minority, low income, or indigenous populations.

To gain a better understanding of the source category and near source populations, the EPA conducted a demographic analysis for mercury cell chlor-alkali facilities to identify any overrepresentation of minority, low income, or indigenous populations with cancer risks above 1-in-1 million. This analysis only gives some indication of the prevalence of sub-populations that may be exposed to air pollution from the sources; it does not identify the demographic characteristics of the most highly affected individuals or communities, nor does it quantify the level of risk faced by those individuals or communities. More information on the source category's risk can be found in section IV of this preamble. The complete demographic analysis results and the details concerning its development are presented in the technical report, *Risk and Technology Review—Analysis of Demographic Factors for Populations Living Near Mercury Cell Chlor-Alkali Facilities,* available in the docket for this action.

**List of Subjects in 40 CFR Part 63**

Environmental protection, Air pollution control, Hazardous substances, Reporting and recordkeeping requirements.

**Andrew Wheeler,**

*Administrator.*

[FR Doc. 2021–00174 Filed 1–7–21; 8:45 am]

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## ENVIRONMENTAL PROTECTION AGENCY

## 40 CFR Part 63

**[EPA–HQ–OAR–2020–0535; FRL–10018–38–OAR]**

**RIN 2060–AU65**

# National Emission Standards for Hazardous Air Pollutants: Primary Magnesium Refining Residual Risk and Technology Review

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Proposed rule.

**SUMMARY:** This proposal presents the results of the U.S. Environmental Protection Agency's (EPA's) residual risk and technology review (RTR) for the National Emission Standards for the Hazardous Air Pollutants (NESHAP) for Primary Magnesium Refining, as required under the Clean Air Act (CAA). Based on the results of the risk review, the EPA is proposing that risks from emissions of air toxics from this source category are acceptable and that after removing the exemptions for startup, shutdown, and malfunction (SSM), the NESHAP provides an ample margin of safety. Furthermore, under the technology review, we are proposing one development in technology and practices that will require continuous pH monitoring for all control devices used to meet the acid gas emission limits of this subpart. In addition, as part of the technology review, the EPA is addressing a previously unregulated source of chlorine emissions, known as the chlorine bypass stack (CBS), by proposing a maximum achievable control technology (MACT) emissions standard for chlorine emissions from this source. The EPA also is proposing amendments to the regulatory provisions related to emissions during periods of SSM, including removing exemptions for periods of SSM and adding a work practice standard for malfunction events associated with the chlorine reduction burner (CRB); all emission limits will apply at all other times. In addition, the EPA is proposing electronic reporting of performance test results and performance evaluation reports.

**DATES:** *Comments.* Comments must be received on or before February 22, 2021. Under the Paperwork Reduction Act (PRA), comments on the information collection provisions are best assured of consideration if the Office of Management and Budget (OMB) receives a copy of your comments on or before February 8, 2021.

*Public hearing:* If anyone contacts us requesting a public hearing on or before January 13, 2021, we will hold a virtual public hearing. See **SUPPLEMENTARY INFORMATION** for information on requesting and registering for a public hearing.

**ADDRESSES:** You may send comments, identified by Docket ID No. EPA–HQ–OAR–2020–0535, by any of the following methods:

- *Federal eRulemaking Portal: https://www.regulations.gov/* (our preferred method). Follow the online instructions for submitting comments.
- *Email: a-and-r-docket@epa.gov.* Include Docket ID No. EPA–HQ–OAR–2020–0535 in the subject line of the message.
- *Fax:* (202) 566–9744. Attention Docket ID No. EPA–HQ–OAR–2020–0535.
- *Mail:* U.S. Environmental Protection Agency, EPA Docket Center, Docket ID No. EPA–HQ–OAR–2020–0535, Mail Code 28221T, 1200 Pennsylvania Avenue NW, Washington, DC 20460.
- *Hand/Courier Delivery:* EPA Docket Center, WJC West Building, Room 3334, 1301 Constitution Avenue NW, Washington, DC 20004. The Docket Center's hours of operation are 8:30 a.m.–4:30 p.m., Monday–Friday (except federal holidays).

*Instructions:* All submissions received must include the Docket ID No. for this rulemaking. Comments received may be posted without change to *https://www.regulations.gov/,* including any personal information provided. For detailed instructions on sending comments and additional information on the rulemaking process, see the **SUPPLEMENTARY INFORMATION** section of this document. Out of an abundance of caution for members of the public and our staff, the EPA Docket Center and Reading Room are closed to the public, with limited exceptions, to reduce the risk of transmitting COVID–19. Our Docket Center staff will continue to provide remote customer service via email, phone, and webform. We encourage the public to submit comments via *https://www.regulations.gov/* or email, as there may be a delay in processing mail and faxes. Hand deliveries and couriers may be received by scheduled appointment only. For further information on EPA Docket Center services and the current status, please visit us online at *https://www.epa.gov/dockets.*

**FOR FURTHER INFORMATION CONTACT:** For questions about this proposed action, contact Michael Moeller, Sector Policies and Programs Division, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541–2766; fax number: (919) 541–4991 and email address: *moeller.michael@epa.gov.* For specific information regarding the risk modeling methodology, contact Jim Hirtz, Health and Environmental Impacts Division (C539–02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541–0881; fax number: (919) 541–0840; and email address: *hirtz.james@epa.gov.*

**SUPPLEMENTARY INFORMATION:** *Participation in virtual public hearing.* Please note that the EPA is deviating from its typical approach for public hearings because the President has declared a national emergency. Due to the current Centers for Disease Control and Prevention (CDC) recommendations, as well as state and local orders for social distancing to limit the spread of COVID–19, the EPA cannot hold in-person public meetings at this time.

To request a virtual public hearing, contact the public hearing team at (888) 372–8699 or by email at *SPPDpublichearing@epa.gov.* If requested, the virtual hearing will be held on January 25, 2021. The hearing will convene at 9:00 a.m. Eastern Time (ET) and will conclude at 3:00 p.m. ET. The EPA may close a session 15 minutes after the last pre-registered speaker has testified if there are no additional speakers. The EPA will announce further details at *https://www.epa.gov/stationary-sources-air-pollution/primary-magnesium-refining-national-emissions-standards-hazardous/.*

The EPA will begin pre-registering speakers for the hearing upon publication of this document in the **Federal Register**, if a hearing is requested. To register to speak at the virtual hearing, please use the online registration form available at *https://www.epa.gov/stationary-sources-air-pollution/primary-magnesium-refining-national-emissions-standards-hazardous/* or contact the public hearing team at (888) 372–8699 or by email at *SPPDpublichearing@epa.gov.* The last day to pre-register to speak at the hearing will be January 21, 2021. Prior to the hearing, the EPA will post a general agenda that will list pre-registered speakers in approximate order at: *https://www.epa.gov/stationary-sources-air-pollution/stationary-sources-air-pollution/primary-magnesium-refining-national-emissions-standards-hazardous/.*

The EPA will make every effort to follow the schedule as closely as possible on the day of the hearing; however, please plan for the hearings to run either ahead of schedule or behind schedule.

Each commenter will have 5 minutes to provide oral testimony. The EPA encourages commenters to provide the EPA with a copy of their oral testimony electronically (via email) by emailing it to Michael Moeller, email address: *moeller.michael@epa.gov.* The EPA also recommends submitting the text of your oral testimony as written comments to the rulemaking docket.

The EPA may ask clarifying questions during the oral presentations but will not respond to the presentations at that time. Written statements and supporting information submitted during the comment period will be considered with the same weight as oral testimony and supporting information presented at the public hearing.

Please note that any updates made to any aspect of the hearing will be posted online at *https://www.epa.gov/stationary-sources-air-pollution/stationary-sources-air-pollution/primary-magnesium-refining-national-emissions-standards-hazardous/.* While the EPA expects the hearing to go forward as set forth above, please monitor our website or contact our public hearing team at (888) 372–8699 or by email at *SPPDpublichearing@epa.gov* to determine if there are any updates. The EPA does not intend to publish a document in the **Federal Register** announcing updates.

If you require the services of a translator or a special accommodation such as audio description, please pre-register for the hearing with the public hearing team at the phone number or website provided above and describe your needs by January 15, 2021. The EPA may not be able to arrange accommodations without advanced notice.

*Docket.* The EPA has established a docket for this rulemaking under Docket ID No. EPA–HQ–OAR–2020–0535. All documents in the docket are listed in *https://www.regulations.gov/.* Although listed, some information is not publicly available, *e.g.,* Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the internet and will be publicly available only in hard copy. With the exception of such material, publicly available docket materials are available electronically in *Regulations.gov.*

*Instructions.* Direct your comments to Docket ID No. EPA–HQ–OAR–2020–0535. The EPA's policy is that all comments received will be included in the public docket without change and may be made available online at *https://www.regulations.gov/,* including any personal information provided, unless the comment includes information claimed to be CBI or other information whose disclosure is restricted by statute. Do not submit electronically any information that you consider to be CBI or other information whose disclosure is restricted by statute. This type of information should be submitted by mail as discussed below.

The EPA may publish any comment received to its public docket. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (*i.e.,* on the web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit *https://www.epa.gov/dockets/commenting-epa-dockets.*

The *https://www.regulations.gov/* website allows you to submit your comment anonymously, which means the EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an email comment directly to the EPA without going through *https://www.regulations.gov/,* your email address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the internet. If you submit an electronic comment, the EPA recommends that you include your name and other contact information in the body of your comment and with any digital storage media you submit. If the EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, the EPA may not be able to consider your comment. Electronic files should not include special characters or any form of encryption and be free of any defects or viruses. For additional information about the EPA's public docket, visit the EPA Docket Center homepage at *https://www.epa.gov/dockets.*

The EPA is temporarily suspending its Docket Center and Reading Room for public visitors, with limited exceptions, to reduce the risk of transmitting COVID–19. Our Docket Center staff will continue to provide remote customer service via email, phone, and webform. We encourage the public to submit comments via *https://www.regulations.gov/* as there may be a delay in processing mail and faxes. Hand deliveries or couriers will be received by scheduled appointment only. For further information and updates on EPA Docket Center services, please visit us online at *https://www.epa.gov/dockets.*

The EPA continues to carefully and continuously monitor information from the CDC, local area health departments, and our Federal partners so that we can respond rapidly as conditions change regarding COVID–19.

*Submitting CBI.* Do not submit information containing CBI to the EPA through *https://www.regulations.gov/* or email. Clearly mark the part or all of the information that you claim to be CBI. For CBI information on any digital storage media that you mail to the EPA, mark the outside of the digital storage media as CBI and then identify electronically within the digital storage media the specific information that is claimed as CBI. In addition to one complete version of the comments that includes information claimed as CBI, you must submit a copy of the comments that does not contain the information claimed as CBI directly to the public docket through the procedures outlined in *Instructions* above. If you submit any digital storage media that does not contain CBI, mark the outside of the digital storage media clearly that it does not contain CBI. Information not marked as CBI will be included in the public docket and the EPA's electronic public docket without prior notice. Information marked as CBI will not be disclosed except in accordance with procedures set forth in 40 Code of Federal Regulations (CFR) part 2. Send or deliver information identified as CBI only to the following address: OAQPS Document Control Officer (C404–02), OAQPS, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, Attention Docket ID No. EPA–HQ–OAR–2020–0535. Note that written comments containing CBI and submitted by mail may be delayed and no hand deliveries will be accepted.

*Preamble acronyms and abbreviations.* We use multiple acronyms and terms in this preamble. While this list may not be exhaustive, to ease the reading of this preamble and for reference purposes, the EPA defines the following terms and acronyms here:

| | |
|---|---|
| AEGL | acute exposure guideline level |
| AERMOD | air dispersion model used by the HEM–3 model |
| CAA | Clean Air Act |
| CalEPA | California EPA |
| CBI | Confidential Business Information |
| CBS | chlorine bypass stack |
| CDC | Centers for Disease Control and Prevention |
| CDX | Central Data Exchange |
| CEDRI | Compliance and Emissions Data Reporting Interface |
| CFR | Code of Federal Regulations |
| CPMS | continuous parameter monitoring system |
| CRB | chlorine reduction burner |
| EPA | Environmental Protection Agency |
| ERPG | emergency response planning guideline |
| ERT | Electronic Reporting Tool |
| HAP | hazardous air pollutant(s) |
| HCl | hydrochloric acid |
| HEM–3 | Human Exposure Model, Version 1.5.5 |
| HF | hydrogen fluoride |
| HI | hazard index |
| HQ | hazard quotient |
| IRIS | Integrated Risk Information System |
| km | kilometer |
| LOAEL | lowest-observed-adverse-effect-level |
| MACT | maximum achievable control technology |
| mg/m3 | milligrams per cubic meter |
| MIR | maximum individual risk |
| NAAQS | National Ambient Air Quality Standards |
| NAICS | North American Industry Classification System |
| NESHAP | national emission standards for hazardous air pollutants |
| NOAEL | no-observed-adverse-effect-level |
| OAQPS | Office of Air Quality Planning and Standards |
| OMB | Office of Management and Budget |
| PAH | polycyclic aromatic hydrocarbons |
| PB–HAP | hazardous air pollutants known to be persistent and bio-accumulative in the environment |
| PM | particulate matter |
| POM | polycyclic organic matter |
| ppm | parts per million |
| REL | reference exposure level |
| RfC | reference concentration |
| RfD | reference dose |
| RTR | residual risk and technology review |
| SAB | Science Advisory Board |
| SSM | startup, shutdown, and malfunction |
| TOSHI | target organ-specific hazard index |
| tpy | tons per year |
| TRIM.FaTE | Total Risk Integrated Methodology.Fate, Transport, and Ecological Exposure model |
| UF | uncertainty factor |
| µg/m3 | microgram per cubic meter |
| URE | unit risk estimate |
| VCS | voluntary consensus standards |

*Organization of this document.* The information in this preamble is organized as follows:

## I. General Information

### *A. Does this action apply to me?*

The source category that is the subject of this proposal is the Primary Magnesium Refining major sources regulated under 40 CFR part 63, subpart TTTTT. The North American Industry Classification System (NAICS) code for the primary magnesium refining industry is 331410. This category and NAICS code are not intended to be exhaustive, but rather provide a guide for readers regarding the entities that this proposed action is likely to affect. The proposed standards, once promulgated, will be directly applicable to the affected sources. Federal, state, local, and tribal government entities would not be affected by this proposed action. As defined in the *Initial List of Categories of Sources Under Section 112(c)(1) of the Clean Air Act Amendments of 1990* (see 57 FR 31576, July 16, 1992) and *Documentation for Developing the Initial Source Category List, Final Report* (see EPA–450/3–91–030, July 1992), the Primary Magnesium Refining source category is any facility engaged in producing metallic magnesium. The source category includes, but is not limited to, metallic magnesium produced using the Dow sea-water process or the Pidgeon process. The Dow sea-water process involves the electrolysis of molten magnesium chloride. The Pidgeon process involves the thermal reduction of magnesium oxide with ferrosilicon.

### *B. Where can I get a copy of this document and other related information?*

In addition to being available in the docket, an electronic copy of this action is available on the internet. Following signature by the EPA Administrator, the EPA will post a copy of this proposed action at *https://www.epa.gov/stationary-sources-air-pollution/primary-magnesium-refining-national-emissions-standards-hazardous/.* Following publication in the **Federal Register***,* the EPA will post the **Federal Register** version of the proposal and key technical documents at this same website. Information on the overall RTR program is available at *https://www.epa.gov/ttn/atw/rrisk/rtrpg.html.*

The proposed changes to the CFR that would be necessary to incorporate the changes proposed in this action are set out in an attachment to the memorandum titled *Proposed Regulation Edits for 40 CFR part 63, subpart TTTTT,* available in the docket for this action (Docket ID No. EPA–HQ–OAR–2020–0535). The document includes the specific proposed amendatory language for revising the CFR and, for the convenience of interested parties, a redline version of the regulation. Following signature by the EPA Administrator, the EPA will also post a copy of this memorandum and the attachments to *https://www.epa.gov/stationary-sources-air-pollution/primary-magnesium-refining-national-emissions-standards-hazardous/.*

## II. Background

### *A. What is the statutory authority for this action?*

The statutory authority for this action is provided by sections 112 and 301 of the CAA, as amended (42 U.S.C. 7401 *et seq.*). Section 112 of the CAA establishes a two-stage regulatory process to develop standards for emissions of hazardous air pollutants (HAP) from stationary sources. Generally, the first stage involves establishing technology-based standards and the second stage involves evaluating those standards that are based on MACT to determine whether additional standards are needed to address any remaining risk associated with HAP emissions. This second stage is commonly referred to as the ''residual risk review.'' In addition to the residual risk review, the CAA also requires the EPA to review standards set under CAA section 112 every 8 years and revise the standards as necessary taking into account any ''developments in practices, processes, or control technologies.'' This review is commonly referred to as the ''technology review.'' When the two reviews are combined into a single rulemaking, it is commonly referred to as the ''risk and technology review.'' The discussion that follows identifies the most relevant statutory sections and briefly explains the contours of the methodology used to implement these statutory requirements. A more comprehensive discussion appears in the document titled *CAA Section 112 Risk and Technology Reviews: Statutory Authority and Methodology,* in the docket for this rulemaking.

In the first stage of the CAA section 112 standard setting process, the EPA promulgates technology-based standards under CAA section 112(d) for categories of sources identified as emitting one or more of the HAP listed in CAA section 112(b). Sources of HAP emissions are either major sources or area sources, and CAA section 112 establishes different requirements for major source standards and area source standards. ''Major sources'' are those that emit or have the potential to emit 10 tons per year (tpy) or more of a single HAP or 25 tpy or more of any combination of HAP. All other sources are ''area sources.'' For major sources, CAA section 112(d)(2) provides that the technology-based NESHAP must reflect the maximum degree of emission reductions of HAP achievable (after considering cost, energy requirements, and non-air quality health and environmental impacts). These standards are commonly referred to as MACT standards. CAA section 112(d)(3) also establishes a minimum control level for MACT standards, known as the MACT ''floor.'' In certain instances, as provided in CAA section 112(h), the EPA may set work practice standards in lieu of numerical emission standards. The EPA must also consider control options that are more stringent than the floor. Standards more stringent than the floor are commonly referred to as beyond-the-floor standards. For area sources, CAA section 112(d)(5) gives the EPA discretion to set standards based on generally available control technologies or management practices (GACT standards) in lieu of MACT standards.

The second stage in standard-setting focuses on identifying and addressing any remaining (*i.e.,* ''residual'') risk pursuant to CAA section 112(f). For source categories subject to MACT standards, section 112(f)(2) of the CAA requires the EPA to determine whether promulgation of additional standards is needed to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect. Section 112(d)(5) of the CAA provides that this residual risk review is not required for categories of area sources subject to GACT standards. Section 112(f)(2)(B) of the CAA further expressly preserves the EPA's use of the two-step approach for developing standards to address any residual risk and the Agency's interpretation of ''ample margin of safety'' developed in the National Emissions Standards for Hazardous Air Pollutants: Benzene Emissions from Maleic Anhydride Plants, Ethylbenzene/Styrene Plants, Benzene Storage Vessels, Benzene Equipment Leaks, and Coke By-Product Recovery Plants (Benzene NESHAP) (54 FR 38044, September 14, 1989). The EPA notified Congress in the Residual Risk Report that the Agency intended to use the Benzene NESHAP approach in making CAA section 112(f) residual risk determinations (EPA–453/R–99–001, p. ES–11). The EPA subsequently adopted this approach in its residual risk determinations and the United States Court of Appeals for the District of Columbia Circuit (the Court) upheld the EPA's interpretation that CAA section 112(f)(2) incorporates the approach established in the Benzene NESHAP. See *NRDC* v. *EPA,* 529 F.3d 1077, 1083 (D.C. Cir. 2008).

