat. One commenter (529) recommended the phrase, "Waste heat boilers are excluded" be moved from §63.7485(a) to §63.7490.

Response: The final rule excludes waste heat boilers and waste heat boilers with

supplemental firing, as long as the supplemental firing does not provide more than 50 percent of the waste heat boiler's heat input. If your waste heat boiler does receive 50 percent of its total heat input from supplemental firing, it may be subject to the boilers NESHAP unless it is subject to another NESHAP. The final rule directly addresses sources that have been specifically listed as an affected source under another NESHAP but not making them subject to this standard.

Comment: One commenter (476) supported EPA's exclusion of residential natural gas-fired hot water heaters from the proposed boilers NESHAP. One commenter (479) requested that EPA exempt liquid fuel-fired hot water heaters from the final boilers NESHAP.

Response: We agree with the commenters regarding not requiring liquid fuel-fired hot water heaters and liquid fuel-fired hot water heaters to be subject to this rule, as long as they meet the size, temperature, and pressure criteria outlined in the definition section of the final NESHAP.

Comment: Two commenters (410, 497) requested that EPA exempt any boilers used to make steam or heated water solely or primarily for comfort heating.

Response: We specifically make comfort heaters not subject to the final rule. However, we do not provide a blanket exemption for boilers used to make steam or heated water for comfort heat. If your boiler meets the definition of a hot water heater, then it would not be subject to this rule. However, if the size, temperature, and pressure specifications of your boiler exceed the criteria specified for hot water heaters, then your boiler would be subject to this NESHAP.

Comment: Several commenter (343, 413, 491, 499) requested that EPA specifically exclude duct burners from the final NESHAP. One commenter (499) requested the rule clarify that "duct burners" for heat recovery steam generators are not affected sources for purposes of the MACT for small boilers and process heaters. One commenter (413) expressed concern that duct burners on combined cycle units would be affected under the proposed rule.

Response: In the final rule we do not make waste heat boilers (or heat recovery steam generators) subject to this rule as long as their supplemental firing (including duct burners) does not provide more than 50 percent of the heat input to the waste heat boiler. If your duct burner provides more than 50 percent of the total heat input to your heat recovery steam generator, then it would be subject to this NESHAP.

Comment: Several commenters (156, 335, 336, 371, 374, 376, 382, 388, 394, 434, 437, 449, 450, 487, 491, 498, 520, 524, 533) recommended that the final boilers NESHAP exempt units that have no emission limits or work practice standards from all monitoring, recordkeeping, and reporting requirements of the boilers NESHAP and the General Provisions. One commenter (489) expressed confusion over the applicability of notification, reporting and recordkeeping provisions to units without emission limits or work practice standards and requested clarification in the final rule on the requirements for affected sources that have no emission limits. However, several commenters (343, 437, 491, 520) specifically requested that EPA not exempt these units from the startup, shutdown, and malfunction plan requirements of the NESHAP. Two

commenters (376, 489) supported the proposed provisions stating that existing gas-fired sources do not have emissions limits and do not need to follow work practice standards to maintain compliance. Several commenters (374, 382, 388, 394, 449, 487, 498, 524, 533) noted that other MACT standards provide this exemption and that the level of burden is not justified. The commenters suggested that if EPA does decide to impose some level of reporting for these units that it be limited to no more than an initial notification.

Response: We agree that sources that do not have any emission limits or work practice standards should not have to comply with monitoring, recordkeeping, and most reporting requirements, including startup, shutdown and malfunction plans. The final rule limits the monitoring, recordkeeping, and reporting requirements for sources that have no emission limits or work practice standards to initial notifications for larger sources, and no requirements whatsoever for smaller sources. We are also not requiring startup, shutdown, and malfunction plans for sources that do not have any emission limits or work practice standards. This is appropriate because no reports other than the initial notification would apply to these units. We do not believe the SSM plan to be necessary or required for these units because §63.6(e)(3) of subpart A of this part requires an affected source to develop an SSM plan for control equipment used to comply with the relevant standard. The proposed rule was not intended to require monitoring, recordkeeping, and reporting (including startup, shutdown, and malfunction plans), other than the initial notification for sources not subject to an emission limit. We have clarified this decision in the final rule. We have also determined that existing small units, which are not subject to emission limits or work practices in this standard, and which are also not subject to such requirements in any other Federal regulation, should also not have to provide an initial notification. These small sources are generally gas-fired and since they have minimal emissions, they are usually considered as insignificant emission units by State permitting agencies.

Comment: Several commenters (360, 364, 379, 382, 387, 388, 394, 399, 406, 407, 408, 430, 439, 449, 479, 487, 492, 498, 501, 524, 533) requested that EPA specifically exclude portable/transportable units from the final rule. The commenters stated that facilities periodically use these units to supply or supplement other site steam supplies when there is a mechanical problem that takes a unit out of service or during planned outages. The commenters added that because they are used on a limited basis, portable units are not fully integrated with site control systems and most portable/transportable units are owned by a rental company and may not be operated by the facility owner or operator. One commenter (479) that these types of units typically fire only natural gas or distillate oil. Several commenters (382, 406, 407, 408, 492, 501) also suggested revised rule language that would exclude rental or temporary boilers, as long as the units do not remain at one location for more than 12 consecutive months.

Response: We agree with the commenters that temporary/portable units are used only on a limited basis and are not integrated into a facilities control system. In the final rule, we make gaseous and liquid fuel-fired temporary boilers not subject to the requirements of this NESHAP. Units in the existing gaseous or liquid subcategories are not subject to emission limits or work practice standards. Consequently, we have decided to make temporary/portable units not subject to the final rule. We have added a definition for temporary boiler to mean any gaseous or liquid fuel-fired boiler that is designed, and is capable of, being carried or moved from one location to another. A temporary boiler that remains at a location for more than 180 consecutive days is no longer considered to be a temporary boiler. Any temporary boiler that replaces a temporary

boiler at a location and is intended to perform the same or similar function will be included in calculating the consecutive time period. We chose the 180 day time frame because that is the length of time a new source has after startup to conduct the initial performance test.

Comment: Several commenters (336, 339, 345, 356, 361, 362, 377, 395, 405, 427, 439, 489, 490, 523, 529) recommended exempting gaseous fuel-fired units from the final rule. Two commenters (477, 510) requested that EPA exempt the small gaseous fuel-fired category. The commenters noted that these units do not have any emission limits and that making them undergo the various recordkeeping and reporting requirements would be an unnecessary waste of resources. Several commenters (336, 339, 361, 362, 427, 529) requested that EPA exempt all existing liquid fuel-fired units. The commenters questioned why EPA would still subject these units to the NESHAP when they have no emission limits or work practice standards. Two commenters (405, 529) suggested that all distillate oil-fired units be exempted. One commenter (336) requested that EPA exempt existing small solid fuel-fired units from the NESHAP. Many of the commenters stated these units are inherently low in HAP emissions and the EPA cannot quantify any environmental benefits from subjecting them to this NESHAP. One commenter (523) noted that since EPA did not set emission limits for these units, it indicates that they are not significant sources of HAP. In addition, the commenters stated that it will eliminate the large costs associated with recordkeeping and reporting and the requirement to install carbon monoxide monitors for new units. Commenters also claimed it would significantly reduce the burdens placed on permitting agencies to maintain permits for these facilities. One commenter (489) argued that including these sources in the rule has no environmental benefits and is in contravention of the purpose of the Paperwork Reduction Act of 1995. One commenter (490) stated that this solution would create an incentive for facilities to use this clean-burning fuel when it is possible to do so.

Response: We are required by the Act to regulate sources on the source category list. The list includes industrial, commercial, and institutional boilers and process heaters. Consequently, all such units, regardless of size, are required by the Act to be regulated. At proposal, and in the final rule, we did separate sources into small, large and limited use subcategories for the reasons described in the proposal preamble and preamble to the final rule. As such, we determined that there were no MACT floors for existing small subcategories and limited use and large gaseous and liquid fuel subcategories. We revised the final rule to require existing units that do not have emission limits or work practice requirements to submit only an initial notification. For some smaller units with no emission limits or work practice standards, there are no requirements. New gaseous and liquid fuel-fired units that have a capacity of 10 MMBtu/hr to 100 MMBtu/hr must conduct an annual test to maintain CO limits and must keep records of the annual test. Units larger than 100 MMBtu/hr must install and operate CO CEMS. We consider these to be minimal requirements that will facilitate good combustion practices, and will not burden owners or operators of these units. New liquid and solid fuel fired units will be required to meet new source emission limits based on the results of EPA's MACT floor analysis for new units. Since these emission limits were developed in accordance with the procedures outlined in section 112(d), we must require these sources to meet at least the MACT floor level of control. To minimize the burden on affected sources, we revised the final rule to streamline the monitoring requirements of this NESHAP.

Comment: One commenter (502) requested that EPA exempt boilers and process heaters at sugar beet facilities from the final boilers NESHAP. The commenter stated that the application of hydrogen chloride and acetaldehyde HAP potential-to-emit analysis to seasonal facilities greatly exaggerates HAP levels, categorizing them as major sources and will result in high costs with minimal environmental benefit. The facilities cannot be moved or closed without creating an economic disaster for sugar beet growers. The commenter pointed out that there are no MACT standards for sugar beet factories. The commenter pointed out that as a seasonal food processor, the commenter's facility generates small amounts of HAP as a by-product of combustion or food processing, but it makes no sense to impose MACT standards on boilers for HAP released through vents or boilers that are not regulated through a permit. Both hydrogen chloride and acetaldehyde are subject to no emission limits or regulatory requirements.

Response: The only boilers and process heaters that will be affected by this NESHAP are those that are located at a major source. If you are a major source, then your facility must have a Title V Operating Permit. We are required to regulate all boilers and process heaters located at major sources according to the provisions of section 112 of the CAA and cannot exclude some sources due to cost. While no MACT standard for sugar beet factories may exist, boilers and process heaters are a listed source category under section 112 and must be regulated by a NESHAP program if they are located at a major source of HAP emissions.

Comment: One commenter (446) explained that their facility burns poultry litter and requested that EPA not regulate those types of units under this MACT standard because they are not "similar" types of sources and should be regulated under another category. The commenter further noted that tracking fuel suppliers and specifying fuel content is not workable for these types of units.

Response: We recognize the that the commenter burns a unique fuel. However, we consider units burning poultry litter to be part of the solid fuel-fired subcategory and subject to the requirements of the rule. We revised the fuel sampling, monitoring, and recordkeeping requirements so the final rule accommodates more sources that burn fuel from many different suppliers. We also provide a compliance option that is based on fuel analysis. We believe that these changes will resolve the commenter's concerns regarding fuel monitoring may provide compliance relief if the fuel sampling strategy for compliance demonstration can be used.

Comment: One commenter (445) explained that some limited use boilers are simply used for the startup of larger, electrical utility boilers and that the cost of the equipment and maintaining the equipment needed to comply with the requirements for new, limited use gaseous or liquid fuel-fired boilers does not seem reasonable. Therefore, the commenter requested that EPA exempt gaseous and distillate fuel-fired boilers used only for the purpose of startup of electrical utility steam generators.

Response: We do not provide a specific exemption for boilers used to startup electrical utility steam generators. Existing gaseous and liquid fuel-fired units do not have any emission limits or work practice standards, and at most are required to submit an initial notification. Therefore, we do not believe that there is a compliance burden for units used to startup larger electrical utility boilers. For new gaseous fuel-fired units, there are no emission limits, and for limited-use units and units smaller than 100 MMBtu/hr that have an applicable work practice

standards, the final rule requires only that you conduct an annual emission test for carbon monoxide. You are not required to install a CEMS for carbon monoxide. Distillate oil-fired units that fall under the new or new limited use categories do have emission limits, but the only requirement for demonstrating compliance is to keep records that you are not burning any residual oil. For new distillate oil-fired units less than 100 MMBtu/hr and for new limited use distillate oil fired units with an applicable carbon monoxide work practice standard, you are not required to install a CEMS for carbon monoxide. You only have to conduct an annual performance test. New units larger than 100 MMBtu/hr must install a CEMS for carbon monoxide. Given the revisions since proposal that provide additional flexibility and reduce the compliance burden for many affected sources, we do not believe that the cost of compliance are significant for these types of units.

Comment: One commenter (382) requested that EPA treat units that fire fuels meeting the comparable fuels limits similarly to distillate oil-fired units and receive an exemption from the particulate matter and hydrogen chloride emission limits. Two other commenters (485, 492) suggested that EPA exempt units burning fuels comparable to distillate oil under 40 CFR 261.38 (and not residual oils). One commenter (485) argued that imposing the liquid non-fossil and residual oil requirements on comparable fuels would discourage their use, increase the use of fossil fuels, and increase the emissions of greenhouse gases.

Response: The EPA disagrees with the commenters request. The comparable fuels requirements in 40 CFR 261.38 distinguishes between materials that are considered hazardous solid waste and fuels. Based on the latest CISWI regulations all materials burned in boilers and process heaters are fuels. We believe it is inappropriate and unnecessary to incorporate a comparable fuels allowance for distillate oil in the final rule. We would also note that the rule considers a fuel to be distillate oil if it meets the ASTM requirements for distillate oil.

Comment: Several commenters (406, 407, 408, 501) requested that EPA exempt bagasse fuel from the boilers NESHAP. The commenters noted that bagasse is a clean fuel by nature, air dispersion modeling demonstrates no risk to the public from bagasse combustion, existing controls are adequate to control emissions below the proposed standards, and the rule would cause significant impacts with no benefit to the environment. The commenters provided emission, dispersion modeling, and fuel analysis data from bagasse fuel-fired sources. Another commenter (446) argued that since renewable biomass sources only cycle mercury, rather than introducing new mercury, these types of sources should be considered *de minimis* sources of mercury and not regulated.

Response: We recognize that some biomass fuels have lower emissions of regulated HAP than other solid fuels. However, we maintain that biomass should still be regulated by this NESHAP because it emits some metals and inorganic HAP. Therefore, we do not exempt biomass from this NESHAP. In the final rule, we provide an option to demonstrate compliance with the emission limits of this NESHAP through fuel sampling. If the results of your fuel sampling (in units of pounds of pollutant to the heat content of the fuel in MMBtu) show regulated pollutant levels less than your applicable emission limits, then you are in compliance with this NESHAP and only monitor monthly fuel use and to conduct additional fuel sampling on that same fuel type once every five years. We provide this option for sources that burn fuel that inherently have low HAP content to minimize the compliance burden.

Comment: One commenter (500) stated that new blast furnace gas (BFG) fired units that meet the definition of a process heater should be exempt from the 400 ppm CO standard. The commenter stated that the low heating value to volume ratio of BFG, its moisture variability, flame characteristics, variances in its generation rate, and Wobbie index due to normal blast furnace process adjustments make complying with this standard virtually impossible. In addition, the commenter stated that BFG fired process heaters and boilers have always been considered "clean" fuel units and should therefore be exempted from the boilers NESHAP unless EPA studies show otherwise.

Response: We recognize the unique properties of blast furnace gas having high CO emissions, agree that these sources could not meet the CO limit, and have determined that monitoring CO would not indicate that the unit was operating under good combustion practices or reducing organic HAP. As a result, we make units that receive 90 percent or more of their total heat input from blast furnace gas not subject to this rule.

Comment: Two commenters (358, 423) contended that EPA should exempt small utility boilers less than 25 megawatts from the rule. The commenters asserted that when the CAA established a threshold capacity for utility boilers, it intended to limit EPA's regulation of small utility boilers, therefore, categorically exempting them. The commenters expressed concern that EPA used this "regulatory limiting" exclusion to include small utility boilers in the proposed rule. One commenter (358) requested that EPA clarify its intent to regulate fossil fuel-fired utility boilers within this regulation and EPA should address any concerns the regulated entities may have over its narrow definition of utility boilers. The commenter supported a fossil fuel-fired boilers NESHAP that would evaluate the appropriateness of controls, the types of specific controls unique to the utility industry, and the specific HAP of concern, as determined by the Utility Boiler MACT Workgroup.

Response: The CAA requires us to study HAP emissions from fossil fuel-fired utility boilers and we are in the process of evaluating these emissions. The results of that study will determine if utility boilers will be regulated under the NESHAP program. The CAA defines a utility boiler as "any fossil fuel-fired combustion unit of more than 25 megawatts that serves a generator that produces electricity for sale. A unit that cogenerates steam and electricity and supplies more than one-third of it potential electric output capacity and more than 25 megawatts electrical output to any utility power distribution system for sale..." If your boiler does not fall under the above definition of a utility boiler and your boiler is located at a major source, then you are subject to this NESHAP.

Comment: Several commenters (345, 427, 428) recommended regulating only solid fuel-fired units. One commenter (345) stated that by eliminating all categories except solid fuel would cause the emission reductions to be reduced by less than 1 percent, while the costs would be reduced by $39 million per year (annualized) and $166 million capital.

Response: The CAA requires us to regulate sources on the source category list. The source category list includes all industrial, commercial and institutional boilers located at major sources, not just solid fuel-fired units. Therefore, we are legally obligated to include liquids and gaseous fuel fired units in the boilers NESHAP. Additionally, we cannot use cost as a deciding

factor in developing the MACT floor. Also, our MACT floor analysis shows that new liquid units should meet an emission limit and all new units should meet a CO work practice. Since the MACT floor level of control for existing gaseous and liquid fuel-fired units was no control, we make these units not subject to most of the requirements of this NESHAP. For units that do not have emission limits under this NESHAP, we require them to do nothing more than submit a notification of their existence (initial notification), and some have no requirements at all. All existing units less than 10 MMBtu/hr have no requirements at all under this NESHAP, and an initial notification is the only requirement for existing large and limited use gaseous and liquid fuel-fired units and for new small gaseous and liquid fuel-fired units. We believe that these final requirements minimize the impact of the final NESHAP for thousands of non-solid fuel-fired units.

Comment: One commenter (416) suggested for combined-cycle turbine power plants, the exemption in §63.7490(b)(3) should be clarified as to whether 25 megawatts applies only to the steam generation portion of the power plant or the power plant as a whole.

Response: As is consistent with Subpart Db, the 25 MW requirement refers only to the steam generation portion of the power plant.

Comment: Several commenters (360, 377, 382, 491) supported EPA's proposed list of excluded sources in §63.7490(b). Several commenters (337, 360, 402, 410, 418, 431, 437, 475, 479, 489, 490, 503, 504, 505) requested specific exemptions from the boilers NESHAP because they were concerned that some equipment may become subject to more than one NESHAP. The specific equipment requested for exemptions included: process heaters at magnet wire facilities (Surface Coating of Miscellaneous Metal Parts and Products NESHAP); boilers and process heaters at carbon black facilities (Generic NESHAP); boilers and process heaters associated with a catalytic cracking, catalytic reforming, or sulfur recovery units (Refinery MACT II); asphalt oxidizers subject to 40 CFR part 63, subpart LLLLL; direct-fired cure ovens, spray booth air tempering systems, and because these are integral components of any surface coating operation (Auto/Light-Duty Truck, Plastic Parts, and Miscellaneous Metal Parts NESHAP); units subject to 40 CFR part 63, subparts HH and HHH; blast furnace stoves; coke oven batteries; and annealing furnaces. One commenter (524) expressed concern over EPA's attempt to specifically list sources exempted from this rule because they are subject to another MACT standard. Two commenters (524, 489) suggested that EPA delete that exclusion list and replace it with a generic exemption that exempts units that are already, or will be, subject to another NESHAP. Another commenter (343) requested that EPA clarify the exclusion for boilers burning hazardous waste in §63.7490(4) to help sources determine applicability. In addition, the commenter stated additional wording should be provided to clarify that boilers required to have a permit under 40 CFR part 266, subpart H, "Hazardous Waste Burned in Boilers and Industrial Furnaces," are excluded from this NESHAP. One commenter (428) requested that an exemption specifically addressing press and other related types of dryers be included in the rule under §63.7490(b). One commenter (346) requested that EPA specifically list combustion sources (e.g., incinerators and flares) that are not subject to this NESHAP and those that were listed in the proposal preamble. Other commenters (360, 377) expressed concern over the language in §63.7490(b)(9) because they thought that the term "covered by" was ambiguous and suggested more direct language to ensure the exclusion such as "an affected source under." Another commenter (369)

requested that §63.7490 be revised to identify affected sources that are not subject to any requirements.

Response: In the final rule, we provide a generically make sources that are specifically listed as an affected source in another standard under 40 CFR part 63 not subject to this rule. In addition we provide a specific list of sources that are not subject to this rule. We believe that this should address the commenters' concern over overlapping applicability. We have also excluded boilers that are required to have a permit under 40 CFR part 266, subpart H, "Hazardous Waste Burned in Boilers and Industrial Furnaces."

Comment: One commenter (376) strongly believes that biomass fired units should not be regulated under this MACT standard. The commenter noted that EPA lacked adequate data for biomass sources in setting the standard and that this regulation would place significant economic burdens on biomass fuel-fired sources, thus discouraging biomass as a renewable energy source.

Response: We disagree with the commenter and do not exempt biomass fuel-fired units from the boilers NESHAP. We are charged with regulating industrial, commercial, and institutional boilers and process heaters and many industrial boilers use biomass as a fuel. Consequently, we must regulate these units under this rule. Since proposal, we revised the boilers NESHAP to relieve the compliance burden for many sources. For example, we provide an option to demonstrate compliance with the emission limits through fuel analysis. If the results of fuel analysis (in pounds of regulated pollutant contained in a fuel divided by the heat content of the fuel in Btu per pound) show that a fuel type meets the emission limit, then a source would not have to conduct performance testing and monitor pollution control device operation to demonstrate compliance. We believe that this compliance option will provide significant relief to biomass fuel-fired sources. We also disagree with the commenter's assertion that insufficient data are available to set standards for these sources. A questionnaire sent during the ICCR process focused data gathering activities on non-fossil fuel fired units. The majority of these units are biomass fired. Additionally, we gathered emission test reports from biomass boilers. In the proposed rule, we requested that any further test information be submitted. However, no additional test information on biomass units was provided by commenters. We concluded that the majority, if not all, the test reports for biomass fired units that were available were gathered for the rule. We believe that we have sufficient information on facilities, capacities, emissions and controls from the questionnaires and test reports to develop standards.

### 4.3 Lower size cutoff

Comment: Numerous commenters (332, 339, 343, 347, 361, 362, 364, 374, 376, 379, 382, 383, 387, 388, 391, 392, 394, 395, 399, 401, 410, 416, 424, 428, 434, 439, 440, 447, 449, 473, 474, 478, 479, 483, 489, 491, 492, 497, 498, 507, 508, 511, 513, 514, 517, 518, 519, 524, 525, 526, 529, 531, 533) requested that EPA establish a lower size cutoff in the final boilers NESHAP. Several commenters argued that the benefits from requiring smaller units to install controls would be minimal given the overall monitoring, recordkeeping, and reporting burden. Several commenters (473, 474, 497, 508, 511, 513, 514, 517, 518, 525, 526, 531) provided data showing a cost-benefit for a small boiler of $250,000 per ton of metallic HAP removal. The commenters noted that cost increases for smaller units because those units must use the same control as much higher capacity units and provided cost data for a small unit. The commenters

explained that EPA previously exempted units smaller than 30 MMBtu/hr in the Industrial Boilers NSPS because EPA determined that it would be an unreasonable cost burden for smaller units to comply with the NSPS. Several commenters (347, 395, 410, 447, 479, 519) also requested lower size cutoffs to make this regulation similar to others established by EPA (e.g, NSPS, NOx SIP Call).

Several commenters (388, 394, 449, 492, 498, 524, 533) noted recent court decisions in which the court has decided that a *de minimis* exemption is appropriate since the regulation of small sources would "yield a gain of trivial or no value" yet would impose significant regulatory burden. Some commenters (439, 489) argued that many of these smaller units are too small to typically require New Source Review permits, Minor Source Registration or inclusion on Title V Permits.

One commenter (507) explained that the proposed rule would affect only those facilities that have invested in more efficient water-tube boilers and that the exemption for fire-tube boilers puts owners of water-tube boilers at a competitive disadvantage. The commenter also noted that the practical effect of the proposed regulation would extend the economically viable life of the less efficient fire-tube boilers. One commenter (478) noted that this would significantly alleviate the impact on small businesses and focus the rule on significant sources of HAP.

One commenter (529) pointed out that smaller sources pose low risk, are easily identified, and may be revisited during the residual risk analysis in 8 years. A wide range of lower size cutoffs were suggested, including: All units: 400,000Btu/hr; 1MMBtu/hr; 5MMBtu/hr; 10MMBtu/hr; 50MMBtu/hr; 100MMBtu/hr. Gas: 15MMBtu/hr; 100MMBtu/hr; 250MMBtu/hr; 330MMBtu/hr. Liquid:10MMBtu/hr new liquid; 60MMBtu/hr residual oil; 90MMBtu/hr for distillate oil; 100MMBtu/hr; 30MMBtu/hr for residual oil; 100 MMBtu/hr distillate oil. Solid:100MMBtu/hr for hydrogen chloride control on solid fuel-fired units; 50 MMBtu/hr for PM, metals, mercury, and CO control on solid fuel-fired units. However, one commenter (448) said that EPA should not develop *de minimis* exemptions. The commenter noted that *de minimis* exemptions do not spare EPA's resources for use on other purposes and are not justified by reductions in industry burden or inconvenience. The commenter noted that EPA did not establish any administrative record justifying the *de minimis* exemption.

Response: We have reviewed the commenters arguments and all the data provided in the comment letters. We do not feel there is justification for developing a lower size cut-off or de minimis level. We would also note the designation of large and small subcategories was not based solely on size of the unit. Large and small subcategories were developed because small units less than 10 MMBtu/hr heat input typically use a combustor design that is not common in larger units. Large boilers generally use the watertube combustor design. The design of the boiler or process heater will influence the completeness of the combustion process which will influence the formation of organic HAP emissions. Additionally, the vast majority of small units use natural gas as fuel. The EPA chose to develop large and small subcategories to account for these differences and their affect on the type of emissions. The cut-off between the large and small subcategories of 10 MMBtu/hr was based on typical sizes for fire tube units, and also when considering cut-offs in State and Federal rules. Lastly, we would like to note that the final rule does not impose any requirements for existing units in any of the small subcategories.

Comment: Several commenters (376, 406, 407, 408, 497, 501) recommended that EPA exempt boilers and process heaters from the boilers NESHAP that are not major sources of HAP individually or are considered insignificant sources under approved Title V programs. One commenter (400) contended that sources that are subject to the proposed boilers NESHAP generally are not major sources and should not be subject to the regulation as such. One commenter (523) questioned how EPA concluded that a 10 MMBtu/hr gas-fired boiler would meet the definition of a "major source" of HAP under section 112 such that it warranted listing or regulation under section 112. Two commenters (478, 502) objected to the fact that the proposed rule would regulate boilers and process heaters that are not themselves a major source of HAP, but which are collocated at facilities with other HAP sources. One commenter (502) explained that HAP produced from other processes at a facility will trigger the major source definition and result in MACT technology being imposed on boilers that do not create the major source applicability. Several commenters (406, 407, 408, 501) requested EPA clearly state that units that are non-major alone, although located at a major source of HAP, are not subject to the rule, other than notification requirements in 40 CFR part 63, subpart A. One commenter (478) requested that EPA establish a minimum threshold of 2,000 lb/yr of actual HAP emissions. Several commenters (473, 474, 497, 508, 511, 513, 514, 517, 518, 525, 526, 531) noted that other MACT standards (i.e., Wool Fiberglass Manufacturing, Natural Gas Transmission and Storage, Pharmaceutical Production, and Amino/Phenolic Resins) contain exemptions for sources that emit less than 10 tons per year of HAP.

Response: The CAA requires that standards be developed for emission sources located at a major source. A major source is defined in the CAA as any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit 10 tons per year or more of any HAP or 25 tons per year or more of any combination of HAP. Also, boilers and process heaters are listed source section 112 of the CAA that must be regulated by a NESHAP program. Therefore, we must develop standards for boilers and process heaters located at any major source, even if the source is only major because of emission points not related to boilers and process heaters. Due to these reasons, even if a boiler or process heater is not a major source in an of itself, it still must be regulated under the boilers NESHAP. We are also not going to provide a minimum threshold of HAP emissions that would trigger applicability. Since proposal, we have made several changes that will reduce the burden of this NESHAP on sources and have eliminated many requirements for gaseous and liquid fuel-fired sources. Therefore, we do not believe an emission threshold that triggers applicability is warranted.

### 4.4 Major source

Comment: One commenter (492) requested that when an area source becomes a major source, each boiler or process heater unit that exists prior to the date the area source becomes a major source should be required to meet existing source MACT even if it was constructed after January 13, 2003. The commenter explained that the new source definition in §63.7490(c) defines new sources as meeting "...the applicability criteria at the time you commenced construction." Therefore, if an area source contains boilers and/or process heaters becomes a major source due to reasons not related to the boilers and/or process heaters, then these units do not meet the applicability requirements of new sources. The commenter requested that EPA explicitly explain this result in the final rule, and provides a recommended revision to

§63.7490(c) to address this issue. The commenter also argued that sources that become subject to the boilers NESHAP after the promulgation date due to changes in their applicability status are existing sources if they were in existence prior to January 13, 2003 and should have up to 3 years to comply. The commenter noted as examples that hazardous waste combustors or commercial and industrial solid waste incinerators could become subject to the boilers NESHAP if they stopped burning wastes and used clean fuels instead. The commenter requested that the final NESHAP clarify that these units, if in existence prior to January 13, 2003, should be considered "existing" sources.

Response: In the final rule, §63.7490(d) and (e) state that you have a new or reconstructed source if you commence construction or reconstruction after January 13, 2003 AND you meet the applicability criteria at the time you commenced construction or reconstruction. Furthermore, §63.7490(f) states that a source is existing if it does not meet the definition of new or reconstructed. If a boiler or process heater located at an area source commences construction or reconstruction after January 13, 2003, and that construction or reconstruction does not itself make the area source a major source, then the boiler or process heater would be considered an existing source if the area source later becomes a major source. This is due to the fact that the boiler or process heater did not meet the applicability criteria of this NESHAP at the time it commenced construction or reconstruction because it was located at an area source, and units located at area sources are not subject to this NESHAP. The final rule clarifies the requirements for area sources that become major sources. In §63.7495(c)(2) of the final rule, an existing boiler or process heater located at an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP comply with the subpart within 3 years of the facility becoming a major source.

Comment: Two commenters (396, 410) requested clarification on the date by which a source must be below the major source potential to emit threshold in order to not be subject to the boilers NESHAP. Two commenters (396, 410) requested that EPA allow an affected source to switch to area source status by reducing its potential to emit at any time up until the compliance date, rather than the promulgation date, to avoid being subject to the boilers NESHAP and referenced previous EPA guidance and policy for this clarification, including a memorandum from John Seitz dated May 16, 1995. One commenter (396) explained that this deadline would give small emitters time to limit their potential emissions rather than comply with the boilers NESHAP. The commenter added that it would also be appropriate for sources that are above the major source threshold at rule promulgation to become area sources if they reduce emissions or take limits and requested that EPA provide guidance and specify any recordkeeping and reporting requirements that would be applicable. Two commenters (391, 392) expressed their belief that the "once in, always in" approach to the NESHAP program is contrary to the goals of pollution prevention, emission minimization, and the Administrative Procedures Act.

Response: We agree with the commenters that based on the John Seitz memorandum, a major source can switch to an area source any time before the compliance date, but not the promulgation date. However, units located at major sources at the promulgation date are still required to submit an initial notification.

**4.5 Delisting**

Comment: Several commenters (345, 349, 413, 427, 499) expressed support for delisting some subcategories under this NESHAP. One commenter (413) supported delisting subcategories based on CAA section 112(c)(9) of the CAA and viewed it as a mechanism to limit costs and impacts of rules to those facilities that actually need to be regulated to protect public health. The commenter added that once EPA receives a petition to delist a subcategory, it should evaluate the petition to determine if each facility meets the criteria in section 112(c). The commenter continued that once EPA delists a subcategory, it should establish a procedure to evaluate petitions from other units that would like to be included in the delisted subcategory. Another commenter (345) recommended that EPA establish automatic subcategory delisting criteria where a facility that meets the criteria can apply for automatic delisting. The commenter stated that such criteria should be based on fuel type and usage as well as control efficiency, if any were used. In addition, the commenter stated that delisting those subcategories for which no reduction is predicted is the most cost effective solution, with no impact on emissions. One commenter (427) contended that the proposed MACT should be withdrawn and boilers and process heaters delisted or the rule should be limited in scope to those sources where the social benefits resulting from HAP emission reductions can be demonstrated (e.g., solid fuel-fired units in large urban areas). One commenter (499) stated that EPA should consider delisting small industrial/commercial/institutional boilers and process heaters as a source category under section 112(c)(9) of the CAA and 40 CFR part 63, subpart C. The commenter stated that recent studies indicate that HAP emissions from virtually all small boilers in the U.S. represent a cancer risk of well below 1 in 1 million and that the non-cancer risks are well below levels EPA considers to protect public health with an adequate margin of safety. In addition, the commenter stated there are a number of economic benefits of delisting small boilers and process heaters under the NESHAP program. One commenter (349) agreed with the concept of delisting subcategories before the MACT compliance date and explained that delisting after the compliance date can be problematic when sources do not comply with the current rule in the anticipation that they may be delisted. Several commenters (376, 413, 477, 336, 482, 536) requested that EPA exempt limited use boilers from the NESHAP. Two commenters (413, 482) noted that it is not cost-effective to control HAP emissions for these units, and because these boilers emit low levels of HAP and do not threaten air quality. The commenter referenced the utility air regulatory group's comments and cost analysis. One commenter (413) provided an analysis of the costs and emission reductions associated with the complying with the limited use standards.

Two commenters (448, 512) opposed any plan to delist subcategories under the boilers NESHAP. One commenter (448) said that section 112(c)(9)(B) does not give EPA authority to delist subcategories, including sources of carcinogens, from MACT standards. The commenter noted that the authority only applies to categories (not subcategories) when all sources in the category meet the standard. The commenter stated that EPA can not establish a separate *de minimis* subcategory to delist sources and noted that section 112(c)(9)(B) precludes development of *de minimis* exemptions that exceed its narrow authority. Another commenter (512) cautioned EPA from considering subcategories for the sole purpose of delisting them as "low-risk" under the authority of section 112(c)(9)(B). The commenter argued that this approach is unlawful. The commenter explained that EPA cannot subcategorize to enable a source category to avoid the language, intent, or deadlines of the CAA. To delist a source category, EPA must first find that no source in the category will emit such HAP at a level that would cause a one in one million lifetime risk of cancer. The commenter argued that EPA's proposed delisting of a subcategory is inappropriate here because EPA has not made such a finding in this proposal.

Response: The final rule does not delist any subcategories. We do not consider it appropriate for this standard to de-list any subcategories. However, we do recognize that some sources may have very low emissions of HAP and may pose a minimal health risk. Consequently, we have included in the final rule an alternative that allows sources that demonstrate emissions below a health threshold for some pollutants to not be subject to the emission limit requirements. Detailed discussions of the risk alternative is found in section 18 of this document.

## 5.0 Format of the Standard

Comment: Two commenters (390, 413) supported emission limits based on heat input rather than on unit output. One commenter (413) added that output based limits would become overly complex without providing commensurate health benefits. The commenters explained that limits based on heat input would simplify many of the complex details that would have to be addressed with an energy-output based limit. Commenters cited complex details such as co-generation of steam where common systems serve more than one boiler and the complexity of the instrumentation needed to monitor the systems.

Response: We agree with the commenters and have not included output-based emission limits in the final rule. Given the diversity of end uses for the boilers and process heaters regulated by this NESHAP, it would be impossible to develop an output-based standard that could apply. Furthermore, we do not have enough data that show emission rates in terms of unit output to develop such a standard.

Comment: Several commenters supported percent reduction in combination with other means of compliance such as emission limits, concentration limits, pounds per heat input, and pounds of emissions per energy output. One commenter (390) asserted that the MACT standard should be flexible and should give the option of demonstrating compliance with either a percent reduction or an emission rate limit. One commenter (409) supported allowing a percent reduction approach as an alternative means of compliance because it would provide additional flexibility to the standard, alleviate concerns that one specific compliance measure is not sufficient to address variability, and reduce the necessity for sources to demonstrate compliance on a continuous basis. Another commenter (413) agreed that allowing compliance with either percentage reduction or emission limits would provide additional flexibility to a facility, stating that the option would allow units an efficient way of coping with the variability of their fuel supplies. Commenter (409) added that the percent reduction option would be consistent with the Hazardous Waste Combustion MACT standards. Three commenters (376, 445, 446) requested that EPA provide emission limits as a percent reduction and in pounds per heat input.

Response: We do not include a percent reduction option for emission limits in the final rule. As discussed in the preamble to the proposal (see 68 FR 1671), this decision was based on the fact that we did not have sufficient data to determine the percent reduction of the floor level of control. We explained at proposal that we had insufficient data to propose a percent reduction option and requested additional data to evaluate a percent reduction option. We did not receive adequate data to develop a percent reduction option, therefore, we have not included one in the final rule.

Comment: Some commenters (442, 512) disagreed with percent reduction as an option. One commenter (442) believes that percent reduction based standards are more difficult to comply with than heat-input based standards. To demonstrate compliance, inlet and outlet concentrations are required, increasing the costs and difficulty of proving compliance. The commenter (442) also believes it would be better to establish emission limits based on the pounds of emissions per energy output, thus encouraging energy efficiency. The commenter (512) noted that a percent reduction requirement would limit the flexibility of the rule by

requiring the use of a control device. However, the commenter recommended that EPA set output-based emission limits to encourage and reward efficiency. One commenter (499) stated there is no reason why the "stack limit" approach and the "percent reduction" must be presented as an "either-or" approach. The commenter stated that allowing an alternative means of compliance can only improve the flexibility of the rule. One commenter (340) recommended outlet concentration limits, rather than a percent reduction requirement. The commenter found this much simpler to monitor, keep records, report, and make compliance determinations, and was therefore cheaper than percent reduction requirements.

Response: In the final rule, we retained emission limits in the pound per million Btu format. We maintain that this the most effective and least burdensome format for the emission limits of this NESHAP. As discussed in the proposal preamble, we did not have enough data to establish a percent reduction option. Furthermore, we have also have not implemented an output based standard for the pollutants regulated by this NESHAP. We believe that attempting to establish an output based standard would not be appropriate given the diverse nature of application for the sources regulated by this NESHAP.

### 5.1 Surrogates (general)

Comment: Many commenters (451, 512) disagreed with EPA's use of surrogates for HAP. Two commenters (512, 451) stated that EPA must set emission standards for all HAP emitted by this category. One commenter (451) claimed that the proposed standards are unlawful because EPA must establish standards for each HAP emitted from the source category regulated. One commenter (512) explained that the use of surrogates is acceptable if the surrogates (1) reflect the actual emissions of the represented pollutants; (2) the emission limit set for the surrogate is consistent with the emission limit calculated for the represented pollutants; and (3) have substantially the same properties as the represented pollutants and is controlled by the same mechanism. Based on these criteria, the commenter argued that EPA's selection of surrogates is inadequate. The commenter also provided more technical discussion of specific pollutant properties to support their argument. The commenter requested that if EPA chooses to promulgate standards using the surrogate pollutants, sources should be required to measure all pollutants represented by the surrogate.

One commenter (423) contented that the selection of pollutants and emission limits in the proposed rule is inconsistent with rules currently in place for large electric steam generating units. The commenter added that the proposed rule would impose more restrictions on HAP from small utility boilers and more controls than would be required for larger units not covered by the rule. The commenter stated that the only HAP currently under consideration for emission limits on large utility boilers is mercury.

Response:As discussed in the proposal preamble, we feel the use of surrogates for the HAP regulated is appropriate. Because of the large number of HAP potentially present, the disparity in the quality and quantity of the emissions information available, particularly for different fuel types, we chose to group HAP into four categories: mercury, non-mercury metallic HAP, inorganic HAP, and organic HAP. In general, the pollutants within each group have similar characteristics and can be controlled with the same techniques. We then chose compounds that could be used as surrogates for all the compounds in each pollutant category. We have used surrogates in previous NESHAPs as a technique to reduce the performance testing

costs and believe that the use of surrogates is appropriate in this NESHAP.

For inorganic HAP, we chose to use HCl as a surrogate. The emissions test information available to us indicated that the primary inorganic HAP emitted from boilers and process heaters is HCl. Much smaller amounts of hydrogen fluoride and chlorine are emitted. Control technologies that would reduce HCl would also control other inorganic HAP. Additionally, we had limited emissions information for other inorganic HAP. By focusing on HCl, we have achieved control of the largest emitted and most widely emitted HAP, and control of HCl would also constitute control of other inorganic HAP.

For non-mercury metallic HAP, we chose to use PM as a surrogate. Most, if not all, non-mercury metallic HAP emitted from combustion sources will appear on the flue gas fly-ash. Therefore, the same control technology that would be used to control fly-ash PM will control non-mercury metallic HAP. A review of data in the emission database for PM control devices having both inlet and outlet emissions results shows control efficiencies for each non-mercury metallic HAP similar to PM. Particulate matter was also chosen instead of a specific metallic HAP because all fuels do not emit the same type and amount of metallic HAP, but most generally emit PM that includes some amount and combination of metallic HAP. We maintain that particulate matter reflects the emissions of non-mercury metallic HAP as these compounds usually comprise a percentage of the emitted particulate matter. Since the NESHAP program is a technology-based standard, the technologies that have been developed and implemented to control particulate matter, also control non-mercury metallic HAP. Furthermore, since non-mercury metallic HAP is a component of particulate matter, we continue to believe that we can use particulate matter as a surrogate for the purposes of this rule.

While we did use PM as a surrogate for non-mercury metallic HAP, we also provided an alternative total selected metals emission limit based on the sum of the emissions of the eight most common and largest emitted metallic HAP compounds from boilers and process heaters. Again, a total selected metals number was used instead of limits for each individual metallic HAP because sufficient information was not available for each metallic HAP for every fuel type. However, a total metals number could be calculated for every fuel type.

We realize that mercury emissions can exist in different forms depending on combustion conditions and concentrations of other compounds. That is why we have mercury as a separate pollutant category in the final rule and do not provide for a surrogate.

For organic HAP, we chose to use CO as a surrogate to represent the variety of organic compounds emitted from the various fuels burned. Both organic HAP and CO emissions are the result of incomplete combustion of the fuel. Because CO is a good indicator of incomplete combustion, there is a direct correlation between CO emissions and minimizing organic HAP emissions. The extent to which CO and HAP emissions are related can also depend on site-specific operating conditions for each boiler or process heater. This site-specific nature may result in various degrees of correlation between CO and organic HAP emissions, but it is proven that reductions in CO emissions result in a reduction of organic HAP emissions. The control methods for both CO and organic HAP are the same, i.e., complete combustion. This result would not have been different if MACT floor analyses were conducted for specific organic HAP or for a surrogate compound such as CO. For boilers and process heaters, we have determined that CO is a reasonable indicator of incomplete combustion. Also, we did not set emission limits for each specific organic HAP because we lacked sufficient information for many of the organic HAP for all the fuels combusted. We acknowledge that there are many factors that affect the

formation of dioxin, but we also recognize that dioxin can be formed in both the combustion unit and downstream in the associated PM control device. We believe that minimizing organic HAP emissions can limit the formation of dioxin in the combustion unit. We reviewed all the good combustion practice (GCP) information available in the boiler population database and determined that no floor level of control exists, except for limiting CO emissions, such that GCP could be incorporated into the standard. One control technique, controlling inlet temperature to the PM control device, that has demonstrated controlling downstream formation of dioxins in other source categories (e.g., municipal waste combustors) was analyzed for industrial boilers. In all cases, no increase in dioxins emissions were indicated across the PM control device even at high inlet temperatures. However, we requested comment on controls that would achieve reductions of organic HAP, including any additional data that might be available. The EPA did not receive any additional supporting information or data. Additionally, more stringent options beyond the floor level of control were evaluated, but were determined to be too costly and emission reductions associated with the options could not be evaluated because no information was available that indicated a relationship between the GCP's and emission reduction of organics (including dioxin).

Comment: Several commenters (479, 364, 387, 399, 479, 536) supported EPA's approach to using surrogates for all emitted HAP and the four HAP categories. Two commenters (353, 492) supported EPA's proposal to use surrogates as a method to determine compliance with this NESHAP and discussed EPA's legal authority to regulate HAP through the use of surrogates. Commenter (479) noted that EPA has the authority to use this approach as upheld in the National Lime case. However, the commenters (364, 399, 387) noted that particulate matter will not always be an ideal surrogate for metals given the different levels of metals in various fuels and agreed with EPA in providing an alternative metals limit. Other commenters (364, 399, 387, 403, 425, 443, 444, 397) supported EPA's inclusion of the total selected metals limit as an alternative to the particulate matter limit. One (444) commenter believes that the alternative will provide significant benefit for solid fuel-fired units that burn predominantly wood or biomass. One commenter (376) supported EPA's allowance for solid fuel-fired units to meet either a particulate matter or total selected metals emission limit.

Response: We agree with the commenters and maintain that the use of surrogates is appropriate for this NESHAP and retained them in the final rule. We also retained the total selected metals alternative to the particulate matter surrogate for sources due to the various levels of metals in different fuels.

Comment: One commenter (381, 451) stated that particulate matter is not a valid surrogate for total metal HAP since it is not a valid surrogate for volatile metal HAP such as cadmium and lead. Also, the commenter said that particulate matter is not a valid surrogate since factors other than particulate matter affect emissions of metal HAP. One commenter (381) noted that EPA's Criteria Document indicates metal content of particulate matter can vary widely depending on the type of source, metals content of fuels, control technology used, and other factors. The commenter concluded that the particulate matter standard would not reflect the metal emission levels actually achieved. The commenter added that EPA may not use a surrogate where it results in regulations that do not include standards for each HAP or do not reflect the emission levels achieved by the best performers. The commenter referred to the

National Lime court decision. One commenter (536) contended that setting a MACT standard for mercury is complicated because there are three forms of mercury possible, and the level of control varies widely depending on the relative concentration of each form and the installed control equipment, as well as the physical circumstances at the facility.

Response: In the preamble to the proposed rule, we stated that we chose particulate matter as a surrogate for non-mercury metallic HAP because most, if not all, non-mercury metallic HAP emitted from combustion sources will appear on the flue gas fly ash. Therefore, the same control technologies that would be used to control particulate matter would control non-mercury metallic HAP. We acknowledged that not all metallic HAP would be represented by particulate matter, but maintain that most would. Therefore, we continue to use particulate matter as a surrogate for non-mercury metallic HAP in the final rule.

We maintain that particulate matter reflects the emissions of non-mercury metallic HAP as these compounds usually comprise a percentage of the emitted particulate matter. Since the NESHAP program is a technology-based standard, the technologies that have been developed and implemented to control particulate matter, also control non-mercury metallic HAP. Furthermore, since non-mercury metallic HAP is a component of particulate matter, we continue to believe that we can use particulate matter as a surrogate for the purposes of this rule. We also provide the option of measuring total selected metals, which includes cadmium and lead, instead of particulate matter when you conduct performance testing or fuel analyses to determine compliance. We include this option because we acknowledge that the metals content of fuels vary and some fuels may contain very little metals, but sources burning these fuels would have particulate matter emissions higher than the emission limit and would require control to meet the emission limit.

We realize that mercury emissions can exist in different forms depending on combustion conditions and concentrations of other compounds. That is why we have mercury as a separate pollutant category in the final rule and do not provide for a surrogate. Regardless of the form in which mercury exists when it leaves the stack, you are required to meet the emission limits for mercury. You are free to meet the mercury emission limit through the use of add-on control devices or through fuel switching.

Comment: One commenter (451) contended that EPA did not explain why its only choice is either to set individual standards for each metal HAP or to use particulate matter as a surrogate for all of them. The commenter noted that in previous rulemakings EPA has grouped metals with similar characteristics together. The commenter (451) stated that one of EPA's rationale for using particulate matter as a surrogate for HAP metals is that it would reduce costs. The commenter (451) contended that cost concerns do not allow the EPA to use an inadequate surrogate.

Response: In the preamble to the proposed NESHAP, we explained that we chose to use surrogates to minimize the cost of compliance of this rule due to the many different types of pollutants emitted from these sources. We separated the HAP emitted from boilers and process heaters based on the physical and chemical characteristics of the pollutant and based on the methods used to control the different types of pollutants. For the non-mercury metallic HAP group, we determined that particulate matter was an appropriate surrogate because most non-mercury metallic HAP emitted from combustion sources will appear on the flue gas fly ash.

Therefore, the same control techniques that would be used to control the fly-ash particulate matter would control non-mercury metallic HAP. We cannot use cost as a factor in setting the MACT floor; however, we are able to consider cost in the methods that we require to demonstrate compliance with this NESHAP. We have worked to minimize the compliance burden and costs in many areas related to compliance activities of this NESHAP and maintain that those approached are valid.

**5.2 Surrogates (HCl)**

Comment: Several commenters (338, 521, 535, 484, 522, 370) disagreed with the use of hydrogen chloride as a surrogate for other inorganic acid gases. Some commenters (338, 521, 535, 484) claimed hydrogen chloride is not a significant health hazard on its own and did not see a reason to impose installation of costly prohibitive pollution control technologies for criteria pollutants, which EPA states are only surrogate indicators to other inorganic compounds. The commenters stated if EPA is concerned about other inorganic non-HAP compounds, then these emissions should be regulated by other means, not through the use of a program targeted at HAP emission reductions. One commenter (522) opposed installation of costly controls for hydrogen chloride that are intended to control inorganic non-HAP compounds. The commenter asserted that inorganic non-HAP should be regulated by other means and not the MACT program. One commenter (370) believes that sulfur dioxide would be preferable as a surrogate for inorganic acid gases verses hydrogen chloride from existing coal-fired boilers already subject to 40 CFR part 60, subpart Db. The existence of sulfur dioxide CEMS would continuously document conformance with desired control level without the necessity of annual hydrogen chloride performance tests and issued associated with variable fuel chlorine contents.

Response: We are required under section 112 of the CAA to regulate HAP emissions from each listed source category. Currently, hydrogen chloride is a listed HAP under § 112, therefore, if this HAP is emitted from boilers and process heaters, we must regulate its emissions from these sources. Our data indicate that hydrogen chloride is the inorganic HAP that is present in the largest amount from boilers and process heaters. The data also indicate that other inorganic HAP compounds are emitted from boilers and process heaters in much smaller quantities. We determined that the control technologies that are effective at controlling hydrogen chloride are also effective at controlling other inorganic HAP. This is why we regulate hydrogen chloride under this NESHAP and use it as a surrogate for all inorganic HAP compounds regulated by this NESHAP. We disagree with the commenters' suggestion that hydrogen chloride be regulated under another standard and have kept hydrogen chloride emission limits in the final rule.

Comment: One commenter (370) assumed that §63.7500(a)(2) of the proposed boilers NESHAP would allow a Subpart Db source to propose alternative limits and monitoring parameters based on sulfur dioxide as a surrogate for hydrogen chloride and the other inorganic acid gases. Acceptance of a proposed alternative program would require approval by the implementing agency, that in most cases would be the State Air Pollution Control Agency. The commenter expressed concern with State agencies' receptiveness to alternative operating limits or monitoring programs unless specification of these alternatives is given from EPA. The commenter requested that EPA identify the existing 40 CFR part 60, subpart Db 90 percent

sulfur dioxide control and CEMS requirements as appropriate surrogates for all the inorganic acids including hydrogen chloride.

Response: We do not explicitly state that the sulfur dioxide limits and CEMS monitoring requirements required by subpart Db will qualify as an appropriate alternative surrogate for inorganic HAP regulated by this NESHAP. We did not study the relation between sulfur dioxide emissions and the HAPs regulated by this NESHAP. If you want to use sulfur dioxide as a surrogate for hydrogen chloride and inorganic HAP and your sulfur dioxide CEMS as a continuous compliance tool, you will need to submit a petition to the Administrator for an alternative monitoring plan under §63.8(f) of subpart A. To be considered for approval, your alternative monitoring plan must meet the elements of §63.8(f) of subpart A for demonstrating compliance with the hydrogen chloride emission limits and continuous compliance requirements of this NESHAP.

**5.3 Surrogates (CO)**

Comment: One commenter (345) agreed that using CO as a surrogate for organic HAP makes it easier to monitor emissions and presumably the performance of the unit, but questioned whether there is any data confirming a correlation between CO and HAP emissions. However, another commenter (451) stated that CO is not a valid surrogate for dioxins, since dioxin formation is a function of several variables (not just good combustion).

Response: We chose CO as a surrogate for organic HAP because CO is a good indicator of incomplete combustion and there is direct correlation between CO emissions and the formation of organic HAP emissions. The extent to which CO and HAP emissions are related can also depend on site-specific operating conditions for each boiler or process heater. This site-specific nature may result in various degrees of correlation between CO and organic HAP emissions, but it is proven that reductions in CO emissions result in a reduction of organic HAP emissions. We agree with the commenter that CO was also chosen as a surrogate for organic HAP due to the readily available CO monitoring equipment. CO can be monitored with proven CEMS or through annual performance testing by EPA methods. With respect to dioxin emissions, we agree that there are many factors that effect the formation of dioxin emissions. However, the greater the availability of hydrocarbon compounds, the higher the probability of dioxin formation if chlorine compounds are present. If more complete combustion in a combustion unit is achieved, the fewer hydrocarbon compounds exist, and the formation of dioxin should be reduced. We acknowledge that there are many factors that affect the formation of dioxin, but we also recognize that dioxin can be formed in both the combustion unit and downstream in the associated PM control device. We believe that minimizing organic HAP emissions can limit the formation of dioxin in the combustion unit. We reviewed all the good combustion practice (GCP) information available in the boiler population database and determined that no floor level of control exists, except for limiting CO emissions, such that GCP could be incorporated into the standard. One control technique, controlling inlet temperature to the PM control device, that has demonstrated controlling downstream formation of dioxins in other source categories (e.g., municipal waste combustors) was analyzed for industrial boilers. In all cases, no increase in dioxins emissions were indicated across the PM control device even at high inlet temperatures. However, we requested comment on controls that would achieve reductions of organic HAP, including any additional data that might be available. The EPA did not receive any additional supporting information or data. Additionally, more stringent options

beyond the floor level of control were evaluated, but were determined to be too costly and emission reductions associated with the options could not be evaluated because no information was available that indicated a relationship between the GCP's and emission reduction of organics (including dioxin).

**5.4 Miscellaneous**

Comment: One commenter (357) stated that acid gas emissions should not be regulated under the boilers NESHAP. The commenter stated that industrial boilers are regulated under section 112 of Title III of the CAA and Congress regulated acid gas emissions under Title IV of the CAA. The commenter stated that at the very least, small and medium sized boilers should be excluded from the acid gas standards in the rule.

Response: We recognize that the term "acid gas" was used frequently and inappropriately in the proposal. The term was not meant to refer to acid gas emissions under Title IV of the Clean Air Act, such as sulfur dioxide, but rather to HAP compounds that form acidic compounds in the presence of water, such as hydrogen chloride, hydrogen bromide, and hydrogen fluoride. The final rule has been revised to use the more appropriate term "inorganic HAP" rather than acid gas.

Comment: One commenter (395) objected to the attempt to use performance testing to establish case-by-case MACT standards. The commenter claimed this requirement would establish excessively stringent limitations and improperly tie parametric monitoring to compliance demonstrations. The commenter stated that parametric levels are not direct dictates of a limited parameter necessary to maintain compliance.

Response: We do not agree with the commenter's assessment of this NESHAP. It is not establishing case-by-case standards. Compliance with this NESHAP is based on the results of performance testing or fuel sampling and how they compare with the emission limits applicable to each source. During the performance testing or fuel sampling, operating limits are established. These operating limits are operating parameters that sources typically monitor. Once these operating limits are established, they are used to ensure that a source is operating in a manner similar to that during the performance testing or fuel sampling. This approach to determining continuous compliance is consistent with previous NESHAPs and other standards. We have made several changes since proposal that reduce the compliance burden and have changed the opacity based operating limit to a fixed limit, as opposed to a limit based on performance testing. Furthermore, we have provided a 10 percent operating range to operating limits established during performance testing to address variability issues that occur during normal operation.

# 6.0 Compliance Schedule

## 6.1 General

Comment: One commenter (400) requested that EPA allow existing units that become subject to the boilers NESHAP after the compliance date be allowed 3 years to achieve compliance, because they cease to burn hazardous waste. The commenter added that these sources, already in existence and operation, would be faced with new regulatory requirements that could involve design, procurement, and installation of new control equipment, installation or modification of data collection and recordkeeping systems, and additional training.

Response: We agree with the commenter that if an existing hazardous waste boiler ceases to burn hazardous waste they would be allowed 3 years to achieve compliance with the Boiler NESHAP. This situation is similar to the case of an existing area source that becomes a major source. The rule states that any existing area source that becomes major must be in compliance with the final rule within 3 years after the facility becomes major.

## 6.2 Compliance Schedule for New Units

Comment: Several commenters (347, 427, 500) expressed concern over the requirement for new units to be in compliance with the NESHAP upon startup. Two commenters (347, 427) explained that it would be difficult for new boilers that startup near the promulgation date of the NESHAP to know what regulatory requirements would apply since the promulgated rule could change from the proposed rule. One commenter (500) stated that new units commencing operation after January 13, 2003 should be given the same time period for compliance as existing units. The commenter stated that the rule is not only forcing the new units to meet tighter standards, but is also requiring compliance up to 3 years sooner than existing units. The commenter stated that any regulated unit starting operation after January 13, 2003 should be given 3 years after rule promulgation to comply with the provisions of the NESHAP, similar to existing units. One commenter (427) added that sources that started up before the final publication date of the rule should be treated as existing sources. Another commenter (347) suggested that the rule have an effective date 90 days after the final boiler NESHAP is published in the Federal Register.

Response: We do not believe any change in the rule is necessary. The CAA directs us to require sources that commenced construction after proposal to comply with new source requirements. We are not allowed to deviate from this requirement. We recognize that the initial compliance, continuous compliance, and recordkeeping and reporting requirements have changed since proposal. However, we do not consider the final rule applicability or emission limits to be significantly different than the proposed rule. In the final rule, §63.7510(e) outlines an alternative compliance schedule for sources that commenced construction or reconstruction between the proposal and promulgation date of this rule. It states that if you choose to comply with the proposed NESHAP upon startup, you have 3 years to comply with the final NESHAP requirements for new sources.

## 6.3 Compliance Schedule for Existing Units

Comment: Several commenters (338, 339, 364, 379, 381, 387, 388, 390, 391, 392, 399, 400, 413, 417, 443, 449, 480, 484, 498, 522, 524, 533) argued that the proposed 3-year compliance deadline is too short. Many commenters explained that the time lines associated with permitting, capital appropriation, project bid, and construction activities are significant and that the 3-year deadline would not provide adequate time for the estimated 3,730 existing units at affected sources to be retrofitted as necessary to meet the new MACT standards. The commenters stated that design, procurement, installation, and shakedown of these projects will easily consume 3 years, if not substantially more. Commenters (381, 480, 484) also added that these thousands of facilities (including facilities subject to the Utility MACT) will be competing nationwide for limited resources and materials from engineering consultants, equipment vendors, construction contractors, financial institutions, and other critical suppliers. These commenters worried that some operators may be unable to obtain the required equipment and assistance needed to retrofit their units within the 3 years. Two commenters (480, 522) contended that the 3-year compliance schedule is too short for municipalities, universities, and colleges because funding must go through lengthy appropriations process and must frequently be approved by State and Local governments. One commenter (480) concluded that if municipal utilities are forced to comply within 3 years, there may be significant outages and significant adverse effects on the supply and distribution of energy. One commenter (417) noted that EPA effectively requires that all initial compliance demonstrations be completed and the notification of compliance status submitted prior to the date 3 years after the effective date of the standard.

Several commenters (339, 364, 381, 387, 388, 399, 400, 413, 443 449, 498, 524, 533) urged EPA to use its authority under section 112(i)(3)(B) to provide an additional 1 year in the compliance schedule. Another commenter (484) noted that §63.6(i)(1)-(14) provides EPA with flexibility to grant compliance date extensions if additional time is necessary for installation of controls. One commenter (381) asked for one additional year. Three commenters (484, 338, 522) requested that EPA provide a minimum extension of an additional 2 years (for a total of 5 years beyond promulgation). Several commenters (342, 359, 480) requested that EPA allow 5 or more years to achieve compliance. Two commenters (359, 480) requested that the compliance schedule be no shorter than the compliance schedule for large utility boilers, which has not been finalized at this time.

Response: The EPA disagrees with the commenters that the 3-year compliance deadline is too short considering the number of sources that will be competing for the resources and materials from engineering consultants, equipment vendors, construction contractors, financial institutions, and other critical suppliers. The EPA recognizes the possibility that these same consultants, vendors, etc., may also be used to comply with the utility MACT standard. However, we know that many sources will not need to install controls. As a result, since not everyone will need more than 3 years to actually install controls, the final rule does not allow an extra year for existing sources to comply with the final rule. Section 112(i)(3)(B) allows EPA, on a case-by-case basis to grant an extension permitting an existing source up to one additional year to comply with standards if such additional period is necessary for the installation of controls. The EPA feels that this provision is sufficient for those sources where the 3-year deadline would not provide adequate time to retrofit as necessary to comply with the requirements of the standard.

Comment: One commenter (396) requested clarification on the substantive regulatory

requirement dates for each type of boiler or process heater. The commenter interpreted the proposal to have no substantive regulatory requirement for gas and liquid fired units, and therefore, 3 years would be allowed from promulgation of the rule. The commenter interpreted the rule to also allow 3 years for solid fuel-fired units to comply. The commenter requested that EPA specify the potential-to-emit timing issues on the EPA Web site as soon as possible so that sources can become compliant on the date.

Response: In the final rule, the compliance schedule is 3 years after promulgation of the boilers NESHAP. Furthermore, we specifically included the minimal requirements for sources (e.g., existing gaseous and liquid fuel-fired units) that do not have emission limits or work practice standards under the boilers NESHAP. Since these units do not have any emission limits or substantive compliance requirements, we maintain that there is no specific date for substantive regulatory requirements.

### 6.4 Performance Testing

Comment: Several commenters (339, 343, 353, 374, 379, 382, 388, 400, 449, 478, 479, 491, 492, 498, 524, 533, 417) disagreed with EPA's requirement that existing affected sources must conduct performance tests, set operating limits, and conduct monitoring equipment performance evaluations by the compliance date, and that EPA did not follow the General Provisions allowance for 180 days after the compliance date to conduct performance testing. The commenters requested that existing sources be allowed 180 days after the compliance date to complete performance testing, set operating limits, and conduct monitoring equipment performance evaluations. Many commenters noted that the EPA's settlement agreement on the General Provisions should be honored, and questioned why EPA deviated from the General Provisions without any justification. Two commenters (353, 492) explained that the additional time is needed to complete retrofits and shakedown the new equipment and to schedule the performance testing. Furthermore, two commenters (374, 492) requested that EPA also revise the proposed deadlines for completing the initial compliance demonstration and submission of the notification of compliance status to be consistent with those of the General Provisions.

Response: We revised the final rule to be consistent with the General Provisions schedules. Affected sources now have 180 days after the compliance date to conduct an initial compliance demonstration. Furthermore, the compliance date is 3 years after boilers NESHAP promulgation. We believe this gives existing sources enough time to comply with the provisions of the boilers NESHAP.

### 6.5 Miscellaneous

Comment: One commenter (376) requested that EPA provide a variance option in the final rule specific to electric utilities, that would extend the compliance deadline upon demonstration of good-faith efforts to meet the boilers NESHAP requirements in instances where rule conditions would cause unacceptable impacts to energy supply and reliability.

Response: We disagree with the commenter's suggestion and do not provide a variance for sources that may be electric utilities. In the final rule, we extend the compliance schedule from 3 to 4 years. We believe this will allow sufficient time for sources to meet the regulatory requirements. Furthermore, the final rule specifically exempts electrical utility steam generating

units defined as: *a fossil fuel-fired combustion unit of more than 25 megawatts that serves a generator that produces electricity for sale. A unit that cogenerates steam and electricity and supplies more than one-third of its potential electric output capacity and more than 25 megawatts electrical output to any utility power distribution system for sale is considered an electric utility steam generating unit*. Since this is the definition in section 112 for electrical utility steam generating units, those units would be covered by the utility MACT. We do not believe that sources would be subject to both standards and, therefore, do not believe that a variance is necessary.

Comment: One commenter (446) requested that EPA clarify that if a facility that has undergone a section §112(g) case-by-case MACT determination, then it would have 8 years to comply with the boilers NESHAP after it commences operation.

Response: In the final rule, we do not explicitly state that a source which as undergone and has received a final and legally effective case-by-case MACT determination under section 112(g) has 8 years to comply with the boilers NESHAP after it becomes subject to this NESHAP. With regard to sources that have received a case-by-case MACT determination, §63.44(b)(2) states that "If no compliance date has been established in the promulgated section 112(d) or 112(h) standard or section 112(j) determination, for those sources that have obtained a final and legally effective MACT determination under this subpart, then the permitting authority shall establish a compliance date in the permit that assures that the owner or operator shall comply with the promulgated standard or determination as expeditiously as practicable, but not longer than 8 years after such standard is promulgated or a section 112(j) determination is made." Since the requirements of case-by-case MACT determinations may vary, we do not provide a blanket 8-year compliance schedule. We retain the position outlined in §63.44(b)(2) that your permitting authority will establish a compliance date that is no longer than 8 years after this NESHAP is promulgated.

## 7.0 SUBCATEGORIZATION

### 7.1 General

Comment: Several commenters (364, 381, 382, 387, 388, 393, 399, 406, 407, 408, 413, 444, 445, 447, 449, 452, 492, 498, 499, 501, 519, 523, 524, 530, 533, 536) supported EPA's proposed subcategories of boilers and process heaters based on fuel state. One commenter (381) agreed that the design and construction of large and small units involve further technological differences that affect nature, composition and controllability of HAP emissions and believed the EPA has followed the section 112 of the Clean Air Act (CAA) properly. Many commenters (388, 406, 407, 408, 449, 479, 492, 498, 501, 524, 533) noted that legislative history, case law, and section 112 supports EPA's proposal to distinguish among the units in the source category. One commenter (479) stated that EPA has the authority to subcategorize by fuel type and noted that the emission control achieved by one subcategory should not have an effect on the MACT floor determination on any other subcategories.

Response: The EPA thanks the commenters for their support.

Comment: Several commenters (413, 482, 499, 536) requested that EPA increase the maximum annual capacity factor for limited use units. One commenter (482) requested that EPA expand the limited use source category from a 10 percent annual capacity factor to a 30 percent annual capacity factor. Two commenters (413, 536) requested EPA modify the subcategory for limited use boilers by increasing the maximum annual capacity factor from 10 to 25 percent. Another commenter (499) suggested that EPA expand the limited use category maximum capacity factor from 10 to 20 percent. The commenter contended that according to EPA numbers, the cost effectiveness of the limited use solid fuel subcategory at a 10 percent capacity level is $3,808,592 per ton of HAP removed. The commenter stated that increasing this capacity factor to 20 percent would cut the cost effectiveness by about half to $1,904,250 per ton of HAP removed. One commenter (413) stated that some boilers operate at capacity factors greater than ten percent yet they still function as an emergency, backup, or start up boiler. One commenter (482) added that a limited use unit should be based on the average capacity during the previous three calendar years and noted that such a change would decrease the cost of control for limited use boilers by one-third.

Response: The EPA sees no justification for changing the limited use capacity factor. We would note that EPA is not allowed to consider cost when developing subcategories or the MACT floor. Cost may be factored when considering options beyond the MACT floor level of control. The subcategories at proposal and in the final rule are based on differences in fuel states, combustor types, and use of boilers and process heaters. As discussed in the proposal preamble, the EPA's boiler database indicates that these infrequently operated units typically operate 10 percent of the year or less. In the proposed rule, we requested that commenters provide additional information to be considered in developing the MACT floor. The EPA has not obtained any additional information from commenters that could be used to revise the proposal numbers.

Comment: Two commenters (448, 512) stated that EPA does not have the authority to

develop subcategories for the purpose of reducing compliance costs or weakening the standard. The commenters also noted that costs should not be considered in subcategorizing and establishing the MACT floor. One commenter (512) explained that EPA has failed to present a persuasive rationale for the establishment of new or different subcategories, such as a wood-fired unit subcategory and noted that EPA cannot subcategorize based on fuel type, cost, level of emission reductions, control technology applicability or effectiveness, achievability of emission reductions, or health risks. The commenter argued that EPA cannot subcategorize to reduce cost because that would change section 112 standards into a cost-benefit program, which is not legally defensible. The commenter noted that the D.C. Circuit court recently held that, when confronted with the cost argument, costs are not relevant when determining MACT floors.

Response:If the commenters are referring to the request for comment regarding further subcategorizations than what was proposed, the EPA agrees that there is no justification for any further subcategories. The final rule maintains the subcategories presented in the proposed rule. If the commenters are referring to subcategories presented in the proposed rule, Section 112(d)(1) of the CAA states "the Administrator may distinguish among classes, types, and sizes of sources within a category or subcategory" in establishing emission standards. Thus, we have discretion in determining appropriate subcategories based on classes, types, and sizes of sources. We used this discretion in developing subcategories for the industrial, commercial, and institutional boilers and process heaters source category. Through subcategorization, we are able to define subsets of similar emission sources within a source category if differences in emissions characteristics, processes, APCD viability, or opportunities for pollution prevention exist within the source category. We first subcategorized boilers and process heaters based on the physical state of the fuel (solid, liquid, or gaseous), which will affect the type of pollutants emitted and controls applicable, and the design and operation of the boiler, which influences the formation of organic HAP emissions. We then further subcategorized boilers and process heaters based on size. Our distinctions are based on technological differences in the equipment. For example, small units are package units typically having capacities less than 10 million Btu per hour heat input and use a combustor design which is not common in large units. A review of the information gathered on boilers also shows that a number of units operate as backup, emergency, or peaking units that operate infrequently. The boiler database indicates that these infrequently operated units typically operate 10 percent of the year or less. These limited use boilers, when called upon to operate, must respond without failure and without lengthy periods of startup. Since their use and operation are different compared to typical industrial, commercial, and institutional boilers, we decided that such limited use units should have their own subcategory.

The EPA contends that neither the subcategories or MACT floor analysis was conducted considering costs, either in the proposed rule or in the final rule.

Comment: One commenter (529) questioned the basic subcategorization of the proposed boilers NESHAP. The commenter pointed out that co-firing multiple fuels shows the variability of emissions resulting from such an operational method. Co-firing allows a source to practice "fuel-switching" to achieve marginal compliance with the emission limit over the 6-month assessment period.

Response: The EPA contends that the subcategories developed in the proposed rule and maintained in the final rule are the most appropriate for this source category. The subcategories differentiate units by parameters that influence the type of pollutants emitted and comport to the

requirements of the CAA. The EPA recognizes many boilers co-fire multiple fuels, but contends that general fuel subcategories of solids, liquids, and gaseous fuels are more appropriate than identifying a multitude of fuel specific subcategories (e.g., coal, wood, etc). The EPA's interpretation of the CAA does not allow it to subcategorize units based on the type of fuel burned. In addition, multiple fuel subcategories would lead to extremely complicated analyses and compliance requirements to account for co-firing. Such subcategories would also require us to develop more stringent compliance requirements to ensure the standards are being met and would reduce the flexibility EPA could provide to comply with the standard. Also, EPA does not set specific controls that can be used to meet requirements. An owner or operator can meet the emission limits using any control technology or fuel switching available. The EPA considers it entirely appropriate for units to meet emission requirements by switching to less polluting fuels.

Comment: One commenter (369) stated that the proposed boilers NESHAP is unclear as to which requirements apply to a dual-fuel affected source permitted to burn backup fuel with emissions greater than its primary fuel. The commenter asks that in the final rule, EPA clarify which requirements apply to a dual-fuel affected source when firing the cleaner burning of the two fuels.

Response: The final rule, like the proposed rule, clearly defines which subcategories are applicable to each boiler. Units burning any amount of solid fuel, as the primary fuel, or co-fired fuel, or back-up fuel, are subject to the requirements of the solid fuel subcategory. Units burning only gaseous fuels are subject to the requirements of the gaseous fuel subcategory. For the final rule, EPA has decided to allow sources in the gaseous fuel subcategories that burn liquid fuels during periods of gas curtailment or gas supply emergencies to remain in the gaseous fuel subcategories rather than liquid fuel subcategories. This decision was made to reflect that in some circumstances that are beyond the owners or operators control, gas supplies may not be available. We decided that for these short periods, it could be confusing and burdensome for the source and State regulators to meet requirements for the liquid fuel subcategories when they will go back to firing gaseous fuel after the emergency is over. All other units firing liquid fuel or liquid and gaseous fuel are subject to the requirements of the liquid fuel subcategory.

Comment: Two commenters (490, 523) suggested that voluntary fuel switching be a compliance option for existing sources. The commenters recommended that if the owner or operator of a solid fuel unit switches to liquid and/or gaseous fuel, it should be allowed to elect the standard under which the unit will be regulated. The commenters proposed two options: (1) The unit will be subject to the standard for existing liquid or gaseous fuel units, or (2) the standard for existing solid fuel units will continue to apply. In that context, the owner or operator may elect to average emissions over the solid-fuel units under a bubbling compliance demonstration alternative. The commenters stated that if EPA should disapprove of such an election, the rule should state that there will be presumptive compliance for solid fuel units that switch to liquid or gaseous fuels. In addition, the commenters stated that such units that comply through switching gas or oil should have no applicable requirements other than recordkeeping to demonstrate that only gas and oil burned in the unit after the compliance deadline for the solid-fuel unit limits. Other commenters (374, 523) requested that EPA clarify that if units already subject to this standard as an existing source change subcategories due to a change in operation

would remain classified as an existing source. One commenter (523) stated that existing units that change fuels should be able to comply with the standards for existing units rather than new units. The commenter stated that fuel-switching would enable more cost effective compliance with the standard, especially for units switching to a less-polluting fuel like natural gas or solid fuels that contain fewer HAP metals. The commenter stated that the rule should clearly state that fuel switching would not trigger entry into a new subcategory.

Response: We reviewed the proposal preamble and rule and determined that further clarification of fuel switching requirements are needed. For the final rule, we decided to allow sources that are originally in one subcategory (based on fuel state) that change the fuel burned to be in another subcategory (i.e., to voluntarily fuel switch) after the effective date, to still be subject to the requirements of the original subcategory they were a part of. For example, a source that switches from firing coal to gas after the effective date of the rule is still subject to the solid fuel requirements of the regulation (e.g., emission limits, work practices, monitoring, and recordkeeping and reporting, etc.). Because sources may switch to different fuels (e.g., when gas prices are high, they may use liquid fuel) it would be confusing and also a compliance concern to keep track of and ensure that the appropriate standards are being met. We believe that requiring sources to meet the standards of the original fuel subcategory clarifies compliance requirements for sources and allows regulators to ensure that sources are not gaming the regulation.

Comment: One commenter (512) opposed the limited use subcategory because the resulting MACT floor was a "no emission reduction" determination. The commenter argued that this did not meet the requirements of the CAA.

Response: The EPA disagrees with the commenter's assertion, and contends that the proposed and final rule comply with the requirements of the CAA. As discussed in the proposal preamble, the decision to create a separate subcategory for limited use units was based on a review that showed that a number of units operate as backup, emergency, or peaking units that operate infrequently. These limited use boilers, when called upon to operate, must respond without failure and without lengthy startup periods. The EPA continues to consider these units as having uses and operation that are different compared to other industrial, commercial, and institutional units. The EPA contends that this differentiation from other boilers comports to the requirement for subcategory development in section 112(c) and (d). For the liquid and gaseous limited use subcategories, the resulting MACT floor analysis did result in a "no emission reduction" determination. However, EPA contends that this result is no different than the MACT floor determinations for the small solid, liquid, and gaseous fuel subcategories, which also resulted in a "no emission reduction" determination. We also believe that EPA has ample legal authority to set the MACT floor at "no emissions reductions". This is because the statute requires EPA to set standards that are duplicable by others. In National Lime, the court threw out EPA's determination of a no control floor because it was based only on a control technology approach. The court stated that EPA must look at what the best performers achieve, regardless of how they achieve it. Therefore, our determination that the MACT floor for certain subcategories or HAP is "no emissions reduction" is lawful because we determined that the best-performing sources were not achieving emissions reduction through the use of an emission control system and there were no other appropriate methods by which boilers and process heaters could reduce HAP emissions. Furthermore, setting emissions standards on the basis of actual

emissions data alone where facilities have no way of controlling their HAP emissions would contravene the plain statutory language as well as Congressional intent that affected sources not be forced to shut down.

### 7.2 Additional Subcategories

Comment: Several commenters (358, 373, 378, 398, 413, 416, 417, 421, 422, 423, 429, 435, 469, 470, 471, 472, 480, 481, 506, 509, 528, 536) requested that EPA establish a separate subcategory for municipal utilities. Several commenters (358, 413, 416, 417, 423) suggested that this subcategory cover units less than 25 megawatts. The commenters noted that these units face different issues that industrial units and some control equipment may not be feasible. One commenter (416) insisted that for combined-cycle turbines producing less that for units with 25 megawatts of electrical power with duct burners, the identified control equipment for the MACT floor for new liquid-fired units (electrostatic precipitators, fabric filters, and packed bed scrubbers) may not be feasible. One commenter (417) cited the following reasons for creating a subcategory for small electrical utility steam generating units: 1) EPA has authority from the CAA to establish such a subcategory of sources to be regulated under section 112 and is meant to address control costs and feasibility; 2) past EPA practice supports subcategorization in this instance, 3) differences between municipal utility boilers and non-utility boilers justify subcategorization, and 4) EPA cannot properly account for cost and energy concerns mandated in the MACT standard setting process without subcategorization for municipal utility boilers. One commenter (358) suggested including three additional subcategories specific to the utility sector: (1) large solid fuel-fired utility boilers (>10MMBtu/hr heat input), (2) small solid fuel-fired utility boilers (>1 MMBtu/hr to < or = 10 MMBtu/hr of heat input, and (3) other utility boilers burning liquid or gaseous fuels. One commenter (423) suggested subcategorizing small utility boilers by fuel type, because there are differences between solid and liquid/gaseous fuels and their combustion products. One commenter (480) stated that a separate subcategory for municipal utilities could effectively implement the purposes of UMRA. The commenter added that the unique physical attributes of municipally-owned utilities, as well as their significant and direct impact on municipal tax base support a separate subcategorization. The commenter also stated that municipally owned utilities are typically located in physically constrained urban areas where installation of controls is frequently physically impossible.

One commenter (536) supported developing a subcategory for small public power systems to minimize losses of revenue to the city, unemployment, and higher electricity rates. The commenter added that this change in combination with the option to become unaffected based on risk would mitigate adverse economic burdens to local government. One commenter (528) expressed concern that the proposed regulation would have a detrimental effect on the continued viability of municipal electric generation.

Response: The EPA sees no technical or legal justification for creating a separate subcategory for municipal utilities. Boilers at municipal utilities fire the same type of fuels, have the same type of combustor designs, and can use the same type of controls as other units in the large subcategory. Consequently, the subcategories that are in the final rule are the same as at proposal. We would also like to clarify that subcategories were developed based on combustor design and not on industrial sector. Also, had we gone beyond-the-floor, we would have considered cost in the final determination. Since we did not go beyond-the-floor level of control, cost did not play a role in the analysis.

Comment: One commenter (418) requested that EPA establish a separate subcategory for blast furnace gas-fired units. The commenter noted that this subcategorization would eliminate the CO work practice standards for those types of sources.

Response: The EPA did not establish a separate subcategory for blast furnace gas-fired units because there is no justification for differentiating these units from other gas-fired units. However, EPA recognizes the unique properties of blast furnace gas having high CO emissions. The EPA agrees that these sources could not meet the CO limit, and monitoring CO would not indicate that the unit was operating under good combustion practices or reducing organic HAP. As a result, in the final rule, EPA exempts blast furnace gas fired units from the CO limit. However, the final rule requires that these units monitor oxygen content to demonstrate proper combustion operation.

**7.3 Size Threshold**

Comment: Commenters (396, 401, 497) urged EPA to increase the size range for small units. The commenters argued that the current threshold between small and large units is too low because the units at the lower end of the large subcategory emit low quantities of HAP, but would be required to meet strict emission standards and install CO monitor (for new units). One commenter (401) noted that a CO monitor will not reduce HAP emissions so there is no benefit that can be assigned. The commenter considered this a waste of resources. The commenter pointed out that the HAP emission factors for a 100 MMBtu/hr uncontrolled gas boiler unit operating at 100 percent capacity factor will emit total HAP emissions of 0.3 ton per year, which is 1.2 percent of the major source trigger level of 25 ton per year for all HAP. One commenter (396) added that a more appropriate limit would be 100 MMBtu/hr. Another commenter (497) asserted that their analysis of the EPA database indicates that a 50 MMBtu/hr minimum applicability size for large units encompasses predominantly firetube boilers and is therefore more appropriate than the proposed 10 MMBtu/hr minimum.

Response: The final rule clarifies that CO standards are work practices and not emission limits. Also, the final rule does not require CO CEMS for units less than 100 MMBtu/hr, but allows annual testing or monitoring of oxygen level to ensure compliance. The EPA believes these clarifications will alleviate some of the commenter's concerns. The designation of large and small subcategories was not based solely on size of the unit. Large and small subcategories were developed because small units less than 10 MMBtu/hr heat input typically use a combustor design that is not common in larger units. Large boilers generally use the watertube combustor design. The design of the boiler or process heater will influence the completeness of the combustion process which will influence the formation of organic HAP emissions. Additionally, the vast majority of small units use natural gas as fuel. The EPA chose to develop large and small subcategories to account for these differences and their affect on the type of emissions. The cut-off between the large and small subcategories of 10 MMBtu/hr was based on typical sizes for firetube units, and also when considering cut-offs in State and Federal rules. Additionally, EPA's interpretation of the CAA does not allow subcategorization based on the magnitude of emissions or existing controls. Subcategories can be developed based on parameters that affect the type of pollutants emitted and applicable controls. The EPA sees no legal justification further changing the size range designations for large and small units.