The approach incorporated into the CAA and used by the EPA to evaluate residual risk and to develop standards under CAA section 112(f)(2) is a two-step approach. In the first step, the EPA determines whether risks are acceptable. This determination ''considers all health information, including risk estimation uncertainty, and includes a presumptive limit on maximum individual lifetime [cancer] risk (MIR) [1] of approximately 1 in 10 thousand.'' (54 FR 38045). If risks are unacceptable, the EPA must determine the emissions standards necessary to reduce risk to an acceptable level without considering costs. In the second step of the approach, the EPA considers whether the emissions standards provide an ample margin of safety to protect public health ''in consideration of all health information,

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[1] Although defined as ''maximum individual risk,'' MIR refers only to cancer risk. MIR, one metric for assessing cancer risk, is the estimated risk if an individual were exposed to the maximum level of a pollutant for a lifetime.

including the number of persons at risk levels higher than approximately 1 in 1 million, as well as other relevant factors, including costs and economic impacts, technological feasibility, and other factors relevant to each particular decision.'' *Id.* The EPA must promulgate emission standards necessary to provide an ample margin of safety to protect public health or determine that the standards being reviewed provide an ample margin of safety without any revisions. After conducting the ample margin of safety analysis, we consider whether a more stringent standard is necessary to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect.

CAA section 112(d)(6) separately requires the EPA to review standards promulgated under CAA section 112 and revise them ''as necessary (taking into account developments in practices, processes, and control technologies)'' no less often than every 8 years. In conducting this review, which we call the ''technology review,'' the EPA is not required to recalculate the MACT floor. *Natural Resources Defense Council (NRDC)* v. *EPA,* 529 F.3d 1077, 1084 (D.C. Cir. 2008). *Association of Battery Recyclers, Inc.* v. *EPA,* 716 F.3d 667 (D.C. Cir. 2013). The EPA may consider cost in deciding whether to revise the standards pursuant to CAA section 112(d)(6). The EPA is required to address regulatory gaps, such as missing standards for listed air toxics known to be emitted from the source category. *Louisiana Environmental Action Network (LEAN)* v. *EPA,* 955 F.3d 1088 (D.C. Cir. 2020).

### *B. What is this source category and how does the current NESHAP regulate its HAP emissions?*

The EPA initially promulgated the Primary Magnesium Refining NESHAP on October 10, 2003 (68 FR 58615), and it is codified at 40 CFR part 63, subpart TTTTT. This NESHAP regulates HAP emissions from new and existing primary magnesium refining facilities that are major sources of HAP. The source category is comprised of one plant that is owned by US Magnesium LLC and located in Rowley, Utah.

The plant produces magnesium from brine (salt water) taken from the Great Salt Lake. The production process concentrates the magnesium salts in the brine, then processes the brine to remove impurities that would affect metal quality. After the brine solution is converted to a powder mixture of magnesium chloride and magnesium oxide in the spray dryers, the powder is conveyed to the melt/reactors. The melt/reactor melts the powder mixture and converts the remaining magnesium oxide to magnesium chloride by injecting chlorine into the molten salt. The purified molten salt is then transferred to the electrolytic cells where it is separated into magnesium metal and chlorine by electrolysis. The electrolysis process passes a direct electric current through the molten magnesium chloride, causing the dissociation of the salt and resulting in the generation of chlorine gas and magnesium metal. The magnesium metal is then transferred to the foundry for casting into ingots for sale. The chlorine produced is piped to a chlorine plant where it is liquefied for reuse or sale.

The HAP emitted from the Primary Magnesium Refining source category are chlorine, hydrochloric acid (HCl), dioxin/furan, and trace amounts of HAP metals. Emission controls include various combinations of wet scrubbers (venturi and packed-bed scrubber) for acid gas and particulate matter (PM) control.

Chlorine is emitted from the melting and purification of reactor cell product and is controlled by conversion to HCl in the CRB and subsequent absorption of the HCl in venturi and packed-bed scrubber. Using these control technologies, upwards of 99.9 percent control of chlorine is achieved. The electrowinning of the melted magnesium chloride to magnesium metal produces as a byproduct chlorine gas which is recovered at the chlorine plant. When the chlorine plant is inoperable, the chlorine produced at the electrolytic cells is routed through the CBS which contains a packed-bed scrubber and uses ferrous chloride as the adsorbing medium.

HCl is emitted from the spray drying and storage of magnesium chloride powder and the melting and purification of reactor cell product prior to the electrowinning process. HCl emissions are controlled by venturi and packed-bed scrubbers.

Dioxins/furans are generated in the melt/reactor and are subject to incidental control by the wet scrubbers used to control chlorine, HCl, and PM.

The current rule requires compliance with emission limits, operating limits for control devices, and work practice standards. The emission limits include mass rate emission limits in pounds per hour (lbs/hr) for chlorine, HCl, PM, and particulate matter less than or equal to 10 microns ($PM_{10}$). Additional emission limits in grains per dry standard cubic foot (gr/dscf) apply to magnesium chloride storage bins. The emission limits are shown in Table 1 of this preamble.

TABLE 1—MASS RATE EMISSION LIMITS

[LBS/HR]

| Emission point | Chlorine | HCl | PM | $PM_{10}$ |
|---|---|---|---|---|
| Spray dryers | | 200 | 100 | |
| Magnesium chloride storage bins [1] | | 47.5 | | 2.7 |
| Melt/reactor system | 100 | 7.2 | | 13.1 |
| Launder off-gas system | 26.0 | 46.0 | 37.5 | |

[1] Additional limits are 0.35 gr/dscf of HCl and 0.016 gr/dscf of $PM_{10}$.

The current rule also includes an emission limit for each melt/reactor system of 36 nanograms of dioxin/furan toxicity equivalents per dry standard cubic meter corrected to 7 percent oxygen.

Performance tests are required to demonstrate compliance with the emission limits and must be conducted at least twice during each title V operating permit term (at midterm and renewal). The source is also required to monitor operating parameters for control devices subject to operating limits established during the performance tests and carry out the procedures in their fugitive dust emissions control plan and their operation and maintenance plan. For wet scrubbers, the source is required to use continuous parameter monitoring systems (CPMS) to measure and record the hourly average pressure drop and scrubber water flow rate. To demonstrate continuous compliance, the source must keep records documenting conformance with the monitoring requirements and the installation, operation, and maintenance requirements for CPMS.

### *C. What data collection activities were conducted to support this action?*

For the Primary Magnesium Refining source category, the EPA used emissions and supporting data from the 2017 National Emissions Inventory (NEI) as the primary data to develop the model input file for the residual risk assessment. The NEI is a database that contains information about sources that emit criteria air pollutants, their precursors, and HAP. The database includes estimates of annual air pollutant emissions from point, nonpoint, and mobile sources in the 50 states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands. The EPA collects this information and releases an updated version of the NEI database every 3 years. The NEI includes data necessary for conducting risk modeling, including annual HAP emissions estimates from individual emission sources at facilities and the related emissions release parameters. Additional information on the development of the modeling file can be found in Appendix 1 to the *Residual Risk Assessment for the Primary Magnesium Refining Source Category in Support of the 2020 Risk and Technology Review Proposed Rule,* which is available in the docket for this proposed rule.

### *D. What other relevant background information and data are available?*

Information used to estimate emissions from the primary magnesium refining facility was obtained primarily from the EPA's 2017 NEI database, available at: *https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data.* Supplemental information was used from publicly available documents from the Utah Department of Environmental Quality (*http://eqedocs.utah.gov/*) and the EPA Region 8 Superfund Remedial Investigation (*https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0802704*). Data on the numbers, types, dimensions, and locations of the emission points for the facility were obtained from the NEI, Google Earth™, and US Magnesium facility representatives. The HAP emissions from US Magnesium were categorized by source into one of the four emission process groups as follows: Spray dryers, magnesium chloride storage bins, melt/reactor system, and the CBS. Data on HAP emissions, including the HAP emitted, emission source, emission rates, stack parameters (such as temperature, velocity, flowrate, etc.), and latitude and longitude were compiled into a draft modeling file. To ensure the quality of the emissions data, the EPA subjected the draft modeling file to a variety of quality checks. The draft modeling file was made available to the facility to review the emission release parameters and the emission rates. Source latitudes and longitudes were checked in Google Earth™ to verify accuracy and were corrected as needed. These and other quality control efforts resulted in a more accurate emissions dataset. Additional information on the development of the modeling file can be found in Appendix 1 to the *Residual Risk Assessment for the Primary Magnesium Refining Source Category in Support of the 2020 Risk and Technology Review Proposed Rule,* which is available in the docket for this proposed rule.

## III. Analytical Procedures and Decision-Making

In this section, we describe the analyses performed to support the proposed decisions for the RTR and other issues addressed in this proposal.

### *A. How do we consider risk in our decision-making?*

As discussed in section II.A of this preamble and in the Benzene NESHAP, in evaluating and developing standards under CAA section 112(f)(2), we apply a two-step approach to determine whether or not risks are acceptable and to determine if the standards provide an ample margin of safety to protect public health. As explained in the Benzene NESHAP, "the first step judgment on acceptability cannot be reduced to any single factor" and, thus, "[t]he Administrator believes that the acceptability of risk under section 112 is best judged on the basis of a broad set of health risk measures and information." (54 FR 38046). Similarly, with regard to the ample margin of safety determination, "the Agency again considers all of the health risk and other health information considered in the first step. Beyond that information, additional factors relating to the appropriate level of control will also be considered, including cost and economic impacts of controls, technological feasibility, uncertainties, and any other relevant factors." *Id.*

The Benzene NESHAP approach provides flexibility regarding factors the EPA may consider in making determinations and how the EPA may weigh those factors for each source category. The EPA conducts a risk assessment that provides estimates of the MIR posed by emissions of HAP that are carcinogens from each source in the source category, the hazard index (HI) for chronic exposures to HAP with the potential to cause noncancer health effects, and the hazard quotient (HQ) for acute exposures to HAP with the potential to cause noncancer health effects.[2] The assessment also provides estimates of the distribution of cancer risk within the exposed populations, cancer incidence, and an evaluation of the potential for an adverse environmental effect. The scope of the EPA's risk analysis is consistent with the explanation in EPA's response to comments on our policy under the Benzene NESHAP:

> The policy chosen by the Administrator permits consideration of multiple measures of health risk. Not only can the MIR figure be considered, but also incidence, the presence of non-cancer health effects, and the uncertainties of the risk estimates. In this way, the effect on the most exposed individuals can be reviewed as well as the impact on the general public. These factors can then be weighed in each individual case. This approach complies with the *Vinyl Chloride* mandate that the Administrator ascertain an acceptable level of risk to the public by employing his expertise to assess available data. It also complies with the Congressional intent behind the CAA, which did not exclude the use of any particular measure of public health risk from the EPA's consideration with respect to CAA section 112 regulations, and thereby implicitly permits consideration of any and all measures of health risk which the Administrator, in his judgment, believes are appropriate to determining what will "protect the public health".

(54 FR 38057). Thus, the level of the MIR is only one factor to be weighed in determining acceptability of risk. The Benzene NESHAP explained that "an MIR of approximately one in 10 thousand should ordinarily be the upper end of the range of acceptability. As risks increase above this benchmark, they become presumptively less acceptable under CAA section 112, and would be weighed with the other health risk measures and information in making an overall judgment on acceptability. Or, the Agency may find, in a particular case, that a risk that includes an MIR less than the presumptively acceptable level is unacceptable in the light of other health risk factors." *Id.* at 38045. In other

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[2] The MIR is defined as the cancer risk associated with a lifetime of exposure at the highest concentration of HAP where people are likely to live. The HQ is the ratio of the potential HAP exposure concentration to the noncancer dose-response value; the HI is the sum of HQs for HAP that affect the same target organ or organ system.

words, risks that include an MIR above 100-in-1 million may be determined to be acceptable, and risks with an MIR below that level may be determined to be unacceptable, depending on all of the available health information. Similarly, with regard to the ample margin of safety analysis, the EPA stated in the Benzene NESHAP that: ''EPA believes the relative weight of the many factors that can be considered in selecting an ample margin of safety can only be determined for each specific source category. This occurs mainly because technological and economic factors (along with the health-related factors) vary from source category to source category.'' *Id.* at 38061. We also consider the uncertainties associated with the various risk analyses, as discussed earlier in this preamble, in our determinations of acceptability and ample margin of safety.

The EPA notes that it has not considered certain health information to date in making residual risk determinations. At this time, we do not attempt to quantify the HAP risk that may be associated with emissions from other facilities that do not include the source category under review, mobile source emissions, natural source emissions, persistent environmental pollution, or atmospheric transformation in the vicinity of the sources in the category.

The EPA understands the potential importance of considering an individual's total exposure to HAP in addition to considering exposure to HAP emissions from the source category and facility. We recognize that such consideration may be particularly important when assessing noncancer risk, where pollutant-specific exposure health reference levels (*e.g.,* reference concentrations (RfCs)) are based on the assumption that thresholds exist for adverse health effects. For example, the EPA recognizes that, although exposures attributable to emissions from a source category or facility alone may not indicate the potential for increased risk of adverse noncancer health effects in a population, the exposures resulting from emissions from the facility in combination with emissions from all of the other sources (*e.g.,* other facilities) to which an individual is exposed may be sufficient to result in an increased risk of adverse noncancer health effects. In May 2010, the Science Advisory Board (SAB) advised the EPA ''that RTR assessments will be most useful to decision makers and communities if results are presented in the broader context of aggregate and cumulative risks, including background concentrations and contributions from other sources in the area.'' [3]

In response to the SAB recommendations, the EPA incorporates cumulative risk analyses into its RTR risk assessments. The Agency (1) conducts facility-wide assessments, which include source category emission points, as well as other emission points within the facilities; (2) combines exposures from multiple sources in the same category that could affect the same individuals; and (3) for some persistent and bioaccumulative pollutants, analyzes the ingestion route of exposure. In addition, the RTR risk assessments consider aggregate cancer risk from all carcinogens and aggregated noncancer HQs for all noncarcinogens affecting the same target organ or target organ system.

Although we are interested in placing source category and facility-wide HAP risk in the context of total HAP risk from all sources combined in the vicinity of each source, we are concerned about the uncertainties of doing so. Estimates of total HAP risk from emission sources other than those that we have studied in depth during this RTR review would have significantly greater associated uncertainties than the source category or facility-wide estimates. Such aggregate or cumulative assessments would compound those uncertainties, making the assessments too unreliable.

### *B. How do we perform the technology review?*

Our technology review primarily focuses on the identification and evaluation of developments in practices, processes, and control technologies that have occurred since the MACT standards were promulgated. Where we identify such developments, we analyze their technical feasibility, estimated costs, energy implications, and non-air environmental impacts. We also consider the emission reductions associated with applying each development. This analysis informs our decision of whether it is ''necessary'' to revise the emissions standards. In addition, we consider the appropriateness of applying controls to new sources versus retrofitting existing sources. For this exercise, we consider any of the following to be a ''development'':

- Any add-on control technology or other equipment that was not identified and considered during development of the original MACT standards;
- Any improvements in add-on control technology or other equipment (that were identified and considered during development of the original MACT standards) that could result in additional emissions reduction;
- Any work practice or operational procedure that was not identified or considered during development of the original MACT standards;
- Any process change or pollution prevention alternative that could be broadly applied to the industry and that was not identified or considered during development of the original MACT standards; and
- Any significant changes in the cost (including cost effectiveness) of applying controls (including controls the EPA considered during the development of the original MACT standards).

In addition to reviewing the practices, processes, and control technologies that were considered at the time we originally developed the NESHAP, we review a variety of data sources in our investigation of potential practices, processes, or controls. We also review the NESHAP and the available data to determine if there are any unregulated emissions of HAP within the source category and evaluate this data for use in developing new emission standards. See sections II.C and II.D of this preamble for information on the specific data sources that were reviewed as part of the technology review.

### *C. How do we estimate post-MACT risk posed by the source category?*

In this section, we provide a complete description of the types of analyses that we generally perform during the risk assessment process. In some cases, we do not perform a specific analysis because it is not relevant. For example, in the absence of emissions of HAP known to be persistent and bioaccumulative in the environment (PB–HAP), we would not perform a multipathway exposure assessment. Where we do not perform an analysis, we state that we do not and provide the reason. While we present all of our risk assessment methods, we only present risk assessment results for the analyses actually conducted (see section IV.B of this preamble).

The EPA conducts a risk assessment that provides estimates of the MIR for cancer posed by the HAP emissions from each source in the source category, the HI for chronic exposures to HAP with the potential to cause noncancer health effects, and the HQ for acute exposures to HAP with the potential to

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[3] Recommendations of the SAB Risk and Technology Review Methods Panel are provided in their report, which is available at: *https://yosemite.epa.gov/sab/sabproduct.nsf/4AB3966E263D943A8525771F00668381/$File/EPA-SAB-10-007-unsigned.pdf.*

cause noncancer health effects. The assessment also provides estimates of the distribution of cancer risk within the exposed populations, cancer incidence, and an evaluation of the potential for an adverse environmental effect. The seven sections that follow this paragraph describe how we estimated emissions and conducted the risk assessment. The docket for this rulemaking contains the following document which provides more information on the risk assessment inputs and models: *Residual Risk Assessment for the Primary Magnesium Refining Source Category in Support of the 2020 Risk and Technology Review Proposed Rule.* The methods used to assess risk (as described in the seven primary steps below) are consistent with those described by the EPA in the document reviewed by a panel of the EPA's SAB in 2009;[4] and described in the SAB review report issued in 2010. They are also consistent with the key recommendations contained in that report.

1. How did we estimate actual emissions and identify the emissions release characteristics?

The HAP emissions from US Magnesium fall into the following pollutant categories: Acid gases (*i.e.,* HCl and chlorine), metals (HAP metals) and dioxins/furans. The HAP are emitted from several emission sources at US Magnesium which, for the purposes of the source category risk assessment, have been categorized into four emission process groups as follows: Spray dryers, magnesium chloride storage bins, melt/reactor system, and the CBS. The main sources of emissions data include the NEI data submitted for calendar year 2017 and supplemental information gathered from the public domains of the Utah Department of Environmental Quality (DEQ) (*http://eqedocs.utah.gov/*) and the EPA Region 8 Superfund Remedial Investigation, available at: *https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0802704,* and also available in the docket for this action (Docket ID No. EPA–HQ–OAR–2020–0535). Data on the numbers, types, dimensions, and locations of the emission points for the facility were obtained from the NEI, Utah DEQ, Google Earth™, and from representatives of the US Magnesium facility. A description of the data, approach, and rationale used to develop actual HAP emissions estimates is discussed in more detail in Appendix 1 to the *Residual Risk Assessment for the Primary Magnesium Refining Source Category in Support of the 2020 Risk and Technology Review Proposed Rule,* which is available in the docket (Docket ID No. EPA–HQ–OAR–2020–0535).

2. How did we estimate MACT-allowable emissions?

The available emissions data in the RTR emissions dataset include estimates of the mass of HAP emitted during a specified annual time period. These ''actual'' emission levels are often lower than the emission levels allowed under the requirements of the current MACT standards. The emissions allowed under the MACT standards are referred to as the ''MACT-allowable'' emissions. We discussed the consideration of both MACT-allowable and actual emissions in the final Coke Oven Batteries RTR (70 FR 19992, 19998 and 19999, April 15, 2005) and in the proposed and final Hazardous Organic NESHAP RTR (71 FR 34421, 34428, June 14, 2006, and 71 FR 76603, 76609, December 21, 2006, respectively). In those actions, we noted that assessing the risk at the MACT-allowable level is inherently reasonable since that risk reflects the maximum level facilities could emit and still comply with national emission standards. We also explained that it is reasonable to consider actual emissions, where such data are available, in both steps of the risk analysis, in accordance with the Benzene NESHAP approach. (54 FR 38044.)

Allowable emission rates for US Magnesium were developed based on the MACT emission limits. Specifically, given that the facility operates continuously throughout the year, the pound per hour emission limits for each emission process groups were used to calculate allowable emission totals. For sources without MACT limits in the current NESHAP, allowable emissions were assumed to equal to actual emissions since the facility operated continuously, at or near maximum capacity, during calendar year 2017. For a detailed description of the estimation of allowable emissions, see Appendix 1 to the *Residual Risk Assessment for the Primary Magnesium Refining Source Category in Support of the 2020 Risk and Technology Review Proposed Rule,* which is available in the docket (Docket ID No. EPA–HQ–OAR–2020–0535).

3. How do we conduct dispersion modeling, determine inhalation exposures, and estimate individual and population inhalation risk?

Both long-term and short-term inhalation exposure concentrations and health risk from the source category addressed in this proposal were estimated using the Human Exposure Model (HEM–3).[5] The HEM–3 performs three primary risk assessment activities: (1) Conducting dispersion modeling to estimate the concentrations of HAP in ambient air, (2) estimating long-term and short-term inhalation exposures to individuals residing within 50 kilometers (km) of the modeled sources, and (3) estimating individual and population-level inhalation risk using the exposure estimates and quantitative dose-response information.

a. Dispersion Modeling

The air dispersion model AERMOD, used by the HEM–3 model, is one of the EPA's preferred models for assessing air pollutant concentrations from industrial facilities.[6] To perform the dispersion modeling and to develop the preliminary risk estimates, HEM–3 draws on three data libraries. The first is a library of meteorological data, which is used for dispersion calculations. This library includes 1 year (2016) of hourly surface and upper air observations from 824 meteorological stations selected to provide coverage of the United States and Puerto Rico. A second library of United States Census Bureau census block[7] internal point locations and populations provides the basis of human exposure calculations (U.S. Census, 2010). In addition, for each census block, the census library includes the elevation and controlling hill height, which are also used in dispersion calculations. A third library of pollutant-specific dose-response values is used to estimate health risk. These are discussed below.

b. Risk From Chronic Exposure to HAP

In developing the risk assessment for chronic exposures, we use the estimated annual average ambient air concentrations of each HAP emitted by each source in the source category. The HAP air concentrations at each nearby census block centroid located within 50 km of the facility are a surrogate for the chronic inhalation exposure concentration for all the people who reside in that census block. A distance of 50 km is consistent with both the analysis supporting the 1989 Benzene

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[4] U.S. EPA. *Risk and Technology Review (RTR) Risk Assessment Methodologies: For Review by the EPA's Science Advisory Board with Case Studies—MACT I Petroleum Refining Sources and Portland Cement Manufacturing,* June 2009. EPA–452/R–09–006. *https://www.epa.gov/airtoxics/rrisk/rtrpg.html.*

[5] For more information about HEM–3, go to *https://www.epa.gov/fera/risk-assessment-and-modeling-human-exposure-model-hem.*

[6] U.S. EPA. Revision to the *Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions* (70 FR 68218, November 9, 2005).

[7] A census block is the smallest geographic area for which census statistics are tabulated.

NESHAP (54 FR 38044) and the limitations of Gaussian dispersion models, including AERMOD.

For each facility, we calculate the MIR as the cancer risk associated with a continuous lifetime (24 hours per day, 7 days per week, 52 weeks per year, 70 years) exposure to the maximum concentration at the centroid of each inhabited census block. We calculate individual cancer risk by multiplying the estimated lifetime exposure to the ambient concentration of each HAP (in micrograms per cubic meter ($\mu$g/m$^3$)) by its unit risk estimate (URE). The URE is an upper-bound estimate of an individual's incremental risk of contracting cancer over a lifetime of exposure to a concentration of 1 microgram of the pollutant per cubic meter of air. For residual risk assessments, we generally use UREs from the EPA's Integrated Risk Information System (IRIS). For carcinogenic pollutants without IRIS values, we look to other reputable sources of cancer dose-response values, often using California EPA (CalEPA) UREs, where available. In cases where new, scientifically credible dose-response values have been developed in a manner consistent with EPA guidelines and have undergone a peer review process similar to that used by the EPA, we may use such dose-response values in place of, or in addition to, other values, if appropriate. The pollutant-specific dose-response values used to estimate health risk are available at *https://www.epa.gov/fera/dose-response-assessment-assessing-health-risks-associated-exposure-hazardous-air-pollutants.*

To estimate individual lifetime cancer risks associated with exposure to HAP emissions from each facility in the source category, we sum the risks for each of the carcinogenic HAP[8] emitted by the modeled facility. We estimate cancer risk at every census block within 50 km of every facility in the source category. The MIR is the highest individual lifetime cancer risk estimated for any of those census blocks. In addition to calculating the MIR, we estimate the distribution of individual cancer risks for the source category by summing the number of individuals within 50 km of the sources whose estimated risk falls within a specified risk range. We also estimate annual cancer incidence by multiplying the estimated lifetime cancer risk at each census block by the number of people residing in that block, summing results for all of the census blocks, and then dividing this result by a 70-year lifetime.

To assess the risk of noncancer health effects from chronic exposure to HAP, we calculate either an HQ or a target organ-specific hazard index (TOSHI). We calculate an HQ when a single noncancer HAP is emitted. Where more than one noncancer HAP is emitted, we sum the HQ for each of the HAP that affects a common target organ or target organ system to obtain a TOSHI. The HQ is the estimated exposure divided by the chronic noncancer dose-response value, which is a value selected from one of several sources. The preferred chronic noncancer dose-response value is the EPA RfC, defined as ''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 effects during a lifetime'' (*https://iaspub.epa.gov/sor_internet/registry/termreg/searchandretrieve/glossariesandkeywordlists/search.do?details=&vocabName=IRIS%20Glossary*). In cases where an RfC from the EPA's IRIS is not available or where the EPA determines that using a value other than the RfC is appropriate, the chronic noncancer dose-response value can be a value from the following prioritized sources, which define their dose-response values similarly to the EPA: (1) The Agency for Toxic Substances and Disease Registry (ATSDR) Minimum Risk Level (*https://www.atsdr.cdc.gov/mrls/index.asp*); (2) the CalEPA Chronic Reference Exposure Level (REL) (*https://oehha.ca.gov/air/crnr/notice-adoption-air-toxics-hot-spots-program-guidance-manual-preparation-health-risk-0*); or (3) as noted above, a scientifically credible dose-response value that has been developed in a manner consistent with the EPA guidelines and has undergone a peer review process similar to that used by the EPA. The pollutant-specific dose-response values used to estimate health risks are available at *https://www.epa.gov/fera/dose-response-assessment-assessing-health-risks-associated-exposure-hazardous-air-pollutants.*

### c. Risk From Acute Exposure to HAP That May Cause Health Effects Other Than Cancer

For each HAP for which appropriate acute inhalation dose-response values are available, the EPA also assesses the potential health risks due to acute exposure. For these assessments, the EPA makes conservative assumptions about emission rates, meteorology, and exposure location. As part of our efforts to continually improve our methodologies to evaluate the risks that HAP emitted from categories of industrial sources pose to human health and the environment,[9] we revised our treatment of meteorological data to use reasonable worst-case air dispersion conditions in our acute risk screening assessments instead of worst-case air dispersion conditions. This revised treatment of meteorological data and the supporting rationale are described in more detail in *Residual Risk Assessment for Primary Magnesium Refining Source Category in Support of the 2020 Risk and Technology Review Proposed Rule* and in Appendix 5 of the report: *Technical Support Document for Acute Risk Screening Assessment.* This revised approach has been used in this proposed rule and in all other RTR rulemakings proposed on or after June 3, 2019.

To assess the potential acute risk to the maximally exposed individual, we use the peak hourly emission rate for each emission point,[10] reasonable worst-case air dispersion conditions (*i.e.,* 99th percentile), and the point of highest off-site exposure. Specifically, we assume that peak emissions from the source category and reasonable worst-case air dispersion conditions co-occur

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[8] The EPA's 2005 *Guidelines for Carcinogen Risk Assessment* classifies carcinogens as: ''carcinogenic to humans,'' ''likely to be carcinogenic to humans,'' and ''suggestive evidence of carcinogenic potential.'' These classifications also coincide with the terms ''known carcinogen, probable carcinogen, and possible carcinogen,'' respectively, which are the terms advocated in the EPA's *Guidelines for Carcinogen Risk Assessment,* published in 1986 (51 FR 33992, September 24, 1986). In August 2000, the document, *Supplemental Guidance for Conducting Health Risk Assessment of Chemical Mixtures* (EPA/630/R–00/002), was published as a supplement to the 1986 document. Copies of both documents can be obtained from *https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=20533&CFID=70315376&CFTOKEN=71597944.* Summing the risk of these individual compounds to obtain the cumulative cancer risk is an approach that was recommended by the EPA's SAB in their 2002 peer review of the EPA's National Air Toxics Assessment (NATA) titled *NATA—Evaluating the National-scale Air Toxics Assessment 1996 Data—an SAB Advisory,* available at *https://yosemite.epa.gov/sab/sabproduct.nsf/214C6E915BB04E14852570CA007A682C/$File/ecadv02001.pdf.*

[9] See, *e.g.,* U.S. EPA. *Screening Methodologies to Support Risk and Technology Reviews (RTR): A Case Study Analysis* (Draft Report, May 2017. *https://www3.epa.gov/ttn/atw/rrisk/rtrpg.html*).

[10] In the absence of hourly emission data, we develop estimates of maximum hourly emission rates by multiplying the average actual annual emissions rates by a factor (either a category-specific factor or a default factor of 10) to account for variability. This is documented in *Residual Risk Assessment for Primary Magnesium Refining Source Category in Support of the 2020 Risk and Technology Review Proposed Rule* and in Appendix 5 of the report: *Technical Support Document for Acute Risk Screening Assessment.* Both are available in the docket for this rulemaking.

and that a person is present at the point of maximum exposure.

To characterize the potential health risks associated with estimated acute inhalation exposures to a HAP, we generally use multiple acute dose-response values, including acute RELs, acute exposure guideline levels (AEGLs), and emergency response planning guidelines (ERPG) for 1-hour exposure durations, if available, to calculate acute HQs. The acute HQ is calculated by dividing the estimated acute exposure concentration by the acute dose-response value. For each HAP for which acute dose-response values are available, the EPA calculates acute HQs.

An acute REL is defined as ''the concentration level at or below which no adverse health effects are anticipated for a specified exposure duration.'' [11] Acute RELs are based on the most sensitive, relevant, adverse health effect reported in the peer-reviewed medical and toxicological literature. They are designed to protect the most sensitive individuals in the population through the inclusion of margins of safety. Because margins of safety are incorporated to address data gaps and uncertainties, exceeding the REL does not automatically indicate an adverse health impact. AEGLs represent threshold exposure limits for the general public and are applicable to emergency exposures ranging from 10 minutes to 8 hours.[12] They are guideline levels for ''once-in-a-lifetime, short-term exposures to airborne concentrations of acutely toxic, high-priority chemicals.'' *Id.* at 21. The AEGL–1 is specifically defined as ''the airborne concentration (expressed as ppm (parts per million) or mg/m$^3$ (milligrams per cubic meter)) of a substance above which it is predicted that the general population, including susceptible individuals, could experience notable discomfort, irritation, or certain asymptomatic nonsensory effects. However, the effects are not disabling and are transient and reversible upon cessation of exposure.'' The document also notes that ''Airborne concentrations below AEGL–1 represent exposure levels that can produce mild and progressively increasing but transient and nondisabling odor, taste, and sensory irritation or certain asymptomatic, nonsensory effects.'' *Id.* AEGL–2 are defined as ''the airborne concentration (expressed as parts per million or milligrams per cubic meter) of a substance above which it is predicted that the general population, including susceptible individuals, could experience irreversible or other serious, long-lasting adverse health effects or an impaired ability to escape.'' *Id.*

ERPGs are ''developed for emergency planning and are intended as health-based guideline concentrations for single exposures to chemicals.'' [13] *Id.* at 1. The ERPG–1 is defined as ''the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hour without experiencing other than mild transient adverse health effects or without perceiving a clearly defined, objectionable odor.'' *Id.* at 2. Similarly, the ERPG–2 is defined as ''the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual's ability to take protective action.'' *Id.* at 1.

An acute REL for 1-hour exposure durations is typically lower than its corresponding AEGL–1 and ERPG–1. Even though their definitions are slightly different, AEGL–1s are often the same as the corresponding ERPG–1s, and AEGL–2s are often equal to ERPG–2s. The maximum HQs from our acute inhalation screening risk assessment typically result when we use the acute REL for a HAP. In cases where the maximum acute HQ exceeds 1, we also report the HQ based on the next highest acute dose-response value (usually the AEGL–1 and/or the ERPG–1).

For this source category, maximum hourly emission estimates were available, so we did not use the default emissions multiplier of 10. For the melt/reactor system and CBS, hourly emission estimates were initially based on an upper peak-to-mean ratio (*i.e.,* 95th percentile) of the highest daily emission total and the daily average. This resulted in a factor of 8 for the melt/reactor system and 4.5 for the CBS. For all other processes, data from the CPMS of the associated wet scrubbers indicated that their operation was continuous and a factor of 1 was used. As described in the risk assessment section of this preamble, we also assessed a worst-case acute risk scenario based on the estimated maximum hourly emissions rate (see risk assessment section for more details). A further discussion of why these factors were chosen can be found in Appendix 1 to the *Residual Risk Assessment for the Primary Magnesium Refining Source Category in Support of the 2020 Risk and Technology Review Proposed Rule,* available in the docket for this rulemaking.

In our acute inhalation screening risk assessment, acute impacts are deemed negligible for HAP for which acute HQs are less than or equal to 1, and no further analysis is performed for these HAP. In cases where an acute HQ from the screening step is greater than 1, we assess the site-specific data to ensure that the acute HQ is at an off-site location. For this source category, the data refinements employed consisted of reviewing modeling results to ensure we were evaluating locations and risks that were off-site, in places where the public could congregate for an hour or more, and also evaluating further the potential peak estimated actual emissions reported by the facility, which we assume could occur during rebuild/rehabilitative maintenance of the melt/reactor CRB control device. The CRB has an infrequent, but, periodic rebuild cycle where the refractory needs to be replaced and rebuilt about every 6 to 7 years. During this period, based on available information, we estimate the acute factor could be as high as 29, which is about 3.5 times higher than the initial modeled melt/reactor acute factor. These refinements are discussed more fully in the *Residual Risk Assessment for the Primary Magnesium Refining Source Category in Support of the 2020 Risk and Technology Review Proposed Rule,* which is available in the docket for this source category.

### 4. How do we conduct the multipathway exposure and risk screening assessment?

The EPA conducts a tiered screening assessment examining the potential for significant human health risks due to exposures via routes other than inhalation (*i.e.,* ingestion). We first determine whether any sources in the

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[11] CalEPA issues acute RELs as part of its Air Toxics Hot Spots Program, and the 1-hour and 8-hour values are documented in *Air Toxics Hot Spots Program Risk Assessment Guidelines, Part I, The Determination of Acute Reference Exposure Levels for Airborne Toxicants,* which is available at *https://oehha.ca.gov/air/general-info/oehha-acute-8-hour-and-chronic-reference-exposure-level-rel-summary.*

[12] National Academy of Sciences, 2001. *Standing Operating Procedures for Developing Acute Exposure Levels for Hazardous Chemicals,* page 2. Available at *https://www.epa.gov/sites/production/files/2015-09/documents/sop_final_standing_operating_procedures_2001.pdf.* Note that the National Advisory Committee for Acute Exposure Guideline Levels for Hazardous Substances ended in October 2011, but the AEGL program continues to operate at the EPA and works with the National Academies to publish final AEGLs (*https://www.epa.gov/aegl*).

[13] *ERPGS Procedures and Responsibilities.* March 2014. American Industrial Hygiene Association. Available at: *https://www.aiha.org/get-involved/AIHAGuidelineFoundation/EmergencyResponsePlanningGuidelines/Documents/ERPG%20Committee%20Standard%20Operating%20Procedures%20%20-%20March%202014%20Revision%20%28Updated%2010-2-2014%29.pdf.*

source category emit any HAP known to be persistent and bioaccumulative in the environment, as identified in the EPA's Air Toxics Risk Assessment Library (see Volume 1, Appendix D, at *https://www.epa.gov/fera/risk-assessment-and-modeling-air-toxics-risk-assessment-reference-library).*

For the Primary Magnesium Refining source category, we identified potential PB–HAP emissions for arsenic compounds, lead compounds, cadmium compounds, mercury compounds, and dioxins/furans, so we proceeded to the next step of the evaluation. Except for lead, the human health risk screening assessment for PB–HAP consists of three progressive tiers. In a Tier 1 screening assessment, we determine whether the magnitude of the facility-specific emissions of PB–HAP warrants further evaluation to characterize human health risk through ingestion exposure. To facilitate this step, we evaluate emissions against previously developed screening threshold emission rates for several PB–HAP that are based on a hypothetical upper-end screening exposure scenario developed for use in conjunction with the EPA's Total Risk Integrated Methodology.Fate, Transport, and Ecological Exposure (TRIM.FaTE) model. The PB–HAP with screening threshold emission rates are arsenic compounds, cadmium compounds, chlorinated dibenzodioxins and furans, mercury compounds, and polycyclic organic matter (POM). Based on the EPA estimates of toxicity and bioaccumulation potential, these pollutants represent a conservative list for inclusion in multipathway risk assessments for RTR rules. (See Volume 1, Appendix D at *https://www.epa.gov/sites/production/files/2013-08/documents/volume_1_reflibrary.pdf.*) In this assessment, we compare the facility-specific emission rates of these PB–HAP to the screening threshold emission rates for each PB–HAP to assess the potential for significant human health risks via the ingestion pathway. We call this application of the TRIM.FaTE model the Tier 1 screening assessment. The ratio of a facility's actual emission rate to the Tier 1 screening threshold emission rate is a ''screening value.''

We derive the Tier 1 screening threshold emission rates for these PB–HAP (other than lead compounds) to correspond to a maximum excess lifetime cancer risk of 1-in-1 million (*i.e.,* for arsenic compounds, polychlorinated dibenzodioxins and furans, and POM) or, for HAP that cause noncancer health effects (*i.e.,* cadmium compounds and mercury compounds), a maximum HQ of 1. If the emission rate of any one PB–HAP or combination of carcinogenic PB–HAP in the Tier 1 screening assessment exceeds the Tier 1 screening threshold emission rate for any facility (*i.e.,* the screening value is greater than 1), we conduct a second screening assessment, which we call the Tier 2 screening assessment. The Tier 2 screening assessment separates the Tier 1 combined fisher and farmer exposure scenario into fisher, farmer, and gardener scenarios that retain upper-bound ingestion rates.

In the Tier 2 screening assessment, the location of each facility that exceeds a Tier 1 screening threshold emission rate is used to refine the assumptions associated with the Tier 1 fisher and farmer exposure scenarios at that facility. A key assumption in the Tier 1 screening assessment is that a lake and/or farm is located near the facility. As part of the Tier 2 screening assessment, we use a U.S. Geological Survey (USGS) database to identify actual waterbodies within 50 km of each facility and assume the fisher only consumes fish from lakes within that 50 km zone. We also examine the differences between local meteorology near the facility and the meteorology used in the Tier 1 screening assessment. We then adjust the previously-developed Tier 1 screening threshold emission rates for each PB–HAP for each facility based on an understanding of how exposure concentrations estimated for the screening scenario change with the use of local meteorology and the USGS lakes database.

In the Tier 2 farmer scenario, we maintain an assumption that the farm is located within 0.5 km of the facility and that the farmer consumes meat, eggs, dairy, vegetables, and fruit produced near the facility. We may further refine the Tier 2 screening analysis by assessing a gardener scenario to characterize a range of exposures, with the gardener scenario being more plausible in RTR evaluations. Under the gardener scenario, we assume the gardener consumes home-produced eggs, vegetables, and fruit products at the same ingestion rate as the farmer. The Tier 2 screen continues to rely on the high-end food intake assumptions that were applied in Tier 1 for local fish (adult female angler at 99th percentile fish consumption [14]) and locally grown or raised foods (90th percentile consumption of locally grown or raised foods for the farmer and gardener scenarios [15]). If PB–HAP emission rates do not result in a Tier 2 screening value greater than 1, we consider those PB–HAP emissions to pose risks below a level of concern. If the PB–HAP emission rates for a facility exceed the Tier 2 screening threshold emission rates, we may conduct a Tier 3 screening assessment.

There are several analyses that can be included in a Tier 3 screening assessment, depending upon the extent of refinement warranted, including validating that the lakes are fishable, locating residential/garden locations for urban and/or rural settings, considering plume-rise to estimate emissions lost above the mixing layer, and considering hourly effects of meteorology and plume-rise on chemical fate and transport (a time-series analysis). If necessary, the EPA may further refine the screening assessment through a site-specific assessment.