Comment: Two commenters (431, 503) explained that units that are rated at greater than 10 MMBtu/hr rarely operate at or above that threshold. The commenters noted that these units would be regulated as large units under the proposed rule, although they exhibit emission characteristics substantially similar to small units. The commenters suggested utilizing the actual annual average firing rate for the unit to determine whether it is a large or small unit.

Response: The EPA disagrees with the commenter's suggestion. Although some units rated at greater than 10 MMBtu/hr might operate their boiler at less than capacity, they have the potential to operate above the 10 MMBtu/hr subcategory cut-off.

Comment: One commenter (357) contended that hours of operation should not be a factor in establishing the MACT floor.

Response: Hours of operation were not considered in developing the MACT floor. The MACT floor was based on the best-controlled sources in each subcategory. As discussed in the proposal preamble, the decision to create a separate subcategory for limited use units was based on a review that showed that a number of units operate as backup, emergency, or peaking units that operate infrequently. In order to define the subcategory to include these units, the EPA reviewed the data available to them. The information available to EPA indicated these units typically operate 10 percent of the year or less.

Comment: One commenter (345) recommended that the large and small gas-fired subcategory be combined into a single category or increase the cut-off between them. In addition, the commenter stated that the limited-use gas-fired subcategory could be combined with the small gas fired category. The commenter stated this would not have any impact on emissions.

Response: We disagree with the commenter's suggestions. At proposal and in the final rule, separate subcategories were developed for large and small units based on the combustor type. Separate subcategories were developed for limited use units based on their difference in use and operation. While combining the gaseous subcategories may not have an impact on the rule because none of the existing gaseous subcategories have emission limits or work practice requirements, we decided not to combine them in order to maintain consistency with the liquid and solid fuel subcategories and because of the differences between small, large, and limited use units.

Comment: One commenter (357) suggested that EPA add a category for medium sized boilers between 10 and 100 MMBtu/hr. The commenter stated it is not reasonable to lump the medium boilers into the large boiler category because the CAA requires MACT standards to be evaluated based on similar sources in the source category. In addition, the commenter stated that large boilers have been legally mandated to have reduced emissions (i.e., more stringent pollution control devices) compared to medium size boilers. The commenter contented that the two are not similar sources even though they are in the same source category (industrial boilers). The commenter added that there are differences in fuel handling systems, pollution controls, and emissions monitoring equipment. The commenter stated that based on the CAA, separate MACT standards must be developed for medium sized industrial boilers. The commenter (357) suggested that boiler subcategories be included in the final rule based on AP-42 boiler classifications, capacity, and on past practices. The commenter added that the proposed rule

argues for a "one size fits all" large boiler category because of equipment similarity, yet on the other hand, EPA has long held there are emission differences for boilers depending on fuel type, firing configuration, and feed method.

Response: The EPA does not see justification for creating a separate subcategory for medium sized units. The designation of large and small subcategories was not based solely on size of the unit. Large and small subcategories were developed because small units less than 10 MMBtu/hr heat input typically use a combustor design that is not common in larger units. Large boilers generally use the watertube combustor design. The design of the boiler or process heater will influence the completeness of the combustion process which will influence the formation of organic HAP emissions. The EPA chose to develop large and small subcategories to account for these differences and their affect on the type of emissions. The proposed size break between the large and small subcategories of 10 MMBtu/hr was based on typical sizes for firetube and cast iron units and considering cut-offs in State and Federal permitting requirements and rules. The EPA does not view medium sized boilers as being different than larger boilers. Combustor designs, applicable air pollution control devices, fuels used, and operation are similar for large and medium. While actual pollution controls used and monitoring equipment may be different, the CAA does not allow EPA to subcategorize on these parameters.

Section 112(d)(1) of the CAA allows EPA to distinguish among classes, types, and size in establishing MACT standards. As indicated above, at proposal, the size break selected between large and small units of 10 MMBtu/hr was based on typical sizes for fire tube units and also considering cut-offs in State and Federal permitting requirements and emission rules. Based on comments, we have examined information in the docket regarding the population and characteristics of industrial, commercial, and institutional boilers. It is correct that boilers below 10 MMBtu/hr are generally not required to be permitted and are either firetube or cast iron boilers. Based on review of the thousands of responses received on a information collection request (ICR) conducted during the rulemaking, it is obvious and appropriate that the distinction between small and large units needs to include size. It is apparent from the ICR responses that facilities know the size of their units but do not generally know the exact type of the units. Many responses indicated that the boiler was both firetube and watertube. Many more responses did not list the boiler type at all. Therefore, the inclusion of size in the definition of small and large subcategories is appropriate.

Based on review of the 1979 EPA document on boiler population and the information collection request (ICR) survey database, the appropriate size break between small and large type units is 10 MMBtu/hr. In the EPA document, 99 percent of the boilers listed as being below 10 MMbtu/hr are either firetube or cast iron. Since these trends are from a 25 year old report, we analyzed our ICR survey database which confirmed these findings.

Comment: One commenter (529) questioned the limited use subcategory, pointing out that large units operating only 10 percent of the time can produce hourly emissions comparable to units operating all the time. Large units that operated 10 percent of firing capacity produce higher amounts of organic HAP as products of incomplete combustion and therefore present an even greater threat to human health for every MMBtu of heat input.

Response: The CAA does not allow EPA to subcategorize based on magnitude of emissions or prevalence of controls for one sector of the population over another.

Section 112(d)(1) allows EPA to subcategorize only on the basis of sizes, types, and classes. The limited use subcategory was not developed based on size or magnitude of emissions released. It was developed to represent a specific type of boiler, those used as backup, emergency, or peaking units that operate infrequently. These limited use boilers, when called upon to operate, must respond without failure and without lengthy startup periods. The EPA continues to consider these units as having uses and operation that are different compared to industrial, commercial, and institutional units. Consequently, the final rule contains a separate subcategory for them. We would also note that we could not identify any control technologies that would reduce organic HAP emissions. Therefore, while larger units may emit more than smaller units, we have not identified any appropriate technology or method that could be used to reduce organic HAP emissions.

Comment: One commenter (484) suggested that EPA should establish large unit subcategories such that they are similar to other EPA regulations (e.g., NSPS). Two commenters (490, 523) stated that the definition of large and small units is inconsistent with EPA's own New Source Performance Standard. The commenters stated that this rule should be similarly divided. Three commenters (339, 343, 428) requested that EPA modify the subcategories such that larger units are greater than 100 MMBtu/hr and small units are 10 to 100 MMBtu/hr. Two commenters (490, 523) stated that the suggested approach would be consistent with the mandate of section 112(c)(1) which states "To the extent practicable, the categories and subcategories listed under this subsection shall be consistent with the list of source categories established pursuant to section 111 and Part C." One commenter (343) recommended that limited use units be categorized as >100MMBtu/hr. The commenters pointed to the Industrial Boiler NSPS (Subpart Dc) for useful guidelines in establishing appropriate thresholds.

Response: The designation of large and small subcategories was not based solely on size of the unit. Large and small subcategories were developed because small units less than 10 MMBtu/hr heat input typically use a combustor design that is not common in larger units. Large boilers are generally using the watertube combustor design. The design of the boiler or process heater will influence the completeness of the combustion process, which, in turn, will influence the formation of organic HAP emissions. Additionally, the vast majority of small units use natural gas as fuel. The EPA chose to develop large and small subcategories to account for these differences and their affect on the type of emissions. The cut-off between the large and small subcategories of 10 MMBtu/hr was based on typical sizes for firetube units, and also when considering cutoffs in State and Federal rules. Additionally, EPA's interpretation of the CAA does not allow subcategorization based on the magnitude of emissions or existing controls. Subcategories can be developed based on parameters that affect the type of pollutants emitted and applicable controls. The EPA sees no legal justification further changing the size range designations for large and small units.

### 7.4 Fuels

Comment: Two commenters (393, 441) questioned EPA's decision to include biomass in the same subcategory with all solid fuel-fired boilers and process heaters. The commenters argued that since biomass is a renewable fuel, and has lower fuel-related pollutants, EPA risks discouraging its use by not placing biomass units into a separate subcategory. However, other

commenters (364, 399, 387) argued that EPA should not create a separate subcategory for biomass fuel-fired boilers. The commenters explained that, in most cases, facilities have insufficient residual biomass to represent the sole boiler fuel source and this additional subcategorization could add substantial complexity to the rule since the amount of biomass burned in a unit can vary.

Response: The EPA disagrees with further subcategorizing solid fuel units. As discussed in the proposal preamble, solid fuel-fired units generally emit PM, metals, and inorganic HAP, and similar control technologies (fabric filters, ESPs, scrubbers) may be used for all solid fuel units to control these pollutants. Additionally, as one commenter noted, in most boilers biomass is not the sole fuel burned. Often it is co-fired with coal, or other solid fuels. The EPA concluded that it would be difficult to establish subcategories for specific fuels and even more difficult for facilities that burn multiple fuels in a boiler to comply with such standards. To do so would require us to consider all the possible fuels that may be burned in boilers and process heaters, and all their potential fuel combinations.

Comment: Three commenters (390, 393, 438) suggested that EPA develop subcategories for different types of coals. The commenters stated that EPA's variability analyses did not adequately account for the impacts that fuel characteristics can have on mercury emissions, particularly the chlorine content of different coals. One commenter (438) explained that the variation in pollutant concentration across the different coal types warrants further subcategorization. One commenter (390) contended that EPA must structure the boilers NESHAP to refrain from forcing utilities from switching from one coal rank to another, such as sub-bituminous to bituminous. The commenter added that process differences related to temperature can affect emission characteristics, further justifying subcategorization.

One commenter (376) recommended that EPA reconsider the mercury standard by further subcategorizing by fuel type and boiler design.

Response: The EPA disagrees with the commenters suggestion to further subcategorize solid fuel units based on the type of coal burned. The EPA recognizes the variation in emissions between different coal types, as well as difference within each coal type, and differences between coal and other solid fuels. However, the EPA also does not see any justification for any further subcategorization. Although there may be variation in the amount of pollutants emitted, the type of pollutants emitted will be similar between all solid fuel units (particulate matter, metallic HAP, and inorganic HAP). As a result, similar control technologies may be used. The EPA would like to clarify that because of the general nature of the fuel subcategories (solid, liquid, gas), boilers in the solid fuel subcategory can burn any solid fuel as long as they are able to meet the emission limits for the subcategory. The EPA also considers that variability has been incorporated into the MACT floor analysis because the emission limits developed for the MACT floor level of control incorporate boilers using various fuels, various combustor types, and variations of the same control device.

## 8.0 MACT FLOOR

Comment: One commenter (297) questioned EPA's logic for stating that a scrubber is the floor technology for hydrogen chloride (HCl) control when this is an older level of technology that may have particulate matter emissions higher than the floor level of control.

Two commenters (490, 519) questioned EPA's determination that the floor technology for existing solid fuel-fired units is a fabric filter in combination with a scrubber. One commenter (490) stated that some boilers have baghouses, but many have other types of control equipment. The commenter stated that it appears that EPA has predetermined that baghouses are the only acceptable control system for particulate HAP. The commenter stated that this could require facilities to rip out existing control equipment and make a costly replacement. The commenter stated that if EPA had not predetermined the outcome, it is quite possible that existing equipment could continue to be used to meet emission levels based on what facilities actually emit. In addition, the commenter stated that EPA must reevaluate the floor determination for both HCl and particulate without prejudgement regarding the control devices that must be installed. The commenter stated that EPA appears to have disregarded the emissions data collected for solid fuel units, and instead is relying on certain control technology (e.g., scrubbers in combination with baghouses) as a pre-ordained floor. The commenter stated that very few coal-fired boilers in this industry (or in other industrial applications for that matter) have scrubbers and those that do use wet scrubbers for SO2 control, not HCl. In addition, the commenter stated that wet scrubbers use chemicals that are best suited for SO2 control and those same chemicals may not be sufficient to control HCl to the levels proposed. One commenter (519) argued that EPA did not properly establish the floor for solid fuel-fired units. The commenter explained that there was no evidence that 12 percent of the population of solid fuel-fired units are equipped with both fabric filters and wet scrubber systems.

Response: The MACT floor analysis was conducted for each pollutant category separately. The final MACT floor for a subcategory would be the combination of control requirements for each pollutant category. Therefore, separate MACT floor analyses were done for PM and HCl. These procedures have been followed in previous MACT standards. In the proposal and in the final rule for every subcategory that has an HCl limit, a PM/metals limit was also developed. The database that EPA has assembled shows that at least one source in the applicable subcategories has a fabric filter/scrubber combination.

The EPA would also like to clarify that the MACT floor analysis is based on the best controlled 12 percent of sources in a subcategory. A detailed discussion of the MACT floor methodology is presented in the memorandum "MACT Floor Analysis for New and Existing Sources in the Industrial, Commercial, and Institutional Boilers and Process Heaters Source Categories". EPA's determination of the most efficient control techniques for each pollutant category is based on emission information gathered for the boilers NESHAP, previous EPA studies, and information provided by stakeholders in the ICCR process. If the majority of sources in the top 12 percent use scrubbers to control inorganic HAP, then scrubbing will be the floor technology. Because HCl is readily absorbed into water and caustic, which is the primary scrubber medium in sulfur dioxide scrubbers, EPA does not believe that any lower removal performance for HCl removal will occur. We would also like to clarify that the proposed rule and final rule do not require a specific control technology to meet the standards. An owner/operator can choose any control technique as long as they can meet the emission limit

requirements of the rule.

Comment: Several commenter (364, 383, 387, 399) suggested EPA reevaluate the feasibility of fabric filters for certain combination and solid fuel-fired boilers. The commenters explained that the pulp and paper industry frequently employs boilers burning a combination of fuels that may combust a variable mixture of fossil, biomass, and/or residual fuels. This variety of fuels results in a dynamic combustion process with constantly varying combustion conditions. The commenters explained that these boilers run at higher excess air levels than comparable boilers firing only one or two fuels. The higher excess air levels are frequently reflected in higher levels of fixed carbon in the flyash, which represents a particular fire and explosion hazard for fabric filters that retain significant "cake" on the fabric surface. The commenters concluded that for this reason, fabric filters are generally regarded as technically infeasible for these types of boilers. The commenters noted that EPA's database shows few, if any, examples of filters installed on boilers of this type, firing two or more solid fuels.

Response: The EPA would like to clarify that the proposed rule and final rule do not require a specific control technology to meet the standards. An owner/operator can choose any control technique as long as they can meet the emission limit requirements of the rule. The MACT floor analysis is based on identifying technologies that achieved the best control of the regulated pollutants in the population database. After the control level used by the best performing 12 percent of sources in a subcategory was identified, the emissions database was used to determine an emission limit corresponding to the performance achieved by the MACT floor control technology. The final rule also allows units to comply with the standards by conducting a fuel analysis to demonstrate that emissions of pollutants would be below the emission limits in the standard. EPA contends that there is sufficient flexibility for owners/operators to comply with the standards.

Comment: One commenter (340) requested that area sources that have been controlled so they are minor facilities (synthetic minors) should be included in the database. The commenter stated that if a facility applied controls to limit HAP emissions to below major facility thresholds, they have applied controls worthy of consideration as a MACT technology. The commenter agrees that area sources that are naturally minor facilities should not be considered in the database.

Response: The EPA agrees with the commenter that facilities that apply controls to limit HAP emissions below major facility thresholds should be considered in the MACT floor analysis. However, EPA's database does not indicate which boilers would be these synthetic minors and which would be naturally minor facilities. Therefore, the commenter's suggestion, while appropriate, cannot be conducted. The EPA would also like to clarify that boilers assigned to area source were identified initially by reviewing their SIC and SCC codes, and using best engineering judgement. The potential to emit HAP from each boiler assigned to the area source category was calculated using emission factors developed from EPA's boiler emission test database and the boiler heat input capacity. Those boilers calculated to have a potential to emit greater or equal to the 10 tons per year of any HAP/25 tons per year combined HAP (10/25) major source definition were re-assigned to the major source category. Control technologies present at each boiler were not considered in the area source determination.

Comment: Some commenters (357, 358, 361, 362) objected to the inclusion of utility boilers in the database used to determine the MACT floor. One commenter (357) stated the large solid fuel subcategory MACT floor determination is flawed because data was used from sources outside of the source category. The commenter stated the CAA requires MACT standards to be based on the best performing 12 percent of existing sources, yet at 68 FR 1675 of the proposal preamble, EPA states that it used data from utility boilers to determine the mercury MACT floor. In addition, the commenter stated if less than 12 percent of existing sources in the large solid fuel source category do not control mercury emissions or control levels are not defined, then the MACT floor should be no control for these existing sources. Two commenters (361, 362) argued that the mercury emission standard may be impossible for sources subject to the boilers NESHAP to meet because the MACT floor level of control (fabric filters) may not perform the same on non-utility units, but the standard is based on data from utility units using fabric filters. One commenter (358) contended that reevaluation of MACT floors based on subcategorizing utility boilers separately would result in a MACT floor for the proposed HAP ranging from no control to cold-side ESPs. However, one commenter (340) requested utility boilers less than 100 megawatt not be removed from the database because the control technologies utilized by these small utility boilers are readily adoptable by industrial boilers.

Response: The EPA has interpreted the comments regarding using utility boiler information to refer to the statements in 68 FR 1675 "Based on test information on utility boilers, we have concluded...Although EPA used information from utility boilers to conclude that fabric filters...." The EPA would like to clarify that these statements refer to an assessment of control technologies for reducing various HAP (see the memorandum "Control Technology Assessment for Industrial, Commercial, and Institutional Boilers and Process Heaters" for further details). The EPA contends that it can use any available information from similar sources, such as another combustion device using fabric filters, to assess the effectiveness of any control technology. The EPA also considers it appropriate because some technologies used on boilers and process heaters were not previously evaluated for mercury control effectiveness, while they were in other similar source categories.

The MACT floor analysis for mercury is based on a two step process. First, the percentage of units with control technologies that were identified that could achieve mercury emission reductions was determined using the boiler population databases. If the control technology analysis indicated that at least 12 percent of sources in the subcategory used a control device that could achieve mercury emission reductions, then the control technology present at the median ($6^{th}$ percentile) was identified as the MACT floor control technology. Second, the emission limit associated with the MACT floor control technology was calculated using emissions information for units in the subcategory, or similar source. A detailed explanation of the MACT floor methodology is presented in the memorandum "MACT Floor Analysis for New and Existing Sources in the Industrial, Commercial, and Institutional Boilers and Process Heaters Source Categories". In neither the analysis of the MACT floor control technology, nor the emission limit associated with the control technology, was information from utility boilers used. The mercury and hydrogen chloride fuel content of coal from the utility industry was used in developing the variability factors for new solid fuel-fired units. This was done because mercury and hydrogen chloride emissions are dependent on the quantity of chlorine or mercury in the fuel burned. Coal available to utilities and industrial boilers and process heaters is expected to be similar, and coal is the solid fuel that is routinely used in such units that generally has the greatest degree of HAP variability.

The EPA would also like to note that only fossil fuel-fired steam generating units that sell more than 25 megawatt to the grid are considered utility boilers in the Clean Air Act (CAA), and are covered by the utility boiler MACT. All non-fossil fuel fired steam generating units and steam generating units that sell less than 25 megawatt to the grid are included in this MACT standard. As such, information from these sources can be included in the MACT floor analysis. The commenter is referred to Appendix C of the MACT floor memorandum for a detailed list of all emissions information used in the analysis.

Comment: One commenter (529) expressed concern that test data supporting the MACT floor includes both controlled and uncontrolled emissions from the same sources. The commenter pointed out that the uncontrolled test data serves only to increase the population of test data to allow an increased number of sources in the top 12 percent and lower the calculated MACT floor. The commenter also noted that a substantial number of performance tests in the MACT floor database show "zero" emissions. The commenter believes this information to be erroneous, or should be included in the MACT floor. The commenter (529) pointed out that the number of performance test reports in the MACT floor database is inconsistent with the number given in the October 2002 MACT Floor Analysis. The commenter also mentioned that the information referenced from the utility-related information request is not consolidated with the other boiler/process heater data so that this information could be reviewed with the other MACT floor database.

Response: The EPA believes the commenter is mistaken in their assertion. The MACT floor analysis is based on a two step process. First, the percentage of units with control technologies that were identified that could achieve emission reductions of each pollutant category was determined using the boiler population databases. If the control technology analysis indicated that at least 12 percent of sources in the subcategory used a control device that could achieve emission reductions, then the control technology present at the median ($6^{th}$ percentile) was identified as the MACT floor control technology. Second, the emission limit associated with the MACT floor control technology was calculated using emissions information for units in the subcategory, or similar source. The MACT floor emission limits were only based on units in the emissions database that utilized the MACT floor control technology. Uncontrolled emissions information was not used to calculate MACT floor emission limits. Therefore, the emissions data used in the MACT floor emission limit analysis does not match the total number of emissions tests in the MACT floor emissions database because it is only a subset of that database.

The EPA would also like to clarify that emission test information from utility boilers was not used in establishing the MACT floor emission limits. The commenter is referred to Appendix C of the MACT floor memorandum for a detailed list of all the emissions information used in the analysis. Regarding the comment about zero emissions information, the EPA believes the commenter is referring to test results where the there are no emissions information provided in the database. (The emissions database does not contain average emission factors with values of 0.) This result is due to emissions being below the detection limit, insufficient numbers of test runs, or missing data that would not allow the use of the emissions information. This information was not used in the MACT floor emission level analysis.

Comment: One commenter (357) stated that the MACT floor determinations are flawed because not all available data were included. The commenter claimed that states without an electronic database were not included in the MACT floor determinations. In addition, the commenter stated that this has the potential to bias MACT floor determinations toward States with electronic databases. The commenter believes that the States with electronic databases could have more stringent pollution control requirements resulting in a bias towards a certain pollution control technology.

Response: The EPA attempted to obtain the most complete information available. In the ICCR process, EPA developed and submitted a questionnaire for non-fossil fuel fired units. Information on fossil fuel units was obtained from AIRS/OTAQ, which is a national database, and from as many States as possible. Only a few States submitted data. In the preamble to the proposed rule, EPA requested additional information. However, no additional information on the population of units was provided in the comments. The CAA allows EPA to conduct analysis based on available information, as was done at proposal and in the final rule. The EPA does not have any information that would lead to the conclusions that States with electronic databases have more stringent standards. Also, the EPA believes that most, if not all States, keep records electronically.

Comment: One commenter (530) supported EPA's decision in the boilers NESHAP not to use the "inherent and unavoidable" variations in fuels in a way that could improperly bias the selection of the "best controlled" and "best performing" sources. The commenter stated that the HAP content of fuels simply is not a measure of performance and therefore cannot be an indicator of the "best controlled" or "best performing" sources.

Response: Wherever possible, the MACT floor emission limits were based on emission information. If emissions information was not available we looked at the fuel pollutant content as a substitute. For all the solid fuel subcategories, emissions information was available for sources within the subcategory or from a similar source, i.e., another solid subcategory. For the new source liquid emission limits, the MACT floor emission limit for HCl is based on the fuel pollutant content because there was no available emissions test data for HCl from liquid fuel-fired boilers. The EPA contends this approach is entirely appropriate because for some pollutants, such as HCl and metallic HAP, emissions are related to the amount of pollutants in the fuel and are not affected by combustion mechanisms.

Comment: Several commenters (338, 388, 447, 449, 484, 498, 519, 521, 524, 530, 533) requested that EPA account for variability in fuel composition as MACT floors are established and to provide adequate allowances for inherent fuel supply variability. Some commenters (338, 484, 521, 522) argued that there is no flexibility in the rule to account for this variability and noted that coal composition can vary by location and also within an individual seam. One commenter (522) explained that under the initial testing, coal with a lower pollutant content might be used and the source would not have to control emissions, but coal from the same seam might yield higher pollutant content later and the source might not have sufficient time to install controls to meet the MACT compliance deadline. The commenter added that universities and colleges are also limited in fuel suppliers because procurement policies of public institutions prohibit exclusionary contracts with fuel vendors. One commenter (413) contended that the

MACT floor analysis should incorporate variability in fuel being burned, the unit's operating condition, and sampling and analytical errors. One commenter (410) contended that EPA's calculation of variability was statistically unsound. The commenter recommended that EPA estimate statistically the variance in the distribution of control technology efficiency rather than calculate a variability factor. The commenter added that EPA could then calculate the emission limitation that would yield an acceptable number of expected exceedences of the limitation.

Responses: As described in the memorandum "Revised MACT Floor Analysis for the Industrial, Commercial, and Institutional Boilers and Process Heater National Emission Standards for Hazardous Air Pollutants Based on Public Comments" in the docket, the calculation of numerical emission limits was a two-step analysis. The first step involved calculating a numerical average of the appropriate subset of emission test data. The second step involved generating and applying an appropriate variability factor to account for unavoidable variations in emissions due to uncontrollable variations in fuel characteristics and ordinary operational variability. Accounting for variability is appropriate in order to generate a more accurate estimation of the actual, long term, performance of a source (e.g., the source occupying the median point in the top 12%). An emission test provides a momentary snapshot, not an estimation of continuous performance. In order to translate the former into the latter, we must account for that ordinary and unavoidable variability that the source is like to experience over time. This give us a more reasonable estimate of the actual level of emissions control that the unit is achieving. The EPA contends that by considering the variability of emissions information, we have indirectly incorporated variability in fuel, operating conditions, and sampling and analytical conditions because these parameters vary from emission tests conducted from one unit to another, and even within each test set of three measurements at a single unit. The most elementary measure of variation is range. Range is defined as the difference between the largest and smallest values. This is the variability methodology used in the proposed rule. That is, for each unit with multiple emissions tests conducted over time, the variability was calculated by dividing the highest three-run test result by the lowest three-run test result. The overall variability was calculated by averaging all the individual unit variability factors. This overall variability factor was multiplied by the overall average emission level to derive a MACT floor limit representative of the average emission limitation achieved by the top 12 percent of units. We believe that this approach adequately accounts for inherent fuel supply variability. Based on comments, EPA did conduct a more robust statistical analysis (t-test) of the mercury emissions data used in the MACT floor analysis to identify the 97.5th percent confidence limit. This analysis provided similar results to the variability analysis conducted in the proposed rule. Consequently, EPA decided not to change its variability methodology. A detailed discussion of the statistical analysis conducted is provided in the memorandum "Statistical Analysis of Mercury Test Data Variability in Response to Public Comments on Determination of the MACT Floor for Mercury Emissions" in the docket.

Comment: One commenter (529) pointed out that the variability factor used to make the calculated MACT floor less stringent is not allowed by section 112 of the CAA. The commenter mentioned that the variability factors are not consistent, as one factor considers the fuel variability and the other factor considers the test data variability.

Response: Section 112(d)(2) of the CAA requires that emissions standards promulgated shall require the maximum degree of reduction in emissions that the Administrator, taking into

consideration the costs of achieving such emission reduction, determines is achievable for new and existing sources in the subcategory to which such emission standards applies. Accounting for variability is appropriate in order to generate a more accurate estimation of the actual, long term, performance of a source (e.g., the source occupying the median point in the top 12%). An emission test provides a momentary snapshot, not an estimation of continuous performance. In order to translate the former into the latter, we must account for that ordinary and unavoidable variability that the source is like to experience over time. This give us a more reasonable estimate of the actual level of emissions control that the unit is achieving. As such, due to variations in fuel burned, and ordinary operational variability any emission limit set from a point source measurement alone may not be indicative of normal emissions or operations of the unit. Attempting to base a standard (either a floor standard, or a beyond-the-floor standard) solely on point measurements would lead to unachievable standards for all sources. Limits set by EPA must be achieved at all times, and it is important that the MACT floor limit adequately account for the normal and unavoidable variability in the process and in the operation of the control device.

Variability was assessed two ways. For existing subcategories, variability in emissions information was used to develop variability factors for all subcategories where emissions information was available. Variability in fuel content was used only in situations regarding determining the achievable MACT floor level for new sources from the emission test result on the best controlled similar source. We believe this approach is appropriate since the main uncertainty associated with the emission test result from the best controlled similar source is fuel variability. Corresponding fuel analysis results was not available for the emissions test results from the best controlled similar source. Whereas, the average emission level of the best 12 percent of the units has, besides fuel variability, the uncertainty associated with operational and design variability of the various control devices installed on units that represent the best 12 percent of the units. For example, available fuel analysis information shows that mercury content of coal varies by a factor of 12.54. Dividing the highest mercury emission test result by the lowest mercury test results from coal-fired units included in units that represent the best 12 percent results in a variability factor of 20. Therefore, we concluded that fuel availability was inherently considered in the MACT floor analysis approach used for existing subcategories.

Comment: Several commenters (413, 492, 499, 519) argued that the database used to establish the MACT floor for mercury from solid fuel-fired units is too limited. One commenter (499) stated that the 0.000007 lb mercury/MMBtu limit for existing solid fuel boilers and process heaters is based on emissions data from only seven industrial boilers and process heaters equipped with fabric filters. The commenter stated that according to EPA's *Economic Analysis of Air Pollution Regulations: Boilers and Process Heaters,* there are approximately 5,600 existing and new units operating in the U.S. today that will be affected by this rule. The commenter stated that seven out of 5,600 is an inadequate sample to represent the universe of small boilers/process heaters in the United States. In addition, the commenter stated that given the cost that this rule will have on the U.S. economy, EPA must collect more information before proceeding with this rulemaking. One commenter (413) stated that EPA's new source MACT floor for mercury and HCl would be improved by using a more robust coal database. The commenter suggested using the Part II of the utility ICR of coal-fired electric utility steam generating units to obtain additional mercury fuel information. One commenter (492) stated that new test data for conventional design boilers with fabric filter control should be included in the

emission database and used for determining the MACT floor for mercury. The commenter noted that conventional stoker and pulverized coal boilers with fabric filters are not represented in the emission data in docket item II-B-14. The commenter also explained that another commenter to this rule (CIBO) has noted that some additional test data on these types of units are available. One commenter (415) was confused by the apparent lack of data on emissions and pollution control configurations in use in the ICI boiler and process heater sectors, given the amount of time EPA has had to develop the rule. The commenter contended that more aggressive data collection may have yielded more information on factors impacting emissions. The commenter concluded that such information would allow the EPA to identify the range of control options available to meet the MACT emission limit. One commenter (519) noted that there was no information regarding the fuel characteristics of the units used to determine the MACT floor.

Response: As discussed in the proposal preamble, the MACT floor analysis for mercury was based on a two step process. First the percentage of units with control technologies that could achieve mercury emissions reductions was determined using the boiler population databases. If the control technology analysis indicated that at least 12 percent of sources in the subcategory used a control device that could achieve mercury emissions reductions, then the control technology present at the median (6th percentile) was identified as the MACT floor control technology. The MACT floor level of control for mercury was identified as a fabric filter. The control effectiveness of fabric filters was based on emissions information for utility boilers that indicated that mercury emissions reductions were being achieved with this technology. In this case, we could use control efficiency information from another similar source category to supplement the information available in this source category because of the similarity in fuel burned, combustor type, and control methodology and operation. We maintain that fabric filters are still the appropriate level of control for the MACT floor.

Second, the emission limit associated with the MACT floor control technology was calculated using emissions information for units in the subcategory, whenever possible. For most of the subcategories developed, emissions information was adequate. Only for the emission limit for new source liquids and the variability factor for new source solids was fuel pollutant content incorporated into the MACT floor analyses. The mercury fuel content of coal from the utility industry was used in developing the variability factors for new solid fired units. This was done because mercury emissions are dependent on the quantity of mercury in the fuel burned. Coal available to utilities and industrial boilers and process heaters is expected to be similar, and coal is the solid fuel that is routinely used in such units that has generally the greatest degree of HAP variability. We maintain that the utility database used at proposal to develop the variability factor for new sources was adequate in establishing the MACT floor emission limit.

The EPA recognizes that the mercury emissions database for industrial boilers is limited. However, EPA is directed by the CAA to develop standards for sources using whatever data is available. Prior to proposal and during the Industrial Combustion Coordinated Rulemaking (ICCR) process, EPA conducted a thorough search for HAP emission test reports. This search was supported by industry, trade groups, and States. For criteria pollutants, such as PM, substantial emission information was available and gathered. For mercury and other HAP, this was not the case. Industrial boilers have not generally been required to test for HAP emissions. In the proposed rule, EPA requested commenters to provide additional emissions information. However, only one source provided any additional mercury emissions data. This information

(test results from three additional coal-fired industrial boilers) was used to revise the mercury emission limit for existing sources. We also reviewed the mercury emission database used to develop the MACT floor emission limit for existing sources. After review, we determined that a revision to the variability factor was appropriate. The additional data and the revised variability factor was used to re-calculate the mercury emission limit to be 0.000009 lb/MMBtu (from 0.000007 lb/MMBtu at proposal). A detailed discussion of the revised MACT floor analysis conducted is provided in the memorandum "Revised MACT Floor Analysis for the Industrial, Commercial, and Institutional Boilers and Process Heaters National Emission Standards for Hazardous Air Pollutants Based on Public Comments" in the docket.

Variability of the emissions data were incorporated into the final emission limits. The EPA contends that by considering the variability of emissions information, we have indirectly incorporated variability in fuel, operating conditions, and sampling and analytical conditions because these parameters vary from emission tests conducted from one unit to another, and even within one unit. The EPA does not consider it appropriate or feasible to incorporate variability from a multitude of parameters because such information is not available and cannot be correlated to the emissions information in the emissions test database. For the final rule, EPA did conduct a statistical analysis of the data to identify the 97.5th percent confidence interval. This analysis provided similar results to the variability analysis conducted in the proposed rule. Consequently, EPA decided not to change its variability methodology. A detailed discussion of the statistical analysis conducted is provided in the memorandum "Statistical Analysis of Mercury Test Data Variability in Response to Public Comments on Determination of the MACT Floor for Mercury Emissions" in the docket.

Comment: One commenter (393) supported EPA's decision not to impose emission limitations on new gaseous fuel-fired units. Several commenters (360, 382, 479, 393, 410, 413, 486, 492, 536) supported EPA's finding that the MACT floor level of control for existing gas and liquid fuel-fired units is no control. Two commenters (393, 486) explained that they supported EPA's determination because few existing units in these subcategories operate with emission control technologies to reduce HAP emissions, thus the commenters stated it was appropriate to set the MACT floor at no emission reductions. One commenter (410) supported EPA's conclusion that control technology is the primary factor to be considered in boiler MACT floor determinations because it is the most feasible method by which operators of boilers can reduce HAP emissions. Other commenters (410, 479) contended that EPA has legal authority to set the MACT floor as "no emissions control" for particular HAP categories, and provided additional justification for this decision. One commenter (492) urged that EPA, in setting a "no control" emission standard, would not cause a delay in compliance. The commenter noted that recent court decisions may cast doubt on whether EPA may establish a "no control" emission limitation. However, the commenter believes that EPA may establish a "no control" emission limitation if its analysis determines that sources are not taking any action that either controls emissions or is duplicable by other sources.

One commenter (448) said that EPA's proposed "no control" as the MACT some subcategories is unlawful. The commenter noted that EPA has a clear statutory obligation to set emission standards for each listed HAP (the commenter cited legal briefs). One commenter (512) argued that EPA's determination that "no control" is the MACT floor for some subcategories is unacceptable. The commenter specifically challenged EPA's determination of the MACT floor

for organic pollutants. The commenter explained that EPA should rank the units for which emissions data is available according to the best performing units, not based on the add-on control level of 6 percent of the total population. The commenter noted that the U.S. Court of Appeals for the D.C. Circuit had squarely held, in the *National Lime* case, that EPA was not allowed to make a "no control" determination for a pollutant emitted by a listed category of sources.

Response: We believe that EPA has ample legal authority to set the MACT floor at "no emissions reductions". This is because the statute requires EPA to set standards that are duplicable by others. In National Lime, the court threw out EPA's determination of a no control floor because it was based only on a control technology approach. The court stated that EPA must look at what the best performers achieve, regardless of how they achieve it. Therefore, our determination that the MACT floor for certain subcategories or HAP is "no emissions reduction" is lawful because we determined that the best-performing sources were not achieving emissions reduction through the use of an emission control system and there were no other appropriate methods by which boilers and process heaters could reduce HAP emissions. Furthermore, setting emissions standards on the basis of actual emissions data alone where facilities have no way of controlling their HAP emissions would contravene the plain statutory language as well as Congressional intent that affected sources not be forced to shut down.

Comment: One commenter (397) expressed concern that the proposed emission limits for solid fuel-fired units would exempt many units from control of acid gas HAP and would require less than 50 percent control from most units and requested that EPA lower the HCl emission limit to 0.02 lb/MMBtu. One commenter (295) suggested cutting the present emission standards by 50 percent from boilers and process heaters.

Response: The EPA does not believe there is technical justification for requiring different emission limits. The HCl emission limit for solid fuel-fired units was calculated using the MACT floor methodology presented in the memorandum "MACT Floor Analysis for New and Existing Sources in the Industrial, Commercial, and Institutional Boilers and Process Heaters Source Categories". The EPA's analysis showed a packed bed scrubber as being more stringent than the floor level of control for existing sources. While cost cannot be incorporated into the MACT floor analysis, it is a component in any analysis of beyond-the-floor options. The EPA calculated that the additional annualized cost to comply with the emission limit associated with the packed bed scrubber level of control would be $900 million and the emission reduction would increase by 20,000 tons of HCl. The results indicated that while additional emission reductions may be realized, the costs would be too high to consider it as MACT.

Comment: One commenter (338) stated that the rule should allow for the inherent degradation in performance throughout the normal life of pollution control equipment. The commenter added that normal life expectancy of consumables in process control will cause degradation in emission rates.

Response: The EPA disagrees with the commenter. Emission standards are not developed to allow increase as equipment degrades. This would contravene the purpose of any environmental standard to reduce pollution. Facilities must maintain their equipment to ensure that continuous compliance is achieved. The EPA believes that proper maintenance of

equipment is necessary for sources to meet the compliance requirements of the rule.

Comment: One commenter (451) contended that floors need not be achievable for all units in a subcategory through the application of end-of-stack technology because the CAA only requires that MACT floors reflect the emission levels actually achieved by the relevant best sources. The commenter added that even if some sources could not meet the floor through end of stack controls, the EPA would still be required to set the MACT floor from the best performing sources, and the sources in question would have to shut down or switch fuels.

Response: We disagree with the commenter. We contend that the MACT floor needs to be achievable by all sources. As such we only considered universally applicable control techniques.

Comment: One commenter (497) contended that the MACT floor is not representative of the more than 500 boilers operated by the furniture industry. The commenter added that the 458 boilers comprising the EPA's MACT floor include only 30 boilers burning some quantity of wood as fuel, and only 8 of the 30 burn some quantity of kiln-dried wood as fuel. The commenter noted that EPA databases do not quantify the percentage of total fuel comprised by wood resulting in a boiler burning 1 percent wood and 99 percent commercial waste listed as burning wood and burning commercial waste.

Response: As discussed in the proposal preamble, EPA developed nine subcategories based on fuel state, operation/use, and size/combustor type. Boilers used in the furniture industry burn solid fuel and are grouped with the solid fuel-fired boiler subcategories. The MACT floor for each subcategory is based on the emissions data from the boilers in the subcategory with the control technologies that were determined to best control mercury, metallic HAP, PM, and inorganic HAP. This analysis is discussed in the memorandum "MACT Floor Analysis for New and Existing Sources in the Industrial, Commercial, and Institutional Boilers and Process Heaters Source Categories". Because units burning any amount of solid fuel are grouped together, the possibility exists that units from the furniture manufacturing industry, which may not have as effective control devices as units in other industries, are not a part of the best-controlled units used to develop the MACT floor emission limits. The only option to develop MACT floors that would specifically include information from the furniture industry is to develop a separate subcategory for the furniture industry. However, the EPA has determined that there no justification for creating additional subcategories for the final rule.

Comment: One commenter (497) used EPA's MACT floor methodology and determined that the MACT floor for a <50 MMBtu/hr size category is 75 percent PM control, which is more easily achieved by existing cyclone and multiclone collectors.

Response: The EPA would like to note that there is no subcategory that is comprised of units < 50 MMBtu/hr. The small unit subcategory consists of units less than 10 MMBtu/hr. The EPA determined there was no justification for changing the subcategories presented in the proposed rule. Therefore, while the commenters analysis may be correct, (EPA has not verified it), it is not relevant to the final rule.

Comment: Commenters (410, 479) agreed with EPA that good combustion practices are not an appropriate basis for establishing a MACT Floor. The commenter (479) noted that work practices that might reduce HAP emissions are widely variable across a very diverse universe of boilers and process heaters. Furthermore, data on the use of good combustion practices a their impact on HAP emissions is very limited. In response to EPA request for comment on whether there are any uniform good combustion practices that would be appropriate for minimizing organic HAP emissions, one commenter (413) noted that there were no uniform practices because the characteristics of individual boilers differ dramatically. The commenter (413) supported not including good combustion practices in the MACT floor for new or existing units. Another commenter (442) agreed that there is a lack of information and of a uniform approach for assuring combustion efficiency, due to the vast diversity of units. The commenter pointed out that procedures to minimize one pollutant could increase another. The commenter requested that EPA prepare a new separate summary report documenting types of work practices that constitute Good Combustion Practices.

Response: The EPA thanks the commenters for their input. At proposal, EPA had requested commenters provide additional information on good combustion practices. However, no information on the effectiveness of good combustion practices at reducing specific pollutants was received. Since no additional information was obtained, the final rule maintains that good combustion practices are not an appropriate basis for establishing a MACT floor.

Comment: One commenter (410) contended that the California standards, which the CO requirements are based on, do not require CO CEMS, but require initial compliance testing and periodic subsequent performance testing. The commenter added that the California standards exempt some limited use units and provide for less stringent requirements for units affected by natural gas curtailment. As such, the commenter stated that EPA's CO standard exceeds the California CO regulations. The commenter added that if EPA intends to go beyond the floor, then it must consider cost and emission reductions. The commenter provided additional data and analyses detailing the cost and emission reduction impacts of the proposed CO requirements. The commenter contended that EPA underestimated the number of new and reconstructed units and underestimated the costs to these units of meeting the proposed standards. The commenter added that EPA costed out an inexpensive portable CO monitor that would not meet the continuous monitoring requirements of the rule. The commenter concluded that based on their analysis, the CO requirements are cost ineffective. Commenters (380, 476) opposed the continuous emissions monitoring for CO for gas-fired boilers. The commenter added that EPA wrongly considered monitoring as part of the MACT floor analysis for new gas-fired boilers. The commenters explained that the state regulations EPA used as the basis for the requirements do not require CO CEMS. The commenter also added that the CAA does not support including monitoring as a floor requirement. One commenter (393) suggested boiler and process heaters be allowed the option of complying with the proposed CO limit or establishing good combustion practices. The commenter stated the EPA failed to justify the MACT floor of organic HAP for new large and limited use units as the determination of a CO limit of 400 ppm. The commenter claimed EPA failed to explain how this met the "best controlled similar source" requirement of section 112(d)(3) of CAA

Response: The commenters are correct that the California CO regulations do not require CO CEMS. The regulations do provide sources with the option of conducting annual testing or

installing CO CEMS to demonstrate compliance with the CO emission limit. Because the regulations that were the basis of the MACT floor do not provide specifics on which boilers should conduct annual testing and which should use CO CEMS, we reviewed the cost information provided by the commenters to make this determination. In considering the additional cost information and reviewing the cost information used in the proposed rule, the EPA decided that changes to the CO compliance requirements were warranted. The final rule requires that new units with heat input capacities less than 100 MMBtu/hr conduct initial and annual performance tests for CO emissions. New units with heat input capacities greater or equal to 100 MMBtu/hr are still required to install, operate, and maintain a CO CEM.

Regardless of whether the California regulations do or do not require CO CEMS, we would have reviewed the need for continuous monitoring and operating limits in order to ensure the most accurate indication of proper operation of the control system. The purpose of all of the minimum operating parameter limits in the standard is to ensure continuous compliance by ensuring that the air pollution control equipment is operating as they were during the latest performance test demonstrating compliance with the emission limits. The operating parameters are established as "minimum" to provide enforceable boundaries in their operation. Operating outside the bounds of the minimum parameters may lead to increased air emissions.

The EPA would also like to clarify that operation above the CO limit constitutes a deviation of the work practice standard. However, the determination of what deviations constitute violations of the standard is up to the discretion of the entity responsible for enforcement of the standards.

Comment: One commenter (512) requested that EPA re-calculate the MACT floor for organic HAP emissions based on emission data and source performance, not on whether add-on controls are in place. Once a numerical floor is calculated, EPA should evaluate whether good combustion practices are sufficient to ensure that the floor level is met.

Response: As explained in the proposal preamble, the EPA considered calculating the MACT floor based on emissions data and source performance. However, there were several problems associated with establishing MACT floor emission limits in this manner. The commenters are referred to 68 FR 1672, January 13, 2003. The EPA's interpretation of the CAA requires that standards be set that are achievable by sources. This interpretation predicates that an emission control technique must be available to meet the standard. As discussed in the proposal preamble, the EPA could not identify any add-on technologies that could be used to reduce organic HAP emissions. The EPA also notes that it does not have information on the effectiveness of good combustion practices on reducing emissions. This information was also requested in the proposal preamble. However, no additional information was provided by commenters. Therefore, EPA could not reassess its decision regarding good combustion practices for the final rule.

Comment: One commenter (497) contended that EPA has not identified a technology to meet the proposed HAP limit for CO for new sources. The commenter added that an atmospheric fluid bed combustor burning wood can meet the proposed level, but may exceed the limit when burning coal as a back-up fuel.

Response: We would like to clarify that the CO limits in the proposed and final rule are

work practice standards and not emission limits. We also note that the work practice CO limits are only applicable to new sources, and the standard requires that the CO limit be achieved on a 30-day rolling average, instead of daily. It is EPA's contention that new boilers and process heaters should be able to meet the CO limit because they are better designed and more efficient than existing units.

Comment: Several commenters (364, 383, 387, 388, 399, 413, 419, 449, 492, 498, 524, 533) requested that EPA revisit the determination of the mercury emission test data variability factor. Some commenters (449, 524, 533, 388, 498) questioned whether EPA's method for generating the "variability factor" is adequate to ensure that the mercury limitation is achievable. The commenters believe that it is improper for EPA to estimate the variability in mercury emissions based upon data only from those sources that utilize the MACT floor technology. The commenters argued that EPA should consider the fuel mercury variability from all coal supplies utilized by ICI boilers and process heaters. The commenters added that the court instruction in Cement Kiln ruling would make it improper for the EPA to estimate variability in mercury emissions based upon data from only those sources that use the MACT technology, and EPA must consider the fuel mercury content of all coal supplies used by ICI boilers regardless of the unit's control technology. The commenters concluded that from this database, EPA must develop a standard that the coal with the worst-case mercury and chlorine content can achieve. The commenters added the emission limitation for mercury will only be achievable if it is based solely on the fuel with the worst case composition and any statistical methodology that considers data from burning fuels of better quality will influence the calculation, dilute the standard and dictate that available fuels with the worst case composition will not be capable of achieving the standard.

Commenters (364, 399, 387) contended that the mercury standard must take into account the variability in coal and its impact on the ability of sources to remove mercury from flue gas. Commenters discussed the chemistry of mercury and the wide variability of mercury in coal. Several commenters (449, 524, 533, 388, 498) provided data and discussion on the variability of mercury in coal, the effect of other components in coal that effect the state of mercury, and the effects of those parameters on removal efficiencies.

One commenter (413) asserted that there is no factual basis for EPA's assumption that emission tests for the best performing units adequately reflect the full range of fuel variability those units experience over the long term. The commenter added that fuel variability alone would be a factor significantly higher than EPA's calculated values. The commenter also stated that the variability factor for existing solids is suspect because it was produced by removing an outlier point and the reason for the removal was not documented. Additionally, the commenter stated the same outlier results were incorporated into the calculation for the new source MACT floor for mercury emissions. The commenter added that EPA's variability factor was flawed because it assumes that any pair of emission tests at a given facility brackets the long-term performance of the facility.

Several commenters (364, 383, 387, 388, 399, 413, 419, 449, 492, 498, 524, 533) argued that the current variability factor of 2.49 that EPA used to develop the emission limit for mercury does not reflect the universe of fuel, fuel characteristics, and control technology variability.

One commenter (381) stated the EPA's MACT floor determinations should include adjustments to account for operational and fuel variability. Based on *Sierra Club v. EPA* the

EPA is required to include adjustments to account for significant operational and fuel variability. Control requirements for mercury emissions should be revised to take into account the variability of coal composition since mercury emissions depend in large part on the chlorine content of coal. One commenter (382) suggested that EPA reconsider the following points: 1) The inherent variability of mercury and chlorine in different types of coal, as well as within a single mine; 2) the inherent expanded variability in fuel quality when the range of fuels are considered; 3) the minimal impact of coal cleaning on mercury level and variability; 4) the extremely diverse fuel mix used by the affected population and the failure of EPA to adequately provide a fuel dependent variability factor; 5) recently obtained mercury emission test data from coal boilers equipped with fabric filters; 6) lack of justification in selecting the emission rate for one boiler's test variability; 7) the diversity of boiler and process heater designs; and 8) deleting emission data from one source when establishing the MACT floor with no supporting information to indicate that the particular source is not actually one of the best controlled 12 percent in the source category.

Response: As discussed in the proposal preamble, the MACT floor analysis for mercury was based on a two step process. First the percentage of units with control technologies that could achieve mercury emissions reductions was determined using the boiler population databases. If the control technology analysis indicated that at least 12 percent of sources in the subcategory used a control device that could achieve mercury emissions reductions, then the control technology present at the median (6th percentile) was identified as the MACT floor control technology. The MACT floor level of control for mercury was identified as a fabric filter. The control effectiveness of fabric filters was based on emissions information for utility boilers that indicated that mercury emissions reductions were being achieved with this technology. In this case, we could use control efficiency information from another similar source category to supplement the information available in this source category because of the similarity in fuel burned, combustor type, and control methodology and operation. We maintain that fabric filters are still the appropriate level of control for the MACT floor.

Second, the emission limit associated with the MACT floor control technology was calculated using emissions information for units in the subcategory, whenever possible. For most of the subcategories developed, emissions information was adequate. Only for the emission limit for new source liquids and the variability factor for new source solids was fuel pollutant content incorporated into the MACT floor analyses. The mercury fuel content of coal from the utility industry was used in developing the variability factors for new solid fired units. This was done because mercury emissions are dependent on the quantity of mercury in the fuel burned. Coal available to utilities and industrial boilers and process heaters is expected to be similar, and coal is the solid fuel that is routinely used in such units that has generally the greatest degree of HAP variability. We maintain that the utility database used at proposal to develop the variability factor for new sources was adequate in establishing the MACT floor emission limit.

The EPA recognizes that the mercury emissions database for industrial boilers is limited. However, EPA is directed by the CAA to develop standards for sources using whatever data is available. Prior to proposal and during the Industrial Combustion Coordinated Rulemaking (ICCR) process, EPA conducted a thorough search for HAP emission test reports. This search was supported by industry, trade groups, and States. For criteria pollutants, such as PM, substantial emission information was available and gathered. For mercury and other HAP, this was not the case. Industrial boilers have not generally been required to test for HAP emissions.

In the proposed rule, EPA requested commenters to provide additional emissions information. However, only one source provided any additional mercury emissions data. This information (test results from three additional coal-fired industrial boilers) was used to revise the mercury emission limit for existing sources. We also reviewed the mercury emission database used to develop the MACT floor emission limit for existing sources. After review, we determined that a revision to the variability factor was appropriate. The additional data and the revised variability factor was used to re-calculate the mercury emission limit to be 0.000009 lb/MMBtu (from 0.000007 lb/MMBtu at proposal). A detailed discussion of the revised MACT floor analysis conducted is provided in the memorandum "Revised MACT Floor Analysis for the Industrial, Commercial, and Institutional Boilers and Process Heaters National Emission Standards for Hazardous Air Pollutants Based on Public Comments" in the docket.

Variability of the emissions data were incorporated into the final emission limits. The EPA contends that by considering the variability of emissions information, we have indirectly incorporated variability in fuel, operating conditions, and sampling and analytical conditions because these parameters vary from emission tests conducted from one unit to another, and even within one unit. The EPA does not consider it appropriate or feasible to incorporate variability from a multitude of parameters because such information is not available and cannot be correlated to the emissions information in the emissions test database. For the final rule, EPA did conduct a statistical analysis of the data to identify the 97.5th percent confidence interval. This analysis provided similar results to the variability analysis conducted in the proposed rule. Consequently, EPA decided not to change its variability methodology. A detailed discussion of the statistical analysis conducted is provided in the memorandum "Statistical Analysis of Mercury Test Data Variability in Response to Public Comments on Determination of the MACT Floor for Mercury Emissions" in the docket.

Comment: Several commenters (364, 383, 387, 388, 399, 406, 407, 408, 449, 498, 501, 524, 533) recommended that EPA reconsider the mercury limit for new, solid fuel-fired sources. The commenters generally supported EPA's approach to determining a new source mercury emission limit based on a MACT floor technology of fabric filter control, but expressed concern that the inherent variability of mercury content in fuels has not been captured in the variability factor developed by EPA. This could result in units that have fabric filter control not being able to achieve the proposed mercury limit, even though they use the maximum achievable control technology as determined by EPA.

Many commenters (364, 387, 399) requested that EPA revisit the basis of the mercury emission variability factor by including data in the analysis that was not included previously and by expanding the fuel dependant variability factor to include the full range of diverse fuel types. Since the unused data set documents the mercury emission level of a unit that employs the floor level of control, and it would be difficult to disentangle the effects of multiple control technologies, the commenters believe that the use of all available data is necessary to establish a MACT floor. By adding in this additional data set and applying the variability factor of 2.49, the commenters (364, 387, 399) calculated the resulting MACT floor emission level would be 9.8 lb/trillion Btu, rounded to10 lb/trillion Btu. Some commenters (449, 524, 533, 388, 498) argued that there are problems with the methodology and interpretation of "best controlled similar source" that EPA used. Specifically, the commenters requested that EPA include the petroleum coke mercury data point in the calculation of the fuel dependent variability factor and that EPA

should expand the fuel dependent variability factor to include the full range of diverse fuel types used by ICI boilers and process heaters, specifically considering that the best controlled similar source that EPA designated was firing urban wood waste and biomass. The commenters noted that by addressing these recommendations, the new solid fuel-fired MACT floor would increase to 8 lb/trillion Btu.

One commenter (492) noted that the best controlled similar source that the fuel dependent variability factor was based on was fired with wood and biomass that has undetected fuel mercury levels. The commenter observed that not all sources will have this mixture of fuels available, and that the variability factor established using this data may not be suitable to units firing certain types of coal or coke.

Response: As discussed in the proposal preamble, the MACT floor analysis for mercury was based on a two step process. First the percentage of units with control technologies that could achieve mercury emissions reductions was determined using the boiler population databases. If the control technology analysis indicated that at least 12 percent of sources in the subcategory used a control device that could achieve mercury emissions reductions, then the control technology present at the median (6th percentile) was identified as the MACT floor control technology. The MACT floor level of control for mercury was identified as a fabric filter. The control effectiveness of fabric filters was based on emissions information for utility boilers that indicated that mercury emissions reductions were being achieved with this technology. In this case, we could use control efficiency information from another similar source category to supplement the information available in this source category because of the similarity in fuel burned, combustor type, and control methodology and operation. We maintain that fabric filters are still the appropriate level of control for the MACT floor.

Second, the emission limit associated with the MACT floor control technology was calculated using emissions information for units in the subcategory, whenever possible. For most of the subcategories developed, emissions information was adequate. Only for the emission limit for new source liquids and the variability factor for new source solids was fuel pollutant content incorporated into the MACT floor analyses. The mercury fuel content of coal from the utility industry was used in developing the variability factors for new solid fired units. This was done because mercury emissions are dependent on the quantity of mercury in the fuel burned. Coal available to utilities and industrial boilers and process heaters is expected to be similar, and coal is the solid fuel that is routinely used in such units that has generally the greatest degree of HAP variability. We maintain that the utility database used at proposal to develop the variability factor for new sources was adequate in establishing the MACT floor emission limit.

The EPA recognizes that the mercury emissions database for industrial boilers is limited. However, EPA is directed by the CAA to develop standards for sources using whatever data is available. Prior to proposal and during the Industrial Combustion Coordinated Rulemaking (ICCR) process, EPA conducted a thorough search for HAP emission test reports. This search was supported by industry, trade groups, and States. For criteria pollutants, such as PM, substantial emission information was available and gathered. For mercury and other HAP, this was not the case. Industrial boilers have not generally been required to test for HAP emissions. In the proposed rule, EPA requested commenters to provide additional emissions information. However, only one source provided any additional mercury emissions data. This information (test results from three additional coal-fired industrial boilers) was used to revise the mercury

emission limit for existing sources.

A variability factor for mercury was derived from the mercury content of coal by dividing the highest observed HAP concentration by the lowest observed HAP concentration from the utility coal analysis. This was done because coal available to utilities and industrial boilers is expected to be similar, and coal is the solid fuel that is routinely used in such units that has generally the greatest degree of HAP variability. Given the limited information available, we believe that variability calculated using this methodology is reasonable.

Comment: Several commenters (364, 383, 387, 388, 399, 406, 407, 408, 419, 449, 492, 498, 501, 524, 533) suggested that EPA raise the mercury emission limit for existing solid fuel-fired units. The commenters expressed concern over the lack of a demonstrated, reliable technology that could achieve the standard without great expense to the existing sources. The commenters noted that fabric filter technology has not been proven at some sources and has drawbacks such as plugging with a high moisture fuel and fire hazards due to carryover of hot particles. Some commenters (406, 407, 408, 501) requested that EPA raise the mercury emission limit for existing sources to 15 lb/trillion Btu.

Several commenters (364, 383, 387, 388, 399, 449, 492, 498, 524, 533) requested that EPA reevaluate the MACT floor for mercury from solid fuel-fired boilers using all available data. The commenters noted that EPA used only six of seven data sets in determining the MACT floor and the unused data set is from a coal-fired boiler with fabric filter control, which is the floor level of control as determined by EPA. Several commenters (388, 449, 492, 498, 524, 533) urged EPA to use all the data in its mercury emissions data set in Appendix C-4 to determine the mercury emission limitation for existing units. The commenters stated that the use of only 12/14th of the solid-fuel fired mercury data is inconsistent with EPA's floor methodology, and that the remainder of the solid-fuel fired data (i.e., CAPCO data set) is warranted.

Several commenters (364, 387, 399) argued that EPA's approach might be a reasonable approach if the data set were representative of the population of boilers, but the only coal-fired boiler data used in determining the MACT floor were from fluidized bed boilers and the commenters noted that fluidized bed boilers are inherently lower emitting sources, which would bias the overall mercury emission data set lower. The commenters also pointed out that in addition to not using all of the available data, several of the units used to establish the MACT floor have other air pollution controls (spray dryers, limestone injection) in addition to fabric filters. Since these additional controls are known to remove mercury, the commenters contended that the resulting MACT floor calculation would be biased low because of these additional air pollution controls that are beyond the floor level of control.

One commenter (529) discussed the MACT floor calculated in the October 2002 MACT Floor Analysis, which clearly shows that individual test runs from the same source were used to calculate the MACT floor. The commenter pointed out that section 112(d) of the CAA requires the existing source MACT floor be calculated using the "best performing 12 percent of existing sources" not the best performing 12 percent of source tests from existing sources.

Response: As discussed in the proposal preamble, the MACT floor analysis for mercury was based on a two step process. First the percentage of units with control technologies that were identified that could achieve mercury emission reductions was

determined using the boiler population databases. If the control technology analysis indicated that at least 12 percent of sources in the subcategory used a control device that could achieve mercury emission reductions, then the control technology present at the median ($6^{th}$ percentile) was identified as the MACT floor control technology. The MACT floor level of control for mercury was identified as a fabric filter. The control effectiveness of fabric filters was based on emissions information for utility boilers that indicated that mercury emissions reduction were being achieved with this technology. In this case, we could use control efficiency information from another similar source category to supplement the information available in this source category because of the similarity in fuel burned, combustor type, and control methodology and operation. We maintain that fabric filters are still the appropriate level of control for the MACT floor.

Second, the emission limit associated with the MACT floor control technology was calculated using emissions information for units in the subcategory, whenever possible. For most of the subcategories developed, emissions information was adequate. Only for the emission limit for new source liquids and the variability factor for new source solids was fuel pollutant content incorporated into the MACT floor analyses. The mercury fuel content of coal from the utility industry was used in developing the variability factors for new solid fired units. This was done because mercury emissions depend on the quantity of mercury in the fuel burned. Coal available to utilities and industrial boilers and process heaters are expected to be similar, and coal is the solid fuel that is routinely used in such units that has generally the greatest degree of HAP variability. We maintain that the utility database used at proposal to develop the variability factor for new sources was adequate in establishing the MACT floor emission limit.

The EPA recognizes that the mercury emissions database for industrial boilers is limited. However, EPA is directed by the CAA to develop standards for sources using whatever data is available. Prior to proposal and during the ICCR process, EPA conducted a thorough search for HAP emission test reports. This search was supported by industry, trade groups, and States. For criteria pollutants, such as PM, substantial emission information was available and gathered. For mercury and other HAP, this was not the case. Industrial boilers have not generally been required to test for HAP emissions. In the proposed rule, EPA requested commenters to provide additional emissions information. However, only one source provided any additional mercury emissions data. This information (test results from three additional coal-fired industrial boilers) was used to revise the mercury emission limit for existing sources. We also reviewed the mercury emission database used to develop the MACT floor emission limit for existing sources. After review, we determined that a revision to the variability factor was appropriate. The additional data and the revised variability factor was used to re-calculate the mercury emission limit to be 0.000009 lb/MMBtu (from 0.000007 lb/MMBtu at proposal).

Comment: One commenter (492) presented the following from the MACT Floor Analysis (Docket item II-B-14): "The MACT floor emission level for mercury is based on emissions test information from units using fabric filters. Approximately 14 percent of the boilers in the population database used scrubbers. The emissions database contains mercury information on 7 different boilers using scrubbers." The commenter noted that "scrubber" in the second and third sentences should read "fabric filters."

Response: The EPA thanks the commenter and will make the corrections identified.

Comment: Two commenters (396, 410) questioned EPA's determination of emission limits for new liquid fuel-fired units. One commenter (410) contended that for new liquid fuel-fired units, EPA's PM and HCl emission limits are based on the average performance of the best-controlled existing unit as a not to be exceeded new source emission limit. The commenter explained that by establishing the new source emission limitation at the average performance level achieved by the best-controlled existing source, EPA will require a new source to achieve average performance much better than the average performance of the best-controlled existing source in order to not violate the emission standard. The commenter concluded that this was a beyond-the-floor requirement and a beyond-the-floor requirement for liquid fired units is not warranted. Two commenters (396, 410) suggested that EPA should employ a more careful statistical approach to reflect variability, and must reflect all the factors (e.g., fuel burned, operating conditions, performance of control technology) that give rise to variation in emissions performance and set a standard at an achievable level rather than an average level. Otherwise, even the best performing source would be out of compliance half of the time. One commenter (410) added that EPA attempted to reflect variability only in fuel burned in its variability factor, and this calculation was not sufficiently statistically based. The commenters provided examples of their interpretation of EPA's calculations and limitations. The commenter recommended that EPA establish a fuel related variability factor for liquid fired units that reflects a chlorine content at least two standard deviations above the mean chlorine content of residual oil.

One commenter (415) stated that the EPA must develop a mercury emission limit for liquid fuel boilers and process heaters. The commenter suggested that EPA should identify the existing data on mercury emissions from this sector and establish a MACT floor for mercury emissions from liquid fuel-fired boilers and process heaters using that data.

Response: As discussed in the MACT floor memorandum, there was no available emissions test data for Hcl from the liquid fuel-fired boilers. Therefore, the available fuel analysis chlorine data for residual oil and distillate oil was identified for the purposes of determin a hydrogen chloride emission limit for new sources in the liquid subcategory. The MACT floor emission limit calculations for Hcl were done using the highest residual data point. Assuming that all the chlorine in the fuel would be emitted as Hcl, the chlorine content value was converted to an uncontrolled emission factor. Based on previous EPA work, we used a control device efficiency of 95% for wet scrubbers (although many can achieve as high as 99% reduction) to control Hcl. We contend that variability was adequately incorporated into the new source emission limit because the highest fuel content point and an achievable removal efficiency was used in the calculation. We would also add that the MACT floor analysis indicated that there was not MACT floor level of control to reduce mercury emissions for new liquid fired units.

Comment: One commenter (413) asserted that selecting best control technology for MACT floors does not work for mercury because combustion yields three forms of mercury (elemental, gaseous ionic, and particulate) and the level of mercury control achieved by a control technology depends on the relative concentrations of each of the three forms. As an example, the commenter used a scrubber that removes gaseous ionic mercury, but does not remove elemental mercury. The commenter added that control efficiency for fabric filters is greatly affected by coal chemistry and plant operating conditions. The commenter explained that if coal has a very low chloride level, most of the mercury formed will be in the elemental state and a

fabric filter will be ineffective in capturing it. The commenter also noted that if a boiler is operated such that very low levels of carbon exist in the flue gas, then the ability of a fabric filter to capture mercury is greatly reduced. One commenter (442) cautioned that the effectiveness of fabric filters for controlling mercury emissions depends on the design of the whole air pollution control system. Some acid gas scrubbers can decrease mercury collection efficiencies of ESPs and fabric filters by converting mercury to non-particulate matter which passes through the fabric filter.

Response: The EPA recognizes that there are different forms of mercury and not all forms will be controlled equally with every control technology. However, the emissions database does not speciate mercury emissions, so only total mercury emissions were considered in the analysis. Fabric filters were determined to be the basis for the MACT floor emission limit based on information in the utility boiler standards that indicated fabric filters can achieve greater mercury emissions reduction than other existing add-on technologies. Because the test reports did not speciate mercury, it is possible that the mercury emissions information may incorporate fabric filters that achieve a range of control for the various mercury forms.

The EPA would like to clarify that sources are not required to install fabric filters to meet the standard. The rule allows sources to use any control technology, including fuel switching, to meet the mercury emission limits.

Comment: One commenter (415) said that the proposed emission limits for mercury must be significantly strengthened to reflect the removal performance of the best-performing units and to protect public health and the environment. The commenter noted that fabric filters are capable of mercury capture efficiencies ranging from 72 to 90 percent. The commenter expressed concern that the mercury emission limit could be a no control standard for mercury because the limit is sufficiently high enough that most boilers would not be required to use additional controls. One commenter (448) said that the proposed emission levels for mercury do not meet the requirements of MACT development under section 112(d). The commenter stated that EPA appeared to have ignored performance data of existing control devices, such as enhanced fabric filters downstream of an activated carbon injection device. The commenter added that information from the electric utility MACT information collection request and subsequent field test data was also not considered. The commenter asserted that information from the utility standard on mercury controls would have provided a better indication of control than the single emission point not achieving mercury reductions in configuration similar to those used in municipal waste combustors.

Response: We considered mercury control information developed in the utility boiler standard for the Boiler MACT standard. The utility boiler information indicated a much lower control effectiveness for mercury than the commenter had indicated. We requested additional information in the proposal preamble. However, none was provided by the commenters. Additionally, we do not have specific information about types of control devices. For example, we know a boiler is equipped with a fabric filter but we do not have information to the specific type of fabric filter. We did review carbon injection as an above the floor technology (see chapter 9) but determined that it was not appropriate for the final rule.

Comment: One commenter (512) argued that the floor for new solid fuel-fired sources

should include carbon injection for mercury control. The commenter explained that EPA cannot set new source floors based solely on control technologies. The commenter noted that EPA set the new source floor based on engineering assumptions about the control efficiency of certain control technologies (i.e., the best controlled) but did not select the lowest emitting (i.e., the best performing) sources. If EPA correctly used this methodology, the commenter argued that it should have selected carbon injection as the floor for new units because one unit uses this technology and EPA has noted that carbon injection is capable of achieving high mercury reductions in other categories (e.g., incinerators) and it is expected to be the control technology of choice for reducing mercury from coal-fired utility boilers. The commenter noted that not all boilers and process heaters using fabric filters have the lowest emissions, yet EPA selected this technology for the basis of the MACT floor based on knowledge that it could perform to high levels. Therefore, it does not matter that the unit using carbon injection is not the lowest-emitting source; the fact that one source is using the best technology for mercury control should lead EPA to select carbon injection as the MACT floor for new sources. One commenter (390) contended that the MACT floor for new units reflects the mercury control benefits of systems installed under the NSPS and not on what the EPA speculates may become available in the future.

Response: As discussed in the proposal preamble, we identified one existing industrial boiler that was using carbon injection. However, the emissions data that we obtained from the boiler indicated that this unit was not achieving mercury emission reduction. This result led us to conclude that it was not the new source floor level of control. We considered carbon injection as a beyond-the-floor option, but decided that while this control technique has been used in other source categories, there is no demonstrated evidence that it would work for industrial boilers and process heaters because the type of mercury emitted and properties of the emission streams are sufficiently different for boilers and process heaters and other source categories. For fabric filters, we had some emissions information for utility boilers that indicated that mercury emissions reduction were being achieved with this technology. In this case, we could confidently use control efficiency information from another similar source category to supplement the information available in this source category. Unlike fabric filters, the available emissions information indicated that carbon injection was not effective for industrial boilers and process heaters.

Comment: One commenter (492) stated that EPA must demonstrate that a source (or sources, in the case of the existing source standard) is actually achieving the standard established. The commenter noted that EPA recognized that certain fuels, while providing decreased emissions for some HAP, may contribute to higher emissions in other types of HAP (i.e., gaseous fuels may have low PM and metal emissions, but may have higher organic HAP emissions than solid fuels). The commenter was concerned that EPA, in establishing emission limits or when conducting the floor evaluation, has not considered whether the best performing sources can achieve the emissions limitations in the aggregate. The commenter noted that section 112(d) of the CAA requires EPA to establish standards that are duplicable by others. Some of the best units may be achieving low emissions based on methods that are not available to other units within the source category or subcategory. The commenter believes that this requires the EPA to the following: (1) discover how these sources actually are "controlling" emissions, and (2) set standards that are achievable through application of various measures, techniques,

methods or processes.

The commenter (492) stated that the floor methodology must provide a reasonable estimate of what the best performers achieve, regardless of which method EPA uses. The commenter noted recent court decisions that criticize EPA for not determining a reasonable estimate of the best performers based on all of the factors that affected emissions for a particular rule.

Response: We disagree with the commenter. The emission test database and population database show that there is at least one source with the MACT floor control technologies required in the proposed and final rule. Additionally, we received 4 test reports after proposal (which are now in the docket) from emission tests conducted at a boiler in Michigan State University. The reports also show that the source utilizes the MACT floor levels of control identified in the rule.

Comment: One commenter (451) contended that EPA may not use control technology as the basis for the MACT floor since other factors (e.g., type of fuel combusted) affect HAP emission levels. The commenter stated that the MACT floor should reflect the emission levels actually achieved by the "best-performing" sources, regardless of how the emission levels are achieved (e.g., through add-on controls, cleaner fuels). One commenter (415) said that the approach used by EPA in establishing the MACT floor for the boilers NESHAP is not consistent with recent legal decisions (*Cement Kiln Recycling Coalition v. EPA, 255 F.3d 855, 865 (D.C. Cir. 2001)*. The commenter stated that the MACT floor should be based on actual emissions of the relevant best-performing sources, rather than specific technologies in use. The commenter added that in some cases lower emissions may be achieved by a combination of lower emission fuels, operational parameters, or other means separate from or in addition to end-of-stack controls.

Response: First, we believe the MACT floor methodology we use is consistent with D.C. Circuit's holding in the National Lime case. The D.C. Circuit held that by focusing only on technology EPA ignored the directive in section 112(d)(2) to consider pollution-reducing measures including process changes and substitution of materials.

The EPA agrees with the commenter that all factors which might control HAP emissions must be considered in making a floor determination for each subcategory. However, EPA disagrees that it must express the floor as a quantitative emission level in those instances where the source on which the floor determination is based has not adopted or implemented any measure that would reduce emissions.

A detailed discussion of the MACT floor methodology is presented in the memorandum "MACT Floor Analysis for New and Existing Sources in the Industrial, Commercial, and Institutional Boilers and Process Heaters Source Categories" in the docket. In summary, we considered several approaches to identifying MACT floor for existing industrial, commercial, and institutional boilers and process heaters. Based on recent court decisions, in most cases the most acceptable approach for determining the MACT floor is likely to involve primarily the consideration of available emissions test data. However, after review of the available HAP emission test data, we determined that it was inappropriate to use this MACT floor approach to establish emission limits for boilers and process heaters. The main problem with using only the HAP emissions data is that, based on the test data alone, uncontrolled units (or units with low

efficiency add-on controls) were frequently identified as being among the best performing 12 percent of sources in a subcategory, while many units with high efficiency controls were not. However, these uncontrolled or poorly controlled units are not truly among the best controlled units in the category. Rather, the emissions from these units are relatively low because of particular characteristics of the fuel that they burn, that can not reasonably be replicated by other units in the category or subcategory. A review of fuel analyses indicate that the concentration of HAP (metals, HCl, mercury) vary greatly, not only between fuel types, but also within each fuel type. Therefore, a unit without any add-on controls, but burning a fuel containing lower amounts of HAP, can have emission levels that are lower than the emissions from a unit with the best available add-on controls. If only the available HAP emissions data are used, the resulting MACT floor levels would, in most cases, be unachievable for many, if not most, existing units, even those that employ the most effective available emission control technology. Another problem with using only emissions data is that there is very limited or no HAP emissions information available to the Agency for the subcategories. This is consistent with the fact that units in these source categories have not historically been required to test for HAP emissions.

We also considered using HAP emission limits contained in State regulations and permits as a surrogate for actual emission data in order to identify the emissions levels from the best performing units in the category for purposes of establishing MACT standards. However, we found no State regulations or State permits which specifically limit HAP emissions from these sources.

Consequently, we concluded that the most appropriate approach for determining MACT floors for boilers and process heaters is to look at the control options used by the units within each subcategory in order to identify the best performing units. Information was available regarding the emission control options employed by the population of boilers identified by the EPA. We considered several possible control controls (i.e., factors that influence emissions), including fuel substitution, process changes and work practices, and add-on control technologies.

We first considered whether fuel switching would be an appropriate control option for sources in each subcategory. We considered the feasibility of both fuel switching to other fuels used in the subcategory and to fuels from other subcategories were considered. This consideration included determining whether switching fuels would achieve lower HAP emissions. A second consideration was whether fuel switching could be technically achieved by boilers and process heaters in the subcategory considering the existing design of boilers and process heaters. We also considered the availability of various types of fuel. After considering these factors, we determined that fuel switching was not an appropriate control technology for purposes of determining the MACT floor level of control for any subcategory. This decision was based on the overall effect of fuel switching on HAP emissions, technical and design considerations, and concerns about fuel availability.

We also concluded that process changes or work practices were not appropriate criteria for identifying the MACT floor level of control for units in the boilers and process heaters category. The HAP emissions from boilers and process heaters are either fuel dependent (i.e., mercury, metals, and inorganic HAP) or combustion related (i.e., organic HAP). Fuel dependent HAP are typically controlled by removing them from the flue gas after combustion. Therefore, they are not affected by the operation of the boiler or process heater. Consequently, process changes would be ineffective in reducing these fuel-related HAP emissions.

On the other hand, organic HAP can be formed from incomplete combustion of the fuel.

Good combustion practice (GCP), in terms of boilers and process heaters, could be defined as the system design and work practices expected to minimize organic HAP emissions. While few sources in EPA's database specifically reported using good combustion practices, the data that we have suggests that boilers and process heaters within each subcategory might use any of a wide variety of different work practices, depending on the characteristics of the individual unit. The lack of information, and lack of a uniform approach to assuring combustion efficiency, is not surprising given the extreme diversity of boilers and process heaters, and given the fact that no applicable Federal standards, and most applicable State standards, do not include work practice requirements for boilers and process heaters. Even those States that do have such requirements do not require the same work practices. For example, CO emissions are generally a good indicator of incomplete combustion, and, therefore, low CO emissions might reflect good combustion practices. (As discussed in the proposal, CO is considered a surrogate for organic HAP emissions.) Therefore, we considered whether existing CO emission limits might be used to establish good combustion practice standards for boilers and process heaters. We reviewed State regulations applicable to boilers and process heaters, and then for each subcategory we matched the applicability of State CO emission limits with information on the locations and characteristics of the boilers and process heaters in the population database. Ultimately, we found that very few units (less than 6 percent) in any subcategory were subject to CO emission limits. We concluded that this information did not allow EPA to identify a level of performance that was representative of good combustion across the various units in any subcategory. Therefore, we did not establish a CO emission limit, as a surrogate for organic HAP emissions, as a part of the MACT floor for existing units. However, we have considered the appropriateness of such requirements in the context of evaluation possible beyond-the-floor options.

In general, boilers and process heaters are designed for good combustion. Facilities have an economic incentive to ensure that fuel is not wasted, and the combustion device operates properly and is appropriately maintained. In fact, existing boilers and process heaters are used typically as high efficiency control devices to control (reduce) emission streams containing organic HAP compounds from various process operations. Therefore, EPA's inability to establish a combustion practice requirement as part of the MACT floor for existing sources in this category should not reduce the incentive for owners and operators to run their boilers and process heaters at top efficiency.

As a result of the evaluation of the feasibility of establishing emission limits based on control techniques such as fuel switching and good combustion practices, we concluded that add-on control technology should be the primary factor for purposes of identifying the best controlled units within each subcategory of boilers and process heaters. We identified the types of air pollution control techniques currently used. We ranked those controls according to their effectiveness in removing the different HAP categories of pollutants; including metallic HAP and PM, inorganic HAP such as acid gases, mercury, and organic HAP. We then listed all the boilers and process heaters in the population database in order of decreasing control device effectiveness within each subcategory for each pollutant type. Then we identified the top 12 percent of units within each category based on this ranking, and determined what kind of emission control technology, or combination of technologies, the units in the top 12 percent employed. Finally, we looked at the emissions test data from boilers and process heaters that used the same control technology, or technologies, as the units in the top 12 percent to estimate the average emissions limitation achieved by the these units.

This approach reasonably ensures that the emission limit selected as the MACT floor adequately represents the average level of control actually achieved by units in the top 12 percent. The analysis of the measured emissions from units representative of the top 12 percent is reasonably designed to provide a meaningful estimate of the average performance, or central tendency, of the best controlled 12 percent of units in a given subcategory. For existing subcategories where less than 12 percent of units in the subcategory use any type of control technology, we looked to see if we could estimate the central tendency of the best controlled units by looking at the unit occupying the median point in the top 12 percent (the unit at the 94th percentile). If the median unit of the top 12 percent is using some control technology, we might use the measured emission performance of that individual unit as the basis for estimating an appropriate average level of control of the top 12 percent. For subcategories were less than 6 percent of the units in a HAP grouping used controls or limited emissions, the median unit for that HAP grouping reflects no emissions reduction. Therefore, in these circumstances, EPA believes that it has appropriately established the MACT floor emission levels for these sources as no emission reduction.

Comment: One commenter (512) argued that EPA's approach to setting MACT floors for existing sources is fundamentally flawed. The commenter explained that none of the floors set by EPA reflect the actual emissions of the best performing sources but were based on the assumed control efficiency of add-on controls. The commenter noted that EPA admitted that many factors influence emissions, not just control equipment, and that the available data show that some sources are performing better than the floor. The commenter also noted that Congress required EPA to set MACT emission standards based on the performance of "sources," not simply the "technology system" and cautioned that EPA should not rely on data from sources that are not among the top 12 percent when determining standards or variability. The commenter added that if EPA is concerned that the existing sources may not be able to meet MACT emission standards under all relevant conditions, it should develop a targeted variability factor that is based on performance fluctuations of the top 12 percent sources and which accounts for factors other than MACT technology that influence source performance. The commenter contended that under no circumstance should EPA rely on the data from sources that are not among the top 12 percent when determining performance standards or variability.

Three commenters (343, 479, 492) supported EPA's approach to establishing the MACT floors for boilers and process heaters. Two commenters (479, 492) specifically supported the method of using both control technologies and emissions data to establish MACT floors. One commenter (343) agreed with EPA that using HAP emissions data alone is not appropriate since uncontrolled units may have lower emissions than controlled units due to fuel characteristics and that HAP emissions from boilers and process heaters are primarily dependent upon the composition of the fuel. In addition, the commenter stated EPA's approach of developing subcategories based on fuel used, unit size, and evaluating control options used by the units within each subcategory to determine the MACT floor is most appropriate. One commenter (492) expressed that, for a source category as large and diverse as this one, add-on technology is the most viable way of accounting for variability. Two commenters (479, 492) noted that the approach that EPA used to determine the MACT floor in this proposal is not countramanded by the holding in the Cement Kiln ruling. The commenters explained that EPA used the emission data from the best performing 12 percent of the sources as opposed to the worst source using the MACT control.

Response: As discussed in the proposal preamble, the MACT floor analysis was based on a two step process. First the percentage of units with control technologies that could achieve mercury emissions reductions was determined using the boiler population databases. We identified the types of air pollution control techniques currently used. We ranked those controls according to their effectiveness in removing the different HAP categories of pollutants; including metallic HAP and PM, inorganic HAP such as acid gases, mercury, and organic HAP. We then listed all the boilers and process heaters in the population database in order of decreasing control device effectiveness within each subcategory for each pollutant type. Then we identified the top 12 percent of units within each category based on this ranking, and determined what kind of emission control technology, or combination of technologies, the units in the top 12 percent employed. Second, we looked at the emissions test data from boilers and process heaters that used the same control technology, or technologies, as the units in the top 12 percent to estimate the average emissions limitation achieved by the these units.