In evaluating the potential multipathway risk from emissions of lead compounds, rather than developing a screening threshold emission rate, we compare maximum estimated chronic inhalation exposure concentrations to the level of the current National Ambient Air Quality Standard (NAAQS) for lead.[16] Values below the level of the primary (health-based) lead NAAQS are considered to have a low potential for multipathway risk.

For further information on the multipathway assessment approach, see the *Residual Risk Assessment for the Primary Magnesium Refining Source Category in Support of the Risk and Technology Review 2020 Proposed Rule,* which is available in the docket for this action.

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[14] Burger, J. 2002. *Daily consumption of wild fish and game: Exposures of high end recreationists. International Journal of Environmental Health Research,* 12:343–354.

[15] U.S. EPA. *Exposure Factors Handbook 2011 Edition (Final).* U.S. Environmental Protection Agency, Washington, DC, EPA/600/R–09/052F, 2011.

[16] In doing so, the EPA notes that the legal standard for a primary NAAQS—that a standard is requisite to protect public health and provide an adequate margin of safety (CAA section 109(b))—differs from the CAA section 112(f) standard (requiring, among other things, that the standard provide an ''ample margin of safety to protect public health''). However, the primary lead NAAQS is a reasonable measure of determining risk acceptability (*i.e.,* the first step of the Benzene NESHAP analysis) since it is designed to protect the most susceptible group in the human population—children, including children living near major lead emitting sources. 73 FR 67002/3; 73 FR 67000/3; 73 FR 67005/1. In addition, applying the level of the primary lead NAAQS at the risk acceptability step is conservative, since that primary lead NAAQS reflects an adequate margin of safety.

### 5. How do we conduct the environmental risk screening assessment?

#### a. Adverse Environmental Effect, Environmental HAP, and Ecological Benchmarks

The EPA conducts a screening assessment to examine the potential for an adverse environmental effect as required under section 112(f)(2)(A) of the CAA. Section 112(a)(7) of the CAA defines ''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.''

The EPA focuses on eight HAP, which are referred to as ''environmental HAP,'' in its screening assessment: Six PB–HAP and two acid gases. The PB–HAP included in the screening assessment are arsenic compounds, cadmium compounds, dioxins/furans, POM, mercury (both inorganic mercury and methyl mercury), and lead compounds. The acid gases included in the screening assessment are HCl and hydrogen fluoride (HF).

HAP that persist and bioaccumulate are of particular environmental concern because they accumulate in the soil, sediment, and water. The acid gases, HCl and HF, are included due to their well-documented potential to cause direct damage to terrestrial plants. In the environmental risk screening assessment, we evaluate the following four exposure media: Terrestrial soils, surface water bodies (includes water-column and benthic sediments), fish consumed by wildlife, and air. Within these four exposure media, we evaluate nine ecological assessment endpoints, which are defined by the ecological entity and its attributes. For PB–HAP (other than lead), both community-level and population-level endpoints are included. For acid gases, the ecological assessment evaluated is terrestrial plant communities.

An ecological benchmark represents a concentration of HAP that has been linked to a particular environmental effect level. For each environmental HAP, we identified the available ecological benchmarks for each assessment endpoint. We identified, where possible, ecological benchmarks at the following effect levels: Probable effect levels, lowest-observed-adverse-effect level (LOAEL), and no-observed-adverse-effect level (NOAEL). In cases where multiple effect levels were available for a particular PB–HAP and assessment endpoint, we use all of the available effect levels to help us to determine whether ecological risks exist and, if so, whether the risks could be considered significant and widespread.

For further information on how the environmental risk screening assessment was conducted, including a discussion of the risk metrics used, how the environmental HAP were identified, and how the ecological benchmarks were selected, see Appendix 9 of the *Residual Risk Assessment for the Primary Magnesium Refining Source Category in Support of the Risk and Technology Review 2020 Proposed Rule,* which is available in the docket for this action.

#### b. Environmental Risk Screening Methodology

For the environmental risk screening assessment, the EPA first determined whether any facilities in the Primary Magnesium Refining source category emitted any of the environmental HAP. For the Primary Magnesium Refining source category, we identified emissions of HCl and dioxins, and potential emissions of arsenic, cadmium, and mercury. Because one or more of the environmental HAP evaluated are emitted by at least one facility in the source category, we proceeded to the second step of the evaluation.

#### c. PB–HAP Methodology

The environmental screening assessment includes six PB–HAP, arsenic compounds, cadmium compounds, dioxins/furans, POM, mercury (both inorganic mercury and methyl mercury), and lead compounds. With the exception of lead, the environmental risk screening assessment for PB–HAP consists of three tiers. The first tier of the environmental risk screening assessment uses the same health-protective conceptual model that is used for the Tier 1 human health screening assessment. TRIM.FaTE model simulations were used to back-calculate Tier 1 screening threshold emission rates. The screening threshold emission rates represent the emission rate in tons of pollutant per year that results in media concentrations at the facility that equal the relevant ecological benchmark. To assess emissions from each facility in the category, the reported emission rate for each PB–HAP was compared to the Tier 1 screening threshold emission rate for that PB–HAP for each assessment endpoint and effect level. If emissions from a facility do not exceed the Tier 1 screening threshold emission rate, the facility ''passes'' the screening assessment, and, therefore, is not evaluated further under the screening approach. If emissions from a facility exceed the Tier 1 screening threshold emission rate, we evaluate the facility further in Tier 2.

In Tier 2 of the environmental screening assessment, the screening threshold emission rates are adjusted to account for local meteorology and the actual location of lakes in the vicinity of facilities that did not pass the Tier 1 screening assessment. For soils, we evaluate the average soil concentration for all soil parcels within a 7.5-km radius for each facility and PB–HAP. For the water, sediment, and fish tissue concentrations, the highest value for each facility for each pollutant is used. If emission concentrations from a facility do not exceed the Tier 2 screening threshold emission rate, the facility ''passes'' the screening assessment and typically is not evaluated further. If emissions from a facility exceed the Tier 2 screening threshold emission rate, we evaluate the facility further in Tier 3.

As in the multipathway human health risk assessment, in Tier 3 of the environmental screening assessment, we examine the suitability of the lakes around the facilities to support life and remove those that are not suitable (*e.g.,* lakes that have been filled in or are industrial ponds), adjust emissions for plume-rise, and conduct hour-by-hour time-series assessments. If these Tier 3 adjustments to the screening threshold emission rates still indicate the potential for an adverse environmental effect (*i.e.,* facility emission rate exceeds the screening threshold emission rate), we may elect to conduct a more refined assessment using more site-specific information. If, after additional refinement, the facility emission rate still exceeds the screening threshold emission rate, the facility may have the potential to cause an adverse environmental effect.

To evaluate the potential for an adverse environmental effect from lead, we compared the average modeled air concentrations (from HEM–3) of lead around each facility in the source category to the level of the secondary NAAQS for lead. The secondary lead NAAQS is a reasonable means of evaluating environmental risk because it is set to provide substantial protection against adverse welfare effects which can include ''effects on soils, water, crops, vegetation, man-made materials, animals, wildlife, weather, visibility and climate, damage to and deterioration of property, and hazards to transportation, as well as effects on economic values and on personal comfort and well-being.''

### d. Acid Gas Environmental Risk Methodology

The environmental screening assessment for acid gases evaluates the potential phytotoxicity and reduced productivity of plants due to chronic exposure to HF and HCl. The environmental risk screening methodology for acid gases is a single-tier screening assessment that compares modeled ambient air concentrations (from AERMOD) to the ecological benchmarks for each acid gas. To identify a potential adverse environmental effect (as defined in section 112(a)(7) of the CAA) from emissions of HF and HCl, we evaluate the following metrics: The size of the modeled area around each facility that exceeds the ecological benchmark for each acid gas, in acres and square kilometers; the percentage of the modeled area around each facility that exceeds the ecological benchmark for each acid gas; and the area-weighted average screening value around each facility (calculated by dividing the area-weighted average concentration over the 50-km modeling domain by the ecological benchmark for each acid gas). For further information on the environmental screening assessment approach, see Appendix 9 of the *Residual Risk Assessment for the Primary Magnesium Refining Source Category in Support of the Risk and Technology Review 2020 Proposed Rule,* which is available in the docket for this action.

### 6. How do we conduct facility-wide assessments?

To put the source category risks in context, we typically examine the risks from the entire ''facility,'' where the facility includes all HAP-emitting operations within a contiguous area and under common control. In other words, we examine the HAP emissions not only from the source category emission points of interest, but also emissions of HAP from all other emission sources at the facility for which we have data. For this source category, we conducted the facility-wide assessment using a dataset compiled from the 2017 NEI. The source category records of that NEI dataset were removed, evaluated, and updated as described in section II.C of this preamble: What data collection activities were conducted to support this action? Once a quality assured source category dataset was available, it was placed back with the remaining records from the NEI for that facility. The facility-wide file was then used to analyze risks due to the inhalation of HAP that are emitted ''facility-wide'' for the populations residing within 50 km of each facility, consistent with the methods used for the source category analysis described above. For these facility-wide risk analyses, the modeled source category risks were compared to the facility-wide risks to determine the portion of the facility-wide risks that could be attributed to the source category addressed in this proposal. We also specifically examined the facility that was associated with the highest estimate of risk and determined the percentage of that risk attributable to the source category of interest. The *Residual Risk Assessment for the Primary Magnesium Refining Source Category in Support of the Risk and Technology Review 2020 Proposed Rule,* available through the docket for this action, provides the methodology and results of the facility-wide analyses, including all facility-wide risks and the percentage of source category contribution to facility-wide risks.

### 7. How do we consider uncertainties in risk assessment?

Uncertainty and the potential for bias are inherent in all risk assessments, including those performed for this proposal. Although uncertainty exists, we believe that our approach, which used conservative tools and assumptions, ensures that our decisions are health and environmentally protective. A brief discussion of the uncertainties in the RTR emissions dataset, dispersion modeling, inhalation exposure estimates, and dose-response relationships follows below. Also included are those uncertainties specific to our acute screening assessments, multipathway screening assessments, and our environmental risk screening assessments. A more thorough discussion of these uncertainties is included in the *Residual Risk Assessment for the Primary Magnesium Refining Source Category in Support of the Risk and Technology Review 2020 Proposed Rule,* which is available in the docket for this action. If a multipathway site-specific assessment was performed for this source category, a full discussion of the uncertainties associated with that assessment can be found in Appendix 11 of that document, *Site-Specific Human Health Multipathway Residual Risk Assessment Report.*

### a. Uncertainties in the RTR Emissions Dataset

Although the development of the RTR emissions dataset involved quality assurance/quality control processes, the accuracy of emissions values will vary depending on the source of the data, the degree to which data are incomplete or missing, the degree to which assumptions made to complete the datasets are accurate, errors in emission estimates, and other factors. The emission estimates considered in this analysis generally are annual totals for certain years, and they do not reflect short-term fluctuations during the course of a year or variations from year to year. The estimates of peak hourly emission rates for the acute effects screening assessment were based on an emission adjustment factor applied to the average annual hourly emission rates, which are intended to account for emission fluctuations due to normal facility operations.

### b. Uncertainties in Dispersion Modeling

We recognize there is uncertainty in ambient concentration estimates associated with any model, including the EPA's recommended regulatory dispersion model, AERMOD. In using a model to estimate ambient pollutant concentrations, the user chooses certain options to apply. For RTR assessments, we select some model options that have the potential to overestimate ambient air concentrations (*e.g.,* not including plume depletion or pollutant transformation). We select other model options that have the potential to underestimate ambient impacts (*e.g.,* not including building downwash). Other options that we select have the potential to either under- or overestimate ambient levels (*e.g.,* meteorology and receptor locations). On balance, considering the directional nature of the uncertainties commonly present in ambient concentrations estimated by dispersion models, the approach we apply in the RTR assessments should yield unbiased estimates of ambient HAP concentrations. We also note that the selection of meteorology dataset location could have an impact on the risk estimates. As we continue to update and expand our library of meteorological station data used in our risk assessments, we expect to reduce this variability.

### c. Uncertainties in Inhalation Exposure Assessment

Although every effort is made to identify all of the relevant facilities and emission points, as well as to develop accurate estimates of the annual emission rates for all relevant HAP, the uncertainties in our emission inventory likely dominate the uncertainties in the exposure assessment. Some uncertainties in our exposure assessment include human mobility, using the centroid of each census block, assuming lifetime exposure, and assuming only outdoor exposures. For most of these factors, there is neither an under nor overestimate when looking at the maximum individual risk or the incidence, but the shape of the distribution of risks may be affected. With respect to outdoor exposures, actual exposures may not be as high if people spend time indoors, especially for very reactive pollutants or larger particles. For all factors, we reduce uncertainty when possible. For example, with respect to census-block centroids, we analyze large blocks using aerial imagery and adjust locations of the block centroids to better represent the population in the blocks. We also add additional receptor locations where the population of a block is not well represented by a single location.

### d. Uncertainties in Dose-Response Relationships

There are uncertainties inherent in the development of the dose-response values used in our risk assessments for cancer effects from chronic exposures and noncancer effects from both chronic and acute exposures. Some uncertainties are generally expressed quantitatively, and others are generally expressed in qualitative terms. We note, as a preface to this discussion, a point on dose-response uncertainty that is stated in the EPA's *2005 Guidelines for Carcinogen Risk Assessment;* namely, that ''the primary goal of EPA actions is protection of human health; accordingly, as an Agency policy, risk assessment procedures, including default options that are used in the absence of scientific data to the contrary, should be health protective'' (the EPA's *2005 Guidelines for Carcinogen Risk Assessment,* page 1 through 7). This is the approach followed here as summarized in the next paragraphs.

Cancer UREs used in our risk assessments are those that have been developed to generally provide an upper bound estimate of risk.[17] That is, they represent a ''plausible upper limit to the true value of a quantity'' (although this is usually not a true statistical confidence limit). In some circumstances, the true risk could be as low as zero; however, in other circumstances the risk could be greater.[18] Chronic noncancer RfC and reference dose (RfD) values represent chronic exposure levels that are intended to be health-protective levels. To derive dose-response values that are intended to be ''without appreciable risk,'' the methodology relies upon an uncertainty factor (UF) approach,[19] which considers uncertainty, variability, and gaps in the available data. The UFs are applied to derive dose-response values that are intended to protect against appreciable risk of deleterious effects.

Many of the UFs used to account for variability and uncertainty in the development of acute dose-response values are quite similar to those developed for chronic durations. Additional adjustments are often applied to account for uncertainty in extrapolation from observations at one exposure duration (*e.g.,* 4 hours) to derive an acute dose-response value at another exposure duration (*e.g.,* 1 hour). Not all acute dose-response values are developed for the same purpose, and care must be taken when interpreting the results of an acute assessment of human health effects relative to the dose-response value or values being exceeded. Where relevant to the estimated exposures, the lack of acute dose-response values at different levels of severity should be factored into the risk characterization as potential uncertainties.

Uncertainty also exists in the selection of ecological benchmarks for the environmental risk screening assessment. We established a hierarchy of preferred benchmark sources to allow selection of benchmarks for each environmental HAP at each ecological assessment endpoint. We searched for benchmarks for three effect levels (*i.e.,* no-effects level, threshold-effect level, and probable effect level), but not all combinations of ecological assessment/environmental HAP had benchmarks for all three effect levels. Where multiple effect levels were available for a particular HAP and assessment endpoint, we used all of the available effect levels to help us determine whether risk exists and whether the risk could be considered significant and widespread.

Although we make every effort to identify appropriate human health effect dose-response values for all pollutants emitted by the sources in this risk assessment, some HAP emitted by this source category are lacking dose-response assessments. Accordingly, these pollutants cannot be included in the quantitative risk assessment, which could result in quantitative estimates understating HAP risk. To help to alleviate this potential underestimate, where we conclude similarity with a HAP for which a dose-response value is available, we use that value as a surrogate for the assessment of the HAP for which no value is available. To the extent use of surrogates indicates appreciable risk, we may identify a need to increase priority for an IRIS assessment for that substance. We additionally note that, generally speaking, HAP of greatest concern due to environmental exposures and hazard are those for which dose-response assessments have been performed, reducing the likelihood of understating risk. Further, HAP not included in the quantitative assessment are assessed qualitatively and considered in the risk characterization that informs the risk management decisions, including consideration of HAP reductions achieved by various control options.

For a group of compounds that are unspeciated (*e.g.,* glycol ethers), we conservatively use the most protective dose-response value of an individual compound in that group to estimate risk. Similarly, for an individual compound in a group (*e.g.,* ethylene glycol diethyl ether) that does not have a specified dose-response value, we also apply the most protective dose-response value from the other compounds in the group to estimate risk.

### e. Uncertainties in Acute Inhalation Screening Assessments

In addition to the uncertainties highlighted above, there are several factors specific to the acute exposure assessment that the EPA conducts as part of the risk review under section 112 of the CAA. The accuracy of an acute inhalation exposure assessment depends on the simultaneous occurrence of independent factors that may vary greatly, such as hourly emissions rates, meteorology, and the presence of a person. In the acute screening assessment that we conduct under the RTR program, we assume that peak emissions from the source category and reasonable worst-case air dispersion conditions (*i.e.,* 99th percentile) co-occur. We then include the additional assumption that a person is located at this point at the same time. Together, these assumptions represent a reasonable worst-case actual exposure scenario. In most cases, it is unlikely that a person would be located at the point of maximum exposure during the time when peak emissions and

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[17] IRIS glossary (*https://ofmpub.epa.gov/sor_internet/registry/termreg/searchandretrieve/glossariesandkeywordlists/search.do?details=&glossaryName=IRIS%20Glossary*).

[18] An exception to this is the URE for benzene, which is considered to cover a range of values, each end of which is considered to be equally plausible, and which is based on maximum likelihood estimates.

[19] See *A Review of the Reference Dose and Reference Concentration Processes,* U.S. EPA, December 2002, and *Methods for Derivation of Inhalation Reference Concentrations and Application of Inhalation Dosimetry,* U.S. EPA, 1994.

reasonable worst-case air dispersion conditions occur simultaneously.

f. Uncertainties in the Multipathway and Environmental Risk Screening Assessments

For each source category, we generally rely on site-specific levels of PB–HAP or environmental HAP emissions to determine whether a refined assessment of the impacts from multipathway exposures is necessary or whether it is necessary to perform an environmental screening assessment. This determination is based on the results of a three-tiered screening assessment that relies on the outputs from models—TRIM.FaTE and AERMOD—that estimate environmental pollutant concentrations and human exposures for five PB–HAP (dioxins, POM, mercury, cadmium, and arsenic) and two acid gases (HF and HCl). For lead, we use AERMOD to determine ambient air concentrations, which are then compared to the secondary NAAQS standard for lead. Two important types of uncertainty associated with the use of these models in RTR risk assessments and inherent to any assessment that relies on environmental modeling are model uncertainty and input uncertainty.[20]

Model uncertainty concerns whether the model adequately represents the actual processes (*e.g.,* movement and accumulation) that might occur in the environment. For example, does the model adequately describe the movement of a pollutant through the soil? This type of uncertainty is difficult to quantify. However, based on feedback received from previous EPA SAB reviews and other reviews, we are confident that the models used in the screening assessments are appropriate and state-of-the-art for the multipathway and environmental screening risk assessments conducted in support of RTRs.

Input uncertainty is concerned with how accurately the models have been configured and parameterized for the assessment at hand. For Tier 1 of the multipathway and environmental screening assessments, we configured the models to avoid underestimating exposure and risk. This was accomplished by selecting upper-end values from nationally representative datasets for the more influential parameters in the environmental model, including selection and spatial configuration of the area of interest, lake location and size, meteorology, surface water, soil characteristics, and structure of the aquatic food web. We also assume an ingestion exposure scenario and values for human exposure factors that represent reasonable maximum exposures.

In Tier 2 of the multipathway and environmental screening assessments, we refine the model inputs to account for meteorological patterns in the vicinity of the facility versus using upper-end national values, and we identify the actual location of lakes near the facility rather than the default lake location that we apply in Tier 1. By refining the screening approach in Tier 2 to account for local geographical and meteorological data, we decrease the likelihood that concentrations in environmental media are overestimated, thereby increasing the usefulness of the screening assessment. In Tier 3 of the screening assessments, we refine the model inputs again to account for hour-by-hour plume-rise and the height of the mixing layer. We can also use those hour-by-hour meteorological data in a TRIM.FaTE run using the screening configuration corresponding to the lake location. These refinements produce a more accurate estimate of chemical concentrations in the media of interest, thereby reducing the uncertainty with those estimates. The assumptions and the associated uncertainties regarding the selected ingestion exposure scenario are the same for all three tiers.

For the environmental screening assessment for acid gases, we employ a single-tiered approach. We use the modeled air concentrations and compare those with ecological benchmarks.

For all tiers of the multipathway and environmental screening assessments, our approach to addressing model input uncertainty is generally cautious. We choose model inputs from the upper end of the range of possible values for the influential parameters used in the models, and we assume that the exposed individual exhibits ingestion behavior that would lead to a high total exposure. This approach reduces the likelihood of not identifying high risks for adverse impacts.

Despite the uncertainties, when individual pollutants or facilities do not exceed screening threshold emission rates (*i.e.,* screen out), we are confident that the potential for adverse multipathway impacts on human health is very low. On the other hand, when individual pollutants or facilities do exceed screening threshold emission rates, it does not mean that impacts are significant, only that we cannot rule out that possibility and that a refined assessment for the site might be necessary to obtain a more accurate risk characterization for the source category.

The EPA evaluates the following HAP in the multipathway and/or environmental risk screening assessments, where applicable: Arsenic, cadmium, dioxins/furans, lead, mercury (both inorganic and methyl mercury), POM, HCl, and HF. These HAP represent pollutants that can cause adverse impacts either through direct exposure to HAP in the air or through exposure to HAP that are deposited from the air onto soils and surface waters and then through the environment into the food web. These HAP represent those HAP for which we can conduct a meaningful multipathway or environmental screening risk assessment. For other HAP not included in our screening assessments, the model has not been parameterized such that it can be used for that purpose. In some cases, depending on the HAP, we may not have appropriate multipathway models that allow us to predict the concentration of that pollutant. The EPA acknowledges that other HAP beyond these that we are evaluating may have the potential to cause adverse effects and, therefore, the EPA may evaluate other relevant HAP in the future, as modeling science and resources allow.

## IV. Analytical Results and Proposed Decisions

### *A. What actions are we taking pursuant to CAA sections 112(d)(2) and 112(d)(3)?*

In this proposal, pursuant to CAA section 112(d)(2) and (3) , we are proposing to establish an emission standard requiring MACT level control of chlorine emissions from the CBS. The results and proposed decisions based on the analyses performed pursuant to CAA section 112(d)(2) and (3) are presented below.

In the primary magnesium refining process, the electrowinning of the melted magnesium chloride to magnesium metal produces as a byproduct chlorine gas which is piped to, and recovered at, the co-located chlorine plant. At the chlorine plant, the chlorine gas is liquified and then stored for either reuse back into the magnesium refining process or sold to the market. When the chlorine plant is inoperable (*e.g.,* due to a malfunction or planned maintenance), the chlorine gas produced at the electrolytic cells is routed through the CBS. The CBS contains a packed-bed scrubber which uses ferrous chloride as the adsorbing

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[20] In the context of this discussion, the term ''uncertainty'' as it pertains to exposure and risk encompasses both *variability* in the range of expected inputs and screening results due to existing spatial, temporal, and other factors, as well as *uncertainty* in being able to accurately estimate the true result.

medium to control chlorine emissions. The reaction of chlorine with ferrous chloride in the scrubbing medium creates a valuable by-product, ferric chloride, which the facility sells to the market. Since the CBS produces this valuable product, in addition to routing chlorine gas to the CBS when the chlorine plant is inoperable, the facility also routinely intentionally routes smaller amounts of chlorine gas (also known as tail gas) from the chlorine plant to the CBS during normal operations to produce ferric chloride.

Based on available information from the facility and the current title V permit, we estimate the scrubbers achieve at least 95 percent control efficiency and that the remaining chlorine gas (up to 5 percent) is emitted to the atmosphere. As a potentially significant source of chlorine emissions from the refining process, we are proposing to establish an emission standard requiring MACT level control of chlorine emissions from the CBS.

MACT standards must reflect the maximum degree of emissions reduction achievable through the application of measures, processes, methods, systems or techniques, including, but not limited to, measures that: (1) Reduce the volume of or eliminate pollutants through process changes, substitution of materials or other modifications; (2) enclose systems or processes to eliminate emissions; (3) capture or treat pollutants when released from a process, stack, storage, or fugitive emissions point; (4) are design, equipment, work practice, or operational standards (including requirements for operator training or certification); or (5) are a combination of the above. See CAA section 112(d)(2)(A) through (E). The MACT standards may take the form of design, equipment, work practice, or operational standards where the EPA determines either that: (1) A pollutant cannot be emitted through a conveyance designed and constructed to emit or capture the pollutant, or that any requirement for, or use of, such a conveyance would be inconsistent with law; or (2) the application of measurement methodology to a particular class of sources is not practicable due to technological and economic limitations. See CAA section 112(h)(1) and (2).

The MACT ''floor'' is the minimum control level required for MACT standards promulgated under CAA section 112(d) and may not be based on cost considerations. For new sources, the MACT floor cannot be less stringent than the emissions control that is achieved in practice by the best-controlled similar source. The MACT floor for existing sources can be less stringent than floors for new sources, but not less stringent than the average emissions limitation achieved by the best-performing 12 percent of existing sources in the category or subcategory (or the best-performing five sources for categories or subcategories with fewer than 30 sources). Once the EPA has set the MACT floor, it may then impose stricter standards (''beyond-the-floor'' limits) if the EPA determines them to be achievable taking into consideration the cost of achieving the emission reductions, any non-air quality health and environmental impacts, and energy requirements.

Since there is only one primary magnesium refinery in the source category, the MACT floor for new and existing sources is established by the emission limitation achieved at that source. As described above, currently the CBS chlorine emissions are controlled by a ferrous chloride packed-bed scrubber. A representative from US Magnesium explained that chlorine removal can be calculated to be up to 100 percent stoichiometrically under fixed mass flow and ferric chloride recirculation rates. However, due to high variability in flow rates during the range of normal operations, the actual efficiency is expected to be less than 100 percent (for more information see email from Rob Hartman, US Magnesium, to Michael Moeller, EPA, which is available in the docket for this proposed rulemaking). Based on the limited available information and applying engineering judgement as described above, the facility and the state of Utah assume that the scrubbers achieve an average removal efficiency of 95 percent for purposes of determining and reporting daily chlorine emissions as required by the tile V permit. However, there are no stack test data available to confirm this value. Therefore, based on the available information, we propose 95 percent reduction of chlorine emissions as the MACT floor for the CBS for new and existing sources in the source category.

In addition to determining the MACT floor level of control, as part of our development of the proposed MACT standard, we assessed whether stricter standards (''beyond-the-floor'' limits) are achievable taking into consideration the cost of achieving additional emission reductions, any non-air quality health and environmental impacts, and energy requirements. We identified one potential control option, using a combination of a thermal incinerator coupled with a wet scrubber, that could achieve chlorine control efficiencies greater than the current 95 percent. The thermal incinerator reacts chlorine with natural gas to produce HCl gas. This process is highly efficient at converting chlorine into HCl and based on the available information, we estimate that 99 percent of the chlorine is converted to HCl. The HCl gas stream, which has greater solubility than chlorine, is then controlled through absorption via a wet scrubber. The wet scrubber removal efficiency of HCl is estimated to be 99 percent. This combination of controls could be expected to achieve 98 percent reduction of chlorine emissions. With regard to costs of achieving these additional emission reductions, based on limited information, we estimate the capital costs for these beyond-the-floor controls would be about $1.3 million, annualized costs would be about $1.4 million, and would achieve an estimated 300 tpy reduction, with estimated cost effectiveness of $4,657 per ton of chlorine reductions. However, as explained in the technical memorandum cited below, we note that there are substantial uncertainties with the baseline emissions estimates, the emissions reductions that would be achieved, and the cost estimates. This is primarily due to lack of test data and lack of information regarding flow rates, renovation costs, and other factors. For example, without test data to corroborate, the actual efficiency of the current control could be higher (or lower) than the estimated 95 percent. The facility has determined that chlorine removal, under stoichiometrically ideal conditions, can be calculated to be up to 100 percent. If the current control is higher than the 95 percent, the additional emission reductions and the cost effectiveness would be reduced. If the current control approaches 98 percent, there would be no additional reductions to achieve. In regard to uncertainties with the cost estimates, there is a large range of values for the costs associated with the installation and operating of a thermal incinerator and wet scrubber devices. To account for this, we used the midpoint of the cost range; however, due to the unique nature of this industry and without additional information about the CBS, the actual costs could be anywhere within the range and even beyond it. Using the upper end estimates of the cost range, capital costs could be as high as $2.1 million, annualized costs up to $2.5 million and an estimated cost effectiveness of $8,152 per ton. In addition, there would be additional economic impacts beyond these estimated costs due to the loss of facility revenue from the elimination of the production of a valuable by-product that is created with the current controls. For more information regarding the beyond-the-floor analysis, the uncertainties and our conclusions, see the *Beyond-the-floor Assessment for the Chlorine Bypass Stack* memorandum, which is available in the docket for this proposed action.

We note that the cost-effectiveness is within the range of cost effectiveness accepted for beyond-the-floor controls for some other HAP in NESHAP for other source categories (*e.g.,* Secondary Lead Smelting, 77 FR 3, January 5, 2012, and Ferroalloys Production, 80 FR 125, June 30, 2015). We have not identified any previous NESHAP that accepted or rejected such cost-effectiveness estimates specifically for chlorine.

Nevertheless, given the issues and substantial uncertainties described above, we are not proposing this beyond-the-floor standard. We also note that we did not identify any relevant non-air quality health and environmental impacts, and energy requirements. Although we are not proposing this beyond-the-floor standard, we are soliciting comments, data and other information regarding the beyond-the-floor analysis (including costs estimates, baseline emissions, emissions reductions, and loss of product/revenue), and we are soliciting comments regarding our proposed determination and whether it would be appropriate to require these beyond-the-floor controls under the NESHAP, and if so, why.

Therefore, based on all the analyses presented above, we are proposing a MACT floor emissions standard for the CBS that will require new and existing sources in the source category to operate the control device and demonstrate 95 percent reduction of chlorine emissions. Specifically, we propose the following conditions: The facility must operate the control device (*e.g.,* a CBS scrubber) at all times when chlorine emissions are being routed to the CBS; except for circumstances under which emissions are routed to the CBS due to a chlorine plant malfunction and the CBS control device is not in operation, the CBS control device must be operating as soon as practicable but no later than 15 minutes after the routing of the chlorine emissions to the CBS. The facility must also document, and keep records, regarding each malfunction event, as described below. To demonstrate 95 percent control efficiency is achieved, we are proposing to require that new and existing sources in the source category conduct periodic performance tests that include inlet and outlet test samples. These tests would be conducted no less frequently than twice per permit term of a source's title V permit (at mid-term and renewal), which would be at least two tests every 5 years. We are proposing to require that new and existing sources in the source category use EPA Method 26A in 40 CFR part 60, appendix A (*i.e.,* the reference method for chlorine) to demonstrate compliance with the MACT standard. In addition to the performance compliance tests, with regard to parametric monitoring, we are proposing to require that new and existing sources in the source category measure and record the pH, liquid flow, and pressure drop of the control device on an on-going basis to demonstrate continuous compliance with the chlorine standard, and maintain such records. During a malfunction event, the owner or operator would be required to follow the typical recordkeeping and reporting associated with malfunction events (described in section IV.E), and also keep records of the date and time the control device was started, and also conduct the same measurements and monitoring of the parameters described above (*i.e.,* pH, liquid flow, and pressure drop). However, we are also seeking comments regarding these proposed requirements, and whether the EPA should consider alternative standards, or methodology modifications or parameters to demonstrate compliance and, if so, an explanation of those alternatives and why they would be appropriate.

Although we are proposing a MACT floor level of control for new and existing sources of 95 percent reduction of chlorine emissions based on the information presented above, we acknowledge there are some uncertainties regarding the actual control efficiency achieved under normal variable operations. Therefore, we are soliciting comments, data, or other information regarding the 95 percent control efficiency limit and whether a different limit, higher or lower, would be appropriate and, if so, why such a different limit would be appropriate to represent the MACT floor level of control. As described above, we are not proposing a beyond-the-floor option primarily due to significant uncertainties in the emissions and in the costs of achieving additional emission reductions. We conclude that the current scrubbing system represents MACT for the CBS. However, we are soliciting comments, data, and other information regarding the analyses for our proposed MACT floor standard and the beyond-the-floor option and our determinations. For more information regarding the beyond-the-floor analysis and our conclusions, see the *Beyond-the-floor Assessment for the Chlorine Bypass Stack* memorandum, which is available in the docket for this proposed action.

### *B. What are the results of the risk assessment and analyses?*

#### 1. Chronic Inhalation Risk Assessment Results

Table 2 of this preamble provides a summary of the results of the chronic inhalation risk assessment for HAP emissions for the source category, and an upper-end assessment of acute inhalation risks (based on the 95th percentile of 2017 hourly emissions estimates). Additional analyses and refinements regarding potential acute risks, including potential higher-end acute risks, are described later in this section. More detailed information on the risk assessment can be found in the document titled *Residual Risk Assessment for the Primary Magnesium Refining Source Category in Support of the Risk and Technology Review 2020 Proposed Rule,* available in the docket for this rule.

TABLE 2—PRIMARY MAGNESIUM REFINING SOURCE CATEGORY INHALATION RISK ASSESSMENT RESULTS

| Number of facilities [1] | Maximum individual cancer risk (in 1 million) [2] based on . . . | | Population at increased risk of cancer ≥ 1-in-1 million based on . . . | | Annual cancer incidence (cases per year) based on . . . | | Maximum chronic non-cancer TOSHI based on . . . | | Maximum screening acute noncancer HQ [3] based on . . . |
|---|---|---|---|---|---|---|---|---|---|
| | Actual emissions | Allowable emissions | Actual emissions | Allowable emissions | Actual emissions | Allowable emissions | Actual emissions | Allowable emissions | 95th percentile of actual emissions |
| 1 .................. | 0.08 | 0.08 | 0 | 0 | 0.00001 | 0.00001 | *1 | *0.6 | 3–REL<br><1 AEGL–1<br>(chlorine). |

[1] Number of facilities evaluated in the risk analysis.

[2] Maximum individual excess lifetime cancer risk due to HAP emissions from the source category.

[3] Arsenic REL. The maximum estimated acute exposure concentration was divided by available short-term dose-response values to develop an array of HQ values. HQ values shown use the lowest available acute dose-response value, which in most cases is the REL. When an HQ exceeds 1, we also show the HQ using the next lowest available acute dose-response value.

* (Respiratory).

Results of the inhalation risk assessment based on estimates of actual emissions indicate that the maximum lifetime individual cancer risk (or MIR) posed by the single facility is 0.08-in-1 million, with arsenic compounds, dioxins/furans, chromium (VI) compounds, and nickel compounds predominantly emitted from spray dryers and the melt/reactor system as the major contributors to the risk. The total estimated cancer incidence from this source category is 0.00001 excess cancer cases per year, or one excess case in every 100,000 years. No people are estimated to have inhalation cancer risks above 1-in-1 million due to HAP emitted from the facility in this source category. The HEM–3 model predicted the maximum chronic noncancer HI value for the source category could be up to 2 (respiratory effects), driven by emissions of chlorine from the melt/reactor system and that two people could be expected to be exposed to TOSHI levels above 1. However, due to the large distance to the nearest residential areas, the MIR and maximum chronic HI receptor is approximately 26 km from the plant. Based upon the distance of the plant to the MIR receptor with a local average wind of 5 meters per second, the facility's plume would reach this receptor in approximately 1.4 hours. After reviewing the decay rates for chlorine and receptor distances for this facility, we determined that these emission sources should be modeled taking photo-decay into account. The HEM–3 model does not consider photo-decay. Therefore, a separate refined analysis considering decay was performed to assess the impact on the chronic noncancer HI. Based upon the reactivity of chlorine and the time to reach the MIR location, we would expect the chlorine concentration at the MIR to decrease by approximately 44 percent when accounting for photo-decay, resulting in a chronic noncancer HI value for the source category of 1 (respiratory) with no people expected to be exposed to a HI of greater than 1. Details on this refinement is presented in Appendix 12 of the source category risk report, which is available in the docket for this action.

Considering MACT-allowable emissions, results of the inhalation risk assessment indicate that the cancer MIR is 0.08-in-1 million, again with arsenic compounds, dioxins/furans, chromium (VI) compounds, and nickel compounds predominantly emitted from spray dryers and the melt/reactor system as the major contributors to the risk. The total estimated cancer incidence from this source category based on allowable emissions is 0.00001 excess cancer cases per year, or one excess case in every 100,000 years. No people are estimated to have cancer risks above 1-in-1 million from HAP emitted from the facility in this source category. No individuals are estimated to have exposures that result in a noncancer HI at or above 1 at allowable emission rates.

### 2. Screening Level Acute Risk Assessment Results

To better characterize the potential health risks associated with estimated worst-case acute exposures to HAP, and in response to a key recommendation from the SAB's peer review of the EPA's RTR risk assessment methodologies, we examined a wider range of available acute health metrics than we do for our chronic risk assessments. This is in acknowledgement that there are generally more data gaps and uncertainties in acute reference values than there are in chronic reference values. By definition, the acute REL represents a health-protective level of exposure, with effects not anticipated below those levels, even for repeated exposures. However, the level of exposure that would cause health effects is not specifically known. Therefore, when an REL is exceeded and an AEGL–1 or ERPG–1 level is available (*i.e.,* levels at which mild, reversible effects are anticipated in the general public for a single exposure), we typically use them as an additional comparative measure, as they provide an upper bound for exposure levels above which exposed individuals could experience effects. As the exposure concentration increases above the acute REL, the potential for effects increases.

Based on our initial acute risk assessment, the maximum acute HQs from actual baseline emissions, based on a review of all modeled receptors for the US Magnesium facility, identified an exceedance of one acute benchmark (for chlorine) with an HQ of 8 based on the 1-hour REL, but that receptor is located on-site with no public access. We then evaluated the off-site receptors, which resulted in a highest refined (off-site) screening acute HQ for chlorine of 3 (based on the acute REL for chlorine). For this initial model run, we assumed an upper-end estimate of hourly potential acute emissions from the primary source of the chlorine emissions (*i.e.,* the melt/reactor system) of 8 times higher than the annual average emissions rate (which is the estimated 95 percent value of the range of estimated emissions in 2017). Further, this exceedance was only predicted to occur in a non-residential area with limited public access in a parking lot shared with a neighboring facility (ATI Titanium LLC). A review of the other surrounding property off-site of the US Magnesium facility identified public land managed by the Bureau of Land Management with an HQ (REL) of 2, access highways to the facilities off of the Interstate (I–80) with an HQ of 0.4 and the MIR residential location for the source category having an HQ of 0.3. No facilities were estimated to have an HQ based on AEGL or EPRG benchmarks greater than 1. Based on these initial estimated actual acute emissions (95th percentile), the refined acute results (with maximum acute HQ of 3) indicate that these upper end emissions are unlikely to pose significant risk to the general public.

However, we also evaluated the potential acute HQ values based on estimated worst-case emissions, which we understand have occurred during periodic rebuilding and rehabilitative maintenance events of the melt/reactor control device (*i.e.,* the CRB), as discussed previously in section III.C.3.c. Because of the infrequent nature of the CRB rebuilds (every 6 to 7 years) chronic risks are not expected to change; however, acute risks could increase significantly during these time periods. Based on available information, we estimate the worst-case chlorine emissions from the melt/reactor to be as high as 3.6 times the acute emissions modeled initially *(i.e.,* the 95th percentile estimate), or 29 times annual average emissions rates. During these events, assuming a linear increase in risks compared to emissions, we estimate the maximum off-site acute HQs could be up to 11 in the parking lot shared with the neighboring facility, 7 on public uninhabited lands and 1 at the nearest residential location. Further details on the acute HQ risk analyses and results are provided in Appendix 10 of the risk report for this source category.