This approach reasonably ensures that the emission limit selected as the MACT floor adequately represents the average level of control actually achieved by units in the top 12 percent. The analysis of the measured emissions from units representative of the top 12 percent is reasonably designed to provide a meaningful estimate of the average performance, or central tendency, of the best controlled 12 percent of units in a given subcategory. For existing subcategories where less than 12 percent of units in the subcategory use any type of control technology, we looked to see if we could estimate the central tendency of the best controlled units by looking at the unit occupying the median point in the top 12 percent (the unit at the 94th percentile). If the median unit of the top 12 percent is using some control technology, we might use the measured emission performance of that individual unit as the basis for estimating an appropriate average level of control of the top 12 percent.

Comment: Several commenters (348, 388, 401, 449, 492, 498, 524, 533 ) opposed the use of emissions data from large units to establish the MACT floor for small and limited use units. One commenter (401) stated that it was not appropriate to assume that emissions rates achievable by large units are achievable by small units, even the best controlled units. Several commenters (388, 449, 498, 524, 533) argued that the use of large unit data in MACT determinations for other subcategories would defeat the purpose of the subcategorization and violate the requirements of section 112 because the use of this data does not represent sources in the relevant category or subcategory. Furthermore, the commenters noted that most existing State and Federal regulations do not regulate units less than 10 MMBtu/hr due to their low emissions and extension of emission data from larger sources ignores that lack of regulation. One commenter (348) questioned the use of the MACT floor database for smaller units because it does not contain data from smaller units.

Response: The EPA disagrees with the commenters and maintains that it has conducted the MACT floor analysis appropriately. First, EPA calculated the control technology used by the best controlled 12 percent of sources in the subcategory. For example, only units in the population database less than 10 MMBtu/hr (and not in the limited use subcategory) were used to determine the MACT floor control technology for units in the small subcategories. Second, EPA used information in the emissions test database to calculate the emission level associated with the MACT floor control technology. The emissions test database did not contain test data for limited use or small boilers and process heaters. The EPA's interpretation of section ___ of

the CAA allows EPA to use information from similar sources to set the MACT floor when no information from the subcategory is available. Although the units in the small and limited use subcategories are different enough to warrant their own subcategory (i.e., different purposes and operation), emissions of the specific types of HAP for which limits are being proposed are expected to be related more to the type of fuel burned and the type of control used, than to unit operation. Consequently, EPA determined that emissions information from large fuel fired units could be mused to establish MACT floor levels for the small and limited use subcategories because the fuels and controls are similar. The proposal preamble requested additional information from commenters to refine/revise the approach if necessary. No commenters provided emissions information for limited use or small subcategory boilers or process heaters.

Comment: Several commenters (374, 382, 388, 449, 492, 498, 524, 533) believe that new distillate oil fuel-fired boilers and process heaters should be exempt from PM and HCl emission limit requirements in addition to other rule requirements. Several commenters (382, 388, 449, 498, 524, 533) noted that EPA has generally treated distillate oil on par with natural gas relative to emission requirements and that no basis for imposing these emission limits exists. Commenters explained that EPA already recognizes the lower emissions of these units since it does not require emission testing. However, commenters noted that units will be required to demonstrate compliance with the emission limits in their operating permit even if EPA does not require testing in the boilers NESHAP. The commenters (382, 388, 449, 492, 498, 524, 533) contended that a regulatory rationale does not exist for concluding PM and HCl emissions are controlled in liquid fuel-fired units other than those firing residual oils. Since there are no units within the emissions database that are firing distillate oil or diesel oil that are equipped with any PM or HCl controls or emissions test data for these pollutants, commenters (492, 382) argued that EPA apparently has arbitrarily imposed emission limits that are based on firing residual oil on units fired with distillate oil. The commenter (492) also noted that emissions from distillate oil-fired units are inherent with the units and the fuel. Hydrogen chloride emissions are a function of the fuel chloride content, which is not a detailed requirement in ASTM oil specifications. Furthermore, the commenter argued that emissions limitations serve no regulatory purpose if there is no mechanism for control. The commenter concluded by pointing out that PM and HCl emissions from distillate oil-fired units are very low and are not controllable by the source, so that they could legitimately be considered *de minimis*. Several commenters (374, 382, 388, 449, 498, 524, 533) suggested that these units should only have to comply with the initial notification requirements in the general provisions (40 CFR part 63, subpart A).

Response: Units firing distillate fuel are still included in the liquid subcategory. As such they are subject to the emission limits that are applicable to liquid fuel fired units. However, we do recognize that emissions from firing distillate oil are lower than from firing residual oil, and reflect this in the rule. Units firing only distillate oil are only required to submit a signed statement that they fire distillate oil, and are not subject to testing or monitoring requirements.

# 9.0 OPTIONS BEYOND THE MACT FLOOR

## 9.1 General

Comment: Several commenters (376, 393, 491, 536) supported the EPA's proposal not to require beyond-the-floor MACT standards for any subcategories. One commenter (393) urged EPA to set the MACT standards equal to the MACT floors for each subcategory. One commenter (491) supported EPA's decision to set the emissions limitations at the MACT floor and not establish emission standards beyond the floor. The commenter stated that the standard can be achieved by most existing sources in the source category in a cost effective manner and the standard will provide a sufficient level of emission controls to adequately protect the public and the environment. One commenter (390) urged the EPA to carefully assess the costs and actual availability of any beyond-the-floor control technologies not commercially available. The commenter added that any further control beyond-the-floor, based on the EPA Utility and Mercury Study, will have little incremental effect on public health while proving very costly.

Two commenters (512, 527) argued that EPA could achieve more emission reductions from this source category through this standard. One commenter (527) stated that EPA concluded that most beyond-the-floor options for existing units would further reduce emissions but the cost would be too high to consider it a feasible beyond the floor option. The commenter stated that the impact of this rationale is the missed opportunity to remove hundreds of tons of hazardous air pollutants (HAP) emitted directly into the air each year by the affected sources in this industry. The commenter stated that this not a question as to the availability of control and measurement options, but rather, EPA's gauge of what if any cost is deemed acceptable. One commenter (512) argued that EPA's database indicates substantially lower emissions are achievable for this source category and that further reductions should be evaluated as part of a beyond-the-floor analysis.

Response: For the final rule, EPA maintains that options beyond the MACT floor are not appropriate for the standard. The EPA is required by the Clean Air Act (CAA) to set the standard at a minimum on the best controlled 12 percent of sources (for existing units) or best controlled source (for new units). The CAA also requires EPA to consider costs and non-air quality impacts and energy requirements when considering more stringent requirements than the MACT floor. EPA did consider the cost and emission impacts of a variety of regulatory options more stringent than the MACT floor for each subcategory. The EPA recognizes that for some subcategories, more stringent controls than the MACT floor can be applied and achieve additional emission reductions. However, EPA also determined that the cost impacts of such controls were very high. Considering both the costs and emission reductions, EPA determined that it would be infeasible to require any options more stringent than the floor level.

## 9.2 Carbon Injection

Comment: Several commenters (364, 376, 387, 388, 393, 399, 406, 407, 408, 413, 446, 447, 449, 452, 492, 498, 501, 519, 524, 533) supported EPA's decision not to require activated carbon injection as an "above the floor" technology. Some commenters (364, 387, 388, 393, 399, 413, 449, 492, 498, 524, 533, 536) explained that consideration of the use of activated carbon injection has issues including: 1) insufficient data on the effectiveness of carbon injection

for this source category; 2) the reductions indicated from data outside of this source category vary greatly with boiler type and fuel source; 3) contamination of fly ash such that it cannot be beneficially reused for various byproducts; 4) catastrophic foaming in plants with wet flue gas desulfurization; and 5) its use is prohibitively expensive when compared to what EPA considers reasonable for beyond the floor costs. Other commenters (393, 406, 407, 408, 413, 447, 501, 519) noted that activated carbon injection has not yet been proven as a commercially viable option for mercury control.

Some commenters (415, 451, 527 ) expressed concern that EPA did not propose to require activated carbon injection. One commenter (451) contended that EPA neglected to consider the high emission reduction levels that can be achieved through carbon injection. As a result, the commenter argued that EPA neglected to consider that it may be possible for coal burning units to match the mercury emissions performance of wood fired units. Another commenter (415) argued that the single emission test of the industrial boiler using activated carbon was not representative. Two commenters (415, 527) argued that EPA should consider the well-documented success of activated carbon injection for the control of mercury from other combustion sources including incinerators, waste-to-energy facilities, and electric power facilities. One commenter (527) stated that the approach to control mercury in this rule appears to ignore the wealth of data and information that is currently available to control mercury from similar flue gas streams. The commenter stated that despite fuel and process differences and therefore potential differences in the control options that might be selected, there are often substantial similarities between the different industries in the design, operation, and flue gas stream characteristics, and therefore the general availability of similar control options.

Response:For the final rule, EPA maintains that options beyond the MACT floor are not appropriate for the standard. The EPA is required by the CAA to set the standard at a minimum on the best controlled 12 percent of sources (for existing units) or best controlled source (for new units). The CAA also requires EPA to consider costs and non-air quality impacts and energy requirements when considering more stringent requirements than the MACT floor. As documented in the memorandum "Methodology for Estimating Costs and Emissions Impacts for Industrial, Commercial, and Institutional Boilers and Process Heaters National Emission Standards for Hazardous Air Pollutants" in the docket, EPA did consider the cost and emission impacts of a variety of regulatory options more stringent than the MACT floor for each subcategory. The EPA recognizes that for some subcategories, more stringent controls than the MACT floor can be applied and achieve additional emission reductions. However, EPA also determined that the cost impacts of such controls were very high. Considering both the costs and emission reductions, EPA determined that it would be infeasible to require any options more stringent than the floor level.

For the final rule, EPA maintains that carbon injection should not be required as an above the floor technology. As discussed in the proposal preamble, we identified one existing industrial boiler that was using carbon injection. The emissions data that we obtained from the boiler indicated that this carbon injection unit was not achieving mercury emissions reductions. This result led us to conclude that it was not the new source floor level of control. However, there may have been other reasons for the ineffectiveness of this system (e.g., low inlet mercury levels, insufficient carbon injection rate, ESP instead of fabric filter for PM control). Therefore, we considered carbon injection as a beyond-the-floor option, but decided that while this control technique has been used in other source categories, there is no demonstrated evidence that it would work for industrial boilers and process heaters because the type of mercury emitted and

properties of the emission streams are sufficiently different for boilers and process heaters and other source categories. For fabric filters, we had some emissions information for utility boilers that indicated that mercury emissions reductions were being achieved with this technology. In this case, we could confidently use control efficiency information from another similar source category to supplement the information available in this source category. Unlike fabric filters, the available emissions information indicated that carbon injection was not effective for industrial boilers and process heaters.

### 9.3 Fuel Switching

Comment: Several commenters (364, 381, 382, 387, 388, 391, 392, 399, 403, 410, 413, 444, 447, 449, 479, 492, 498, 519, 524, 533, 536) supported EPA's conclusion that fuel switching is not a viable regulatory option for setting the MACT floor or considering beyond-the-floor options. In support of EPA's conclusion, some commenters (364, 381, 399, 387, 479) provided the following arguments against fuel switching: 1) Fuel switching is neither technologically viable nor environmentally beneficial; 2) fuel switching would contradict the National Energy Policy goal of enhancing fuel diversity; 3) fuel switching would force a shift away from bioenergy; 4) fuel switching would not provide the additional minimization of greenhouse gas emissions that the use of biomass would provide; 5) the CAA does not require EPA to consider fuel switching as part of a MACT floor analysis; 6) the inclusion of fuel switching as a MACT floor option under section 112(d)(3) would eliminate EPA's subcategorization authority as well as EPA's established authority to vary emission standards based on the pollutant content of the fuel burned; and 7) the MACT program is not an appropriate vehicle to force a wholesale change in energy sources that fuel switching to natural gas would entail. One commenter (492) explained that fuel switching is not a technology that is feasible for all sources within the category, therefore, it is not "duplicable."

One commenter (415) stated that the EPA should provide more quantitative information on the potential for fuel switching to reduce HAP emissions. The commenter suggested that, with regard to the overall reduction of HAP associated with fuel switching, it was not clear if the EPA had sufficient data to make a quantitative determination of this issue. Regarding EPA's assertion that the availability of natural gas supply and distribution infrastructure would preclude more significant use of fuel switching, the commenter also requested a more quantitative assessment.

Response: The EPA maintains that fuel switching is not a viable option for the promulgated rule, based on the rationale presented in the proposal preamble. Regarding fuel switching emission reductions/increases, the memorandum "—" details the fuel switching impacts analysis. The memorandum presents emission impacts for pollutants, including organics, inorganics, and metallic HAPs. This analysis was based on all the emissions information gathered by EPA, consisting of emission test reports for gas fired units and solid fuel units. In the proposal, EPA requested commenters to provide additional information. However, no additional emissions information was provided. Regarding natural gas supply and infrastructure comments, commenters are referred to the fuel switching memorandum. The EPA did not have extensive information on natural gas supply or infrastructure. The EPA did have sufficient information on pipelines and use of natural gas at each boiler and other combustion units to estimate whether a significant number of sources would need to make changes to their combustion unit. The fuel switching analysis also shows that the major annualized cost of fuel

switching to natural gas is not the capital cost of equipment/infrastructure, but the high cost of natural gas relative to other fuels. This cost differential results in the infeasibility of fuel switching to natural gas.

## 10.0 WORK PRACTICES STANDARDS

Comment: One commenter (445) requested that EPA consider establishing a longer averaging period for the CO work practice standard and exempt periods of startup, shutdown, and malfunction for limited use boilers. The commenter noted that the infrequent and limited use of these boilers makes CO emissions highly variable and would result in difficulty in meeting the CO work practice standard. Four commenters (364, 399, 387, 403) supported EPA's conclusion that a one-day averaging period for CO is appropriate. Other commenters (401, 478) suggested that if EPA decides to keep CO continuous emissions monitoring system requirements, then EPA should provide a 30-day rolling average for the CO standard in order to take into account the existence of fuel and operational variability.

Response: In the final rule we modified the averaging period for solid fuel-fired sources that have a work practice standard for CO and are required to monitor CO using CEMS (i.e., units with a capacity of 100 MMBtu/hr or more). We changed the averaging period from a 24-hour period to a 30-day rolling average. This change accounts for the variability in fuel characteristics (e.g., moisture, Btu content, mixture) that occur for solid fuel-fired boilers and process heaters. With regard to limited use units, we removed the requirement for those units to install and operate CO CEMS if they have an applicable work practice standard. Limited use units with an applicable CO work practice standard will only have to conduct a performance test for CO emissions. This change was made due to the limited use of such units and the time needed to conduct annual CO CEMS certifications.

Comment: Several commenters (418, 431, 475, 503, 504, 505) claimed that the potential for HAP emissions from blast furnace gas or coke oven gas is significantly less than that associated with the combustion of natural gas due to a much smaller concentration of complex hydrocarbon compounds. The commenters believe that sources burning these byproduct gases should not be required to meet a CO limit of 400 ppm or install a CO continuous emissions monitor because CO is not a reliable indicator that HAP emissions are elevated. In addition, units burning high CO concentrated gases may not be able to meet the 400 ppm emission limit. The commenters claimed that this would discourage the use of byproduct fuels and result in increased HAP emissions since the gases would be burned elsewhere, and natural gas burned in their place. One commenter (418) recommended that blast furnace gas-fueled units be exempted from all work practice standards because this type of fuel does not contain the constituents that generate HAP during combustion. The other commenters (431, 475, 503, 504, 505) suggested encouraging the beneficial use of byproduct fuels by exempting them from the MACT requirements or allow units using byproduct fuels to be regulated according to the amount of purchased fossil fuels it utilizes.

Response: We have reviewed the information submitted by the commenters and agree that blast furnace gas contains minimal or even no hydrocarbons. In the final rule, we exempted blast furnace gas-fired units from all provisions of the boilers NESHAP. However, these units, as defined by the boilers NESHAP, are boilers and process heaters that receive 90 percent or more of their total heat input (based on an annual average) from blast furnace gas. If your boiler or process heater receives less than 90 percent of it total heat input from blast furnace gas, then the CO work practice standards could apply to your unit if it meets the definition of new source and is larger than 10 MMBtu/hr

Comment: Several commenters (360, 364, 382, 388, 399, 387, 403, 406, 407, 408, 410, 426, 449, 479, 492, 498, 501, 524, 533) requested that EPA implement the CO work practice standard as a trigger for corrective action and not as an emission limit as proposed. Several commenters (406, 407, 408, 501) noted that a corrective action trigger would be appropriate because CO is not a HAP, but a surrogate to control related HAP emissions in a general sense as opposed to a quantitative or predictive sense. One commenter (360) contended that there was little proof that a 400 ppm CO limit would limit organic HAP emissions. One commenter (410) agreed that CO emissions from boilers or heaters provide a reasonable rough indicator of whether good combustion practices are being followed and preferred monitoring CO over monitoring organic HAP directly. The commenter added that based on the PERF study, CO is a weak indicator of organic HAP in concentrations between 10 and 1000 ppm, but good beyond 1000 ppm. The commenter concluded that based on the PERF study, exceedence of the 400 ppm limit should not be considered a violation but should require the owner to take corrective action within a reasonable time frame. Two commenters (426, 492) added the CO level being a corrective action trigger will provide incentive to maintain good operating practices without creating violations for conditions that may not be related to increased HAP emissions. One commenter (426) listed several planned activities that could cause CO emissions to exceed 400 ppm. The commenter also listed some unforeseen activities that could cause an increase in CO emissions. The commenter added that because of the complexity of refinery operations, it would be difficult and time-consuming to identify and document every conceivable situation that would require units to be run at a reduced rate in a startup, shutdown and malfunction plan.

Response: In the final rule, we have clarified that an exceedence of the CO limit constitutes a deviation of the work practice standard. An observed exceedence of a monitoring parameter is not an automatic violation. You are required to report any deviation from an applicable emission limitation (including operating limit). We will review the information in your report along with other available information to determine if the deviation constitutes a violation. The determination of what emission or operating limit deviation constitutes violations of the standard is up to the discretion of the entity responsible for enforcement of the standard. Since proposal, we revised the rule to provide more flexibility with regard to complying with the work practice standard for CO. For solid fuel-fired units, we changed the oxygen correction factor from 3 to 7 percent to more accurately reflect oxygen levels in solid fuel-fired units. We also lengthened the averaging period for solid fuel-fired units that are required to use CO CEMS from a 24-hour average to a 30-day rolling average. Furthermore, we added a provision that excluded CO emission data when a boiler or process heater is operating at or below 50 percent of the rated capacity. We believe that these changes should address some of the commenters' concern.

Comment: One commenter (427) contended that §63.7500(c) regarding requesting alternative work practices is poorly written and does not convey the requirement clearly. The commenter suggested alternative wording.

Response: This alternative is only applicable if, in the Administrator's judgment, an owner or operator of an affected source has established that an alternative means of emission limitation will achieve a reduction in emissions of a hazardous air pollutant from an affected source at least equivalent to the reduction in emissions of that pollutant from that source achieved under any design, equipment, work practice, or operational emission standard, or combination thereof, established under this part pursuant to section 112(h). For a source to be allowed to establish an alternative work practice standard, the Administrator must determine one

of the following: a) HAP cannot be emitted through a conveyance designed and constructed to emit or capture such pollutants, or that any requirement for, or use of, such a conveyance would be inconsistent with any Federal, State, or local law, or b) the application of measurement methodology to a particular class of sources is not practicable due to technological and economic limitations. We are not going to modify this section for two reasons: 1) We do not believe that many sources affected by this NESHAP would be in a situation where this alternative would be allowed, and 2) the section refers to §63.6(g) which clearly spells out the reasons and requirements for petitioning for an alternative work practice standard.

Comment: Several commenters (364, 399, 387 383) requested that EPA reevaluate the CO work practice standard. The commenters argued that the current CO standard may result in unintended consequences such as a reduction in the use of biomass fuel. One commenter (364) provided an example wherein a boiler affected by a CO limitation could not meet the limitation while burning its standard blend of fuels. To meet the standard, the source cut back the combustion of biomass resulting in an increase of sulfur dioxide emissions due to the additional fossil fuels required. One commenter (320) contended that the CO standard of 400 ppm would be impossible to attain with biomass fuels. The commenter contended that there are severe negative economic impacts and minimal reduction in HAP emissions resulting from the CO standard.

Response: Since proposal, we revised the CO work practice standards to address solid fuel-fired sources more appropriately. We increased the oxygen correction factor for new solid fuel-fired sources from 3 to 7 percent to be more representative of the oxygen levels present in solid fuel-fired units. We increased the averaging period for solid fuel-fired sources has been increased from 24 hours to a 30-day rolling average to account for normal variations in fuel quality that may affect CO emissions. Finally, we modified the recordkeeping requirements that relate to CO emissions and do not require you to collect or include CO emission data for periods where your boiler or process heater is operating at loads less than 50 percent of total capacity. We believe that these changes should address the commenters concern and should not discourage the beneficial use of renewable energy sources such as biomass.

Comment: One commenter (424) stated that EPA underestimated the cost of installing and operating CO continuous emissions monitoring systems and recommended that EPA exempt new gaseous fuel-fired boilers from any NESHAP requirements. One commenter (490) argued that the CO monitoring requirements for gaseous fuel-fired units would be expensive and result in no environmental benefits.

Response: We do not exempt all new gaseous fuel-fired boilers and process heaters from any NESHAP requirements. New gaseous fuel-fired sources that have a heat input capacity of 10 MMBtu/hr or more will have an applicable CO work practice standard. However, in the final rule, we no longer require new boilers and process heaters that have a heat input capacity less than 100 MMBtu/hr to install a CO CEMS if they have an applicable CO work practice standard. Units with a heat input capacity less than 100 MMBtu/hr will only have to conduct annual performance testing for CO. This change significantly reduces the cost of compliance for new sources.

Comment: Several commenters (364, 374, 382, 383, 387, 388, 399, 403, 449, 492, 498,

524, 533) suggested modifying the 400 ppm standard so that it does not apply during periods of very low load operation. One commenter (492) noted that real time variation of CO measurements from varying operating load conditions must be considered in establishing an achievable CO work practice standard. The commenter added that cycling load and intermittent low load conditions may often result in spikes and fluctuations in CO emissions, and the imposition of a CO limit under very low load conditions may be inappropriate. Several commenters (364, 382, 387, 388, 399, 403, 449, 498, 524, 533 ) suggested providing an exemption to the CO standard when units are operating at loads less than 50 percent. One commenter (364) also noted that EPA's analysis did not include startup, shutdown, malfunction, and high boiler turndown events into the variability analysis and also pointed out that other existing State CO limitations include exemptions during turndown periods.

Response: We agree with the commenters that cycling load and intermittent low load conditions may result in fluctuations in CO emissions that sources cannot control. Therefore, in the final rule, we modified the recordkeeping provisions such that you are not required to collect or use CO emission data in determining compliance when your boiler or process heater is operating a loads less than 50 percent of the rated capacity. Furthermore, we also modified the final rule to extend the averaging period for CO emissions from 24 hours to a 30-day rolling average. We believe that this change will continue to provide the desired reduction in organic HAP emissions while accounting for normal unit operation that may affect CO emissions.

Comment: Several commenters (364, 382, 383, 387, 388, 399, 401, 404, 406, 407, 408, 430, 449, 498, 524, 533) requested that EPA increase the oxygen correction factor applied to the CO work practice standard for solid fuel-fired units, especially biomass fuel-fired units. The commenters requested that EPA increase the oxygen correction factor from 3 to 7 percent for solid fuel-fired units. Several commenters (449, 524, 533, 388, 498) stated that many solid fuel-fired units typically operate with excess oxygen levels in the 7 percent range and that higher excess air levels are needed to compensate for the more difficult mixing of air and fuel. The commenters also noted that high moisture fuel with inherent moisture variations coupled with load variations, make the 400 ppmv corrected to 3 percent oxygen CO limit unattainable. Several commenters (406, 407, 408, 501) provided CO data from four modern biomass-fired boilers that underwent PSD and BACT that showed that these boilers would not comply with the proposed CO standards. Other commenters (388, 406, 407, 408, 449, 498, 501, 524, 533) also listed other EPA regulations that have incorporated an oxygen correction factor of 7 percent. Several commenters (374, 382, 388, 449, 492, 498, 524, 533) suggested that the 3 percent correction factor remain for gas and oil-fired units. One commenter (340) stated the CO concentration in Table 8 needed to be referenced to an oxygen concentration of 3 percent is the usual standard for boilers.

Response: We agree that the application of a 3 percent oxygen correction factor for solid fuel-fired boilers and process heaters may not be appropriate. Due to the nature of burning solid fuels completely, additional oxygen is needed in the flame zone to ensure complete combustion. Therefore, in the final rule, we increased the oxygen correction factor from 3 to 7 percent for solid fuel-fired units. Furthermore, we increased the averaging time for solid fuel-fired sources from 24 hours to a 30-day rolling average to account for fuel variations such as moisture. We believe that these changes should address the commenters' concern over the CO work practice standard application to solid fuel-fired boilers and process heaters.

Comment: Several commenters (346, 374, 382, 388, 410, 449, 479, 492, 498, 524, 533) recommended that CO continuous emissions monitoring systems be required only for units greater than 250 MMBtu/hr. Several commenters (360, 492) supported an initial compliance test followed by periodic testing for units less than 250 MMBtu/hr. Two commenters (410, 490) suggested requiring initial compliance tests using a portable CO process monitor for units greater than 100 MMBtu/hr and less than 250 MMBtu/hr. The commenters also suggested that EPA exempt units smaller than 100 MMBtu/hr from the CO work practice standard. One commenter (490) suggested for units greater than 100 and up to 250 MMBtu/hour, the operator would be required to complete an initial stack test and thereafter complete annual inspections and unit adjustments, and subsequent stack tests would be required if the unit burners are replaced. The commenter also added that for units greater than 250 MMBtu/hour, the operator would be required to complete an initial stack test and annual tuning of the burners, and retesting of the unit would be conducted every 5 years or when burners are replaced. Several commenters (332, 371, 424, 479) requested that EPA only require CO continuous emissions monitoring systems on units larger than 40 MMBtu/hr and allow smaller units to conduct annual CO emission tests. One commenter (371) claimed the proposed rule is inconsistent with the current South Coast Air Quality Management District requirements, which allow annual source testing of units that are less than 40 MMBtu/hr in lieu of continuous emissions monitoring systems.

Response: In the final rule, we require boilers and process heaters that have a heat input capacity of 100 MMBtu/hr or more to install a CO CEMS only if they have an applicable CO work practice standard. For sources smaller than 100 MMBtu/hr, annual performance testing for CO is required to demonstrate compliance with the applicable work practice standard. We made this change in the boilers NESHAP to minimize compliance costs for smaller sources that would result from the installation of a CEMS. With a size cutoff of 100 MMBtu/hr, we are assured that all units with a heat input capacity of 100 MMBtu/hr or greater will already have a CEMS for other pollutants required by NSPS subpart Dc and the addition of a CO analyzer to an existing CEMS would not be as onerous as installing a CEMS for the purpose of monitoring only CO.

Comment: Two commenters (369, 491) recommended that EPA exclude from CO monitoring requirements natural gas and distillate oil fired boilers and process heaters with less than 50 MMBtu/hr heat input. One commenter (491) argued that calculations based on AP-42 emission factors indicated that CO emissions from natural gas and distillate oil fired boilers and process heaters are significantly less than the work practice standard of 400 ppm of CO. Therefore, the commenter stated that there is no point in installing a CO continuous emissions monitoring system and monitoring CO if the emissions are expected to always be well below the proposed work practice limit. In addition, the commenter stated that EPA could promulgate a boiler tune-up requirement as a work practice standard to assure that boilers and process heaters are properly maintained. The commenter cited New York State's tune-up regulation (6NYCRR Part 227-2.4(d)). Another commenter (479) requested EPA exempt small and new reconstructed gas and liquid fuel-fired units that have minimal emissions. One commenter (500) stated that CO continuous emissions monitoring systems are not necessary for new gaseous-fired units. The commenter stated that facilities already closely maintain burners for economic reasons. The commenter stated that periodic CO performance testing provides an adequate measure of the combustion performance of a gaseous-fired burner, without the need for costly continuous emissions monitoring systems and their respective monitoring plans.

Response: In the final rule, we modified the CO monitoring requirements for boilers and process heaters that have a heat input capacity less than 100 MMBtu/hr. Units with rated heat

input capacities less than 100 MMBtu/hr are not required to install a CO CEMS, but will only have to conduct annual performance testing for CO. We maintain that this change to the monitoring requirements will reduce the cost of compliance for smaller sources but still maintains assurance that these sources are meeting the CO work practice standards.

With regard to the commenter's request to exempt small and new reconstructed gaseous and liquid fuel-fired units, the proposed and final rule does not contain any compliance requirements for small gaseous-fuel fired sources, new or existing. For new small liquid fuel-fired sources, emission limits exist, but the monitoring, recordkeeping, and reporting requirements have been minimized for sources that burn only fossil fuels and do not burn any residual oil.

Comment: One commenter (439) suggested that EPA consider the cost effectiveness of requiring continuous emissions monitor on units less than 100 MMBtu/hr in relation to the potential reduction in HAP emissions given the required work practice standard. The commenter stated that EPA should provide information on actual HAP emissions from improperly operated units and potential HAP reductions resulting from work practice standards. The commenter believes EPA should quantify actual HAP emissions from "improperly operated" units less than 100 MMBtu/hr and compare these HAP emissions to the costs of implementing the proposed work practice standards for units with the same heat input capacity. The commenter suggested that EPA should revise the requirements and remove work practice standards for new gaseous fuel units less than 100 MMBtu/hr heat input.

Response: In the final rule, we removed the requirement for sources less than 100 MMBtu/hr to install and operate CO CEMS if they have an applicable CO work practice standard. These sources will only have to conduct annual performance testing to demonstrate compliance with the CO work practice standard. We believe that this change is an effective way to minimize the compliance cost for many sources.

With regard to quantifying HAP reductions resulting from the application of the work practice standards, obtaining quantitative impacts on HAP emission reductions is difficult due to the site-specific nature of boiler and process heater operation and organic HAP emission levels, though experience with boiler and process heater operation demonstrates that organic HAP emissions are minimized through efficient combustion (e.g., low CO emission levels). For example, if a boiler or process heater is typically operating in an efficient manner and the owner/operator of such a unit maintains the source in a good manner, the application of a CO work practice standard may not result in significant reductions of organic HAP. However, if a boiler or process heater is not operated in an efficient manner, organic HAP reductions would be more significant. Therefore, arriving at organic HAP reductions is not as straightforward as determining the reduction in hydrogen chloride emissions from installing a scrubber or from switching fuel types. For these reasons, we do not provide emission impacts resulting from the application of work practice standards.

Comment: One commenter (340) requested the EPA include a combustion optimization requirement for existing, new, and reconstructed units. There have been papers presented at the Electric Power Research Institute/EPA Megasymposiums which discuss the effectiveness of tuning boilers using software packages that manage boiler combustion. Decreases of nitrogen compound emissions, less loss on ignition to fly ash, and increases in efficiency were demonstrated. This indicates economic incentives to ensure that fuel is not wasted, and the

combustion device operates properly and is appropriately maintained. The commenter requested that EPA include a combustion optimization requirement for existing, new, and reconstructed units. The combustion optimization should use control and automatic boiler tuning algorithms to automatically track time-varying physical and operational changes to the boiler in order to optimize boiler efficiency and loss on ignition through closed-loop mangagement of the air/fuel and temperature distributions within the boiler while maintaining the NOx emission rate in compliance with other applicable requirements. Another commenter (376) requested that EPA allow the use of Good Combustion Practices demonstrated through combustion optimization in lieu of the CO work practice standard. The commenter expressed concern that the CO work practice standard could have adverse impacts such as increased nitrogen compound emissions.

Response: As we discussed in the preamble to the proposal, we did review good combustion practice references and application of good combustion practices. However, we noted that there was a lack of information, and a lack of uniform approach to assuring combustion efficiency. We noted that these finding were not surprising given the extreme diversity of boilers and process heaters, and given the fact that no applicable Federal standards, and most applicable State standards, do not include work practice requirements for boilers and process heaters. Even those States that do have such requirements do not require the same work practices. Since we were unable to determine any uniform requirements or set of work practices that would meaningfully reflect the use of good combustion practices, or that could be meaningfully implemented across any subcategory of boilers and process heaters, we have not included any specific good combustion practice requirements in the final rule. We do consider monitoring and maintaining CO emission levels to be associated with minimizing emissions of organic HAP. Therefore, controlling CO emissions can be a mechanism for ensuring combustion efficiency and may be viewed as a type of good combustion practice. That is why we included the CO work practice standards in the final rule and did not include any specific good combustion practices.

Comment: One commenter (382) supported the use of CO limits as the only new source work practice standard. Three commenters (382, 447, 519) noted that there are no "common" good combustion practices that could assure a certain level of HAP emission control across the diverse population of boilers and process heaters. One commenter (492) agreed with EPA's finding that CO monitoring is the only applicable new source work practice standard requirement. According to the commenter, the diversity of industrial and commercial boilers and process heaters does not allow for "common" combustion practice requirements that could assure a certain level of HAP emissions, and EPA correctly determined that none are suitable as a basis for the MACT floor. One commenter (415) suggested that EPA should incorporate good combustion practice recommendations into the proposed rule. The commenter noted that it is inappropriate for EPA to make the blanket assumption that all existing boilers and process heaters already are operating at optimum efficiency when data suggest otherwise. The commenter stated that EPA should not assume that economic concerns are sufficient to ensure that boilers at all facilities are already operating at peak efficiency. The commenter referenced work done by the Delta Institute on benefits and emission reductions from good combustion practices.

Response: As we explained in the preamble to the proposal, we were unable to identify any uniform requirements or set of work practices that would meaningfully reflect the use of good combustion practices, or that could be meaningfully implemented across any subcategory of boilers and process heaters. That is why we did not promulgate any good combustion

practices in this NESHAP. With regard to the commenter's statement that we made a blanket assumption that all boilers and process heaters are operating at optimum efficiency, we maintain that all boilers and process heaters are designed for good combustion and facilities have an economic incentive to ensure fuel is not wasted by maintaining good combustion. However, we do not believe that all facilities operate their units at optimum efficiency. That is why we promulgated a CO work practice standard as a mechanism for ensuring combustion efficiency, which may be viewed as a type of good combustion practice.

Comment: One commenter (343) agreed with EPA that CO is a good indicator of incomplete combustion and that minimizing CO emissions should result in minimizing organic HAP emissions. However, two commenters (343, 434) recommended that minimizing CO emissions can be accomplished more cost-effectively by ensuring that there is sufficient excess air for complete combustion, rather than by installing a CO continuous emissions monitor. One commenter (434) recommended that excess air monitors be permitted to control such sources. Another commenter (343) suggested the following alternatives: 1) Perform a stack test to demonstrate initial compliance with the 400 ppmvd at 3 percent oxygen, CO emissions limitation. To demonstrate continuous compliance, verify once per month that the burner oxygen setpoint from the initial compliance test has not changed. In the event that changes are made to the operation of the boiler/process heater that could reasonably be expected to impact CO emissions, a test with a portable analyzer for CO is required to ensure that CO emissions are still below the 400 ppmvd; 2) Use an annual tuning procedure that establishes the minimum oxygen level resulting in 400 ppmv CO and then set the burner oxygen controls to operate above this level with an allowable margin. Burner setpoints are verified once per month to ensure that the settings established during the tuneup have not changed. The commenter referenced procedures used by the Massachusetts Nitrogen Compound Reasonably Available Control Technology regulations.

Response: We chose to use CO CEMS as the monitoring parameter for the CO work practice standard because CO CEMS are proven technologies for measuring CO emissions. In the case of some other pollutants regulated by the boilers NESHAP (e.g., hydrogen chloride, mercury, etc.), CEMS are not widely proven and are cost-prohibitive. Therefore, for several regulated pollutants in this NESHAP we use parametric monitoring systems when direct measurement is not practical. In the final rule, we require sources that have an applicable CO work practice standard to install a CO CEMS if the unit has a heat input capacity of 100 MMBtu/hr or greater. We have decided to stay with CO CEMS for those units because they would already have to install a CEMS system under the NSPS requirements and the addition of a CO analyzer would be an incremental cost. For units with a heat input capacity less than 100 MMBtu/hr, we require annual CO performance testing. If you would like to use another method to monitor CO emissions from your boiler or process heater, you can petition the Administrator for approval of an alternative monitoring plan under section §63.8(f) of subpart A of part 63.

# 11.0 COMPLIANCE

## 11.1 General

Comment: Several commenters (364, 382, 387, 399, 449, 492,524) insisted that EPA provide flexibility for emission limits, testing, and operating parameters to account for the many diverse equipment arrangements used by boilers and process heaters. One commenter (382) argued that the proposal was based on the assumption of a single unit being associated with its own control system and that in practice there are many arrangements that are more complex. The commenters provided several examples of alternate arrangements and requested that EPA specifically address arrangements such as, but not limited to the following: 1) allowing the use of a single opacity monitor or bag leak detection system downstream of a common emissions control device; 2) allowing the use of existing emission monitoring and testing locations whether it serves single or multiple units; 3) emission testing that allows for multiple units being served by a single control device; 4) establishment of control ranges for operating parameters that could vary significantly depending on the number and firing rate of individual units operating; 5) emission testing that can simultaneously cover all of the units served by a common control device rather than testing each unit individually; and 6) flexibility to test emissions from common control devices whether or not full load capability is available at the time. The commenters requested that EPA provide sources an opportunity to propose alternative approaches for compliance demonstrations to their permitting authorities should specific arrangements not be addressed in the rule. One commenter (492) suggested that this flexibility may best be served by enabling the "bubbling" compliance concept described in the proposal.

Response: We are aware that a diverse population of boiler and process heater arrangements exist. However, to address in this rule all the different types of arrangements that exist would be too cumbersome and we believe that we would still not be able to incorporate all the existing and future arrangements that will be employed by boilers and process heaters. Therefore, in the final boilersNESHAP we have modified the proposed requirements to provide more flexibility by including such elements as the following: 1) fixed opacity limits similar to those provided in the industrial boilersNSPS; 2) emission averaging provisions for solid fuel-fired units; 3) less restrictive fuel sampling requirements that are based on fuel type (i.e., subbituminous coal, bark, railroad ties, tires) and not triggered by changes in fuel suppliers or fuel location; 4) providing operating ranges around the operating limits; and 5) providing a compliance method based on fuel analysis. If you still require an alternative monitoring strategy for your source, you can petition the Administrator for approval of an alternative monitoring plan under section §63.8(f) of subpart A of part 63.

Comment: Two commenters (521, 535) stated that a circulating fluidized bed (CFB) boiler using limestone injection controls inorganic acid gases effectively and reliably. Therefore, the commenter requested that EPA allow sources having CFB boilers to take pollution control credit, similar to the credit offered to sources having scrubbers and other add-on controls.

Response: We acknowledge that CFB boilers that inject limestone and other types of sorbents achieve effected acid gas control. Therefore, we have added CFB boilers with limestone or sorbent injection to the dry scrubber definition. In the final boilers NESHAP, CFB boilers that inject limestone or other types of sorbent will be required to establish a sorbent injection rate during performance testing for hydrogen chloride and must monitor sorbent injection as an operating limit.

Comment: One commenter (491) requested that EPA state in §§63.7530(b) and §63.7540(a)(2) that new or reconstructed boilers or process heaters in one of the liquid fuel subcategories that burn only fossil fuels and other gases and do not burn any residual oil are presumed to be in compliance with the applicable requirements and that no gap filling periodic monitoring is required for these units under Title V. The commenter stated that this statement is needed to assure that state regulators do not feel that they have to require gap filling monitoring for these units. One commenter (487) requested that EPA clarify the final rule so that gaseous and liquid fuel-fired units are not required to comply with the monitoring and data collection requirements proposed in §§63.7535 and 63.7540, and the monitoring and inspection, operation, and maintenance requirements of §63.7525.

Response: In the final boilers NESHAP, we have clearly stated that liquid fuel-fired units that only burn fossil fuels and do not burn any residual oil demonstrate compliance by certifying that they do not burn any residual oil. We do not believe an additional statement addressing Title V is necessary since we have clearly outlined the compliance requirements for these types of units. We also have clearly stated in §§63.7535 and 63.7540 the specific requirements for these types of units and believe that no additional clarification is needed in those sections. Furthermore, since these units are not required to have continuous monitoring systems (CMS), we also believe that no additional clarification is needed in §63.7525.

Comment: Two commenters (354, 417) do not believe that the proposed monitoring, recordkeeping, notification, analytical and stack performance testing requirements in the proposed rule are justified. One commenter (354) argued that EPA has not presented evidence that any of these additional requirements will achieve emission reductions, but will be costly and burdensome for affected entities. The commenter recommended that all requirements that are not directly related to quantifiable emission reductions be removed from the final rule.

Response: We disagree with the commenter because continuous monitoring requirements are necessary to ensure ongoing compliance with the emission limits. We require performance testing to demonstrate compliance with the emission limits and use operating parameters to ensure that the source is operating in a manner similar to the way it was operating during the successful performance testing. Parametric monitoring is a tool to minimize the cost that would be associated with installing continuous emission monitoring systems for the regulated pollutants or conducting more frequent performance testing. However, we need the monitoring, recordkeeping, notification, analytical and stack performance testing requirements to provide evidence of compliance with this NESHAP. We have worked to minimize the burden of the boilers NESHAP while remaining confident that compliance with the standard is being sustained.

Comment: One commenter (347, 376) requested that EPA allow sources flexibility to use any technology to comply with the applicable emission limitations. One commenter (347) requested that EPA clarify whether new sources have to install the MACT floor level of control or if the only requirement is demonstration of compliance with the emission limits.

Response: The NESHAP program is a technology-based regulatory program that sets emission limits based on the best performing units in a category. However, existing and new sources are not required to use the specific control technologies that were used to establish the

emission limits. You may use any technology or pollution prevention strategy to comply with the applicable emission limits.

Comment: One commenter (372) requested that EPA exempt "low-risk" sources from most of the ongoing compliance demonstration requirements. The commenter defined low-risk facilities as those that demonstrate compliance with the emission limits by as substantial margin, such as less than 50 percent of the emission limit. This margin would be enough to provide assurance of ongoing compliance over the range of fuel variability and normal operating conditions. Using existing opacity limits and requiring chlorine content testing for new fuel types, the commenter believes that this would provide a reasonable alternative to the proposed rule requirements.

Response: We are not providing an exemption for source that demonstrate compliance with the emission limits by a substantial margin. Since proposal, we have minimized the ongoing compliance requirements of the boilers NESHAP in order to reduce the burden on sources, by modifying the fuel sampling requirements, opacity limits, and the definition of operating limits. We are also allowing facilities to conduct performance testing once every three years if they demonstrate compliance with the emission limits for three consecutive years. Therefore, we believe that we have provided a significant amount of flexibility for sources without compromising the measures needed to ensure ongoing compliance with the emission limits.

Comment: One commenter (529) questioned the instructions in §63.7530(c) for conducting performance tests. The instructions indicate that no controls are required, even if a control device is installed and has been identified as part of the MACT floor. The commenter stated that allowing a facility to not take credit for the control device minimizes the reduction of emissions to a level that barely passes the emission standard and provides a disincentive for new technology. Also, §63.7530(c) allows the regulated facility to use fuel switching to achieve the emission limits. The commenter stated that this practice does not protect human health and asks that either the compliance period be assessed more frequently or the short term firing ratio be enforceable.

Response: The NESHAP program establishes emission limits based on the best performing sources in a category. Some facilities may be able to meet the emission limits through the types of fuel that they burn or through fuel switching. In these cases, we allow fuel analysis as the method to demonstrate compliance because emissions of the regulated pollutants under this NESHAP (metals, mercury, hydrogen chloride) can be determined through fuel analysis since they are neither formed nor created during the combustion process. Therefore, if the ratio of fuel pollutant content to fuel heat value is lower than the emission limit, we are confident that the source is meeting the emission limit. Since the NESHAP program does not require installation of the specific control technologies used to establish the MACT, only demonstration that the emission limits established by the MACT control technologies are being met, it is acceptable under this program for a facility to demonstrate compliance with the emission limits without the use of add-on controls or through fuel switching. Residual health risks from these sources after the NESHAP emission limits have been implemented will be addressed in eight years under the 112(f) residual risk program.

Comment: One commenter (354) suggested EPA consider requiring mine permitting authorities to impose restrictions on issuance of mining permits for coal seams deemed to have unacceptable levels of HAP.

Response: We are required to develop and implement a NESHAP for boilers and process heaters since they are a listed source category under section 112 of the CAA. Coal mines are not a specifically listed source under this program. Therefore, we cannot regulate coal mines directly under the NESHAP program. For some facilities, their economics allows them to purchase coal with pollutant contents higher than the emission limits and use control to achieve compliance. This is an acceptable option under this NESHAP. As part of their fuel purchasing contracts, sources also have the option of requiring coal mines to only ship coal that contain pollutants at concentrations less than the emission limits of this NESHAP.

Comment: One commenter (491) stated that §§63.7540(a)(4), (6), and (8) include provisions for conducting new performance tests in the event a new type of fuel, a fuel from a new supplier, or a new mixture of fuel is burned and the calculated values exceeded the established values. However, it is not clear what time period is allowed for conducting the tests. The commenter suggested that EPA clarify the applicable time period. The commenter requested that EPA allow the source 180 days in which to perform this new performance test. The commenter stated that this time is necessary for the owner or operator to schedule and conduct the performance test and to perform multiple tests if needed to establish worst-case fuel conditions. The commenter stated that noncompliance should not result if the new performance test indicates that the applicable emission limitations have not been exceeded.

Response: We agree that some time allowance is needed for which a source must conduct a new performance test if it burns a new fuel that has a pollutant content higher than the fuel that they have previously burned and the source cannot demonstrate compliance with the emission limits through fuel analysis. However, we believe that 180 days it too long. We agree that switching the type of fuel requires planning, but we believe that 60 days is adequate time to conduct a performance test in such situations. If a source is planning to switch its fuel, then they should have time to prepare for a performance test. We have also modified the fuel monitoring provisions such that sources are required to conduct fuel analyses only if a new fuel type (i.e., bituminous coal, tires, biomass) is burned. This should minimize performance testing that is triggered by natural variation with a fuel type. If a new performance test is required due to the use of a new fuel type, then the source must demonstrate compliance with the applicable emission limits and establish new applicable operating limits.

## 11.2 MONITORING

Comment: One commenter (417) stated that the proposed rule's approach to monitoring is unduly burdensome and overly restrictive and suggested that affected units be given the flexibility to develop a source specific monitoring program that builds on current monitoring practices and is consistent with existing rule and permit requirements. The commenter also suggested that operators have the flexibility to propose a monitoring plan for ESP performance indicators rather than conforming to a single monitoring requirement.

Response: We revised the monitoring provisions to minimize the burden of the boilers NESHAP on affected sources. However, we must have continuous monitoring provisions to

ensure ongoing compliance with the NESHAP and cannot completely eliminate them. We have worked to use parameters already monitored by most sources as the basis for ongoing operating limits. We chose this approach to minimize the monitoring burden. However, we are unable to address all the configurations that exist. If you believe your source needs a more site-specific monitoring plan, you can petition the Administrator for an alterative monitoring plan under §63.8(f) of subpart A of part 63.

Comment: Several commenters (297, 364, 387, 399, 491, 492) argued that units that operate fabric filters should be able to use either a continuous opacity monitoring systems (COMS) or a bag leak detection system to monitor compliance and that a requirement to use both systems would be duplicative, expensive, and not necessary. Some commenters (382, 419, 478, 529) recommended that EPA allow facilities that operate fabric filters the option to use pressure drop monitors. One commenter (297) expressed concern over the requirement to establish an opacity limit based on the measured opacity during the performance test. The commenter explained that it is not reasonable to have such a requirement because the commenter typically operates the boiler near 0 percent opacity. The commenter argued that it is not reasonable to establish the emission limit at near 0 percent. Another commenter (419) noted that COMS are known to have difficulty measuring less than 10% opacity. The commenter's historical opacity levels are between 0 and 5% and commenter does not want to be forced into purchasing an expensive COMS system that is less accurate then their current pressure drop monitoring practice. Several commenters (364, 382, 387, 388, 399, 449, 491, 492, 498, 524, 533) recommended that EPA clarify in the final rule that new or existing units with bag leak detectors on fabric filters are not required to monitor opacity nor would they be subject to any opacity limits. The commenters noted that there are conflicting statements within the proposed preamble and rule that indicate that bag leak detection systems and opacity monitoring systems may both be required. One commenter (491) stated that bag leak detection systems should be used in all cases. In addition, the commenter stated that the installation and operation of a continuous monitoring system for those boilers and process heaters that are equipped with a fabric filter serves no useful purpose. One commenter (492) suggested that a bag leak detection system be considered an operating parameter and a clarification that the General Provisions requirement of submittal of continuous opacity monitoring system data does not apply to fabric filter equipped units.

Response: In the final NESHAP, we clarified that sources using fabric filter control have the option of using either opacity monitoring systems or bag leak detection systems to demonstrate continuous compliance.

Comment: One commenter (413) requested EPA explain how sources are to chose the alarm sensitivity for bag leak detectors and whether the level can be adjusted over time. The commenter added that if EPA intends the alarm level to be based on performance testing, EPA has not explained how that would be accomplished. The commenter concluded that EPA has not demonstrated that the 5 percent alarm rate limit is reasonable or that technology is sufficiently reliable to be used as a compliance method.

Response: As outlined in the final NESHAP, we supplied guidance on fabric filter operating in a document entitled "Fabric Filter Bag Leak Detection Guidance." This document is available at www.epa.gov/ttnemc01/cam/tribo.pdf. We believe that the 5 percent alarm rate is a reasonable allowance for sources due to variation in operation and fabric filter failure that can

occur during normal operation and have also require sources to develop a startup, shutdown, and malfunction plan that will outline corrective actions when a fabric filter alarm is triggered.

Comment: Some commenters (478, 491, 529) expressed concern over the proposed requirement for positive pressure fabric filters to have bag leak detection systems located on each cell, but only one bag leak detection system is required for negative pressure systems. The commenters stated that they understand this requirement when each compartment or cell exhaust directly to the atmosphere, however, many fabric filters exhaust through a stack. Therefore, the commenters stated that a single bag leak detector will be sufficient downstream of a positive pressure fabric filter when all compartments or cells are ducted to a common stack before being exhausted to the atmosphere. One commenter (478) argued that as long as a unit can be monitored in accordance with §63.7505(c)(1)(i), a single instrument should be sufficient to demonstrate compliance for positive pressure fabric filter systems. One commenter (529) reviewed the Fabric Filter Bag Leak Detection Guidance referenced in §63.7525(f) as providing specifications and recommendations for bag leak detection systems. However, the commenter reported that this document specifically states that it "does not impose regulatory requirements." The commenter recommended that the requirements be pulled from the Guidance and inserted into the MACT or that the guidance document be required to establish bag leak detection system installation, operation and maintenance criteria.

Response: We agree with the commenters. In the final rule, we require only one bag leak detector on the outlet positive pressure fabric filters, as long as they are ducted into a common stack. If the individual fabric filter cells do not duct into a common stack, then bag leak detectors will be required for each cell. The guidance document offers one way to specify an acceptable fabric filter bag leak detection system. You also have the option to petition the Administrator for an alternative monitoring plan under §63.8(f) of subpart A of part 63.

Comment: One commenter (393) believes the proposed requirement to use of a bag leak detection system will not demonstrate non-compliance with emission limits. The commenter noted that EPA can prove that the activation of a bag leak detection alarm is an indication that the source is exceeding the emission limits of the boilers NESHAP. Another commenter (413) questioned EPA's proposal to use opacity and ESP voltage and power measurements as enforceable operating limits because EPA has not provided a direct correlation between opacity and PM or mercury to justify an enforceable limit.

Response: The use of bag leak detectors and ESP voltage/current monitoring is employed to determine the operational status of the various control devices. The use of operating limits is not based on a direct correlation with emission levels, operating limits are used to ensure that pollution control systems are operating similarly to their operation during the performance test that demonstrated compliance with the emission limits. Since demonstrated and cost-effective CEMS for particulate matter, mercury, or total selected metals are not widely used, we use parameters that facilities already monitor to determine control device performance. As we do not have a direct correlation between the operational parameters of these control devices and emission levels, the final rule provides a 10 percent operating range around the parameters established during the performance testing to account for normal variations in operation of the source and pollution control device.

Comment: One commenter (529) explained that §63.7540(a)(9) allows an alarm on the bag leak detection system to not be counted "if inspection of the fabric filter demonstrates that no corrective action is required." The commenter believes this wording implies that the baghouse should be shut down for inspection. This procedure should be covered in the Site Specific Monitoring Plan required in §63.7505(c) and suggested that EPA modify that language to read " if inspection of the fabric filter in accordance with the Site Specific Monitoring Plan demonstrates that no corrective action is required."

Response: We agree with the commenter that a fabric filter should not have to be shut down for inspection if an alarm is triggered and revised the final NESHAP according to the commenter's suggestion.

Comment: Several commenters (364, 399, 387, 519) requested the EPA remove or qualify the requirement that facilities use manufacturer's originally installed control device operating parameter monitoring equipment. The commenter noted that facilities typically replace original equipment for various reasons and, therefore, this requirement may not be appropriate.

Response: We agree with the commenter and removed from the final rule the requirement to use the manufacturer's originally installed monitoring requirement. However, you must have equivalent monitoring equipment in place if you use that monitoring parameter to demonstrate continuous compliance.

Comment: Several commenters (364, 399, 387, 468, 491) requested that EPA revise the language in §63.7530(c)(6)(ii) and in Tables 7.A and 7.B to require monitoring only for the parameters that impact the specific pollutant for which the control is installed. For example, if a source uses a scrubber to control particulate matter, and hydrogen chloride is controlled by limiting fuel chlorine content, the source should not be required to monitor pH of the scrubber. Or, conversely, if a scrubber controls hydrogen chloride with a scrubber but not particulate matter, then scrubber liquid flow rate and pH would be appropriate monitoring parameters and pressure drop would not.

Response: We agree with the commenters. In the final rule, we completely revised the tables at the end of the rule to make the compliance requirements more simple to understand and apply in practice. For example, if a wet scrubber is used to control particulate matter and is not credited for hydrogen chloride removal, then the source would not be required to monitor pH. Also, if a source is not taking credit for fabric filter control or if the fabric filter control is not applicable to the pollutant in question (i.e., hydrogen chloride), then the source is not required to monitor bag leak detection alarms.

Comment: Several commenters (364, 399, 387, 444) requested that EPA allow certain types of solid fuel-fired boilers equipped with dry control devices to choose which operational parameter (e.g., ESP voltage, fabric filter leak detection) would be used as a sole compliance monitoring method.

Response: For sources with dry control devices, you must either monitor fuel pollutant content, opacity, or fabric filter leak detection alarms to demonstrate compliance. We do not allow the monitoring of ESP parameters as a sole method of compliance for sources with dry controls. We believe that the use of opacity and leak detection monitoring devices are more effective for determining the ongoing operation of a source and its pollution control device than

ESP parameters. However, when a wet control device is employed with an ESP, we require the monitoring of ESP parameters as opacity monitoring systems may not be an effective monitoring device in wet exhaust conditions.

Comment: One commenter (529) recommended that the word "secondary" be included in all references to voltage, current, and power to clearly specify that all operating limits are established for the secondary side of the transformer/rectifier set. The commenter explained that operating limits need to be established that allow an operating range for ESPs, or require a multipoint testing and monitoring of firing conditions to describe the ESP operating limit. This is necessary because as a firing rate for a boiler decreases, the pollutant emissions decrease and the power required to charge the particle in the ESP decreases significantly. One commenter (413) provided a detailed explanation that ESP power input is not directly related to particulate removal performance. One commenter (364, 399, 387) requested that EPA allow the use of monitoring alternatives including the monitoring of voltage applied to an ESP instead of secondary current and secondary voltage. One commenter (357) stated that the setting of operating limits is unworkable as stated in the rule regarding ESP readings for solid fuels. The commenter stated that it is not reasonable to set ESP limits based on the performance testing because ash content affects ESP current load. The commenter stated that a particular solid fuel such as coal may have the same selected metals content per Btu, but a different ash content. In addition, the commenter stated the ESP can draw more current while maintaining the same removal efficiency with higher ash loading. The commenter suggested another option for setting ESP operating limits is to determine ESP efficiency and along with fuel analysis determine an operating limit.

Response: The final NESHAP provides you with the option of monitoring voltage and secondary current or total power input to the ESP. We also provided a 10 percent operating range to the operating limit established during the performance testing to allow for normal process variation. If you believe that you need another approach to monitoring your ESP, you can petition the Administrator for an alternative monitoring plan under §63.8(f) of subpart A of part 63.

Comment: One commenter (515) expressed concern that the requirement to monitor scrubber pH is not an appropriate operational parameter for a wet scrubber that controls hydrogen chloride. The commenter explained that hydrogen chloride is very water soluble in water and that at low concentrations, the pH of the scrubber liquid will be quite acidic. The commenter requested that EPA require monitoring of scrubber liquid hydrogen chloride content and for facilities to maintain the hydrogen chloride content at or below 10 percent to determine compliance. The commenter noted that this could be done by periodically titrating collected samples with 1N caustic. The commenter also provided hydrogen chloride vapor pressure and concentration curves to support their argument.

Response: We disagree with the commenter and continue to require sources with wet scrubber control of hydrogen chloride (and other inorganic HAP) to monitor scrubber effluent pH. We believe that establishing a pH operating limit based on the results of a performance test that demonstrates compliance with the hydrogen chloride emission limit will ensure that the wet scrubber is operating similarly to its operation during the performance test that demonstrated compliance with the hydrogen chloride emission limit. Furthermore, the monitoring of pH is a common monitoring parameter for wet scrubbing systems and minimizes additional compliance

expenses.

Comment: Several commenters (364, 399, 387) requested that EPA change the requirement for wet scrubbers to set operating limits based on the highest pressure drop and liquid flow rate values measured during the initial performance tests to one based on the lowest measurements.

Response: We agree with the commenters and changed the language in the final NESHAP. The proposal language was in error and in the final NESHAP we require that the operating limit to be set at the minimum pressure drop and liquid flow rate that demonstrates compliance with the emission limits.

Comment: One commenter (519) argued that the proposed monitoring parameters for ESPs are not indicative of performance of ESPs equipped with microprocessor-based control systems. The commenter explained that these types of ESPs adjust power usage based on unit load and the proposed monitoring parameters are inappropriate and unreasonable. The commenter suggested that ESPs equipped with microprocessor control have the following requirements: 1) monitor primary voltage to assure that voltage remains above the minimum level required to assure creation of a corona (which is a site-specific variable depending on ESP geometry); and 2) maintain a log of all instances when the ESP control system trips off or alarms, including the date, duration, and cause of the incident. The commenter also provided a paper explaining ESP operation and suggested monitoring methodologies.

Response: We acknowledge that sources may have different types of control device operating systems but realize that it would be impossible to capture all the different systems in a single rule. If you believe that you can develop a better monitoring plan for your source, you may petition the Administrator for an alternative monitoring plan under §63.8(f) of subpart A of part 63.

Comment: Several commenters (364, 399, 387, 444) requested that EPA establish a larger universe of scrubber designs and appropriate monitoring parameters. The commenters argued that additional scrubber types exist than those in the proposed rule and that the proposed monitoring parameters may not be appropriate for these other types of scrubbers. One commenter (364, 399, 387) offered to work with EPA to develop a larger matrix of scrubbers and associated monitoring parameters.

Response: As we discussed in other responses, it would be almost impossible to capture all the different types of control devices in operation and to predict what types of future controls will be employed. Therefore, we provided operating limits for the majority of the control devices in operation. If your source has a different type of control device than one listed in the rule, you can petition the Administrator for an alternative monitoring plan under §63.8(f) of subpart A of part 63.

Comment: Several commenters (374, 388, 403, 444, 445, 449, 478, 498, 523, 524, 533) requested that EPA extend the averaging periods for operating limits based on fuel sampling for pollutant concentrations. The commenters argued that coal quality is inherently variable across suppliers, but also within a single supplier. By providing a time-weighted average limit, the

affected source would not have rejected individual shipments due to variations that result in fuel pollutant concentrations above the established limit, but could offset over the averaging period to compensate for the off-specification shipment of fuel. The commenters explained that such a short averaging time would not be practical given the multitude of fuel suppliers that a facility might have and is also not consistent with the limit for fuel combinations tested during the performance test. One commenter (374) explained that longer averaging times are appropriate because 1) fuel pollutant content is variable; 2) these emission limits are designed to address chronic exposure and not acute risks; 3) it provides compliance flexibility; and 4) it provides the same overall emission reductions. One commenter (523) stated that daily tracking of fuel usage is unnecessary and likely an inaccurate means of tracking usage since the gauges used to track fuel usage are generally not designed to precisely track daily usage. Some commenters (403, 444, 523) requested changing the averaging period to monthly. One commenter (478) requested that facilities only be required to track fuel usage on an as-occurring basis, such as whenever a fuel, source, or supplier changes.

Response: In the final boiler NESHAP, we modified the fuel sampling requirements. In the revised provisions, you must conduct initial fuel pollutant analysis for each "type" of fuel burned and then conduct further analyses for each fuel type once every 5 years. For the purposes of this NESHAP, a fuel type is defined as each specific category of fuels burned by a source (e.g., bituminous coal, subbituminous coal, tires, residual oil, biomass, railroad ties, etc.). For example, if a you burn only bituminous coal and bark, then you would have to conduct an initial fuel sample for each fuel, and then one every five years as long as those are the only two types of fuel burned. Even if you receive those same fuel types from a different source or suppliers, you would not have to re-sample the fuel as long as it is the same type of fuel that you have already sampled and have been burning. If you start to burn another type of fuel such as tires, then a sample of the tire fuel must be analyzed initially and then every five years as long as the source burns that type of fuel. This should alleviate the commenters' concern over having to conduct fuel sampling for fuel shipments from different sources or suppliers. Also, we modified the fuel use recordkeeping requirements to be on a monthly basis and not on a daily basis.

Comment: Several commenters (364, 399, 387) requested that EPA establish longer averaging times for the continuous parameter monitoring provisions of the boilers NESHAP. The commenters argued that the proposed 3-hour block average does not allow enough time for control equipment to respond to systematic adjustments in the manufacturing process and requested a minimum 6-hour block averaging period.

Response: We are not going to extend the averaging periods for continuous monitoring systems beyond 3 hours. In the final NESHAP, we added flexibility through the following provisions: 1) provided a fixed opacity limit based on 6-minute averages for existing sources and 3-hour block averages for new sources; 2) initial and every five year fuel sampling requirements; and 3) a 10 percent range for operating limits established during performance testing. Given these changes in the final rule, we are not going to provide longer operating limit averaging periods.

Comment: One commenter (497) recommended a longer averaging period for the proposed CO emission limit, such as an 8-hour averaging period.

Response: In the NESHAP, we have made the averaging period for CO to be a rolling 30-day average. We have provided this averaging period to address normal fluctuations in fuel

supply an operating conditions. This should address the commenter's concern over CO averaging period.

Comment: One commenter (529) questioned the "6-month period" on which operating limits for bag leak detection systems are assessed. The commenter stated that it is unclear whether this period is a single semiannual period or if the period is a rolling 6-month period where compliance is demonstrated every month.

Response: Consistent with other NESHAPs, the 6-month period is a block period and not a rolling period.

Comment: Several commenters (360, 361, 388, 449, 491, 492, 498, 524, 533) requested that EPA remove §63.7525(e)(3) in the proposed rule, which requires monthly inspections of electronic equipment and connections. The commenters argued that these requirements add no value, inappropriately increase interaction with electrical equipment adding increased safety concerns, and any system issues would already be detected by other means. Furthermore, the commenters noted that these requirements are not included in PS-1 for opacity monitors nor are they included in the guidance document for leak detection systems. One commenter (362) expressed concern that the requirements for continuous monitoring systems would necessitate a monthly shutdown of the affected source to satisfy the inspection requirement. The commenter stated this would be extremely burdensome for units that are required to operate without interruption throughout the entire year, and will likely result in excess emissions due to shutdown/startup activities. Some commenters (360, 492) added that EPA has indicated that these QA/QC requirements would be withdrawn from other MACT standards and QA/QC requirements for continuous parameter monitors would be addressed through a generic rulemaking.

Response: We modified the language related to developing site specific monitoring plans and associated QA/QC requirements. Your site-specific monitoring plan no longer requires you to conduct monthly internal inspections and no longer require monthly inspections. You must develop ongoing quality assurance procedures according to the requirements in §63.8(d) of subpart A of part 63.

Comment: One commenter (536) suggested not requiring continuous emission monitoring of carbon monoxide, hydrogen chloride, mercury, or any other pollutant except for opacity. One commenter (397) supported the use of opacity monitors for solid fuel-fired units.

Response: We do not require CEMS for any pollutants other than opacity, and in some cases, and carbon monoxide. For carbon monoxide CEMS, we limited their requirement to units larger than 100 MMBtu/hr; smaller units with applicable work practice standards for carbon monoxide only must conduct annual compliance tests. We do not believe the CO CEMS requirement for sources larger than 100 MMBtu/hr is burdensome as those units would already be required to have a CEMS system under the NSPS requirements.

Comment: Several commenters (357, 444, 491, 523) stated that continuous operation of monitoring equipment "at all times" should be better defined by providing a minimum data availability percentage. Two commenters (444, 523) noted that the boilers NESHAP allows

baghouses a 5 percent allowance for operating in alarm conditions, but there are no such equivalent condition for other continuous monitoring systems. The commenters suggested that EPA provide at least a 5 percent downtime allowance per six-month period. One commenter (491) noted that §63.7525(c)(3) states that any period for which the monitoring system is out-of-control and data are not available for required calculations constitutes a deviation from the monitoring requirements. The commenter stated that a deviation from the monitoring requirements should not be a violation if the monitoring equipment has been properly maintained and the malfunction is not reasonably preventable. The commenter requests that §63.7525(c)(3) include this statement, "A deviation caused by a monitoring malfunction is not a violation."

Response: We are not going to provide specific continuous monitoring system downtime allowances. Monitor downtime does occur due to calibration and QA/QC procedures, and from occasional malfunctions. In these situations, your site-specific monitoring plan required by §63.7505(c) will address how you will deal with these issues and you will be expected to bring the monitoring system back into operation in an expeditious manner.

Comment: One commenter (405) believes that since many facilities are regulated by one or more programs and an additional layer of requirement will not effect emissions, EPA should delete any requirements for the use of CO monitors on gaseous and oil fired units or limit its application to units larger than 100 MMBtu/hr. The commenter also argued that it is inappropriate to require the installation of individual CO monitors for small burners. The commenter stated that if EPA retains the CO monitoring requirement, it should clarify its application to process heater units with multiple burners and stacks. Individual burners typically are rated under 10MMBtu/hr and vent to individual stacks, however, the process unit in aggregate may be larger than 10 MMBtu/hr.

Response: We limited the application of CO CEMS to units larger than 100 MMBtu/hr. For a unit with multiple smaller burners with individual stacks, a CO CEMS on each stack would not be required if the burners ducted to each stack are less than 100 MMBtu/hr.

Comment: One commenter (403, 433) recommended the use of generic biomass fuel characterizations by class or categories instead of repeated fuel and emission testing. The commenters explained that these classes would be based on similar easily identifiable fuel characteristics such as source and potential contamination, and on similar chloride, metals, and mercury concentrations. The commenter added that facilities would be required to certify that they are burning only clean fuels or specific fuel mixes such that the stoichiometric emissions are below the regulated values. Two commenters (372, 404) requested that EPA consider an exemption or exclusion from compliance requirements for wood/biomass fired units. The commenters expressed concern over the monitoring, recordkeeping, and reporting requirements for those units. One commenter (433) stated that burning differing proportions of biomass and fossil fuel should not constitute a 'new mixture' under the proposed rule.

Response: We do not provide an exemption from fuel sampling for biomass fuel. However, we made two changes since proposal that should address the commenters' concern. First, we modified the fuel sampling requirement to be initially and then once every five years for each fuel type. You are not required to conduct fuel analyses if a similar fuel type (i.e., biomass, bituminous coal, etc.) comes from a different supplier. Once you have conducted the fuel analysis for each type of fuel that you burn, you will only be required to record the monthly amounts of each fuel type that you burn. You will be required to conduct fuel sampling for each

type of fuel every five years thereafter. Also, we adopted a generic biomass characterization and provided a definition for biomass for the purposes of this rule. Therefore, the different types of unadulterated material that are included in the biomass definition are considered to be one type of fuel and you are only required to conduct fuel sampling for biomass once every five years. We believe that this significantly reduces the monitoring, recordkeeping, and reporting requirements of the rule for units that burn biomass. You will still be required to demonstrate compliance through fuel analysis or through performance testing if the fuel analysis shows pollutant content higher than the emission limits of the boilers NESHAP.

Comment: Several commenters (361, 362, 364, 387, 399, 403, 444, 478, 491, 492, 536) requested that EPA allow demonstration of compliance with the hydrogen chloride, metals, and mercury emission limits based on stoichiometric calculation of emissions or fuel analysis and mass balance calculations at facilities without control other than a wet scrubber or dry scrubber or those not taking credit for control. The commenters argue that this would reduce the cost of stack testing and ongoing compliance could be assured by tracking fuel usage. One commenter (362) did agree that if the facility could not demonstrate compliance in this way, then a new performance test should be conducted to show compliance with the emission limitation. The commenter added that is was wasteful to require stack tests that cost $5,000 to $6,000 each, when compliance can be demonstrated on other ways. The commenter (362) suggested a new equation to utilize if EPA allows this option. Two commenters' (492, 536) suggested approach was to allow ongoing fuel analysis as a continuing compliance demonstration technique. This approach would involve the following: 1) establish a fuel input limit for pollutants (e.g., x lb Cl/MMBtu) based on the compliance test as described in the proposal, 2) periodically sample and analyze each fuel for pollutant concentration and heat value, 3) monitor daily usage of each fuel, 4) calculate average daily pollutant input rate for all wastes fed, and 5) demonstrate that the average daily pollutant input rate is equal to or less than the fuel input limit.

Response: In the final NESHAP, we provide the option to either demonstrate compliance through fuel analysis or through performance testing. The fuel analysis option is for sources that can demonstrate that the fuel pollutant content is less than the applicable emission limit (e.g., the fuel analysis results show that the ratio of pollutant content to heat content is less than the respective emission limit in the final NESHAP). However, if you cannot demonstrate compliance with the emission limits through fuel analysis, then you will be required to conduct performance testing. We agree that this will reduce the compliance costs for sources and will still demonstrate compliance with the emission limits.

Comment: One commenter (536) suggested using published emission factors such as AP-42 or FIRE for hydrogen chloride and particulate matter in lieu of any annual testing or monitoring for these pollutants. The commenter (357) stated that allowing sources the option to use "A" rated AP-42 emission factors instead of performance testing is consistent with past permitting history and provides an adequate means of protecting human health and the environment.

Response: We do not allow sources to use published emission factors, such as those in AP-42 or FIRE, to demonstrate compliance with this NESHAP. Published emission factors are average values and do not provide specific emission information about a particular source. The range of data used to develop an emission factor may not all fall under the emission limits in the final NESHAP. Therefore, an emission factor for a specific source may demonstrate compliance

with the emission limits of this NESHAP, but the source could be actually out of compliance with the emission limit given the variation between sources. Also, performance testing is used to establish operating parameters that are monitored to ensure ongoing compliance with this NESHAP. We made several changes since proposal to minimize the burden of this rule on affected sources and believe that these changes will result in reduced burden for sources, but the use of site-specific performance testing and fuel analysis is key to determining the compliance of each source an establishing a method to determine ongoing compliance.

Comment: Several commenters (364, 374, 387, 383, 388, 399, 403, 404, 425, 441, 443, 444, 449, 468, 498, 524, 533) argued that the proposed fuel monitoring requirements are unworkable biomass and multi-fuel boilers. The commenters noted that some facilities may receive fuel shipments from up to 100 different suppliers and that the requirement to sample each time a fuel comes from a new supplier, and the possibility for frequent performance testing, could become very burdensome. Some commenters suggested using fuel purchase specifications to demonstrate compliance by comparing the fuel specifications to the maximum fuel pollutant concentration established during the performance testing. The commenters requested that EPA consider fuel testing exemptions for inherently clean fuels, breaking down biomass into several "types" and then conduct quarterly composite samples for fuel pollutant concentration, and modifying the fuel testing requirements to account for complex fuel mixtures.

Response: In the final NESHAP we simplified the fuel sampling and analysis requirements. You must conduct fuel sampling and analysis for each type of fuel initially and then once every five years. You are not required to conduct fuel sampling for fuel shipments from different suppliers as long as they supply the same type of fuel. Since you will only have to do initial and five-year fuel sampling, this significantly reduces the burden for sources that receive the same type of fuel from many different suppliers. Furthermore, we designated that all unadulterated biomass is a single type of fuel. We do not allow you to use fuel purchase specifications to demonstrate compliance, you will have to conduct fuel sampling and analysis according to the requirements in the final rule.

Comment: One commenter (512) argued that the proposed compliance demonstrations for mercury do not ensure that the emission limit will be met. The commenter explained that keeping track of how a scrubber or precipitator is operating does not mean that mercury emissions are being reduced. The commenter requested that EPA require sources to frequently sample fuel for mercury content along with measuring the inlet and outlet of the control device to determine mercury reduction in order to ensure compliance on a continuous basis.

Response: We disagree with the commenter and believe that the compliance provisions in this NESHAP will ensure that the emission limits will be met. Performance tests demonstrate if a facility is meeting the emission limits and give a clear determination of compliance with the emission limits. During the performance testing, a source must establish operating limits for the type of control device that is used. These operating limits are required to ensure that the source is operating similarly to its operation during the performance test that demonstrated compliance with the emission limits. Sources must also sample and analyze the fuel(s) being burned during the performance test. After the performance testing, the source must monitor fuel type and use and conduct additional fuel sampling and analysis if a new type of fuel is burned. If this new fuel type has a higher pollutant content than the type of fuels burned during the last performance test, the source will be required to conduct additional performance testing within 60 days of

burning the new fuel type to demonstrate compliance with the emission limits. Given these requirements, we believe that the final NESHAP ensures compliance with the emission limits while minimizing the burden to demonstrate compliance.

Comment: Several commenters (406, 407, 408, 501) believes that the burning of differing proportions of fuel should not constitute a "new mixture" under the NESHAP. The commenters noted that if such an understanding is not included in the final rule, then the implementation could become unmanageable. The commenters considered all bagasse produced from sugarcane grown in the same geographic region to be the "same" fuel, and not subject to the fuel switching provisions of the rule. One commenter (492) contended that the requirement to conduct a new performance test every time there is a minor change in fuels is unreasonable. In particular, the commenter argued that fuels are often switched based on economics, with the supplier being selected on the best price bid. In such situations the units are burning like fuels, but the proposed requirements of §63.7540 would make the owner recalculate the emission level, which may require testing. The commenter believed that this is burdensome and that the costs to possible test and to recalculate emission levels each time a fuel supplier is changed are not accounted for in the economic burden estimate. The commenter suggested that the following language replace the proposed language in §63.7540: "If you plan to burn a new type of fuel, a fuel from a new supplier, or a new mixture of fuels, and the characteristics of the new fuel(s) are such that the emissions limitations of Table 1 may not be met, you must perform a new performance test."

Response: In the final NESHAP, we made several changes to the fuel sampling and analysis requirements that should address the commenters' concerns. We provided fuel type designations in the final NESHAP such that if you burn the same fuel type (i.e., biomass, bituminous coal, tires, etc.,) you conduct fuel sampling initially and then once every five years. This eliminates the requirement to conduct different fuel analyses for fuel received from different suppliers. With regard to burning different mixtures of fuels, if you demonstrate compliance through fuel analysis, you can burn any mixture of fuel types, as long as the pollutant content of the fuel mixture remains below your applicable emission limit. If you demonstrate compliance through performance testing, you can burn any mixture of fuel types as long as the pollutant content of the fuel mixture remains below that of the fuel mixture that you burned during your last performance test. This requires you to carefully plan your performance test fuel mixture so that it has the highest fuel pollutant content that you plan to burn. If you decide to burn a new type of fuel or fuel mixture that has a higher pollutant content than the fuel mixture burned during your last performance test, you will be required to conduct a new performance test within 60 days of burning the new fuel mixture.

Comment: One commenter (491) stated that the proposed rule does not specify allowable methods for determining chlorine, mercury, and total selected metals content of the fuel. The commenter suggested that EPA clarify its expectation for allowable methods so operators can determine the fuel chlorine content and the mercury content pursuant to rule requirements. The commenter stated that similar circumstances exist in the rule for determination of total selected metals. In addition, the commenter stated that if method selection is expected to be made by the operator and merely included in the site-specific test plan pursuant to §63.7520(a), then EPA should clarify that expectation.

Response: In the final rule, we specify the appropriate methods for determining the

chlorine, mercury, and total selected metals content of the fuel. If you would like to use different fuel analysis methods, you can petition the Administrator for an alterative testing plan under §63.7(e)(2)(ii) and (f) of subpart A of part 63.

Comment: Two commenters (297, 372) expressed concern over the proposed requirement to recalculate the maximum pollutant input each time you burn a new fuel, fuel from a new mixture, or from a new supplier. The commenters explained that their fuel supply comes from many different suppliers and trying to isolate individual fuel shipments would not be practical. One commenter (372) requested that after a source has determined the worst case fuel blend, there should be no requirement to sample fuel or retest as long as the maximum blend percentage of any fuel did not exceed the percentage fired during the performance test. In addition, the commenter also requested that any fuel type that was evaluated and determined not to be part of the worst case fuel blend, could be burned in any amount during the year without fuel analysis or retesting. The commenter also added that the requirement to test fuel from every supplier will be too costly. The commenter also suggested requiring quarterly composite fuel sampling instead of daily fuel analysis.

Response: In the final NESHAP, we modified the fuel sampling and analysis requirements monitoring requirements. You only conduct fuel sampling initially and then once every five years for each type of fuel burned. This eliminates the requirement to conduct fuel sampling for each type of fuel from different suppliers. With regard to the fuel mixture burned during the performance test, if you choose to demonstrate compliance through performance testing, you should evaluate your fuel use and plan the performance test such that the mixture burned has the highest content of pollutants expected to be burned during normal operation. After that performance test, you are allowed to burn any mixture of fuel types that have been sampled, as long as the total fuel pollutant input is less than that during the last performance test. We are still requiring you to conduct performance tests if you burn a new mixture of fuel that contains a higher regulated HAP content that the one burned during the last performance test. You are allowed to burn any mixture of fuels as long as you can demonstrate that the input of regulated HAP in the fuel stream is not greater than that during the last performance test. If you demonstrate compliance through fuel analysis, you must also conduct fuel analyses for each fuel type that you burn initially, and then once every five years. In this situation, all you have to do in demonstrate that the pollutant content of any fuel mixture that you burn is less than your applicable emission limit.

Comment: One commenter (413) expressed concern about the frequency that fuel testing would need to be performed because sources purchase fuel from a variety of suppliers and many suppliers provide fuel from a variety of sources. The commenter suggested periodic fuel testing as an alternative compliance option for units with variable fuel supplies.

Response: In the final NESHAP, we revised the fuel sampling results to reduce fuel sampling. You will only have to conduct fuel sampling initially and once every five years for each fuel type burned by the source, regardless of whether it comes from a different source or supplier. The should eliminate the commenter's concern over having to conduct fuel sampling for the same type of fuel from different suppliers.

Comment: The commenter (523) stated that tracking natural gas usage should not be

required for existing gas-fired units. The commenter stated that the requirement to burn only natural gas could be introduced into the Title V permits for these sources, if they desire. The commenter stated that if the existing gas-fired unit was converted to solid fuel, the source would need to secure an installation permit and the appropriate MACT requirements would be incorporated into that permit.

Response: All existing sources that burn gas and/or oil only are specifically exempted from any fuel monitoring provisions. New sources that burn gas only do not have to monitor fuel use. If you have an existing or new source that co-fires gas with solid fuels, you must monitor all fuel use on a monthly basis.

Comment: One commenter (536) requested that EPA minimize monitoring burdens on smaller systems. The commenter contended that smaller systems are being asked to monitor too frequently for their budgetary manpower and pose a significant time and financial burden.

Response: We agree with the commenter and have taken some steps to minimize the monitoring burden on smaller sources. For example, we removed the requirement for new sources with heat input capacities less than 100 MMBtu/hr that have a work practice standard for CO to install a CEMS for CO. Instead, these sources will have to conduct annual CO stack tests. This results in a significant reduction in monitoring equipment and manpower costs. We have also included the option to demonstrate compliance through fuel analysis if the results of the fuel analysis show that the fuel pollutant content is less that the applicable emission limit.

Comment: Several commenters (364, 399, 387) argued that some smaller boiler stacks are poor structural candidates for retrofitting continuous opacity monitoring systems (COMS). In some cases, the commenters noted that to install a COMS, facilities may have to completely replace the stack.

Response: In the final NESHAP we have provided additional options for demonstrating compliance, such a fuel analysis in order to minimize the compliance burden. We realize that some sources will have some additional retrofitting costs to install COMS. If a source believes that the installation of a COMS may be too burdensome, you can petition the Administrator for an alternative monitoring plan under §63.8(f) of subpart A of part 63.

Comment: One commenter (491) stated that it is not clear what the requirement "to conduct all monitoring in continuous operation at all times that the unit is operating" means. The commenter suggested that §63.7525(c)(2) be clarified as follows: §63.7525(c)(2) Except for, monitoring malfunctions, associated repairs and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), you must operate all CPMS at all times that the affected source is operating. A CPMS is not required to be operated when the affected source is not operating. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

Response: We understand the commenter's concern and incorporated their suggested language changes into the final NESHAP.

Comment: One commenter (491) requested that EPA clarify that §63.7505(c) applies to continuous monitoring systems.

Response: In the final NESHAP, we added language to §63.7505(c) that clarify that this section applies to continuous monitoring systems.

Comment: One commenter (375) contended that the EPA's assertion that CEMS for particulate matter have not been demonstrated in the United States for the purpose of determining compliance was inaccurate. The commenter believes that EPA has demonstrated that particulate matter CEMS can be used from determining compliance with a particulate matter emission limit. The Office of Enforcement and Compliance Assurance has required the use of particulate matter CEMS in serval enforcement actions. The particulate matter CEMS installed as part of the Tampa Electric enforcement action has been operating for over one year and has met the proposed performance specifications. The commenter requested that CEMS be allowed as an option to determine compliance with the particulate emission limits in the NESHAP. The commenter stated for those facilities that install wet scrubbers to control sulfur dioxide, the use of upstream particulate removal device operating parameters will not be sufficient to determine compliance with the particulate matter standard at the stack. The commenter suggested the proposed rule should require particulate matter CEMS for wet stack installations or the proposal of a different mode of compliance assurance.

Response: We do not explicitly provide an option in the final boilers NESHAP for the use of particulate CEMS. However, you can petition the Administrator for an alterative monitoring plan under §63.8(f) of subpart A of part 63. You must provide the necessary site specific monitoring plan for your particulate matter CEMS, including appropriate QA/QC plans for the CEMS. If you are approved to use particulate matter CEMS to determine compliance with an applicable particulate matter emission limit, exceedances of the emission limit will be considered a violation of standard and you will not be given the operating range allowances provided for parametric monitoring systems since the particulate matter CEMS provides real-time determination of compliance with the emission limits.

Comment: One commenter (364, 399, 387) questioned whether only whole numbers be used in recording instantaneous values and computing various averages of opacity. The commenter also asked if a 3-hour block average that exceeds the highest 1-hour block average recorded during the performance test by 0.1 percent be considered an exceedance. The commenter contended that if this is the case, then exceedances will occur on a continuous basis.

Response: In the final NESHAP, we adopted a fixed opacity limit for new and existing sources. These fixed opacity limits do not include decimal places, therefore, you must determine compliance by using whole numbers for your opacity data. For example, the existing source opacity limit for solid fuel-fired units is 20 percent. Since the limit is not 20.0 percent, as long as your 6-minute average is 20.4 percent or less, you will be in compliance.

Comment: Several commenters (364, 375, 387, 388, 399, 449, 498, 524, 533) requested that EPA allow existing common stack opacity monitoring systems be grandfathered from the requirements of §63.8(b)(2) and (b)(3) that would require monitors on individual effluents before they combine. The commenters believe that this could be a costly requirement for some affected sources with no demonstrable environmental benefit. The commenters also noted that in some

cases, these "individual" opacity monitoring systems would not satisfy the location requirements under PS-1 and, as such, could not be used to demonstrate compliance with applicable regulations under a State rule or an NSPS.

Response: The final rule does not provide a specific "grandfather" clause for existing monitoring systems. However, since the final rule has adopted a fixed opacity operating limit, the use of a common stack opacity monitor would not pose a compliance issue under this standard. If you fall under this situation, you should apply to the Administrator for an alternative monitoring plan under §63.8(f) of subpart A of part 63 to demonstrate compliance with a common stack opacity monitoring system.

Comment: One commenter (445) requested that EPA allow the use of existing continuous opacity monitoring systems and non-mercury CEMS as an alternative to the operating limits for mercury. The commenter explained that these existing programs provide assurances of unit operations and that no other requirements are warranted.

Response: Under the final boilers NESHAP, sources have the option of using opacity monitors (or bag leak detection devices for units with fabric filters), or fuel analysis as an option to demonstrate compliance with the mercury emission limits. If you wish to use another monitoring strategy for demonstrating compliance with the mercury emission limits, you can petition the Administrator for an alterative monitoring plan under §63.8(f) of subpart A of part 63.

## 11.3 OPERATING LIMITS

Comment: Several commenters (355, 359, 374, 384, 393, 409, 410, 413, 417, 478, 482, 484, 521, 522, 523, 535) opposed the use of operating limits for demonstrating compliance with the boilers NESHAP. Other commenters argued that the establishment of, and ongoing compliance with, site-specific limitations present difficult challenges due to fuel variability, institutional procurement practices, and equipment useful life and will create needless and overly stringent limits that cannot be consistently maintained. Several commenters (359, 409, 413, 482) opposed using operating limits as a means of demonstrating continuous compliance with emission limitations because they reduce operational flexibility, eliminate control device margins, and provide incentives for sources to conduct performance tests at less than optimal conditions. Several commenters (374, 410, 417, 523) stated that the use of operating limits was inappropriate because it effectively sets a new NESHAP emission limit as the emissions are actually emitted during the performance test. Some commenters (375, 393, 413) objected to the use of operating limits because EPA has not proven a direct correlation between those operating limits and actual emission levels.

Response: We believe that continuous monitoring is needed to ensure ongoing compliance with this rule. In order to minimize costs, we look for parameters that are already monitored to use for compliance demonstration. We require performance tests to demonstrate compliance with emission limits, then use operating limits to ensure the source is operating similarly to how it was operating when it completed a successful performance test. Operating limits are not direct measures of emissions, but provide measure of fuel characteristics and control device performance. In addition, we modified and simplified opacity limits, fuel sampling/testing requirements, and are allowing emission averaging. You are also able to

petition the Administrator for approval of an alternative monitoring plan under section §63.8(f) of subpart A of part 63.

Comment: Several commenters (364, 370, 374, 382, 383, 387, 388, 391, 392, 399, 401, 404, 406, 407, 408, 449, 452, 491, 492, 498, 501, 521, 524, 533) requested that EPA follow previous opacity limit approaches found in boilers new source performance standards (NSPS) (40 CFR part 60, subpart Db and Dc) where 20 percent opacity is the limit and one excursion to 27 percent is allowed per day for soot blowing. The commenters stated that such a limit may not be achievable on an ongoing basis because boiler and particulate collection equipment performance varies over time due to equipment condition, fuel variations, operating variations, and other uncontrollable parameters. One commenter (404) requested that EPA consider a fixed opacity limit similar to the boilers NSPS Subpart Db and suggested a 14 percent opacity limit that was calculated by taking the particulate matter emission ratio (NSPS and MACT) and applying it to the 20 percent opacity limit in the NSPS. One commenter (374) suggested that EPA promulgate a requirement for corrective action when opacity levels exceed 20 percent for 10 consecutive 6-minute periods and have an overall limit of 27 percent. Several commenters (357, 388, 449, 492, 498, 524, 533) listed several issues that need to be resolve before implementation if EPA decides to stay with the proposed opacity monitoring requirement:1) How should a one-hour block average be calculated for performance test runs that last longer than one hour? 2) Should only whole numbers be used for establishing limits and determining compliance? 3) How will the opacity monitoring requirements work for units with more than one stack? 4) How will the opacity monitoring requirements work for units that share a common control device? 5) Define increases in opacity and opacity operating limits in 5 percent increments consistent with EPA Method 9 and historic regulatory enforcement activities

Response: We agree with the commenters that an opacity operating limit based on performance testing results may not be appropriate, and that a fixed opacity limit similar to the NSPS requirements would be a better solution. Therefore, in the final NESHAP, we incorporated the industrial boilers NSPS opacity provisions (20 percent, one 6-minute 27 percent period per day) for existing sources that may have an applicable opacity operating limit. If you have a new source that has applicable opacity operating limit, you will be required to meet a 10 percent opacity limit based on a 3-hour block average.

Comment: Three commenters (355, 370, 417) argued that limiting the fuel pollutant content to the level occurring during the performance test is overly restrictive and limits flexibility. One commenter (355) stated that it is unreasonable to establish any type of limit based on the particular coal being combusted at the time of a compliance test, because the composition and characteristics of coal can vary widely from the same mine and seam. Another commenter (417) pointed out that if a facility uses a low chlorine fuel, even if the performance test results are well below the hydrogen chloride emission limit, the chlorine content during the performance test becomes the new limit. Then a facility is locked into an artificially restrictive operating limit by requirements that they recalculate the maximum chlorine input from any new fuel and conduct a new performance test. This penalizes facilities that use fuels with low pollutant content.

Response: We agree with the commenters that the proposed fuel pollutant content operating limit may not address normal fuel pollutant variation. In the final boilers NESHAP, we modified the performance testing and fuel sampling requirements to address fuel pollutant

content variation, to minimize the compliance burden, and to simplify the requirements. You must conduct your performance test with the fuel type or mixture of fuel types that have the highest content of pollutants regulated by this NESHAP. As long as you burn the same fuel types or mixture of fuel types that have been sampled and have a pollutant content lower than the type or mixture of types burned during the last performance test, you meet the fuel content operating limit requirements of this NESHAP. Therefore, the final NESHAP bases compliance on fuel type and should eliminate the commenter's concern over locking into an artificially restrictive operating limit.

Comment: One commenter (395) recommended that the agency revise the regulation to allow sources to operate control equipment within the ranges identified by the equipment manufacturers. These ranges will ensure that the equipment is operated appropriately and, thus, effectively controlling the emissions of the associated source.

Response: We do not provide this option in the final boilers NESHAP. Control devices may operate differently in practice than what the manufacturer recommends. Therefore, we are requiring sources to set site-specific operating ranges based on performance testing results.

Comment: One commenter (395) stated it was inappropriate to establish a single set of operating parameters for most control devices serving production operations. Control systems would be influenced by numerous parameters including ambient temperature and humidity, process variations, pollutant concentrations, airflow, etc. The commenter stated that an operating parameter observed at one point in time may not be repeatable, or appropriate, at a later time even though the system continuously maintains proper efficiency.

Response: The final NESHAP contains more flexibility for operating limits than the proposal. We included fixed opacity limits, fuel sampling requirements based on fuel type, and operating limit ranges. To incorporate all the operating factors and ambient conditions into the requirements of this rule would be too onerous. If you expect that the additional flexibility in the final NESHAP is not enough for your source, you may petition the Administrator for approval of an alternative monitoring plan under section §63.8(f) of subpart A of part 63.

Comment: Several commenters (297, 340, 348, 354, 355, 357, 370, 374, 382, 387, 382, 383, 388, 393, 399, 401, 403, 417, 425, 427, 441, 443, 444, 449, 468, 492, 498, 521, 524, 533) objected to the provision in the proposed NESHAP that would establish an opacity "operating limit" based on the initial performance test. Some commenters contended that EPA has provided no data or references demonstrating a relationship between opacity and particulate, total metals, or mercury emissions. Other commenters argued that the proposed opacity limit approach for dry control devices is unworkable due to the inherent inability of continuous opacity monitoring system (COMS) to accurately measure opacity at levels less than 10 percent. Some commenters argued that the performance and opacity achieved during the initial test may not be representative of the unit's performance. Other commenters explained that equipment condition, fuel and operating variations, and other uncontrollable parameters may result in varying emissions and emissions control equipment efficiencies over time. The commenters also noted that the "worst case fuel" use during initial performance test assumes "a degree of perfection in fuel selection that is hardly achievable in actual practice." The commenters explained that "worst case fuels" with respect to all pollutants must be considered during the performance test,

not just for particulate matter. Lastly, the commenters argued that burning "worst case fuels" during the initial performance test may not result in the worst case opacity levels, given that in-stack opacities depend on variables beyond the realm of fuel composition (e.g., particle size distribution, flue gas properties, stack diameters, etc.). One commenter (468) noted that the proposed operating limit a) does not take into consideration any margin of compliance; b) ignores the reality of operating dynamics and other seasonal and diurnal changes that influence opacity; c) raises the prospect that a source could exceed the operating limit, but remain below the underlying standard; and d) conflicts with established standards that acknowledge the fundamental variation associated with opacity measurement technology.

Response: We agree with the commenters that an opacity limit based on performance testing may not be appropriate given the normal variation that occurs in boiler and process heater operation. In the final boilers NESHAP, we adopted a fixed opacity limit not set by the performance test. For existing sources, it is similar to the opacity limits in the boilers NSPS (40 CFR part 60, subpart Dc). For new sources, it is a limit of 10 percent opacity based on a 3-hour block average. We believe that modifying the opacity limit to a fixed standard, this should address the commenters' concern over normal process variation and the relationship between "worst case" fuels and resulting opacity levels. However, you will still be required to burn the fuel type or mixture of fuel types that contain the highest content of pollutants regulated by this NESHAP when conducting performance tests.

Comment: One commenter (492) argued that the procedures for establishing operating parameters during the initial performance test must be prorated to the emission limitations to meet the requirements of the Clean Air Act and to protect the environment. Since the source cannot exceed the standard during the performance test, the operating limitations will result in an "above the floor" control level, which is not warranted by EPA's MACT floor analysis. As a result, the commenter contended that sources either have to run a worst case fuel at the initial performance test or accept above the floor level of control, which would be both costly and detrimental to the environment. The commenter argued that the correct approach is to allow the source to set operating conditions to the level that generates the emissions level established in the rule.

Response: We are not allow facilities to prorate operating limits. Without conducting performance testing over the range of operating conditions, the correlation between operating levels and emission levels are not available. In the final NESHAP we provided additional flexibility for you to comply with the operating limit provisions (e.g., fixed opacity limits, operating limit ranges, fuel sampling based on fuel type instead of shipment, supplier, or source), and believe that these changes address the commenter's concern.

Comment: Several commenters (364, 399, 387) noted that many boilers that share a common particulate matter control device, and conducting a performance test while each boiler is burning its worst-case fuels will be difficult to accomplish and may give non-representative opacity levels during the performance test. The commenter stated that it is illogical to establish a future opacity operating limit based on this type of short-term performance testing.

Response: The final NESHAP contains a fixed opacity limit for both new and existing sources. Therefore, if boilers share a common control device, they will all have to meet the same opacity limit. The eliminates the concern over establishing opacity operating limits during performance testing. Furthermore, we modified the fuel sampling requirements to be based on

fuel type and not on shipment, supplier, and source. This change should help you determine the fuel type of fuel mixture that has the highest pollutant content for your performance testing.

Comment: Several commenters (364, 372, 374, 382, 387, 388, 399, 401, 406, 407, 408, 410, 417, 443, 449, 452, 479, 491, 492, 498, 501, 523, 524, 533) argued that operating limits (e.g., parametric monitoring ranges, opacity) should not create the same enforcement implications as emission limits. Some commenters requested that EPA use the operating limits established during the initial performance tests as a trigger for corrective actions that would be spelled out in the startup, shutdown, and malfunction plan. Under this approach, the commenters explained that facilities would be required to respond expeditiously, and would face enforcement exposure if they failed to do so. Therefore, the commenters suggested that EPA change the term "operating limits" to "action levels" or "indicator parameters." Other commenters (382, 491, 492) contended that EPA, by setting another set of limitations, has extended the regulations beyond the MACT floor, even though the preamble states that EPA decided not to go beyond the MACT floor level of control. Some commenters (374, 382, 388, 417, 449, 452, 479, 498, 524, 533) argued that EPA cannot enforce operating limits as permit limits because there is no direct correlation between an exceedance of an operating limit and the emission limitations. One commenter (417) requested that the ambiguity regarding compliance enforcement of operating limits be clarified in the final regulation to provide uniform enforcement across multiple types of affected units. Some commenters (374, 388, 401, 449, 492, 498, 524, 533) noted that other MACT provide for a limited number of exceedances before a violation occurs and suggested that following criteria for establishing violations: 1) Failure to initiate correction actions specified in the Operation, Maintenance, and Malfunction (OMM) plan within 1 hour of becoming aware of a limit deviation; and 2) The occurrence of more than six exceedances for a given operating parameter value associated with monitoring a specific process or control device in any calendar half-year monitoring period. The commenters urged the EPA to adopt this language in the final boilers NESHAP. One commenter (372) suggested that EPA adjust the opacity operating limits such that if a facility exceeds their existing opacity limit less than 3 percent of the time, then they would demonstrate compliance with the particulate matter, selected metals, and mercury limits.

Response: Since proposal, we made some changes that should address the commenters' concern. In the final NESHAP, we provided an extended range of 10 percent for operating limits established during performance testing. We provided this range to account for normal variation that occurs at boilers and process heaters. We also changed the opacity limit requirement to incorporate fixed opacity limits which are not based on performance testing results. We are not going to provide any exceedance allowances in the final rule. The determination of whether an exceedance of an operating limit is a violation of the standard will be made by the Administrator (your local permitting authority if your state or local program is delegated authority to administer the NESHAP program). That determination would be made based on the nature of the exceedance, your adherence to your SSM plan during the exceedance, and your history of compliance.

Comment: Several commenters (359, 413, 482, 484, 523, 535, 536) stated that affected sources should only be required to demonstrate compliance through performance testing with applicable emission limitations for each type of unit.

Response: To ensure ongoing compliance, we need some sort of continuous monitoring provisions. While performance testing gives an accurate measure of compliance for discrete

periods, it is generally too expensive to be conducted on an ongoing basis. In effort to minimize costs, we look for operating parameters that are already being measured by sources that can provide an indication of source and control device operation. This approach to monitoring continuous compliance is not unprecedented and we retained the approach in the final rule. The purpose for operating limits is to ensure that the boiler or process heater is operating in a manner similar to its operation during the performance test that demonstrated compliance with the emission limits of this NESHAP.

Comment: Several commenters (376, 413, 482,) urged EPA to employ concepts in the compliance assurance monitoring (CAM) rule that allows for establishment of more rational and reasonable operational parameter levels. The commenter added that sources would then be required to monitor those parameters and respond to changes that indicate problems with the controls that could jeopardize compliance.

Response: We have worked to minimize the compliance costs associated with this NESHAP and in the final NESHAP, we made several changes to achieve this goal. We used guidance from the CAM rule to establish methods for setting operating limits. However, the CAM rule was designed to provide a reasonable assurance of compliance, which is a lower standard of compliance than the NESHAP program, which requires continuous compliance. Therefore, we did not directly incorporate concepts of the CAM rule into the final NESHAP. You are also able to petition the Administrator for approval of an alternative monitoring plan under section §63.8(f) of subpart A of part 63.

Comment: Several commenters (340, 364, 387, 399, 484) questioned how 3-hour block averages for operating limits would be calculated when the three performance test runs exceed three hours in duration. One commenter (340) recommended using the terms “three test runs” and the “three-run performance test” in the text to establish operating limits.

Response: In the final rule, your operating limits will be based on the lowest or highest average parameter level measured during the three-run performance testing. For example, if you are determining the minimum sorbent injection rate (e.g., your sorbent injection rate operating limit), it would be 90 percent of the lowest average sorbent injection rate measured during the three-run performance test as determined by Table 7 of the final rule. The modification of determining your operating limits should address the commenter’s concern. Furthermore, we have modified the language in the rule to use the term “test run average” and do not based it on a 1-hour average.

Comment: Several commenters (361, 362, 364, 387, 399, 439, 444) expressed concern over the requirement to set operating limits based on the results of three 1-hour performance tests. The commenters pointed out that this method represents only three out of a possible 8,760 hours per year, these results would not represent normal operating fluctuations and that maintaining compliance with these operating limits may be difficult. The commenter believes that EPA should allow for typical operational and process variations that cause a process to operate both above and below average values when determining operating limits. Two commenters (361, 362) suggested that a more statistically valid method should be used for establishing site-specific operating parameters. Several commenters (364, 399, 387) suggested that EPA allow facilities the flexibility to set continuous parameter monitoring ranges based on

normal operating variability and proposed changes to the regulatory text to address these concerns.

Response: We provided more flexibility in the final rule for regarding operating limits (i.e., fixed opacity limits not based on performance testing results, a 10 percent operating range for operating limits established by performance testing, option for compliance demonstration through fuel analysis, simplified fuel sampling requirements based on fuel type with no sampling triggers based on fuel supplier or source changes). We believe that these changes allow for operational and process variations that may not be observed during performance testing. However, if you wish to establish a different monitoring strategy based on statistical or some other methods, you can petition the Administrator for an alternative monitoring plan under section §63.8(f) of subpart A of part 63.

Comment: Several commenters (338, 364, 374, 382, 387, 388, 395, 399, 403, 413, 417 444, 449, 484, 491, 492, 498, 521, 522, 524, 533, 535) requested that EPA allow facilities to prorate fuel pollutant content operating limits established during performance tests by the ratio of the performance test results to the applicable emission limits, then maintain fuel pollutant content levels below the extrapolated value. Some commenters noted that allowing facilities to prorate operating limits would help those that use multiple fuel suppliers by: 1) providing needed operational flexibility; 2) avoiding repeated testing; and 3) eliminating the difficult requirement to conduct performance testing at "worst case"conditions. One commenter (491) stated that a new performance test could then be required if the fuel chlorine, mercury, and/or total selected metals content exceeded the prorated values established during the performance test. Several commenters (338, 374, 417, 484, 521, 522, 535) recommended that facilities be able to demonstrate compliance through fuel purchase specifications or certifications. Some commenters (374, 492) also requested that EPA provide allowances for facilities to use other compliance strategies that would be more appropriate for specific sites, with prior EPA approval. One commenter (413) referenced the CAM protocols and a protocol developed by Electric Power Research Institute (EPRI) as a background Some commenters (364, 399, 387, 403) provided equations that prorate the allowable fuel input by the ratio of the stack testing results to the emission limit for each pollutant.

Response: Since proposal, we changed the fuel monitoring and sampling requirements. In the final NESHAP, we base the fuel sampling requirements on fuel type (e.g., bituminous coal, anthracite, tires, biomass, residual oil) and no longer require you to sample fuel shipments received from different suppliers or sources as long as the fuel is the same type. Therefore, we do not allow facilities to prorate fuel pollutant content limits. We also modified the fuel sampling provisions such that you are required only to conduct fuel sampling for each type of fuel initially, and then once every five years. We believe that this should address the commenters' concern regarding sources that receive fuel from many different suppliers. We are still requiring you to conduct performance testing with the fuel type or mixtures of fuels that contain the highest amount of regulated pollutants. Given the change in fuel sampling requirements to the fuel type basis, the determination of the types of fuels that have the highest pollutant content should be less onerous. After your performance testing, as long as you burn the types of fuels previously sampled and do not burn new types of fuels or mixtures of fuels with higher regulated pollutant contents, you are not required to conduct any additional fuel sampling or performance testing outside of the normal testing schedule contained in this NESHAP. We also provided an option for you to demonstrate compliance through fuel sampling when the fuel analysis results show fuel pollutant content (on a pounds per million Btu (lb/MMBtu) of heat

content basis) is less than your applicable emission limit.

Comment: Several commenters (406, 407, 408, 501) contended that in regards to the operating parameters, sources should have the option of performing additional test runs over a range of operating parameters if desired. The commenters also suggested that sources be allowed to exceed the emission limit during such testing without it being a violation, so that the minimum or maximum parameter operating level can be correctly established. The commenters added that once an operating parameter is established, the source should be required to maintain the parameter level within 20 percent of the performance test baseline average value. The commenters also added that sources should be allowed to set operating parameter levels as a function of boiler load. One commenter (384) believes EPA should allow sources to propose their own strategy on how to demonstrate compliance.

Response: In the final NESHAP, we do not provide an option for sources to conduct performance testing over a range of operating parameters or loads because it would be difficult to structure performance testing requirements that would incorporate different operating loads and conditions that would benefit sources on a site-specific basis. However, if you want to establish operating limits based on operating loads and/or conditions, you can petition the Administrator for an alternative monitoring plan under section §63.8(f) of subpart A of part 63. In the final NESHAP, we added additional flexibility in the operating limit requirements to account for normal variation in source operation. We provided fixed opacity limits that are not based on performance testing results and added a 10 percent operating range around operating limits that are established during performance testing. We are also not providing a waiver for emission exceedances experienced during performance testing.

Comment: One commenter (445) requested that EPA allow sources to define a range (as a percentage) for blended fuels to demonstrate compliance with the MACT standard. The commenter explained that blended fuels behave like one of the regional coals within the blend.

Response: We revised the fuel sampling and monitoring requirements in the final NESHAP to be based on fuel type and removed the requirement to conduct fuel sampling for the same fuel types that come from different suppliers or sources. If you demonstrate compliance through performance testing, you must plan to burn the fuel type or mixture of fuel types that contain the highest content of regulated pollutants. After that performance test, you can burn any range of fuel types and mixtures, as long as the results of the fuel sampling for each fuel type or mixture show that the total regulated pollutant content is less than that burned during the last performance test. These changes should provide flexibility for sources that burn a mixture of fuels.

Comment: One commenter (499) stated that the fuel based operating limit procedures for chloride, metals, and mercury in §63.7530 are flawed because they rely too heavily on the performance during a stack test, with no consideration for a margin of safety. The commenter explained that this operating limit approach could inadvertently encourage sources to fire a fuel that has the maximum chloride, metals, and mercury content during the performance test since, provided the source meets the emission limit, there is no incentive to strive for a margin of safety to over comply in order to ensure 100 percent compliance. The commenter stated that this approach is a disincentive to promoting greater emissions reductions and should be changed. In

addition, the commenter stated that sources who over-comply should be afforded some reward in terms of regulatory relief rather than penalized with more restrictive limits.

Response: We require performance testing for sources that cannot demonstrate compliance with the emission limits of this NESHAP through fuel sampling. The requirement is necessary to ensure that the emission limits are being achieved. Then, we use operating limits established during the performance testing to ensure that the source is operating in manner similar to that during the performance testing. We still require that you burn the fuel type of mixture of fuels that contain the greatest amount of regulated pollutants during performance testing. This assures us that you are able to meet the applicable emission limits burning the fuel type of mixture that contains the greatest content of regulated pollutants. It also provides you with flexibility to burn any fuel type or mixture that contains a lesser amount of regulated pollutants without having to conduct additional performance testing. Given these changes, we are not providing any other relief for sources that over-comply because we believe that the changes made since proposal reduce the burden of compliance and provide additional flexibility. Furthermore, the goal of the NESHAP program is to provide a uniform application of the maximum achievable control technology determined for this source category and for all sources within the source category to meet the MACT based emission limits.

## 11.4 PERFORMANCE TESTING

Comment: One commenter (358) supported expanding compliance demonstration options to include engineering calculations and other emission estimates to be considered "as good" as actual site-specific test data. The commenter contended that the proposed rule did not adequately address cost associated with stack compliance testing and the burden to conduct testing for sources that emit relatively small quantities of HAP.

Response: If you are required to demonstrate compliance through performance testing, we are not going to allow compliance to be demonstrated by engineering calculations or other emission estimates. We are aware of the costs of performance testing and have attempted to minimize the cost of testing through the following provisions: 1) allowance for testing once every three years for sources that have passed performance tests for three consecutive years; and 2) allowance for demonstrating compliance through fuel analysis for units that are not taking credit for pollution control devices or for units that do not require pollution control devices to demonstrate compliance. For units that require control devices to meet the emission limits, we require performance testing because this is the only method to accurately determine the effectiveness of those control devices. The final rule does allow for sources to demonstrate compliance through fuel analysis in cases where the analysis shows that the pollutant concentration in the fuel is less than the applicable emission limit. We also do not require performance testing for any existing gas or liquid fuel-fired units, existing small solid fuel-fired units, new gas fuel-fired units, and new liquid fuel-fired units that do not burn residual oil.

Comment: One commenter (413) asserted that for sources wanting to base their operating parameter levels on actual test data, EPA should provide a waiver for excess emissions during performance testing to establish operating parameter levels. The commenter explained that in the proposal, EPA wanted sources to test at worst case conditions, which might require a "de-tuning" of control devices for sources that have purchased additional capacity for their

control device. The commenter added that this would present a conflict for sources whose highest emissions might occur under conditions that are consistent with the unit's basic design, but which the unit might not normally choose to operate.

Response: We are not providing a waiver for excess emissions during performance testing. The requirement for conducting performance testing is to use the fuels, or mixture of fuels, that contain the highest amount of pollutants regulated by the boilers NESHAP. We did not intend to imply that you "de-tune" your control device during the performance testing. The purpose of the requirement to burn the fuel or mixture of fuels with the highest pollutant content is to provide an assurance that you will be able to meet the emission limits of the NESHAP even when burning the fuel(s) with the highest pollutant content. To address concerns over compliance flexibility, the final rule provides several different approaches to compliance that were not in the proposed rule such as: 1) fixed opacity limits; 2) operating ranges for operating limits; 3) demonstrating compliance through fuel analysis; and 4) emissions averaging across multiple solid fuel-fired boilers at a single facility.

Comment: Two commenters (345, 487) requested that EPA clarify that gaseous fuel-fired units are not required to demonstrate initial compliance with the emission limitations and work practice requirements. The commenters explained that the proposal is clear that liquid fuel-fired units are not required to conduct this demonstration, but does not specifically state that gaseous fuel-fired units are exempt from this demonstration. Another commenter (478) requested that EPA not require emission testing for existing residual oil fired units since they have no emission standards, or at least not require performance tests for units burning distillate oil.

Response: In the final boilers NESHAP, we clarify that all existing gaseous and liquid fuel-fired units are not required to demonstrate initial compliance with the emission limits or work practice standards. Existing gas and liquid fuel-fired units smaller than 10 MMBtu/hr are exempt from all requirements under the final boilers NESHAP, and existing small gas and liquid fuel-fired units greater than 10 MMBtu/hr only have to submit initial notifications. For new liquid fuel-fired boilers that do not burn residual oil, the final rule clarifies that no performance testing is required to demonstrate compliance with the emission limits. However, if your new liquid fuel fired unit burns residual oil, you will be required to demonstrate compliance through fuel analysis or performance testing. If your new gas or liquid fuel-fired unit is larger than 10 MMBtu/hr, then you will be required to demonstrate compliance with the CO work practice standard. In this case, if your unit is less than 100 MMBtu/hr, you can conduct annual performance testing for CO. However, if your new gas or liquid fuel-fired unit is larger than 100 MMBtu/hr, then you will be required to install and operate a CO CEMS to demonstrate compliance with the CO work practice standard.

Comment: One commenter (376) requested that EPA allow one year after the compliance deadline for facilities to conduct the initial performance test.

Response: We do not allow one year after compliance to conduct initial performance testing. In the final boilers NESHAP, we included the General Provisions allowance that provides 180 days after the compliance deadline to conduct performance. This timeline is consistent with other NESHAP and NSPS programs and we believe that this is sufficient time for sources to conduct initial performance testing.

Comment: Several commenters (388, 400, 449, 492, 498, 524, 533) requested that EPA clarify that a compliance test conducted within 60 days of the initial due date or subsequent annual due dates meets the provisions for testing. The commenters also recommended that EPA allow units not operating within the timeframe of a required performance test to conduct such testing within 60 days of commencing or recommencing operations. The commenters argued that it is nonsensical to require units that do not operate on a regular basis to have to commence operation for the sole purpose of performance testing. One commenter (413) requested EPA consider including a "grace period" for periodic testing similar to the period provided for performance of relative accuracy test audits under the Acid Rain Program. The commenter explained that the grace period allows a source time to complete testing after coming back on-line from an unexpected event, such as a outage. The commenter added that such a grace period does not extend the deadline for future testing. The commenter added that the grace period would eliminate the need for submission of source specific petitions to seek minor extensions of testing.

Response: We to not provide a "grace period" for conducting performance testing. The final boilers NESHAP has extended the compliance date from three to four years after publication of the final rule and includes the General Provision allowance of 180 days after the compliance date to conduct the initial performance testing. Therefore, we believe that facilities have adequate time to prepare for the initial performance testing requirements. Furthermore, for the annual performance testing requirement, we require that sources conduct their performance testing between 10 and 12 months after the previous performance testing. We also allow sources to conduct testing once every three years if they conduct three consecutive performance tests that demonstrate compliance. We believe that this provides sufficient flexibility for sources to conduct performance testing.

Comment: One commenter (332, 424) requested that EPA allow sources to use handheld monitors on a routine basis according to EPA approved calibration and testing protocols instead of periodic source testing. One commenter (332) noted that the use of reasonably accurate and cost effective instrumentation would do more to improve the environment than expensive and precise, yet infrequent source tests.

Response: We do not allow the use of handheld monitors in lieu of performance testing. The only pollutant regulated by the boilers NESHAP that could be tested using a handheld monitor is carbon monoxide, and for carbon monoxide we modified the final rule to require CEMS only for larger sources that have a heat input of 100 MMBtu/hr or more. Sources with heat input less than 100 MMBtu/hr that have a carbon monoxide work practice standard are only required to conduct annual performance testing.

Comment: Several commenters (388, 449, 491, 492, 498, 524, 533) requested that EPA allow performance testing on a single unit and allow the results of that testing to represent units that are similar. The commenters noted that another EPA MACT standard includes such a provision. The commenters also noted that similar units: 1) use the same fuel; 2) are operated in the same manner; 3) are of the same design; and 4) are tested at the highest load expected at any of the represented units.

Response: In the final boilers NESHAP, we provide additional compliance flexibility

compared to the proposed NESHAP. However, we do not allow the performance testing on a single unit represent units that are similar. The performance of individual units can vary and therefore we do not feel that using representative performance tests would ensure compliance with the emission limits.

Comment: One commenter (523) stated that this rule need not impose stack testing requirements because Title V permits cover such provisions. The commenter believes that mandating stack testing in the rule could conflict with existing Title V permits. In addition, the commenter stated that the monitoring requirements in this proposed rule are extremely costly, burdensome, and unnecessary.

Response: We have worked to minimize the testing and monitoring requirements of this rule while retaining the ability to ensure compliance with the emission limits and work practice requirements. Sources may conduct performance testing once every three years if they conduct successful performance testing for three consecutive years. We are also allowing sources to conduct only fuel sampling if they can demonstrate compliance with the hydrogen chloride, mercury, or total selected metals emission limits through fuel analysis. However, stack testing is the only method for demonstrating compliance with the emission limits for units that cannot demonstrate compliance through fuel analysis.

Comment: Several commenters (354, 357, 395, 404, 417, 441, 444, 452, 478, 491, 521, 535) objected to the requirement to conduct performance testing at "worst case" conditions. The commenters found this requirement to be unrealistic because stack testing must be scheduled well in advance and worst-case conditions depend on fuel, load, and many other variables, making it impossible to assure that the testing will occur during "worst-case" conditions. Two commenters (521, 535) contended there can be no guarantee that mineral properties for a fuel source at the time of the baseline test can be guaranteed beyond the content identified during purchase contract negotiations with a fuel supplier. One commenter (417) recommended that testing be required under normal operating conditions. Two commenters (357, 441) suggested that EPA define what "worst case" conditions are because sources do not have the experience to determine "worst-case" representative process conditions.

Response: Since proposal, we modified the performance testing requirements regarding the conditions at which you must conduct the testing. During performance testing, you are required to burn the type of fuel or mixture of fuel types that have the highest concentration of regulated HAP. This is what is considered "worst case" for the purpose of performance testing. Since this performance testing requirement is based on the fuel type, and not on any other variables, the determination of the fuel type or fuel mixture that contains the highest level of regulated pollutants is reasonable. After the initial performance testing, you must conduct an analysis of the fuel types that you burn in your unit initially and then once every five years. The fuel analysis applies to each type of fuel and you are not required to conduct additional analyses if you receive a fuel type from a different supplier. Given the revised fuel sampling requirements (e.g., based on fuel type and not on supplier, etc), developing the fuel blend during the performance testing should address the commenters' concern..

Comment: Several commenters (364, 387, 388, 399, 449, 468, 492, 498, 524, 533) requested that EPA clarify that particulate matter testing to determine compliance is based on the

"front-half" catch and that any "back-half" condensable particulate matter is excluded from the compliance determination. The commenters believed that the data EPA used to set the MACT floor is based on "front-half" testing data and that compliance determinations should be based on the same methodology. Furthermore, since the metals for which PM is serving as a surrogate for are of the non-condensible type that the front-half collects.

Response: For the purposes of this NESHAP, only the "front-half", or filterable catch of an EPA Method 5 sampling train should be used to demonstrate compliance with any applicable particulate matter emission limit.

Comment: Several commenters (354, 355, 357, 374, 382, 388, 400, 427, 447, 449, 484, 491, 492, 498, 519, 524, 533) objected to the requirement for annual performance tests because they believe that it is overly burdensome given the ongoing compliance demonstrations required by the boilers NESHAP. Several commenters (357, 382, 388, 400, 444, 449, 478, 492, 498, 524, 533) suggested that initial performance testing should be required with subsequent performance testing occurring every 3 to 5 years. Some commenters stated that 5-year test intervals are consistent with Title V permits and have been allowed in other MACT standards (e.g., Hazardous Waste Combustors). One commenter (484) suggested that if a source fails a performance test, then the source should be required to perform two consecutive successful annual performance tests prior to returning to a three-year cycle. One commenter (478) urged EPA to extend the reduced testing provision from three years to five years for facilities that have conducted three consecutive tests that demonstrate compliance with this NESHAP. One commenter (404) recommended that EPA allow facilities to immediately use the three-year testing schedule if they have three valid stack tests indicating compliance in the past several years. Another commenter (491) suggested that provisions be included in the rule to allow operators of "clean units" to be eligible for reduced performance testing frequency. As an example, the commenter stated that a boiler or process heater with emissions no greater than 80 percent of the compliance level should be required to test only every three years. In addition, the commenter stated that units with even "cleaner" performance should be granted required test frequencies of every five years. The commenter urged EPA to revise Subpart DDDDD to include reduced performance testing frequency for "clean units," with EPA reserving the authority to require testing at any time if due cause exists to indicate emissions are no longer "clean."

Response: We have worked to minimize the testing and monitoring requirements of the final rule while retaining the ability to ensure compliance with the emission limits and work practice requirements. Sources may conduct performance testing once every three years if they conduct successful performance testing for three consecutive years. We are also allowing sources to demonstrate compliance with the hydrogen chloride, mercury, and total selected metals emission limits through fuel testing if they do not need emission control devices to achieve the standard. However, stack testing is the only method for demonstrating compliance with the emission limits for units that cannot demonstrate compliance through fuel testing.

Comment: One commenter (491) stated that sampling of coal burned during a three-hour performance test is not practicable with some coal feed system designs. The commenter requested that EPA clarify that testing samples obtained by following procedures established to obtain a representative sample of coal as-bunkered for burning during the performance test is acceptable for the measurements required in §63.7530(c).

Response: In the final boilers NESHAP, you must sample and analyze the fuel types that you burn initially and then once every five years for each type (e.g., bituminous coal, tires, biomass, etc.) of fuel burned in a boiler or process heater. Therefore, we believe that this addresses the commenter's concern regarding sampling frequency. You would have to conduct additional fuel analyses only if you burn a new type of fuel. We have provided a specific procedure for you to follow as you conduct fuel sampling, including the development of a site-specific fuel analysis plan, in §63.7521.

Comment: Several commenters (364, 382, 387, 388, 399, 413, 444, 449, 468, 492, 498, 521, 522, 524, 533, 535) objected to the requirement for larger solid fuel-fired units (>250 MMBtu/hr) to use the ASTM method for determining mercury emissions and requested that EPA remove this requirement. The commenters argued that the ASTM method is more expensive, is not an EPA reference method, uses a considerably more complex sampling train and analytical methods, and that there are minimal differences between the results of the two test methods. Some commenters argued that EPA has not provided information on or explained the logic for requiring different test methods depending on heat input capacity. Furthermore, the commenters explained that the data used to set the MACT floor were conducted using EPA Method 29. The commenters contended that performance testing for mercury should allow use of either Method 29 or Draft ASTM Z65907 for any size source at the discretion of the affected source.

Response: In the final NEHSAP, we removed requirement for units >250 MMBtu/hr to use the ASTM method for mercury performance testing. All sources have the option of using either EPA Method 29 or ASTM Method D6784-02 for conducting performance tests for mercury.

Comment: Several commenters (382, 388, 449, 498, 524, 533) requested that EPA allow affected units with dry controls the option to utilize either Method 26 or 26A for the determination of hydrogen chloride emissions. The commenters explained that as an isokinetic test method, Method 26A may be performed in the "back-half" of a Method 5 sampling train and the use of this method could provide some savings for testing costs.

Response: In the final boilers NESHAP, the performance testing requirements allow you to use either EPA Method 26 or 26A for the determination of hydrogen chloride emissions.

Comment: Commenters (364, 399, 387) recommended that EPA amend EPA Method 19 applicability to clarify that it can apply to the calculation of hydrogen chloride, selected metals, and mercury emissions. The commenter noted that currently, Method 19 states that it should be used for the determination of particulate matter, sulfur dioxide, and oxides of nitrogen emissions. If the applicability of Method 19 to these other pollutants is not amended, the commenter is concerned that implementation problems could result.

Response: We are not going to modify Method 19 in this rulemaking because it is outside of the scope of this rulemaking. We realize that the equations provided in Method 19 were developed for pollutants other than those regulated in this NESHAP, but those equations can be used for the pollutants regulated by this NESHAP. We clarify in the final NESHAP which equations from Method 19 you should use in order to avoid confusion.

Comment: Several commenters (357, 364, 399, 387, 403, 406, 407, 408, 501) requested that EPA promulgate an alternative procedure for calculating heat input. Some commenters noted that the use of EPA Method 19 is difficult to apply where multiple fuels are burned and some of those fuels may have variable moisture content and the published F-factors may not apply, or may significantly differ from the actual F-factors. The commenters recommended that EPA allow sources to use the thermal efficiency method to determine heat input.

Response: We consider the use of thermal efficiency a viable option to determine heat input. However, we do not specifically outline a method in the boilers NESHAP to evaluate heat efficiency or monitor heat input. If you want to use boiler or process heater efficiency to determine heat input, you must petition the Administrator for approval of an alternative monitoring plan under section §63.8(f) of subpart A of part 63. Typically, boilers monitor steam flow. Through the use of boiler efficiency measurements and calculations, you can determine the heat input of a boiler. If you own or operate a boiler and want to use boiler efficiency, you must use a current ASTM method for determining heat input in your alternative monitoring plan. Process heaters may have different outputs to relate to heat input. If you can demonstrate the relation of process output to heat input, we consider that a viable method to determine heat input. For boilers and process heaters, your alternative monitoring plan must include the requirement to determine unit efficiency before or during the initial performance test and to determine unit efficiency with every subsequent performance test to make sure that any changes in unit efficiency are reflected in each performance test result.

Comment: One commenter (491) stated that the proposed boilers NESHAP does not specify allow methods for determining the heating value of fuel. The commenter suggested that EPA clarify its expectations for allowable methods so operators can determine the fuel heating value pursuant to rule requirements. In addition, the commenter stated that if method selection is expected to be made by the operator and merely included in the site-specific test plan pursuant to §63.7520(a), then EPA should clarify that expectation.

Response: In the final NESHAP, we outline methods to be used for determining fuel heating value in Table 6. However, if you want to use another method, you can petition the Administrator for the use of an alterative testing plan under §63.7(e)(2)(ii) and (f) of subpart A of part 63.

Comment: One commenter (413) requested EPA to allow the use of Method 101-A to measure mercury emissions. The commenter noted that Method 29 specifically notes that mercury can be measured, alternatively, using EPA method 101-A.

Response: In the final NESHAP, we allow either EPA Method 29 or the ASTM Method D6784-02, to measure mercury emissions. As EPA Method 29 specifically allows for the use of EPA Method 101-A, you could use that method to demonstrate compliance with the mercury emission limits of this NESHAP. However, neither EPA Method 29 nor Method 101-A has been revised to reflect the best laboratory techniques for preserving and recovering mercury from the permanganate impingers. If you believe this might be an issue for you, the ASTM Method D6784-02 may be a better choice.

Comment: One commenter (529) recommended that §63.7515(d) be changed to read "...you must demonstrate compliance and thereafter conduct annual stack tests..." This change

requires a facility to demonstrate compliance before entering an annual performance test schedule.

Response: We do not believe that this change is necessary. The final NESHAP has changed since proposal to clarify the performance testing schedule requirements and affected source should readily understand that they are required to conduct initial and annual performance testing.

# 12.0 Recordkeeping and Reporting

Comment: One commenter (484) stated that EPA's proposal supercedes critical language that facilities rely upon to realize their general duty to minimize emissions during startup, shutdown, and malfunction conditions. In addition, the commenter asserted that uninhibited, ongoing source adjustments to startup, shutdown, and malfunction plans provide the internal control necessary to meet this general duty.

Response: The startup, shutdown, and malfunction (SSM) plan requirements contained in the General Provisions to part 63 apply to all sources subject to a NESHAP unless specifically exempted for a specific source category. We are not exempting sources from the SSM requirements, unless they have no emission limits or work practice standards under the final rule. The SSM plan requirements are not intended to supercede existing plans to minimize emissions during periods of SSM, but are required in order to make facilities document how their sources undergo SSM, how sources minimize emissions during SSM, and to provide a procedure that sources must follow during periods of SSM. You can incorporate existing SSM plans into the SSM plan required by the final rule. Refer to §63.6 of subpart A of this part for more information regarding SSM plan requirements.

Comment: One commenter (427) requested that the requirement for semiannual compliance reports in §63.7550(a) be modified to allow the flexibility for annual compliance reports in order to make the rule consistent with other MACT standards with which the commenter is required to comply.

Response: We did not modify the reporting schedule in the final rule. However, the General Provisions (40 CFR part 63, subpart A) allows you to petition the Administrator for a different reporting schedule. Furthermore, §63.7550(b)(5) allows for an alternative reporting schedule if your permitting authority has already established different reporting dates for your semiannual report pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 71.6(a)(3)(iii)(A).

Comment: One commenter (427) contended that §63.7505 (General Compliance Requirements) must be clarified to state that it applies only if §63.7500 (Emission Limits) applies. The commenter stated that §63.7500 should contain the explicit statement that it applies only to those sources not explicitly exempted under §63.7490 (Applicability).

Response: In the final rule, we specifically note in §63.7505 the minimal requirements for sources that do not have any emission limits or work practice standards under §63.7500. We believe that §63.7490 clearly lists which sources are not subject to the final rule (including the emission limits and work practice standards contained in §63.7500). We do not provide an additional statement in §63.7500 that states that the emission limits and work practice standards apply only to source not specifically exempted under §63.7490.

Comment: One commenter (529) suggested that §63.7535(a) be revised to require monitoring and data collection in accordance with §63.7535 and the Site Specific Monitoring Plan required by §63.7505(c).

Response: We agree with the commenter's suggestion and revised the final rule accordingly.

Comment: One commenter (491) suggested that §63.7550(b)(1) be revised as follows:

§63.7550(b)(1) The first compliance report must cover the period beginning on the compliance date that is specified for you affected source in §63.7495 and ending on June 30 or December 31, whichever date is the first date that occurs at least 180 days after the compliance date that is specified for your source in §63.7495.

Response: We agree with the commenter's suggestion and in the final rule we have included the change recommended by the commenter.

Comment: One commenter (346) recommended that the Quality Assurance Procedures in Appendix F to Part 60 be provided as an acceptable alternative to the site specific monitoring plan because some State permits require this documentation.

Response: The site-specific monitoring plan requirements in §63.7505 apply for all continuous monitoring systems used to comply with this NESHAP. Since the quality assurance procedures in Appendix F to Part 60 apply only to continuous emission monitoring systems and only some new and reconstructed sources will be required to install and operate these systems, these quality assurance procedures do not address the other types of continuous monitoring systems that are based on operating parameters. You can include the quality assurance procedures in Appendix F to Part 60 in the quality assurance section of your site-specific monitoring plan if you are required to install and operate a CEMS to comply with this NESHAP.

Comment: One commenter (484) recommended that EPA utilize its authority under 40 CFR Part 70 to eliminate duplicative state reporting requirements. The commenter stated that the reporting requirement in §63.10(d)(5)(i) of the boilers NESHAP regarding malfunction reporting is duplicative and should be deleted from the standard.

Response: We do not have authority under this rulemaking to eliminate duplicative state reporting requirements. The malfunction reporting required under §63.10(d)(5)(i) is a semiannual occurrence for a source that experience startups, shutdowns, or malfunctions and must respond to those occurrences according to their SSM plan. If that requirement overlaps with another requirement in your Title V Operating Permit, you should work with your permitting authority to streamline your reporting requirements.

Comment: Several commenters (383, 413, 490, 499) maintained that the recordkeeping and reporting requirements are burdensome, costly, and require unnecessary data. One commenter (413) provided examples of unnecessary information. The commenter added that much of the information required cannot be collected automatically but must be manually gathered. Two commenters (484, 535) stated that required submission of SSM plans and associated revisions is administratively burdensome and redundant. One commenter (383) would like EPA to streamline these requirements and offered to work with EPA to do so.

Response: Since proposal, we have streamlined many of the monitoring requirements, which will result in much less reporting and recordkeeping. These changes especially reduce the amount of manually gathered data associated with the fuel sampling provisions of the final rule. We have worked to minimize the compliance burden of the final rule, and maintain that the recordkeeping and reporting requirements that we have retained are necessary to ensure

continuous compliance with the provisions of this NESHAP

Comment: One commenter (424) requested that EPA clarify if permitting requirements under the boilers NESHAP will be in addition to semiannual reporting under Title V, such as deviation information. One commenter (490) stated that these requirements impose burdens over and above what is required by states under State Implementation Plans and Title V monitoring requirements. The commenter urged EPA to reconsider the monitoring, recordkeeping, and reporting requirements associated with this rule and make them compatible with existing Title V requirements for the same emission units.

Response: Making the monitoring, recordkeeping, and reporting requirements of this rule compatible with existing Title V requirements is not feasible. Many states have accepted delegation of the Title V program from EPA and their requirements vary from state to state. Therefore, we cannot make the requirements of this rule fully compatible with existing Title V requirements. In the final rule, we have streamlined many of the monitoring requirements, which will also result in decreased recordkeeping and reporting burdens. Furthermore, many of the monitoring requirements in the final rule are parameters that sources would already be monitoring, so we do not expect this NESHAP will impose burdens over and above what may already be required. If you already have a monitoring program that you believe would satisfy the monitoring elements of this NESHAP, you can petition the Administrator for approval of an alternative monitoring plan under section §63.8(f) of subpart A of part 63.

Comment: One commenter (491) stated there was no reasonable basis to require determining and reporting the average daily hours of operation by each source, or affected source, for each calendar month within the semiannual reporting period. The commenter suggested simplifying §63.7550(c)(8) to read, "The hours of operation by each affected source for each calendar month within the semiannual reporting period." One commenter (428) stated that given the very large potential increase in the recordkeeping burden for small sources that are not contributors to HAP emissions and the lack of a rationale for collecting such information even for larger sources, the requirement to keep records of daily hours of operation by each source (§63.7555(d)(2)) should be stricken for the regulation

Response: In the final rule, we modified the recordkeeping and reporting provisions to require only that monthly fuel use be recorded and reported. Furthermore, the only sources that now have to monitor hours of operation are limited use sources, and they are required to record and report hours of operation on a monthly basis.

Comment: One commenter (413) expressed concern regarding how control device parameter deviations during startup, shutdown, and malfunction will be treated by the EPA and what time limit the Administrator will follow in making determinations. The commenter added that a source would not know whether it was in compliance or not if something happens during a startup or a malfunction that is not covered by the plan.

Response: During periods of startup, shutdown, and malfunction, you are required to follow the procedures that you have outlined in your SSM plan according to §63.6 of subpart A of part 63. In this §63.6, we explain how parameter deviations would be treated. It states: "At all times, including periods of startup, shutdown, and malfunction, the owner or operator must operate and maintain any affected source, including associated air pollution control equipment

and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. During a period of startup, shutdown, or malfunction, this general duty to minimize emissions requires that the owner or operator reduce emissions from the affected source to the greatest extent that is consistent with safety and good air pollution control practices. The general duty to minimize emissions during a period of startup, shutdown, or malfunction does not require the owner or operator to achieve emission levels that would be required by the applicable standard at other times if this is not consistent with safety and good air pollution control practices, nor does it require the owner or operator to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator, which may include, but is not limited to, monitoring results, review of operation and maintenance procedures (including the startup, shutdown, and malfunction plan required in paragraph (e)(3) of this section), review of operation and maintenance records, and inspection of the source." Furthermore, it states that: "Malfunctions must be corrected as soon as practicable after their occurrence in accordance with the startup, shutdown, and malfunction plan required in paragraph (e)(3) of this section. To the extent that an unexpected event arises during a startup, shutdown, or malfunction, an owner or operator must comply by minimizing emissions during such a startup, shutdown, and malfunction event consistent with safety and good air pollution control practices." This means that the Administrator will review any deviations that occur during a SSM event and respond based on your adherence to your SSM plan and your history of SSM events.

Comment: One commenter (491) stated that deviation reporting is required pursuant to §63.7550. The commenter stated it is unclear why additional deviation reporting is required pursuant to §63.7545(e)(1)(vii) when submitting a Notification of Compliance Status report. In addition, the commenter stated that the time period for which deviations need to be reported is not specified. The commenter stated that the initial Notification of Compliance Status is due before the close of business on the 60$^{th}$ calendar day following the completion of the performance test and/or other initial compliance demonstrations according to §63.10(d)(2). The commenter stated there is no basis for requiring duplicative deviation reporting when submitting a Notification of Compliance Status report and recommended deleting §63.7545(e)(1)(vii).

Response: The deviation reporting required by §63.7545(e)(1) is an element of your Notification of Compliance Status report that you must submit after your initial compliance demonstration, or any subsequent performance test or compliance demonstration. This report is required only under these circumstances and the deviation portion addresses any deviation from an applicable emission limit or work practice standard that may have occurred during your performance test or compliance demonstration. The deviation reporting requirement under §63.7550(d) is an element of your compliance report that must be submitted semiannually. This report requires you to report any deviation from an emission limit, operating limit, and work practice standard that might have occurred during the previous six-month period. These reports serve different functions and we did not delete either of the deviation reporting requirements in the final rule. You must submit your semiannual compliance report by July 31 and January 31 each year according to §63.7550(b)(4), unless you have an alternative semiannual reporting period in your Title V Operating Permit.

Comment: One commenter (523) stated that the rule requires that if there are no deviations during a compliance period, then an affirmative statement must be submitted in the semiannual report. The commenter stated that the renewable operating permit program requires

sources to use state-generated forms for semiannual reports and these forms do not provide for making such a statement specific to individual NESHAPs. The commenter stated that the forms require that the company certify compliance except for the deviations reported. The commenter stated that there is no reason for the boilers NESHAP to require anything separate or different from that already required by the renewable operating permit.

Response: The compliance reporting requirements of this NESHAP do not prescribe a specific format for the semiannual report. As previously discussed, many states operate a delegated Title V Operating Permit program and the requirements of those programs can vary from state to state. Therefore, it would be difficult, if not impossible, to capture all the different state-specific reporting requirements in this NESHAP. The final rule outlines the elements that must be contained in a semiannual compliance report. You should work with your permitting authority to integrate those required elements into your standard semiannual report.

Comment: Several commenters (379, 388, 449, 491, 492, 524, 533) recommended that deviation reports should not be required for routine startup and shutdown events that are consistent with the SSM plan. Two commenters (491, 492) proceeded to explain that startups and shutdowns are routine operations for boilers and process heaters, and are addressed in the SSM plan. The commenters argued that there is no need to submit additional data other than to note that there was a startup or shutdown and that the event was consistent with the SSM plan. Several commenters (364, 399, 387, 403) requested that EPA should not require reporting of SSM events that do not result in an exceedance of the emission limits. The commenters argued that the proposed language of the boilers NESHAP would require facilities to report every SSM event, regardless of whether an emission limit or operating requirement was violated. The commenters suggested changes to the definition of SSM that would address their concerns. One commenter (491) stated that reporting the date and time that each deviation started and stopped, and that the deviation occurred during a period of startup, shutdown, or malfunction should be sufficient.

Response: You must submit a deviation report any time you have a deviation from the emission limits, operating limits, or work practice standards required by this NESHAP. Deviations that occur during SSM events are not automatically a violation of the standard. Your deviation report will be reviewed to see if you followed your SSM plan. Furthermore, your history of SSM events and your response to those events are also considered in the evaluation of deviations that occur during SSM events. If no deviations occurred during an SSM event, you are required only to report that you had an SSM event. We did not change the reporting requirements related to SSM events as these requirements have been addressed in previous revisions to the General Provisions to part 63 and represent EPA's policy regarding these events.

Comment: Two commenters (413, 499) stated that the rule fails to propose a standard reporting format or an opportunity for electronic reporting. One commenter (499) claimed that much of the required data will have to be hand-gathered and hand-entered into an electronic format. In addition, the rule does not indicate where or to whom this data should be sent.

Response: We did not develop a standard reporting format for this NESHAP because you typically report the required elements to your local permitting authority. In many cases, your permitting authority has accepted delegation of this NESHAP and Title V Operating Permit programs. Once delegated, the permitting authority can develop whatever reporting format requirements they wish as long as they meet the minimum requirements established by EPA. Since these reporting requirements may vary, we believe that developing a standard reporting format in this NESHAP is not appropriate. In the final rule, we have streamlined many of the

monitoring requirements, which will result in a substantial decrease in recordkeeping and reporting activities, especially those requirements that cannot be automatically recorded. All required reports should be submitted to your local permitting authority according to your Title V Operating Permit.

Comment: Several commenters (388, 449, 491, 492, 498, 524, 533) requested that EPA not require readily available electronic records to be stored onsite. One commenter (492) noted that significant changes in technology have encouraged many companies to opt for electronic information storage on computers and servers. In many cases, the server may not be located on the actual site, but the data is still readily available. Therefore, the commenter recommended that §63.7560(c) be revised to recognize the trend to electronic record keeping. One commenter (491) suggested changes to §63.7560(c) to require on-site records to be kept for only the first 2 years, and allow off-site storage for the last 3 years.

Response: We did not modify the records retention requirements of this NESHAP. These requirements are consistent with other NESHAPs and EPA policy. The requirement to have records stored on-site is to facilitate timely review of these records by EPA or your permitting authority. Even readily available electronic data stored off site can be unretrievable if your server is down or if there is a problem with your Internet connection. For these reasons, we will still require that you keep records on site for a period of at least 2 years.

Comment: Several commenters (343, 346, 360, 396, 427, 434, 492) recommended that EPA clarify that existing units in all of the gaseous and liquid fuel subcategories (large/small/limited use) and new units in the small gaseous fuel subcategory be excluded from recordkeeping and reporting requirements, including requirements of the General Provisions. The commenters opposed the requirement to develop and implement SSM plans and to submit semiannual compliance reports because these subcategories are not subject to any emission limitations, operating limitations, or work practice standards and the requirements are costly. In addition, the commenters requested that the initial notifications not be required for these units. One commenter (345) stated that gas-fired or small and limited use subcategories should not have any requirements other than an annual certification that no other fuel was used. One commenter (490) requested EPA confirm that since no standard is established for existing gas-fired units, there would be no recordkeeping and reporting requirements. In addition, the commenter stated that the language of §63.7550 and the text in Table 9 must be clarified so that compliance reports and SSM reports are not required for units which are not subject to any standard. One commenter (396) added that if EPA intends to still require reports for subcategories with no limits or work standards, then they should explain their rationale. Several commenters (369, 410, 426, 447, 479, 491, 519) requested that EPA exempt units that are not subject to any emission limitations, work practice standards, or operating limitations from recordkeeping and reporting requirements, including SSM plans and semiannual compliance reports. One commenter (355) suggested that all requirements in the proposed rule that are not directly related to quantifiable emission reductions be removed from the rule (i.e., notification, monitoring, reporting, fuel analyses, and recordkeeping requirements). One commenter (491) stated that Title V permits should not be required for units with no substantive requirements. The commenter recommended that these units be excluded from the various procedure requirements such as initial notifications in the boilers NESHAP or exempt them from Title V and other air pollution permit requirements, if they would otherwise be exempt under state or local regulations.

Response: In the final rule, we specifically exempt sources with no emission limits or

work practice standards from most requirements of this NESHAP and the General Provisions to part 63, including the SSM plan requirements. For large sources (i.e., sources with heat input capacities of 10 MMBtu/hr or greater) we require only that you submit an initial notification. See §63.7505(e) and (f) of the final rule for the requirements for sources with no emission limits or work practice standards.

Comment: One commenter (491) suggested that EPA remove the requirement in §63.7520 to prepare a site specific test plan for those facilities that do not have to perform any testing.

Response: The final rule does not require you to prepare a site-specific test plan if you do not have to perform any emission testing. If you demonstrate compliance through fuel sampling and analysis, you will have to develop a site-specific fuel sampling plan.

Comment: One commenter (380, 476) requested clarification of whether daily fuel use records are required for gas-fired boilers. The commenter contended that the preamble and the regulatory text have differing views. The commenter added that since gas-fired boilers are subject to only the CO work practice, it is unnecessary to maintain records for fuel use. One commenter (427) questioned why it is necessary for gas and liquid fired sources that switch suppliers to submit notifications of fuel changes if they are not required to be controlled. One commenter (417) believes the provisions requiring operators to keep daily records of fuel use and operating hours are onerous and unnecessary. If a facility does not have any indication of compliance problems, these recordkeeping obligations should be substantially reduced to require only information about atypical operating hours and new fuels that threaten an emission limit. The commenter (417) believes that operators should only have to provide statements if fuel chlorine, mercury or total selected metals will exceed a prorated value equal to the applicable emission standard. Several commenters (406, 407, 408, 501) contended that the proposed rule would place unduly burdensome monitoring and recordkeeping requirements on owners of biomass-fueled boilers. The commenters added that a strict reading of the proposal could require an almost continuous process of fuel analysis, with extremely burdensome recordkeeping consequences. The commenters added that the reporting requirements for the semiannual compliance reports are excessive. The commenters requested that EPA reduce the requirements to a semiannual statement of compliance, using current state forms already developed for this purpose and that only require deviations from compliance to be included.

Response: The final rule does not require existing liquid and gaseous fuel-fired units to keep records of fuel use. New gaseous fuel-fired units that do not have any emission limits or work practice standards and new liquid fuel-fired units that do not burn any residual oil do not have to monitor fuel use. For all other sources that have to monitor fuel use, we have modified the fuel monitoring requirements to be based on monthly fuel use, and no longer require daily fuel use monitoring. We have also modified the fuel sampling requirements to be based on fuel type and not on fuel shipment, supplier, and location. Therefore, if you have to conduct fuel sampling, you will only be required to conduct an initial sample, and then once every five years for each fuel type that you burn. Additional fuel sampling would be triggered only if you burned a new type of fuel. We maintain that the changes to the fuel monitoring and sampling requirements in the final rule will significantly reduce the recordkeeping and reporting burden of the final rule.

Comment: One commenter (491) stated that §63.7555(d) does not contain a clearly relevant applicable requirement for such affected sources unless they were deemed to be electing

to comply with an emission limit based on fuel analysis. Therefore, the commenter suggested that the section be modified to read:

§63.7555(d) You must also keep the records in paragraphs (d)(1) through (5) of this section, as applicable.

(1) If you operate an affected source in one of the liquid fuel subcategories that burn only fossil fuels and other gases and do not burn any residual oil, or you elect to comply with an emission limit for an affected source based on fuel analysis, you must keep records of daily fuel use by that affected source, including the type(s) of fuel, amount(s) used, the supplier(s), and original source location(s).

(2) You must keep records of daily hours of operation by each affected source.

Response: In the final rule, we modified this section to clarify that all units subject to an emission limit must keep records of fuel use. This requirement has changed from daily fuel use to monthly fuel use in the final rule. Also, we require only that you keep records of operating hours, on a per-month basis, if you have a limited-use source. As stated in an earlier section of the final rule, if you have a liquid fuel-fired unit and you do not burn any residual oil, you are not required to monitor fuel use. We also made several changes to the fuel sampling and analysis requirements that significantly reduce the recordkeeping burden of this NESHAP.

Comment: One commenter (357) contended that the recordkeeping requirements should be based on fuel analysis and not supplier. The commenter added that as along as levels established during performance testing are not exceeded, the fuel source does not matter.

Response: In the final rule, we modified the fuel monitoring requirements to be based on fuel type, and removed the requirements to conduct additional fuel analyses when you receive fuel from a new supplier, as long as it is the same type of fuel that you have previously analyzed. This change should significantly reduce the monitoring, recordkeeping, and reporting burden of the final rule.

Comment: Two commenters (388, 449, 492, 498, 524, 533) stated that only one statement should have to be provided for each fuel in the event that several similar units are fired with the same fuel. One of the commenters (492) suggested allowing one statement to be submitted along with the supporting calculations. The commenter did not see any need in requiring repeated statements and calculations for each unit. Furthermore, the commenter noted that if a source is required to burn fuel with certain specifications, then the owner or operator should not have to submit these statements.

Response: We do not allow one statement to be provided for similar units burning the same type of fuel. We do not believe that this is a requirement that needs to be changed. The monitoring, recordkeeping, and reporting requirement of this NESHAP, and typically of permits, require information to be submitted based on each unit. The calculations used for the fuel type could be used for all units burning the fuel, therefore, this is not an onerous requirement.

Comment: Several commenters (374, 388, 449, 492, 498, 523, 524, 533) suggested that initial notifications should not be required for affected sources that have submitted 112(j) Part 1 applications. One commenter (523) stated that at a minimum, initial notifications should be required only from sources subject to a work practice or an emission limitation and not simply because a source is subject to a monitoring, recordkeeping, or reporting requirement. One commenter (492) contended that requiring these sources to submit similar initial notifications required under §63.7545(b) and (c) is redundant and burdensome.

Response: Most sources are not required to submit an initial notification under this

NESHAP. We do not believe that this is a burdensome requirement. We are not requiring small existing sources to submit an Initial Notification because they do not have any emission limits or work practice standards and believe that this will eliminate several thousand sources from having to submit a notification. All new sources that are subject to this NESHAP, whether they have emission limits and work practice standards or not, will have to submit an Initial Notification.

Comment: One commenter (523) stated that the requirement to submit semiannual reports 30 days after the end of the reporting period conflicts with state reporting requirements. The commenter stated that semiannual reports should be submitted as required by the renewable operating permit (ROP).

Response: As outlined in §63.7550(b)(5), if you have an alternative reporting schedule for semiannual reporting outlined in your Title V operating permit, then you can submit the semiannual report required by this NESHAP on those dates. However, these alternative reporting dates must be pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A).

Comment: One commenter (529) mentioned that the site-specific monitoring plan is required to be submitted for approval as stated in §63.7505(c)(1), but does not have a stated submission date. The commenter assumes the plan should be submitted in accordance with the submission schedule for the site specific performance evaluation plan shown in §63.8(e), but would like clarification.

Response: In the final rule, we clarify a submittal date for your site-specific monitoring plans of 60 days before your initial compliance demonstration. This is the least amount of time before your initial compliance demonstration that you can submit your monitoring plans. We suggest that you submit your monitoring plans more than 60 days before your initial compliance demonstration, especially if you are petitioning the Administrator for an alternative monitoring plan, to allow time for you and your permitting authority to resolve and issues that may exist.

Comment: One commenter (523) stated that the rule requires sources to implement a written SSM plan according to the requirements of the NESHAP general provisions. The commenter believes that instead of referencing the general provisions, specific SSM requirements should be adopted in this rule. The commenter stated that the general provisions are intended to be "gap-fillers," i.e., requirements which apply unless the specific rule states otherwise. The commenter stated that since the SSM general provisions appear to be in flux due to litigation over the general provisions, the commenter suggested specifying the provisions in this rule and not having 40 CFR 63.6(e) apply. The commenter stated that this approach will also avoid conflicts between the state rules for SSM plans, Title V requirements, and the NESHAP. The commenter stated that the SSM requirements only need to state that such a plan be prepared, implemented, written, and amended as necessary to address SSM issues. In addition, the commenter stated that there should not be any requirement to submit the plans to the state agency for approval, instead simply a requirement that the plan be "approvable" in the sense that it meets the state requirements and those currently listed under §63.6.

Response: We do not incorporate the SSM plan requirements of the general provisions into this rule. The final rule continues to reference the SSM plan requirements in the general provisions. The general provisions exist not as a "gap-filler," but as a way to provide consistency for compliance activities that must occur for all sources subject to a NESHAP.

Comment: One commenter (523) suggested that since all of the sources affected by this NESHAP are subject to the Title V permit program and since that program already includes a

compliance certification requirement, as well as a requirement for reporting at least semiannually, the additional monitoring requirements included in this rule should be modified so that sources can do all required reporting and recordkeeping through their Title V permit program. The commenter asserted that this is especially necessary for sources that are not subject to any emission limitations under the proposed rule. One commenter (358) supported all compliance reporting and recordkeeping be provided to the Administrator as part of the facility's Title V operating permit. The commenter suggested requiring compliance reports to be submitted to the reporting agency no less often than annually, as part of the Annual Compliance Certification Statement.

Response: We disagree with the commenter and have retained the recordkeeping and reporting elements in the final rule. Several changes have been made since proposal that have reduced the compliance burden of the final rule. However, we believe that we must include recordkeeping and reporting requirements in this rule and not simply let the Title V Operating Permit program develop those requirements. By including recordkeeping and reporting requirements in this rule, this will result in consistent requirements for all sources affected by this rule. If it were left up to Title V mechanisms, sources could have a wide range of recordkeeping and reporting requirements and we do not believe that this would be appropriate. Furthermore, keeping recordkeeping and reporting requirements in the final rule assure us that all affected sources will collect the right types and amount of data to ensure continuous compliance with this NESHAP.

Comment: Several commenters (364, 374, 381, 382, 387, 391, 392, 399, 400, 401, 403, 449, 452, 478, 479, 492) agreed with the EPA approach that deviations during periods of startup, shutdown, or malfunction should not automatically constitute violations of the MACT standards. The commenters urged the EPA to retain it in the final boilers NESHAP. One commenter (491) supported the position in §63.7540(d) that deviations that occur during periods of startup, shutdown or malfunctions are not violations if it can be demonstrated to the Administrator's satisfaction that the source was being operated in accordance with the SSM plan. The commenter stated that it may not be possible to comply with limitations during these times. In addition, the commenter stated that the owner or operator should be required to take expeditious action in the event of a malfunction and that non-compliance should not result if the malfunction is corrected in a timely manner. Another commenter (448) said that the EPA's compliance loophole for startup, shutdown, and malfunction events is unlawful, arbitrary, and capricious since the proposed standards do not require compliance with emission standards during those events. The commenter also questioned how the proposed provision for determining if a facility was operating in compliance with its SSM plan and OMM plan would operate in enforcement suits brought by citizens rather than the Administrator.

Response: We maintain that sources should have special provisions for periods of startup, shutdown, and malfunction as these are normal occurrences for boilers and process heaters, but they are also associated with transient behavior of the source which can lead to fluctuations in emission levels. Sources have to consider personnel and equipment safety considerations during these periods and these considerations also effect a source's ability to minimize emissions and respond to such periods. Therefore, we require sources to develop SSM plans to document how they will operate their source during these periods in order to minimize emission levels. We defer to the Administrator the decision on whether deviations that occur during a period of startup, shutdown, or malfunction are violations of the standard because historical and case-dependent factors must be reviewed before such a decision is made. To evaluate a deviation that occurs during a period of startup, shutdown, or malfunction, the Administrator must consider

whether the source followed their SSM plan, were there any other actions the source could have taken to minimize emissions, does the source have a history of malfunctions that could be attributed to poor maintenance, and other case-specific factors. We believe that this is the most appropriate method to evaluate deviations during periods of startup, shutdown, or malfunction.

Comment: One commenter (491) stated that §63.7550(e)(6) imposes vague and unnecessary requirements. The commenter suggested that §63.7550(e)(6) be revised as follows: §63.7550(e)(6) A breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, malfunction, and other causes.

Response: We maintain that these requirements are not vague and unnecessary. In the final rule, we do not state that deviations that occur during periods of startup, shutdown, or malfunction are not automatically violations of the standard. This determination would be made by the Administrator. However, for the Administrator to make such a decision, an historical perspective of a source's startup, shutdown, and malfunction events are necessary. Therefore, we require a more detailed breakdown of the reasons for the occurrence of deviations and are not groupiing control equipment problems, process problems into a single malfunction category.

Comment: Several commenters (406, 407, 408, 413, 501) requested that EPA require a 30-day notice for performance testing instead of the 60-day notification in the proposal. Several commenters (406, 407, 408, 501) contended that a 60-day notification for performance tests should only apply to the initial performance tests. The commenters added that most states have a much shorter notification requirement. The commenters added that it is difficult to plan testing 60 days in advance when a facility has multiple boilers.

Response: In the final rule, we have changed the reporting requirements to require that you submit a notification from 30 to 60 days before you conduct your compliance demonstration. The compliance demonstration is either your performance testing or your fuel sampling, depending on how you demonstrate compliance with this NESHAP.

Comment: One commenter (491) claimed that the statement regarding periods of startup, shutdown, and malfunction in §63.7540(b) is problematic and seems inconsistent with the provisions of §63.7505(a) which provides "you must be in compliance with the emission limitations (including operating limits) and the work practice standards in this subpart at all times, except during periods of startup, shutdown, and malfunction." The commenter stated that it is not clear what emission limit or operating limit would not be met that must be reported under §63.7540(b) since the emission limits and operating limits in Table 7.A and 7.B apply to periods other than periods of startup, shutdown, and malfunction. The commenter suggested clarifying §63.7540(b) as follows:
§63.7540(b) You must report each instance in which you did not meet each emission limit and each operating limit in Tables 7.A and 7.B to this subpart that apply to you, and you must report each instance during a startup, shutdown or malfunction when emissions exceeded the level of a relevant emissions limit or work practice standard, or you did not meet a parameter value for an operating limit in Table 7.B. You must also report each instance in which you did not meet the work practice requirements in Table 8 to this subpart that apply to you. These instances are deviations from the emission limitations and work practice standards in this subpart. These deviations must be reported according to the requirements in §63.7550.

Response: In the final rule, we revised §63.7540(b) to make it more clear and consistent with our stance on periods of startup, shutdown, and malfunction. In this section, the final rule separates your reporting requirements for deviations based on whether or not a deviation

occurred during a period of startup, shutdown, or malfunction.

Comment: One commenter (491) stated that the requirement in §63.7540(d) that a source must demonstrate that it is operated in accordance with its startup, shutdown, and malfunction plan during every event is burdensome and the demonstration to the "Administrator's Satisfaction" statement is vague. The commenter suggested that §63.7540(d) be revised to as follows:

(d) Consistent with §63.6(e) and §63.7(e), deviations that occur during a period of startup, shutdown, or malfunction are not violations if, upon request of the Administrator, you demonstrate that you were operating in accordance with the startup, shutdown, and malfunction plan.

Response: We did not revise §63.7540(d) as suggested by the commenter. We do not believe that the requirement is overly burdensome and will require you to demonstrate that you were operating in accordance with your SSM plan. The Administrator will require this information anyway if you experienced a deviation during a period of startup, shutdown, or malfunction to determine if the deviation is a violation of the standard or not. To include the commenter's suggested language would retard the process of the Administrator's decision by adding another step in the data gathering process that would automatically occur under the proposed and final rule.

# 13.0 Impacts

## 13.1 Control Costs

Comment: Several commenters (338,484, 522, 521, 363) stated that EPA has understated the cost to install controls on existing units because of site-specific physical constraints. Commenters (338, 484, 522) claimed that due to footprint boundaries, some retrofits are only possible through vertical construction schemes, which can cost up to four times more than horizontal construction schemes. One commenter (522) explained that universities and colleges are space limited and any additional controls would have to be integrated vertically as opposed to horizontally, thereby significantly increasing costs. Another commenter (521) stated that some boilers' fans, duct work, and positioning were not originally designed to handle a baghouse. Therefore, many parts will need to be modified to accommodate a baghouse as part of boiler NESHAP compliance. The commenter stated that based upon estimates from equipment suppliers, the cost for a baghouse could be $3.5 million, almost ten times EPA's estimate.

One commenter (363) contended that installing flue gas scrubbers would be a problem because there would not be enough room on site. The commenter (363) added that purchasing the scrubbers would increase the electricity rates and their customers would not be able to absorb the costs. The commenter concluded that the units would be taken out of service, thereby denying customers an economical and reliable source of electricity.

Response: Costs and emission impacts estimated for the boiler MACT standard are intended to represent national impacts. Consequently, costs for a specific facility may be lower or higher than what was estimated for a specific model unit. But on a national basis, we believe that our estimates are reasonable. We would also note that the cost algorithms include a cost factor for retrofitting existing boilers, that do incorporate duct length and some spacial concerns. Additionally, facility or boiler specific information on construction schemes were not available to develop cost impacts. Therefore, they could not be incorporated into the cost estimates.

## 13.1 Control Costs

Comment: Commenters (364, 399, 387) suggested that EPA reevaluate the cost analysis for coal and wood-fired boilers. For coal-fired boilers, the commenter believes that venturi scrubbers alone are not likely to achieve the particulate emission limits and requested that EPA reevaluate the cost analysis using ESPs or fabric filters as the control technology for meeting the particulate matter or alternative limits. Furthermore, the commenter believes that fabric filters will be required on many existing coal-fired boilers to meet the mercury emission limit. For wood-fired boilers, the commenter also questioned the effectiveness of venturi scrubbers to meet the proposed emission limit and requested that EPA reevaluate the cost analysis using ESPs as the control technology.

Response: For the cost analysis, we evaluated several different control technologies to meet emission limits. The technologies considered the least cost option in controlling emissions from the four pollutant classes regulated in the MACT standard were used to represent the costs of the rule. Based on control effectiveness information provided for the proposal, we determined that newer venturi scrubbers can achieve PM emission reductions from the baseline level to meet the MACT standard. In most of these cases, the PM reduction required is small because the baseline level is already close to the MACT emission limits. The impacts memorandum developed at proposal provides costs for all the various control technologies that were looked at as control options for a model unit.

## 13.2 Cost of Monitoring

Comment: Commenters (339, 347) opposed the requirement for CO CEMS on new and reconstructed liquid and gaseous fuel-fired units. One commenter (339) noted that sources already have an economic and operational incentive to maintain good combustion practices without expensive monitoring. The commenter (339) also explained that EPA had determined that as capital cost of $88,000 and $33,000 in operating costs for HCl monitors was unreasonable, however, the costs for CO monitoring systems would be equivalent, yet EPA did not deem them to be unreasonable.

One commenter (347) contended that CO CEMS are too costly and there are more cost effective methods to ensure good combustion practices. The commenter (347) suggested that annual tuning of the burner be required instead, especially for units smaller than 10 MMBtu/hr. Another commenter (343) opposed the requirements for a CO CEMS for units burning gaseous or liquid fuels with a heat input capacity greater than 10 MMBtu/hr. The commenter (343) stated the costs to implement CEMS are very high compared to other alternatives. In addition, the commenter (343) stated that EPA's CEMS Cost Model Version 3.0 estimates total costs to implement a base-case extractive CO CEMS on a new unit would be $129,500, with annual costs of $39,100.

Commenters (360, 424, 332) contended that EPA significantly underestimated the typical cost of new sources to comply with the requirement to install a CO CEMS. The commenter (360) concluded that the high costs to install CO CEMS and the low emissions reduction would make their use cost-ineffective, and cannot be justified based on either existing regulations or a cost-effectiveness basis. (4) The commenter (332) explained that the cost EPA assumed for complying with the CO work practice standard is insufficient to even purchase a CO analyzer, much less the system into which it must be operated. The commenter noted that the cost per CO CEMS would be $164,500 in capital with an annual cost of $32,896. Another commenter (499) stated that the costs for CO CEMS can be as much as $150,000 to install and operate. The commenter stated that this cost can approach or exceed the fixed capital costs to install many small boilers and process heaters. Another commenter (371) claimed the cost of purchase and install CEMS would be approximately $120,000 per unit, with approximately $20,000 - $30,000 in annual maintenance costs. In contrast, the cost of source testing of units is approximately $1,500 annually per unit. Given the high cost of CO CEMS, commenter (332) requested that EPA reconsider applying a CO work practice standard to gaseous fuel-fired units. One commenter (380) contended that EPA underestimated the cost of CO CEMS because it based its costs on $CO/O_2$ process monitors in a study of medical waste incinerators. The commenter added that these process monitors are not typical of CO CEMS and have not been demonstrated to provide continuous monitoring of CO. The commenter referenced work done by the Gas Research Institute on CO monitors. The commenter concluded that the actual cost of CO CEMS would be three times higher. The commenter cited information presented in the "Cost Algorithms" Memorandum.

Response: We have revised the CO requirements in the final rule. The regulations that formed the basis of the CO requirements in the proposed rule do provide sources with the option of conducting annual testing or installing CO CEMS to demonstrate compliance with the CO emission limit. Because the regulations that were the basis of the MACT floor do not provide specifics on which boilers should conduct annual testing and which should use CO CEMS, we reviewed the cost information provided by the commenters to make this determination. In considering the additional cost information and reviewing the cost information used in the proposed rule, the EPA decided that changes to the CO compliance requirements were warranted. The final rule requires that new units with heat input capacities less than 100 MMBtu/hr conduct initial and annual performance tests for CO emissions. New units with heat

input capacities greater or equal to 100 MMBtu/hr are still required to install, operate, and maintain a CO CEM. Additionally, units in the limited use subcategories must conduct performance tests and are not required to operate CO CEMS because of the small length of time these units are in operation.

Comment: One commenter (395) stated the proposed procedures for changing operating limits do not provide an acceptable solution. Multiple tests would be necessary to establish the minimum operating parameters required to maintain compliance with the provisions, resulting in excessive costs and repeated delays associated with the required notifications, testing, and approvals.

Response: We have made several changes to the proposed rule that will reduce burden and cost of compliance while maintaining the stringency of the standard. However, we believe that multiple tests may be necessary in some cases in order to ensure that the proper operating parameters can be established.

Comment: One commenter (348) argued that the requirement to install a COMS would be extremely costly because extensive modifications would have to be completed to support the monitor.

Response: We recognize that in some cases costs for COMS may be high. This cost was incorporated into the impacts analysis. We would note that sources that use fabric filters are not required to use COMS. Additionally, sources can petition the Administrator for alternative monitoring plans.