### 3. Multipathway Risk Screening Results

The lone facility in the source category reported estimated emissions of carcinogenic PB–HAP (arsenic and dioxins) and non-carcinogenic PB–HAP (cadmium and mercury). The facility reported emissions of carcinogenic PB–HAP (arsenic and dioxins) that exceeded a Tier 1 cancer screening threshold emission rate and reported emissions of non-carcinogenic PB–HAP (mercury) that exceeded a Tier 1 noncancer screening threshold emission rate. Because the facility exceeded the Tier 1 multipathway screening threshold emission rate for one or more PB–HAP, we used additional facility site-specific information to perform a Tier 2 assessment and determine the maximum chronic cancer and noncancer impacts for the source category. Based on the Tier 2 multipathway cancer assessment, the dioxin emissions exceeded the Tier 2 screening threshold emission rate by a factor of 20 and a factor of 40 for arsenic. The multipathway risk screening Tier 2 assessment resulted in a combined dioxin and arsenic emission rate that exceeded the Tier 2 cancer screening value by a factor of 60 for the gardener scenario. The Tier 2 screening value for all other PB–HAP potentially emitted from the source category (mercury compounds and cadmium compounds) were less than 1.

A Tier 3 cancer screening assessment was conducted for both the fisher and gardener scenarios. Based on this Tier 3 screening assessment, a refined lake screening was conducted as well as identification of a residential receptor location (*i.e.,* MIR location from the inhalation assessment) for the gardener scenario. This review resulted in the removal of multiple lakes and the placement of the residential receptor approximately 20 km south of the facility. Based upon these refinements, the fisher scenario resulted in a cancer screening value of 7 and the gardener scenario resulted in a cancer screening value of 1.

An exceedance of a screening threshold emission rate in any of the tiers cannot be equated with a risk value or an HQ (or HI). Rather, it represents a high-end estimate of what the risk or hazard may be. For example, screening threshold emission rate of 2 for a non-carcinogen can be interpreted to mean that we are confident that the HQ would be lower than 2. Similarly, a tier screening threshold emission rate of 7 for a carcinogen means that we are confident that the risk is lower than 7-in-1 million. Our confidence comes from the conservative, or health-protective, assumptions encompassed in the screening tiers: We choose inputs from the upper end of the range of possible values for the influential parameters used in the screening tiers, and we assume that the exposed individual exhibits ingestion behavior that would lead to a high total exposure.

### 4. Environmental Risk Screening Results

As described in section III.A of this document, we conducted an environmental risk screening assessment for the Primary Magnesium Refining source category for the following pollutants: Arsenic, cadmium, dioxins/furans, HCl, lead, and mercury.

In the Tier 1 screening analysis for PB–HAP (other than lead, which was evaluated differently), arsenic, cadmium, and divalent mercury emissions had no Tier 1 exceedances for any ecological benchmark. Dioxin/furan emissions at one facility had Tier 1 exceedances for the surface soil NOAEL (mammalian insectivores—shrew) benchmark by a maximum screening value of 400. Methyl mercury at one facility had Tier 1 exceedances for the surface soil NOAEL (avian ground insectivores—woodcock) by a maximum screening value of 2.

A Tier 2 screening assessment was performed for methyl mercury and dioxin/furan emissions. Methyl mercury had no Tier 2 exceedances for any ecological benchmark. Dioxin/furan emissions had Tier 2 exceedances for the surface soil NOAEL (mammalian insectivores—shrew) benchmark by a maximum screening value of 4. This screening value was refined by removing soil areas located on-site. The refined Tier 2 screening value for dioxins/furans is 3.

A Tier 3 screening analysis was performed for dioxin emissions. In the Tier 3 screen, after incorporating chemical losses due to plume-rise into the calculation, the screening value remained 3 (surface soil NOAEL). Also in the Tier 3 screen, we conducted runs of the screening scenario within TRIM.FaTE with the following site-specific time-series data: Hourly meteorology, time series of leaf litterfall and air-leaf chemical exchanges, facility emissions, and hourly values of emission release height equivalent to hourly plume-rise height. After incorporating these time-series data in the analysis, the screening value is 2 (surface soil NOAEL). No other dioxin/furan benchmarks were exceeded in Tier 2 or 3. Specifically, the following dioxin/furan benchmarks were not exceeded in the Tier 2 or 3 screen:

- Fish—Avian Piscivores (NOAEL, geometric-maximum-allowable-toxicant-level (GMATL), and LOAEL)
- Fish—Mammalian Piscivores (NOAEL, GMATL, and LOAEL)
- Sediment Community (No-effect, Threshold, and Probable-Effect)
- Surface Soil (Threshold)
- Water-column Community (Threshold, Frank-Effect)

For lead, we did not estimate any exceedances of the secondary lead NAAQS.

For HCl, the average modeled concentration around the facility (*i.e.,* the average concentration of all off-site data points in the modeling domain) did not exceed any ecological benchmark. In addition, each individual modeled concentration of HCl (*i.e.,* each off-site data point in the modeling domain) was below the ecological benchmarks for the facility.

Based on the results of the environmental risk screening analysis, we do not expect an adverse environmental effect as a result of HAP emissions from this source category.

### 5. Facility-Wide Risk Results

Facility-wide risks were estimated using the NEI-based data described in section III.C of this preamble. The maximum facility-wide cancer MIR is 0.08-in-1 million, mainly driven by arsenic compounds, dioxins/furans, chromium (VI) compounds, and nickel compounds predominantly emitted from spray dryers and the melt/reactor system. The total estimated cancer incidence from the whole facility is 0.00001 excess cancer cases per year, or one excess case in every 100,000 years. No people are estimated to have cancer risks above 1-in-1 million from exposure to HAP emitted from both MACT and non-MACT sources at the single facility in this source category. The maximum facility-wide TOSHI for the source category is estimated by HEM–3 to be 2, mainly driven by emissions of chlorine from the melt/reactor system. Approximately two people are exposed to noncancer HI levels above 1, based on facility-wide emissions from the facility in this source category. However, once refined for photo-decay, the maximum facility-wide TOSHI for the source category is estimated to be 1 and no one is exposed to an HI greater than 1.

6. What demographic groups might benefit from this regulation?

To examine the potential for any environmental justice issues that might be associated with the source category, we performed a demographic analysis, which is an assessment of risk to individual demographic groups of the populations living near the facilities at different risk levels. However, because no one is exposed to a cancer risk greater than 1-in-1 million or a chronic noncancer HQ greater than 1, we only evaluated the population distributions living near the facility.

The results of the demographic analysis are summarized in Table 3 below. These results, for various demographic groups, are based on the population living within 50 km of the facility (the nearest resident is over 20 km from the facility).

The results of the Primary Magnesium Refining source category demographic analysis indicate that for the population subgroups living within 50-km of the facility only one subgroup (people 0 to 17 years) is above its corresponding national average (40 percent versus 23 percent nationally).

The methodology and the results of the demographic analysis are presented in further details in a technical report, *Risk and Technology Review—Analysis of Demographic Factors for Populations Living Near Primary Magnesium Refining Source Category Operations,* available in the docket for this action.

TABLE 3—SUMMARY OF DEMOGRAPHIC ASSESSMENT FOR THE PRIMARY MAGNESIUM REFINING SOURCE CATEGORY

[Demographic group]

| Total | Minority[1] | African American (%) | Native American (%) | Other and multiracial (%) | Hispanic or Latino (%) | Ages 0 to 17 (%) | Ages 18 to 64 (%) | Ages 65 and up (%) | Over 25 without a HS diploma (%) | Below the poverty level (%) | Linguistic isolation (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| National Averages | | | | | | | | | | | |
| 317,746,049 .. | 38 | 12 | 0.8 | 7 | 18 | 23 | 63 | 14 | 14 | 14 | 6 |
| Population Surrounding the Source Category Emissions[2] | | | | | | | | | | | |
| 20,598 ........... | 9 | 0.2 | 0.1 | 2 | 6 | 40 | 54 | 6 | 5 | 7 | 1 |

[1] Minority population is the total population minus the white population.

[2] Proximity population statistics are provided irrespective of cancer and noncancer risk living within 50 km of the facility.

*C. What are our proposed decisions regarding risk acceptability, ample margin of safety, and adverse environmental effect?*

1. Risk Acceptability

As noted in section III of this preamble, the EPA sets standards under CAA section 112(f)(2) using ''a two-step standard-setting approach, with an analytical first step to determine an 'acceptable risk' that considers all health information, including risk estimation uncertainty, and includes a presumptive limit on MIR of approximately 1-in-10 thousand'' (see 54 FR 38045, September 14, 1989). In this proposal, the EPA estimated risks based on actual and allowable emissions under the current NESHAP from the Primary Magnesium Refining source category.

The estimated inhalation cancer risk to the individual most exposed to actual or allowable emissions from the source category is 0.08-in-1 million. The estimated incidence of cancer due to inhalation exposures is 0.00001 excess cancer cases per year, or 1 excess case every 100,000 years. No people are estimated to have cancer risks above 1-in-1 million from HAP emitted from the facility in this source category.

The estimated, refined, maximum chronic noncancer TOSHI from inhalation exposure for this source category is 1, indicating low likelihood of adverse noncancer effects from long-term inhalation exposures.

The multipathway risk assessment results indicate a maximum cancer risk of 7-in-1 million based on ingestion exposures estimated for dioxins using the health protective risk screening assumptions of a Tier 3 fisher exposure scenario.

The initial acute risk screening assessment of upper-end estimates of acute inhalation impacts (which were based on the 95th percentile estimate of hourly emissions) indicates a maximum off-site acute HQ (REL) of 3, located at an adjacent facility. A review of the surrounding property off-site of the US Magnesium facility also identified public land managed by the Bureau of Land Management with an HQ of 2. Access highways to the facilities off of the highway (I–80) show an HQ of 0.4, with the MIR residential location for the source category having an HQ of 0.3.

After the initial acute risk assessment, we also evaluated the potential risks associated with an estimate of the worst-case actual hourly peak emissions, which we understand can occur during rebuilding/rehabilitative maintenance events of the CRB. During these events, we estimate that maximum off-site acute HQ (REL) can be as high as 11 in the parking lot shared with the neighboring facility, 7 on public uninhabited lands, and 1 at the nearest residential location. However, as is discussed in section IV.E of this preamble, by removing the SSM exemptions in this proposed action, proposing work practice standards for periods of malfunction, and with current emission limits in the NESHAP applying at all other times, including rebuild/rehabilitative maintenance of the CRB, this potential elevated acute risk will be significantly reduced. Therefore, based on this assessment, the refined acute results indicate that at baseline, the acute HQ could be as high as 11, but once the proposed rule is finalized, including the removal of the exemptions, peak emissions are unlikely to pose significant risk.

Considering all of the health risk information and factors discussed above, including the uncertainties discussed in section III of this preamble, the EPA proposes that the risks for this source category under the current NESHAP provisions are acceptable. However, we note that we have some concerns regarding the potential acute risks estimated for the baseline scenario, but as described above, and below in the ample margin of safety analysis section, these potential risks will be significantly reduced once this proposed rule is finalized.

### 2. Ample Margin of Safety Analysis

As directed by CAA section 112(f)(2), we conducted an analysis to determine whether the current emissions standards provide an ample margin of safety to protect public health. Under the ample margin of safety analysis, the EPA considers all health factors evaluated in the risk assessment and evaluates the cost and feasibility of available control technologies and other measures (including the controls, measures, and costs reviewed under the technology review) that could be applied to this source category to further reduce the risks (or potential risks) due to emissions of HAP identified in our risk assessment. In this analysis, we considered the results of the technology review, risk assessment, and other aspects of the NESHAP review to determine whether there are any emission reduction measures necessary to provide an ample margin of safety with respect to the risks associated with these emissions.

The inhalation cancer risk due to HAP emissions from the Primary Magnesium Refining source category is less than 1-in-1 million and the chronic noncancer TOSHI due to inhalation exposures is estimated to be 1 and no one exposed to an HI greater than 1. Additionally, the results of the acute screening analysis showed that risks were below a level of concern during normal operations.

As described above, there are potential elevated acute risks associated with CRB controls on the melt/reactor; however, by removing the SSM exemptions in this proposed action, proposing work practice standards for periods of malfunction, and with current emission limits applying at all other times, including rebuild/rehabilitative maintenance of the CRB, these potential elevated acute risks will be significantly reduced.

With regard to PB–HAP, we identified and investigated the installation of activated carbon injection (ACI) and a baghouse with catalytic filters as an option to further reduce dioxin emissions and risks. The use of ACI plus catalytic filters to reduce dioxin emissions was evaluated and determined not to be cost effective during the original NESHAP. Based on our current review of that information, we do not believe the associated costs for installing and operating a baghouse have changed significantly since the original NESHAP. When evaluating the cost effectiveness of installing ACI and a baghouse with catalytic filters during the development of the 2003 Primary Magnesium Refining NESHAP, a full cost analysis was performed for the facility. Based on our reevaluation of this information and an updated analysis, we estimate these controls would have capital cost of about $1 million, annual costs of $600,000, and would achieve about 2 grams reduction per year (95 percent reduction), with cost effectiveness of $289,000 per gram of dioxin removal, and the maximum cancer risk would be reduced from 7-in-1 million to about 1-in-1 million (for more details see Legacy Docket A–2002–0043, Document II–B–5). Due to the relatively high cost, coupled with the small reduction in dioxin emissions, we conclude that these controls are not cost effective, and would only achieve modest reduction in risks. We did not identify any relevant non-air quality health and environmental impacts, and energy requirements. Based upon the relatively low baseline risks, minimal available risk reductions, and lack of cost-effective control options to reduce emissions, we are not proposing revised standards for dioxins and furans in this action.

In summary, we are proposing that baseline risks from the source category are acceptable, and we are proposing rule changes (described above) to remove SSM exemptions and add work practice standards for CRB malfunction events. With these proposed revisions along with the current emissions limits for chlorine and other HAP applying at all times, the potential acute risks of chlorine will be addressed. Furthermore, we did not identify cost-effective controls for dioxins. Therefore, we are proposing that after the rule changes described above are finalized, the NESHAP will provide an ample margin of safety to protect public health. Since the removal of the SSM exemptions and addition of work practices for malfunctions help address the acute risks, we are proposing to adopt these amendments under CAA section 112(f), in addition to authorities 112(d)(2), 112(d)(3), or 112(h), as described elsewhere in this preamble.

### 3. Adverse Environmental Effect

As described in section III.A of this preamble, we conducted an environmental risk screening assessment for the Primary Magnesium Refining source category. We do not expect there to be an adverse environmental effect as a result of HAP emissions from this source category and we are proposing that it is not necessary to set any additional standards, beyond those described above, to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect.

### *D. What are the results and proposed decisions based on our technology review?*

As described in section III.B of this preamble, the technology review focuses on the identification and evaluation of developments in practices, processes, and control technologies that have occurred since the MACT standards were promulgated. We also evaluate, during the technology review, whether there are any unregulated emissions of HAP within the source category, and we establish standards if we identify unregulated emissions. In conducting the technology review, we reviewed various informational sources regarding the emissions from the Primary Magnesium Refining source category. The review included a search of the internet and Reasonably Available Control Technology, Best Available Control Technology, and Lowest Achievable Emission Rate Clearinghouse database, reviews of air permits, and discussions with industry representatives. We reviewed these data sources for information on practices, processes, and control technologies that were not considered during the development of the Primary Magnesium Refining NESHAP. We also looked for information on improvements in practices, processes, and control technologies that have occurred since the development of the Primary Magnesium Refining NESHAP.

Based on this review, the EPA identified a development in technology and practices regarding pH monitoring for acid gas control devices. Specifically, the EPA is proposing to amend the emission limitations and operating parameters set forth in 40 CFR 63.9890(b) to include pH as an additional operational parameter for all control devices used to meet the acid gas emission limits of this subpart. We have determined that this change reflects a development in technology and practices pursuant to CAA section 112(d)(6), that is consistent with other

NESHAP that cover acid-gas emitting source categories, such as the HCl Production source category, that requires pH as an operational parameter. Monitoring and maintaining the appropriate pH levels are important to ensure the effectiveness of acid gas control devices (*i.e.,* wet scrubbers). This is particularly relevant to this source category since each stack covered in this subpart is subject to an acid gas emissions limitation (either chlorine, HCl, or both). Therefore, in addition to maintaining the hourly average pressure drops and scrubber liquid flow rates, we are proposing that pH must also be measured and maintained within the operating range values established during the performance test for all control devices used to meet the acid gas emission limits of this subpart. The proposed installation, operation, and maintenance requirements specifically for pH are included in 40 CFR 63.9921(a)(3). In addition, there are minor amendments to 40 CFR 63.9916, 63.9917, 63.9920, and 63.9923 to include pH in all CPMS related requirements.

Furthermore, as described above in section IV.A, we evaluated the potential to require an incinerator and wet scrubber to achieve additional reductions of chlorine from the CBS, however, due to significant uncertainties in emissions and costs of controls, we are not proposing such controls under CAA section 112(d)(2) or (d)(3). For the same reasons, we are also not proposing such controls under CAA section 112(d)(6).

In addition, as part of the technology review, we identified a previously unregulated process and pollutant, and are regulating them under CAA sections 112(d)(2) and (3), as described in section IV.A, above.

In summary, after reviewing all of this information, we identified one development in technology and practices regarding pH monitoring for acid gas control devices. We did not identify any additional cost-effective developments in practices, processes, or control technologies used at primary magnesium refining facilities since promulgation of the MACT standard that warrant revision to the NESHAP pursuant to CAA section 112(d)(6) at this time. For all four emission points, US Magnesium uses wet scrubbers (packed-bed and venturi scrubbers) to achieve the emission limits. We concluded that wet scrubbing systems are the most appropriate and practical control systems and that there is no other control equipment or methods of control that would be more effective for reducing their emissions taking into consideration cost, feasibility, and uncertainties.

### *E. What other actions are we proposing?*

In addition to the proposed actions described above, we are proposing additional revisions to the NESHAP. We are proposing revisions to the SSM provisions of the MACT rule in order to ensure that they are consistent with the decision in *Sierra Club* v. *EPA,* 551 F. 3d 1019 (D.C. Cir. 2008), in which the court vacated two provisions that exempted sources from the requirement to comply with otherwise applicable CAA section 112(d) emission standards during periods of SSM. We are also proposing various other changes, including an alternative standard for malfunction events for the CRB and the addition of electronic reporting. Our analyses and proposed changes related to these issues are discussed below.

#### 1. SSM

In its 2008 decision in *Sierra Club* v. *EPA,* 551 F.3d 1019 (D.C. Cir. 2008), the court vacated portions of two provisions in the EPA's CAA section 112 regulations governing the emissions of HAP during periods of SSM. Specifically, the court vacated the SSM exemption contained in 40 CFR 63.6(f)(1) and (h)(1), holding that under section 302(k) of the CAA, emissions standards or limitations must be continuous in nature and that the SSM exemption violates the CAA's requirement that some CAA section 112 standards apply continuously.

Consistent with *Sierra Club* v. *EPA,* we are proposing the elimination of the SSM exemptions in this NESHAP and we are proposing that emissions standards will apply at all times. As described below, we are proposing new work practice standards pursuant to CAA section 112(h) that will apply to CRB malfunctions. For all other sources, scenarios, and HAP, we are simply removing the SSM exemptions such that the current emissions limits will apply at all times. We are also proposing several revisions to Table 5 (the General Provisions Applicability Table) which are explained in more detail below. For example, we are proposing to eliminate the incorporation of the General Provisions' requirement that sources develop an SSM plan. We also are proposing to eliminate and revise certain recordkeeping and reporting requirements related to the SSM exemption as described below.