**13.3 Methodology**

Comment: One commenter (536) claimed that EPA failed to adequately characterize the impacts on public power producers because EPA did not create separate model plants for public power. The commenter contended that EPA's impacts analysis depends upon the accuracy of model plants to predict the costs of compliance. However, the commenter added that to adequately characterize impacts on public power produces, EPA would need to create separate model plants for public power. The commenter (536) contended that EPA used a standard nationwide model to assess the effects of compliance on the electric industry as a whole. The commenter continued that the model then estimated government effects by determining the likely compliance costs to firms and extrapolating what pass-through costs will be shouldered by State and local governments. The commenter contended that this estimate cannot be credibly done without evaluating the costs of compliance to public power producers.

The commenter (536) added that EPA must consider factors that make public power systems unique in the analysis, including contractual, physical and political constraints and potential loss of high paying jobs in small communities. In addition, the commenter contended that EPA failed to recognize that public power produces provide other services to the locality that would be harmed by the proposed rule. The commenter added that some of the services include direct payments to local governments, free or reduced electric services, and services to local communities that are generally lower than prices charged by investor owned utilit1ies.

Other commenters (449, 524, 533, 388, 498) claimed that EPA's "macro-economic" analysis failed to adequately address the impacts on small coal or wood-burning facilities. The commenters noted that EPA's MACT support document that addresses the economic analysis of the proposed boilers NESHAP is a "macro-economic" impact type of analysis and may not be effective at analyzing the cost to small businesses. The commenters explained that the analysis

does not address the less-than-50 person coal or wood burning facility that will have to make up-front investments for control devices, monitoring systems, and other items required to comply with the boilers NESHAP.

Response: The economic impact model used by EPA is a national model that is primarily designed to examine impacts to producers and consumers through estimation of price and output changes to affected products on a nationwide basis. In doing so, the model presumes competitive behavior among entities and some ability of entities to pass along some share of their compliance costs to consumers. This is generally a suitable presumption for the industries contained in the model and affected by this proposed rule. For industries and entities where there may be deviation from this presumption, it may be that the accuracy of the model becomes more problematic. It should be noted that, for the purposes of estimating small entity analyses, EPA also estimated annual costs as a percentage of revenues for affected small entities. The results of this screening analysis are shown in the economic impact analysis report, and the results of this screening analysis are combined with the results of the economic impact analysis to ascertain the small entity impact results. Given these impacts, we were able to conclude that the small entity impact results were insufficient to be a significant impact on a substantial number of small entities (or SISNOSE). While it is EPA's position that our economic impact model is still accurate in estimating the impacts of this rule upon affected producers and consumers, we understand that municipal utilities may be a more difficult type of entity to model in this fashion. EPA thanks the commenters for providing their statements of potential effects of the rule to small communities.

Comment: Several commenters disagreed with the methodology EPA used to determine the cost and compliance burden on affected facilities. One commenter (536) noted that EPA used the Cost-to-Sales ratio (CSR) method to determine what constitutes a "significant" effect on a given facility. The commenter contended that the CSR method cannot provide a meaningful estimate of economic effect because it compares annualized compliance costs against annual gross sales for each facility. The commenter contended that gross sales is a meaningless measure of economic viability, particularly for public power producers since they do not operate on a for-profit basis. The commenter stated that an effective analysis of the economic impact of compliance must examine compliance costs against some form of net revenue in net present value terms. The commenter added that for public power producers, the net payments to the general fund of the parent entity provides an appropriate measure with which to calculate net effects.

One commenter (428) stated the annualized compliance cost, which EPA claims to be zero for existing liquid and gaseous units (Table 3 of the preamble), has failed to include the expense associated with semiannual compliance reports, recording daily fuel usage, recording hours of operation, and the development and documentation of adherence to the startup, shutdown, and malfunction plan.

One commenter (427) opposed using reductions of PM and $SO_2$ to justify a MACT standard. The commenter contended that EPA should detail the social benefits of reduction of HAP emissions instead of looking at PM and $SO_2$.

Response: EPA has used a comparison of annualized compliance costs to annual gross sales as a indicator of potential economic impacts to small entities for small entity analysis purposes for a number of years. While it is not the only possible indicator of impacts of a regulation on small entities, it is one that is useful given the usual availability of financial data on affected firms. Profits or net payments to general funds of the parent entity are data not

normally available for firms, and profit data is often different from what is preferred for an analysis since it is often not true economic profit (due to tax and other accounting considerations). EPA will explore using net payment data in comparison to the compliance costs for affected small public power producers in its analysis for the final rule.

EPA presents monetized benefits of the PM and SO2 emission reductions as part of providing as full a comparison of benefits and costs of this proposal as possible. Since this proposal is a major rule under the definitions provided in Executive Order 12866, EPA must follow its requirements. A Regulatory Impact Analysis (RIA) is called for by that Executive Order, and a full comparison of benefits and costs is required. For this rule, the PM and SO2 emission reductions are substantial, and credible methodologies exist to provided monetized benefit estimates to compare to the compliance costs. These benefit estimates do not justify the rule, since the MACT floor option proposed is unrelated to the costs and impacts associated with it. We are currently unable to provide monetized benefits of the substantial HAP emission reductions associated with this proposed rule, a statement we make in the RIA.

### 13.4 Cost to Municipal Power Generators

Comment: Commenters stated that the proposed rule would have significant impacts on municipal electrical power generators and that EPA underestimated those impacts. Commenters claimed that EPA failed to recognize the unique characteristics of these small municipal generators and therefore inadequately assessed the economic impacts. Several commenters (373, 378, 398, 421, 422, 429, 435, 469, 470, 471, 472, 481, 506, 509) contended that the proposed rule endangers the continued viability of municipal electric generation by imposing enormous capital and operating costs on small municipal generators which, given existing legal and functional constraints, are not feasible or achievable. The commenters added that if the rule is not changed, many municipal generators will shut down resulting in customers and coal companies losing important benefits and protections.

One commenter (536) contended that EPA failed to recognize the basic differences between the public power sector as both government and small business entity. The commenter also added that EPA failed to recognize that public power is not a traditional business. The commenter added that public power producers operate under constraints that cause them to act to maximize the utility of entities other than themselves. The commenter stated that they have contractual obligations to the local governments that keep them from acting strictly to maximize company profits. The commenter continued that public power utilities are also faced with pressures imposed on any local government entity because they are governed by their consumer-owners through locally elected or appointed officials.

The commenter (536) also contended that EPA failed to recognize that municipal generating units provide services for the public good, including increasing system reliability through distributed sources, protecting municipal electric system residents against wholesale prices and spikes, providing power for public services, and relieving transmission congestion and providing reactive power to the transmission grid. The commenter explained that unlike real power, the reactive component of power cannot be transmitted over long distances and must be locally provided. The commenter added that without local generation, parts of the regional grid system are weakened and become susceptible to voltage collapse. The commenter also added that public power communities are legally obligated to serve local residents and cannot readily expand their customer base without increasing their geographic and political borders, which can only be altered by state, city or county ordinances or state constitutions.

Response: The economic impact model used by EPA is a national model that is primarily

designed to examine impacts to producers and consumers through estimation of price and output changes to affected products on a nationwide basis. In doing so, the model presumes competitive behavior among entities and some ability of entities to pass along some share of their compliance costs to consumers. This is generally a suitable presumption for the industries contained in the model and affected by this proposed rule. For industries and entities where there may be deviation from this presumption, it may be that the accuracy of the model becomes more problematic. Given the small changes in price and output of products affected by this proposed rule, it is EPA's position that municipal utilities and public power generation will not be affected significantly. However, while it is EPA's position that our economic impact model is still accurate in estimating the impacts of this rule upon affected producers and consumers, we understand that municipal utilities may be a more difficult type of entity to model in this fashion. EPA thanks the commenters for providing their statements of potential effects of the rule to small communities.

Comment: One commenter (417) stated that EPA's analysis failed to adequately account for the different sets of constraints under which public power providers and their local communities must operate and as a result, designed a rule that causes significant localized economic harm to public power producers. The commenter argued that EPA incorrectly assumed that impacts on municipal generators are similar to those on other utilities. The commenter went on to explain that the proposed rule will increase the cost of municipal power to local consumers by approximately 7 percent, at least 100 times more than estimated by EPA. The commenter believes that EPA neglected to conduct critical parts of the economic analysis required by a number of statutes and Executive Orders, including the Unfunded Mandates Reform Act of 1995, the Regulatory Flexibility Act as Amended by the Small Business Regulatory Enforcement Fairness Act of 1996 and Executive Order 12866. The commenter offered to provide data to support its claim.

Response: The preliminary analysis that the commenter uses to provide foundation to its claim that the cost of municipal power to local consumers will increase by 7 percent is not part of its submittal. It is therefore not possible for EPA to understand or ascertain the basis for this claim.

EPA disagrees with the commenter's assertions that it neglected parts or the whole of requirements of UMRA, SBREFA, and E.O. 12866. EPA's analyses in compliance with these statues and Executive Order fufill the statutory requirements and also the OMB guidelines issued for compliance with E.O. 12866. All of these analyses also reflect the proposed rule, which is the least burdensome alternative that EPA could issue while remaining consistent with the requirements of the Clean Air Act.

While it is EPA's position that our economic impact model is accurate in estimating the impacts of this rule upon affected producers and consumers, we understand that municipal utilities may be a more difficult type of entity to model in this fashion. EPA thanks the commenters for providing their statements of potential effects of the rule to small communities.

Comment: Several commenters contended that the substantial costs to municipal power generators will result in increased electricity rates to customers. One commenter (480) contended that to meet the requirements of the proposed rule, municipal utilities will be forced to increase electric rates to their customers. The commenter contended that the costs of the rule will adversely affect municipalities because they rely on low electric rates from the utility to

attract business. The commenter added that the costs to comply will affect the ability to provide essential services and the bond ratings of cities. One commenter (536) contended that the proposed rule will result in dramatically higher costs per kilowatt hour for electricity, tax increases, potential loss of public services, and the transfer costs of high-wage jobs out of the locality. The commenter added that if the public utility's generation source ceases to function, it is likely that the community will see a substantial increase in electric rates if it must purchase power from investor utilities. The commenter asserted that EPA did not look at these indirect community impacts. One commenter (423) contended that for small electric utility boilers, the costs will be many magnitudes greater on a per megawatt basis than for industrial units. The commenter added that the full cost implementation of the ruling, when spread across a few megawatts produced, will drive the cost of power from these units to exorbitant levels. One commenter (342) contended that there would be a significant economic impact on their industry because they are small, municipally owned business and use their electric generation during time peak demand or during high market conditions. The commenter added that the rule-making could cause a shutdown, causing a loss of revenue of $1.3 million annual for capacity credits from their electric supplier. Also, the commenter contended that this shutdown would cause them to lose 26 percent of their workforce, the city would see a reduction of payment in lieu of taxes, and they would bear the cost of replacement energy. The commenter concluded that the rule would have a 'very detrimental' impact on their utility and community.

Response: EPA estimated a increase in electricity rates of only 0.05 percent related to the implementation of this rule. While this is an estimate made at the national level, it is EPA's position that any increase in electricity rates should be minimal as a result of this rule to local producers such as municipal utilities. Also, the economic impact analysis does examine the effect to consumers from increases in product prices, and the small decrease in product demand by consumers is evidence that the indirect community impacts are small as well. This should be true for small boiler owners as well as larger ones.

Comment: One commenter (417) stated that the proposed rule's use of site-specific operating limits imposes arbitrary and inconsistent requirements that will detrimentally affect all municipal utilities. The commenter suggested that the existing source emission limits applied to municipal utilities should be revised to reflect the control technology achieved in practice by the top 12 percent of the municipal utility subcategory.

Response: As discussed in earlier sections, EPA does see justification for developing a subcategory specifically for municipal utilities. Additionally, a review of boilers with controls located at municipal utilities indicates that establishing such a subcategory would result in similar control requirements that are already required in the rule. We would also note that we have provided several
compliance alternatives that will provides sources with the flexibility to comply with the standard while maintaining the stringency of the standard. These alternatives include emissions averaging, meeting fuel content limits, and risk off ramps.

**13.5 Economic Impacts**

Comment: Commenters (391, 392) explained that the textile industry cannot pass the costs of the boilers NESHAP compliance to customers and still compete with imported products produced in high-emission facilities. Many textile mills would be forced to go out of business.

Response: EPA's economic impact analysis shows that there will be minimal decreases in demand by textile consumers as a result of implementing this rule. The reduction in demand

will be no more than 0.02 percent according the modeling done for this analysis. This is due to the low estimated increase in textile output price (0.03 percent). While the textile industry is under pressure due to competition from imported products, the decrease in output demand resulting from this rule's requirements appears quite small. Thus, EPA believes textile mills are unlikely to be forced out of business as a result of implementing this proposed rule.

Comment: Once commenter (333) requested that a complete, thorough and current economic impact report be compiled to determine just how many companies will be shut down due to the added financial burden of complying with the MACT rules.

Response: It is EPA's position that very few, if any, companies will have to close as a result of incurring the costs associated with the proposed rule. The economic impact analysis for this proposed rule shows that only 4 percent of affected firms are expected to have annual compliance costs of more than 3 percent of sales, a benchmark often used by EPA in its economic analyses as a sign of potentially high impacts to affected entities. These estimates do not take into account the ability of entities to pass through costs to their customers or to obtain electricity rate increases. The price increase to affected products, including electricity, should mitigate the impact of this proposal upon affected producers.

**13.5 Economic Impacts** (Non-air impacts)

Comment: One commenter (446) noted that if wet scrubbers were required for HCl control then additional add-on water management would be required and facilities could not achieve "zero water discharge." The commenter added that the use of wet scrubbing could also have detrimental impacts on the ability to market ash byproduct from their industry and they would no longer be able to market it as high-value fertilizer.

Response: The final rule does not require wet scrubbers to be used for Hcl control. A source may use any method to control emissions to meet the rule limits. Additionally, we have provided several
compliance alternatives that will provides sources with the flexibility to comply with the standard while maintaining the stringency of the standard. These alternatives include emissions averaging, meeting fuel content limits, and risk off ramps.

Comment: Commenters (349, 377, 523) expressed concern about the burden placed on permitting authorities for the compliance options that involve monitoring, modeling or risk screening. One commenter (377) believes that requiring every major source to submit information on every collocated gaseous fuel-fired and process heater that is exempt from emission limits is likely to overwhelm state and local permitting authorities. Another commenter (349) believes that since permitting authorities would need to do the work, State and local resources would be directed toward presumably insignificant sources, thus detracting from efforts to monitor and regulate significant sources. One commenter (523) agreed that this rule will impose substantial economic and administrative burdens not only on industry, but also on the agencies charged with enforcing this rule.

One commenter (440) stated that additional requirements on natural gas/propane fired boilers will be an administrative burden with no benefit to the environment. The commenter claimed nothing would be gained by subjecting small, gaseous fired boilers to the proposed standard. The commenter stated a Title V permit contains all applicable requirements for such sources.

Response: The final rule has been revised to allow units in small subcategories to not to

submit any reports or keep records, and units in the liquid and gaseous subcategories to have minimal recordkeeping and reporting requirements. We believe these changes will significantly reduce the burden on state and local resources and on sources subject to the rule.

**13.6 Cost of Regulation**

Comment: Several commenters (502, 364, 399, 387, 425, 444) believe that EPA has grossly understated the capital and annualized cost of the proposed boilers NESHAP. Commenters (364, 399, 387) offered several different approaches to estimate these costs. Another commenter (425) believes that the estimated costs for monitoring, recordkeeping, and reporting were unrealistically low and those costs should not be hidden.

One commenter (502) explained that the conversion necessary to comply with the proposed boiler NESHAP would require significant expenses in the range of millions of dollars for each boiler and would also impose process changes that would require re-permitting and may not even be possible. The application of the MACT to industrial boilers and process heaters may result in the closing of the commenter's facilities, which have been in operation since 1916. The commenter believes that subjecting sugar beet processing facilities such as the commenter's to the proposed MACT will provide little or no environmental benefit and impose significant costs on farmers. The commenter stated that these farmers have no other facility to process their crops, and would pay an enormous cost as a result of the regulations.

Response: We disagree with the commenters. Cost estimates were based on algorithms and inputs developed in previous EPA studies and updated for this standard. They are the best information that EPA has to estimate cost impacts. The final rule incorporates several compliance alternatives that will provides sources with the flexibility to comply with the standard while maintaining the stringency of the standard. These alternatives include emissions averaging, meeting fuel content limits, and risk off ramps. We have also reduced the recordkeeping and reporting burden of the rule since proposal. These changes since proposal will reduce the cost of compliance and should resolve the commenters concerns.

Comment: One commenter (523) stated that as drafted, the proposed boilers NESHAP will result in nominal reductions of HAP, yet it will impose extraordinary costs. The commenter suggested that EPA utilize the options available under the authority of the CAA to reduce the impact and costs of this rulemaking. The commenter stated some of the available options are to delist source categories or not regulate de minimis emissions or de minimis sources of emissions.

Response: The EPA disagrees with the commenter. The final rule provides significant reduction in HAP emissions. While the total costs of the rule are large, the costs when allocated to a per boiler basis are relatively small. Additionally, changes to the rule since proposal have reduced total annualized costs by approximately 100-200 million dollars on a national basis.

Comment: Several commenters (473, 474, 497, 508, 511, 513, 514, 517, 518, 525, 526, 531, 348) expressed concern that the boilers NESHAP will force units to switch from solid fuels to alternative fuels such as natural gas or fuel oil in order to meet compliance. The commenters noted the increased cost from fuel switching and claimed that the available renewable fuel used by furniture manufacturers will have to be sent to a landfill, further increasing the cost of the boilers NESHAP. One commenter (348) noted that it would be economically impossible to switch to an alternative fuel source to comply with the proposed NESHAP and questioned whether EPA had considered the economic hardship this would place on the furniture industry. One commenter (497) agreed that industrial boilers that burn wood will incur substantial costs to

comply with the proposed boilers NESHAP standard. The commenter (497) could not identify a single boiler that meets the proposed existing source limit for PM from the furniture industry. The commenter added that none of the units are meeting the alternative metals limit either.

Response: We do not believe that the final rule will force sources to switch fuels. The final rule incorporates several compliance alternatives that will provides sources with the flexibility to comply with the standard while maintaining the stringency of the standard. These alternatives include emissions averaging, meeting fuel content limits, and risk off ramps. Regarding units in the furniture industry not meeting the promulgated emission limits, we contend that there was no justification for separating boilers located in this industry into their own subcategory. Consequently, they were grouped into the solid fuel fired subcategories and are subject to the same emission limits as those units.

Comment: One commenter (358) contented that EPA has not adequately addressed the impact to the energy supply in light of the President's Energy Policy initiatives. The commenter contended that many small electrical generating utility boilers will be forced to close and that their closure would necessitate the procurement of new generation assets at a much higher cost.

Response: It is EPA's position that it is unlikely that many small electrical generating utility boilers will be forced to close. The small impacts on price and output of electricity estimated in the economic impact analysis of this proposed rule suggest that any closure of such boilers will be very few, if any. This analysis accounts for the pass through of costs to electricity consumers as well as the direct impact to electrical generators.

# 14.0 Interaction With Other Rules

## 14.1 General

Comment: One commenter (370) stated the implementation of the proposed boilers NESHAP hydrogen chloride emission limit and monitoring requirements on the units already subject to more stringent inorganic acid gas sulfur dioxide control and monitoring program is redundant and unwarranted.

Response: Under the NESHAP program, EPA is required to develop, implement, and enforce emission standards for HAPs from prescribed source categories, including industrial/commercial/institutional boilers and process heaters. We have worked to minimize the burden of the NESHAP on the affected population, and one method has been through the use of surrogates. In this NESHAP, we use hydrogen chloride as a surrogate for all inorganic HAP emitted from boilers and process heaters. We realize that some sources may already have sulfur dioxide emission limits through the NSPS or some other program, but we are unable to remove the hydrogen chloride emission limit for that reason. Furthermore, many units subject to this NESHAP do not have sulfur dioxide emission limits. If you have a sulfur dioxide emission limit that results in hydrogen chloride emission levels below the emission limits in this NESHAP, then you would already be in compliance with this NESHAP. If you already have a monitoring program for sulfur dioxide and you can demonstrate that it could be used to demonstrate continuous compliance with the hydrogen chloride emission limit, you can petition the Administrator for an alternative monitoring plan under section §63.8(f) of subpart A of part 63.

Comment: Two commenters (360, 410) suggested EPA clarify that the Department of Interior has jurisdiction in the central and western Gulf of Mexico and the rule does not apply to sources located in these areas. The commenter cited 42 U.S.C. section 7627 as the authority by which the Department of the Interior has exclusive authority to regulate air emissions in these areas.

Response: We agree with the commenters and clarify that the Department of Interior has jurisdiction in the central and western Gulf of Mexico and this NESHAP does not apply to sources located in these areas.

## 14.2 Section 129

Comment: One commenter (451) stated the EPA's failure to promulgate standards for units combusting solid waste under section 129 of the Clean Air Act is unlawful and its failure to explain its decision is arbitrary and capricious. The commenter (451) stated that the proposed standards should not apply to solid waste combustion units (as defined under section 129). Two commenters (451, 512) argued that regulations for solid waste combustion units should be promulgated under section 129.

The commenter (451) also argued that if EPA is relying on arguments that were advance in the CISWI rulemaking, the agency is relying on an unlawful interpretation of the statute. The commenter discussed their interpretation of the statute including: (1) CAA requires EPA to establish standards for each category of solid waste incineration, (2) Congress rejected a broad exemption from section 129 for units that combust solid waste for energy recovery, (3) CAA defines solid waste broadly and encompasses waste that is burned for energy recovery, and (4) subsequent attempts by EPA to narrow the definition would be irrelevant because section 129(g)(6) refers to the EPA definition of solid waste under the Solid Waste Disposal Act (SWDA) that existed at the time Congress enacted section 129 (i.e., in 1990).

One commenter (451) said that EPA had not conducted the notice and comment rulemaking that it committed to in granting the petition for agency reconsideration and the voluntary remand with respect to the definitions of "commercial and industrial waste" and "commercial and industrial solid waste incineration unit." The commenter continued that if EPA concluded that such units must be regulated under section 129 after having already decided to regulate them under section 112, EPA would have to redo the rulemaking completely to comply with section 129. One commenter (451) stated that EPA must re-evaluate the MACT floor development since EPA must regulate solid waste combustion units separately from units that do not combust any solid waste. The commenter added that EPA must promulgate standards for all units that combust any solid waste, regardless of size and promulgate emission standards for each of the pollutants enumerated in section 129(a)(4).

Response: The EPA has recently published a notice soliciting comments on the definition of solid waste and solid waste combustion units as provided in the commercial and industrial solid waste incineration (CISWI) rule (69 FR 7390). Under the CISWI rule a material burned at a commercial or industrial facility in a combustion unit with heat recovery is not considered a commercial and industrial waste, nor is the combustion unit considered a commercial and industrial solid waste incineration unit for the purposes of the CISWI rule. Such units are covered by the final boiler MACT standards. A detailed discussion of EPA's rationale for these definitions are found in the CISWI rule notice. EPA is also required to promulgate standards for industrial, commercial, and institutional boilers and process heaters by the end of February 2004. Changes made to the CISWI rule in the promulgated rule that affect boilers and process heaters will be dealt with after the promulgation of the boiler MACT standards.

**14.3 Section 112**

Comment: Two commenters (376, 532) requested that EPA expedite promulgation to avoid overlap with the section 112(j) "hammer" deadline. One commenter (376) urged EPA to promulgate this MACT standard in a timely manner to minimize the burden on affected sources that would have to submit Part II case-by-case MACT applications under 112(j). Another commenter (532) stressed the importance of promulgating the standard on time to prevent requiring states to implement the section 112(j) program.

Another commenter (448) said that EPA may not implement any section 112(d)(4) applicability cutoffs through any post-rulemaking mechanism. The commenter noted that section 112(j) of the CAA contains the exclusive mechanism for the individualized standard-setting process.

Response: We plan to promulgate this NESHAP before the 112(j) "hammer" deadline in order to avoid overlap.

Comment: One commenter (410) requested that EPA incorporate the provisions of section 112(n)(4) of the Clean Air Act in the final boilers NESHAP and add and revise certain definitions unless it determines that boilers and process heaters at oil and natural gas production facilities are not subject to the this rule. The commenter added that 40 CFR part 63, subpart HH contains special provisions to determine potential to emit for oil and gas production facilities and EPA should add potential to emit definition that references the 40 CFR part 63, subpart HH potential to emit provisions.

Response: Under the "Am I Subject to this Subpart" section of the rule, §63.7485, we clearly indicate that the major source determination is different for boilers and process heaters located at oil and natural gas production facilities. The final rule also clarifies that equipment that are included as part of the affected source in another NESHAP standard are exempt from

this rule. However, if a boiler or process heater located at an oil and natural gas production facility is not specifically subject to another NESHAP standard, then it would be subject to this NESHAP if the facility is a major source according to 40 CFR 63 Subpart HH.

**14.4 NESHAP for Electric Utility Steam Generating Units**

Comment: One commenter (536) requested that EPA harmonize the compliance times between the Industrial Boiler MACT and the NESHAP for coal- and oil-fired electric utility steam generating units (utility NESHAP) and that EPA allow an additional three years to bring all units into compliance with the industrial boiler NESHAP. The commenter contended that sources subject to a less stringent standard would have an advantage. The commenter added that under the current compliance schedule, the public power sector's smaller systems would have to place mercury and metals controls on their systems years before their competitor larger utilities. The commenter also contended that public power systems should have the opportunity for a special variance, by class, or subcategory for an additional two years for compliance if that public power system has planned to build a new generating unit that is cleaner.

Another commenter (376) recommended that EPA include a variance provision in the final rule that recognizes multi-emission reduction programs undertaken by utilities that would be regulated under this NESHAP. Furthermore, the commenter recommended that any units less than 25 megawatts that opted into the Clear Skies program (or a similar program) would be fully exempt from the provisions of this NESHAP. Otherwise, the commenter (376) recommended that fossil fuel-fired units with capacities less than 25 megawatts be given an option to comply with either the boiler and process heater MACT or the utility NESHAP.

Response: We are unable to harmonize this NESHAP with the utility boiler NESHAP. The utility boiler NESHAP is still under development and this NESHAP has a court-ordered promulgation deadline of February 28, 2004. We are also not providing any variances for any multi-emission reduction programs as those types of programs are separate from the 112 NESHAP program. If requirements for this NESHAP and any subsequent multi-pollutant program are similar or duplicative, you need to work with your permitting authority to streamline your compliance requirements.

Comment: One commenter (393) requested that utility boilers have the option to comply with the proposed boilers NESHAP or with the coal-and-oil-fired utility NESHAP since many boilers located at electric generating plants will be subject to the coal-and-oil-fired utility NESHAP. Requiring compliance with both NESHAPs would be burdensome, particularly if different emission limit averaging times, monitoring requirements, recordkeeping requirements and reporting requirements are established in each. Regulatory inconsistencies between the two NESHAP could prevent electric generating plants from choosing the most technically feasible and cost effective control options to simultaneously meet the MACT standards under both NESHAP.

Response: In the "Are any boilers or process heaters exempt from this subpart?" section of the final rule, we specifically exempt utility boilers as defined by 112 of the Clean Air Act Amendments and units that are specifically subject to another NESHAP. Therefore, we are not providing an option for compliance with this NESHAP or the utility boiler NESHAP. If your unit is subject to another NESHAP you must comply with that NESHAP, otherwise, if you meet the applicability requirements of this NESHAP and are not subject to another NESHAP, you must comply with this NESHAP.

## 15.0 EMISSIONS AVERAGING

Comment: Many commenters (391, 392, 406, 407, 408, 501, 382, 400, 447, 519, 419, 479, 484, 482, 376, 449, 524, 533, 388, 498, 364, 399, 387, 383, 403, 425, 443, 444) supported the bubbling compliance alternative and recommended that it should be included in the final rule. Several commenters (482, 419, 376, 449, 524, 533, 388, 498, 364, 383) claimed it was cost effective and provided better environmental control (376, 449, 524, 533, 388, 498, 364, 383). Several commenters (479, 449, 524, 533, 388, 498) cited precedent in prior rulemakings.

Three commenters (379, 381, 492) believe that an alternate compliance approach involving the "bubbling" of sources at a facility would offer flexibility and result in equivalent or superior environmental benefits at less cost. One commenter (381) stated that this would create environmental benefit of allowing control options that maximize energy efficiency, thus reducing power demands and the impacts of energy production. One commenter (417) supported the use of bubbling to improve the cost effectiveness of the implementation of MACT controls. The commenter (417) believes that bubbling allows facilities with multiple boilers or process heaters the flexibility to over-control units where the most cost-effective reductions can be achieved.

Several commenters (379, 381, 492) believe "bubbling" should be permitted for any pollutant for which a mass based emission standard has been set and (commenter 379) cited 40 CFR part 63, subpart MM–Pulping Chemical Recovery Combustion MACT as an example. Another commenter (484) cited other MACT standards, which allow affected sources to aggregate unit emissions to achieve overall reductions. The commenter (357) stated that the bubble should include a mass (tons/year) based emission limit for boilers in the same category. Other commenters (382, 400) requested that EPA provide the maximum degree of flexibility under the bubbling compliance alternative. Specifically, the commenters recommended that sources be allowed to choose between a bubbling compliance alternative that is based on actual emissions or one based on established emission limits. They noted that an actual emission basis might be used by sources that have changing capacity factors.

Commenters (417, 492, 382, 400, 443) recommended that EPA adopt bubbling that allows for the voluntary use of cleaner fuels. Under this approach, if a facility owner were to voluntarily modify one of its several coal-fired boilers to burn natural gas, emissions from this modified boiler would remain within the bubble to determine compliance with the MACT standards for the facility's existing solid fuel fired units. One commenter (379) stated that the included sources should be a broad grouping and should specifically include solid fuel fired units that are converted to lower emission fuels. One commenter (443) noted that, for some facilities, fuel switching might be a cost-effective means of achieving the targeted emission limits.

Several commenters (449, 524, 533, 388, 498) recommended a method to calculate a bubble limit by summing the unit-specific alternate limits by the respective heat input capacities of the units to which they apply. The sum of this should be equal or less than the sum of the non-bubbling unit-specific standards in the rule multiplied by the unit's respective heat-input capacity. The commenters also suggested an alternative bubbling provision and method to apply to units that may only operate part of the time. The commenters noted that 40 CFR part 60, subpart MM restricts bubbling to units that operate more than 6,300 hours per year, but requested that EPA lower that threshold to 5,000 hours per year. For units that operate less than 5,000 hours per year, the commenters explained that additional recordkeeping and reporting would be required and proposed a method to account for those types of units. One commenter (393) urged EPA to allow sources using the bubbling compliance alternative to use a longer

averaging time. Specifically, the commenter stated that the EPA should allow annual averaging, consistent with the NOx averaging plan requirements specified in the Acid Rain Program at 40 CFR Part 76.11 to ensure that short-term operational fluctuations do not create compliance issues at a source. This would allow sources to include both new units and units in different subcategories within the "bubble." One commenter (340) stated EPA failed to discuss averaging time for the compliance determination and the type of additional monitoring, record keeping, and reporting requirements.

Commenters (492, 447, 406, 407, 408, 501) suggested that EPA adopt an expanded compliance alternative that allows for bubbling across subcategories for new and existing units. One commenter (400) provided an example of a facility that replaces an older boiler with a new, more efficient, boiler that burns a cleaner fuel. The commenters requested that EPA allow new units to participate in the bubble if they replace higher emitting units. Commenters (499, 536, 482, 413) supported bubbling and suggested that the rule could be made even more flexible by allowing compliance to be demonstrated across the entire facility, rather than on a unit-by-unit basis. The commenter (499) stated that the approach adopted by Congress and EPA to evaluate the public health and welfare concerns related to the emissions of hazardous air pollutants is to examine cumulative emissions from the entire facility, not just individual sources. One commenter (499) stated that since the sources are evaluated for total emissions from the facility, it is entirely consistent that the regulated community have the flexibility to adopt innovative "facility-averaging" compliance programs that embrace "bubbling" within the limits of the definition of the term "major source." One commenter (413) added that facility-wide or unit-specific standards result in the same amount of HAP being emitted by the facility and from a public health perspective there is no difference between the approaches. The commenter (413) concluded that a facility-wide limit provides greater operational flexibility. **Other** commenters (449, 524, 533, 388, 498, 400, 447, 519) 417) stated that EPA should allow **cross-category** bubbling, as in the MACT standards for chemical recovery combustion sources at pulp and paper mills (40 CFR part 63, subpart MM). This would allow the most flexible, cost-effective method for meeting the proposed rule's standards. The commenter (417) also suggested that EPA should allow **regional bubbling** among municipal utilities in a common geographical area, even if they do not share a common ownership or operation. The commenter (417) also suggested that EPA should adopt the bubbling that allows maximum choice in meeting the overall MACT standard. The commenter believes that source owners should be able to choose among a number of different compliance options to achieve the environmental benefit at the lowest cost. Including bubbling as an option in the final rule would help achieve that objective. Another commenter (536) supported bubbling across the community to allow utility boiler, industrial boiler and commercial boiler operators to "bubble" in order to reduce mercury and other metals in a cost-effective manner. However, one commenter (340) supported bubbling only if the bubble is limited to a single facility instead of multiple facilities. One commenter (393) strongly supported offering a bubbling compliance alternative, but questioned why this alternative should be limited to existing boilers and process heaters within the same subcategory.

Two commenters (512, 529) do not support the creation of a bubbling compliance option under this NESHAP because the commenter believes that it would not fit within the CAA mandate and is inconsistent with the purpose of section 112. The commenter argued that if a source can reduce its HAP emissions below the required level of the MACT standards, then further reduction should be included in EPA's evaluations of the maximum degree of reduction available and be used in a beyond the floor determination. The commenter noted that the air toxics program has not managed to prevent toxic air pollution from remaining on the most significant health and environmental problems in the U.S. and urged EPA to require compliance

on a unit by unit basis and not pursue the bubbling compliance option. One commenter (529) pointed out that add-on control devices cannot be used for bubbling emission units because the operating limit for each control device is determined based on equipment tests, and fuel tests are applicable only to the tested equipment. Using bubbling compliance, a facility could burn a fuel surpassing the chlorine emission limit, but average the results with those of other fuels and still show compliance. The commenter believes that compliance determination and public health could be sacrificed by a bubbling option.

Response: The final rule includes an emissions averaging compliance alternative because we believe that emissions averaging represents an equivalent, more flexible, and less costly alternative to controlling certain emission points to MACT levels. We have concluded that a limited form of averaging could be implemented and not lessen the stringency of the standard. We agree with the commenters that some type of emissions averaging would provide flexibility in compliance, cost and energy savings to owners and operators. We also recognize that we must ensure that any emissions averaging option can be implemented and enforced, will be clear to sources, and most importantly, will achieve no less emissions reductions than unit by unit implementation of the MACT requirements.

The final rule is not the first NESHAP to include provisions permitting emission averaging. The legal basis and rationale for emissions averaging were provided in the preamble to the final Hazardous Organic NESHAP (59 FR 19425, April 22, 1994). In general, EPA has concluded that it is permissible to establish within a NESHAP a unified compliance regimen that permits averaging across affected units subject to the standard under certain conditions. Averaging across affected units is permitted only if it can be demonstrated that the total quantity of any particular HAP that may be emitted by that portion of a contiguous major source that is subject to the NESHAP will not be greater under the averaging mechanism than it would be if each individual affected unit complied separately with the applicable standard. Under this rigorous test, the practical outcome of averaging is equivalent in every respect to compliance by the discrete units, and the statutory policy embodied in the MACT floor provisions is, therefore, fully effectuated.

The EPA has generally imposed certain limits on the scope and nature of emissions averaging programs. These limits include: (1) no averaging between different types of pollutants, (2) no averaging between sources that are not part of the same major source, (3) no averaging between sources within the same major source that are not subject to the same NESHAP, and (4) no averaging between existing sources and new sources.

The final rule fully satisfies each of these criteria. Accordingly, EPA has concluded that the averaging of emissions across affected units permitted by the final rule is consistent with the CAA. In addition, EPA notes that the provision in the final rule that requires each facility that intends to utilize emission averaging to submit an emission averaging plan provides additional assurance that the necessary criteria will be followed. In this emission averaging plan, the facility must include the identification of (1) all units in the averaging group, (2) the control technology installed, (3) the process parameter that will be monitored, (4) the specific control technology or pollution prevention measure to be used, (5) the test plan for the measurement of particulate matter (or selected total metals), hydrogen chloride, or mercury emissions, and (6) the operating parameters to be monitored for each control device. Upon receipt, the regulatory authority will not approve an emission averaging plan containing averaging between emissions of different types of pollutants or between sources in different subcategories.

The final rule excludes new affected sources from the emissions averaging provision. New sources have historically been held to a stricter standard than existing sources because it is most cost effective to integrate state-of-the-art controls into equipment design and to install the

technology during construction of new sources. One reason we allow emissions averaging is to give existing sources flexibility to achieve compliance at diverse points with varying degrees of add-on control already in place in the most cost-effective and technically reasonable fashion. This concern does not apply to new sources which can be designed and constructed with compliance in mind.

Only existing large solid fuel units, as defined in the final rule, can be included in the emissions averaging compliance alternative. Of the nine subcategories established for existing sources, existing large solid fuel units is the only subcategory for which multiple HAP emissions limits apply. For the existing small solid fuel subcategory and the six existing gaseous and liquid fuel subcategories, no HAP emissions limits are included in the final rule and, thus, it would not be appropriate to allow these units to average emissions. As for the existing limited use solid fuel subcategory, since these units, as defined in the final rule, operated on a limited basis (capacity factor of less than 10 percent) and are subject only to a less stringent PM emissions limit (as a surrogate for non-mercury metals), we believe it would be inappropriate to allow these units to average emissions.

As for comments regarding the inclusion of new units in the emissions averaging, as stated previously, no averaging can be permitted between existing sources and new sources since new sources have historically been held to a stricter standard than existing sources.

With concern about the equivalency of emissions reductions from averaging and non-averaging in mind, the Administrator is also imposing under the emission averaging provision caps on the current emissions from each of the sources in the averaging group. The emissions for each unit in the averaging group would be capped at the emission level being achieved on the effective date of the final rule. These caps would ensure that emissions do not increase above the emission levels that sources currently are designed, operated, and maintained to achieve. In the absence of performance tests, in documenting these caps, these sources will documented the type, design, and operating specification of control devices installed on the effective date of the final rule to ensure that existing controls are not removed or lessen. By including this provision in the final rule, the Administrator has taken yet another step to assist in ensuring that emission averaging results in environmental benefits equivalent or better over what would have happened without emission averaging.

We believe the inclusion of emissions averaging into rules and the decision on how to design an emission averaging approach for a particular source category must be evaluated for each source category.

# 16.0 Administrative Requirements

## 16.1 Executive Order 12866

Comment: One commenter (536) contended that EPA failed to complete requirements of Executive Order 12866 to provide special consideration for government entities when examining the impacts of compliance on equity concerns. The commenter added that EPA is directed to minimize those burdens that uniquely or significantly affect such government entities, whenever possible. The commenter provided examples of the impact of Unfunded Mandates on a local power system.

Response: Under Executive Order 12866, EPA must determine whether a regulatory action is "significant" and therefore, subject to review by the Office of Management and Budget (OMB). As discussed in the preamble to the proposed and final rule, EPA determined that the boilers NESHAP is a "significant" regulatory action and the rule was reviewed by OMB. We responded to concerns raised by OMB and the final rule reflects those concerns. Therefore, we disagree with the commenters and assert that we completed the requirements of E.O. 12866. For a discussion of how EPA minimized the impacts on government entities, see sections 16.3 and 16.4 of this document.

## 16.2 Paperwork Reduction Act

Comment: One commenter (371) claimed that small combustion units, curing ovens, forming ovens, degreaser tank heaters, autoclaves, and similar heaters would be all be burdened with unnecessary paperwork, including notification, recordkeeping, and reporting requirements. Specifically, these units would be subject to operation and maintenance requirements and startup, shutdown, and malfunction planning and reporting. Most of these units are operated intermittently and/or for short periods of time as needed and may start up and shut down several times a day. The commenter estimated that tracking would require approximately 1400 labor hours the first year, and approximately 800 hours per year thereafter. The commenter noted that under the Paperwork Reduction Act, all federal agencies were expected to reduce their reporting burden by 40 percent between 1995 and 2000. The commenter claimed that during that time, EPA's reporting burden increased.

Response: The EPA expects that most of the units cited by the commenters are less than 10 MMBtu, and most likely, are gas-fired. In the final rule, these units have minimal requirements. Although all units affected by the final rule must submit an initial notification, units that do not have emission limits or work practice standards are not required to prepare an SSM plan. We documented the paperwork burden for all affected facilities in the Standard Form 83-I Supporting Statement for ICR No. 2028.01 (www.epa.gov/icr).

## 16.3 Small Business Regulatory Enforcement Fairness Act

Comment: One commenter (536) contended that EPA failed to comply with the Small Business Regulatory Enforcement Act of 1996 in identification of small business alternatives recognizing that public power systems are clearly different from the rest of the boilers in the proposed rulemaking. The commenter contended that EPA overlooked municipal utilities when they certified that the proposed rule would not have a significant impact on a substantial number of small entities.

Response: The EPA complied with the analytical requirements with SBREFA. Our small entity analysis calculated impacts to small municipal utility boilers that will be affected by the final rule. We considered the Small Business Administration (SBA) small business size standard appropriate to this type of entity (owned by a community with 50,000 or less

population) in designing and preparing our analysis. A detailed discussion of the economic impact analysis for the proposed rule appears in the Boilers NESHAP.

**16.4 Unfunded Mandates Reform Act**

Comment: One commenter (480) contended that EPA has failed to provide adequate outreach efforts for municipal governments or adequate opportunity for their input in the early phase of the rulemaking. The commenter asserted this failure violates the letter and spirit of UMRA. The commenter was unable to find evidence of any pre-proposal input with the government entities directly affected by the rule. The commenter also disagreed with EPA's assertion that State and local air pollution control entities are not affected by the proposed rule. The commenter objected to the limited and late input for government entities considering the time lines for this and other rules, including the ICCR, being in development for over 8 years.

Response: The EPA did provide outreach to municipal governments as part of the Industrial Combustion Coordinated Rulemaking (ICCR) process. This outreach, which took place over a period of several years prior to proposal, was part of a larger effort to obtain public input for this rulemaking and two others (stationary combustion turbines, reciprocating stationary internal combustion engines). The outreach to municipalities, among other factors, led EPA to develop the subcategory for limited use units that became part of the final. Thus, EPA disagrees with the commenter's assertions.

Comment: Several commenters (373, 378, 398, 421, 422, 429, 435, 469, 470, 471, 472, 481, 506, 509) emphasized their concern that EPA failed to identify and propose regulatory alternatives for smaller businesses and those local governments with extensive economic impacts from Unfunded Mandates. The commenters asserted that EPA has an obligation to recognize the unique circumstances including small business impacts, Unfunded Mandates impacts to local governments, and energy reliability concerns consistent with the president's Executive Order on energy. Other commenters (536, 480) contended that EPA failed to meet its UMRA obligations to consider and adopt the least costly and least burdensome alternative for municipal utilities.

Response: The EPA proposed the MACT floor level of control for this rule. We believe that this is the least stringent, and thus, least burdensome alternative that is consistent with the requirements of the Clean Air Act. We believe this is true for small entities as well as large entities based on the results of our analysis. The MACT floor level of control, as discussed the preamble to the proposed and final rule, is based on existing technology as defined in the Clean Air Act, and not on cost and economic impacts. In developing the rule, we considered our obligations under UMRA and by establishing the MACT floor level of control, the final rule is the least stringent alternative and the least burdensome to local governments and municipal utilities, while still consistent with the requirements of the Clean Air Act.

The EPA will submit an Unfunded Mandates Reform Act report in order to provide impacts to small governments and municipal utilities separate from the economic impact analysis. Therefore, these impacts are more clear than at proposal. Note that these impacts are estimated in the larger economic impact analysis currently in the public docket.

Finally, we considered the effect on energy reliability resulting from implementation of the boilers NESHAP in the energy impact analysis–an analysis done in compliance with Executive Order 13211 (Statement of Energy Effects). We determined that energy reliability at municipal utilities would not be adversely affected as part of the energy impact analysis, which is a part of the larger economic impact analysis.

Comment: One commenter (480) questioned whether EPA's cost/benefits analysis

accurately reflects the impact of the proposed rule on municipally owned utilities. The commenter disputed EPA's estimation that only ten small firms will have compliance costs over 3 percent of their sales. The commenter provided cost and revenue projections showing their costs to comply with the proposed rule are 40 percent of its annual operating revenues. The commenter requested EPA to reflect this impact in the analysis for the final rule, and to provide flexibility in the regulatory alternative selected for municipal utilities. The commenter was unable to locate an analysis of available federal funding in the proposed rule which is required by UMRA. The commenter was also unable to locate any support for EPA's conclusion that there will not be any disproportionate budgetary effects of the proposed rule on any particular areas of the county, State, or local governments, types of communities, or particular industry. The commenter contended that such analysis should address the unique impacts of the proposed rule on energy supply in communities with municipally owned utilities. The commenter contended that while the rule may not affect national energy supply, it will have a significant impact on local energy supply.

One commenter (534) stated that the standards established by EPA for rules proposed under the Clean Air Act require that cost be a consideration, particularly with regard to the Unfunded Mandates Reform Act of 1995. The commenter stated that the proposed rule would force sources to comply with unfunded regulatory mandates by retrofitting existing systems within the limits of known, reliable technology. In addition, the commenter stated that EPA has understated the cost to retrofit existing units.

Response: We identified entities affected by the boilers NESHAP based on the data available in the ICCR inventory. We also collected cost data as part of the economic impact analysis. Using information from the two data sets, we established cost to revenue ratios to estimate small entity impacts. Note that the costs used in calculating these ratios are *annual* compliance costs, not capital compliance costs. Both EPA and SBA guidance specify annual compliance costs that in developing such estimates. The commenter appears to use the capital costs of compliance to prepare its comparison of costs to revenues, which leads to an inconsistent and incorrect comparison.

We responded to municipalities' requests for considerations of their circumstances by developing the subcategory for limited use units that became part of the proposed rule. Thus, EPA provided flexibility to municipalities to help them comply with the rule. We expect the requirements for limited use boilers and process heaters to mitigate effects upon local energy supply that may occur as a result of compliance with the rule, if such effects occur. The commenter supplies no data to support its assertion of significant effects on local energy supply.

Regarding cost to retrofit existing units, we calculated control costs using the most up-to-date information and cost algorithms available to EPA. Details of the costs can be found in the economic impacts analysis in the Boilers NESHAP docket. We recognize that the costs for some facilities may be higher and others may be lower, but believe the costs reflect an accurate assessment of the national impacts of the final regulation.

Comment: Commenters (480, 536) contended that EPA failed to develop a small government agency plan required under section 203 of UMRA. One commenter (536) contended that because EPA did not accurately assess the effects of the rule on small governments, it concluded that a Small Government Agency Plan was not necessary. Another commenter (480) asserted that the proposed rule concluded without explanation that it will not significantly or uniquely affect small governments, therefore, a plan was not developed. However, the commenter contended that this decision is in contrast to EPA also deciding that there would be a significant impact on public and private entities. The commenter contended

that the costs for municipal utilities alone may exceed $100 million. The commenter added that EPA failed to make an adequate analysis of these costs and determine the true impact of the rule under section 203. The commenter also added that section 203 was intended to provide unique protections to small governments, which have significantly smaller budgets than most entities covered by the rule. The cost for municipal utilities is significant and unique and dictate that a small government agency plan should have been developed. Commenter (536) added that by neither preparing the plan or consulting with in-scope governments, EPA has stripped the affected communities of their statutory protections.

Response: We disagree with the commenter's assertion that costs for municipal utilities alone for complying with this proposal may exceed $100 million. We believe the limited use category established as part of the proposed rule will serve to reduce the potential impact to these entities. In addition, we believe the analysis of impacts to small governments is adequate, and that it fully complied with the provisions of UMRA. We will, however, prepare an Unfunded Mandates Reform Act analysis to clarify the expected impacts of the boilers NESHAP upon municipalities.

**16.5 Executive Order 13211**

Comment: One commenter (536) contended that EPA failed to consider energy impacts to the national grid and regional energy networks as required under Executive Order 13211. The commenter added that EPA did not consider how the elimination of local coal-fired municipal generating units could affect the availability of reactive power in sections of the grid that depend upon local generation to ensure the stable and reliable transmission of electricity.

Response: We do not believe the elimination of local coal-fired municipal generating units is likely to occur as a result of rule implementation. The commenter does not provide any evidence to indicate that this will occur in its submittal. Also, the estimated small increase in electricity prices and reduction in electricity output is evidence that the national power grid is not likely to be adversely impacted by the final boilers NESHAP. The same conclusion applies to regional energy networks.

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# 17.0 Miscellaneous

## 17.1 General Provisions

Comment: One commenter (529) requested adding the text "You must conduct all performance tests according to the requirements in this subpart and §§63.7(c), (d), (f), and (h)" to the first sentence of §63.7520(a).

Response: We have included the suggested text to the final rule.

Comment: One commenter (491) stated that EPA should indicate whether industrial boilers and process heaters are subject to the provisions of §§63.7(e)(4), 63.8(c)(5), and 63.8(c)(6). The commenter (491) stated that in Table 10 to subpart DDDDD, EPA indicates that §63.6(h)(5) (dealing with visible emissions/opacity tests) is not applicable to industrial boilers and process heaters. Therefore, the commenter suggested that EPA indicate in Table 10 that §63.9(f), §63.9(h)(1) through (6), and §63.10(d)(3) are not applicable to industrial boilers and process heaters to be consistent with its proposed determination that §63.6(h)(5) does not apply to the boilers NESHAP.

Response: We have included the sections that the commenter has requested clarification in the final rule General Provision applicability table, Table 10.

Comment: One commenter (491) stated that the inclusion of provision §63.10(b)(2)(xiii) is inconsistent with EPA's determination for §63.8(f)(6) and should not be applicable to industrial boilers and process heaters.

Response: We agree with the commenter's assertion and have made §63.8(f)(6) not applicable to industrial boilers and process heaters

Comment: One commenter (491) stated that §63.6(h)(7)(i) and (iii) of the General Provisions requires the owner or operator to submit continuous opacity monitoring system data with other performance test data and to reduce continuous opacity monitoring system data to 6-minute averages. The commenter stated that this requirement makes no sense if a boiler is equipped with a fabric filter. The commenter stated that both the initial and continuous compliance demonstration requirements in the boilers NESHAP for boilers equipped with fabric filters rely on the installation and operation of a properly calibrated bag leak detection system. The commenter stated there are no requirements for opacity data in either the initial or continuous compliance demonstrations. The commenter stated that there is no point installing and operating a continuous opacity monitoring system or reporting the data with the other performance test data or reducing the data to 6-minute averages since the boilers NESHAP makes no use of this data. The commenter requested that EPA clarify that §63.6(h)(7)(i) and (iii) do not apply to boilers equipped with fabric filters.

Response: In the final rule, we have provided the option for units that operate with fabric filter control to use either a bag leak detection system or an opacity monitoring system (if they do not have additional wet controls). Since this is clearly addressed in the rule, we do not believe there is any reason to change the applicability of this General Provision section to affected sources under this NESHAP. If they use a COMS to demonstrate compliance they will have to follow this requirement, and if they use a bag leak detection system, they will not have to follow this requirement.

Comment: One commenter (491) stated that Table 10 to subpart DDDDD fails to

mention amendments to Subpart A that were promulgated on April 5, 2002 at 67 FR 16603. The commenter requested that Table 10 be corrected to address the amendments.

Response: Table 10 to subpart DDDDD in the final rule accounts for recent revisions to the General Provisions. Citations in the final Table 10 refer to the most current General Provisions, thus it is not necessary to note which amendments are incorporated.

Comment: One commenter (491) stated that §63.7(a)(2) and §63.7(a)(2)(ix) of the General Provisions provide 180 days after the compliance date or 180 days after startup of the source to demonstrate compliance for existing or new industrial boilers or process heaters in a number of different situations. The commenter stated that EPA failed to address the applicability of §63.7(a)(2), as amended April 5, 2002, and determined that the provisions of §63.7(a)(2) should not apply.

One commenter (529) suggested that if amendments to Subpart A and B (67 FR 72875) are promulgated, §63.7505(d) should be reworded to require submission of the SSM plan in accordance with the final amendments to Subpart A to Part 63.

Response: In the final rule, we allow sources 180 days after startup or the applicable compliance date to conduct a performance test and believe that this addresses the commenter's concern. With regard to the SSM provisions, in the final rule we still reference §63.6(e)(3) in the General Provisions for requirements for a SSM plan. Therefore, the reference implies that the most current version of the SSM requirements in §63.6(e)(3) be followed.

### 17.2 Editorial Corrections

Comment: One commenter (529) pointed out that although §63.7520 (g) and (h) refer to test methods promulgated in "this part" (i.e., part 63), those methods are actually promulgated in part 60. One commenter (491) stated that compliance cannot be determined when test methods are not properly cited. The commenter stated that they believe EPA means for the test methods specified in §63.7520(g) and (h) to be the methods in 40 CFR part 60, appendix A and not in appendix A in 40 CFR part 63.

Response: We revised the final rule to refer to part 60, rather than part 63.

Comment: One commenter (529) mentioned that the monitoring requirements for liquid scrubbers are missing from §63.7525, where they are shown for other MACT floor controls.

Response: In §63.7525, we outline the monitoring requirements by the type of monitoring device (e.g., pressure, flow, pH, etc.) and not by the type of emission control device. Since the monitoring requirements for a liquid scrubber are flow, pressure, and pH (for hydrogen chloride), the monitoring requirements for liquid scrubbers are addressed.

Comment: One commenter (491) suggested that §63.7540(a) should be clarified as follows:

> §63.7540(a) You must demonstrate continuous compliance with each emission limit, operating limit, and work practice standard in Tables 1 through 3 to this subpart that applies to you by following the methods specified in ...

Response: We have clarified the language in §63.7540(a) to be more specific and believe that this will address the commenter's concern.

Comment: One commenter (529) requested correction of the applicability of

§§63.6(h)(4) through (6), which are referred to in §63.7545(a), but shown as not applicable in Table 10 to subpart DDDDD.

Response: We have removed the reference to Section §63.6(h)(4) through (5) in §63.7545(a) as it regarding notification of opacity or visual emission observations. Since this rule relies on continuous compliance (e.g., COMS, fabric filter leak detection systems, etc), this notification is not applicable. We have also noted this in Table 10.

Comment: One commenter (529) pointed out that reporting requirements are scattered throughout the proposed boilers NESHAP. The commenter asked that the requirements for test reports and SSM immediate reports be added to both §63.7550 and Table 9 of subpart DDDDD.

Response: In the final rule, §63.7550 contains reporting requirements and Table 9 summarized the reporting requirements, including the SSM immediate reports required in by §63.10(d)(5).

Comment: One commenter (491) stated that the terms used in §§63.7570(c)(3) through (c)(5) should be consistent with the usage in the referenced citations. The commenter stated that §63.90 defines "major change to test method," "major change to monitoring," "major change to record keeping/reporting," and §§63.7(f), 63.8(f), and 63.10(f) refer, respectively, the use of an "alternative test method," to "use of an alternative monitoring method," and to waiver of record keeping or reporting requirements. The commenter requested that EPA clarify the rule and provided language to address their issue.

Response: The final rule incorporates the consistent terminology as found in §63.90.

Comment: One commenter (369) suggested that Tables 1 through 7 to subpart DDDDD be revised to either clarify which requirements are applicable to affected sources that have control combinations that fall into more than one scenario described in the column entitled "that is controlled with..."or redefine the control combination scenarios so that they are mutually exclusive. The commenter also suggested that EPA make sure that applicable requirements broaden combination scenarios (e.g., other than wet or dry scrubbers, fabric filters alone or in combination with...) are comprehensive.

Response: Since proposal, we have significantly revised the Tables for subpart DDDDD to be more user-friendly and to address control devices on a singular basis, instead of providing a few combination scenarios. We believe that these changes address the commenter's concern.

Comment: One commenter (369) suggested that Tables 1 through 9 to subpart DDDDD be revised to clearly show which units are not subject to the requirements in that table. The commenter remarked that the tables are not designed to allow someone to quickly determine all of the requirements that apply to a specific boiler or process heater. One commenter (369) suggested that 40 CFR 63 subpart DDDDD Table 4A, and Table 4E, column 1, rows 1 and 2 be revised to clarify that existing boilers and process heaters in the small solid fuel subcategory are not subject to the performance testing requirements. The commenter proposed revised language changes.

Response: The final boilers NESHAP clarifies that some boilers and process heaters have fewer requirements than others. We added a new question heading at §63.7506 to identify units that are subject to the emission limits and applicable work practice, but do not demonstrate compliance through performance testing.

Comment: One commenter (369) requested that Table 1 to subpart DDDDD be revised

to include the applicable carbon monoxide emission limits, which are described later in Table 3 to subpart DDDDD.

Response: At proposal, Table 1 was intended to only list emission limits for regulated pollutants. Table 3 was intended to list work practice standards. The CO emission standards are work practice standards and not emission limits. We recognized that many commenters were confused about the requirements for CO, particularly monitoring and exceedance requirements. The CO requirements of the final rule have been clarified. See §63.7510 regarding work practices for further discussions of the CO work practice. For the final rule, EPA simplified the tables and Table 1 contains both the work practice standards and emission limits.

Comment: One commenter (491) suggested the following table changes:
The work practice standard in both rows of the second column of Table 3 should be changed as follows, "***the procedures in §63.7525(a) and maintain carbon monoxide emissions ***".

In Table 9, the requirements "Semiannually according to the requirements in §63.7550(b)" should be repeated for 1.b, 1.c, and 1.d instead of stating "See item 1.a of this table."

Response: The final rule combines the emission limits and work practice standards in Table 1 of subpart DDDDD. As a result, initial and continuous compliance appear in sections §§63.7510 and 63.7540, respectively. In addition, we revised Table 9 to clearly require items 1.b, 1.c, and 1.d semiannually according to the requirements in §63.7550(b).

Comment: One commenter (529) asked that the emission standards be cited in both metric and English units in Table 1 of Subpart DDDDD.

Response: We have not cited emission standards in both metric and English units. We have retained the English unit approach in the final rule to avoid duplication of emission limits.

Comment: One commenter (529) pointed out that the equations used to calculate fuel input operating limits are inconsistent with the standards in Table 1. The operating limit is calculated in lb/BTU and the emission limits are in lb/MMBtu.

Response: In the final rule, we have modified the equations for calculating fuel input operating limits to be consistent with the emission limits in Table 1, in units of lb/MMBtu.

Comment: The commenter (492) recommended the following editorial revisions: In Table 1 of the preamble, Emission Limits and Work Practice Standards for Boilers and Process Heaters, on page 1666, an error exists on control of liquid fuel, small units. The 0.0009 limit should apply to Hydrogen Chloride and not Total Selected metals.

Response: We agree with the commenter and made the correction in the preamble to the final rule.

Comment: One commenter (369) requested that column 2 of proposed 40 CFR 63 subpart DDDDD Tables 4.A through 4.E, 5.B and 5.D be revised by changing "Any type of device" to "No control or any type of control device" where the corresponding requirements should also apply to uncontrolled affected sources.

Response: We have significantly revised the tables to subpart DDDDD since proposal to provide more clarification of the compliance responsibilities for source with no control or control devices not listed in the tables. We believe that the promulgated changes should address the commenter's concern.

Comment: One commenter (369) suggested that row 1 column 1 of 40 CFR 63 subpart DDDDD Tables 4.A, 5.A, and 7.A be revised if solid fuel affected sources that choose to comply with the total selected metals limit instead of the particulate matter limit are not supposed to be subject to the initial PM performance test, the initial PM compliance requirements for PM, or the continuous monitoring requirements that vary depending on the control device used (opacity, pH, etc.), respectively.

Response: Since proposal, we have significantly modified the tables for subpart DDDDD and believe that the promulgated changes will address the commenter's concern.

Comment: One commenter (369) requested that row 3 column 1 of proposed 40 CFR 63 subpart DDDDD Table 4.E be revised if solid fuel affected sources rated greater than 250 MMBtu/hr heat input that choose to comply with the total selected metals limit instead of the particular matter limit are not supposed to be subject to both the initial total selected metal performance test using Method 29 (required by proposed Table 4.A, row 2 and results include mercury) and the initial mercury performance test using Draft ASTM Z65907.

Response: In the final rule, we do not require units larger than 250 MMBtu/hr to use the ASTM method for mercury performance tests. Since all sources have the choice of using either EPA Method 29 or the ASTM method, this addresses the commenter's concern.

Comment: One commenter (362) found data in Tables 5.A and 5.E (initial compliance) and Table 7.A (continuous compliance) to be inconsistent. The commenter noted the EPA did not give an option allowing facilities to demonstrate continuous compliance with the emission limitations mercury emissions without controls or an add-on control for which a facility does not wish to take credit for reductions. If the initial compliance is demonstrated on the basis of mercury emissions and calculation by Equation 2 instead of performance stack test, then there is no "performance test". The commenter recommended the EPA change the wording in table 7.A, item 3 and 6, and give the option of demonstrating compliance on the basis of mercury emissions and calculation by Equation 2, then same manner as demonstrating initial compliance in Table 5.A items 3 and 6.

Response: The final rule was revised to clearly indicate that source can demonstrate compliance through fuel sampling or performance testing. Furthermore, the significant revisions to the tables in final rule should provide greater clarity with regard to compliance requirements.

Comment: One commenter (413) noted there were several errors in Table 5.A. The commenter contended that the values presented in the third and fourth pages of the table appear to be emission limits for the limited use solid fuel category instead of the large solid fuel category. Additionally, the commenter stated that the PM standard on 68 FR 1736-37 is 0.21 per MMBtu heat input whereas the PM standard in Table 1 for limited use solid boilers is 0.2. The commenter also questioned in Table 5.A, page 1736, whether the (e)-(h) controls really supposed to be (a)-(d) for limited use boilers.

Response: We revised the tables of the final boilers NESHAP to simplify the presentation of requirements. We expect the new table format will eliminate the type of errors pointed out by the commenter.

Comment: One commenter noted several typographical errors in Table 10 of subpart DDDDD. Under the entry for §63.10(a), "vx" be "vs." In Table 10, under the entry for §§63.7(a)(2)(i)-(vii), these citations are reserved sections. In Table 10, entry for §63.8(c)(1)(ii), the citation pertains to spare parts rather than reporting requirements SSM when action is not

described in the SSM plan. In Table 10, entry for §63.8(c)(1)(iii), the citation pertains to SSM plans for CEMS rather than compliance with operation maintenance requirements. In Table 10, entry for §63.10(c)(1)-(6), (9)-(15), the citations for (c)(2), (3), (4) and (9) are reserved sections.

Response: We revised Table 10 of subpart DDDDD in the final boilers NESHAP to correct the discrepancies pointed out by the commenter.

Comment: One commenter (491) suggested that in Table 10 of subpart DDDDD, the fourth column heading "Explanation" be changed to "Applicable to Subpart DDDDD." Another commenter (434) stated that Table 10 of subpart DDDDD is confusing. The commenter suggested that the heading "Explanation" be changed to "Applicable" so that the Yes/No answers in that column make more sense.

Response: In the final rule we have changed the fourth column heading to "Applicable" to avoid any confusion.

Comment: One commenter (347) believes the presentation of the rule is unclear and recommends that the requirements of the proposed boiler MACT be set forth in the preamble, not in the rule text.

Response: Since proposal, we have made many revisions to provide greater clarification of the rule requirements. As the preamble is not codified in the Code of Federal Regulations (CFR), we cannot put the requirements of the NESHAP in the preamble, they must remain in the regulation itself.

Comment: One commenter (491) stated that deleting the comma after "including any operating limit" in the last sentence helps clarify the requirement in §63.7550(f).

Response: We revised §63.7550(f) to clarify that if the compliance report includes all required information concerning deviations from any emission limit, operating limit, or work practice requirement in this subpart, submission of the compliance report satisfies any obligation to report the same deviations in the semiannual monitoring report. However, submission of a compliance report does not otherwise affect any obligation the affected source may have to report deviations from permit requirements to the permit authority.

Comment: One commenter (491) requested that EPA explain and clarify what it means by the phrase "and the supplier(s) and original source location(s)" in §63.7555(d)(1).

Response: In the final rule, we address fuel monitoring and sampling by fuel type. Therefore, discussion of fuel supplier or location has been removed.

Comment: One commenter (352) noted that following standards referenced have been updated: D388-77 is now D 388-99; D396-78 is now D 396-02a; D1835-82 is now D 1835-98. Also, z65907 is now ASTM standard D 6784-02. The commenter requested that EPA reference the latest version of these methods in the rule along with the rationale for the changes.

Response: We have worked to make sure all ASTM methods have been updated in the final rule and believe that the most current methods are the proper ones to use. However, as those methods will continue to be updated after this rule has been promulgated, you must receive permission from your permitting authority to use any updated methods because we are not going to provide technical corrections to this NESHAP each time an ASTM method is updated.

**17.3 Miscellaneous**

Comment: One commenter (424) requested that EPA provide emission information on

hexavalent chromium emissions from boilers if it is available.

Response: We do not present hexavalent chromium emissions from boilers under this NESHAP as we do not believe that we have sufficient data to provide an accurate estimate of those emissions.

# RISK-BASED COMPLIANCE PROVISIONS

## 18.1 PROGRAM ISSUES: GENERAL COMMENTS

### 18.1.1 Health-based approaches

Comment: Commenter IV-D-75 supported EPA's incorporation of risk-based concepts into the MACT Program. The commenter believes that providing risk-based applicability criteria for sources whose HAP emissions do not pose a significant risk is appropriate. The commenter added that risk-based alternatives will function as indirect emission limits that must be maintained by the facilities to assure that the criteria are met, and, thus, such alternatives for low-risk facilities are supportable by EPA's authority under §§ 112(d)(4) and 112(c)(9) of the CAA and EPA's inherent *de minimis* authority.

Commenter IV-D-75 stated that low-emitting facilities within the Surface Coating of Automobiles and Light-Duty Trucks (SCALDT) source category are particularly suited to subcategorization and delisting on the basis of risk. Many of the sources are well-controlled and can easily be distinguished from other facilities.

Commenter IV-D-34 believes that there is clear legal authority in the CAA to construct NESHAP based on risk, and such an approach is very appropriate in the case of the Industrial Boiler MACT. The commenter also noted that the regulatory framework exists within their State to implement such an approach.

Commenters IV-D-166 and IV-D-83 supported the use of risk-based applicability criteria to remove sources that do not pose significant risk.

Commenter IV-D-78 believes that there are ways to structure the rule to focus on facilities that pose significant risks and avoid imposition of high costs on facilities that pose little risk. An appropriate approach would be to allow individual facilities to conduct a risk assessment to show that it poses insignificant risks to the public.

Commenter IV-D-19 supported the concept that sources which present no or only minimal risk should not be burdened with the requirements of MACT. The commenter stated that EPA should structure the source category applicabilities such that a source with minimal or no risk may be excluded from regulation under a MACT standard. However, commenter IV-D-19 does not believe that it is appropriate for State and local programs to determine which facilities should be exempted from MACT.

Commenter IV-D-146 believes that the MACT standards should provide for operational flexibility and minimize costs while assuring achievement of specified emissions reductions. The commenter supported the use of risk-based compliance options as have been proposed in other MACT standards. The commenter thought it would be appropriate in some circumstances to consider risk in setting MACT standards.

Commenter IV-D-175 believes that a risk-based approach to MACT applicability constitutes sound public policy. The commenter supported EPA's recognition that regulatory priority should be given to sources that have been demonstrated, by the weight of credible scientific evidence, to pose the greatest threat to human health and the environment. The commenter noted that EPA has embraced risk-based decision making in other regulatory contexts, and encourages EPA to extend such an approach to the MACT promulgation process. The commenter believes that risk-based decision making can be as protective of human health and the environment as other regulatory approaches, and offers the additional benefits of cost-effectiveness and administrative efficiency.

Commenter IV-D-130 agreed with EPA that under certain circumstances it makes more

environmental and economic sense to proceed with a risk evaluation prior to the installation of costly controls. The commenter believes in achieving the goal of maximum environmental benefit in a sensible and logical manner which may mean something other than command and control. Risk-based exemptions would give individual facilities another option to demonstrate the actual risk, as opposed to assumed risk.

Commenter IV-D-72 stated that § 112 explicitly provides for a risk-based approach to regulating HAP. Failure to implement a risk-based approach would require facilities to expend tremendous resources to control emissions that "may not result in exposures which could pose an excess individual lifetime cancer risk greater than one in one million or which exceed thresholds determined to provide an ample margin of safety for protecting public health and the environment from the effects of hazardous air pollutants." From a public policy perspective, a health risk-based approach to implementing § 112 is appropriate so as to focus the EPA's limited resources on industries and emissions that pose unacceptable risks to public health.

Commenter IV-D-72 stated that the level of discretion provided to EPA by Congress under the CAA is consistent with allowing EPA to utilize any approach necessary to arrive at useful, meaningful, and productive regulations which are protective of public health. Nothing in the CAA requires EPA to regulate sources which are not posing an unacceptable risk to the public health or environment.

Commenter IV-D-72 added that gas-fired boilers and process heaters present a perfect opportunity for EPA to exercise its authority under either § 112(d)(4) to utilize a risk-based standard or § 112(c)(9)(B) to delist gas-fired units. The two (out of six) subcategories of gas-fired units for which EPA proposed emissions limits emit such a low level of HAP that EPA had to use CO to approximate the extent to which organic HAP might be emitted. In addition, most of the existing sources already are in compliance with the CO limit.

Commenter IV-D-61 agreed with and adopted the rationales of the referenced AF&PA white papers, and believes that EPA has the legal and statutory authority to implement a risk-based approach in the final rule pursuant to CAA § 112(d)(4) and the EPA's inherent *de minimis* authority.

Commenters IV-D-104, IV-D-26, and IV-D-150 supported the adoption of a risk-based option for complying with, or being exempt from, the Boiler MACT rule and believe that such an approach is within EPA's established authority under CAA §112. The commenters believe that such an option would allow a more rational, cost-effective, environmentally sound rule that complies with the health-protective purposes of the CAA.

Commenters IV-D-73 and IV-D-166 stated that allowing the use of the § 112(d)(4) provision within the source category could provide substantial cost-effectiveness benefits while, at the same time, providing protection to human health and the environment. However, the commenters believe that EPA must clarify in the final rule exactly how the provisions will be implemented.

Commenter IV-D-37 supported the use of CAA §112(d)(4). The commenter believes §112(d)(4) may be used to relieve the regulatory burden on small utility boilers and other specific subcategories of potentially affected sources.

Commenters IV-D-166 and IV-D-73 stated that based on the size and complexity of the boiler and process heater source category, it is doubtful that EPA could effectively use the risk-based provisions of § 112(c)(9) to delist a subset of the source category.

Commenter IV-D-184 supported EPA using the risk-based provisions of §§ 112(d)(4) and 112(c)(9) to target the regulatory process so that facilities focus on achieving meaningful reductions in emissions from air toxics in a cost-effective manner. The commenter recommended that EPA use prioritization techniques, applicability criteria, and risk based

standards to focus regulations on sources that pose significant risks. Sections 112(d)(4) and 112(c)(9) of the CAA embody this principle. The commenter believes that focusing on achieving reductions from sources of unacceptable risk is consistent with Congressional intent and makes good sense from a science policy standpoint.

Commenter IV-D-35 believes the final rule should offer sources the option of complying with a risk alternative such that the requirements of the rule do not apply to any source that demonstrates (based on a tiered approach that includes EPA-approved modeling of the affected source's emissions) that the anticipated HAP exposures do not exceed the specified hazard index (HI) limit. The commenter agreed that § 112 of the CAA provides for a threshold pollutant cutoff whereby sources emitting less than the threshold, with an ample safety margin, to demonstrate compliance by showing HAP emissions are below the threshold pollutant limit. The commenter stated that this CAA provision should be implemented in the final rule. Commenter IV-D-35 provided an example where a solid fuel source may have pollution control equipment that greatly reduces mercury emissions but is still not consistently below the 0.000007 lbs/MMBtu proposed limit. In the example, the source would be required to install, operate, and maintain additional pollution control equipment because mercury emissions exceed the proposed limit by 0.375 pounds per year (lbs/year) or 0.001 pounds per day (lb/day). The commenter asserted that the threshold pollutant cutoff limit should apply to all pollutants in the MACT rule.

Commenter IV-D-35 stated that as discussed in the proposal, low-risk facilities should be delisted from the final rule if they are in the appropriate subcategory. The commenter believes that establishment of low-risk subcategories is still protective of human health while minimizing impacts on the regulated community.

Commenter IV-D-35 stated that the compliance options EPA offers in the final rule do not have to be mutually exclusive. Compliance options should include a bubbling compliance alternative emission limit, the establishment of pollutant thresholds, and delisting. The commenter noted that multiple compliance options offer sources greater flexibility while still achieving the final goal.

Commenter IV-D-108 supported approaches to regulation that focus on exposures posing significant risks to human health and the environment, and removing low risk facilities from regulation. Specifically, the commenter supported the hybrid approach that is described in the Proposal—a combination of applicability thresholds and subcategorization and delisting. The commenter noted that under this approach, a subcategory would be made of those boilers and process heaters that do not pose significant risks and, subsequently, that subcategory would be delisted.

Commenter IV-D-73 commented on all issues with the risk-based off-ramp discussed in the preamble, but suggested that EPA concentrate on promulgating a risk-based emission standard for HCl for several reasons: (1) HCl is a threshold HAP that generally presents little risk to the public or environment when emitted from boilers/process heaters. The commenter cited the Chlorine Production and Pulp and Paper NESHAP. (2) Modeling submitted by the commenter shows that many facilities could benefit from a risk-based HCl standard and that it would be protective of human health and the environment. (3) Use of §112(d)(4) in the simple case of a threshold HAP would not be controversial. (4) Implementation issues with other approaches discussed in the preamble could be time-consuming and EPA is under a promulgation deadline. The implementation steps for a risk-based HCl limit are relatively straightforward (determine ample margin of safety threshold for HCl (and HF), establishing an emission limit based on look-up tables, and allowing source to comply). (5) Developing risk-based standards for other HAP-surrogate pollutants (e.g., CO, PM) raises difficult issues,

whereas HCl and HF are clearly covered with §112(d)(4). A risk-based standard for HCl is easily segregated from the standards for other HAP.

Commenter IV-D-123 believes that a risk-based compliance option under §112(d)(4) is particularly appropriate for HCl emissions. Such an approach would reduce the economic impact of MACT on the wood products industry and maximize environmental benefits by targeting only the HCl emissions from boilers that present a risk to human health and the environment. The commenter noted that available data suggest that many industrial boilers (especially wood-fired boilers) do not emit HCl in an amount that would exceed applicable health benchmarks. The commenter believes the potential costs savings range from $295 to $772 million (see pp. 24-25 of IV-D-123 for the commenters derivation of these cost estimates). The commenter supports EPA's acknowledgment that, absent risk-based mechanisms, the proposed Boiler MACT would require some facilities to incur significant costs to further control emissions that do not pose an excess individual lifetime cancer risk greater than $10^{-6}$.

Commenter IV-D-115 stated that they expect most of their wood panel plant solid fuel boilers to be able to meet the HCl standard without installing a scrubber (because they do not burn coal or store logs in salt water). However, they have one facility that may need a scrubber, and this facility could benefit from the risk-based compliance option for HCl.

Commenter IV-D-159 strongly supported the approach that if a facility can demonstrate that their emissions of HCl will not result in air concentrations above the inhalation reference concentration (RfC) for HCl, then EPA should exempt the HCl controls, even if the category is otherwise subject to MACT. The commenter believes that this approach will relieve a significant burden for facilities that can demonstrate that their emissions of HCl will not result in air concentrations above the inhalation RfC for HCl. Commenter IV-D-159 supported EPA's proposed approach to applicability cutoffs from HCl controls under CAA § 112(d)(4).

Commenter IV-D-45 supported the inclusion of applicability cutoffs for low risk sources of threshold pollutants such as HCl. The commenter supported this approach as good policy for reaching the stated goals of the statute by directly evaluating whether a source is adequately protective of human health and the environment for a given pollutant. The commenter submitted that this type of approach is clearly beneficial for pulp and paper mill sites where previous stack testing and modeling have demonstrated that current emission levels are protective. The commenter provided HCl modeling results from two coal/petroleum coke plus paper rejects fired cyclone boilers, a wood residual fired boiler plus two recovery furnaces (not in this source category) that showed a maximum ambient annual HCl concentration of 0.29 micrograms per cubic meter ($\mu g/m^3$). The commenter noted that this facility is a high emitter of HCl in the pulp and paper industry according to Toxic Release Inventory (TRI), yet the modeling results indicated that concentrations are orders of magnitude below the HCl health benchmark of 20 $\mu g/m^3$.

Commenter IV-D-186 supported the use of § 112(c)(9) to delist a subcategory and views it as an excellent mechanism to limit the costs and impacts of the rule to those facilities that actually need to be regulated to protect public health. Once EPA delists a subcategory, it should establish a procedure to evaluate petitions from other units that would like to be included in the delisted subcategory.

Commenter IV-D-10 encouraged EPA to pursue subcategory delisting proposed in preamble section IV.E.4.

Commenter IV-D-117 stated that EPA should consider delisting stationary combustion turbines as a source category under § 112(c)(9) of the CAA and 40 CFR 63 subpart C. Commenter IV-D-117 stated that recent studies indicate that HAP emissions from all small boilers in the United States represent a cancer risk of well below one in one million and the non-

cancer risks are well below levels EPA considers to protect public health with an adequate margin of safety. The commenter added that there are a number of benefits of delisting boilers and process heaters, including that delisting would free up agency resources for more pressing MACT issues.

Response: The EPA has determined that it can establish applicable health-based emission standards for HCl and Mn for affected sources in this category pursuant to its authority under § 112(d)(4) of the CAA. As a result, EPA has included such standards in the final rule as alternative compliance requirements for large solid fuel-fired boilers and process heaters. Under this approach, affected sources can choose to comply with either the MACT-based emission limits or the health-based emission limits. Sources which choose to comply with the health-based emission limit(s) will remain subject to those limits, but will need to comply with testing, monitoring and reporting requirements commensurate with the compliance option they have chosen. The EPA believes that such health-based standards are consistent with both the commenters' support for an approach that minimizes the impact on low-risk facilities and EPA's statutory mandate under § 112.

Section 112(d)(4) authorizes EPA to consider established health thresholds, with an ample margin of safety, when promulgating emission standards under § 112. HCl and Mn are two pollutants for which health thresholds have been established. Issues concerning our legal authority to establish health-based emission standards under CAA §112(d)(4) are discussed in more detail in section 18.2.

The criteria defining how affected sources demonstrate that they meet the threshold emissions levels for the health-based compliance alternative(s) is included in Appendix A of subpart DDDDD of 40 CFR part 63 (the final rule). The criteria in Appendix A of subpart DDDDD of 40 CFR part 63 were developed for and apply only to the Boiler and process heater source category and are not applicable to other source categories. The final rule provides two ways that an affected source may demonstrate compliance with the health-based emission limits. The first option is through the use of look-up tables which allow facilities to determine, using a limited number of site-specific input parameters, whether emissions from the affected source might cause a hazard index (HI) limit for non-carcinogens to be exceeded. The second option is a tiered site-specific modeling approach, which allows those affected sources that do not match the site-specific input parameters on which the look-up tables are based to demonstrate compliance with the health-based emission limits by modeling using site-specific information.

The affected source will have to demonstrate that it meets the criteria established by the final rule and then assume Federally enforceable limitations, as described in Appendix A of subpart DDDDD of 40 CFR part 63, that ensure their specified HAP emissions do not subsequently increase to exceed levels reflected in their eligibility demonstrations.

We are not using § 112(c)(9) for the boiler and process heater source category, and there is no delisting of categories or subcategories, as would be consistent with § 112(c)(9). We also are not relying on *de minimis* authority; additional discussion of *de minimis* authority is addressed in section 18.3. Bubbling and emissions averaging, as mentioned by one commenter, are discussed in another section.

For discussion of who will review eligibility demonstrations for the health-based compliance alternatives, see section 18.9.

One commenter also made reference to the SCALDT rule; we are not incorporating a risk-based option into the SCALDT rule. One commenter also mentioned Stationary Combustion Turbines. We are not including risk-based approaches in the final combustion turbines rule (which was signed by the Administrator in August 2003). However, we are

considering a petition to delist certain subcategories of combustion turbines. Once a final determination has been made concerning the delisting petition, we will promptly make any conforming amendments to the Stationary Combustion Turbines NESHAP which are warranted.

Comment: Commenters IV-D-123, IV-D-122, IV-D-62, IV-D-60, and IV-D-119 stated that a § 112(d)(4) risk-based emission limitation could be implemented in two ways: (1) by allowing sources whose emissions result in exposures that are below the applicable health benchmark for a given HAP to forgo installation of controls; or (2) by allowing sources, as an alternative to MACT controls, to control their emissions of a given HAP down to a level that maintains exposures below the applicable benchmark. Commenter IV-D-174 stated that a risk-based compliance option could be implemented by allowing sources to control their HCl emissions down to a level that maintains exposures below the health benchmark as an alternative to MACT controls. The commenters stated that EPA should include a compliance option for HCl that would allow facilities to forgo MACT control if they can show that at the point of greatest offsite impact (some of the commenters indicated at the fenceline or nearest receptor) HCl concentrations are not expected to exceed the Integrated Risk Information System (IRIS) RfC for HCl. For the Tier I screening model, HCl concentrations at "the point of greatest off-property impact" could not exceed the benchmark, while for refined modeling HCl concentrations at "the receptor of greatest off-property impact" could not exceed the benchmark. Site-specific enforceable permit limitation would ensure the emissions remain at low risk levels. If the source installs controls, the same initial compliance demonstration and continuous compliance monitoring used for MACT could be done. If controls are not required, then periodic monitoring of performance indicators (e.g., fuel quality, fuel throughput) could be required.