The EPA has attempted to ensure that the provisions we are proposing to eliminate are inappropriate, unnecessary, or redundant in the absence of the SSM exemption. We are specifically seeking comment on whether we have successfully done so.

In proposing the standards in this rule, the EPA has considered startup and shutdown periods and, for the reasons explained below, is not proposing alternate standards for those periods. The primary magnesium refining production process is continuous, with control equipment operating at all times. The industry has not identified (and there are no data indicating) any specific problems with removing the provisions for startup and shutdown. However, we solicit comment on whether any situations exist where separate standards, such as work practices, would be more appropriate during periods of startup and shutdown rather than the current standard.

Periods of startup, normal operations, and shutdown are all predictable and routine aspects of a source's operations. Malfunctions, in contrast, are neither predictable nor routine. Instead they are, by definition, sudden, infrequent, and not reasonably preventable failures of emissions control, process, or monitoring equipment. (40 CFR 63.2) (definition of malfunction). The EPA interprets CAA section 112 as not requiring emissions that occur during periods of malfunction to be factored into development of CAA section 112 standards and this reading has been upheld as reasonable by the court in *U.S. Sugar Corp.* v. *EPA,* 830 F.3d 579, 606–610 (2016). Under section 112, emissions standards for new sources must be no less stringent than the level ''achieved'' by the best controlled similar source and for existing sources generally must be no less stringent than the average emission limitation ''achieved'' by the best performing 12 percent of sources in the category (or the average emission limitation achieved by the best performing sources where, as here, there are fewer than 30 sources in the source category). There is nothing in CAA section 112 that directs the Agency to consider malfunctions in determining the level ''achieved'' by the best performing sources when setting emission standards. As the court has recognized, the phrase ''average emissions limitation achieved by the best performing 12 percent of sources ''says nothing about how the performance of the best units is to be calculated.'' *Nat'l Ass'n of Clean Water Agencies* v. *EPA,* 734 F.3d 1115, 1141 (D.C. Cir. 2013). While the EPA accounts for variability in setting emissions standards, nothing in CAA section 112 requires the Agency to consider malfunctions as part of that analysis. The EPA is not required to treat a malfunction in the same manner as the type of variation in performance that occurs during routine operations of a source. A malfunction is a failure of the source to perform in a ''normal or usual manner'' and no statutory language compels the EPA to consider such events in setting CAA section 112 standards.

As the court recognized in *U.S. Sugar Corp.,* accounting for malfunctions in setting standards would be difficult, if not impossible, given the myriad different types of malfunctions that can occur across all sources in the category and given the difficulties associated with predicting or accounting for the frequency, degree, and duration of various malfunctions that might occur. *Id.* at 608 (''the EPA would have to conceive of a standard that could apply equally to the wide range of possible boiler malfunctions, ranging from an explosion to minor mechanical defects. Any possible standard is likely to be hopelessly generic to govern such a wide array of circumstances.''). As such, the performance of units that are malfunctioning is not ''reasonably'' foreseeable. See, *e.g., Sierra Club* v. *EPA,* 167 F.3d 658, 662 (D.C. Cir. 1999) (''The EPA typically has wide latitude in determining the extent of data-gathering necessary to solve a problem. We generally defer to an agency's decision to proceed on the basis of imperfect scientific information, rather than to 'invest the resources to conduct the perfect study.' ''). See also, *Weyerhaeuser* v. *Costle,* 590 F.2d 1011, 1058 (D.C. Cir. 1978) (''In the nature of things, no general limit, individual permit, or even any upset provision can anticipate all upset situations. After a certain point, the transgression of regulatory limits caused by 'uncontrollable acts of third parties,' such as strikes, sabotage, operator intoxication or insanity, and a variety of other eventualities, must be a matter for the administrative exercise of case-by case enforcement discretion, not for specification in advance by regulation.''). In addition, emissions during a malfunction event can be significantly higher than emissions at any other time of source operation. For example, if an air pollution control device with 99 percent removal goes offline as a result of a malfunction (as might happen if, for example, the bags in a baghouse catch fire) and the emission unit is a steady state type unit that would take days to shut down, the source would go from 99 percent control to zero control until the control device was repaired. The source's emissions during the malfunction would be 100 times higher than during normal operations. As such, the emissions over a 4-day malfunction period would exceed the annual emissions of the source during normal operations. As this example illustrates, accounting for malfunctions could lead to standards that are not reflective of (and significantly less stringent than) levels that are achieved by a well performing non-malfunctioning source. It is reasonable to interpret CAA section 112 to avoid such a result. The EPA's approach to malfunctions is consistent with CAA section 112 and is a reasonable interpretation of the statute.

Although no statutory language compels the EPA to set separate standards for malfunctions, the EPA has the discretion to do so where feasible. For example, in the Petroleum Refinery Sector RTR, the EPA established a work practice standard for unique types of malfunction that result in releases from pressure relief devices or emergency flaring events because the EPA had information to determine that such work practices reflected the level of control that applies to the best performers. 80 FR 75178, 75211 through 14 (December 1, 2015). The EPA will consider whether circumstances warrant setting standards for a particular type of malfunction and, if so, whether the EPA has sufficient information to identify the relevant best performing sources and establish a standard for such malfunctions. (We also encourage commenters to provide any such information.)

Given the EPA's discretion to set separate standards for malfunctions, we are proposing a standard for this source category to address the CRB emission point. Based on our knowledge of the processes and engineering judgement, we expect that the standard for normal operations for the melt/reactor (100 lbs/hr) cannot be met during malfunctions of the CRB (unavoidable and unanticipated breakdowns), unless the melt/reactor is stopped, which the facility has indicated cannot be done instantaneously due to the molten process. The CRB is the primary chlorine control device for the melt/reactor system. The CRB converts the chlorine gas stream from the melt/reactor to HCl. A high percentage of the HCl is then captured through a series of wet scrubbers. If the CRB is offline, the chlorine emissions continue to pass through the wet scrubbers; however, without the conversion to HCl, removal is significantly reduced. Therefore, the EPA anticipates that malfunctions of the CRB will result in violations of the current chlorine standard (*i.e.,* 100 lbs/hr) during a significant portion of the malfunction events if the melt reactor process continues to operate. To address this issue, the EPA is proposing work practice standards in Table 4 to 40 CFR part 63, subpart TTTTT to apply during CRB malfunctions to ensure that a CAA section 112 standard applies continuously. Based on discussions with the facility, CRB malfunctions are infrequent, unpredictable, and highly variable in nature. Furthermore, these events are typically short, requiring a few hours for the facility to replace or repair the malfunctioning equipment. Because of this, it is not technically feasible to measure emissions during the brief periods when these situations occur (*i.e.,* unpredictable, highly variable, and short in duration).

As noted in CAA section 112(h)(1), ''if it is not feasible in the judgment of the Administrator to prescribe or enforce an emission standard for control of a hazardous air pollutant or pollutants, the Administrator may, in lieu thereof, promulgate a design, equipment, work practice, or operational standard, or combination thereof, which in the Administrator's judgment is consistent with the provisions of subsection (d) or (f).'' CAA section 112(h)(2) defines the phrase ''not feasible to prescribe or enforce an emission standard'' as any situation in which the Administrator determines that either ''a hazardous air pollutant or pollutants cannot be emitted through a conveyance designed and constructed to emit or capture such pollutant, or that any requirement for, or use of, such a conveyance would be inconsistent with any Federal, State or local law'' or ''the application of measurement methodology to a particular class of sources is not practicable due to technological and economic limitations.''

Based on the information described above, the EPA is proposing work practice standards pursuant to CAA section 112(h) that will apply to the melt/reactor and the CRB during periods when a malfunction occurs to the CRB. We are proposing the following work practices for these periods that include the following requirements: (1) During unplanned/unavoidable CRB malfunction events, the facility must shutdown the reactor as soon as practicable but not later than 15 minutes after such event occurs and keep the reactor offline during the CRB repair process; and (2) operators must perform a root cause analysis/corrective action. This includes conducting a root cause analysis to determine the source, nature, and cause of each malfunction event and identifying corrective measures to prevent future such malfunction events as soon as practicable, but no later than 45 days after a malfunction event.

Corrective actions must be implemented as soon as practicable, but no later than 45 days after a malfunction event or as soon thereafter as practicable. If there is a second release event in a 12-month period with the same root cause on the same equipment, it would be a deviation of the work practice standard. However, as an alternative to this work practice standard, we propose that facility would be allowed to keep melt reactor operating if they reroute the emissions to an equally effective back-up control device configuration, such as a back-up CRB and wet scrubber.

With regard to other emissions sources (*e.g.,* spray dryers, magnesium chloride storage bins, launder off-gas systems), the EPA anticipates that it is unlikely that a malfunction will result in a violation of the standard because the air pollution control equipment or other measures used to limit the emissions from these processes would still be operational. If the malfunction occurs in the pollution control equipment for these other processes, the operators should discontinue process operations until such time that the air pollution control systems are operable in order to comply with the requirements to minimize emissions and operate according to good air pollution practices. In general, process operations should be able to be shut down quickly enough to avoid a violation of an emissions limitation. Nevertheless, we expect there could be situations where a malfunction in the control equipment could result in a violation of the standard depending on how quickly emissions decline upon process shut down. In this case, owners or operators must report the deviation, the quantity of HAP emitted over the emissions limit, the cause of the deviation, and the corrective action taken to limit the emissions during the event.

In the unlikely event that a source fails to comply with the applicable CAA section 112(d) standards as a result of a malfunction event, the EPA would determine an appropriate response based on, among other things, the good faith efforts of the source to minimize emissions during malfunction periods, including preventative and corrective actions, as well as root cause analyses to ascertain and rectify excess emissions. The EPA would also consider whether the source's failure to comply with the CAA section 112(d) standard was, in fact, sudden, infrequent, not reasonably preventable, and was not instead caused, in part, by poor maintenance or careless operation. 40 CFR 63.2 (definition of malfunction).

If the EPA determines in a particular case that an enforcement action against a source for violation of an emission standard is warranted, the source can raise any and all defenses in that enforcement action and the federal district court will determine what, if any, relief is appropriate. The same is true for citizen enforcement actions. Similarly, the presiding officer in an administrative proceeding can consider any defense raised and determine whether administrative penalties are appropriate.

In summary, the EPA interpretation of the CAA and, in particular, CAA section 112, is reasonable and encourages practices that will avoid malfunctions and judicial procedures for addressing exceedances of the standards fully recognize that violations may occur despite good faith efforts to comply and can accommodate those situations. *U.S. Sugar Corp.* v. *EPA,* 830 F.3d 579, 606–610 (2016).

We are also proposing several revisions to the General Provisions Applicability Table (Table 5) which are explained in more detail below as follows. We are proposing to revise the General Provisions Applicability Table (Table 5) entry for 40 CFR 63.6(e)(1)(i) by changing the ''yes'' in the column titled ''Applies to Subpart TTTTT'' to a ''no.'' Section 63.6(e)(1)(i) describes the general duty to minimize emissions. Some of the language in that section is no longer necessary or appropriate in light of the elimination of the SSM exemption. We are proposing instead to add general duty regulatory text at 40 CFR 63.9910(b) that reflects the general duty to minimize emissions while eliminating the reference to periods covered by an SSM exemption. The current language in 40 CFR 63.6(e)(1)(i) characterizes what the general duty entails during periods of SSM. With the elimination of the SSM exemption, there is no need to differentiate between normal operations and SSM events in describing the general duty. Therefore, the language the EPA is proposing for 40 CFR 63.9910(b) does not include that language from 40 CFR 63.6(e)(1).

We are also proposing to revise the General Provisions Applicability Table (Table 5) entry for 40 CFR 63.6(e)(1)(ii) by changing the ''yes'' in the column titled ''Applies to Subpart TTTTT'' to a ''no.'' Section 63.6(e)(1)(ii) imposes requirements that are not necessary with the elimination of the SSM exemption or are redundant with the general duty requirement being added at 40 CFR 63.9910(b).

We are proposing to revise the General Provisions Applicability Table (Table 5) entry for 40 CFR 63.6(e)(3) by changing the ''yes'' in the column titled ''Applies to Subpart TTTTT'' to a ''no.'' Generally, these paragraphs require development of an SSM plan and specify SSM recordkeeping and reporting requirements related to the SSM plan. As noted, the EPA is proposing to remove the SSM exemptions. Therefore, affected units will be subject to an emission standard during such events. The applicability of a standard during such events will ensure that sources have ample incentive to plan for and achieve compliance and, thus, the SSM plan requirements are no longer necessary.

We are proposing to revise the General Provisions Applicability Table (Table 5) entry for 40 CFR 63.6(f)(1) by changing the ''yes'' in the column titled ''Applies to Subpart TTTTT'' to a ''no.'' The current language of 40 CFR 63.6(f)(1) exempts sources from nonopacity standards during periods of SSM. As discussed above, the court in *Sierra Club* v. *EPA* vacated the exemptions contained in this provision and held that the CAA requires that some CAA section 112 standards apply continuously. Consistent with *Sierra Club* v. *EPA,* the EPA is proposing to revise standards in this rule to apply at all times and proposing a new work practice standard for CRB malfunction events.

We are proposing to revise the General Provisions Applicability Table (Table 5) entry for 40 CFR 63.7(e)(1) by changing the ''yes'' in the column titled ''Applies to Subpart TTTTT'' to a ''no.'' Section 63.7(e)(1) describes performance testing requirements. The EPA is instead proposing to add a performance testing requirement at 40 CFR 63.9913(a). The performance testing requirements we are proposing to add differ from the General Provisions performance testing provisions in several respects. The regulatory text removes the cross-reference to 40 CFR 63.7(e)(1) and does not include the language in 40 CFR 63.7(e)(1) that restated the SSM exemption and language that precluded startup and shutdown periods from being considered ''representative'' for purposes of performance testing. The proposed performance testing provisions will not allow performance testing during malfunctions. As in 40 CFR 63.7(e)(1), performance tests conducted under this subpart should not be conducted during malfunctions because conditions during malfunctions are often not representative of normal operating conditions. The EPA is proposing to add language that requires the owner or operator to record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent normal operation. Section 63.7(e) requires that the owner or operator make available to the Administrator such records ''as may be necessary to determine the condition of the performance test'' available to the Administrator upon request but does not specifically require the information to be recorded. The regulatory text the EPA is proposing to add to this provision builds on that requirement and makes explicit the requirement to record the information.

We are proposing to revise the General Provisions Applicability Table (Table 5) entry for 40 CFR 63.8(c)(1)(i) and (iii) by changing the ''yes'' in the column titled ''Applies to Subpart TTTTT'' to a ''no.'' The cross-references to the general duty and SSM plan requirements in those subparagraphs are not necessary in light of other requirements of 40 CFR 63.8 that require good air pollution control practices (40 CFR 63.8(c)(1)) and that set out the requirements of a quality control program for monitoring equipment (40 CFR 63.8(d)).

We are proposing to revise the General Provisions Applicability Table (Table 5) entry for 40 CFR 63.10(b)(2)(i) by changing the ''yes'' in the column titled ''Applies to Subpart TTTTT'' to a ''no.'' Section 63.10(b)(2)(i) describes the recordkeeping requirements during startup and shutdown. These recording provisions are no longer necessary because the EPA is proposing that recordkeeping and reporting applicable to normal operations will apply to startup and shutdown. In the absence of special provisions applicable to startup and shutdown, such as a startup and shutdown plan, there is no reason to retain additional recordkeeping for startup and shutdown periods.

We are proposing to revise the General Provisions Applicability Table (Table 5) entry for 40 CFR 63.10(b)(2)(ii) by changing the ''yes'' in the column titled ''Applies to Subpart TTTTT'' to a ''no.'' Section 63.10(b)(2)(ii) describes the recordkeeping requirements during a malfunction. The EPA is proposing to add such requirements to 40 CFR 63.9932. The regulatory text we are proposing to add differs from the General Provisions it is replacing in that the General Provisions requires the creation and retention of a record of the occurrence and duration of each malfunction of process, air pollution control, and monitoring equipment. The EPA is proposing that this requirement apply to any failure to meet an applicable standard and is requiring that the source record the date, time, and duration of the failure rather than the ''occurrence.'' The EPA is also proposing to add to 40 CFR 63.9932 a requirement that sources keep records that include a list of the affected source or equipment and actions taken to minimize emissions, an estimate of the quantity of each regulated pollutant emitted over the standard for which the source failed to meet the standard, and a description of the method used to estimate the emissions. Examples of such methods would include product loss calculations, mass balance calculations, measurements when available, or engineering judgment based on known process parameters. The EPA is proposing to require that sources keep records of this information to ensure that there is adequate information to allow the EPA to determine the severity of any failure to meet a standard, and to provide data that may document how the source met the general duty to minimize emissions when the source has failed to meet an applicable standard.

We are proposing to revise the General Provisions Applicability Table (Table 5) entry for 40 CFR 63.10(b)(2)(iv) by changing the ''yes'' in the column titled ''Applies to Subpart TTTTT'' to a ''no.'' When applicable, the provision requires sources to record actions taken during SSM events when actions were inconsistent with their SSM plan. The requirement is no longer appropriate because SSM plans will no longer be required. The requirement previously applicable under 40 CFR 63.10(b)(2)(iv)(B) to record actions to minimize emissions and record corrective actions is now applicable by reference to 40 CFR 63.9932.

We are proposing to revise the General Provisions Applicability Table (Table 5) entry for 40 CFR 63.10(b)(2)(v) by changing the ''yes'' in the column titled ''Applies to Subpart TTTTT'' to a ''no.'' When applicable, the provision requires sources to record actions taken during SSM events to show that actions taken were consistent with their SSM plan. The requirement is no longer appropriate because SSM plans will no longer be required.

We are proposing to revise the General Provisions Applicability Table (Table 5) entry for 40 CFR 63.10(c)(15) by changing the ''yes'' in the column titled ''Applies to Subpart TTTTT'' to a ''no.'' The EPA is proposing that 40 CFR 63.10(c)(15) no longer applies. When applicable, the provision allows an owner or operator to use the affected source's SSM plan or records kept to satisfy the recordkeeping requirements of the SSM plan, specified in 40 CFR 63.6(e), to also satisfy the requirements of 40 CFR 63.10(c)(10) through (12). The EPA is proposing to eliminate this requirement because SSM plans would no longer be required, and, therefore, 40 CFR 63.10(c)(15) no longer serves any useful purpose for affected units.

We are proposing to revise the General Provisions Applicability Table (Table 5) entry for 40 CFR 63.10(d)(5) by changing the ''yes'' in the column titled ''Applies to Subpart TTTTT'' to a ''no.'' Section 63.10(d)(5) describes the reporting requirements for startups, shutdowns, and malfunctions. To replace the General Provisions reporting requirement, the EPA is proposing to add reporting requirements to 40 CFR 63.9931(b)(4). The replacement language differs from the General Provisions requirement in that it eliminates periodic SSM reports as a stand-alone report. We are proposing language that requires sources that fail to meet an applicable standard at any time to report the information concerning such events in the semi-annual compliance report already required under this rule. We are proposing that the report must contain the number, date, time, duration, and the cause of such events (including unknown cause, if applicable), a list of the affected source or equipment, an estimate of the quantity of each regulated pollutant emitted over any emission limit, and a description of the method used to estimate the emissions. Examples of such methods would include product-loss calculations, mass balance calculations, measurements when available, or engineering judgment based on known process parameters. The EPA is proposing this requirement to ensure that there is adequate information to determine compliance, to allow the EPA to determine the severity of the failure to meet an applicable standard, and to provide data that may document how the source met the general duty to minimize emissions during a failure to meet an applicable standard.

We will no longer require owners or operators to determine whether actions taken to correct a malfunction are consistent with an SSM plan, because SSM plans would no longer be required. The proposed amendments, therefore, eliminate the cross-reference to 40 CFR 63.10(d)(5)(i) that contains the description of the previously required SSM report format and submittal schedule from this section. These specifications are no longer necessary because the events will be reported in otherwise required reports with similar format and submittal requirements.

The proposed amendments eliminate the cross-reference to 40 CFR 63.10(d)(5)(ii), which requires an immediate report for SSM when a source failed to meet an applicable standard but did not follow the SSM plan. We will no longer require owners and operators to report when actions taken during a startup, shutdown, or malfunction were not consistent with an SSM plan, because SSM plans would no longer be required.