Commenter IV-D-61 stated that sources wishing to take advantage of the risk-based compliance option would take a federally-enforceable permit limit that would guarantee that their emissions remain below the risk-based emission standard. This would constitute an "emission limitation" - within the statutory definition of the term - and it would allow sources to forego the installation of incinerators where they are not warranted by public health and environmental considerations.

Response: The health-based compliance alternatives for HCl and Mn included in the final rule for one subcategory (large solid-fuel fired boilers and process heaters) are intended to avoid imposing unnecessary controls for emissions that pose little risk to human health or the environment. Affected sources will have to select controls or other methods of limiting risk associated with HCl and Mn, and then demonstrate, using Appendix A of subpart DDDDD of 40 CFR part 63 and other analytical tools, such as the "Air Toxics Risk Assessment Reference Library, Volume 2, Site-Specific Risk Assessment Technical Resource Document" (Air Toxics Risk Assessment Reference Library), if appropriate in a source's case, that their emissions do not exceed the health-based emission limits. The affected source will have to demonstrate that it meets the criteria established by the final rule and then assume Federally enforceable limitations, as described in Appendix A of subpart DDDDD of 40 CFR part 63, that ensure their specified HAP emissions do not subsequently increase to exceed levels reflected in their demonstration.

Comment: Multiple commenters opposed risk-based approaches (IV-D-113, IV-D-09, IV-D-148, IV-D-96, IV-D-06, IV-D-154, and IV-D-118).

Commenters IV-D-09 and IV-D-118 noted that the proposal to include risk-based exemptions is critically flawed and opposes adoption of the risk-based exemptions into MACT.

Commenter IV-D-148 stated that the inclusion of case-by-case risk-based exemptions

into the first phase of the MACT program will negate the legislative mandate and jeopardize the effectiveness of the national air toxics program to adequately protect public health and the environment and to establish a level playing field. Therefore, the commenter strongly disagrees with inclusion of risk-based exemptions in the MACT standard process. The commenter was very concerned that EPA referenced a fundamentally flawed interpretation of §112(d)(4) written by an industry (AF&PA) subject to regulation. Of particular concern was AF&PA's unprecedented proposal to include "*de minimis* exemptions" and "cost" in the MACT standard process.

Commenter IV-D-96 stated that in AF&PA's supplemental comments on the Brick and Structural Clay Products (BSCP) MACT, AF&PA attempted to rebut NRDC's position regarding the risk-based approaches. But AF&PA's vague and tortured explanation of how emissions limits for individual facilities would be established actually supports NRDC's position. MACT standards must be set by EPA and must be clear, known, and enforceable. The source-specific standard-setting process desired by AF&PA would give extensive discretion to private entities and States to establish Federal MACT standards and exemptions, and no precedent for this type of approach was provided by AF&PA or EPA (and none exists).

Commenter IV-D-154 is extremely concerned about the policy and technical implications of the risk-based exemption proposal. Because of the flaws with the proposal, the commenter is opposed to the adoption of the risk-based exemptions to MACT.

Commenter IV-D-05 stated the belief that the use of risk-based concepts to evade MACT applicability is contrary to the intent of the CAA and is based on a flawed interpretation of § 112(d)(4) of the CAA. The commenter added that the CAA requires a technology-based floor level of control and does not provide exclusions for risk or secondary impacts from applying the MACT floor. Commenter IV-D-05 stated that from a practical standpoint, the approaches (to risk-based exemptions) in the preamble are not appropriate.

Commenter IV-D-17 is opposed to risk-based exemptions discussed in the preamble and recommends that EPA expeditiously propose and promulgate the rule without such exemptions.

Commenter IV-D-14 is opposed to the risk-based exemptions and called upon EPA to promulgate the remaining technology-based MACT standards without the risk-based exemptions.

Commenter IV-D-141 believes that the risk-based exemption approaches described in the proposal preamble are not appropriate or workable. The commenter understood that the MACT standards were to be technology based and to have considered the best level of controls on existing boilers. The commenter noted that they operate two small (10.5 MMBtu/hr) firetube natural gas/propane fired boilers that would be covered by the proposed rule. A brief review by the commenter indicated that there were no controls for HAP on any boilers of the type at the commenter's facility anywhere in the United States. Therefore, Commenter IV-D-141 firmly believes that this type of boiler should be fully exempted from the proposed rules. The commenter pointed out that the CAA makes a provision for considering risk once the MACT standards are in place. The commenter believes it would not be appropriate to consider risk until after the MACT standards have been fully promulgated. (It should be noted that the commenter provided information regarding the insignificant risk associated with boilers of the size and type used at the commenter's facility.) The commenter also noted that the complexity of risk analysis would make its inclusion in the proposed rules very time consuming and extremely difficult to implement.

Commenter IV-D-96 stated that in separate rulemakings and lawsuits, EPA has adopted legal positions and policies that refute and contradict the very risk-based and cost-based approaches contained in the proposals. In these other arena, EPA has properly rejected risk

assessment to alter the establishment of MACT standards. EPA also has properly rejected cost in determining MACT floors and in denying a basis for avoiding the MACT floor. The commenter attached passages from several EPA briefs: Brief for Respondent Environmental Protection Agency, *Sierra Club v. EPA*; Brief for Respondent Environmental Protection Agency, *Cement Kiln Recycling Coalition v. EPA*, No. 99-1457 and consolidated cases, D.C. Cir.) (Jan. 18, 2001) (Attachment 1); Brief for Respondent Environmental Protection Agency, *National Lime Ass'n v. EPA*, 233 F.3D 625 (D.C. Cir. 2000) (July 14, 2000) (Attachment 3).

Commenter IV-D-154 stated that the preamble discussion of the risk-based approaches is not sufficient to allow for complete public comment and, therefore, it would not be appropriate for EPA to go directly to a final rule (without reproposal) with any of the approaches outlined in the proposal. The commenter recommended that the risk-based exemption proposal be dropped because it is unacceptable.

Commenter IV-D-10 agreed in principle with EPA's proposed plan to utilize applicability thresholds and risk assessment as an alternative to the proposed MACT limits and applauds EPA's effort to establish an alternative compliance method using risk assessment. However, the commenter felt that the methods being considered as part of the rule are far too complex to warrant detailed comments at this time. Consequently, the commenter requested that EPA draft language for the final Boiler MACT that allows utilization of this option without specifics. The commenter suggested that EPA should then proceed with development of additional rulemaking for review and comment that would provide the specifics and a structured approach for requirements a source would need to satisfy to perform a successful risk assessment.

Commenter IV-D-135 summarized Administrative Procedure Act issues. The commenter submitted that in many sections, EPA's proposal lacks sufficient detail so as to deprive the public of notice and opportunity to comment. For example, the various delisting and applicability cutoff proposals were so lacking in detail that anything could be a "logical outgrowth" of the proposal. The commenter asserted that section IV.E of the EPA's proposal failed to provide an in depth, reasoned analysis of its action. [*Motor Vehicles Mfrs. Ass'n v. State Farm Mut. Auto Ins. Co.*, 463 U.S. 29, 43 (1983)(requiring an agency to "articulate a satisfactory explanation for its action."] The commenter asserted that EPA must review and re-propose insufficiently detailed proposals prior to going to final rulemaking.

Commenter IV-D-14 stated that the use of sub-categorization and source category deletions under § 112(c) have been implemented several times since the MACT program began. The commenters have been unable to comment on the technical merit of the risk analysis employed by the EPA. Until the residual risk analysis procedures have been implemented via the § 112(f) process, risk analysis should not been used in making MACT determinations pursuant to § 112(d)(4) and, could never be used to establish a MACT floor.

Commenter IV-D-135 argued that EPA's discussion of the threshold applicability approach lacked the specificity to allow reasoned comment or analysis of the proposal and enumerates several issues related to the proposal that EPA did not discuss or consider. The commenter concluded that EPA's discussion of a threshold applicability approach lacked crucial elements of a valid rulemaking.

Response: We are not identifying and deleting a subcategory of sources in this source category pursuant to the authority of CAA § 112(c)(9). We also are not relying on *de minimus* authority. Legal issues associated with the health-based provisions are addressed in sections 18.2 and 18.4. In addition, *de minimis* authority is discussed in section 18.3.

As discussed above, we are, however, including in the final rule alternative health-based emission standards for HCl and Mn based on our authority under CAA § 112(d)(4).

Section 112(d)(4) authorizes EPA to consider health thresholds, with an ample margin of safety, in establishing emission standards. The analysis necessary to do this can generally be characterized as a risk analysis. Thus, we disagree with the commenter that we must wait for implementation of § 112(f) before utilizing risk analysis.

Comment: Multiple commenters (IV-D-06, IV-D-09, IV-D-154, IV-D-102, IV-D-118, and IV-D-14) believe that the preambles of individual rule proposals were an inappropriate forum for introducing significant changes in the way that MACT standards are established. Precedent-setting change of the magnitude that EPA has raised should be discussed openly and carefully with all affected parties instead of being buried in the preambles of individual standards.

Commenter IV-D-05 stated the concern that other parties may miss commenting on the risk-based exemptions because they are contained within six separate proposals. The commenter added that to give the issue full consideration, the risk provisions should not be adopted within any of the final rules but should be addressed in one place, such as in revisions to the general provisions of 40 CFR 63 subpart A.

Commenter IV-D-148 stated that for many years, they have coordinated with OAQPS on development of MACT standards for the national air toxics program, and there has been no indication of any kind regarding inclusion of risk-based exemptions in the first phase of the MACT program. The commenter thought it was unprecedented and alarming that EPA is proposing such a radical change at the end of Phase 1 of the MACT standard process. Commenter IV-D-148 believes that allowing risk-based exemptions requires changes to existing law and that such a debate should take place within the democratic legislative process and not in the MACT standard process.

Response: The discussion of health-based compliance alternatives was included in individual proposals for several reasons. We recognize that such provisions are only appropriate for certain HAP, and our decision-making process required source category-specific input from stakeholders. The 10-year MACT standards, which are now being completed, are the last group of MACT standards currently planned for development, and for any risk provisions to be useful, the provisions must be finalized in a timely manner The health-based provisions are not available for any other standards that have already been implemented, and any decisions regarding risk must, therefore, be applied on a source category specific basis.

Comment: Commenter IV-D-96 stated that the dockets for the MACT proposals that contain the risk approaches make it clear that the White House Office of Management and Budget (OMB) and industry were the driving forces behind the appearance of these unlawful approaches in EPA's proposals. The commenter cited internal emails between the White House OMB and EPA that reveal OMB officials exerting pressure on EPA to "take ownership" of the deregulatory approaches developed by the AF&PA and Latham and Watkins (Boilers Docket A-96-47, item II-F-24). The commenter noted that comparison of the BSCP and Plywood and Composite Wood Products (PCWP) MACT proposal language makes clear that EPA capitulated to OMB pressure to remove references to the risk-based exemptions in PCWP preamble section IV.G being "industry's suggested approaches." The commenter cited preamble edits from OMB that the commenter believes reveals an OMB agenda to dictate EPA adoption of industry's risk-based approaches, and to signal these plans in the rulemaking proposals, even before public comment has been taken. (We will evaluate all comments before determining which of the two alternatives will be included in the final rule. See Boilers Docket A-96-47, item II-F-24). The commenter also noted that OMB urged support of a dangerous and technically unfounded HI of

10, and that EPA appropriately rejected proposing HI of 10 because EPA had no technical rationale to support this HI option. The commenter condemned the industry-driven agenda (that would allow higher levels of toxic, cancer-causing air pollution) that is being promoted by the White House OMB.

Commenter IV-D-123 stated that accusations by NRDC that EPA has succumbed to industry lobbying and internal pressures are entirely unfounded. Eighty source categories have already been addressed with MACT standards. The remaining source categories are lower priority and include a large number of facilities that pose negligible risk to public health and environment. The EPA purposefully saved those categories for last in accordance with Congress's explicit, risk-based priority setting mandate expressed in §112(e)(2). EPA has now reached the point where regulation by MACT would result in more environmental harm than good.

Response: The commenter is correct in stating that industry representatives and OMB support the inclusion of health-based approaches in the final rule as a method of reducing costs. We are required by Executive Order 12866 to submit to OMB for review all proposed and final rulemaking packages that would have an annual effect on the economy of $100 million or more. The comments we received from OMB reflect their position that low-risk facilities do not warrant regulation.

However, the commenter is incorrect in implying that we have not exercised our independent judgement in addressing these issues. Our rationale for adopting the health-based approach in the final rule is that such an approach is fully authorized under the CAA.

### 18.1.2 Effects on MACT program

Comment: Commenters IV-D-06, IV-D-09, IV-D-154, IV-D-102, IV-D-148, IV-D-17, IV-D-14, and IV-D-118 stated that the proposal to include risk-based exemptions is contrary to the 1990 CAAA which calls for MACT standards based on technology rather than risk as a first step. Congress incorporated the residual risk program under §112(f) to follow the MACT standards (not to replace them). The need for the technology-based approach has been recently reinforced by the results of the National Air Toxics Assessment (NATA), which indicates that exposure to air toxics is very high throughout the country in urban and remote areas. Commenters IV-D-154, IV-D-09, IV-D-102, IV-D-118, and IV-D-85 added that risk-based approaches will be used separately to augment and improve technology-based standards that do not adequately provide protection to the public. Commenter IV-D-148 believes that § 112(b)(4) of the CAA and the regulatory precedent established in over 80 MACT standards rejects the inclusion of risk in the first phase of the MACT standards process. Commenter IV-D-06 added that § 112(f) of the CAA was developed to address residual risks remaining after implementation of technology-based MACT standards and was intended to provide additional protection, not replace technology controls. Commenter IV-D-148 added that they have been unable to substantiate the basis for EPA's support of the regulatory relief sought by industry through risk-based exemptions. In fact, the use of risk assessment at this stage of the MACT program is directly opposed to title III of the CAA. Commenter IV-D-148 attached an EPA fact sheet and testimony by two individuals that supports this position.

Commenter IV-D-85 recognized the merits of focusing on the highest risk facilities, but believes the risk-based exemption approach would not survive any legal challenges as they appear to be contrary to the intent of the CAAA of 1990.

Response: We disagree that inclusion of health-based compliance alternatives, in the form of emission standards based on the authority of § 112(d)(4), in the final rule is contrary to

the 1990 CAAA. The Boiler MACT is a technology-based standard developed using the procedures dictated by § 112 of the CAA. The only difference in the Boiler MACT and other MACT is that we used our discretion under § 112(d)(4) to base appropriate parts of the Boiler MACT on established health thresholds, with an ample margin of safety. We believe that the Boiler and process heater source category is particularly well-suited for a health-based compliance alternative, established pursuant to the criteria set forth in § 112(d)(4). In addition to the fact that there are established health thresholds for HCl and Mn, EPA has determined that some of the facilities in this source category do not emit these pollutants in amounts that pose a significant risk to the surrounding population. Those sources that can demonstrate that the emissions of HCl-equivalents and Mn meet the threshold emission levels will be in compliance with the MACT. The criteria are based on health-protective estimates of risk and the threshold emission levels will provide ample protection of human health and the environment.

Inclusion of health-based compliance alternatives in the final rule does not alter the MACT program. Rather, it merely represents EPA availing itself, in appropriate circumstances, of the authority Congress granted it in § 112(d)(4) of the CAA. We recognize that such provisions are only appropriate for certain HAP, and our decision-making process required source category-specific input from stakeholders. The 10-year MACT standards, which are now being completed, are the last group of MACT standards currently planned for development, and for any risk provisions to be useful, the provisions must be finalized in a timely manner

Although NATA may show measurable concentrations of toxic air pollution across the country, these data do not suggest that EPA should not establish health-based emission standards pursuant to its authority under § 112(d)(4) when it determines that it is appropriate to do so. The alternative health-based emission standards included in the final rule will ensure that affected sources which choose to comply with those standards do not emit HCl and/or Mn at levels that are harmful to public health. A discussion of background concentrations is provided in section 18.6.

Comment: Commenters IV-D-09, IV-D-14, IV-D-154, IV-D-102, IV-D-148, and IV-D-118 stated that the risk-based exemption proposal removes the "level-playing field" that would result from the proper implementation of technology-based MACT standards. Establishing a baseline level of control is essential to prevent industry from moving to areas of the country that have the least stringent air toxics programs, which was one of the primary goals of developing a uniform national air toxics program under § 112 of the 1990 CAA amendments. The risk-based approaches would jeopardize future reductions of HAP in a uniform and consistent manner across the nation.

Commenters IV-D-09 and IV-D-118 stated that the NATA data show that virtually no area of the country has escaped measurable concentrations of toxic air pollution. The NATA information indicates that exposure to air toxics is high in both densely populated and remote rural areas.

Commenter IV-D-123 provided the following, in response to NRDC comments regarding the proposals potential removal of a level playing field;

(1) As a policy matter, NRDC's argument would be that EPA should impose unnecessary and potentially environmentally damaging controls for the sole purpose of equalizing control costs across sources. Such a result is at odds with stated purpose of CAA.

(2) As factual matter, NRDC's claim that risk-based approach would favor facilities located away from population centers is incorrect. As contemplated, the risk-based

approaches to the NESHAP would be key to the comparison of health benchmarks with *potential* maximum exposure, regardless of whether actual receptors are present at the exposure location. Presence or absence of human populations would have no effect on whether facilities would qualify.

Response: We agree that one of the goals of developing a uniform national air toxics program under § 112 of the 1990 CAAA was to establish a level playing field. We do not believe that providing health-based compliance alternatives for sources that can meet them in the final rule will do anything to create an unlevel playing field for sources subject to this rule. The final rule and its criteria for demonstrating eligibility for the health-based compliance alternatives apply uniformly to boilers and process heaters across the nation in the large solid fuel-fired subcategory. The final rule establishes two baseline levels of emissions reduction for HCl and Mn, one based on a traditional MACT analysis and the other based on EPA's evaluation of the health threat posed by emissions of these two pollutants. All boilers and process heaters in the applicable subcategory must meet one of these baseline levels, and all boilers and process heaters in the applicable subcategory have the same opportunity to demonstrate that they can meet the alternative health-based emission standards. The criteria for demonstrating eligibility for the alternative health-based emission standards are not dependent on local air toxics programs. Therefore, concerns regarding facilities moving to areas of the country with less-stringent air toxics programs should be alleviated.

Although NATA may show measurable concentrations of toxic air pollution across the country, these data do not suggest that EPA should not establish health-based emission standards pursuant to its authority under § 112(d)(4) when it determines that it is appropriate to do so. The alternative health-based emission standards included in the final rule will ensure that affected sources which choose to comply with those standards do not emit HCl and/or Mn at levels that are harmful to public health.

Comment: Commenters IV-D-06, IV-D-09, IV-D-14, IV-D-154, IV-D-102, IV-D-118, and IV-D-17 stated that the proposal to allow risk-based exemptions would divert back to the time-consuming NESHAP development process that existed prior to the CAAA. Under this process, which began with a risk assessment step, only eight NESHAP were promulgated during a 20-year period. If the proposed approaches are inserted into upcoming standards, the commenters fear the MACT program (which is already far behind schedule) would be further delayed.

Commenter IV-D-168 supported EPA efforts to determine alternative MACT setting methodologies but strongly recommended that these be pursued separately from this rulemaking. This will provide for timely issuance of final Reciprocating Internal Combustion Engine (RICE) and Boiler/Process Heater MACT standards relative to the settlement deadline.

Commenters IV-D-09 and IV-D-118 stated that it is evident that the proposed approach to risk-based exemptions would require extensive debate and review in order to launch, which will further delay promulgation of the remaining MACT standards.

Commenters IV-D-09 and IV-D-118 stated that delays could be exacerbated by litigation following legal challenges to the rules, and such delays would trigger the MACT hammer, which would unnecessarily burden the State and local agencies and the industries. The commenters concluded that, obviously, further delay is unacceptable.

Commenter IV-D-130 did not want to be in a position of implementing the § 112(j) program and urged EPA to not delay the issuance of any MACT standard.

Commenters IV-D-17 and IV-D-118 stated that the proposed approaches will jeopardize

expeditious promulgation of remaining MACT standards. The commenters noted that according to a recently proposed EPA rule regarding § 112(j), the regulated community and State and local agencies would have to proceed with Part 2 permit applications, followed by case-by-case MACT, if EPA misses the newly agreed-upon MACT deadlines by as little as two months. This would be time consuming, costly, and burdensome for both regulators and the regulated community.

Commenter IV-D-148 noted that the Inspector General recently found that EPA is nearly two years behind in fulfilling its statutory responsibilities for implementing Phase 1 MACT standards. This delay potentially harms the public and environment. The inclusion of risk-based exemptions in 10-year MACT standards will only further delay this process.

Commenter IV-D-154 stated that the risk assessment exemption could significantly delay compliance with MACT for sources trying unsuccessfully to opt out using the exemption.

Commenter IV-D-96 stated that the EPA's proposal would cripple the MACT program which is already in disarray. The risk-based approach could delay the HAP emissions reductions required by § 112. EPA's MACT program is already delayed and the incorporation of improper risk assessment into the technology-based standard process will only exacerbate the delay. The EPA lacks adequate emissions and exposure data, source characterization data, and health and ecological effects information to conduct this process anyway. The commenter attached portions of a report from EPA's Office of Inspector General that lists describes EPA's challenges related to the air toxics program. The commenter believes that the air toxics program is flawed and is failing to protect public health and the environment, and therefore, it is irresponsible for EPA to pursue a deregulatory agenda that will further weaken the effectiveness of EPA's air toxics program. Commenter IV-D-96 noted that EPA acknowledged the complexity and delays associated with the proposed risk-based approaches in deciding not to adopt the approaches in the BSCP rulemaking.

Response: We disagree that allowing health-based compliance alternatives in the final rule will alter the MACT program or affect the schedule for promulgation of the remaining MACT standards, especially this Boiler MACT rule. In fact, it has not caused such a delay for this rule. We do not anticipate any further delays in completing the remaining MACT standards. The setting of alternative health-based emission standards in the final rule affects only the boiler and process heater source category, and not any other MACT standards.

We believe that the approach taken in the final rule is particularly well-suited to HCl and Mn, which are the only pollutants for which health-based compliance alternatives are included. For some facilities, the pollutants are currently emitted in amounts that do not expose anyone in the surrounding population to concentrations above the established health threshold. As a result, emissions of HCl and/or Mn at these facilities do not pose a significant risk to the surrounding population. Only those affected sources that demonstrate that their emissions are below the health-based emission standard(s) are eligible for the compliance alternatives. The criteria are based on health-protective estimates of risk and will provide ample protection of human health and the environment.

Including health-based compliance alternatives for the boiler and process heater source category does not mean that we will automatically provide such alternatives for other industries. Rather, as has been the case throughout the MACT rule development process, we will undertake in each individual rule to determine whether it is appropriate to exercise its discretion to use its authority under § 112(d)(4) in developing applicable emission standards. Furthermore, we have no intentions of re-opening previously promulgated NESHAP in light of decisions made specific to the boilers and process heaters source category. The Boilers NESHAP is being promulgated

by the February 2004 court-ordered deadline. Any delays in implementation of the Boilers NESHAP caused by legal challenges, which could and often do occur for any MACT standard we promulgate without a health-based approach, are beyond our control.

## 18.2 LEGAL ISSUES: SECTION 112(d)(4) AUTHORITY

### 18.2.1 Section 112(d)(4) Authority to Exempt Sources

Comment: Multiple commenters (IV-D-40, IV-D-61, IV-D-72, IV-D-73, IV-D-75, IV-D-122, IV-D-123, IV-D-166, IV-D-172, IV-D-173, IV-D-175, IV-D-183, and IV-D-186) believe that § 112(d)(4) provides EPA with authority to exclude sources that emit threshold pollutants from regulation. The commenters indicated that § 112(d)(4) allows for discretion in developing MACT standards for HAP with health thresholds. This is consistent with the plain language of the statute, which states that:

> "With respect to pollutants for which a health threshold has been established, the Administrator may consider such threshold level, with an ample margin of safety, when establishing emission standards under this subsection."

The commenters stated that the use of § 112(d)(4) authority also is supported by CAA's legislative history, which emphasizes that Congress included §112(d)(4) in the CAA to prevent unnecessary regulation of source categories.

Multiple commenters (I-D-61, IV-D-122, IV-D-123, IV-D-172, IV-D-175, and IV-D-186) referenced Sen Rep. 101-228, at 176 (1989), reprinted in 1990 U.S.C.C.A.N. 3385, 3560:

> "[W]here some sources do emit more than the threshold amount, the Administrator is authorized by section 112(d)(4) to use the no observable effects level or NOEL (again with an ample margin of safety) as the emission limitation in lieu of more stringent "best technology" requirements. Following this scenario, only those sources in the category which present a risk to public health (those emitting in amounts greater than the safety threshold) would be required to install controls, even though the general policy is "maximum achievable technology everywhere." Again, there is a means to avoid regulatory costs which would be without public health benefit.

Several commenters (IV-D-73, IV-D-166, and IV-D-175) cited a Senate report (S. Rep. No. 228, 101st Congress Sess. 171 (1990)) that makes clear the intent of 112(d)(4) as follows:

> "to avoid expenditures by regulated entities which serve no public health or environmental benefit, the Administrator is given discretionary authority to consider the evidence for a health threshold higher than MACT at the time the standard is under review .... Employing a health threshold or safety level rather than the MACT criteria to set standards shall not result in adverse environmental effects which would otherwise be reduced or eliminated."

Commenter IV-D-175 added that under this risk-based approach, EPA must select controls which "provide the greatest protection to human health (unless the *incremental health protection is negligible and there are very significant environmental values that would be afforded protection by some other configuration*)." *Id*. at 168 (commenter emphasis added).

Commenter IV-D-72 pointed out that Congress does not differentiate between technology-based "emission standards" set under § 112(d)(3) versus "health threshold" based "emission standards" set under § 112(d)(4). Instead, the statute explicitly treats emission standards promulgated under §§ 112(d)(3) and 112(d)(4) as equivalent by not distinguishing between those emission standards under the residual risk provisions of § 112(f). The commenter

stated that, in short, by using the phrase "standards developed pursuant to subsection (d)," Congress was indicating that EPA could develop technology-based emission standards under § 112(d)(3) OR health-based emission standards under 112(d)(4). According to the commenter there is no indication under § 112(f) that emission standards must first be technology-based and only secondarily health- or risk-based. Moreover, by specifically referring to provision "in effect before the date of enactment of the CAAA of 1990" and citing the Benzene NESHAP (promulgated under the pre-1990 § 112), Congress appears to be explicitly approving the risk methodology set forth in the D.C. Circuit's *Vinyl Chloride* decision and followed by EPA in the Benzene NESHAP. Commenter IV-D-72 stated that this explicit approval provides definition of how Congress intended "risk," and by extrapolation, health-based standards, is to be addressed under the 1990 CAA.

Commenter IV-D-75 added that EPA is permitted to establish alternative standards as long as it ensures that ambient concentrations are less than the health thresholds plus a margin of safety and the emissions do not cause adverse environmental effects. Multiple commenters (IV-D-123, IV-D-122, IV-D-07, IV-D-75, and IV-D-61) pointed out that EPA has exercised such authority and cited the Pulp and Paper MACT. In addition, in the Pulp and Paper MACT, EPA identified circumstances in which they would decline to exercise 112(d)(4) authority–where significant or widespread environmental harm would occur as a result of emissions from the category and the estimated health thresholds are subject to substantial scientific uncertainty. The commenters stated that EPA determined that these considerations were not relevant to emissions from the pulp and paper source category, and the commenters believe that the same is true for their source categories and that the same treatment is warranted for many facilities within the source categories. The commenters noted that facilities that cannot meet the risk criteria would remain subject to the MACT requirements.

With regard to comments by NRDC that EPA may not grant individual sources exemptions from MACT standards because EPA must promulgate a MACT-based emission standard for the entire group of sources, commenter IV-D-123 stated the following. Contrary to NRDC's and Earthjustice's comments, the risk-based approaches are squarely in line with the plain meaning of § 112(d)(4). The commenter pointed out that the Senate report cited (Sen Rep. No. 228, 101st Congress, 1st Sess 175-6 (1990)) clearly indicates that Congress contemplated that sources within the same category or subcategory would be subject to varied regulatory requirements, depending on the risk they pose to public health. Nothing in the statutory definition of "emission standard" suggests that the term is limited to a requirement for the installation of control technology. The commenter believed the risk based compliance options would meet this requirement because they would apply to an entire source category or subcategory. The commenter suggested EPA could create a subcategory for low-risk sources and tailor an emission standard to this subcategory, or apply to all sources in the category a NESHAP containing multiple compliance options, one or more being risk-based. Finally, commenter IV-D-23 stated that Earthjustice's comment that EPA's authority under §112(d)(4) is limited to pollutants and does not empower EPA to exempt facilities from compliance with emission standards should be rejected for two reasons; 1) §112(d)(4) pertains to development of emission standards that apply to facilities, not to pollutants, and 2) §112(d)(4) grants authority to develop standards that may be less stringent than the MACT floor, which itself is based on performance of facilities, not pollutants. Therefore, any exemption authority granted by §112(d)(4) must apply to facilities.

Several commenters (IV-D-07, IV-D-10, IV-D-61, IV-D-101, IV-D-117, IV-D-123, IV-D-146, IV-D-172, IV-D-179, and IV-D-186) believed that a risk-based compliance option under

§112(d)(4) is particularly appropriate for HCl emissions. The commenters supported use of 112(d)(4) for those units that can demonstrate that they pose a low risk to the public.

Commenters IV-D-117, IV-D-146, IV-D-172, and IV-D-179 stated that EPA should provide an exemption from HCl controls in cases where it is demonstrated that HCl emissions will not result in air concentrations above the inhalation RfC for HCl. Commenters IV-D-186 and IV-D-117 noted that public exposure to HCl should be well below the RfC for HCl. Commenter IV-D-117 noted that no unit risk estimate for HCl was mentioned in the proposal, and therefore, use of §112(d)(4) is justified.

Commenter IV-D-07 believed that an approach allowing emissions limit exceptions if a *de minimus* health risk exists is valid and asked that EPA consider allowing it for HCl emissions from wood waste boilers. The commenter noted that EPA's 112(d)(4) determination in the Pulp and Paper rule was based on an Inhalation RfC for HCl "defined as an estimate (with an uncertainty spanning perhaps an order of magnitude) of a daily inhalation exposure that, over a lifetime, would not likely result in the occurrence of noncancer health effects in humans." The RfC for HCl is 20 micrograms/cubic meter. Based on emissions from recovery furnaces up to 1,016 tons/year, EPA stated that "at the 95% confidence interval, the maximum concentration predicted to which people are estimated to be exposed is 0.3 $\mu g/m^3$, 60 times less than the inhalation reference concentration." The commenter requested that EPA examine the rationale behind the 1998 decision not to regulate HCl, and supports EPA's applicability cutoff approach which would allow any source which can demonstrate that HCl inhalation RfC is not exceeded be exempted from the proposed rule.

Commenter IV-D-117 stated that EPA should use its discretion under §112(d)(4) to recognize that there is no need to set emission limits for HCl because the risks are well below the RfC. The commenter stated that EPA should adopt an applicability cutoff from HCl controls based on EPA's §112(d)(4) authority to exempt individual facilities from HCl controls provided that the facilities can demonstrate that their HCl emissions do not result in concentrations above the RfC. The commenter noted that no unit risk estimate for HCl was mentioned in the proposal, and therefore, use of §112(d)(4) is justified.

Commenters IV-D-62, IV-D-119, and IV-D-160 submitted that EPA has concluded that HCl is a threshold pollutant with a well-defined health threshold and properly has invoked the Agency's §112(d)(4) authority in choosing not to regulate HCl emissions in prior NESHAPs. The commenters cited a NESHAP finalized in 2001, in which the Agency exempted from regulation HCl emissions from chemical recovery combustion sources at pulp mills. In this case, EPA noted it "has the discretion under §112(d)(4) to develop risk-based standards for some categories emitting threshold pollutants, which may be less stringent than the corresponding 'floor'-based MACT standard would be." The Agency found that no further control of HCl is necessary because "HCl levels emitted from recovery furnaces are below the threshold value within an ample margin of safety." The commenters added that EPA similarly has proposed not to regulate HCl emissions from the Chlorine Production source category.

Commenter IV-D-61 stated that EPA invoked §112(d)(4) authority in choosing not to impose control requirements on HCl emissions from chemical recovery furnaces at pulp mills (40 CFR part 63, subpart MM). See 63 Fed. Reg. 18754, 18765 (April 15, 1998). Commenters IV-D-122 and IV-D-123 noted that in the pulp and paper chemical recovery furnaces rule, EPA was able to make a source category determination that <u>every source in the category</u> met the criteria under § 112(d)(4) for HCl. The commenters believed the large number and variety of sources, coupled with the diverse use of fuels, in the Boiler MACT precludes EPA from taking the source category-wide approach that it used in the pulp and paper rule.

Commenter IV-D-122 agreed with establishing a risk-based compliance mechanism for HCl. The commenter believed EPA has legal authority and that such an approach would reduce the economic impact of MACT on the wood products industry and maximize environmental benefits by targeting only the HCl emissions from boilers that present a risk to human health and the environment. Sources taking a risk-based exemption for HCl would still have to comply with limits for metals, mercury , and organics. The commenter noted that federally enforceable permit limits could ensure that emissions remain at low-risk levels, and that the risk-based approaches could be structured in a manner that does not adversely impact State resources.

Commenter IV-D-180 stated that EPA should exercise its considerable legal authority under the CAA, as detailed in the comments of AF&PA, to develop a regulatory approach to HCl (from boilers) that both significantly reduces the economic impact of the rule on the forest products industry and maximizes environmental benefits. The commenter suggested that where facilities are able to demonstrate that emissions of HCl are below levels of concern, they would take federally enforcable permit limits to ensure that emissions do not increase. Those facilities, however, would not be required to install unnecessary controls.

Commenter IV-D-174 stated that the case for exempting boilers and process heaters that fire solid fuels other than coal (and a number of coal-fired units) is at least as strong as the case for exempting pulp and paper industry combustion sources under § 112(d)(4). The commenter urged EPA to use its § 112(d)(4) authority to avoid forcing many facilities to install costly, energy ineffecient control equipment that will serve no useful purpose in terms of reducing risks to human health and the environment.

Commenters IV-D-73 and IV-D-166 suggested that EPA develop risk-based emission standards, particularly for emissions of HCl. Under § 112(d)(4), Congress authorized EPA to consider risk-based endpoints when setting NESHAP for threshold HAP. HCl is a threshold HAP and one that generally presents little risk to the public or the environment when emitted from boilers and process heaters, as shown by modeling conducted by the commenter.

Commenter IV-D-49 approved of a risk-based compliance approach under CAA § 112(d)(4) as particularly appropriate for emissions of HCl. The commenter observed that EPA had previously invoked its CAA § 112(d)(4) authority to address low-risk sources of HCl, and felt that the boiler source category was a particularly appropriate candidate for a risk-based approach. The commenter noted that the BSCP MACT, as signed by the Administrator, did not include the risk-based approach, and urged EPA to fully consider the concept of risk-based approaches in the boiler MACT and other MACT rules and to provide such an approach in the final boiler rule. The commenter believed that the risk-based approach would provide an optimal means to meet EPA's goals for the MACT program without unintended consequences to the environment, the community, and the source that accompany a default emissions standard.

Commenter IV-D-49 provided several benefits of a risk-based approach. The commenter submitted that a risk-based approach would provide a means to address communities desires to avoid the perception of pollution associated with a visible steam plume, ensure that HCl emissions are below established health thresholds, and achieve the goals of the MACT rule in a considerably less costly manner.

Commenter IV-D-49 provided a case example of how the risk-based approach would be appropriate on a site-specific basis, and could provide the community, environment, and regulated source a better outcome than would be achieved if the approach were not provided in the final rule. The commenter operates a boiler in Tacoma, Washington that is used to provide process steam by combusting wood by-products. Under the proposed regulation, the boiler would be subject to the HCl emissions standard proposed in Table 1 to Subpart DDDDD. To

assure compliance with the proposed HCl standard, the commenter might have to install additional costly control equipment that would create a visible steam plume (re-adding a plume to the Tacoma skyline and waterfront that was eliminated over a decade ago with strong community support), and would add 500,000 gallons per day to the mill's water consumption. The commenter related that the boiler began operation in 1991, replacing an older boiler with significantly higher PM emissions. The installation of the boiler and electrostatic precipitator (ESP) resulted in the biggest single improvement in Tacoma's air quality in over a decade and was fundamental in Tacoma achieving the National Ambient Air Quality Standards (NAAQS) for PM10.

Commenter IV-D-143 strongly supported adoption of a risk-based compliance mechanism for HCl under EPA's §112(d)(4) authority. The commenter noted that facilities that are able to demonstrate their emissions do not present a risk to human health or the environment should not be required to install costly controls as would otherwise be required under the MACT standards. The commenter felt that the final rule should include provisions for facilities to use an approved EPA method such as dispersion modeling to demonstrate that ambient concentrations of HCl are below a risk-based emission standard and therefore be exempted from the emission control and monitoring requirements under the MACT standards.

Commenter IV-D-173 strongly supported the proposed applicability cutoffs for HCl under EPA's 112 (d)(4) authority since the available data suggest that a significant proportion of industrial boilers and process heaters do not emit HCl in an amount that would result in exceedance of applicable health benchmarks. The commenter believed that incorporating this option into the final rule would provide significant cost savings by foregoing the requirement for add-on controls on boilers and process heaters whose emissions do not result in HCl concentrations the exceed health benchmarks.

Commenter IV-D-14 disagreed that §112(d)(4) can be interpreted to allow exemption of individual pollutants (i.e., HCl).

Commenter IV-D-135 contended that alternative scenarios concerning HCl cutoffs constitute impermissible attempts to circumvent the control requirements for HCl. Under another applicability cutoff scenario, the Agency suggested that any threshold HAP eligible for exemption under CAA § 112(d)(4) that are controlled by control devices different from those controlling non-threshold HAP would still be able to use the applicability cutoff. This scenario represented an illegal attempt to circumvent the control requirements for HCl altogether, and ignored the case law holding that standard setting under § 112(d) is not limited to consideration of particular control technologies. [See Cement Kiln Recycling Coalition v. EPA, 255 F.3D 855 (D.C. Cir. 2001)]. Many of the nonthreshold pollutants are metals that would be controlled by particulate matter controls. Other nonthreshold HAPs are organic emissions for which the Agency proposed a "no control" MACT floor. HCl, on the other hand, would need to be controlled by a scrubber. If finalized, this exemption would potentially allow 59 percent of the emissions from this source category to go uncontrolled (assuming that the Agency could successfully contrive an exposure modeling approach that would result in exposures less than the RfC). The commenter believed that exempting HCl emissions from control is unacceptable, particularly since EPA proposed HCl as a surrogate measure for all the inorganic HAP emitted by this source category. Hence, an exemption that excluded HCl emission points from control requirements would also exclude emissions of all the other inorganic HAP that would likely include hydrogen cyanide and hydrogen fluoride.

Multiple commenters (IV-D-05, IV-D-14, IV-D-96, IV-D-113, IV-D-135, and IV-D-148) stated that the plain meaning of §112(d)(4) does not allow EPA to make MACT standard

exemptions for individual sources. Commenters IV-D-05 and IV-D-148 believe that §112(d)(4) applies to categories of sources. Commenters IV-D-96 and IV-D-135 noted that § 112(d)(4) states that "with respect to pollutants for which a health threshold has been established, the Administrator may consider such threshold level, with ample margin of safety, when establishing emission standards *under this subsection*."

Commenter IV-D-96 stated that the plain language of the CAA specifies that EPA cannot refuse to set emission standards for listed sources. The commenter contended that it is unlawful to refuse to set an emission standard for a group of sources that are part of a listed source category. The EPA must establish emission standards that apply to a whole listed source category. Section 112(d)(4) only gives EPA authority to "consider" an established health threshold in establishing emission standards. The commenter believed that the section does not give EPA the ability to waive standards altogether because the provision is only available "when establishing emission standards under this subsection." The U.S. Court of Appeals for the D.C. Curcuit has squarely held that EPA was not allowed to make a "no control" determination for a pollutant emitted by a listed source category (*National Lime Ass'n v. EPA*, 233 F.3D 625, 633-34 (D.C. Cir 2000)).

Commenter IV-D-96 also stated that subsection 112(d) directs the Administrator to establish emission standards "for each category or subcategory" of sources, not for each individual source. In setting a schedule for developing 112(d) regulations, subsection 112(e) makes clear that the deadlines are for the establishment of emission standards "for categories and subcategories of sources," not for individual sources. The commenter continued that while subsection 112(j) authorizes a permitting authority to establish HAP emission limitations specific to a single source, the authorization applies only if the Administrator has not yet promulgated emission standards for the category to which the source belongs. The commenter believed therefore, that the effect of the phrase, "when establishing emission standards under this section," is to limit subsection 112(d)(4)'s authorization to instances in which the Administrator is establishing an emission standard for an entire category or a subcategory of sources.

Commenter IV-D-96 added that the only time §112 mentions individualized standard setting is under the "MACT hammer" provisions in §112(j). The specific language used by Congress in §112(j) shows that had Congress wished to create authority to establish individualized exemptions, it would have included similarly precise language in subsection 112(d)(4).

Commenter IV-D-96 stated further that §112(d)(4) authorizes the Administrator alone to consider health thresholds, and only when she is establishing emission standards for an entire category or subcategory of sources, and therefore, EPA cannot rely on 112(d)(4) to allow permitting authorities to approve "applicability cutoffs" that are less stringent than MACT.

Commenter IV-D-135 asserted that the establishment of applicability cutoffs for threshold and nonthreshold pollutants based on § 112(d)(4) of the CAA is contrary to law. The commenter claimed the CAA does not authorize EPA to finalize any of the three applicability cutoff scenarios described in the proposal preamble as alternatives to a MACT standard from the source category. Commenter IV-D-135 claimed that when a source category is listed, the Agency must establish emission standards that apply to the whole category and cites the language of sections 112(c)(1) and (d)(1). The commenter asserted the statutory language clearly mandates that EPA set emissions standards for HAPs from all categories and subcategories, even for those pollutants with established health thresholds. Commenter IV-D-135 pointed out that because of the plain statutory language, the U.S. Court of Appeals for the D.C. Circuit has squarely held that EPA was not allowed to make a "no control" determination

for a pollutant emitted by a listed category of sources [National Lime Ass'n v. EPA, 233 F. 3D 625, 633-34 (D.C. Cir. 2000)]. The commenter asserted that given the weight of legal authority requiring EPA to establish emissions standards for HAPs from all sources, the agency cannot finalize the applicability cut-off approach without first providing some legal rationale for its reinterpretation of § 112(d)(4).

Commenter IV-D-14 believed that EPA has misinterpreted the provision in 112(d)(4). Section 112(d)(4) does not state that EPA can use applicability thresholds "in lieu of" the § 112(d)(3) MACT floor requirements. The commenter interpreted § 112(d)(4) to state that health based thresholds can be considered when establishing the degree of the MACT floor requirements, but it should not be used to supplant the requirements established pursuant to § 112(d)(3).

Commenters IV-D-96, IV-D-113, and IV-D-135 stated that the legislative history of §112(d)(4) clearly rejects EPA's proposed facility-by-facility MACT exemptions. The commenters noted that Congress considered and rejected the applicability cutoffs upon which EPA now solicits comment. The House version of the 1990 Amendments allowed States to issue permits that exempted a source from compliance with MACT rules if the source presented sufficient evidence to demonstrate negligible risk. The Senate version of the 1990 Amendments contained no such provision. The commenters pointed out that in conference, Congress considered both the House and Senate versions and rejected the House bill's exemption for specific facilities in favor of the Senate bill's language.

Commenter IV-D-96 also noted that the conference report on the 1990 CAAA states, "[i]t is the conferees' intent that EPA not use the permit hammer approach (case-by-case) to avoid or delay meeting MACT requirements." Thus, Congress expressed desire for a category-based approach to MACT standard setting rather than a time-consuming and delay-inducing facility-by-facility approach.

Commenter IV-D-96 also pointed out that in describing §112, Senator Durenberger explained on the floor that managers were unhappy with EPA's practice under §111 "of establishing cutoffs that result in excluding some sources within a category or subcategory from the emission limitations or control measures otherwise required." Thus, Senator Durenberger clearly recognized that individualized exemptions from a MACT standard could create an uneven playing field for the industry. The commenter believed that reading §112(d)(4) as EPA suggests leads to uneven and unfair treatment of very similar sources and contradicts Congress's wish that facilities be regulated on a categorical basis rather than on an individual basis.

Commenter IV-D-96 further stated that the legislative history for the CAA shows that §112(d)(4) cannot be a basis for non-applicability. Both Houses of Congress put forward risk-based exemptions from HAP standards but chose not to adopt them. The commenter pointed out that emission standards under § 112 apply to "major sources" which emit in excess of 10 tpy of a given HAP. A prior version of the bill would have allowed EPA to decline to regulate higher-polluting sources if they emitted threshold pollutants. The fact that this provision did not become law indicated to the commenter that the current CAA does not permit EPA to avoid regulating facilities by pointing to evidence of a health threshold. The Senate bill would have allowed EPA to set a size cutoff higher than 10 tpy for categories of sources emitting threshold pollutants (See S. 1630, 101st Cong., 1st Sess., §301 (amending section 112(c)(5)). A Senate report explaining the provision said

> "under section 112(c)(5) the Administrator may set a lower boundary for the category of major sources which is higher than 10 tons per year (but which provides an ample margin of safety to protect public health). If there are no sources emitting the pollutant in that

amount in a particular category, then no regulation under section 112(d) need be promulgated." (S. Rep. 101-228, 101st Cong., 1st Sess. at 176 (1989))

The commenter also noted that during the 1990 CAAA debate, the House bill would have allowed individual facilities to escape MACT if a risk analysis showed that the source posed a negligible hazard. However, this proposal was not in the Senate bill, and the conference rejected the idea for the final legislation.

(See 1 Legislative History at 866 (Statement from Senator Durenberger) ("The authority for such exemptions was not present in the Senate bill, and the House receded to the Senate on this point. The provision was deleted in conference.").

Commenter IV-D-135 submitted that Congress did not require EPA to consider the evidence of a health threshold in setting standards under § 112. The legislative history states the following:

The Administrator is not required to take the evidence of a health threshold into account; that would jeopardize the standard-setting schedule imposed under this section with the kind of lengthy study and debate that has crippled the current program. But where health thresholds are well-established,... and the pollutant presents no risk of other adverse health effects, including cancer, for which no threshold can be established, the Administrator may use the threshold with an ample margin of safety (and not considering cost) to set emissions limitations for sources in the category or subcategory. [S. Rep. 101-228 at 171].

Commenter IV-D-96 also noted AF&PA's argument in its supplemental comments on the BSCP rulemaking (see Docket A-99-30, Item IV-G-5) that risk-based exemptions are lawful because the CAA directs EPA to consider health risk in establishing the order of source categories to regulate and to perform residual risk evaluations. The commenter stated that Congress knew how to authorize risk-based decisionmaking when that is what it wanted to do (e.g., establishing order of source categories for regulation and, consideration of residual risk). The commenter concluded that had Congress wanted to authorize or direct EPA to exempt facilities from the MACT requirement on the basis of case-by-case risk assessments, it would have done so.

Commenter IV-D-96 added that EPA has itself insisted in briefs filed in federal courts that the CAA does not permit EPA to temper MACT requirements on the basis of risk assessments. For instance, EPA has declared that "risk reduction is not a factor to be considered in developing standards under section 112(d)," and that "[t]he legislative history confirms that risk assessments cannot be used to lessen the stringency of MACT standards." [EPA Brief as Respondent in Cement Kiln Recycling Coalition v. Browner, D.C. Circuit Case No. 99-1457, January 18, 2001, at 99 (Attachment 1 to IV-D-96). EPA Brief as Respondent in Copper MACT Case, March 6, 2003, at 36-36 (Attachment 2 to IV-D-96).]

Commenter IV-D-96 disagreed with AF&PA's argument that legislative history supports individual exemptions from MACT standards. The commenter repeated the Senate Report passage quoted in AF&PA's white paper: *"The Administrator is authorized by Section 112(d)(4) to use the no observable effects level (NOEL) (again with an ample margin of safety) as the emission limitation in lieu of more stringent best technology requirements. Following this scenario, only those sources in the category which present a risk to public health (those emitting in amounts greater than the safety threshold) would be required to install controls, even though the general policy is "maximum achievable technology" everywhere."* Commenter IV-D-96 stated that this passage does nothing more than grant EPA the authority to set a category-wide emission standard more or less stringent than MACT based on health risk. The statement also

clarifies that facilities able to meet an emission standard (whether MACT- or threshold-based) without installing controls need not install controls.

Commenter IV-D-96 stated that each of the three scenarios proposed by EPA (exempt low risk facilities emitting only threshold pollutants; allow 112(d)(4) for threshold and non-threshold pollutants; and exempt emission points at a facility that emit only threshold pollutants) are unlawful. The third scenario is unlawful because there is no statutory provision within the CAA that could be read to authorize emission point-by-point exemption.

Response: We believe that we have properly exercised the authority granted to us pursuant to §112(d)(4) of the CAA in establishing health-based emission standards for HCl and Mn which are applicable to the large solid fuel-fired subcategories. We believe that §112(d)(4) authorizes us to by-pass the mandate in §112(d)(3) in appropriate circumstances. Those circumstances are present in the large solid fuel-fired Boiler subcategories.

Section 112(d)(4) provides us with authority, at our discretion, to develop health-based emission standards for HAP's "for which a health threshold has been established", provided that the standard reflects the health threshold "with an ample margin of safety." (The full text of the §112(d)(4): "[w]ith respect to pollutants for which a health threshold has been established, the Administrator may consider such threshold level, within an ample margin of safety, when establishing emission standards under this subsection.")

We presumptively apply §112(d)(4) only to HAP's that are not carcinogens because Congress clearly intended that carcinogens be considered nonthreshold pollutants. (Staff of the Senate Committee on Environment and Public Works, A Legislative History of the Clean Air Act Amendments of 1990, Vol. 1 at 876, statement of Senator Durenberger during Senate Debate of October 27, 1990: "With respect to the pollutants for which a safe threshold can be set, the authority to set a standard less stringent than maximum achievable control technology is contained in subsection (d)(4). With respect to carcinogens and other non-threshold pollutants, no such authority exists in subsection (d) or in any other provision of the Act.") The legislative history further indicates that if we invoke this provision, we must assure that any emission standard results in ambient concentrations less than the health threshold, with an ample margin of safety, and that the standards must also be sufficient to protect against adverse environmental effects (S. Rep. No. 228, 101st Cong. at 171). (Section 112(a)(7) of the CAA defines the term "adverse environmental effect" as "any significant and widespread adverse effect, which may reasonably be anticipated, to wildlife, aquatic life, or other natural resources, including adverse impacts on populations of endangered or threatened species or significant degradation of environmental quality over broad areas.) Costs are not to be considered in establishing a standard pursuant to §112(d)(4) (Ibid.).

Both the plain language of §112(d)(4) and the legislative history cited above indicate that we have the discretion under §112(d)(4) to develop health-based standards for some source categories emitting threshold pollutants, and that those standards may be less stringent than the corresponding "floor"-based MACT standard would be. We do not believe that our use of such standards is limited to situations where every affected source in the category or subcategory can comply with them. As is the case with technology-based standards, a particular affected source's ability to comply with a health-based standard will depend on it's individual circumstances, as will what it must do to achieve compliance. In developing health-based emission standards under §112(d)(4), we seek to assure that those standards ensure that the concentration of the particular HAP to which an individual exposed at the upper end of the exposure distribution is exposed does not exceed the health threshold. The upper end of the exposure distribution is calculated using the "high end exposure estimate," defined as "a plausible estimate of individual

exposure for those persons at the upper end of the exposure distribution, conceptually above the 90th percentile, but not higher than the individual in the population who has the highest exposure" (EPA Exposure Assessment Guidelines, 57 FR 22888, May 29, 1992). We believe that assuring protection to persons at the upper end of the exposure distribution is consistent with the "ample margin of safety" requirement in §112(d)(4).

Regarding the comment that an exemption that excluded HCl emission points from control requirements would also exclude emissions of all other inorganic HAP that would likely include hydrogen cyanide and hydrogen fluoride, affected facilities attempting to utilize the health-based alternative compliance option for HCl will be required to evaluate emissions of HAP in addition to HCl. We conducted an assessment of boiler emissions and determined that, of the acid gas HAP controlled by scrubbing technology, $Cl_2$ is responsible for the great majority of risk and HCl is responsible for the next largest portion of the total risk. The contributions of other HAP, including hydrogen fluoride, to the total risk were negligible. Therefore, affected facilities attempting to utilize the health-based alternative compliance option for HCl, either by conducting a look-up table analysis or by conducting a site-specific risk assessment, must include emission rates of $Cl_2$ and HCl from their boilers. We do not expect hydrogen cyanide emissions from boilers covered under the final rule.

We emphasize that use of §112(d)(4) authority is wholly discretionary. As the legislative history described above indicates, cases may arise in which other considerations dictate that the Agency should not invoke this authority to establish less stringent standards, despite the existence of a health effects threshold that is not jeopardized. For instance, we do not anticipate that we would set less stringent standards where the estimated health threshold for a contaminant is subject to large uncertainty. Thus, in considering appropriate uses of our discretionary authority under §112(d)(4), we consider other factors in addition to health thresholds, including uncertainty and potential "adverse environmental effects," as that phrase is defined in §112(a)(7).

We agree that §112(d)(4) is appropriate for establishing emission standards for HCl and Mn applicable to the large solid fuel-fired Boiler subcategories, and therefore we have established such standards as health-based compliance alternatives for affected sources in those subcategories. Affected sources in the large solid fuel-fired Boiler subcategories which believe that they can demonstrate compliance with one or both of the health-based emission standards may choose to comply with those standards in lieu of the otherwise applicable MACT-based standard.

### 18.2.2 Health-based approaches as emission standards

Comment: Commenters IV-D-61, IV-D-122, and IV-D-123 stated that the risk-based approaches can be implemented as an "emission standard" within the statutory definition of the term. The commenters stated that the risk-based approaches being considered by EPA can, and should, be implemented as compliance options, rather than outright exemptions from MACT standard applicability. This approach fits with the statutory definition of "emission standard" and "emission limitation" as used in §112. Nothing in the definition equates "emission standard" with the requirement to install control technology. If the risk-based approach is implemented as a compliance option, then the "emission standard" set by EPA would be the emission rate that corresponds with the concentration of HAP at the property line that is below the health benchmark for threshold HAPs, and below the one in a million risk level for non-threshold carcinogens.

Commenters IV-D-61, IV-D-122, and IV-D-123 stated that EPA's implementation of the risk-based approach as a compliance option clearly would meet the statutory definitions of "emission limitation" and "emission standard" (defined identically by CAA § 302(k)) by placing federally-enforceable limitations on facility HAP emissions. That this cap would be based on correlations with risk-based property line concentrations does nothing to detract from this conclusion.

Commenters IV-D-122 and IV-D-123 added that the risk based approaches are not an attempt to "refuse to set an emission standard." The commenters asserted that an emission standard is not a requirement to install control technology - but rather a term defined in the CAA as a limitation on the quantity, rate, or concentration of emissions of air pollutants. EPA's implementation of risk-based approaches as compliance options would meet the statutory definition of emission limitations. The commenters stated that NRDC acknowledges that facilities able to meet an emission standard (whether MACT-based or threshold-based) without installing controls should not install controls.

Commenter IV-D-75 stated that risk-based alternatives are not exemptions but will function as indirect emission limits that must be maintained by the facilities to assure that the criteria are met, and, thus, such alternatives for low-risk facilities are supportable by EPA's authority under § 112(d)(4) and 112(c)(9) of the CAA and EPA's inherent *de minimis* authority.

Commenter IV-D-96 disagreed that risk-based approaches can function as emission standards. The commenter pointed out that AF&PA asserts for the first time in its supplemental comments on the BSCP rule (see Docket A-99-30, Item IV-G-5) that the risk-based approaches it advocates are "compliance options, rather than outright exemptions from the MACT standard." This creative packaging fails to hide the unlawful shape of AF&PA's suggested approaches. Section 112(d)(2) mandates MACT emission standards for each HAP source category and subcategory. Neither AF&PA nor EPA has offered any evidence that could support the notion that a source whose emissions are below a "risk-based emission standard" is achieving MACT for the source's category. Subsection 112(d)(4) permits EPA to consider an established health threshold for a particular HAP when setting an emission standard for that HAP in a particular source category. But nothing in either subsections 112(d)(2) or (d)(4) even implies the authority to promulgate, for a single HAP, different emission standards for different facilities within the same source subcategory.

Response: As is explained in the previous response in this section, we believe that we have properly exercised the authority granted to us pursuant to §112(d)(4) of the CAA in establishing health-based emission standards for HCl and Mn which are applicable to the large solid fuel-fired subcategories. We believe that §112(d)(4) authorizes us to by-pass the mandate in §112(d)(3) in appropriate circumstances. Those circumstances are present in the large solid fuel-fired Boiler subcategories.

### 18.2.3 Section 112(d)(4) Authority for Carcinogens and Non-Carcinogens

Comment: Many commenters (IV-D-72, IV-D-75, IV-D-108, IV-D-172, and IV-D-175) supported the use of §112(d)(4) applicability cutoffs for both threshold and non-threshold pollutants.

Comenter IV-D-172 stated that nothing in § 112(d)(4) limits it to non-carcinogens, and EPA should consider 112(d)(4) whenever it sets emission standards for HAP regardless of health endpoint. Commenter IV-D-172 added that advances in risk assessment science indicate that some carcinogens may be threshold pollutants.

Commenters IV-D-72, IV-D-75, IV-D-108, and IV-D-172 believe that a health threshold of one in one million cancer risk is appropriate for non-threshold pollutants. Commenter IV-D-108 added that a HI would need to be calculated to include all pollutants emitted by a boiler or process heater for that unit to be added to the subcategory that would be delisted.

Commenter IV-D-03 agreed with Hunton & Willams (on behalf of the UARG, IV-D-186) that the EPA failed to utilize its authority to establish a health threshold for setting MACT standards for carcinogens and non-carcinogens.

Commenter IV-D-10 stated that EPA should use the latest science with regard to thresholds for compounds that EPA has traditionally viewed as non-threshold.

Commenter IV-D-75 stated that the language in 112(d)(4) does not limit EPA's ability to set emission standards to only threshold pollutants but states that "[w]ith respect to pollutants for which a health threshold has been established, the Administrator may consider such threshold..." Rather, EPA may issue standards for any pollutant for which a threshold may be established. For non-threshold carcinogens, EPA could use 112(d)(4) authority and could establish a "threshold" risk of one in one million. Such a *de facto* threshold is supported by the use of one in one million as the presumptive acceptable risk for both the delisting process in § 112(c)(9) and in the residual risk program under § 112(f). The commenter added that the D.C. Circuit court noted in *NRDC v. EPA (*the *vinyl chloride* decision) that safe does not always mean risk free and that a risk of cancer between one in ten thousand and one in one million can be an acceptable risk. Congress specifically incorporated the *vinyl chloride* decision into the 1990 CAAA.

Commenters IV-D-122 and IV-D-123 stated that § 112 (d)(4) may be properly applied to carcinogenic HAPs that EPA determines have a threshold of safe exposure. The CAA places no limitation on EPA's authority. For some pollutants a MACT emissions limitation may be far more stringent than is necessary to protect public health, whereas, EPA may set an emission limitation under §112(d)(4) where it is possible to establish a level of exposure that is safe. EPA has well-developed methodologies and extensive experience in setting "safe" levels of exposure. Congress recognized that not all HAP should be regulated at the stringency of the MACT floor which is consistent with the intent to avoid expenditures which secure no public health or environmental benefit. Section 112(d)(4) authority exists with respect to pollutants for which a health threshold has been established and therefore can be applied to carcinogens as well as noncarinogens. Although, legislative history generally distinguishes between threshold pollutants and carcinogens, EPA should not view those as overriding the clear statutory language. Agency policy and science has evolved over the last 12 years to allow for a carcinogen to have threshold of action. Nothing in statue exists to preclude EPA's regulatory programs from keeping pace with the state of the art in scientific understanding.

Commenters IV-D-122 and IV-D-123 also stated that application of §112(d)(4) authority to threshold carcinogens would not conflict with other provisions of the CAA. Sections 112 (c)(9)(B)(i) and 112(f)(2)(A) specify cancer risk of one in a million as the level below which sources need not be regulated with further controls. In the context of implementing risk-based approaches in the MACT program, the commenters submitted that EPA can and should use a *de minimis*, one in a million risk level as the health benchmark.

Commenters IV-D-122 and IV-D-123 believed EPA can use a risk-based approach for non-threshold pollutants, including metals. Commenter IV-D-123 included additional discussion in their Attachment A.

Several commenters (IV-D-05, IV-D-96, IV-D-113, IV-D-135, IV-D-148, and IV-D-154) stated that § 112(d)(4) does not apply for source categories that emit carcinogens.

Several commenters (IV-D-96, IV-D-113, IV-D-135, and IV-D-154) stated that

legislative history makes it clear the §112(d)(4) is only to be used when a there is a well-established health threshold. Commenter IV-D-113 cited legislative history that makes it clear that Congress did not intend EPA to establish and carcinogens as "threshold" pollutants under §112(d)(4). Commenter IV-D-154 stated that the concept of cancer exposure below a threshold is untried, and Congress clearly intended that carcinogens be considered non-threshold pollutants.

Commenter IV-D-96 stated that, even if permissible, deregulation under §112(d)(4) is rarely available and noted that EPA may only use the authority for pollutants with a well-established health threshold. The commenter pointed out that §112(d)(4) only allows EPA to substitute a health threshold for a MACT standard when the threshold "has been established." The term "has been" means that the accepted threshold is already in existence. The commenter stated that Congress did not intend for EPA to use this provision to spend time to determine if a threshold exists. The term "established" shows Congress's intent that EPA have a high degree of scientific certainty before using its §112(d)(4) authority. Legislative history supports this interpretation (See S. Rep. 101-228 at 171). According to the commenter, Congress also specified that EPA must have direct evidence of no effects (i.e., use of NOEL) before invoking §112(d)(4). The EPA must be sure that there are no effects from exposure at the level chosen for the emission standard.

Commenter IV-D-96 stated further that EPA may not use the authority for carcinogens and other non-threshold pollutants. The §112(d)(4) provision is unavailable for non-threshold pollutants. All carcinogens must be treated as non-threshold pollutants. The commenter submitted that it is clear throughout the history of the CAAA that Congress legislated with an understanding that carcinogens do not have a safe threshold. In recognition of Congressional intent, EPA traditionally has interpreted § §112(d)(4) to exclude consideration of carcinogens. The commenter quoted the proposed pulp and paper NESHAP (63 FR 18754,18765, proposed April 15, 1998): EPA has not applied § 112(d)(4) to carcinogens because Congress clearly intended them to be non-threshold pollutants.

Commenter IV-D-135 asserted that the establishment of applicability cutoffs for threshold and nonthreshold pollutants, as EPA proposed, is technically unsound and contrary to good public policy. Congress has clearly stated that carcinogens are not threshold pollutants. The commenter added that regardless of whether EPA believes that there have been advances in risk assessment science that might allow the agency to better evaluate dose-response relationships, an attempt to do so here would be EPA impermissibly subverting the judgement of Congress. Commenter IV-D-135 also asserted that, even assuming, arguendo, that EPA had the authority to establish cutoffs for threshold pollutants, this authority could not apply to nonthreshold pollutants. The commenter claimed it is clear that Congress legislated an understanding that there is no safe threshold for carcinogens [see for example S. Rep 101-228 at 175] and provides supporting language from Senator Durenberger. The commenter concluded that attempting to determine a threshold for carcinogens would contravene Congressional intent. [68 Fed. Reg. at 1689/1].

Commenter IV-D-96 stated that allowing carcinogens to escape regulation under §112(d)(4) would conflict with other portions of the CAA. The commenter believed EPA's interpretation would give it authority to ignore source that emits a threshold carcinogen (if such a thing exists) and pose greater than one in a million risk. The commenter submitted that this conflicts with the plain language of the more-specific delisting provision § 112(c)(9)(B)(i), which only allows a category that emits a carcinogen to be delisted if risk can be shown to be less than one in a million for any source in the category. It also conflicts with the residual risk

assessment provision in 112(f)(2)(A) which requires EPA to promulgate residual risk standards if the cancer risk remains above one in a million after MACT is applied.

Response: We agree that unless scientific evidence indicates otherwise, carcinogens should be treated as non-threshold pollutants. As is explained in response 18.2.1, § 112(d)(4) provides us with authority, at our discretion, to develop health-based standards for HAP's "for which a health threshold has been established," provided that the standard reflects the health threshold "with an ample margin of safety." Consequently, the boiler rule includes health-based alternative compliance options only for the threshold pollutants HCl and Mn.

### 18.2.4 Carcinogens as Threshold Pollutants

Comment: Commenter IV-D-72 believes, as supported by draft EPA guidelines for carcinogen risk assessment, that some carcinogens are threshold pollutants, and EPA should recognize the inherent "legal threshold" for carcinogens that Congress put into the CAA, i.e., "lifetime excess cancer risks to the individual most exposed to emissions from a source in the category or subcategory to less than one in one million." The commenter noted that EPA's assertions that Congress may have intended the concept of a "threshold" compound to automatically mean "non-carcinogen," is effectively destroyed by the clear and literal language of subsection 112(f)(2)(A), i.e., that the provisions for carcinogens under § 112(f) are not limited to technology-based NESHAP standards promulgated under § 112(d)(3), but instead merely address "standards promulgated pursuant to subsection (d)." Had Congress intended § 112(d)(4) to apply only to non-carcinogens, then it would not have included the provisions of § 112(d)(4) when addressing constraints on emissions of carcinogens under § 112(f)(2)(A).

Commenter IV-D-72 stated that there is no mystery as to what constitutes an acceptable level of risk, a question which EPA seems to ponder in the recently proposed rulemakings. Congress answered the question when it cited the Benzene NESHAP, stating in § 112(f)(2): "(A)...If standards promulgated pursuant to subsection (d) and applicable to a category or subcategory of sources emitting a pollutant (or pollutants) classified as a known, probable, or possible human carcinogen do not reduce lifetime excess cancer risks to the individual most exposed to emissions from a source in the category or subcategory to less than one in one million, the Administrator shall promulgate [residual risk] standards under this subsection for such source category. (B) Nothing in subparagraph (A) or in any other provision of this section shall be construed as affecting, or applying to the Administrator's interpretation of this section, as in effect before the date of enactment of the Clean Air Act Amendments of 1990 and set forth in the Federal Register of September 14, 1989 (54 Federal Register 38044)." Subsection 112(f)(2)(B) explicitly defers to the holding in the pre-eminent *Vinyl Chloride* case and thus sets the standards for evaluating acceptable health limits for HAP.

Response: As explained in response to comment 18.2.1, we presumptively apply § 112(d)(4) only to HAP's that are not carcinogens because in the absence of scientific evidence to the contrary it has been our policy to consider carcinogens as nonthreshold pollutants. The legislative history indicates that if we invoke this provision, we must assure that any emission standard results in ambient concentrations less than the health threshold, with an ample margin of safety, and that the standards must also be sufficient to protect against adverse environmental effects (S. Rep. No. 228, 101st Cong. at 171). (Section 112(a)(7) of the CAA defines the term "adverse environmental effect" as "any significant and widespread adverse effect, which may reasonably be anticipated, to wildlife, aquatic life, or other natural resources, including adverse impacts on populations of endangered or threatened species or significant degradation of

environmental quality over broad areas.) Costs are not to be considered in establishing a standard pursuant to §112(d)(4) (Ibid.).

### 18.2.5 Section 112(d)(4) Authority for Emission Points That Emit Both Threshold and Non-Threshold Pollutants

Comment: Commenters IV-D-73 and IV-D-166 believe that EPA could implement a § 112(d)(4) emissions limitation under both the first and third scenarios discussed in the preamble (scenario 1: exempt low risk facilities emitting only threshold pollutants, scenario 3: exempt emission points at facilities that emit only threshold pollutants). However, the commenters believe that the use of a § 112(d)(4) emissions limit as described under the third scenario in the preamble would provide the maximum benefit of the § 112(d)(4) provision. Under this scenario, facilities that emit both threshold and nonthreshold pollutants could achieve exemption from MACT controls for threshold HAP emission points based on their ability to meet the associated health threshold for those HAP. Another possible use of the § 112(d)(4) emissions limitation that EPA discussed would apply to both threshold and nonthreshold pollutants.

Commenter IV-D-40 believes the threshold approach to establishing emission standards would be ideal for facilities that only emit threshold HAPs, but that it could also be applied to facilities that can accurately monitor and differentiate the emissions of threshold and non-threshold HAPs, which would allow a facility to estimate the impact of exposure to threshold and non-threshold HAPs separately.

Response: As is explained in response 18.2.1, we have chosen to use the authority of §112(d)(4) to provide an alternative to the HCl regulatory requirements of the final rule for affected facilities in the large solid-fuel fired boilers and process heaters subcategory that demonstrate their subpart DDDDD unit HCl and $Cl_2$ emissions result in a maximum HI of 1.0 outside the facility area. Different controls are needed to reduce acid gas emissions than are used to reduce PM (HAP metal) emissions from boilers and process heaters. The acid gases emitted from boilers, i.e., HCl, $Cl_2$, and HF, are threshold pollutants.

Similarly, an affected facility in the large solid fuel-fired boilers and process heaters subcategory that demonstrates that their subpart DDDDD unit Mn emissions result in a maximum hazard quotient (HQ) of 1.0 outside the facility area has the option of complying with the emission standard for TSM minus Mn. As is the case with the acid gases, Mn is a threshold pollutant.

## 18.3 LEGAL ISSUES: *DE MINIMIS* AUTHORITY

Comment: Numerous commenters (IV-D-61, IV-D-72, IV-D-73, IV-D-75, IV-D-123, IV-D-166, and IV-D-175) stated that EPA has inherent authority to promulgate risk-based exemptions and cited several caselaw examples of appellate courts upholding EPA's application of its *de minimis* authority. Commenter IV-D-61 stated that a risk-based compliance option for both threshold and non-threshold HAPs is well within EPA's authority under the CAA and the *de minimis* doctrine articulated by appellate courts. The commenter stated that appellate caselaw makes clear that EPA may lawfully exempt *de minimis* sources of risk from MACT-level controls because the legislative mandate of CAA § 112 is not "extraordinarily rigid" and the exemption is consistent with the CAA's health-protective purpose. CAA §§ 112(c)(9) and 112(f)(2) clearly indicate that Congress considered a cancer risk below one in a million to be *de*

*minimis* and therefore insufficient to justify regulation under CAA § 112. Under this approach, EPA would specify an emission standard as a *de minimis* level of cancer risk, and sources would have the option to comply with the NESHAP by demonstrating that their emissions result in exposures below this risk level.

Commenters IV-D-61 and IV-D-123 argued that EPA's *de minimis* authority properly is evaluated *vis-à-vis* the statutory design. Appellate caselaw establishes EPA's authority to exempt *de minimis* sources as long as the legislative mandate is not "extraordinarily rigid" and the exemption is consistent with the legislative purpose - in this case, the "health protective purpose of the statute." Commenters IV-D-72 and IV-D-61 cited *Alabama Power Co. v. Costle*, 636 F.2D 323 (D.C. Cir. 1979) where the court explained that categorical exemptions from the requirements of a statute may be permissible:

> [A]s an exercise of agency power, inherent in most statutory schemes, to overlook circumstances that in context may fairly be considered *de minimis*. It is commonplace, of course, that the law does not concern itself with trifling matters, and this principle has often found application in the administrative context. Courts should be reluctant to apply the literal terms of a statute to mandate pointless expenditure of effort. 636 F.2D at 360.

The commenters also cited the more recent D.C. Circuit decision that:

> As long as the Congress has not been extraordinarily rigid in drafting the statute, however, there is likely a basis for an implication of *de minimis* authority to provide an exemption when the burdens of regulation yield a gain of trivial or no value. *Environmental Def. Fund v. EPA*, 82 F.3D 451, 466 (D.C. Cir. 1996)

Commenter IV-D-61 stated that EPA's frequent exercise of its *de minimis* authority has withstood judicial challenge. The Agency's application of this authority, as well as its treatment by reviewing courts, uniformly has turned on the degree of risk at issue, not on the mass of emissions to be regulated. The commenter stated that appellate courts consistently have upheld EPA's application of its *de minimis* authority in a line of cases that, according to the D.C. Circuit, have established "virtually a presumption in its favor." *Public Citizen v. Young*, 831 F.2D at 1113. These decisions include the following:

-*EDF v. EPA*, 82 F.3D 451, 466, 469 (D.C. Cir. 1996)
> {This case deals with EPA's transportation conformity regulations promulgated under CAA § 176}

-*Public Citizen*, 831 F.2D at 1112

-*Ohio v. EPA*, 997 F.2D 1520 (D.C. Cir. 1993)
> {This case deals with *de minimis* exemptions from CERCLA requirements on the basis of no appreciable health risk}

-*Alabama Power Co.*, 636 F.2D at 360

-*Ober v. Whitman*, 243 F.3D 1190 (9th Cir. 2001)
> {This case deals with exemption of *de minimis* sources of $PM_{10}$ under a Federal Implementation Plan [FIP]}

-*Industrial Union Dept., AFL-CIO v. American Petroleum Inst.,* 448 U.S. 607, 663-64 (1980).

See IV-D-123 Attachment A for quotes from these court decisions.

Commenters IV-D-61 and IV-D-123 stated that the D.C. Circuit has invalidated EPA's *de minimis* authority only where it was applied under statutory designs that are "extraordinarily rigid." In *Public Citizen*, the D.C. Circuit refused to allow a *de minimis* exception to the "Delaney Clause" in the Pure Food and Drug Act, which provided that a color additive will be deemed unsafe if it is found to induce cancer in man or animal. 831 F.2D at 1108. In

distinguishing its own precedent, the D.C. Circuit later noted that "[t]he Public Citizen court relied heavily on the almost inescapable terms of the Delaney Clause and the substantial legislative history supporting an absolutist application of the language." Ohio, 997 F.2D at 1534 (emphasis added, quotations omitted). As discussed below, CAA § 112 contains no such absolutist language so as to preclude EPA's application of its *de minimis* authority.

Commenters IV-D-61 and IV-D-123 stated that the statutory design and legislative purpose expressed in CAA § 112 fully justify emission standards based on *de minimis* levels of cancer risk. The roots of *de minimis* authority exist in the language of CAA §112, and CAA §112 itself provides clear indication of congressional intent as to what constitutes a *de minimis* cancer risk for purposes of MACT.

Congress expressly included *de minimis* provisions in the title III program. Despite its initial emphasis on MACT-based control technology, the overall structure of CAA § 112 is overwhelmingly risk-based. This emphasis on risk renders *de minimis* considerations especially appropriate. Unlike, e.g., the Delaney Clause, CAA §112's mandates are not absolute. For example, CAA §112(c)(9)(B)(i) authorizes source category delisting if the category (or subcategory) creates less than a $10^{-6}$ cancer risk; CAA §112(c)(9)(B)(ii) allows delisting if non-carcinogenic HAP emissions do not exceed levels adequate to protect public health with an ample margin of safety. Congress included *de minimis* principles in §112(g)(1). In addition, Congress included other provisions in CAA § 112 that demonstrate that the statutory design is not "extraordinarily rigid." See, e.g., CAA §§112(a)(2) and (c)(3); 112(a)(7); 112(c)(7); 112(f)(2)(C); 112(d)(5) and (f)(5); and 112(i)(5)(E).

Commenter IV-D-61 stated that CAA §112 provides clear indication of Congressional intent as to the degree of risk that properly is to be considered *de minimis*. A cancer risk of one in a million is the touchstone for further review under the "residual" risk provision of CAA §112(f). (The residual risk provisions thus call for additional controls if and only if the remaining risk from affected sources exceeds one in a million, but do not call for a reduction of risk to the maximum exposed individual [MEI] below this level. Rather, the provisions generally call for reduction of MEI risk to a level no higher than 1 in 10,000, although in some cases, risks greater than 1 in 10,000 may be allowable.) Similarly, a one in a million cancer risk is the threshold below which EPA is authorized under CAA §112(c)(9)(B) to remove entire source categories from the purview of MACT regulation. Where Congress has authorized the wholesale removal of entire source categories on the basis of a cancer risk below one in a million, EPA is certainly warranted in exercising its *de minimis* authority to provide a significantly more limited emission standard premised on the same level of risk.

Commenters IV-D-61 and IV-D-123 contended that use of the phrase "*de minimis*" in CAA § 112(g)(1) does not limit EPA's exercise of its *de minimis* authority in the MACT context. Although the phrase "*de minimis*" is only used in CAA § 112(g)(1), there is no legal or policy basis for assuming that Congress intended to preclude EPA's exercise of its *de minimis* authority in every other regulatory context affecting HAPs. Federal agencies, including EPA, are presumed to have *de minimis* authority regardless of whether such authority is expressly granted by statute. Appellate caselaw recognizes that federal agencies have an inherent authority to exempt *de minimis* sources of risk from even highly prescriptive statutory requirements, so long as the legislative mandate is not "extraordinarily rigid" (*EDF*, 82 F.3D at 466) and the exemption is consistent with the legislative purpose (here, the health-protective purpose of the CAA). The commenters argued that CAA §112 is not "extraordinarily rigid" and that Congress had ample opportunity to make §112 "extraordinarily rigid" when it developed the 1990 CAAA.

The commenters stated that EPA's exercise of its *de minimis* authority under CAA § 112

is consistent with traditional canons of statutory interpretation. The argument that the isolated use of the term "*de minimis*" in CAA § 112(g)(1) somehow precludes the exercise of EPA's *de minimis* authority in setting the MACT floor does not withstand scrutiny under principles of statutory interpretation for three reasons: (1) the use of a term in one statutory provision is, at most, a weak indicator of congressional intent to foreclose the term's application in other statutory provisions (See, e.g., *Mourning v. Family Publications Serv., Inc*., 411 U.S. 356 (1973) and also *United States v. Vonn*, 535 U.S. 55 (2002) summarized on pp. 58-59 of IV-D-61); (2) the preclusive effect of the isolated use of a term is even more attenuated where, as here, the provision in which the term appears has little in common with the provision in which its absence would be interpreted (see *City of Columbus v. Ours Garage & Wrecker Serv.,* 536 U.S. 424 (2002)); and (3) any purported preclusive effect is weakened further in the context of agency rulemaking, such as the process of MACT standard setting.

Commenter IV-D-123 attached a white paper in the context of the boiler MACT (see attachment A of IV-D-123). Arguments presented in the white paper that are not discussed elsewhere in this document are summarized below for the white paper submitted with IV-D-123.

Commenter IV-D-123 stated that the Congressional intent expressed in the CAA §112(d)(3)(A) MACT floor language did not preclude consideration of non-HAP environmental impacts. The CAA's structure, appellate case law, and Agency practice suggest that EPA should take a broad view of the terms "best performing" and "emission limitations" considering the non-HAP disbenefits of controls. This interpretation is supported because:

(a) EPA and the D.C. Circuit have previously interpreted the phrase "best performing" as encompassing non-HAP environmental impacts (see 66 FR 3180, 3187 (January 12, 2001), NESHAP for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills);

(b) the CAA calls for excluding from the MACT floor calculation sources that have complied with recent emission standards (lowest achievable emission rate [LAER] standards) directed toward criteria pollutants rather than HAPs; and

(c) the MACT floor language in not limited to an evaluation of HAP emissions, but rather contains the more general term "emissions limitation" whereas surrounding language refers specifically to HAP emissions. The commenter argued that when Congress uses different terms in the same section of a statute that Congress intends different meanings (see e.g., *American Petroleum Instit. v. EPA*, 198 F3d 275 (D.C. Cir. 2000)).

The commenter believes these three points support their conclusion that §112 is not "extraordinarily rigid."

The commenter also contended that EPA has *de minimis* authority under §112 that is consistent with the health protective purpose of the statute, as expressed by the provisions health-based regulatory thresholds. CAA §112 differentiates between threshold HAPs (for which a health benchmark can be established) and non-threshold HAPs. Providing *de minimis* exemptions below the regulatory thresholds contained in the CAA for both types of HAPs is justified under D.C. Circuit precedent because it "squares with the health-protective purpose of the statute." (*Ohio*, 997 F2d at 1535).

Commenter IV-D-123 stated that irrespective of § 112(d)(4), EPA has ample *de minimis* authority to implement risk based approaches for non-threshold carcinogens. The commenter argued that NRDC's characterization of the nature and extent of EPAs *de minimis* authority is contradicted by the unanimous weight of appellate caselaw. Appellate caselaw establishes that EPA has inherent authority to make determinations affecting *de minimis* sources of risk even under highly prescriptive statutory requirements, so long as the legislative mandate is not

"extraordinarily rigid" and the exemption is consistent with legislative intent. Sections 112(c)(9) and (f)(2) are properly construed not as sources of *de minimis* authority, but as indications of the level of cancer risk Congress considered to be *de minimis*. NRDC's claim that EPA has rejected its *de minimis* authority in the context of § 112 is contradicted by the relevant rulemaking record and by EPA's general practice. The instance cited by NRDC, where EPA declined to exercise its *de minimis* authority was a substantially different scenario. In the cited rulemaking, EPA declined to apply the *de minimis* doctrine to change the MACT floor determination, noting that the doctrine may not be invoked to alter the MACT floor on the basis of a cost-benefit analysis. The *de minimis* doctrine in this case is not being advanced as a basis for EPA to alter its MACT floor determination. Nor is it being advanced on the basis of a cost-benefit analysis, but rather on the basis of the acknowledged minimal risks that the rules would regulate. The legislative history cited by NRDC does to limit EPA's *de minimis* authority under § 112. Sen. Durenberger's statements are best viewed as one legislator's opinion as to what a piece of legislation should mean, rather than a definitive explanation of Congressional intent. The supreme court has held that "the remarks of a single legislator, even the sponsor, are not controlling in analyzing legislative history." Sen Durenberger's statement was a discussion of the express authority granted by the residual risk provisions of § 112(f), not of EPA's implicit *de minimis* authority, and as a result, should have no bearing on EPA's *de minimis* authority, even if given weight.

Commenter IV-D-61 cited EPA's brief in *National Lime Association v. EPA*, 233 F.3D 625 (D.C. Cir. 2000) and noted that the D.C. Circuit held that EPA reasonably declined to provide a *de minimis* exemption on the basis of cost for the Portland Cement NESHAP, but the court did not limit EPA's *de minimis* authority under CAA §112 in any other way.

Commenter IV-D-72 stated that EPA has wrongfully attempted to deny its *de minimis* authority based on the *National Lime Association v. EPA* court case. 233 F.3D 625 (D.C. Cir. 2000) In that case, the court found, in part, that the CAA does not provide for exemptions from emission standards based upon either cost concerns or a source emitting a *de minimis* quantity of HAP when a MACT floor exists for the source category. The court did not address the issue of EPA's authority to provide for exemptions based upon either *de minimis* emissions or *de minimis* effect upon human health and the environment. The commenter stated that they are not arguing for cost-based exemptions; rather they believe that EPA can structure the MACT rules in such a way that *de minimis* levels of emissions or *de minimis* levels of risks to public health are not subject to the technology-based standards developed under § 112(d)(3).

Commenter IV-D-72 stated that case law (*National Lime*) prohibits EPA from exempting a source category based on a *de minimis* quantity if MACT floor exists, but does not prohibit EPA from exempting based on a *de minimis* effect, even if there is a floor.

Commenter IV-D-72 further indicated that unless a statute is "extraordinarily rigid," relevant case law (*Alabama Power*) allows using *de minimis* concepts in regulatory programs when the statute would otherwise yield a "gain of trivial or no value" or if the statute would require "absurd or futile results" in terms of risk to human health and the environment. The commenter agreed with AF&PA white papers, which show that *de minimis* applicability exemptions based on risk and the risk-based delisting of sources are prime examples of EPA's authority to consider *de minimis* and to determine whether a NESHAP results in a "gain of trivial or no value" or leads to "absurd or futile results."

Commenter IV-D-72 stated that the statute provides both implicit and explicit *de minimis* authority, and added that this position is supported by the statute itself in that sections 112(c)(9)(B), 112(d)(4), and 112(f)(2)(A) all discuss the objectives of the § 112(d) standards in

terms of the effect of the pollutants on human health and the environment. None of these provisions require that HAP be regulated simply for the sake of regulation, but, rather, provide guidance as to what constitutes "acceptable" emissions based on the health impact of those emissions. The commenter stated that §112(d)(4) provides that MACT standards set under § 112(d)(3) need not be any more stringent than necessary to protect public health with an ample margin of safety. Hence, there is no requirement to control HAP simply for the purpose of controlling HAP.

Commenter IV-D-72 stated that the case law supports EPA's *de minimis* authority. The *Vinyl Chloride* case outlined EPA's authority for determining what constitutes a *de minimis* or "safe" level of exposure to a HAP, particularly with respect to carcinogens. Among the courts findings were: the Administrator must make an initial determination of what is "safe;" and, the Administrator's decision does not require a finding that "safe" means "risk-free" or a finding that the determination is free from uncertainty. Furthermore, in § 112, Congress provides clear guidance to EPA regarding what it considers an "ample margin of safety" for compounds that may be carcinogens. Specifically, a "safe" level is that which poses a risk of excess cancer to the most exposed individual to less than one in one million. The EPA is empowered to promulgate a *de minimis* exemption from a NESHAP based upon the Administrator's determination of an acceptable level of exposure to a HAP that protects human health and the environment with an ample margin of safety.

Commenter IV-D-72 agreed with AF&PA that EPA makes *de minimis* applicability determinations (e.g., HON for equipment leaks, and a recently issued direct final rule to exempt "Noncommercial incineration of dead animals, the onsite incineration of resident animals..." 67 FR 55129, August 28, 2002). EPA issued a direct final rule to exempt "non-commercial incineration of dead animals, the on-site incineration of resident animals for which no consideration is received or commercial profit is realized, as authorized in section 269.020.6, RSMo 2000." The MDNR submitted information that emissions from these sources is minimal and that the exemption should not have an adverse impact on ambient air quality. No existing incinerators in this source category are subject to the operating permit program, due to their *de minimis* size. This is clearly an exemption based on *de minimis* authority.

Commenter IV-D-72 stated the case that EPA should allow no exemptions when all of the emission reductions benefit health and the environment; should allow for exemptions when the all of the effects are *de minimis*; and should do a combination of the two for cases where some of the reductions yield benefits, but part of the reductions do not. EPA should regulate only those sources that would provide benefit.

Commenter IV-D-75 stated that § 112 also provides EPA with the authority to exclude sources through its *de minimis* authority. The commenter stated that relevant case law (see EDF v. EPA, 82F.3D 451, 466 (D.C. Cir. 1996)) gives EPA the authority to incorporate de mimimis concepts into regulatory programs as long as the governing statute is not "extraordinarily rigid." Section 112 has several references to risk, distinguishing among sources, and alternative approaches to § 112(d)(3) MACT standards. Section 112 cannot be viewed as "extraordinarily rigid." The commenter also believes it is appropriate based on the decision by the D.C. Circuit in *Alabama Power v. Costle,* 636 F.2nd 323 (D.C. Cir 1979), for EPA to establish exemptions from what "in context may fairly be considered *de minimis*." 636 F2.nd, 323, 360.

Commenters IV-D-73 and IV-D-166 believe that EPA could accomplish the same outcome as a § 112(d)(4) emissions limitation if it applied an emissions limitation on nonthreshold pollutants using its inherent *de minimis* authority instead of a limit based on § 112(d)(4).

Commenter IV-D-175 asserted that EPA has the authority to promulgate risk-based standards for non-threshold pollutants. The commenter stated that the courts have long recognized that EPA has the inherent authority to promulgate *de minimis* exemptions under most circumstances, even where the statute does not expressly authorize such an exemption and cites the following examples:

> In *Envt'l Defense Fund v. EPA*, 82 F.3D 451, 466 (D.C. Cir. 1996), the court held that "[a]s long as the Congress has not been 'extraordinarily rigid' in drafting the statute... 'there is likely a basis for an implication of *de minimis* authority to provide [an] exemption *when the burdens of regulation yield a gain of trivial or no value*.' " *Id*. at 466(citations omitted)(commenter emphasis added). The court found "nothing in the [CAA] to preclude the EPA's identification of categories of [exempt activities] that would produce either no or a trivial level of emissions[.]" *Id*. at 466-7. According to the commenter, although the *EDF* ruling was in the context of the Clean Air Act transportation conformity regulations, the court's reasoning applies equally to any other Clean Air Act program, including the MACT program.
>
> In another case, the court held that categorical exemptions from a statutory requirement constitute "an exercise of agency power, inherent in most statutory schemes, to overlook circumstances that in context may fairly be considered *de minimis*." *Alabama Power Co. v. Costle*, 636 F.2D 323, 360 (D.C. Cir. 1979). The commenter noted that the court reasoned that the ability to create a deminimis exemption "is not an ability to depart from the statute, but rather a tool to be used in implementing the legislative design." *Id.*
>
> Similarly, in *Ober v. Whitman*, 243 F.3D 1190 (9th Cir. 2001), the Ninth Circuit upheld EPA's exemption of *de minimis* sources of PM-10 from control requirements under a federal implementation plan.
>
> Finally, the D.C. Circuit upheld EPA's adoption of *de minimis* exemptions under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA,) even where the plain language of the statute did not authorize such exemptions, reasoning that "[t]he literal meaning of the statute need not be followed where the precise terms lead to ... futile results, or where failure to follow a *de minimis* exception is contrary to the primary legislative goal.... EPA's interpretation ... squares with the health protective purpose of the statute." *Ohio v. EPA*, 997 F.2D 1520, 1535 (D.C. Cir. 1993).

Commenter IV-D-175 contended that these cases clearly establish EPA's inherent authority to promulgate *de minimis* exemptions under regulatory schemes, even where the statute itself does not specifically authorize such exemptions. The commenter also pointed out that EPA has included *de minimis*, concentration-based thresholds in a number of NESHAPs (e.g., 40 CFR part 63, subparts F, G, H, U, CC, GG, TT, GGG, etc.), without reference to explicit statutory authority, and without ensuing legal challenges.

Similarly, Commenter IV-D-72 referred to AF&PA's white paper on concentration-based *de minimis* exemptions (the white paper not discussed in the preamble) and stated that they believe EPA has broad *de minimis* authority under the CAA for purposes of determining applicability of standards. The commenter stated that EPA has general authority to exempt *de minimis* emissions based on concentration and risk. Emissions could be *de minimis* based on either the quantity and/or ambient impact of the emissions or by establishing a risk-based approach to establishing *de minimis* emissions.

On the other hand, two commenters (IV-D-14 and IV-D-96) opposed risk-based approaches under *de minimis* authority. Commenters IV-D-96 and IV-D-14 argued that EPA does not have *de minimis* authority for risk-based exemptions. Commenter IV-D-96 stated that the *de minimis* theories proposed by AF&PA in EPA's docket violate the CAA. EPA may not rely on its narrow *de minimis* exemption authority to escape the highly prescriptive provisions in section 112.

Commenter IV-D-96 noted that *de minimis* authority does not exist to create MACT exemptions on a facility-by-facility or category-wide basis. According to the commenter, subsection (d)(4) is clearly limited to threshold pollutants, but AF&PA suggests that EPA has *de minimis* exemption authority for non-threshold pollutants under 112(f)(2)(A). The commenter stated that this is not the purpose of 112(f)(2)(A), rather, § 112(f)(2)(A) demands that EPA reduce significant residual risks remaining after a MACT standard is applied. The section applies to risks from carcinogens in order to provide a safety net if the MACT standard set under § 112(d) does not sufficiently reduce cancer risk.

Commenter IV-D-96 stated that EPA rejected the idea that *de minimis* exceptions are available in the way that AF&PA suggests in the response to comments for the Proposed NESHAP for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills (p. 23, attached to the comment). Allowing facilities to conduct a risk assessment in an attempt to prove that they are *de minimis* sources of carcinogens is to convert MACT's technology-based standard setting approach back into a health-based standard setting process - a result explicitly rejected by Congress. The commenter stated that invoking § 112(f)(2)(A) as a *de minimis* granting authority for individual assessment of non-threshold pollutants converts a back-end safety net into a front-end excuse for not establishing a technology-based standard. The commenter referenced a floor statement made by Senator Durenberger that emphasizes the fact that no *de minimis* regulatory authority exists for non-threshold pollutants (Legislative History at 876). Courts have held that EPA may not create individual *de minimis* exemptions in the absence of clear statutory authority to do so (Alabama Power Co. v. Costle, 636 F.2D (D.C. Cir. 1979)). Commenter IV-D-96 stated that no logical reading of section112(f)(2)(A) or the CAA's legislative history would lead a reasonable person to believe that Congress granted EPA authority to reduce or avoid a MACT standard because it was too protective of cancer risks.

Commenter IV-D-96 also asserted that EPA lacks *de minimis* authority to delist subcategories based on risk According to the commenter, the CAA's text and purpose prohibit the establishment of a separate *de minimis* subcategory to delist sources. Section 112(c)(9)(B)'s text precludes development of a *de minimis* exemption that exceeds the section's narrow authority. The commenter stated that this provision is highly prescriptive in addressing the role of risk assessment in avoiding MACT. The Administrator may delist a category only if no source emits more than a specified amount of HAP. Congress did not intend to include *de minimis* authority in § 112(c)(9)(B). Commenter IV-D-96 stated that a *de minimis* exception in § 112(c)(9)(B) would not further the CAA's purpose of decreasing HAP emissions.

Commenter IV-D-96 charged that AF&PA developed a series of "white papers" exploring multiple iterations of *de minimis* theories that ended up serving as an industry "how to" manual for the illegal exemptions and deregulation promoted by the White House OMB and reflected by EPA in section IV.G of its proposal. EPA has repeatedly and explicitly recognized, however, that a *de minimis* theory is not available to authorize the exemption of any source from a MACT limitation that has been promulgated for the category to which that source belongs. See, e.g., EPA's Brief as Respondent in *Cement Kiln Recycling Coalition v. Browner*, U.S. Court

of Appeals for the D.C. Circuit, Case No. 99-1457, January 18, 2001, at 53 (Attachment 1 to IV-D-96) ("EPA rightly concluded that '[s]ection 112 of the Act does not provide for exceptions from emission standards based on *de minimis* principles where a MACT floor exists.' RTC at 211 (JA 1542)."). EPA may not rely on its narrow *de minimis* exemption authority to escape the highly prescriptive provisions in § 112.

Commenter IV-D-96 stated that first, the basic legal purpose justifying invocation of the *de minimis* doctrine - "spar[ing] agency resources for more important matters" -- is not relevant here. See *Public Citizen v. Young*, 831 F.2D 1108, 1112 (D.C. Cir. 1987). EPA can and must issue MACT standards to regulate every HAP emitted by the source category, and the agency resources devoted to this task will not be reduced by relying upon AF&PA's unfounded *de minimis* theories. The commenter noted that EPA's own proposal discusses the complex issues associated with establishing these various *de minimis* exemptions, and EPA acknowledges in the final BSCP MACT standard that creation of these exemptions is complex and time-consuming. Agency resources would be consumed to a far greater degree attempting to develop these approaches than not. Commenter IV-D-96 added that these conclusions are doubly true with respect to the resources of state and local permitting authorities, as explained by these officials in comments on the BSCP MACT proposal and other proposals (including this one) in which EPA has proposed saddling them with time-consuming, complex risk assessments and cumbersome determinations in service of industry's deregulatory agenda.

Commenter IV-D-96 stated that second, any purported inconvenience to industry from complying with MACT is not a justification for invoking the *de minimis* doctrine so as to escape clear statutory provisions. It is hardly an "absurd or futile" result to require facilities to control their cancer-causing emissions and other HAPs with MACT-level controls, since this is the plain purpose of § 112's technology-based system of regulation. *Alabama Power v. Costle*, 636 F.2D 323, 360, n.89 (D.C. Cir. 1979).

Commenter IV-D-96 stated moreover, that requiring these HAPs to be controlled with MACT emissions standards clearly "provide[s] benefits, in the sense of furthering the regulatory objectives" of the Act's HAP program. *Alabama Power*, 636 F.2D at 361. At any rate, EPA has not revealed any administrative record justifying a *de minimis* exemption, to demonstrate in any way that compliance with MACT would "yield a gain of trivial or no value." Id.

Commenter IV-D-96 stated further that Congress defined the terms, "modification" and "major source," such to ensure that the severe proscription in subsection 112(g)(2) would not apply where only *de minimis* HAP emissions resulted from the construction of a new source or the modification of an existing one. The commenter noted that in its white paper, AF&PA asserts that EPA's "presumptive *de minimis* authority" empowers the agency to promulgate a rule instituting the concentration-based applicability threshold. Commenter IV-D-96 submitted that this assertion is specious. First of all, to the extent Congress has authorized any *de minimis* exclusion from the MACT requirement, the exclusion is for *de minimis* amounts of a HAP emitted. A limit on the concentration of a HAP in a source's exhaust stream imposes no limit whatsoever on the amount of the HAP that is emitted from that source. The commenter stated that furthermore, Congress already set forth in the text of § 112 the extent of the allowance that it wished to make for *de minimis* amounts of HAP emissions. Commenter IV-D-96 claimed that the rule that AF&PA promotes would purport to exempt from the MACT requirement changes that cause HAP emissions increases in excess of any *de minimis* thresholds that Congress has set, or that EPA has instituted pursuant to the limited discretion afforded the agency by subsection 112(a)(5). AF&PA's misplaced invocation of the *de minimis* doctrine fails to hide the conflict between its proposed exemption and the dictates of the CAA.

Commenter IV-D-96 stated that the third exemption suggested by AF&PA and proposed by EPA, a so-called "concentration-based applicability threshold," is unlawful. Subsection 112(g)(2) of the CAA declares that no person may construct, reconstruct, or modify "a major source of hazardous air pollutants" unless the permitting authority "determines that the maximum achievable control technology emission limitation under this section for existing sources will be met." As long as the source meets the "major source" threshold and the proposed modification would cause more than a *de minimis* increase in HAP emissions, the CAA requires a MACT determination. The CAA does not contain any provision authorizing EPA to waive this requirement where the post-change HAP concentration in the source's exhaust stream will not exceed a certain level, or where the source owner commits to adopt just enough HAP control to bring the concentration down to that level. After all, whether a source's exhaust stream meets a certain HAP concentration limit has no bearing on whether the source meets the MACT emission limitation. As EPA itself acknowledges in the preamble of its final BSCP NESHAP: "Exhaust gas concentrations have no effect on mass emission rates, provided the concentrations are above the test method detection limit. The mass emission rate (e.g., pounds of pollutant emitted per hour) for a source is unchanged regardless of how much dilution air is introduced." Because it purports to replace the MACT emission limitation with a requirement that places no limit on the mass emission rate, the rule that the AF&PA wants EPA to promulgate stands in direct conflict with the clear language of the CAA.

Regarding the use of a concentration-based applicability threshold, commenter IV-D-14 stated that this is not what Congress intended in the CAAA of 1990. Congress mandated that the MACT floor be established as initial level of control.

Response: We disagree with the commenters who claimed that the low risk approaches, especially the concentration-based exemption, can be justified by *de minimis* principles. Our *de minimis* authority exists to help avoid excessive regulation of tiny amounts of pollutants, where regulation would yield a result contrary to a primary legislative goal. It is unavailable "where the regulatory function does provide benefits, in the sense of furthering the regulatory objectives, but the EPA concludes that the acknowledged benefits are exceeded by the costs." EDF v. EPA, 82 F.3d 451, 466 (D.C. Cir. 1996); Public Citizen v. Young, 831 F.2d 1108, 1112-13 (D.C. Cir. 1987); Alabama Power v. EPA, 636 F.2d 323, 360-61 & n.89 (D.C. Cir. 1979). Accordingly, a *de minimis* exemption to § 112(d)(3) is unavailable in this final rule, because it would frustrate a primary legislative goal by preventing application of the MACT floor to tons of HAP emissions from boiler and process heater affected sources.

The U.S. Court of Appeals for the District of Columbia Circuit has already addressed the *de minimis* concept in the MACT context, in National Lime Ass'n v. EPA, 233 F.3d 625, 640 (D.C. Cir. 2000) ("National Lime"), in which the court rejected the industry petitioner's claim that in light of both the high costs and low quantities of HAP at issue in that case, EPA should read a *de minimis* exception into the requirement that it regulate all HAP emitted by major sources. In that case, the Court found that "EPA reasonably rejected this argument on the ground that the statute 'does not provide for exceptions from emissions standards based on *de minimis* principles where a MACT floor exists.'" (See National Lime at 640.) We recently re-affirmed our position on the unavailability of *de minimis* exemptions from the MACT floor in the final rule regulating organic liquids distribution. (See 69 FR 5038, 5048-49 (February 3, 2004).)

We see no reason to revisit this fundamental issue. Section 112 of the CAA is replete with careful definitions of mass- or effect-based limitation on regulation, indicating that Congress has already defined what amounts of HAP emissions are too small to warrant MACT

standards or other controls under § 112. The requirement to adopt MACT emission limitations, for example, applies without exception to "each category or subcategory of major sources . . . of [HAP]." ( see CAA § 112(d)(1).) For sources below the major source threshold, however, we have discretion to require "generally available control technologies or management practices." (see CAA § 112(d)(5).) Congress has thus itself defined which sources' emissions are small enough not to warrant mandatory MACT standards.

Congress likewise defined several MACT exceptions applicable where emissions have *de minimis* health effects. Section 112(d)(4) of the CAA allows us to establish standards less stringent than MACT for HAP with an established health threshold, so long as we set a standard below the health threshold with "an ample margin of safety." Section 112(b)(3)(C) of the CAA directs us to de-list HAP – precluding § 112(d) MACT standards – if we determine that "there is adequate data on the health and environmental effects of the substance to determine that emissions, ambient concentrations, bioaccumulation or deposition of the substance may not reasonably be anticipated to cause any adverse effects to the [sic] human health or adverse environmental effects." Section 112(c)(9)(B)(i) of the CAA (discussed further below) lets us delete source categories and subcategories from the category list – the consequence again being no MACT control – if we determine that, for emissions of carcinogenic HAP, "no source in the category . . . emits such [HAP] in quantities which may cause a lifetime risk of cancer greater than one in one million to the individual in the population who is most exposed to emissions of such pollutant from the source." For noncarcinogens, we may delete source categories and subcategories if we determine that "emissions from no source in the category or subcategory . . . exceed a level which is adequate to protect public health with an ample margin of safety and no adverse environmental effect will result from emissions from any source." (See CAA § 112(c)(9)(B)(ii).) Moreover, in defining which source modifications trigger additional regulatory standards, CAA § 112(g)(1)(A) mentions a "greater than *de minimis* increase in actual emission of a [HAP]." This shows that Congress knew how to use the *de minimis* concept when it considered it appropriate in § 112, and the fact that Congress did not use it in § 112(d)(3) supports EPA's—and the D.C. Circuit's—conclusion that it is unavailable to support an exception to a MACT floor that is not otherwise authorized under § 112.

We do not find persuasive the proposition that the overall purpose of § 112 is protecting human health and the environment, and that, therefore, as long as this general purpose is met, we may fashion *de minimis* exceptions from MACT beyond those allowed under § 112. First, this position appears to assume that the issue is to be drawn on a clean slate, while the D.C. Circuit has affirmed our view that § 112(d)(3) provides no discretion to use a *de minimis* rationale to avoid MACT. Second, the commenter appears to give prominence to an over-arching statutory goal over the specific language of the statutory provisions themselves, in assessing whether those provisions are "extraordinarily rigid" regarding EPA's otherwise-inherent *de minimis* authority; the logical extension of such an approach would be to find that no single provision in the CAA could restrict our *de minimis* authority, in light of the CAA's over-arching purpose "to promote the public health and welfare." (see CAA § 101(b)(1).) Third, the commenter does not present any persuasive statutory arguments to overcome those that we presented to the court – and which the court affirmed – in National Lime. Fourth, we are unable to discern the basis for the commenter's suggestion that we have in fact been relying on *de minimis* authority in the MACT program for several years in establishing applicability thresholds, and we are not aware of any instance in which we have explicitly justified an exception from an applicable MACT floor based on a *de minimis* rationale that would be, like the commenter's requested exemption, in contravention of the Court's ruling in National Lime. Fifth, notwithstanding any asserted overall

risk-based goal of § 112, § 112(d)(2) repeatedly directs EPA to "eliminate emissions," where feasible, and § 112(d)(6) imposes an ongoing obligation for EPA to review and revise standards as necessary to account for developments in technology, and neither of these specific goals is restricted to situations where health targets have not yet been reached. Finally, to the extent the commenters believe such a *de minimis* exemption is justified by the wish to reduce the costs of the final rule, we are not free to grant a *de minimis* exemption to account for costs: Congress already took cost into account in § 112(d), relying on prior business judgments by the best performing sources to substitute for the judgment of the rest of the Industrial/Commercial/Institutional Boilers and Process Heaters source category, therefore denying us the leeway to consider costs as a factor to modify the MACT floor. Only in considering more stringent "beyond floor" standards may we consider costs in the MACT context. Therefore, we do not believe it is appropriate or necessary to revisit our and the D.C. Circuit's prior conclusions regarding the availability of the *de minimis* principle in the final rule.

## 18.4 LEGAL ISSUES: SECTION 112(c)(9) AUTHORITY

### 18.4.1 Section 112(c)(9) Authority for Delisting Source Categories or Subcategories

Comment: Several commenters (IV-D-72, IV-D-73, IV-D-75, IV-D-123) supported the use of §112(c)(9) authority to delist categories or subcategories. Commenter IV-D-72 stated that EPA has broad discretion to tailor source categories as appropriate to best reflect the source category. Specifically, §112(c)(9) provides that EPA establish categories and subcategories of sources, as appropriate, pursuant to CAA §112(c)(1), in order to facilitate the development of MACT standards consistent with §112 of the CAA. The commenter further pointed out that §112(c)(9)(B) allows EPA to delete a category (or subcategory) from the list of major sources for which MACT standards are to be developed when the following can be demonstrated: (1) in the case of carcinogenic pollutants, that "...no source in the category...emits (carcinogenic) air pollutants in quantities which may cause a lifetime risk of cancer greater than 1 in 1 million to the individual in the population who is most exposed to emissions of such pollutants from the source..."; (2) in the case of pollutants that cause adverse non-cancer health effects, that "...emissions from no source in the category or subcategory...exceed a level which is adequate to protect public health with an ample margin of safety..."; and (3) in the case of pollutants that cause adverse environmental effects, that "no adverse environmental effect will result from emissions from any source..." Commenter IV-D-72 stated that this level of discretion clearly grants EPA the authority to establish subcategor[ies] of facilities within the larger source category that would meet the risk-based criteria for delisting. Such criteria would likely include HI limits for threshold pollutants and a cancer risk level of $10^{-6}$ for non-threshold pollutants.

Commenter IV-D-75 noted that EPA stated in its initial list of source categories that Congress appeared to use the terms category and subcategory interchangeably, and that either a category or subcategory, therefore, can be delisted. Furthermore, §112(c)(9)(B) indicates that the Administrator can delist both categories and subcategories. The commenter pointed out that the subsection regarding carcinogenic HAP states that a category of sources can be delisted after a determination that "no source in the category" emit pollutants in an amount that poses a lifetime cancer risk greater than one in one million. The criteria for non-carcinogens allows for delisting "when no source in the category or subcategory" exceeds an emissions level adequate to protect public health. Commenter IV-D-73 added that nothing in the statute or history of EPA's interpretation of §112(c) precludes subcategorization based on risk, and, in addition, EPA

has stated that emission characteristics are factors to be considered when defining categories.

Commenter IV-D-75 stated that §§112(c)(1) and 112(c)(9) provide EPA the authority to create and delist low risk source categories. The commenter stated that while §112(c)(9) is clear in limiting the delisting to categories and subcategories in which all sources meet the applicable tests, the CAA provides the Administrator with significant flexibility to create categories and subcategories as needed to implement §112. Specifically, §112(c)(1) states that "Nothing in the preceding sentence limits the Administrator's authority to establish subcategories under this section, as appropriate." The commenter stated that there is nothing in the statute that limits the criteria the Administrator can use in establishing categories and subcategories. The commenter also pointed out that application of the statutory authority to exclude sources from regulation under §112(d)(3) is supported by relevant case law. In the Vinyl Chloride decision (NRDC v. EPA, 824 F.2D 1126 (D.C. Cir. 1987)), the court noted that what is considered a "safe" level is always "marked by scientific uncertainty." The court established a range of acceptable level of risk in establishing limits under prior language in § 112. The commenter suggested that the establishment of an acceptable level of risk could be used to create a low-risk subcategory that could be delisted. The commenter also noted that technological or operational differences among sources may also be appropriate of the differences help to discriminate between low-risk and high-risk sources. Finally, the commenter added that effective use of §112(c)(1) authority to create risk based subcategories would significantly improve the cost-effectiveness of the §112 program without undermining its role in protecting public health and the environment.

Commenter IV-D-73 stated that in the preambles, EPA expresses uncertainty over whether it has the authority to subcategorize source categories based on risk. The commenter believed that EPA has ample authority, based on §§112(c)(1) and 112(d)(1), to subcategorize based on risk. Section 112(c)(1) states: "Nothing in the preceding sentence [relating to following the NSPS program categories and subcategories] limits the Administrator's authority to establish subcategories under this section as appropriate." Thus, the commenter noted, Congress allowed EPA discretion to subcategorize previously created categories, regardless of the criteria that EPA used to create the category in the first place, and to do so at any time. Commenter IV-D-73 also pointed out that §112(d)(1) provides that EPA "may distinguish among classes, types and sizes of sources" when establishing MACT standards. According to the commenter, the broad terms "classes," "types," and "sizes" indicate that Congress intended that EPA have broad discretion in establishing subcategories and do not preclude EPA from subcategorizing based on risk, since low-risk sources could be considered a "class" or "type" of source. The commenter added that the only case to clarify this statutory language recognized the broad discretion it confers on EPA to create subcategories with different emission standards. *Sierra Club v. Costle,* 657 F.2D 298 (D.C. Cir. 1981). The Court noted, "[t]he required finding that must underlie a variable standard is much broader than a mere determination that uniformity is not achievable." *Id.* at 321. On this basis, the Court expressly upheld EPA's subcategorization of coal-fired power plants based on the sulfur content of fuel. More generally, the commenter stated that the *Sierra Club* decision confirms EPA's discretion to set differentiated emissions standards for subcategories of sources, even in instances where the strictest standard may be achievable by all sources.

Commenter IV-D-123 stated that EPA has ample legal authority to subcategorize and delist low risk sources and that EPA has ample legal authority to subcategorize on the basis of risk. The commenter submitted that NRDC's and Earthjustice's contrasting of the terms "category" and "subcategory" offers a distinction that in no way limits EPA's authority to delist low risk sources. The commenter believed the idea that EPA cannot create subcategories based

on risk is contradicted by the statutory language, which expressly states that the categories and subcategories EPA creates under §112 need not match those created under §111. Further, prior EPA statements do nothing to detract from the Agency's broad discretion to establish categories and subcategories. Commenter IV-D-123 stated that the subcategorization factors previously discussed by the Agency justify subcategorization based on risk. The commenter stated further that the authority cited by NRDC does not establish that EPA's discretion to alter subcategorization is limited in anyway, and even if it were, EPA is not bound by any prior position. The arguments that EPA may not delist subcategories for carcinogens (or sources emitting carcinogens) rest on a formalistic distinction that EPA previously has rejected as meaningless, and that, at any rate, can be remedied with a simple recasting of a subcategory as a category. The commenter asserted that doing so is undisputedly within EPA's authority.

Numerous commenters (IV-D-05, IV-D-55, IV-D-96, IV-D-113, IV-D-127, and IV-D-135) stated that §112(c)(9) should not be used to subcategorize based on risk. Commenter IV-D-113 stated that subcategory delisting under §112(c)(9)(B) is flatly unlawful. The commenter pointed out that §112(c)(9)(B) provides that EPA "may delete any source category" from the §112(c) list upon making certain determinations. The commenter submitted that Congress was well aware of the difference between a "category" and a "subcategory" when it enacted §112(c). When Congress wished to refer to both subcategories and subcategories, it did so expressly. Commenter IV-D-113 stated that by referring only to "category," Congress made plain that §112(c)(9)(B) does not allow EPA to delist a "subcategory" for any reason.

Commenter IV-D-96 stated that EPA's subcategorization theories are unlawful. The commenter presented the following arguments supporting the opinion that §112(c)(9) does not authorize EPA to separate identical pollution sources into subcategories that are regulated differently to weed out low risk facilities or reduce the scope/cost of the standard.

EPA may not subcategorize based on risk. Commenter IV-D-96 stated that subcategories based solely on risk do not bear a reasonable relationship to Congress' technology-based approach or the statutory structure and purposes of §112, and are not authorized by the CAA. Categories and subcategories are required to be consistent with the categories of stationary sources in §111. The commenter was not aware of any instance in which EPA has established categories or subcategories based on risk. The commenter stated that EPA routinely defines subcategories based on equipment characteristics (e.g., technical differences in emissions characteristics, processes, control device applicability, or opportunities for pollution prevention). The commenter pointed out that EPA has not offered any explanation for why reinterpreting the statute to ignore nearly 12 years of settled practices and expectations under the MACT program is reasonable, not why reducing the applicability of HAP emission standards serves Congress's goals in enacting the 1990 CAAA.

EPA may not subcategorize to reduce costs. Commenter IV-D-96 noted that EPA's discussion of the risk-based exemptions is contained in a preamble section entitled, "Can We Achieve the Goals of the Proposed Rule in a Less Costly Manner." This strongly suggested to the commenter that EPA's motivation for considering these risk-based approaches, including the §112(c)(9) approach, is consideration of cost.

Commenter IV-D-96 stated that EPA itself has rejected the notion that cost should influence MACT determination, and this prior, consistently applied interpretation better serves the purposes of §112. The commenter pointed out that in the "Summary of Public Comments and responses on the Proposed NESHAP for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills" (attached to the comment), the Agency addressed concerns about high costs and low emissions reductions by saying "invoking

a *de minimis* concept for MACT floors would frustrate a primary legislative goal - disregard of costs in determining the MACT floor." When this decision was challenged in court, EPA replied that "sources already took costs into account in taking measures to limit HAP emissions, and Congress built their cost judgements into the statute by mandating that all others in the industry achieve the same limitations. Thus, further consideration of cost factors by EPA is both unnecessary and impermissible." (The commenter attached portions of the Brief for Respondent Environmental Protection Agency, National Lime Ass'n v. EPA, 233 F.3D 625 (D.C. Cir. 2000), at 47 (July 14, 2000).) The commenter stated that the D.C. Court agreed with EPA on this point. Subcategorizing to set a no control MACT floor is the same as refusing to set a MACT standard because the benefits would be negligible, which is unlawful.

EPA may not delist a subcategory of carcinogens. Commenter IV-D-96 pointed out that §112(c)(9)(B)(i) does not authorize EPA to delist subcategories. Section 112(c)(9)(B) contains two subsections. Subsection (i) refers only to categories, and subsection (ii) refers to both categories and subcategories. The commenter believed that the absence of the term "subcategories" in §112(c)(9)(B)(i) indicates a Congressional choice not to permit the Administrator to delist subcategories of sources under §112(c)(9)(B). The commenter stated that this is consistent with Congress's decision to require a higher standard to delist categories that emit carcinogens. The commenter added that the §112(c)(9)(B)(ii) requirement of less than one in a million lifetime cancer risk for the most exposed individual is a higher and more specific standard than the standard for other HAP.

Commenter IV-D-113 stated that even if EPA could delist a subcategory, it could not do so based on risk. The commenter observed that §112(c) states that "[t]o the extent practicable, categories and subcategories listed under this subsection shall be consistent with the list of source categories established pursuant to section 111 and part C," and the commenter stated that subcategories based on risk would not be consistent with either the §111 list or part C. The commenter added that EPA has interpreted the statement regarding subcategorizing by "classes, types, and sizes" in §112(d) to mean that subcategories must share physical characteristics relevant to the degree of pollution control that can be achieved. Because risk is not such a characteristic, EPA may not subcategorize based on risk. The commenter also added that risk-based subcategories would be at odds with Congress's purpose in enacting §112, i.e., requiring technology-based standards with a performance-based floor, which was intended to overcome the difficulties EPA encountered in completing health-based standards. In addition, the commenter stated that EPA has not provided a reason for departing from its current interpretation of the guidelines for establishing subcategories other than to avoid setting emission standards. Thus, subcategorization based on risk, including under the pretense of subcategorization by technology (which EPA admits to considering), would be unlawful.

Commenter IV-D-113 stated that EPA did not propose any subcategories for delisting, and if EPA wanted to delist a subcategory, they would have to propose the delisting and allow the public to comment. The commenter added that instead of creating further delays with such a process, EPA should consider that its standards are already late and should focus its resources on completing the overdue standards instead of providing unlawful exemptions for industry groups that wish to avoid cleaning up their hazardous air pollution.

Commenter IV-D-135 noted that EPA requested comment on establishing a subcategory of facilities within the larger industrial boiler and process heater source category that would meet the risk-based criteria for delisting under §112(c)(9)(B). The commenter further noted that §112(c)(9)(B)(i) authorizes the Administrator to delist a source category even if a source in the source category emits carcinogenic HAPs. However, the Administrator must first find that no

source in the category will emit such HAPs at levels that would cause a one in one million lifetime risk of cancer. [42 U.S.C. Section 7412(c)(9)(B)(i).] The commenter asserted that clearly EPA's proposed delisting of a subcategory is inappropriate here because EPA has not made the finding in this proposal that no boiler or process heater source in the source category could emit greater than this amount for all of the carcinogens regulated by this rulemaking.

Commenter IV-D-05 stated that the only option that appears consistent with the CAA, does not create excessive work for State and local agencies, and may be able to be based on science, is the subcategorization and delisting approach. However, the commenter added that the subcategories should be based on equipment or fuel use, not risk. The commenter added that a subcategory based on site-specific risk creates a circular definition and does not make sense. The commenter also stated that subcategory de-listing should occur before the compliance date so that facilities don't put off compliance in the hope or anticipation of de-listing.

Commenter IV-D-96 stated that EPA requested comment on the establishment of PCWP subcategories ostensibly based on physical and operational characteristics, but in reality based on risk. The commenter responded that This indirect approach is just a variation on the approach (direct reliance on risk) that EPA itself notes would disrupt and weaken establishment of MACT floors, and is accordingly unlawful. The commenter stated that even if these approaches were lawful, to the extent that EPA's proposal could be read to suggest that facilities could be allowed to become part of the allegedly low-risk subcategory in the future without additional EPA rulemaking, this too would be unlawful. According to the commenter, §112(c)(9) provides the EPA Administrator alone the authority to make delisting determinations, and such authority may not be delegated to other government authorities or private parties. The commenter stated that EPA's proposal suggests an approach entirely backward from the statute, i.e., allowing sources to demonstrate after-the-fact that it belongs in a subcategory that has been delisted under subsection 112(c)(9), when the statute requires that EPA determine that no source in the category emits cancer-causing HAPs above specified levels, or that no source in the category or subcategory emit non-carcinogenic HAPs above specified levels, by the time the agency establishes the standard. Commenter IV-D-96 noted that EPA provides no explanation of how the suggested approaches would be lawful or workable.

Commenter IV-D-55 requested that EPA focus on the different circumstances applicable to seasonal agricultural operations to exempt facilities. The commenter claimed that emissions of HAPs such as HCl and acetaldehyde on a seasonal basis do not create any risk to health or safety. The commenter noted that in the past EPA has treated acetaldehyde as a non-threshold pollutant, but that in reassessing the carcinogenic dose-response relationship for acetaldehyde, EPA is considering reclassifying acetaldehyde as a threshold carcinogen subject to risk exceptions. The commenter believed that EPA should create a risk-based exemption for seasonal agricultural facilities which trigger HAP thresholds through natural production of food products. The commenter asserted that the absence of any serious risk of cancer or carcinogenic affects from HCl, a surrogate for non-HAPs emissions, indicated that sugar beet processing is a subcategory ideally suited for delisting.

Commenter IV-D-127 noted that the MACT floor analysis did not define a required control for any small boiler and submitted that the size and type of unit are clearly distinguishable and the risk offered by these units is exceptionally small. The commenter asserted that due to the low risk offered by small equipment, the easy identification of the equipment, and the consistent low-risk character of the emissions, small equipment firing any fuel should be subcategorized and delisted from the MACT source category.

Commenter IV-D-127 believed that boilers and process heaters, of all sizes, firing

gaseous fossil fuels and distillate fuel oil represented a low risk class of boilers and process heaters. The commenter stated that due to the low risk offered by equipment firing these fuels, the easy identification and characterization of the fuels, and the consistency of the character of the emissions, equipment firing gaseous fossil fuel and distillate fuel oil should be subcategorized and delisted from the MACT source category.

Response: As is explained in response 18.2.1, we have chosen to exercise the authority granted to us pursuant to §112(d)(4) of the CAA in establishing health-based emission standards for HCl and Mn which are applicable to the large solid fuel-fired subcategories. For a discussion of our use of §112(c)(9) authority to define a risk-based subcategory and delist the subcategory refer to the PCWP NESHAP final preamble. (See Docket ID No. OAR-2003-0048.)

### 18.4.2 The Impact on MACT floors of a Low-Risk Subcategory

Comment: Commenter IV-D-05 stated that the preamble discussion of a low-risk subcategory on the MACT floors for the entire category sounds like another valid reason not to mix the risk-based and technology-based standards development. The commenter added that EPA does not address how the "once in, always in" policy would apply.

Commenter IV-D-96 stated that EPA itself provides an additional compelling reason why the suggested §112(c)(9) sub-categorization approach is unlawful and arbitrary, i.e., its effect on establishment of MACT floors. According to the commenter, this flaw is so obvious, inherent and contrary to the MACT floor provisions of §112 and its legislative history, that it proves the undoing of the suggested §112(c)(9) exemption. The commenter believed that EPA cannot simultaneously exercise its source category delisting authority consistent with §112(c)(9), establish appropriate MACT floors under §112(d), and establish sub-category exemptions in the manner suggested by EPA, because the latter approach contravenes both §112(c)(9) and the §112(d) floor-setting process.

Commenter IV-D-96 stated further that EPA may not subcategorize based upon risk, or delist a subcategory of carcinogens because there is nothing in the CAA authorizing EPA to do either with respect to individual facilities or subcategories after a MACT standard has been established. Section 112's major source thresholds and statutory deadlines make clear that sources meeting MACT by the time EPA is required to issue MACT standards must install MACT controls and may not subsequently throw them off or be relieved from meeting the MACT-level standards. The commenter asserts that while the §112(f) residual risk process allows EPA to establish more stringent emissions standards, there is nothing in the CAA that suggests EPA possesses authority to relax promulgated MACT standards.

Commenter IV-D-113 stated that even if EPA could subcategorize based on risk, it would be unlawful for EPA to refuse to consider low-risk facilities in the floor calculations since §112 does not provide any exceptions to its mandate to base floors on the emission levels achieved by the relevant best-performing sources.

Commenter IV-D-135 stated that EPA recognized that a concern with the approach of delisting a subcategory of facilities under §112(c)(9)(B) is the effect it would have on the MACT floors. If many of the facilities in the low-risk categories are well controlled or have low emissions, removing them from the category could make the MACT floor less stringent for the remaining facilities. The commenter observed that this was inconsistent with the CAA mandate that the MACT floors reflect the emissions limitation achieved by the best performing sources.

Commenter IV-D-73 supported the concept described in the preambles regarding the establishment of the MACT floor based on the controls for the entire source category. The

commenter agreed that considering controls for low-risk subcategories could maintain the appropriate stringency of the MACT floor. Once the floor is established, facilities could demonstrate their inclusion in the low-risk category that is subsequently listed.

Response: We have chosen not to use §112(c)(9) authority to delist a subcategory and there are no additional subcategories and no delisting of subcategories, as would be consistent with §112(c)(9). We are not attempting to establish or rely upon *de minimis* authority. Instead we are using §112(d)(4) authority to establish health-based compliance alternatives for affected facilities in the large solid fuel-fired boilers and process heaters subcategory that demonstrate eligibility under the procedures prescribed in Appendix A to the final rule. For affected facilities that demonstrate eligibility for the health-based compliance alternatives for HCl and/or Mn, the parameters used to demonstrate eligibility will be incorporated into title V permits as federally enforceable permit terms and the affected sources will remain subject to the monitoring, reporting, and recordkeeping requirements of the final rule. Additionally, affected sources that demonstrate eligibility for the Mn compliance alternative will be required to comply with the PM limit or the TSM limit based on seven metals (excluding Mn) instead of eight. Therefore, the affected sources remain in the MACT database and the boiler and process heater MACT floors are not affected.

## 18.5 RISK ASSESSMENT FRAMEWORK ISSUES: POLLUTANT-SPECIFIC BENCHMARKS

### 18.5.1 Boiler and process heater risk low

Comment: Commenter IV-D-179 expressed concern about the imposition of very stringent standards for HCl emissions from solid fuel-fired boilers. The commenter completed air dispersion modeling of the HCl emission that could be present at their Rock Hill plant that operates five coal-fired boilers. Three of the units have a heat input capacity of 176 MMBtu/hr and the other two have a heat input capacity of 222 MMBtu/hr. The boilers are equipped with ESPs for particulate control but are not currently controlled for HCl emissions.

As input to the dispersion model, commenter IV-D-179 estimated the maximum emissions likely to be expected. First, the commenter calculated the maximum HCl emission factor based on the highest chlorine content in coal delivered to the plant over a five year period and assuming it would be totally converted to HCl emissions. Second, the commenter also developed a worst-case emission factor from stack testing of similar boilers at the commenter's plant in Narrows, Virginia which obtain coal from a different source. The resulting worst-case emission factor estimates were 0.17 and 0.23 lb/MMBtu HCl, respectively. Each of these emission factors was applied to the maximum rated capacities of the five coal-fired boilers at the Rock Hill site to estimate maximum emissions of HCl for each emission point.

The commenter modeled these resulting emission rates using the Industrial Source Complex Short Term Model, Version 3 (ISCST3) dispersion model. Modeling was performed in accordance with approved procedures documented in EPA's "Guideline on Air Quality Models". The maximum predicted annual concentration was 0.95 $\mu g/m^3$ HCl. The HQ calculated from the RfC (20 $\mu g/m^3$) is 0.05. Therefore, there is not a concern for long term health effects from the maximum exposure to HCl that can be expected from the Rock Hill plant. Similarly, the maximum predicted short term exposures (24-, 12-, 8-, and 1-hour concentrations) were well below any short term exposure guidelines for HCl.

Commenter IV-D-179 asserted that this study shows that the concentrations of HCl near

the Rock Hill facility are well below any thresholds of concern. Yet, the proposed rule would require the installation of very expensive scrubbing technology even when the HAP removed does not pose a health threat to the surrounding community. The commenter estimated that installation of scrubbing technology at the Rock Hill facility will cost three to five million dollars and is not justified given the total lack of environmental risk to human health.

Response: As described in Appendix A of subpart DDDDD of 40 CFR part 63, the final rule will include a provision allowing affected sources to make a health-based demonstration for emissions of HCl for those boilers and process heaters in the large solid fuel-fired subcategory. Affected sources that can demonstrate eligibility for this compliance alternative by either a look-up table analysis or site-specific modeling will not be required to install additional scrubbing technology. These boilers and process heaters would still be required to meet the PM limit or the alternative TSM emission limits.

Comment: Nine commenters (IV-D-28, IV-D-39, IV-D-99, IV-D-100, IV-D-124, IV-D-129, IV-D-132, IV-D-133, and IV-D-134) submitted that boilers sized 50 MMBtu or smaller should be exempt from regulation because those boilers do not emit any pollutant that would threaten public health as defined by CAA, § 112(f). The commenters cited CAA § 112(f)(2) which requires standards applicable to a source or source category that emit[s] a pollutant classified as a known or possible human carcinogen do not reduce the "lifetime excess cancer risk to the individual most exposed to emissions from a source in the category or subcategory to less than one in one million." The commenters noted that commenter IV-D-39 authorized a study of metallic HAP emissions from typical furniture industry wood and coal-fired boilers. The emissions estimates in this study were based on EPA emission factors from AP-42 and resulted in emissions exceeding EPA's alternative cumulative metals exemption level. However, Mn was responsible for 91.8 percent of the emissions from wood residue and was the only constituent over the metals exemption threshold. The commenters pointed out that according to EPA, Mn is a category D pollutant that is mainly an irritant in large quantities and is not classifiable as to carcinogenicity in humans. The commenters stated that commenter IV-D-39 is in the process of finalizing a study to confirm that small boilers in the furniture industry do not emit enough HAP to create a health-based risk. The commenters asserted that not only are small boilers not a health risk, but they do not emit any carcinogens that can be measured above trace amounts while combusting wood fuel.

Response: Manganese is a threshold pollutant and has not been suspected of causing cancer. Therefore, cancer risk estimates are not applicable to Mn. As described in Appendix A of subpart DDDDD of 40 CFR part 63, the final rule will include a provision allowing affected sources with boilers and process heaters in the large solid fuel-fired subcategory to make a health-based demonstration for Mn emissions. Affected sources that can demonstrate eligibility for this compliance alternative by either a look-up table analysis or site-specific modeling will not be required to include Mn in their metals limit (TSM) under the Boilers MACT but can comply with a TSM limit based on seven metals (excluding Mn) rather than eight.

Comment: Commenters IV-D-26, IV-D-104, and IV-D-150 presented the results of a detailed modeling analysis of TSM, Hg, and HCl emissions conducted for four sugar mills. Standard EPA models and protocols were followed in the analysis. Maximum annual impacts at the property line for each mill were determined based on the existing mill operations and stack parameters. The maximum total impacts due to each mill for TSM, Hg, and HCl were then compared to the RfC for each HAP, as well as the unit risk factor (for carcinogens), as shown in

Table 4 of the preamble to the proposed rule. The commenters presented two sets of results, one based on fuel analysis and not reflecting any reduction in emissions due to the inherent removal mechanisms (the fly ash resulting from bagasse fuel burning is highly alkaline, resulting in significant absorption of acid gases) or to existing control devices (one boiler utilizes an ESP) and the second based on emissions determined from stack testing. The total impact of TSM, Hg, and HCl emissions based solely on fuel analysis, is well below a HI of 1.0, but results in a risk of six in one million for carcinogens (eight metals, including arsenic, beryllium, cadmium, chromium (VI), lead, Mn, nickle, and selenium). The total impact of TSM, Hg, and HCl emissions based on stack test results accounting for the effects of existing control devices on sugar mill boilers show a reduction in excess cancer risk to less than one in one million. Commenters IV-D-104 and IV-D-26 submitted that the purpose of this analysis is to demonstrate that bagasse fuel by its very nature is a clean fuel, is consistent in quality, and emissions of TSM, Hg, or HCl from bagasse fuel burning pose no risk to the public; therefore, bagasse fuel does not warrant regulation in regards to PM/TSM, Hg, or HCl. The commenters requested that bagasse be specifically exempted from the PM/TSM, Hg, and HCl limits of the MACT rule. If this exemption is not granted, the commenters supported the option of fuel analysis to demonstrate compliance, but believe that the continuous compliance demonstration requirements and other requirements related to fuel testing must be reduced considerably to be manageable.

Response: As described in Appendix A of subpart DDDDD of 40 CFR part 63, the final rule will include a provision allowing affected sources to make a health-based demonstration for Mn and/or HCl emissions. Affected sources that can demonstrate eligibility for the Mn compliance alternative by either a look-up table analysis or site-specific modeling will not be required to include Mn in their metals limit (TSM) under the Boilers MACT but can comply with a TSM limit based on seven metals (excluding Mn) rather than eight. Affected sources that can demonstrate eligibility for the HCl compliance alternative by either look-up table analysis or site-specific modeling will not be required to install additional scrubbing technology. These are the only health-based compliance alternatives included in the final rule.

No specific exemption for bagasse fuel has been included in the health-based compliance alternatives. All affected sources with boilers and process heaters in the applicable large solid fuel-fired subcategory have an opportunity to demonstrate that they can meet the health-based compliance alternatives for HCl and/or Mn. Fuel analysis requirements related to continuous compliance demonstration are addressed elsewhere in this document.

When an affected source is demonstrating eligibility for the health-based compliance alternatives, fuel sampling and analysis are not included as options for quantifying HCl and/or Mn emissions levels from boilers and process heaters at the affected source. Affected sources must conduct emissions testing for HCl, $Cl_2$, and/or Mn emissions levels.

### 18.5.2 Dose-response values

Comment: Commenter IV-D-96 stated that § 112(d)(4) is particularly ill-suited to the PCWP and Boiler source categories. The commenter stated that even if EPA had authority to create individualized MACT exemptions based on health thresholds, it could not do so if there is insufficient evidence on the pollutants emitted to establish a NOEL. Section 112(d)(4) does not apply for chemicals that do not have a well-defined threshold based on reliable science.

Available evidence does not establish a no-effect threshold for HF. Commenter IV-D-96 stated that IRIS and NATA do not contain HF. EPA acknowledges data suggesting that those with occupational exposure to fluoride have greater than normal incidences of cancer

(www.epa.gov/ttn/atw/hlthef/hydrogen.html). Registry of Toxic Effects of Chemical Substances (RTECS) suggests that HF has a mutagenic effect in animals. EPA does not have enough evidence to classify HF as a threshold pollutant or to conclude that HF is not a carcinogen. One limited study (Derryberry et al, 1963) contains a NOEL for HF but does not account for children's exposure. There is no determined no-effect level for children, infants, and fetuses.

Available evidence does not establish a no-effect threshold for HCl. Commenter IV-D-96 stated that IRIS states that HCl "has not undergone a complete evaluation and determination" for cancerous effects. Elsewhere EPA concludes that no information exists on HCl carcinogenicity in humans (www.epa.gov/ttn/atw/hlthef/hydrochl.html). RTECS explains that HCl has not reported tumorigenic effect, but could have a mutagenic effect in animals. EPA cannot conclude that HCl does not cause cancer. Rat studies failed to identify a NOEL for HCl. Therefore, the commenter expressed concern that chronic exposure to low levels of HCl could compromise health, especially in sensitive subpopulations.

Available evidence does not establish a no-effect threshold for manganese compounds. Commenter IV-D-96 stated that Mn compounds are on the list of 33 urban air toxics. Regulatory assessments of Mn's toxicological properties prevent EPA from treating the chemical as a threshold pollutant. The IRIS profile for Mn only has lowest observed adverse effect levels (LOAEL) for several critical effects of inhalation exposure to the substance. California EPA (CalEPA) Office of Environmental Health Hazard Assessment's (OEHHA) chronic toxicity summary states that there is no observed adverse effect level (NOAEL) for the critical effect (impairment of neurobehavioral function).

Available evidence does not establish a no-effect threshold for arsenic. Commenter IV-D-96 stated that the preamble acknowledges that arsenic is a human carcinogen. EPA's IRIS database indicates that there is no data for establishing a RfC for arsenic exposure by inhalation or other pathways. In addition, CalEPA OEHHA reports no inhalation NOAEL for exposure to arsenic.

Available evidence does not establish a no-effect threshold for cadmium. Commenter IV-D-96 stated that the preamble acknowledges that cadmium is a probable human carcinogen. EPA's IRIS database indicates that there is no data for establishing a RfC for cadmium exposure by inhalation or other pathways.

Available evidence does not establish a no-effect threshold for chromium. Commenter IV-D-96 stated that the preamble acknowledges that chromium IV is a human carcinogen. EPA's IRIS database does not state that thresholds exist for all negative health effects associated with chromium III or chromium IV exposure by inhalation or other pathways. In addition, CalEPA OEHHA reports no inhalation NOAEL for exposure to chromium.

Available evidence does not establish a no-effect threshold for lead. Commenter IV-D-96 stated that the preamble acknowledges that lead is a probable human carcinogen. EPA's IRIS database indicates that there is no data for establishing a RfC for lead exposure by inhalation or other pathways.

Available evidence does not establish a no-effect threshold for mercury. Commenter IV-D-96 stated that the preamble acknowledges that mercury is a possible human carcinogen. EPA's IRIS database indicates that there is no data for establishing a RfC for exposure to mercuric chloride, and the database does not state that thresholds exist for all negative health effects caused by exposure to elemental mercury. In addition, CalEPA OEHHA reports no NOAEL for exposure to mercury.

Available evidence does not establish a no-effect threshold for nickel. Commenter IV-D-96 stated that the preamble acknowledges that nickel refinery subsulfide as a human carcinogen

and nickel carbonyl as a probably human carcinogen. EPA's IRIS database indicates that there is no data for establishing a RfC for exposure to any of the four nickel substances that it lists. In addition, CalEPA OEHHA reports no NOAEL for exposure to nickel oxide.

Response: As stated previously, we are pursuing establishment of a threshold emission rate for the boilers and process heaters source category under § 112(d)(4) for specific threshold pollutants emitted from affected sources. We agree that § 112(d)(4) applies to threshold pollutants. In the absence of specific scientific evidence to the contrary, it has been our policy to classify non-carcinogenic effects as threshold effects. RfC development is the default approach for threshold (or nonlinear) effects. The methodology employed by EPA, which is consistent with that used by other sources we consult, recognizes that while a NOAEL is preferable to a LOAEL for use as the point of departure (POD) to which uncertainty factors are applied to derive a RfC, a LOAEL may also be used (or a benchmark concentration derived from benchmark modeling).[1] Use of the LOAEL or other POD does not change the underlying presumption of a nonlinear (or threshold) dose-response relationship. For air toxics risk assessments, we identify pertinent toxicity or dose-response values using a default hierarchy of sources, with IRIS being the preferred source, to assist us in identifying the most scientifically appropriate benchmarks for our analyses and decisions. The IRIS process contains internal and external peer review steps and represents EPA consensus values. When adequate toxicity information is not available in IRIS, we consult other sources in a default hierarchy that recognizes the desirability of these qualities in ensuring that we have consistent and scientifically sound assessments. Furthermore, where the IRIS assessment substantially lags the current scientific knowledge, we are committed to consider alternate credible and readily available assessments. RfCs or similar values from other sources are available for all of the HAP listed by the commenter, and we currently rely on these values for assessments of non-cancer risks.

Comments pertaining to the final PCWP NESHAP are addressed in the promulgation preamble for that rule. (See Docket ID No. OAR-2003-0048.)

Comment: Commenter IV-D-135 stated that HCl applicability cutoffs are not permissible. In the IRIS database, EPA stated that HCl "has not undergone a complete evaluation and determination" for cancerous effects. EPA also stated that "no information" exists on HCl carcinogenicity in humans. In addition, EPA set the RfC at 0.02 milligrams per cubic meter ($mg/m^3$) based on rat studies demonstrating adverse effect. These studies failed to establish a NOEL.

Response: While the EPA has not developed a formal evaluation of the potential for HCl carcinogenicity (e.g., for IRIS), the evaluation by the International Agency for Research on Cancer stated that there was inadequate evidence for carcinogenicity in humans or experimental animals and thus concluded that HCl is not classifiable as to its carcinogenicity to humans (Group 3 in their categorization method). Therefore, for the purposes of the final rule, we have evaluated HCl only with regard to non-cancer effects. In the absence of specific scientific evidence to the contrary, it has been our policy to classify non-carcinogenic effects as threshold effects. RfC development is the default approach for threshold (or nonlinear) effects. The methodology employed by EPA, which is consistent with that used by other sources we consult, recognizes that while a NOAEL is preferable to a LOAEL for use as the POD in deriving a RfC, a LOAEL may also be used (or a benchmark concentration derived from benchmark modeling).[1] Use of the LOAEL rather than a NOAEL does not change the underlying presumption of a nonlinear (or threshold) dose-response relationship. A NOEL is not recommended for use in developing a RfC.

Comment: Commenter IV-D-05 stated that EPA should consider formaldehyde and acetaldehyde as carcinogens unless a reassessment classifies them as threshold pollutants.

Commenter IV-D-148 stated that the proposals inappropriately use draft guidelines and toxicity profiles that have not been subject to public review and/or are not publicly available. The commenter was particularly concerned with the reference to the use of non-linear carcinogenic risk values and toxicity profiles (for HAP) that have not been finalized and are not available for review by the public.

Response: We agree that we should use the best available sources of health effects information for risk or hazard determinations. As we have stated previously, we will not be relying exclusively on IRIS values, but will be considering all credible and readily available assessments.[2] For air toxics risk assessments, we identify pertinent toxicity or dose-response values using a default hierarchy of sources, with IRIS being the preferred source, to assist us in identifying the most scientifically appropriate dose-response values for our analyses and decisions. The IRIS process contains internal and external peer review steps and represents EPA consensus values. When adequate toxicity information is not available in IRIS, we consult other sources in a default hierarchy that recognizes the desirability of these qualities to ensure that we have consistent and scientifically sound assessments. Furthermore, where the IRIS assessment substantially lags the current scientific knowledge, we are committed to consider alternative credible and readily available assessments. For our use, these alternatives need to be grounded in publicly available, peer-reviewed information. We are not using information that does not meet these requirements. We agree with the commenter's statement that formaldehyde and acetaldehyde are considered probable human carcinogens. However, both of these HAP can also cause non-carcinogenic (threshold) effects. For the final rule, we are applying § l12(d)(4) only to HAP that can result in threshold effects. Affected sources conducting risk assessments should refer to Appendix A of subpart DDDDD of 40 CFR part 63 and other analytic tools such as the "Air Toxics Risk Assessment Reference Library" (if appropriate for the specific source) for guidance on choosing appropriate dose-response values.

Comment: Commenter IV-D-14 agreed with EPA's choice to derive their data from IRIS, CalEPA and Agency for Toxic Substances and Disease Registry (ATSDR) for its documentation for establishing risk based threshold and non-threshold values. The commenter added that almost all HAP are being reviewed and reevaluated on a regular basis, and it would be inappropriate to single out formaldehyde and acetaldehyde at this time. EPA can only rely on what is currently published and underwent either peer review or agency review. The issue of changing health-based guideline values will always be a concern once health-based regulations are promulgated.

Response: We agree with the commenter that the issue of changing health-based guideline values is a general challenge in setting health-based regulations. However, we are committed to setting such regulations that reflect current scientific understanding, to the extent feasible. Where we identify pollutant assessments that substantially lag current understanding, we have committed to consider alternative credible, current, and readily available assessments, developed using a process that includes external peer-review and, where appropriate, organization consensus. Affected sources conducting risk assessments should refer to Appendix A of subpart DDDDD of 40 CFR part 63 and other analytic tools such as the "Air Toxics Risk Assessment Reference Library" (if appropriate for the specific source) for guidance on choosing appropriate dose-response values.

Comment: Commenter IV-D-40 asserted that the proposal in the preamble that would permit the provision of CAA § 112(d)(4) to "be applied to both threshold and nonthreshold pollutants using the one in a million cancer risk level for decision making for nonthreshold pollutants" was not acceptable. The commenter noted that separate calculations are made of cancer risks and noncancer HQ and stated that decisions to remediate a site contaminated with threshold pollutants or to establish threshold level based emission standards should not be based on cancer risk estimates. The commenter believes that if a remedial decision were based on the cancer risk alone, no action could be taken at a site, e.g., with a HI for exposure via the soil ingestion pathway that is greater than one. The commenter submitted that as a conservative measure, a comparison of concentrations of threshold HAP emitted from boilers and process heaters to risk-based concentrations could be made, and suggested the EPA Region 3 Risk-Based Concentration table would be a good reference for this comparison. Regarding the application of 'an ample margin of safety' to the threshold levels, the commenter requested that further description of the safety margin be provided to ensure a reviewer that the procedure will adequately protect human health.

Response: For the final rule, we are applying § l12(d)(4) only to threshold pollutants. In the modeling, we compare predicted exposure concentrations for specified HAP to appropriate dose-response values. As stated above, we identify pertinent toxicity or dose-response values using a default hierarchy of sources, with IRIS being the preferred source, to assist us in identifying the most scientifically sound dose-response values for our analyses and decisions. The IRIS process includes internal and external peer review steps and represents EPA consensus values. When adequate toxicity information is not available in IRIS, we consult other sources in a default hierarchy that recognizes the desirability of these qualities in ensuring that we have consistent and scientifically sound assessments. For the final rule, we are considering an HI (HCl and $Cl_2$) or an HQ (Mn) of 1.0 to provide an ample margin of safety for protecting public health under CAA section 112(d)(4). Safety factors are included in the dose-response values used to calculate the HI to account for scientific uncertainties, and their inclusion helps ensure that using a HI limit of 1.0 provides an ample margin of safety. The TOSHI approach required for HCl and $Cl_2$ assumes additivity in mixtures of chemicals that target the same organ system (i.e., respiratory system). Affected sources attempting to utilize the health-based compliance alternative for HCl will calculate an HI for HCl and $Cl_2$ as described in Appendix A to subpart DDDDD. Affected sources attempting to utilize the health-based compliance alternative for Mn will calculate an HQ for Mn as described in Appendix A to subpart DDDDD.

Comment: Commenters IV-D-122 and IV-D-123 believe that the IRIS RfC for **HCl** is conservative and provides an ample margin of safety. In both cases where the EPA declined to regulate HCl emissions as part of a NESHAP, EPA concluded that HCl is a threshold pollutant and used the RfC as the primary benchmark for risk assessment.

Response: We agree with the commenter's statement that HCl is a threshold pollutant and that the IRIS RfC for HCl is appropriate for use in this analysis.

Comment: Commenters IV-D-26, IV-D-104, and IV-D-150 asserted that a § 112(d)(4) risk-based exemption is warranted for **Mn**, citing EPA precedent that two criteria must be met: (1) the pollutant must be health-based and not subject to large uncertainty; and (2) the pollutant does not create significant or widespread environmental effects. The commenters claimed that Mn meets both of these criteria.

The commenters stated that EPA's Office of Research and Development has established

an inhalation RfC for Mn, which is retrievable from the EPA's IRIS. The IRIS monograph for Mn identifies impairment of nuero-behavioral function, a threshold effect, as the health endpoint of concern, and establishes an RfC of 0.00005 mg/$m^3$ (0.05μg/$m^3$) for this endpoint by applying a conservative adjustment factor of 1000 to the identified threshold for this health effect.

Regarding the creation of significant or widespread environmental effects, the commenters claimed that Mn is ubiquitous in the environment and is an essential element for humans, animals, and plants. According to the commenters, acute exposures to Mn are very rare, and toxicity from inhaled Mn particles has been reported only under extreme occupational exposures (such as mining). Chronic (i.e, 2-3 years and longer) Mn exposure at levels significantly higher than the RfC (i.e., from 0.14 to 30 mg/$m^3$) is reported to cause manganism, a form of central nervous system toxicity. This exposure range is approximately 2,800 to 600,000 times greater than the RfC. The commenters also stated that there are no known human reproductive or teratogenetic effects of Mn exposure. Additionally, the commenters noted that data indicate that air concentrations of Mn have been decreasing over the past 30 years. The commenters stated that there is little likelihood of chronic or widespread exposure to Mn at concentrations above the no-adverse-effect threshold, given the above factors and the fact that Mn emissions from combustion sources subject to this rulemaking are quite low, and concentrations of Mn in exhaust gases are very low due to the typically high volume of the exhaust gases. In addition, ambient concentrations of Mn around sugar mills are expected to be very low due to stack height effects, topography, meteorology, and other site-specific factors.

Response: We agree that a health-based compliance alternative is appropriate for Mn, which is a threshold pollutant, under CAA § 112(d)(4) in cases where affected sources are able to demonstrate that their emissions of Mn pose little or no threat to human health. We agree that the IRIS RfC for Mn is appropriate for use in this analysis, and for the final rule, we are basing the health-based compliance alternative on the RfC value, as described in Appendix A of subpart DDDDD of 40 CFR part 63. For air toxics risk assessments, we identify pertinent toxicity or dose-response values using a default hierarchy of sources, with IRIS being the preferred source, to assist us in identifying the most scientifically appropriate benchmarks for our analyses and decisions. The IRIS process contains internal and external peer review steps and represents EPA consensus values. The critical effect for the Mn RfC, representing the most sensitive toxicological endpoint, is impairment of neurobehavioral function.

With regard to human health hazard associated with acute exposures, we have performed an acute assessment of Mn emissions from boiler and process heater affected sources. Our results suggest that acute emissions of Mn from boilers and process heaters are unlikely to adversely affect human health. Therefore, affected sources attempting to utilize the health-based compliance alternative for Mn are not required to perform an acute assessment.

To identify HAP with potential to cause multimedia and/or environmental effects, we have identified HAP with significant potential to persist in the environment and to bioaccumulate. This list does not include Mn. Therefore, we do not believe that emissions of Mn from affected sources will pose a significant risk to the environment, and affected sources attempting to comply with the health-based alternatives for Mn are not required to perform an ecological assessment.

Comment: Commenters IV-D-122 and IV-D-123 stated that comparison of modeled exposures to the RfC or similarly derived health benchmark is highly protective and meets the CAA's "ample margin of safety" requirement. The EPA's mandate under the statute's "ample margin of safety" language is to provide a reasonable amount of protection in light of scientific

uncertainties. The CAA does not define "ample margin of safety" explicitly. However, in the *Vinyl Chloride* case the D.C. Circuit Court of Appeals articulated the purpose of the ample margin of safety determination as obtaining a "reasonable degree of protection" in light of scientific uncertainties and information gaps. *Natural Res. Def. Council v. EPA*, 824 F.2D 1146, 1152-53 (D.C. Cir. 1987). The commenters stated that in regulatory practice, the ample margin of safety analysis consists of a consideration of the NOEL for a pollutant and the subsequent application of factors to account for scientific uncertainty surrounding that safe level of exposure. This is the approach called for by the Senate Report accompanying the 1990 CAA Amendments:

> For some pollutants a MACT emissions limitation may be far more stringent than is necessary to protect public health and the environment. For some of the hazardous air pollutants listed under subsection (b) it is possible to establish a "no observable effects level" (NOEL) below which human exposure is presumably "safe." This NOEL or health-effects threshold may be higher than the level of emissions which can be achieved with the application of maximum achievable control technology . . . [W]here health thresholds are well established, for instance in the case of ammonia, and the pollutant presents no risk of other adverse health effects, the Administrator may use the threshold with an ample margin of safety (and not considering cost) to set emissions limitations for sources in the category or subcategory. S. Rep. No. 228, 101st Cong. Sess. 171 (1990).

The legislative history of CAA § 112(d)(4) thus demonstrates that Congress intended the adequate margin of safety determination to rest on a finding of a level of exposure below which adverse effects are not seen in toxicological studies (i.e., the NOEL), reduced by multiplicative factor(s) to provide a reasonable degree of protection in light of scientific uncertainties. This is exactly what is done in deriving an RfC or similar inhalation health benchmark.

Commenters IV-D-61, IV-D-122, and IV-D-123 stated that EPA's derivation of the RfC contains multiple layers of conservatism to account for scientific uncertainty. The commenters believe that RfCs and similar inhalation health benchmarks already incorporate sufficient uncertainty factors to fulfill or exceed the ample margin of safety mandate of CAA §§ 112(d)(4) and (c)(9). The commenters noted that the RfC is defined as the concentration of a pollutant in air which a person - including sensitive individuals - can breathe 24 hours a day every day for 70 years without experiencing an adverse health effect. The RfC is calculated by taking the most conservative animal data and employing a number of uncertainty factors which assume that humans generally are an order of magnitude more sensitive to the effect than animals, that some humans are an order of magnitude more sensitive than others, and that the dose level at which no effect will be seen in a study is an order of magnitude lower than the lowest dose level at which an effect was seen. Safety factors may also be added where a study was of shorter than lifetime duration, or to account for an "inadequate" database. The range of aggregated safety factors usually is between 300 and 3,000.

Commenters IV-D-26, IV-D-104, and IV-D-150 noted that individual facility exposure modeling would be required to demonstrate that the health benchmark is not exceeded and believe that the combination of conservative air dispersion modeling techniques and a conservative human health benchmark ensure that, where a source meets the requirement for a risk-based compliance option, human health will be protected with an ample margin of safety.

Commenters IV-D-26, IV-D-104, and IV-D-150 stated that a HI of 1 or higher is appropriate due to a variety of factors, including the extensive conservatism built into both the derivation of the RfCs and the exposure modeling, and the limited exposures to these HAP through pathways. The commenters noted that the range of aggregated safety factors built into

the RfC usually is between 300 and 3,000, resulting in the RfC being an extremely conservative number.

Commenters IV-D-60, IV-D-62, and IV-D-119 submitted that a HI of 1 is appropriate for HCl since EPA's derivation of the RfC in general contains multiple layers of conservatism that fulfills, and in many cases exceeds, the ample margin of safety mandate of §112(d)(4). The commenters pointed out that EPA's RfC for HCl is 20 $\mu g/m^3$, whereas EPA notes in its IRIS entry for HCl that an expert panel identified a range of 300 to 3000 $\mu g/m^3$ as a reasonable estimate of the no-effect level in humans. The HCl health benchmark of 20 $\mu g/m^3$ incorporates uncertainty factors of 300. The commenters believe that given that EPA's RfC is an order of magnitude lower than these experts' lowest estimate of a no-effect level in humans, the HCl RfC properly is viewed as a highly conservative (i.e., health protective) value and does not warrant a further reduction through a regulatory mechanism that would allocate only a portion of the HI to major sources.

Commenter IV-D-73 stated that uncertainty is already considered in the establishment of RfC from which the HI is derived. The commenter stated that the uncertainty factors used in the NATA are large, and because of the considerable uncertainty adjustments that are already applied, it is highly unlikely that an ample margin of safety would ever have to include more uncertainties than are already incorporated in the RfCs. In some cases, the uncertainty corrections are too conservative.

Commenter IV-D-186 stated that EPA should use RfC and reference doses (RfDs) as the threshold for deciding whether a MACT standard for a specific pollutant is warranted. The RfCs and RfDs are set conservatively by first determining a NOEL and then reducing that level by an uncertainty factor. This method of setting RfCs and RfDs assures that public health is protected by "an ample margin of safety." Commenter IV-D-186 added that EPA should use § 112(d)(4) in the boiler and process heater MACT to limit the number of affected sources subject to limits for threshold pollutants like HCl. Public exposure to HCl from most industrial boilers should be well below the RfC for HCl.

Response: The final rule will utilize CAA § 112 (d)(4) rather than § 112 (c)(9). We agree that the CAA does not define "ample margin of safety" explicitly. The CAA does, however, in § 112(f), explicitly recognize our *Federal Register* notice of September 14, 1989, which described our interpretation of "ample margin of safety" in the case of linear carcinogens, and our approach to implementing that interpretation. While the first step involves determination of an "acceptable risk" and includes a presumptive limit on maximum individual risk, the second step describes the setting of the risk-based standard at a level that provides "an ample margin of safety," in consideration of a number of factors. In considering the extrapolation of the ample margin of safety objective described for linear cancer risk to the management of risk for nonlinear effects, EPA considers exposures relative to the RfC or comparable values for all of the emitted HAP with specific attention to those affecting a similar physiological target organ or system. Allowable emission limits under this health-based compliance alternative are derived with consideration of RfC values, as described in Appendix A of subpart DDDDD of 40 CFR part 63.

In assessing risk or hazard of nonlinear effects, we use the RfC or comparable value. This value represents an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious non-cancer effects during a lifetime. The RfCs and comparable values are derived from assessments of pertinent toxicological information to identify the lowest POD (in human equivalent terms) from the experimental data that is also

representative of the threshold region (the region where toxicity is apparent from the available data) for the array of toxicity data for that chemical. The objective is to select a prominent toxic effect that is pertinent to the chemical's key mechanism or mode of action. This approach is based, in part, on the assumption that if the critical toxic effect is prevented, then all toxic effects are prevented. The RfC is derived from the POD (in terms of human equivalent exposure) for the critical effect by consistent application of uncertainty factors, which are to account for recognized uncertainties in the extrapolations from the experimental data conditions to an estimate appropriate to the assumed human scenario.[1]

Affected sources can demonstrate compliance with the health-based alternative as described in Appendix A of subpart DDDDD of 40 CFR part 63. Affected sources are not restricted to a particular modeling approach. Rather, they may choose to perform a relatively refined modeling analysis which will require more effort but will produce results that are less uncertain and less conservative (i.e., less likely to overestimate risk) than a screening level assessment.

Comment: Commenters IV-D-122 and IV-D-123 stated that the combination of conservative air dispersion modeling techniques and a conservative human health benchmark ensure that, where a source meets the requirements for a risk-based compliance option, human health will be protected with an ample margin of safety. Commenters IV-D-122 and IV-D-123 pointed out that, for most individuals in the general population, actual exposures likely are one or more orders of magnitude below the maximum exposures predicted by the tiered modeling approach. EPA's tiered modeling methodology is designed to identify the highest annual property line or off-site concentrations that might occur around each facility (as opposed to actual population exposure). The tiered approach models exposures of a "maximally exposed individual" and incorporates a number of conservative assumptions. Actual average concentrations are likely to be much lower. Even if the modeled concentrations were reflective of continuous average concentrations, it is highly unlikely that any individual would actually be exposed to such concentrations for a lifetime. Indeed, the Presidential/Congressional Commission on Risk Assessment and Risk Management concluded that the conservatism inherent in use of the MEI "was often so unrealistic that its use impaired the scientific credibility of health risk assessment."

Response: Affected sources performing site-specific modeling are referred to Appendix A of subpart DDDDD of 40 CFR part 63. This appendix refers to the EPA "Air Toxics Risk Assessment Reference Library," which describes possible approaches to conducting site-specific modeling. We discussed a tiered analytical approach in the preamble to the proposed rule, beginning with relatively simple look-up tables and followed by increasingly more site-specific but more resource intensive tiers of analysis, with each tier being more refined. In the final rule, we are adopting a somewhat different approach for meeting the requirements of CAA § 112(d)(4). The basis for this approach stems from the general air toxics assessment approach presented in the Residual Risk Report to Congress, which was developed with full consideration of EPA risk assessment policy, guidance, and methodology.[2] The approach for demonstrating eligibility is discussed in section 18.8. Affected sources can demonstrate eligibility for the health-based emission limits by using site-specific emissions test data and look-up tables that were developed using health-protective input parameters. These look-up tables are included in Appendix A of subpart DDDDD of 40 CFR part 63. Affected sources that cannot demonstrate eligibility based on the health-protective screening assessment (i.e., look-up tables) may used more refined site-specific risk assessments as described in

Appendix A of subpart DDDDD of 40 CFR part 63 and in other analytical tools such as the "Air Toxics Risk Assessment Reference Library," (which may be appropriate for specific sources). A more refined analysis requires more effort, but produces results that are less uncertain and less conservative (i.e., less likely to overestimate risk).[2]

### 18.5.3 HAP to be included

Comment: Multiple commenters (IV-D-26, IV-D-60, IV-D-62, IV-D-73, IV-D-104, IV-D-119, IV-D-122, IV-D-123, IV-D-150, and IV-D-166) presented modeling examples and discussed HAP to include in modeling.

Commenters IV-D-122 and IV-D-123 stated that many coal-fired boilers would need to install a scrubber to meet the proposed HCl limit, and HF would also be controlled by the scrubber. The commenters stated that, based on modeling performed by the CIBO, risk from HF is small compared to that for HCl. The commenters contended that HF emissions are not likely to drive risk for industrial boilers. Risk modeling indicating that HCl levels are below the health benchmark would also indicate that HF is below the benchmark.

Commenters IV-D-60, IV-D-62, IV-D-73, and IV-D-119 presented the results of dispersion modeling conducted at two sources in order to establish whether typical solid fuel fired sources could meet the RfC provided by EPA in Table 4 (68 *Fed. Reg.* 1690). Since EPA indicates that it is using HCl as a surrogate for other acid gas HAP, the test case modeling also included dispersion modeling for HF in order to characterize its highest concentration versus HCl relative to the respective RfCs. Dispersion modeling was conducted using the ISCST3. All modeling was done in accordance with approved procedures codified in 40 CFR 51, Appendix W. For each source, the models were run using two stack HCl concentrations: (1) the proposed rule limit of 0.09 lb/MMBtu and (2) the highest conceivable coal chloride content for the facility with minimal capture in the fabric filter installed for PM control.

The commenters presented the modeling results for each of the two sources. For each source, the commenters claimed that the HCl modeling results indicate that there is an insignificant impact due to emissions of HCl from those coal-fired boilers in a rural setting, and that a requirement to install HCl emissions controls on those boilers would provide insignificant benefit at a very high cost. Similar results were found for the HF modeling at each source. The commenters, and commenter IV-D-166, asserted that based on the analysis of modeling these specific sources, it is apparent that there are likely many solid fuel fired affected sources that could take advantage of a flexible modeling option to prove insignificant impact and meet MACT intent without installation of expensive control technology. The commenters stated that the results also demonstrate that the inherently lower fluorine content in coals results in much lower HQ for HF emissions than seen for HCl emissions, indicating an even higher margin of safety for HF. Therefore, the applicability and modeling criteria for HCl as a surrogate for acid gas HAP are adequate without requiring additional applicability and/or modeling criteria for other acid gas HAP.

Commenters IV-D-73 and IV-D-166 added that it is apparent from the modeling exercise that a solid fuel-fired source located in complex terrain may not be able to demonstrate an HQ on an annual basis of less than 1.0 relative to the RfC. Therefore, there will be inherent limitations to the ability of affected sources to use this type of applicability exemption criteria.

Commenter IV-D-73 also described risk modeling done for a facility that includes three hazardous waste incinerators and seven coal-fired boilers. The HCl and $Cl_2$ emissions rates were based on worst-case testing involving chlorine spikes. Aggregate modeling results for the

incinerators/boilers showed an HQ of 0.00897 for total HCl and chlorine (approximately one tenth of the reference air concentration). The commenter believes other boilers would also show low risk associated with HCl and $Cl_2$, and therefore, it would be inappropriate to impose HCl limits on boilers.

Commenters IV-D-73 and IV-D-166 stated that EPA should clarify that sources wishing to use the § 112(d)(4) emissions limit must only demonstrate compliance with risk-based thresholds for those HAP from Table 4 (68 FR 1690) that are emitted from the source. EPA states in the preamble that nine HAP account for 68 percent of total HAP emissions from the source category, and HAP emissions vary significantly from source to source depending on fuel use and combustion device configuration. Therefore, the commenters believe that those HAP identified in Table 4 are the only HAP that could potentially be emitted in significant quantities from a source within the category, and for purposes of demonstrating compliance with a risk-based standard, only those pollutants should be considered. The commenters added, for example, that a boiler MACT facility that emits HF, HCl, mercury, chromium, formaldehyde, and lead would demonstrate risk-based compliance with § 112 (d)(4) emissions limitations for threshold pollutants (HF, HCl, and mercury) and/or compliance with *de minimis* emissions limitations for non-threshold pollutants (chromium, formaldehyde, and lead).

Commenters IV-D-26, IV-D-104, and IV-D-150 also believe the tiered approach should be extended to individual HAP. For example, if a facility could demonstrate that the impact of its TSM, Hg, or HCl emissions were individually below a given fraction of the RfC (e.g., 20 percent), or that the HI for TSM, Hg or HCl were below a given fraction of 1 (e.g., 0.2), then the facility would be exempt from the emission limits and control requirements of the rule as they apply to TSM, Hg, or HCl. The commenters pointed out that it makes little sense to require controls and other requirements on identified categories of HAP (i.e., TSM, Hg, or HCl) when emissions of such HAP pose no threat to the public and do not contribute significantly to the overall HI for the facility. Therefore, the commenters supported an approach that would allow individual HAP or groups of HAP (such as TSM) to be exempted from regulation if they pose no risk to the public.

Response: Health-based compliance alternatives are included in the final rule only for HCl and Mn. When developing MACT, the focus was on the most prevalent HAP because the rule was technology-based. However, health-based decisions must take HAP toxicity into account as well as emissions. Our rationale for selecting HCl as a surrogate for emissions of other acid gases and inorganic HAP for MACT purposes is provided in the preamble to the proposed rule (68 FR 1660; January 13, 2003.) Affected sources can demonstrate compliance with the health-based alternative for HCl using a look-up table analysis or site-specific modeling as described in Appendix A of subpart DDDDD of 40 CFR part 63. Affected sources conducting site-specific modeling may use an approach of their choice provided that approach is transparent, scientifically valid, and has undergone peer-review. We have required measurement of $Cl_2$ emissions from emission points as described in Appendix A of subpart DDDDD of 40 CFR part 63 because our own modeling found that not all affected sources are eligible for the compliance alternative and that risk is driven primarily by chronic $Cl_2$ emissions. Our analysis demonstrated that other respiratory toxicants and acid gases emitted by boilers and process heaters do not contribute significantly to the HI.

Affected sources can demonstrate compliance with the health-based alternative for Mn using a look-up table analysis or site-specific modeling as described in Appendix A of subpart DDDDD of 40 CFR part 63.

We acknowledge that terrain characteristics can affect the outcome of a risk assessment.

However, a combination of factors, only one of which is terrain characteristics, will determine whether an affected source is able to utilize the health-based compliance alternative in the final rule.[3]

## 18.6 RISK ASSESSMENT ANALYSES

### 18.6.1 Background and multipathway exposure

Comment: Multiple commenters (IV-D-26, IV-D-60, IV-D-61, IV-D-62, IV-D-73, IV-D-75, IV-D-104, IV-D-119, IV-D-122, IV-D-123, IV-D-150, IV-D-184) opposed use of background concentration and multipathway exposure modeling.

Commenters IV-D-61, IV-D-122, and IV-D-123 stated that consideration of background and multipathway exposures is not required by law and is not necessary for sound policy. The commenters explained that the exclusive focus on the emissions from a source in making regulatory decisions under CAA § 112 is evident in all of the statutory provisions on which EPA would rely to implement the risk-based mechanisms (i.e., § 112(d)(4), 112(c)(9)(B), or EPA's *de minimis* authority). As a result, EPA has no legal obligation to consider background or multi-pathway exposures. Moreover, the statutory focus on the MACT-regulated source further means that there is no legal obligation to model risks from the entire facility, but rather only the MACT-regulated portion of the facility. Commenters IV-D-123 and IV-D-122 referenced House Rep. No. 101-490, Part 1, at 327 and stated that the CAA's legislative history does not support a requirement to consider other exposures. Commenters IV-D-123, IV-D-61, and IV-D-122 also noted that EPA has existing regulatory programs (e.g., for mobile and area sources [Urban Air Toxics Strategy]) in place to address HAP emissions from other sources.

Commenters IV-D-60, IV-D-61, IV-D-62, IV-D-119, IV-D-122, and IV-D-123 noted that EPA has chosen not to regulate HCl emissions under §112(d)(4) authority in NESHAP for chemical recovery combustion sources at pulp mills [63 FR 18754, 18765 (April 15, 1998)] and for the chlorine production source category [67 FR 44713 (July 3, 2002)]. In both instances, EPA's exposure assessment focused on exposures attributable to the MACT affected sources alone, without consideration of background and multipathway HCl exposures. The commenters supported this approach. Based on the results of EPA's Cumulative Exposure Project, the commenters stated that compared to the RfC, background concentrations of HCl are negligible components of inhalation exposure.

Commenters IV-D-122 and IV-D-123 stated that § 112(d)(4) does not require the complete absence of a hazard and that all substances have adverse effects on health and the environment at sufficiently high doses - hence the fundamental tenet of toxicology that "the dose makes the poison." Accordingly, §112(d)(4) incorporates the concept of exposure, and the Senate Report made clear that the provision was applicable in instances where "it is possible to establish a 'no observable effects level' (NOEL) below which human exposure is presumably "safe." In addition, delisting criteria and the so-called "trigger" component of the residual risk provision focus exclusively on emission and whether the risk posed by any source in the category, by itself, exceeds one in a million cancer risk.

Commenters IV-D-122 and IV-D-123 opposed the use of available data on background concentrations and facility-specific measurement of background concentrations to determine the extent of exposures from other sources. The CAA and sound public policy warrant a focus exclusively on the emissions from the source category at hand when evaluating the applicability of a risk-based compliance option. Because an HI of 1.0 (or higher) is amply protective of

public health and is warranted under EPA's statutory mandate, the consideration of background concentration is not appropriate.

Commenters IV-D-122 and IV-D-123 disagreed that EPA should consider multipathway exposures of HCl. The commenters stated that HCl is neither persistent or bioaccumulative. In solution, HCl readily dissociates to $H^+$ and $Cl^-$. The commenters stated that there is no indication that ingestion of HCl (from food, water, or soil) causes risk to human health. The commenters stated that dietary and drinking water exposure to HCl is insignificant.

According to commenters IV-D-60, IV-D-61, IV-D-62, and IV-D-119, multipathway exposures to HCl are negligible and need not be considered. The commenters asserted that there is no indication that ingestion exposure to HCl causes any risk to human health (the IRIS database contains no oral reference dose for HCl).

Commenter IV-D-75 stated that the CAA does not give EPA the authority to consider background concentrations; MACT standards must be based only on emissions from the regulated source and not existing background levels. The commenter stated that § 112 can be distinguished from other statutory provisions where EPA has been given authority to consider background sources, both in the CAA and in other environmental legislation. Where Congress intended EPA to consider background sources, the authority is clearly granted. The commenter provided several CAA examples where authority to consider background concentrations was explicitly granted, including regulations to meet NAAQS; § 112(k), relating to urban air toxics from area sources; and § 169A, relating to visibility pollution. The commenter also provided examples of other environmental legislation where Congress explicitly granted authority to consider background concentrations. The commenter concluded that where intended, Congress granted such authority explicitly in the language of the statutes, and in any rulemaking to develop a risk-based alternative limit for the SCALDT source category, the consideration of background concentrations is inappropriate and is not specifically required by § 112(d) of the CAA.

Commenter IV-D-73 stated that making an allowance for other exposures under § 112 is not necessary to protect public health. The commenter added that consideration of exposures from other sources places a disproportionate burden on major sources. Legislative history does not support the consideration of exposures from other source types when setting risk-based criteria. The commenter stated that multi-pathway risk assessment should be required only for those HAP that have the potential for causing significant multi-pathway exposure.

Commenters IV-D-26, IV-D-104, and IV-D-150 supported the position that the appropriate HI limit is 1, or higher. That is, whether facilities qualify for risk-based compliance options should depend on a comparison of HAP exposures, attributable to their emissions alone, to the RfC or equivalent health benchmark. The commenters believe that including background sources in determining the HI is not appropriate.

Commenter IV-D-184 stated that EPA should use realistic exposure assumptions the characterize risk accurately; specifically, the focus should be on inhalation unless there is HAP-specific or site-specific reason to expand the analysis to include other pathways of concern.

Response: Commenters discussed the use of § 112(d)(4) and § 112(c)(9) of the CAA for the Boiler rule health-based compliance alternative. This rule is relying not on CAA § 112(c)(9), but on § 112(d)(4), which requires us to evaluate ecological and multimedia human exposures when determining the applicability of § 112(d)(4). To identify potential multipathway and/or ecological concerns, we have identified HAP with significant potential to persist in the environment and to bioaccumulate. However, this list does not include Mn, HCl, or $Cl_2$ which are the only HAP relevant for the health-based compliance alternative under the final rule.

Therefore, facilities attempting to comply with the health-based alternative in the final rule are not required to perform a multipathway analysis.

We are not considering background emissions in the health-based compliance alternatives for HCl and/or Mn. Rather, as we indicated in the Residual Risk Report to Congress, we intend to assess facility-wide emissions of HAP in future residual risk actions under § 112(f)(2), as appropriate and to the extent it is reasonable and appropriate to do so. See also, 54 Fed. Reg. at 38,059 (Sept. 14, 1989) (benzene NESHAP).

Affected sources attempting to utilize this health-based compliance alternative for HCl must measure emissions of HCl and $Cl_2$ and compare the HI to 1.0, as described in Appendix A to subpart DDDDD. Affected sources attempting to utilize the health-based compliance alternative for Mn must measure emissions of Mn and compare the HQ to 1.0, as described in Appendix A to subpart DDDDD.

One commenter also made reference to the SCALDT rule; we are not incorporating a risk-based option into the SCALDT rule.

Comment: Multiple commenters (IV-D-05, IV-D-14, IV-D-40, IV-D-96, IV-D-113, IV-D-135) supported multipathway exposure modeling.

Commenter IV-D-05 provided the example of mercury, a persistent, bioaccumulative, and toxic (PBT), from coal combustion. The commenter stated that it would be inappropriate to exclude PBT sources from MACT without consideration of non-inhalation pathway exposures and environmental impacts. The commenter recommended that as a precaution, PBT sources should not be granted exemptions from MACT, which provides a level playing field.

Commenter IV-D-14 stated that analyses like the concentration-based applicability threshold approach do not address non-inhalation exposures or adverse effects on the environment.

Commenter IV-D-14 stated that allowing individual facilities to monitor the HAP backgrounds for use in their own analysis would require oversight and evaluation by State and local agencies to insure proper site selections and analytical methods and would be costly to administer and, therefore, not acceptable.

Commenter IV-D-96 stated that EPA must consider all ways that a HAP could harm public health or the environment. With regard to EPA's request for comment on the "appropriateness and necessity" of accounting for non-inhalation exposures, the commenter stated that §112(d)(4) refers to pollutants "for which a health threshold has been established." As this language and the legislative history make clear, it refers to pollutants that have no adverse health or environmental effects. See 5 Legislative History at 8511. Thus, §112(d)(4) necessarily requires EPA to consider all possible ways that a pollutant could affect human health or the environment. As EPA has recognized repeatedly in the past, many of the pollutants emitted by the source category are re-deposited from the atmosphere, and then contaminate soil and water for long periods of time. Moreover they bioaccumulate in wildlife and food sources, poisoning people and animals alike. See, e.g., 64 Fed. Reg. 52828, 53014 (September 30, 1999); 64 Fed. Reg. 31898, 31908-31909 (June 14, 1999); 63 Fed. Reg. 14182, 14193 (March 28, 1998); 61 Fed. Reg. 17358, 17478 (April 19, 1996) (due to bioaccumulation, mercury levels may be 10,000,000 times higher in fish than in water those fish inhabit). To evaluate whether a pollutant is a threshold pollutant and what its health threshold and ample margin of safety must be, therefore, EPA must consider all the potential health and environmental effects of deposition, persistence and bioaccumulation of that pollutant. EPA would contravene § 112(d)(4) by considering only health effects caused by inhalation.

Commenter IV-D-113 stated that EPA appears to assume that it only needs to consider inhalation risks, but the EPA does not demonstrate or even claim that people are exposed only by inhalation to HAP from the source category. Without such a demonstration, it is reasonable to conclude that other pathways may result in exposures, and, therefore, other pathways must be considered.

Commenter IV-D-135 stated that all exposure pathways must be considered. Section 112(d)(4) necessarily requires EPA to consider all possible ways that a pollutant could affect human health. To evaluate whether a pollutant is a threshold pollutant and what its threshold may be, EPA must consider all potential health effects, including non-inhalation pathways such as ingestion and indirect contamination of food by pollutants such as mercury and dioxin.

Commenter IV-D-40 noted that metals and HF account for approximately 4 percent and 5 percent, respectively, of the HAP emissions from boilers and process heaters and stated that exposure to these HAP can result in noncancer health effects ranging from skin irritation to central nervous system damage. The commenter pointed out that in addition, exposure to a subset of these HAP (i.e., arsenic, cadmium, hexavalent chromium, and nickle) can result in cancer. The commenter submitted that EPA is proposing to base the NESHAP on the direct inhalation pathway, which assumes that all of the HAP emissions are available for inhalation and that no other routes of exposure are applicable. The commenter has found that EPA currently does not have an Fv value for HF, but that since it is described as a colorless gas, assumed it is entirely in the gaseous state and available only through the direct inhalation pathway. Conversely, the commenter stated that all of the metal HAP emitted by boilers and process heaters, with the exception of mercury, were entirely in the particulate state when emitted. The metals are available for direct inhalation, but will undergo deposition over time. The commenter stated that once deposition has occurred, the chemical is available for uptake through indirect exposure pathways, and uses the incidental ingestion of soil pathway as an example. The commenter also stated that incidental soil ingestion rates vary among age groups, with young children ingesting more than adults. The commenter asserted that the potential risks to public health from boiler and process heater emissions should be explicitly addressed and consideration should be given to both direct and indirect exposure pathways. The commenter also requested that impacts from deposition of the HAP emissions be adequately addressed to ensure the proper protection of human health.

Response: We agree that exposures via all relevant routes need to be considered for pollutants identified as PBT. To identify HAP with potential to cause multimedia and/or environmental effects, we have identified HAP with significant potential to persist in the environment and to bioaccumulate. This list does not include HCl, $Cl_2$, or Mn, which are the only HAP relevant for the health-based compliance alternative in the final rule. Therefore, affected sources attempting to comply with the health-based alternatives for these HAP are not required to perform a multimedia assessment. Additionally, a screening level analysis conducted by the EPA indicates that acute impacts of these HAP from boiler and process heater facilities are highly unlikely. For these reasons, we do not anticipate that emissions of HCl, $Cl_2$, or Mn from boiler and process heat facilities will pose a significant risk to the environment, and affected sources attempting to comply with the health-based alternatives for these HAP are not required to perform an ecological assessment. MACT limits for Hg are not affected by the health-based compliance alternative. Affected sources able to demonstrate that they are low risk for HCl and $Cl_2$ or for Mn would still be subject to a PM limit; however, they would be subject to a TSM limit based on seven HAP metals (excluding Mn) rather than the TSM limit based on eight metals.

Comment: Commenter IV-D-148 stated that EPA has not discussed the need to assess cumulative risks, aggregate exposures, and health impacts associated with exposure to chemical mixtures emitted from facilities within the source categories. The commenter referred EPA to the extensive progress that has been made in more completely addressing risks from exposure to air pollution and integrated decisionmaking in such areas as children's risk issues, cumulative exposure ("Framework for Cumulative Risk Assessment" (EPA/630/P-02/001A, April 23, 2002), and chemical mixtures (EPA/630/R-00/002). The commenter requested that the recent advancements be incorporated into the risk assessment methods and overall cost estimates associated with risk-based exemptions in the proposed rules.

Commenter IV-D-96 stated that (if §112(d)(4) may properly be read to create an individualized exemption to an otherwise applicable MACT standard) EPA's methodologies for determining the contribution of other sources to the overall hazard are deeply flawed. The EPA's proposed alternative methodologies for determining the contribution of other sources to cumulative risk are untenable. The first and second approaches (HI of 1 and HI of 0.2) would allow exemptions based on blanket assumptions about exposure, but EPA provides no basis for making any assumption. The third option suggests relying on existing estimates of background levels of certain HAP, but these information sources are neither designed nor adequately precise to be used as the basis of regulatory applicability determinations. The EPA itself cautions about NATA that the emission estimates "cannot be used to identify exposures and risks for specific individuals, or even to identify exposures and risks in small geographic regions such as a specific census tract." (U.S. EPA, Limitations in the 1996 National-Scale Air Toxics Assessment). NATA does no estimate exposure to a number of HAP (e.g., HF, HCl). The ATSDR profiles offer generalized assessments, but are not specific enough to establish as baseline for a given facility.

Commenter IV-D-14 stated that the use of NATA to determine background concentrations is unacceptable. EPA has clearly stated at a number of public meetings that NATA is not to be used to make regulatory decisions.

Response: Our recommended approach for assessing risks from exposure to a mixture of pollutants is to utilize a dose-response assessment developed for that mixture.[3, 4] There are few mixtures (e.g., coke oven emissions), however, for which such assessments are available. When mixture-specific dose-response assessments are not available, a component-by-component approach is recommended. The method for component data depends on a judgement of toxicologic similarity among components. The specific term "toxicologic similarity" represents a general knowledge about the action of a chemical or a mixture and can be expressed in broad terms such as at the target organ level in the body. In our "Air Toxics Risk Assessment Reference Library," assumptions about toxicologic similarity are made in order to choose among risk assessment methods. In general, for the term "toxicologic similarity," we assume a similar mode of action across mixtures or mixture components and, in some cases, this requirement may be relaxed to require that these chemicals act only on the same target organ.[3]

The primary method for component-based risk assessment of toxicologically similar chemicals is the HI, which is derived from dose addition. In our guidance, dose addition is interpreted as simple similar action, where the component chemicals act as if they are dilutions or concentrations of each other differing only in relative toxicity. Dose additivity may not hold for all toxic effects. Furthermore, the relative toxic potency between chemicals may differ from different types of toxicity or toxicity by different routes. To reflect these differences, the HI is then usually developed for each exposure route of interest, and for a single target organ or organ system. A mixture may then be assessed by several HI, each representing one route and one

toxic effect or target organ.[3]

While it may be preferable to focus on the addition of HAP HQ that involve the same mechanism or mode of action, that level of information is not generally available. Pending the availability of such data for the HAP components of the mixture being assessed, the method employed is to aggregate HAP HQ by target organ to generate a target organ specific hazard index (TOSHI). Affected sources attempting to utilize the health-based compliance alternative for HCl will calculate an HI for HCl and $Cl_2$ as described in Appendix A to subpart DDDDD. Affected sources attempting to utilize the health-based compliance alternative for Mn will calculate an HQ for Mn as described in Appendix A to subpart DDDDD.

We agree that it is inappropriate to use the NATA national scale assessment for determining local background concentrations of particular HAP. We are not considering background emissions in the health-based compliance alternatives for HCl and/or Mn. Rather, as we indicated in the Residual Risk Report to Congress, we intend to assess facility-wide emissions of HAP in future residual risk actions under § 112(f)(2), as appropriate and to the extent it is reasonable and appropriate to do so. See also, 54 Fed. Reg. at 38,059 (Sept. 14, 1989) (benzene NESHAP).

Comment: Commenter IV-D-135 stated that EPA's HI proposal is unworkable. It is inappropriate to exclude sources from regulation on the basis of a calculated HI for the following reasons: (a) emissions, ambient concentrations and risks vary over time and cannot be captured by a single analysis to predict exposure, (b) modeling exercises always involve simplifying assumptions that may or may not accurately reflect the level of pollution that people are exposed to, (c) relying only on published health thresholds does not account for exposures and risks from compounds that have not been evaluated or for which the data are inconclusive, (d) evaluating exposure on the basis of ambient exposure does not account for all pathways of exposure, and (e) variations in background exposures would be unaccounted for, thus underestimating the level of pollution that people are exposed to.

Response: Affected facilities attempting to comply with the health-based alternatives will be required to assess their emissions under worst-case conditions as described in Appendix A to subpart DDDDD. If facilities undergo any alterations that may affect their HAP emissions as described in Appendix A, they are required to re-certify their low risk status.

We discussed a tiered analytical approach in the preamble to the proposed rule, beginning with relatively simple look-up tables and followed by increasingly more site-specific but more resource intensive tiers of analysis, with each tier being more refined and less conservative. In the final rule, we are adopting a somewhat different approach for meeting the requirements of CAA § 112(d)(4). The basis for this approach stems from the general air toxics assessment approach presented in the Residual Risk Report to Congress, which was developed with full consideration of EPA risk assessment policy, guidance, and methodology.[2] The approach for demonstrating eligibility is discussed in section 18.8.

For air toxics risk assessments, we identify pertinent toxicity or dose-response values using a default hierarchy of sources, with IRIS being the preferred source, to assist us in identifying the most scientifically appropriate dose-response values for our analyses and decisions. The IRIS process contains internal and external peer review steps and represents EPA consensus values. When adequate toxicity information is not available in IRIS, we consult other sources in a default hierarchy that recognizes the desirability of these qualities in ensuring that we have consistent and scientifically sound assessments. Further, where the IRIS assessment substantially lags the current scientific knowledge, we consider alternate credible and readily

available assessments. For our use, these alternatives need to be grounded in publicly available, peer reviewed information. We are not using information that does not meet these requirements.

Health-based compliance alternatives are available for HCl and for Mn in the final rule. EPA has identified those HAP with greatest potential to cause multimedia and/or environmental impacts. This list does not include Mn, HCl, or $Cl_2$. Therefore, affected sources attempting to comply with the health-based alternatives in the final rule are not required to perform a multipathway analysis.

We are not considering background emissions in the health-based compliance alternatives for HCl and/or Mn. Rather, as we indicated in the Residual Risk Report to Congress, we intend to assess facility-wide emissions of HAP in future residual risk actions under § 112(f)(2), as appropriate and to the extent it is reasonable and appropriate to do so. See also, 54 Fed. Reg. at 38,059 (Sept. 14, 1989) (benzene NESHAP).

Comment: Commenter IV-D-154 stated that the proposal is critically flawed because risk-based exemptions ignore the cumulative risk that comes from exposure to multiple air toxics sources (e.g., hundreds of combustion engines and boilers within a city) and do not protect public health. Although many individual sources may pose a risk below a designated threshold, the accumulation of these pollutants can be hazardous. Addressing this problem will require a general reduction in air toxics emissions across large and small sources, not just those sources for which a high local risk can be demonstrated. The commenter stated that NATA indicates that air toxics exposures are already high throughout the country.

Commenter IV-D-154 stated that there are five HAP emitted from boilers/process heaters that are predicted to be at concentrations that pose greater than $10^{-6}$ risk across New Jersey, and at least four other pollutants have county averages greater than $10^{-6}$. Much of this risk comes from area sources.

Response: We are not considering background emissions in the health-based compliance alternatives for HCl and/or Mn. Rather, as we indicated in the Residual Risk Report to Congress, we intend to assess facility-wide emissions of HAP in future residual risk actions under § 112(f)(2), as appropriate and to the extent it is reasonable and appropriate to do so. See also, 54 Fed. Reg. at 38,059 (Sept. 14, 1989) (benzene NESHAP).

The only HAP relevant for the health-based compliance alternatives for boiler and process heater facilities are HCl, $Cl_2$, and Mn. These HAP pose noncancer risks to human health. Affected sources able to demonstrate that they meet the health-based compliance alternatives will still be required to install controls for other pollutants covered under the final rule.

Comment: Commenter IV-D-40 offered comments on each option proposed by EPA to establish a HI limit. The commenter asserted that the first, second, and third options should be removed from consideration. The commenter stated that the first option (HI of 1) assumes no other exposures to threshold HAP from emissions from nearby sources or from uptake via other exposure pathways. The commenter believes the second option (a default percentage such as HI of 0.2) has a high level of uncertainty because it does not take into account site characteristics, such as the predominant wind speed and direction, topography, climate and other related parameters affecting the dispersion of emissions. The commenter pointed out that the third option (using data available through EPA or other scientific sources to establish background concentrations) has two major limitations: (1) use of historically collected data to estimate current background conditions, which may be different because of, for example, the construction

of new sources, the development of new monitoring devices, or a change in atmospheric conditions, and (2) the likely use of regional background concentration data, which may or may not accurately reflect the local air concentrations.

The commenter believes that the final option (permit facilities to estimate their own specific background concentrations and apply a default percentage based on their findings to ensure their emissions would not result in an HI of greater than one) was clearly the best approach for establishing a facility's HI limit. The commenter believes that this option would result in accurate site-specific estimations of background concentrations and an accurate estimation of a facility's default percentage.

Response: We are not considering background emissions in the health-based compliance alternatives for HCl and/or Mn. Rather, as we indicated in the Residual Risk Report to Congress, we intend to assess facility-wide emissions of HAP in future residual risk actions under § 112(f)(2), as appropriate and to the extent it is reasonable and appropriate to do so. See also, 54 Fed. Reg. at 38,059 (Sept. 14, 1989) (benzene NESHAP).

Affected sources attempting to utilize the health-based compliance alternative for HCl must measure emissions of HCl and $Cl_2$ and compare the HI to 1.0, as described in Appendix A to subpart DDDDD. Affected sources attempting to utilize the health-based compliance alternative for Mn must measure emissions of Mn and compare the HQ to 1.0, as described in Appendix A to subpart DDDDD.

### 18.6.2 Hazard index

Comment: Several commenters (IV-D-73, IV-D-75, IV-D-122, and IV-D-123) stated that HQ for chemical mixes should not be summed to determine the HI unless the primary effects are on the same organ by the same mechanism; otherwise the risk will be overestimated.

Commenters IV-D-122 and IV-D-123 stated that, according to the National Research Council and the Presidential/Congressional Commission on Risk Assessment and Risk Management, additivity at low doses is more likely to overestimate than to underestimate total risk. (*Complex Mixtures* (NRC 1988), *1997 Presidential/Congressional Commission on Risk Assessment and Risk Management in Regulatory Decision-Making*).

Response: Our recommended approach for assessing risks from exposure to a mixture of pollutants is to utilize a dose-response assessment developed for that mixture.[3] There are few mixtures (e.g., coke oven emissions), however, for which such assessments are available. When mixture specific dose-response assessments are not available, a component-by-component approach is recommended. The method for component data depends on a judgement of toxicologic similarity among components. The specific term toxicologic similarity represents a general knowledge about the action of a chemical or a mixture and can be expressed in broad terms such as at the target organ level in the body. In our guidance, assumptions about toxicologic similarity are made in order to choose among risk assessment methods. In general, we assume a similar mode of action across mixtures or mixture components and, in some cases, this requirement may be relaxed to require that these chemicals act only on the same target organ.[3]

The primary method for component-based risk assessment of toxicologically similar chemicals is the HI, which is derived from dose addition. In our guidance, dose addition is interpreted as simple similar action, where the component chemicals act as if they are dilutions or concentrations of each other differing only in relative toxicity. Dose additivity may not hold for all toxic effects. Further, the relative toxic potency between chemicals may differ from

different types of toxicity or toxicity by different routes. To reflect these differences, the HI is then usually developed for each exposure route of interest, and for a single specific toxic effect of toxicity to a single target organ. A mixture may then be assessed by several HI, each representing one route and one toxic effect or target organ.[3]

While it may be preferable to focus on the addition of HAP HQ that involve the same mechanism or mode of action, that level of information is not generally available. Pending the availability of such data for the HAP components of the mixture being assessed, the method employed is to aggregate HAP HQ by target organ to generate a TOSHI. Affected sources attempting to utilize the health-based compliance alternative for HCl will calculate an HI for HCl and $Cl_2$. Respiratory toxicity is the critical effect for both of these pollutants. Affected sources attempting to utilize the health-based compliance alternative for Mn will calculate an HQ because Mn is the only HAP considered for this option.

Comment: Commenter IV-D-61 stated that a HI of 1 provides for the statutory mandate of an ample margin of safety. A default HI of 1 is appropriate due to a variety of factors, including the statutory mandate to focus on emissions from title III facilities alone, the extensive layers of conservatism built into both the derivation of the RfC and the pertinent exposure modeling, and the limited exposures to these HAP through other pathways. With regard to threshold HAP, EPA must protect human health with an "ample margin of safety," a term which is not explicitly defined in the CAA. The D.C. Circuit Court of Appeals articulated the purpose of the ample margin of safety determination as obtaining a "reasonable degree of protection" in light of scientific uncertainties and information gaps. *NRDC v. EPA*, 824 F.2D 1126, 1152-53 (D.C. Cir. 1987). The court's interpretation was incorporated verbatim in the 1990 CAAA, and the Supreme Court has consistently held that "when administrative and judicial interpretations have settled the meaning of an existing statutory provision, repetition of the same language in a new statute indicates, as a general matter, the intent to incorporate its administrative and judicial interpretations as well." *Bragdon v. Abbott,* 524 U.S. 634, 645 (1998). The commenter cited several reasons why the existing RfCs and similar inhalation health benchmarks already incorporate sufficient uncertainty factors to fulfill or exceed the ample margin of safety requirements, and believes that because the benchmarks are abundantly protective, an HI of 1 (or more) should serve as the benchmark for risk-based compliance options in the Boiler MACT.

Commenters IV-D-122 and IV-D-123 stated that the Final Report of the Presidential/Congressional Commission on Risk Assessment and Risk Management supports that HI of 1 provides an ample margin of safety. This Commission was mandated by the 1990 CAA Amendments to provide guidance to the EPA for the implementation of the risk aspects of these Amendments. Specifically, the Commission recommended that EPA should, on the basis of screening assessments of source categories, do further risk assessment and analysis of categories where the noncancer HI exceeds 10.0. The Commission also recommended that, where more detailed risk assessments yield noncancer hazard indices less than 1.0, no further action should be required.

Commenter IV-D-73 stated that all risk-related provisions of § 112 should be guided by the purpose of the ample margin of safety determination - namely, to account for uncertainty in the underlying health value. A HI equal to or greater than 1 should account for uncertainty and provide an ample margin [of] safety.

Commenters IV-D-73 and IV-D-166 stated that The Report of the Commission on Risk Assessment and Risk Management provides further guidance and supports the commenters' contention that a HI equal to or greater than 1 should provide an ample margin of safety for a

threshold HAP.

Commenter IV-D-49 submitted that a HI of 1 using the RfC (or similarly derived health benchmark) is the appropriate risk-based benchmark for threshold HAP. The commenter noted that EPA's mandate under the CAA's "ample margin of safety" language is to provide a reasonable amount of protection in light of scientific uncertainties and believes that the RfC contains multiple layers of conservatism to account for scientific uncertainty and is amply protective of human health. The commenter stated that source demonstrations should be based on EPA-approved modeling techniques, which provide further layers of conservatism.

Commenter IV-D-78 suggested that HI of 1 be used to determine i[f] a source should be exempt from MACT. The HI of 1 is defensible because the RfCs used to determine the HI are conservative. The RfCs contain uncertainty factors and assume lifetime exposure to the pollutant, although no person would spend a lifetime at maximum exposure.

Commenters IV-D-75 stated that an HI of 10 or less should be considered presumptively safe, considering the inherent safety factors in HI. Commenter IV-D-75 agreed with other industry commenters that an HQ of one should be considered an acceptable level and sources should not be required to go below that amount to an arbitrary level such as 0.2.

Commenter IV-D-05 stated that the HI is useful in evaluating site-specific impacts, but choosing a generic HI (some multiple of 1) for application to a wide range of sites is inappropriate. The commenter added that selection of an arbitrary multiple of 1 is not science, does not conform with CAA § 112(d)(4) and does not protect public health. The commenter added that using background concentrations from NATA and a HI of 1 is inappropriate because NATA information includes warnings that the information is useful for large-scale planning purposes and not for local area assessment.

Commenter IV-D-05 stated that the selection of a 0.2 HI as a rough screening tool seems reasonable, although it is unsupported by any analysis. The commenter added that if a default HI is used, EPA should include a provision that would disallow the use to exclude a facility from MACT, now or in the future, if better background information is available that suggests that the default does not protect public health. The commenter, however, believes that the interpretation that includes the use of such a default to allow exemptions for individual sources is not supported by the CAA, and the expansion of the interpretation to include non-threshold pollutants is in direct conflict with § 112(d)(4) of the CAA.

Commenter IV-D-14 evaluated the four potential options that EPA proposed to ensure that a risk analysis under § 112(d)(4) considers the total ambient air concentrations of all the HAP to which the public is exposed. Option 1, which requires that the HI for all pollutants be no greater than 1, does not consider additional sources or background and is unacceptable. Option 3, which uses existing data such as the NATA to determine background and requires that the HI be no greater than 1, is also unacceptable. EPA has clearly stated at public meetings that the NATA is not to be used to make regulatory decisions. The NATA relies on data submitted to EPA voluntarily and has been reported to consistently underestimate measured concentrations. Until EPA requires that HAP inventories be submitted as proposed in the Consolidated Emissions Reporting Rule (CERR), and the NATA conducts refined modeling around stationary sources, the NATA should not be considered for estimating background concentrations. Option 4, which allows individual facilities to monitoring the HAP backgrounds for use in their own analysis, will require oversight and evaluation by the States to ensure proper site selections and analytical methods and should not be considered. The commenters believe Option 2, which requires that the HI be no greater than 0.2, would be the only viable option at this time using a conservative risk screening analysis. However, the commenters did not endorse using any of the

proposed threshold limit applicability methods to exempt process sources from NESHAP requirements.

With regard to the HI options, commenter IV-D-10 believes the first option (HI of 1) should be allowed for facilities located in rural areas, while using HI of 0.2 may be appropriate when multiple facilities are present. The commenter submitted that the determination of the base case percentage should be based on a refined typical (not arbitrary) scenario, and subject to modification for specific cases by showing how they differ from the base case. Commenter IV-D-10 would like to see more details on the third and fourth options.

Response: Affected sources attempting to utilize the health-based compliance alternative for HCl must measure emissions of HCl and $Cl_2$ and compare the HI to 1.0, as described in Appendix A to subpart DDDDD. Affected sources attempting to utilize the health-based compliance alternative for Mn must measure emissions of Mn and compare the HQ to 1.0, as described in Appendix A to subpart DDDDD.

We consider that a HI (or HQ) limit of 1.0 provides an ample margin of safety for protecting public health under CAA § 112(d)(4) for these health-based compliance alternatives. The RfCs that are used to calculate the HI (or HQ) are developed to protect sensitive subgroups and to account for scientific uncertainties, ensuring that the use of a HI limit of 1.0 provides an ample margin of safety. The TOSHI approach required for HCl and $Cl_2$ assumes additivity in mixtures of chemicals that target the same organ system. We conclude that a HI (or HQ) limit of 1.0 is appropriate for the § 112(d)(4) demonstrations for the boiler and process heater source category that are described in the final rule. In future risk-based actions for this and other source categories (e.g., residual risk rulemakings under CAA § 112(f)), we may identify factors on a case-by-case basis that would lead us to conclude that HI limits other than 1.0 would be more appropriate for those other actions.

The look-up tables included in Appendix A to subpart DDDDD of 40 CFR part 63 were developed based on a HI of 1.0 for HCl and $Cl_2$ and a HQ of 1.0 for Mn. For site-specific chronic inhalation risk assessments, affected sources are required to ensure that their HI (HCl and $Cl_2$) or HQ (Mn) are less than or equal to a value of 1.0.

Several commenters presumed the use of CAA § 112(c)(9) for the rule as proposed. However, we are using CAA § 112(d)(4) and not § 112(c)(9).

We are not considering background emissions in the health-based compliance alternatives for HCl and/or Mn. Rather, as we indicated in the Residual Risk Report to Congress, we intend to assess facility-wide emissions of HAP in future residual risk actions under § 112(f)(2), as appropriate and to the extent it is reasonable and appropriate to do so. See also, 54 Fed. Reg. at 38,059 (Sept. 14, 1989) (benzene NESHAP).

Comment: Commenter IV-D-73 stated that adoption of the Drinking Water Program's concept of a HI of 0.2 is not supportable. The commenter added that, at a minimum, before EPA could import the drinking water policy into air programs, the agency would need to evaluate the available scientific data–for the HAP of concern in each individual rulemaking–to determine whether the data justify a conclusion that 80 percent of the exposures to those pollutants come from sources outside the source category.

Response: Affected sources attempting to comply with the health based alternatives in the final rule will compare their HI (HCl and $Cl_2$) and/or HQ (Mn) values to 1.0.

Comment: Commenter IV-D-154 stated that in the case of RICE and boilers/process heaters, which emit acrolein, there appears to be no reasonable limit (that would allow sufficient

protection between the contribution of a potentially affected source and the existing background concentrations of non-carcinogens) since exposure to acrolein is predicted to be high almost everywhere in the country (based on NATA). Uniformly applied NESHAP are necessary to move this country toward lower exposures to irritants like acrolein.

Response: The EPA performed an assessment of respiratory HAP, CNS HAP, and other acid gas HAP emitted from industrial boilers and process heaters and determined that only HCl, $Cl_2$, and Mn contribute significantly to risk. Therefore, these are the only HAP relevant for the health-based compliance alternatives in the final rule. Measurement of acrolein emissions are not included.

### 18.6.3 Short-term health effects

Comment: Commenter IV-D-14 stated that the proposal did not [address] threshold limitation guideline values for short-term exposure. Commenter IV-D-14 stated that HCl has a short-term guideline value established by CalEPA. Commenter IV-D-14 stated that HCl is capable of eliciting strong upper respiratory responses and short term evaluation should be part of any health risk assessment undertaken.

Response: We agree with the need to consider acute effects. The EPA conducted a screening assessment and determined that acute exposures to HCl, as well as other respiratory and acid gas HAP, emitted from boilers and process heaters are unlikely to adversely affect human health. Therefore, affected sources attempting to comply with the health-based option for HCl will not be required to conduct an acute assessment.

## 18.7 RISK ASSESSMENT FRAMEWORK ISSUES: ESTIMATING RISKS TO ECOLOGICAL RECEPTORS

Comment: Commenters IV-D-60, IV-D-61, IV-D-62, IV-D-119, IV-D-122, and IV-D-123 submitted that the RfC for HCl is protective of environmental effects. The commenters noted that in both of EPA's prior risk-based determinations not to regulate **HCl** (pulp and paper chemical recovery combustion MACT and chlorine production MACT), EPA concluded that a human health-based applicability cutoff would also protect other environmental values. The commenters believe EPA has no reason to reach a different conclusion in the Boiler MACT context.

Commenters IV-D-26, IV-D-104, and IV-D-150 stated that scientific literature suggests that there are not likely to be any significant and widespread adverse environmental effects to wildlife, aquatic life, and other natural resources attributable to **Mn**.

Commenters IV-D-17 and IV-D-118 stated that the proposal does not address ecological risk that may result from uncontrolled HAP emissions, especially in those areas with sensitive habitats but few people nearby to be exposed.

Commenter IV-D-148 stated that EPA provided inadequate discussion of how environmental risks will be evaluated. The commenter added that the CAA requires that EPA consider the environment as well as public health, and at a minimum, a facility would be required to conduct an assessment based on EPA's Guidelines for Ecosystem Assessment (1998). The commenter referred EPA to Appendix A of "Generic Assessment for Endpoints for Ecological Risk Assessment" for a detailed discussion on the legal basis from "such statutes as the CAA...that require EPA to consider and protect organism-level attributes or various taxa including fish, birds, and plants and more generally, animals, wildlife, aquatic life, and living

things."

Response: An ecological assessment is normally required under § 112(d)(4), (c)(9), and (f)(2) of the CAA regarding the presence or absence of "adverse environmental effects" as that term is defined in CAA § 112(a)(7). To identify potential multimedia and/or environmental concerns, the EPA has identified HAP with significant potential to persist in the environment and to bioaccumulate. However, this list does not include HCl, $Cl_2$, or Mn which are the only HAP relevant for the health-based compliance alternatives under the final rule. Additionally, a screening level analysis conducted by the EPA indicates that acute impacts of these HAP from boiler facilities are highly unlikely. For these reasons we do not believe that emissions of HCl, $Cl_2$ or Mn from boiler facilities will pose a significant risk to the environment, and facilities attempting to comply with the risk-based alternatives for these HAP are not required to perform an ecological assessment.

## 18.8 RISK ASSESSMENT FRAMEWORK ISSUES: TIERED APPROACH AND RISK ASSESSMENT GUIDANCE

### 18.8.1 Tiered approach

Comment: Multiple commenters (IV-D-05, IV-D-10, IV-D-14, IV-D-24, IV-D-26, IV-D-61, IV-D-72, IV-D-73, IV-D-75, IV-D-104, IV-D-146, IV-D-150, IV-D-166, and IV-D-186) commented on the tiered modeling approach.

Several commenters (IV-D-10, IV-D-26, IV-D-72, IV-D-73, IV-D-75, IV-D-104, IV-D-146, IV-D-150, IV-D-166, and IV-D-186) support EPA's proposed tiered modeling approach, which begins with simple "look-up tables" and progresses to more refined facility-specific risk assessments. Commenter IV-D-05 stated that the State of Wisconsin uses a tiered approach that first allows sources to demonstrate compliance if their potential emissions, stack height, and exhaust direction are within the ranges provided in conservative look-up tables. The second tier allows affected sources to provide site-specific modeling to demonstrate compliance with ambient air standards at the property line. In general, the tiered approach has worked well in Wisconsin. Commenter IV-D-75 added that EPA should be flexible in accepting evolving improvements in exposure assessment and risk modeling, and should take into account the inherent strengths and weaknesses of the types of modeling used.

Commenters IV-D-73 and IV-D-166 stated that an initial simplified tier of risk assessment, such as look-up table, nomograph, or equivalent, should be embedded in individual rulemakings. The commenters added that a guidance document should address two additional tiers of assessment: a conservative screening approach, and a flexible refined approach. Commenter IV-D-73 stated that a risk assessment guidance document should not attempt to address policy and regulatory decisions. Rather, regulatory goals and policies should be put forth within individual notice and rulemakings. Appropriate risk assessment endpoints of concern will also be established within these rulemakings.

Commenter IV-D-73 stated that rulemakings that use source-conducted risk assessment should appropriately focus the initial scope of the assessment on the HAP, sources, and other parameters of concern through applicability criteria specified with the individual rulemakings. Commenter IV-D-73 added that refined risk assessments (3rd tier) should allow for more accurate estimates of maximum individual risk, and could accomplish this through: (1) modeling ambient exposures to an actual human receptor location; (2) use of exposure factors or models; (3) use of realistic exposure assumptions based on site-specific data (residential tenure, etc.); and, (4) use

of probabilistic analysis of uncertainty and variability.

Commenter IV-D-61 believes that a stepped risk-based compliance option would be most effective and efficient in achieving the goals of the Boiler MACT. As an initial threshold matter, the commenter believes that sources operating within certain fueling limitations should be exempted from the requirements of the final rule. HAP content in fuel is one of the most significant determinants to HAP emissions, and, as a result, sources that only operate on low HAP fuel would never be expected to exceed any of the MACT limits in the proposed rule. To demonstrate compliance, sources would pick their worst-case fuel and demonstrate that uncontrolled emissions from that fuel (assuming all HAP in the fuel is emitted) do not exceed the limits. The second step, for affected sources that do not qualify based on fuel, a simple screening model, such as EPA's Screen III, could be used to demonstrate that HAP emissions are below the health benchmark. Additional steps could require the use of more sophisticated models.

Commenter IV-D-24 suggested that EPA should establish automatic subcategory delisting criteria where a facility that meets the criteria can apply for automatic delisting. The commenter further suggested that such criteria would be based on fuel type and usage as well as control efficiency, if any were used.

On the other hand, Commenter IV-D-14 stated that if EPA decides to pursue an up front risk analysis approach, it should not be a tiered approach. The development of generic risk screening approach under the § 112(d)(4) framework will need to be conservative, and the use of a (non-tiered) conservative approach would represent the least cost to the regulated community and would be the least time consuming for States reviewing the facility's application.

Response: We discussed a tiered analytical approach in the preamble to the proposed rule, beginning with relatively simple look-up tables and followed by increasingly more site-specific but more resource intensive tiers of analysis, with each tier being more refined and less conservative. In the final rule, we are adopting a somewhat different approach for meeting the requirements of CAA § 112(d)(4). The basis for this approach stems from the general air toxics assessment approach presented in the Residual Risk Report to Congress, which was developed with full consideration of EPA risk assessment policy, guidance, and methodology.[2] Affected sources can demonstrate eligibility for the health-based emission limits by using site-specific emissions test data and look-up tables that were developed using health-protective input parameters. These look-up tables are included in Appendix A of subpart DDDDD of 40 CFR part 63. Affected sources that cannot demonstrate eligibility based on the health-protective screening assessment (i.e., look-up tables) may use more refined site-specific risk assessments as described in Appendix A of subpart DDDDD of 40 CFR part 63 and in other analytical tools such as the "Air Toxics Risk Assessment Reference Library," (which may be appropriate for specific sources). A more refined analysis requires more effort, but produces results that are less uncertain and less conservative (i.e., less likely to overestimate risk).[2]

For site-specific modeling, we will consider assessments that, in conjunction with the criteria specified in Appendix A of subpart DDDDD of 40 CFR part 63, use risk methodology and modeling techniques other than that described in the EPA's "Air Toxics Risk Assessment Reference Library" provided they have undergone scientific peer-review pertinent to their use in the submitted assessment. For more information on how site-specific modeling can be performed, affected sources are referred to the EPA "Air Toxics Risk Assessment Reference Library," which describes possible approaches for conducting the site-specific modeling.

No automatic delisting criteria have been included in the final rule, as suggested by one

commenter. No specific exemption based on fuel type has been included as part of the health-based compliance alternatives. All affected sources with boilers and process heaters in the applicable large solid fuel-fired subcategory have an opportunity to demonstrate that they can meet the health-based compliance alternatives for HCl and Mn. Fuel analysis requirements related to continuous compliance demonstration are addressed elsewhere in this document.

The § 112(d)(4) authority used to provide the health-based compliance alternatives for the HCl emission limit and Mn (TSM) emission limit is discussed in section 18.2.

Comment: Commenters IV-D-122 and IV-D-123 described EPA's proposed tiered modeling approach and noted that, while most sources would use this modeling approach, they believe facilities should be allowed to use any EPA-approved modeling technique to demonstrate that its emissions are below the applicable health benchmark. Commenters IV-D-122 and IV-D-123 believe that Tier I (screening level analyses or look-up tables) will be sufficient to make the low risk finding for HCl.

Response: Appendix A of subpart DDDDD of 40 CFR part 63 describes the process by which affected sources can demonstrate that boilers and process heaters meet the health-based compliance alternatives. Affected sources may demonstrate that boilers and process heaters in the large solid fuel-fired subcategory meet the health-based compliance alternatives using either (1) the "look-up table" analysis described in Appendix A of subpart DDDDD of 40 CFR part 63 or (2) site-specific modeling (described in Appendix A of subpart DDDDD of 40 CFR part 63 and other analytical tools, which may be appropriate for a specific source, such as EPA's "Air Toxics Risk Assessment Reference Library"). Affected sources electing to conduct site-specific modeling can use any scientifically defensible, transparent, and peer-reviewed methodology they choose in conjunction with the criteria specified in Appendix A of subpart DDDDD of 40 CFR part 63. An example of how site-specific modeling can be performed is described in the EPA "Air Toxics Risk Assessment Reference Library."

### 18.8.2 Risk assessment guidance

Comment: Commenter IV-D-148 stated that EPA's proposal for risk-based exemptions effectively misinterprets not only the CAA but also the guidelines and science policies established by EPA to ensure adequate protection of public health and the environment. EPA proposes a disorganized and cursory approach to implement risk-based exemptions, which falls far below the quality of risk analysis typically required by EPA across other EPA programs. The proposal does not adhere to EPA's established guidelines for characterizing human health and ecological risks. The proposal does not incorporate risk assessment guidelines for conducting multi-pathway risk assessments. The proposal does not reference EPA guidelines for cumulative risk assessment that specifically require consideration of non-inhalation pathways. The goals of EPA's March 1995 Risk Characterization Policy of transparency, clarity, consistency, and reasonableness in EPA risk assessments apply to risk assessment practices across the EPA. The inconsistencies between EPA's proposal to provide risk-based exemptions in the MACT standard process and risk assessment guidelines undermine many regulatory programs throughout the EPA. (The commenter listed numerous programs).

Commenter IV-D-148 also stated that the critical deficiency in the [risk-based] scheme reflects a fundamental misunderstanding of the use of public health and ecological risk assessments in the regulatory process. The commenter added that the hallmark of the federal risk assessment guidelines is a series of policy memos that require EPA programs to conduct risk

assessments consistently across all federal environmental programs. The approaches outlined by AF&PA's white papers neglect to include risk characterization, which provides needed and appropriate information to decision makers. The approaches also do not incorporate the critical recommendation of the Commission of Risk Assessment and Risk Management to establish a framework for stakeholder-based risk management decision making. These omissions in the proposals will prevent regulatory agencies from demonstrating to the public that public health and the environment are adequately protected.

However, commenter IV-D-123 stated that the proposal is consistent with EPA risk assessment guidelines and policies and they believe that NESCAUM's technical objections are without merit. Specifically the commenter stated that: (1) The proposal is not inconsistent with EPA's risk assessment guidelines and policies; and (2) The contemplated risk-based applicability criteria are not in conflict with the classification of carcinogens and non-carcinogens.

Response: We discussed a tiered analytical approach in the preamble to the proposed rule, beginning with relatively simple look-up tables and followed by increasingly more site-specific but more resource intensive tiers of analysis, with each tier being more refined. In the final rule, we are adopting a somewhat different approach for meeting the requirements of CAA § 112(d)(4). The basis for this approach stems from the general air toxics assessment approach presented in the Residual Risk Report to Congress, which was developed with full consideration of EPA risk assessment policy, guidance, and methodology.[2] Affected sources can comply with a health-based alternative for Mn and/or HCl. EPA has identified those HAP with greatest potential to cause multimedia or environmental impacts. However, this list does not include HCl, $Cl_2$, or Mn which are the only HAP relevant for the health-based compliance alternatives under the final rule. Therefore, affected sources attempting to comply with the health-based alternative in the final rule are not required to perform a multipathway analysis. Additionally, a screening level analysis conducted by the EPA indicates that acute impacts of these HAP from boiler facilities are highly unlikely. For these reasons we do not believe that emissions of HCl, $Cl_2$ or Mn from boiler and process heater facilities will pose a significant risk to the environment, and affected sources attempting to comply with the risk-based alternatives are not required to perform an ecological assessment. Because Mn, HCl and $Cl_2$ are threshold non-carcinogenic pollutants, affected sources will only be required to assess non-carcinogenic endpoints in their modeling.

Comment: Commenter IV-D-184 stated that EPA should incorporate peer-reviewed and validated scientific methods and use high quality data to assess risk. It is critical that any risk-based air toxics regulation be based on up-to-date science, including the use of accurate and current emissions data, health effects information, modeling techniques, and risk assessment methodologies.

Response: Appendix A of subpart DDDDD of 40 CFR part 63 describes the process by which affected sources can demonstrate that boilers and process heaters meet the health-based compliance alternatives. Affected sources can demonstrate eligibility for the health-based emission limits by using site-specific emissions test data and look-up tables that were developed using health-protective input parameters. These look-up tables are included in Appendix A of subpart DDDDD of 40 CFR part 63. Affected sources that cannot demonstrate eligibility based on the health-protective screening assessment (i.e., look-up tables) may use more refined site-specific risk assessments as described in Appendix A of subpart DDDDD of 40 CFR part 63 and in other analytical tools such as the "Air Toxics Risk Assessment Reference Library," (which may be appropriate for specific sources).

Affected sources will be required to conduct emission testing for HCl, $Cl_2$, and Mn from the boiler and process heater source category.

Comment: Commenters IV-D-73 and IV-D-166 stated that any risk-based approaches should be consistent with the policies in development for the residual risk rules. Commenters IV-D-166 and IV-D-73 stated that EPA should specify many of the procedures for facility-specific risk assessments in guidelines rather than in the rules, because procedures set in rules could be seen as precedent setting and could impact the residual risk program. For example, the commenters believe that EPA should specify the threshold levels by which a source would be excluded from a rule, as well as any Tier 1 look-up tables, in each individual rule. In contrast, the specifics for how sources should carry out Tier 2 and Tier 3 risk assessments should be left flexible in guidelines now under development by EPA for the residual risk program.

Commenters IV-D-09, IV-D-118, and IV-D-154 stated that the tools needed to identify sources eligible for the risk-based exemption would be the same tools necessary for a § 112(f) residual risk assessment. It is the commenters' understanding that these tools are not yet ready for general use.

Commenter IV-D-148 stated that the cancer risk guidelines are currently undergoing public review.

Commenter IV-D-14 has serious reservations with EPA's apparent attempt to conduct an ad-hoc risk analysis for specific source categories by seeking comments on the specific elements to be included in the risk analysis and do not believe these rulemakings are an adequate forum to develop this risk analysis process. The commenters believe that any risk analysis conducted by the EPA must adhere to the risk assessment principles outlined in the Residual Risk Report to Congress.

Response: We agree that the tools needed to identify sources eligible for health-based compliance alternatives are the same tools necessary for a § 112(f) residual risk assessment; as stated in the Residual Risk Report to Congress, we intend to rely on the general methodology and process illustrated by the framework presented in that report in our risk assessment activities throughout the air toxics program. Appendix A of subpart DDDDD of 40 CFR part 63 describes the process by which affected sources can demonstrate that boilers and process heaters meet the health-based compliance alternatives. Affected sources may demonstrate that boilers and process heaters in the large solid fuel-fired subcategory meet the health-based compliance alternative using either (1) the "look-up table" analysis described in Appendix A of subpart DDDDD of 40 CFR part 63 or (2) site-specific modeling (described in Appendix A of subpart DDDDD of 40 CFR part 63 and other analytical tools, which may be appropriate for a specific source, such as EPA's "Air Toxics Risk Assessment Reference Library"). Affected sources electing to conduct site-specific modeling can use any scientifically defensible, transparent, and peer-reviewed methodology they choose in conjunction with the criteria specified in Appendix A of subpart DDDDD of 40 CFR part 63. An example of how site-specific modeling can be performed is described in the EPA "Air Toxics Risk Assessment Reference Library."

The "Air Toxics Risk Assessment Guidance Library" is the same document that could be used, where appropriate, for facility-specific residual risk assessments required under CAA § 112(f). This document has been peer-reviewed and was developed according to the principles, tools and methods outlined in the Residual Risk Report to Congress. However, it may not be appropriate for all sources, and for that reason, sources and EPA may consider alternative analytical tools.

The comment that the new cancer guidelines are still under review is correct but as stated in the November 29, 2001 *Federal Register* notice (66 FR 59593), these 1999 draft guidelines are to be considered the interim guidance.[5]

### 18.8.3 Model regulatory text

Comment: Commenter IV-D-123 provided model regulatory text that could be used to incorporate an HCl risk-based compliance option into the final rule (see Attachment D to IV-D-123). The commenter believes that their suggested regulatory text will allow for implementation of a risk-based compliance option that minimizes administrative burdens on States and industry, ensures protection of human health and the environment, provides for continuous compliance, is transparent to regulators, industry and the interested public, and is readily enforceable.

Response: We acknowledge receipt of the model regulatory text submitted by the commenter. However, we have developed our own regulatory text in the final rule (Appendix A of subpart DDDDD of 40 CFR part 63) to specify how affected sources must demonstrate that they meet the health-based compliance alternatives for HCl and Mn.

## 18.9 PROGRAM ISSUES: STATE RESOURCES

Comment: Commenters IV-D-09, IV-D-14, IV-D-17, IV-D-85, IV-D-102, IV-D-118, IV-D-130, and IV-D-154 contended that the proposal will place a very intensive resource demand on State and local agencies to review source's risk assessments. State/local agencies may not have expertise in risk assessment methodology or the resources needed to verify information (e.g., emissions data and stack parameters) submitted with each risk assessment. Commenter IV-D-130 stated that they do not have the resources to conduct extensive risk analyses and requested assistance from EPA in any way needed if this option is to work. Commenter IV-D-14 stated that if EPA intends to have the affected industries conduct the analysis, then EPA must consider the cost incurred by States which may lack the necessary expertise to evaluate and review these analyses. The current proposal is silent on these implementation and cost issues. Commenters, IV-D-17, IV-D-102, and IV-D-154 stated that because the procedures for preparing these risk assessments on a large scale basis and for assessing the potential adverse effects of the pollutants emitted (e.g., taking into account existing background and looking for a threshold level for carcinogens) are untried and will require extensive debate and review to launch, even more time and resources will be needed. Commenter IV-D-154 expressed concern about exempting a facility based on limited emission data if EPA established a subcategory listing low-risk sources.

Commenter IV-D-148 pointed out that the proposal only considers cost for the regulated source category, and not for regulatory agencies. The EPA did not consider the costs and resources associated with: (1) the public process required in reviewing/approving the proposed approaches and, if approved, making substantial changes to existing regulations; (2) the development of methods and guidance for human health and ecological risk assessments of affected sources; (3) the review by already budgetarily constrained State agencies of the assessments and assurance of adequate public participation in the process; and (4) the collection/verification of source-specific data needed for conducting risk assessments. Commenter IV-D-148 added that the proposals do not address the critical need for qualified assessors to evaluate the scientific and technical basis for exempting facilities from regulation on a case-by-case basis, and estimated that if 1 additional full-time employee (FTE) were required

per State to review risk-based exemptions, the costs would be an additional $7.5 million annually.

Commenter IV-D-05 stated that they are concerned about the potential cost and workload that risk provisions would place on permitting authorities. The commenter added that the permitting authorities would need to either perform or verify the risk analyses, and that diverting State and local resources to focus on presumably insignificant sources would detract from efforts associated with significant sources. The commenter pointed out some of the specific items that would add burden to the State and local agencies, including data verification for background concentrations and ongoing assurance that low-risk facilities remain low risk.

Because EPA understands the difficulty with risk assessments, commenter IV-D-06 found it perplexing that EPA believes such analyses at the State and local levels would be an efficient way to protect public health.

By contrast, other commenters (IV-D-123 and IV-D-180) believe that a risk-based program can be structured and implemented in a manner that does not adversely impact limited State resources. Commenter IV-D-148 believes that EPA should work closely with States and industry to implement the risk-based approach in a non-burdensome manner. Commenter IV-D-123 stated that the risk-based approaches, like other MACT standards, would simply be incorporated into each State's existing title V program. Because the title V framework already exists, the addition of a risk-based MACT standard would not require States to overhaul existing permitting programs. Commenter IV-D-123 added that the risk-based approach would not increase the number of sources regulated by each State. The commenter believes that the final MACT rule itself should set forth the applicability criteria - including the threshold levels of exposure - that sources must meet to qualify for a risk-based determination. Each source would have the burden of demonstrating that its exposures are below this limit, and therefore the States would not be required to develop their own risk assessment guidance or to conduct source-specific risk assessments. Commenter IV-D-123 stated that the risk assessment guidance to be issued by EPA within the next several months will streamline the risk-based approach and further reduce any burden on the States. Commenters IV-D-123 and IV-D-180 supported having States charge reasonable increased fees (as a component of annual operating permit fees or other fees) to cover any significant additional workload demands associated with reviewing more-detailed Tier 2/3 modeling.

Response: The health-based compliance alternatives for HCl and Mn which we have adopted in the Boiler NESHAP do not rely solely on site-specific risk assessments and, therefore, should not impose significant resource burdens on States. Further, the required compliance demonstration methodology is structured in such a way as to avoid the need for States to have significant expertise in risk assessment methodology. We have considered the commenters' concerns in developing the criteria defining eligibility for these compliance alternatives, and we believe that the approach that is included in the final rule provides clear, flexible requirements and enforceable compliance parameters. The final rule provides two ways that an affected facility may demonstrate eligibility for complying with the alternative health-based emission standard. First, look-up tables, which are included as Tables 2 (HCl) and 3 (Mn) in Appendix A of subpart DDDDD, allow affected facilities to determine, using a limited number of site-specific input parameters, whether emissions from their affected sources might cause a HI (or HQ) limit to be exceeded. If an affected facility cannot demonstrate eligibility using a look-up table, a modeling approach can be followed. Appendix A to the final rule presents the criteria for performing this modeling.

Regarding commenters' concerns with looking for a threshold level for carcinogens, the

compliance alternatives only apply to HCl and Mn, which are not carcinogens. Also, regarding the concern expressed by one commenter about exempting a facility based on limited emission data if EPA established a subcategory listing low-risk sources, we have not used § 112(c)(9) authority to establish a low-risk subcategory for the boilers and process heaters source category. With respect to guidance for performing site-specific modeling, all of the procedures for performing such modeling are available in peer-reviewed scientific literature, and therefore, no additional guidance needs to be developed.

Only a portion of the major facilities in the large solid fuel-fired boilers and process heaters subcategory will submit eligibility demonstrations for the compliance alternatives. Of this portion of major sources, we believe that most will be able to demonstrate eligibility based on simple analyses (e.g., using the look-up tables provided in Appendix A). However, it is likely that some affected facilities will require more detailed modeling. The criteria for demonstrating eligibility for the compliance alternatives are clearly spelled out in the final rule. Because these requirements are clearly spelled out and because any standards or requirements created under § 112 are considered applicable requirements under part 70, compliance alternatives would be incorporated into title V programs, and States would not have to overhaul existing permitting programs.

Finally, with respect to the burden associated with ongoing assurance that affected facilities which opt to do so continue to comply with the health-based compliance alternatives, the burden to States will be minimal. Rather than developing detailed recordkeeping and reporting requirements for facilities that initially qualify for the health-based compliance alternatives, we are requiring periodic review of the compliance demonstration and certification that the affected source still qualifies for the alternatives every five years to ensure continuing compliance. Additionally, before changing key parameters that may impact an affected source's ability to continue to meet one or both of the health-based compliance alternatives, the affected source is required to evaluate its ability to continue to comply with the health-based compliance alternative(s) and submit documentation to the permitting authority supporting continued eligibility for the compliance alternative. Finally, in accordance with the provisions of title V of the Clean Air Act and part 70 of 40 CFR (collectively "title V"), the owner or operator of any affected source opting to comply with the health-based compliance alternatives will be required to certify compliance with those standards on an annual basis.

We believe that the promulgation of specific health-based compliance alternatives and a uniform methodology for demonstrating compliance with those alternatives alleviates any concern regarding the public process required in reviewing/approving the proposed approaches and making substantial changes to existing regulations. It also addresses concerns regarding the costs and resources associated with assuring adequate public participation in the process of reviewing site-specific risk analyses.

To ensure that affected sources which choose to comply with the health-based compliance alternatives continue to comply with those options after the initial compliance demonstration, specified assessment parameters (e.g., HCl-equivalent and/or manganese emission rate, boiler heat output, etc.) must be included in their title V permit as enforceable requirements. Draft permits and permit applications must be made available from the State or local agency responsible for issuing the permit, or in the case where EPA is issuing the permit, from the EPA regional office. Members of the public may request that the state or local agency include them on their public notice mailing list, thus providing the public the opportunity to review the appropriateness of these requirements. Every proposed title V permit has a 30-day public comment period and a 45-day EPA review period. If EPA does not object to the permit,

any member of the public may petition EPA to object to the permit within 60 days of the end of the EPA review period.

Comment: Commenter IV-D-14 stated that if EPA intends to have the affected industries conduct the analysis, then EPA must consider the additional cost incurred by smaller sources to do the analysis.

Commenter IV-D-24 pointed out that since delisting based on risk will require collection and submission of data and air quality modeling, small sources, which are likely to have small risk, will probably not be able to afford the cost of requesting delisting unless EPA establishes automatic subcategory delisting criteria.

Response: As mentioned previously, there are two ways that an affected source in the large solid fuel-fired boilers and process heaters subcategory may demonstrate eligibility for the health-based compliance alternatives of the final rule: (1) look-up tables, and (2) a site-specific modeling approach. The look-up tables include Table 2 of Appendix A to the final rule to determine if an affected source is eligible for the alternative compliance option for the HCl emission limit and Table 3 of Appendix A to determine if an affected source is eligible for excluding Mn from the TSM emission limit. The look-up tables allow an affected source to determine, using a limited number of site-specific input parameters (i.e., stack parameters, distance to fence line, and emission rates), whether they are eligible for one of the health-based compliance alternatives. Attempting to demonstrate eligibility for one of the health-based compliance alternatives is completely voluntary. An affected source that is not eligible for one of the health-based compliance alternatives based on look-up tables is not required to pursue a modeling approach (which can be increasingly complex and expensive as it becomes more refined). Each affected source must weigh the costs of making an eligibility demonstration with the costs of MACT compliance.

We believe that, in general, the costs associated with demonstrating eligibility for the health-based compliance alternatives will be lower than the costs associated with complying with MACT for many affected sources, including smaller facilities and other facilities that have not already otherwise installed pollution controls. Successfully demonstrating eligibility for the health-based compliance alternative(s) will result in cost-savings for smaller affected sources because these facilities will not have to expend the costs, i.e., the costs of installing or upgrading, operating, and maintaining the add-on emission controls needed to comply with the MACT emission limits .

The cost and economic analyses developed as part of the MACT rulemaking were based on the costs to install, maintain, and operate controls and to comply with the MACT requirements. The costs associated with voluntarily conducting risk analyses were not estimated. Therefore, our estimates of costs associated with the final rule are conservative, because the control costs that would be incurred to comply with the HCl emission limit are significantly higher than the costs of conducting the risk analyses that in some cases would be required to qualify for the health-based compliance alternative for the HCl emission limit. Similarly, the control costs of complying with the MACT PM or TSM emission limits are higher than the costs of conducting the risk analyses that for some affected facilities would be required to demonstrate eligibility to comply with the health-based alternative excluding Mn from the TSM emission limit.

## 18.10 PROGRAM ISSUES: TITLE V AS IMPLEMENTATION MECHANISM

Comment: Commenter IV-D-148 stated that risk-based exemptions are such an implausible interpretation of the CAA that states do not even have the authority to grant them under their title V permit programs. Therefore, the commenter is not aware of any approach to ensure that emissions remain below specified levels. MACT standard applicability is the gate-keeper for being subject to a title V operating permit. Once a source is exempt from a MACT standard, it would be exempt from the monitoring, reporting and recordkeeping requirements needed to demonstrate compliance.

Similarly, commenter IV-D-135 noted that EPA requested comment on how to implement applicability cutoffs without specifying what methods are being considered. For example, EPA did not discuss or consider the fact that States currently do not have authority to provide for risk-based exemptions for sources subject to MACT standards through the title V permit program. Commenter IV-D-96 stated that implementing the §112(d)(4) exemption interpretation through title V would be unlawful and unworkable. Congress knew how to authorize States to establish case-by-case emission standards using a post-rulemaking title V permit as an implementing mechanism because it did so in 112(j). Congress did not do so in [section] 112(d)(4), and EPA lacks authority to delegate [section] 112(d)(4) powers to States. EPA may not implement any 112(d)(4) applicability cutoff through any post-rulemaking mechanism such as a title V permit. With the exception of carefully delineated compliance monitoring, reporting, and certification provisions in the statute, title V permits may not create applicable requirements or exemptions from applicable requirements. Even if this approach was legal, passing familiarity with the title V program, the resource challenges faced by States, and the widespread delays in issuing title V permits makes it clear that this approach is unworkable. Commenter IV-D-96 noted that State permit engineers and officials that prepare and issue title V permits generally are not experts in risk assessment or air dispersion modeling. States and the public would be confronted with more self-serving facility arguments and data than could be adequately scrutinized, which could cause important health and risk determinations to be rubber stamped, or cause the permit process to grind to a halt. Most State title V permit programs are already behind the statute's permit issuance deadlines, and implementation of EPA's risk-based approach would exacerbate this unlawful situation further.

Several commenters supported implementing the risk-based approaches in the Industrial/Commercial/Institutional Boilers and Process Heaters rule through the States' existing title V programs. Commenter IV-D-75 suggested that States which qualify and choose to do so should be delegated the authority to implement risk-based alternatives. The commenter added this would allow States to coordinate between the MACT alternatives and State air toxics requirements.

Commenter IV-D-123 stated that implementation of the § 112(d)(4) risk-based approach through title V would be lawful and workable. According to the commenter, no facility-specific post-rulemaking mechanisms, nor expansion of the scope of title V permit process, would be necessary, just the incorporation of the NESHAP's risk-based compliance option, which would contain the criteria for showing what the source would have to meet to qualify for the risk-based approach. The commenter believed that the objections from other commenters to the risk-based criteria were invalid, arguing that their objections were in tension with the conclusions of a CAAAC Workgroup on State/Local/Tribal air toxics issues and that their comments provided no basis for concluding that States lack the legal authority to implement risk-based approach.

Commenter IV-D-05 stated that title V permits seem to be the obvious implementation tool, and that title V permits could provide enforceable limitations, appropriate recordkeeping requirements, and periodic review upon renewal. The commenter added that since the rule

would apply only to major sources, title V permits already are required and would not be an added burden; title V could also be used to implement applicability cutoffs, but that the workload involved with the options requiring modeling, ambient monitoring, or other means to establish background concentrations would be a hindrance to any implementation mechanism. In addition, the commenter stated that with respect to potential risk-based provisions, monitoring is more useful for demonstrating non-compliance than compliance because the regulation would apply to potential emissions under any weather conditions, whereas monitoring reflects current weather and emission conditions.

Response: With regard to title V permits creating applicable requirements or exemptions from applicable requirements, the requirements for qualifying for the health-based compliance alternatives are clearly spelled out in Appendix A to Subpart DDDDD, and any standards or requirements created under § 112 are considered applicable requirements under part 70. Unless an affected source meets these conditions, it will remain subject to the HCl and Mn regulatory requirements in the final rule. Therefore, the parameters used to demonstrate eligibility for the health-based compliance alternatives would be incorporated into title V permits as federally enforceable permit terms and States would not have to overhaul existing permitting programs. We note that our rules implementing title V of the CAA specifically provide for situations such as this. For example, in its provisions governing what types of permit revisions may proceed through the abbreviated "minor permit modification" process, our rules state that such procedures may not be used "to establish or change a permit term or condition for which there is no corresponding underlying applicable requirement and that the source has assumed to avoid an applicable requirement to which the source would otherwise be subject." 40 C.F.R. 70.7(e)(2)(i)(A)(4); 71.7(e)(1)(i)(A)(4). We believe that permit terms reflecting an affected source's eligibility clearly represent such terms, and are therefore allowed under title V. Also, such terms would be required to be added or revised through the more formal "significant modification" procedures of 40 C.F.R. 70.7(e)(4) and 71.7(e)(3).

Affected sources will initially demonstrate that they qualify for a health-based compliance alternative using either the look-up tables provided in Appendix A to the final rule or site-specific modeling following the methodology and criteria in Appendix A to the final rule. They will keep records of the information used in developing the eligibility demonstration. Affected sources will not be required to perform detailed risk analyses for public review, although the public will have an opportunity to comment on draft permit terms and conditions that reflect eligibility demonstrations, and to judicially challenge final EPA approvals of eligibility demonstrations under CAA § 307(b)(1).

We acknowledge the resource challenges faced by States, however, we believe that most affected sources qualifying for the low-risk provisions will be able to do so through use of the look-up tables. The only facility data needed to use the look-up tables are stack parameters, HCl-equivalent or Mn emission rates, and fence line distances. Other than the HCl-equivalent emission rates, these data are routinely included in title V permit applications and none of the data should require review by experts in risk assessment or air dispersion modeling. For affected sources that do site-specific modeling, all of the procedures for performing such modeling are available in peer-reviewed scientific literature.

As far as the title V permit programs being behind the statute's permit issuance deadlines, the incorporation of the NESHAP requirements is a necessary step that will require some resources, and inclusion of the health-based compliance alternatives should be a straightforward part of the process and should not cause significant delay.

## 18.11 PROGRAM ISSUES: EFFECTS ON OTHER SOURCE CATEGORIES

Comment: Commenter IV-D-175 noted that in the MACT Proposal, EPA proposes three separate approaches to focus on sources that pose the greatest adverse health and environmental impacts: (1) an applicability cutoff for threshold pollutants; (2) subcategorization and delisting; and (3) the use of a concentration-based applicability threshold. The commenter believes each of these approaches may be appropriate in different contexts, and encourages EPA to continue to consider these approaches in forthcoming MACT promulgations.

Response: The inclusion of health-based compliance alternatives in the final rule affects only the boiler and process heater source category and not other source categories.

Comment: Commenter IV-D-72 stated that delisting low risk subcategories is consistent with the CAA and good public policy. The commenter pointed out that the Taconite Iron Ore Processing source category presents an ideal scenario for technologically-defined low risk subcategory delisting. For example, it would be appropriate to divide the source category into two source categories: one for the thermal operations and one for the material handling operations. Based on preliminary evaluations, emissions from the material handling operations present such a low ambient impact that they easily meet criteria set forth in § 112(c)(9). Commenter IV-D-72 stated for purpose of the Taconite Iron Ore Processing source categories, maintaining the MACT floors as established (with some minor corrections) would be appropriate.

Response: The inclusion of health-based compliance alternatives in the final rule affects only the boiler and process heater source category and not other source categories.

## 18.12 OTHER ISSUES

### 18.12.1 Commenters referencing other commenters

Comment: Commenter IV-D-148 endorsed the comments submitted by STAPPA/ALAPCO.

Response: We acknowledge the commenter's support of the comments submitted by the STAPPA/ALAPCO. Our responses to the specific comments submitted by the STAPPA/ALAPCO are provided elsewhere in this document.

Comment: Commenters IV-D-166 and IV-D-179 supported the comments provided by the American Chemistry Council (IV-D-73) and the CIBO (IV-D-119).

Commenter IV-D-107 submitted comments identical to those of CIBO (IV-D-119).

Response: We acknowledge the commenters' support of the comments submitted by the American Chemistry Council and CIBO. Our responses to the specific comments submitted by the American Chemistry Council and CIBO are provided elsewhere in this document.

Comment: Commenter IV-D-45 strongly endorsed comments submitted by the AF&PA (IV-D-123).

Response: We acknowledge the commenter's support of the comments submitted by AF&PA. Our responses to the specific comments submitted by AF&PA are provided elsewhere in this document.

Comment: Commenter IV-D-101 incorporated the comments of the Rubber Manufacturers Association (IV-D-146) by reference.

Response: We acknowledge the commenter's support of the comments submitted by the Rubber Manufacturers Association. Our responses to the specific comments submitted by the Rubber Manufacturers Association are provided elsewhere in this document.

### 18.12.2 Attachments to certain comments

Comment: Commenter IV-D-123 attached (see Attachment B of IV-D-123) for consideration their "Response to Specific Objections to the Risk-Based Approaches Raised Previously in the Context of EPA's Proposed National Emission Standards for Hazardous Air Pollutants for Brick and Structural Clay Products Manufacturing and National Emission Standards for Hazardous Air Pollutants for Clay Ceramics Manufacturing."

Commenter IV-D-122 cited AF&PA's responses to objections raised by NESCAUM, NRDC, and Earthjustice.

Response: The comments included in the attachment to comment IV-D-23 have been summarized elsewhere in this document, and our responses to these comments are provided elsewhere. We acknowledge the support of commenter IV-D-122 for the comments submitted by AF&PA. We acknowledge comments regarding comments submitted by others. However, we have responded to those specific comments submitted by others rather than agreeing or disagreeing with one commenter's assessment of another's comments.

Comment: Commenter IV-D-148 included multiple attachments, including the following: Attachment 1--Congressional Record, E2383, November 11, 1999
Attachment 2--EPA Science Policy Council, Policy on Evaluating Health Risks to Children
Attachment 3--EPA Science Policy Council, Memorandum on EPA Risk Characterization Program, March 21, 1995
Attachment 4--EPA Science Policy Council, Elements to Consider When Drafting EPA Risk Characterizations, March 1995
Attachment 5--EPA Science Policy Council, Policy for Risk Characterization, February 1995
Attachment 6--EPA Science Policy Council, Policy for Risk Characterization, March 1995
Attachment 7--EPA Science Policy Council, Memorandum on New EPA Policy on Evaluating Health Risks to Children, October 20, 1995
Attachment 8–Fact Sheet, Report to Congress on Residual Risk
Attachment 9–Statement of John D. Graham, Ph.D., Director, Center for Risk Analysis, Harvard School of Public Health, October 14, 1999
Attachment 10–Statement of Lee P. Hughes, Vice President, Corporate Environmental Control, Bayer Corporation, on behalf of the American Chemistry Council, before the Senate Environment and Public Works Committee on Clean Air Act Residual Risk, October 3, 2000.

Response: We acknowledge submittal of the attachments referenced by commenter IV-D-148.

### 18.12.3 Miscellaneous

Comment: Commenter IV-D-96 noted that a September 30, 2002 email from Amy Vasu, EPA, to Jim Eddinger and Sims Roy, EPA, mentions 20 e-mails to Bryon Allen, OMB, and 2 e-mails to Alex Cristofaro, EPA, from Ms. Vasu. EPA Docket A-96-47 (boilers docket),

Document II-F-24. The commenter believes the docket is incomplete because they were unable to identify that number of e-mails from Ms. Vasu to Mr. Allen in the referenced dockets and because they were unable to locate any e-mails between OMB and Mr. Christofaro in the docket for A-96-47. The commenter urged EPA to ensure that all required documents are included in the administrative dockets for all of the relevant proposals. The public's right to comment has already been jeopardized by the failure to include all relevant and required documents in these dockets.

Response: We disagree that the public's right to comment has been compromised. We requested public comments on the proposed Boiler NESHAP, and not on correspondence between EPA and OMB that occurred prior to proposal of the NESHAP. In terms of Document No. II-F-24 of the docket for the Industrial Boiler NESHAP, it contains all the relevant (to the Industrial Boiler MACT rulemaking) e-mails. The cover e-mail was referring to the entire OMB correspondence for both Boiler and RICE rulemakings. The emails relevant to the RICE rulemaking were not included in the item entered into the Industrial Boiler docket.

Comment: Commenter IV-D-148 expressed concern with the April 30, 2002 memorandum, "Method for Approximate ("Top-Down") Estimate of Aggregate Cancer Risk Associated With Two Maximum Achievable Control Technology (MACT) Source Categories: RICE and Industrial/Commercial/Institutional Boilers." The commenter stated that the analysis had no scientific, technical, or policy basis and apparently had not been peer reviewed. The commenter objected to the document and suggests that EPA remove it from the docket, and delete all references to it.

Response: The document that the commenter refers to was used in the development of the proposal for the Boilers MACT, and therefore, it remains in the project docket. The document explains the approach we used prior to proposal to estimate cancer risk associated with the boiler and process heater source category. Peer review is not required for documentation placed in NESHAP dockets, as the public has an opportunity to comment on the proposed rulemaking and the supporting information and analyses, just as the commenter has done. We acknowledge the commenter's objection to the document.

Comment: Commenter IV-D-113 argued that EPA must regulate all units that combust any solid waste under § 129 rather than § 112. Because § 129 does not permit EPA to establish risk-based exemptions, it would be unlawful for EPA to do so for boilers and process heaters that combust any solid waste.

Response: The health-based compliance alternatives apply to large solid-fuel fired boilers and process heaters regulated under the final rule developed pursuant to § 112 (and not § 129). The health-based compliance alternatives do not apply for solid waste combustors regulated under § 129.

Comment: Commenter IV-D-118 stated that the proposed risk-based approach would not be necessary if EPA were to include a minimum boiler/process heater size cutoff. This size cutoff could be established using standard EPA refined air pollution modeling procedures in conjunction with the most stringent federal or State ambient air limits for HAP to model the air impacts associated with uncontrolled HAP emissions from the "model" boiler/process heater. A similar process was used by the Industrial Combustion Coordinated Rulemaking Federal Advisory Committee Act (ICCR FACA) process when selecting the HAP of interest for boilers/process heaters. The size-based applicability limits should be adequate for addressing

both the size of the HAP source and the cost-effectiveness of the requirements.

Response: As discussed elsewhere in this document, we are not including a lower size cutoff.

Comment: Commenter IV-D-135 was furthermore concerned that EPA's HCl concept, if finalized, would allow sources whose HCl emissions would be excluded from the § 112(d) standards, to claim to be area sources. The commmenter observed that HCl is probably the pollutant emitted in quantities greater than 10 tons and would result initially in the source being classified a major source under § 112(a)(1). A subsequent claim by a facility that is an area source (because its HCl emissions are exempted) would exclude the facility from all MACT standard requirements. The commenter asserted that this potential outcome is clearly contrary to the intent of the CAA.

Response: Major sources of HAP are those stationary sources or groups of stationary sources that are located within a contiguous area under common control that emit or have the potential to emit, considering controls, 9.07 Mg/yr (10 tpy) or more of any one HAP or 22.68 Mg/yr (25 tpy) or more of any combination of HAP. Area sources are those stationary sources or groups of stationary sources that are not major sources. (See CAA §§ 112(a)(1) and 112(a)(2), and 40 CFR § 63.2). Major/area source determinations are based on the total HAP emissions from the facility, regardless of the emission limits that the source is required to meet. This is true regardless of whether the emission limits required for the source are MACT emission limits or a health-based alternative. Thus, just because a source may meet health-based compliance alternative for HCl does not mean that the HCl emissions from the facility will not be considered in the sources major/area source determination. If sources emit more than 10 tpy of HCl, then they would be considered a major source, regardless of whether they meet the health-based compliance alternative for HCl or the MACT emission limit for HCl.

**References**


1. U.S. Environmental Protection Agency. 1994. Methods for Derivation of Inhalation Reference Concentrations and Application of Inhalation Dosimetry. Office of Research and Development. EPA/600/8-90/066F.

2. U.S. Environmental Protection Agency. 1999. Residual Risk Report to Congress. Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711. March 1999. EPA-453/R-99-001; available at http://www.epa.aov/ttn/oarpa/t3/meta/m8690.html.

3. U.S. Environmental Protection Agency. 2000. Supplementary Guidance for Conducting Health Risk Assessment of Chemical Mixtures. Office of Research and Development. EPA/630/R-00/002.

4. U.S. Environmental Protection Agency. 1986. Guidance for Conducting Health Risk Assessment of Chemical Mixtures. Risk Assessment Forum, Washington, DC. EPA/630/R-98/002; available at http://cfpub.epa.gov/ncea/raf/recordisplay.cfm?deid=20533.

5. U.S. EPA. 1999. Guidelines for Carcinogen Risk Assessment. NCEA-F-0644. Risk Assessment Forum, Washington, DC.