2. Electronic Reporting

The EPA is proposing that owners and operators of primary magnesium refining facilities submit electronic copies of required performance test reports and performance evaluation reports through the EPA's Central Data Exchange (CDX) using the Compliance and Emissions Data Reporting Interface (CEDRI). A description of the electronic data submission process is provided in the memorandum, *Electronic Reporting Requirements for New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) Rules,* available in the docket for this action. The proposed rule requires that performance test results collected using test methods that are supported by the EPA's Electronic Reporting Tool (ERT) as listed on the ERT website[21] at the time of the test be submitted in the format generated through the use of the ERT or an electronic file consistent with the xml schema on the ERT website, and other performance test results be submitted in portable document format (PDF) using the attachment module of the ERT.

Additionally, the EPA has identified two broad circumstances in which electronic reporting extensions may be provided. These circumstances are (1) outages of the EPA's CDX or CEDRI which preclude an owner or operator from accessing the system and submitting required reports and (2) *force majeure* events, which are defined as events that will be or have been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevent an owner or operator from complying with the requirement to submit a report electronically. Examples of *force majeure* events are acts of nature, acts of war or terrorism, or equipment failure or safety hazards beyond the control of the facility. The EPA is providing these potential extensions to protect owners and operators from noncompliance in cases where they cannot successfully submit a report by the reporting deadline for reasons outside of their control. In both circumstances, the decision to accept the claim of needing additional time to report is within the discretion of the Administrator, and reporting should occur as soon as possible.

The electronic submittal of the reports addressed in this proposed rulemaking will increase the usefulness of the data contained in those reports, is in keeping with current trends in data availability and transparency, will further assist in the protection of public health and the environment, will improve compliance by facilitating the ability of regulated facilities to demonstrate compliance with requirements, and by facilitating the ability of delegated state, local, tribal, and territorial air agencies and the EPA to assess and determine compliance, and will ultimately reduce burden on regulated facilities, delegated air agencies, and the EPA. Electronic reporting also eliminates paper-based, manual processes, thereby saving time and resources, simplifying data entry, eliminating redundancies, minimizing data reporting errors, and providing data quickly and accurately to the affected facilities, air agencies, the EPA, and the public. Moreover, electronic reporting is consistent with the EPA's plan[22] to implement Executive Order 13563 and is in keeping with the EPA's agency-wide policy[23] developed in response to the White House's Digital Government Strategy.[24] For more information on the benefits of electronic reporting, see the memorandum, *Electronic Reporting Requirements for New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) Rules,* referenced earlier in this section.

### *F. What compliance dates are we proposing?*

The EPA is proposing two separate compliance dates for affected facilities, based on the different amendments in the rulemaking. For the proposed amendments regarding the MACT standard for the CBS, the work practice standard for CRB malfunctions, the elimination of SSM exemptions, and electronic reporting requirements, we are proposing that affected facilities that have constructed or reconstructed on or before January 8, 2021, must comply by the effective date of the final rule. For the proposed requirement to add pH as an additional control device operational parameter, we propose that the affected facilities that have constructed or reconstructed on or before January 8, 2021, must comply no later than 180 days after the effective date of the final rule. For affected facilities that commence construction or reconstruction after January 8, 2021, owners or operators must comply with all requirements of the subpart, including all the amendments being proposed, no later than the effective date of the final rule or upon startup, whichever is later.

Based on our understanding of the facility operations and experience with similar industries, we believe that the effective date of the final rule is appropriate for the proposed MACT CBS standard, CRB work practice standard, elimination of SSM exemptions, and electronic reporting requirement. Regarding these new proposed CBS and CRB requirements, the facility already routinely performs these operations. The CRB work practice for malfunctions require minimal additional effort to implement (*i.e.* shutting down the melt/reactor process). Furthermore, it is current facility policy to perform a root cause analysis on any CRB malfunction events. The CBS control device operational requirements are largely being met during current plant operations. Regarding the compliance testing requirements, depending on the configuration of the stack, adjustments may need to be made in order to perform the required performance tests, such as the installation of inlet and outlet sampling ports at the CBS control device stack. However, provisions in 40 CFR 63.9911, regarding performance tests and initial compliance demonstrations, allow up to 180 days after the compliance date to conduct such tests, which we believe is sufficient time for the facility to demonstrate compliance with the proposed CBS standard. The electronic reporting burden is minimal as it eliminates paper-based, manual processes, thereby saving time and resources as well as simplifying data entry. We do not expect that the proposed SSM revisions will require any new control systems and very few, if any, operational changes. The primary magnesium refining is a continuous operation, with minimal startup and shutdown, and control devices operating at all times. Additionally,

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[21] *https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert.*

[22] EPA's Final Plan for Periodic Retrospective Reviews, August 2011. Available at: *https://www.regulations.gov/document?D=EPA-HQ-OA-2011-0156-0154.*

[23] E-Reporting Policy Statement for EPA Regulations, September 2013. Available at: *https://www.epa.gov/sites/production/files/2016-03/documents/epa-ereporting-policy-statement-2013-09-30.pdf.*

[24] Digital Government: Building a 21st Century Platform to Better Serve the American People, May 2012. Available at: *https://obamawhitehouse.archives.gov/sites/default/files/omb/egov/digital-government/digital-government.html.*

much of the revisions are eliminating additional records and reports related to SSM. These changes can be implemented quickly by the owner or operator at no cost (and likely some cost savings) and if these records are still collected after the final rule is promulgated, the facility will still be in compliance with the proposed requirements. Therefore, based on the reasoning above, we are proposing that affected facilities will need to comply with these amendments by the effective date of the final rule. For affected facilities that commence construction or reconstruction after January 8, 2021, owners or operators must comply with all requirements of the subpart, including all the amendments being proposed, no later than the effective date of the final rule or upon startup, whichever is later.

The EPA is also proposing to amend the emission limitations and operating parameters set forth in 40 CFR 63.9890(b) to include pH as an additional operational parameter for all control devices used to meet the acid gas emission limits of this subpart. The facility currently monitors and maintains the hourly average pressure drops and liquid flow rates for all control devices; however, the additional requirement to monitor pH would require the installation and implementation of continuous pH monitors. Therefore, in order to provide time for implementation, we are proposing that it is necessary to provide 180 days after the effective date of the final rule for all affected facilities that have constructed or reconstructed on or before January 8, 2021, to comply with the new pH operational parameters. For affected facilities that commence construction or reconstruction after January 8, 2021, we are proposing owners or operators comply with the new pH operational parameters by the effective date of the final rule (or upon startup, whichever is later).

We solicit comment on the proposed compliance periods, and we specifically request submission of information from sources in this source category regarding specific actions that would need to be undertaken to comply with the proposed amended requirements and the time needed to make the adjustments for compliance with any of the revised requirements.

## V. Summary of Cost, Environmental, and Economic Impacts

### *A. What are the affected sources?*

The Primary Magnesium Refining source category comprises one plant, US Magnesium, located in Rowley, Utah. US Magnesium was the sole facility when the original NESHAP was promulgated in 2011; this has not changed since then nor are there new facilities anticipated.

### *B. What are the air quality impacts?*

We are proposing to establish an emission standard requiring MACT level control of chlorine emissions from the CBS that requires the facility to operate the associated control device and demonstrate 95 percent control efficiency of chlorine emissions. Since the facility already routinely operates the CBS control device, we expect minimal associated emissions reductions. However, this will ensure that the emissions remain controlled and minimized moving forward. The proposed amendments also include removal of the SSM exemptions and the addition of a work practice standard for malfunction events related to the melt/reactor system. Although we are unable to quantify the emission reduction associated with these changes, we expect that emissions will be reduced by requiring the facility to meet the applicable standard during periods of SSM and that the work practice standard will minimize malfunction related emissions.

### *C. What are the cost impacts?*

The proposed amendments include a work practice standard for malfunctions of the CRB and a MACT level chlorine emission standard for the CBS. The costs associated with the proposed amendments are expected to be minimal. The CRB work practice standard will require labor related with the root cause analysis condition. However, it is current facility policy to conduct such analyses following a malfunction related event; therefore, we expect no additional associated costs to comply with the proposed work practice standard. The proposed emission standard for the CBS will have costs related to recordkeeping and repeat performance testing. The additional inlet and outlet performance test is expected to cost an estimated $30,000 every 2.5 years. There will likely also be some initial costs to drill and establish inlet and outlet ports on the current stack, which currently has no ports. We expect no further costs associated with the CBS standard (*e.g.,* add-on controls or operation costs) since the facility already has a CBS control device and routinely operates it. With regard to the proposed electronic reporting requirements, which will eliminate paper-based manual processes, we expect a small initial unquantified cost to transition to electronic reporting, but that these costs will be off-set with savings over time such that ultimately there will be an unquantified reduction in costs to the affected facility.

### *D. What are the economic impacts?*

Economic impact analyses focus on changes in market prices and output levels that result from compliance costs imposed as a result of this action. Because the costs associated with the proposed revisions are minimal, no significant economic impacts from the proposed amendments are anticipated.

### *E. What are the benefits?*

Although the EPA does not anticipate any significant reductions in HAP emissions as a result of the proposed amendments, we believe that the action, if finalized as proposed, would result in some unquantified reductions in chlorine emissions—albeit minimal—and improvements to the rule and the further protection of public health and the environment. Furthermore, pursuant to CAA section 112(d)(2) and (3), by establishing a MACT standard for chlorine emissions from the CBS, we are ensuring that the associated control device is operational during any emission release and meets demonstratable performance criteria. Additionally, the proposed amendments requiring electronic submittal of initial notifications, performance test results, and semiannual reports will increase the usefulness of the data, are in keeping with current trends of data availability, will further assist in the protection of public health and the environment, and will ultimately result in less burden on the regulated community. See section IV.D.3 of this preamble for more information.

## VI. Request for Comments

We solicit comments on this proposed action. In addition to general comments on this proposed action, we are also interested in additional data that may improve the risk assessments and other analyses. We are specifically interested in receiving any improvements to the data used in the site-specific emissions profiles used for risk modeling. Such data should include supporting documentation in sufficient detail to allow characterization of the quality and representativeness of the data or information. Section VII of this preamble provides more information on submitting data.

## VII. Submitting Data Corrections

The site-specific emissions profiles used in the source category risk and demographic analyses and instructions are available for download on the RTR website at *https://www.epa.gov/stationary-sources-air-pollution/primary-magnesium-refining-national-emissions-standards-hazardous/.* The data files include detailed information for each HAP emissions release point for the facilities in the source category.

If you believe that the data are not representative or are inaccurate, please identify the data in question, provide your reason for concern, and provide any ''improved'' data that you have, if available. When you submit data, we request that you provide documentation of the basis for the revised values to support your suggested changes. To submit comments on the data downloaded from the RTR website, complete the following steps:

1. Within this downloaded file, enter suggested revisions to the data fields appropriate for that information.
2. Fill in the commenter information fields for each suggested revision (*i.e.,* commenter name, commenter organization, commenter email address, commenter phone number, and revision comments).
3. Gather documentation for any suggested emissions revisions (*e.g.,* performance test reports, material balance calculations).
4. Send the entire downloaded file with suggested revisions in Microsoft® Access format and all accompanying documentation to Docket ID No. EPA–HQ–OAR–2020–0535 (through the method described in the **ADDRESSES** section of this preamble).
5. If you are providing comments on a single facility or multiple facilities, you need only submit one file for all facilities. The file should contain all suggested changes for all sources at that facility (or facilities). We request that all data revision comments be submitted in the form of updated Microsoft® Excel files that are generated by the Microsoft® Access file. These files are provided on the project website at *https://www.epa.gov/stationary-sources-air-pollution/primary-magnesium-refining-national-emissions-standards-hazardous/.*

## VIII. Statutory and Executive Order Reviews

Additional information about these statutes and Executive Orders can be found at *https://www.epa.gov/laws-regulations/laws-and-executive-orders.*

### *A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review*

This action is not a significant regulatory action and was, therefore, not submitted to OMB for review.

### *B. Executive Order 13771: Reducing Regulations and Controlling Regulatory Costs*

This action is not expected to be an Executive Order 13771 regulatory action because this action is not significant under Executive Order 12866.

### *C. Paperwork Reduction Act (PRA)*

The information collection activities in this proposed rule have been submitted for approval to OMB under the PRA. The Information Collection Request (ICR) document that the EPA prepared has been assigned EPA ICR number 2098.09. You can find a copy of the ICR in the docket for this rule, and it is briefly summarized here.

These amendments require electronic reporting; remove the SSM exemptions; and impose other revisions that affect reporting and recordkeeping for primary magnesium refining facilities. This information is collected to assure compliance with 40 CFR part 63, subpart TTTTT.

*Respondents/affected entities:* Owners and operators of Primary Magnesium Refining Facilities.

*Respondent's obligation to respond:* Mandatory (40 CFR part 63, subpart TTTTT).

*Estimated number of respondents:* One.

*Frequency of response:* Semiannually.

*Total estimated burden:* 625 hours (per year). Burden is defined at 5 CFR 1320.3(b).

*Total estimated cost:* $73,100 annualized capital or operation and maintenance costs.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for the EPA's regulations in 40 CFR are listed in 40 CFR part 9.

Submit your comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden to the EPA using the docket identified at the beginning of this rule. You may also send your ICR-related comments to OMB's Office of Information and Regulatory Affairs via email to *OIRA_submission@omb.eop.gov,* Attention: Desk Officer for the EPA. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after receipt, OMB must receive comments no later than February 8, 2021. The EPA will respond to any ICR-related comments in the final rule.

### *D. Regulatory Flexibility Act (RFA)*

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. This action will not impose any requirements on small entities. Based on the Small Business Administration size category for this source category, no small entities are subject to this action.

### *E. Unfunded Mandates Reform Act (UMRA)*

This action does not contain any unfunded mandate as described in UMRA, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments. The action imposes no enforceable duty on any state, local, or tribal governments or the private sector.

### *F. Executive Order 13132: Federalism*

This action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

### *G. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments*

This action does not have tribal implications as specified in Executive Order 13175. No tribal governments own facilities subject to this proposed action. Thus, Executive Order 13175 does not apply to this action. However, since a magnesium facility is located within 50 miles of tribal lands, consistent with the EPA Policy on Consultation and Coordination with Indian Tribes, we will offer tribal consultation for this rulemaking.

### *H. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks*

This action is not subject to Executive Order 13045 because it is not economically significant as defined in Executive Order 12866, and because the EPA does not believe the environmental health or safety risks addressed by this action present a disproportionate risk to children. This action's health and risk assessments are contained in section IV of this preamble and in the *Primary Magnesium Refining Risk Report,* which is available in the docket.

### *I. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use*

This action is not subject to Executive Order 13211, because it is not a significant regulatory action under Executive Order 12866.

### *J. National Technology Transfer and Advancement Act (NTTAA) and 1 CFR Part 51*

This action involves technical standards. Therefore, the EPA conducted searches for National Emission Standards for Hazardous Air Pollutants: Primary Magnesium Refining Residual Risk and Technology Review through the Enhanced NSSN Database managed by the American National Standards Institute (ANSI). We also contacted voluntary consensus standards (VCS) organizations and accessed and searched their databases. Searches were conducted for EPA Methods 1, 2, 2F, 2G, 3, 3A, 3B, 4, 5, 5D, 23, 26, 26A, of 40 CFR part 60, appendix A, and EPA Methods 201 and 201A of 40 CFR part 51, appendix M. No applicable VCS were identified for EPA Methods 1, 2, 2F, 2G, 5D, 23, 201 and 201A.

During the search, if the title or abstract (if provided) of the VCS described technical sampling and analytical procedures that are similar to the EPA's reference method, the EPA considered it as a potential equivalent method. All potential standards were reviewed to determine the practicality of the VCS for this rule. This review requires significant method validation data which meets the requirements of EPA Method 301 for accepting alternative methods or scientific, engineering, and policy equivalence to procedures in EPA reference methods. The EPA may reconsider determinations of impracticality when additional information is available for particular VCS.

Two VCS were identified as an acceptable alternative to EPA test methods for the purposes of this rule. The VCS, ANSI/ASME PTC 19–10–1981 Part 10 (2010), ''Flue and Exhaust Gas Analyses,'' is an acceptable alternative to EPA Method 3B manual portion only and not the instrumental portion. The VCS, ASTM D6735–01(2009), ''Standard Test Method for Measurement of Gaseous Chlorides and Fluorides from Mineral Calcining Exhaust Sources Impinger Method,'' is an acceptable alternative to EPA Method 26 and 26A. The search identified 18 VCS that were potentially applicable for these rules in lieu of EPA reference methods. After reviewing the available standards, the EPA determined that 18 candidate VCS (ASTM D3154–00 (2014), ASTM D3464–96 (2014), ASTM 3796–09 (2016), ISO 10780:1994 (2016), ASME B133.9–1994 (2001), ISO 10396:(2007), ISO 12039:2001(2012), ASTM D5835–95 (2013), ASTM D6522–11, CAN/CSA Z223.2–M86 (R1999), ISO 9096:1992 (2003), ANSI/ASME PTC–38–1980 (1985), ASTM D3685/D3685M–98–13, CAN/CSA Z223.1–M1977, ISO 10397:1993, ASTM D6331 (2014), EN 1948–3 (1996), EN 1911:2010) identified for measuring emissions of pollutants or their surrogates subject to emission standards in the rule would not be practical due to lack of equivalency, documentation, validation data, and other important technical and policy considerations. Additional information for the VCS search and determinations can be found in the memorandum, *Voluntary Consensus Standard Results for National Emission Standards for Hazardous Air Pollutants: Primary Magnesium Refining Residual Risk and Technology Review,* which is available in the docket for this action. Under 40 CFR 63.7(f) and 40 CFR 63.8(f) of subpart A of the General Provisions, a source may apply to the EPA to use alternative test methods or alternative monitoring requirements in place of any required testing methods, performance specifications, or procedures in the final rule or any amendments.

The EPA welcomes comments on this aspect of the proposed rulemaking and, specifically, invites the public to identify potentially applicable VCS and to explain why such standards should be used in this regulation.

### *K. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations*

The EPA believes that this action does not have disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, and/or indigenous peoples, as specified in Executive Order 12898 (59 FR 7629, February 16, 1994). This action's health and risk assessments are contained in section IV of this preamble. The documentation for this decision is contained in section IV.A.1 of this preamble and in the *Primary Magnesium Refining Risk Report,* which is available in Docket ID No. EPA–HQ–OAR–2020–0535.

## List of Subjects in 40 CFR Part 63

Environmental protection, Air pollution control, Hazardous substances, Incorporation by reference, Reporting and recordkeeping requirements.

**Andrew Wheeler,**

*Administrator.*

[FR Doc. 2021–00176 Filed 1–7–21; 8:45 am]

**BILLING CODE 6560–50–P**

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## DEPARTMENT OF TRANSPORTATION

## Federal Railroad Administration

## 49 CFR Part 219

**[Docket No. FRA–2019–0071, Notice No. 1]**

**RIN 2130–AC80**

# Control of Alcohol and Drug Use: Coverage of Mechanical Employees and Miscellaneous Amendments

**AGENCY:** Federal Railroad Administration (FRA), Department of Transportation (DOT).

**ACTION:** Notice of proposed rulemaking.

**SUMMARY:** In response to a Congressional mandate in the Substance Use-Disorder Prevention that Promotes Opioid Recovery and Treatment for Patients and Communities Act (SUPPORT Act), FRA is proposing to expand the scope of its alcohol and drug regulation to cover mechanical (MECH) employees who test or inspect railroad rolling equipment. FRA is also proposing miscellaneous, clarifying amendments to its alcohol and drug regulation.

**DATES:** Written comments on this proposed rule must be received on or before March 9, 2021. Comments received after that date will be considered to the extent possible without incurring additional expense or delay.

**ADDRESSES:** *Comments:* Comments related to Docket No. FRA–2019–0071 may be submitted by going to *http://www.regulations.gov* and following the online instructions for submitting comments.

*Instructions:* All submissions must include the agency name and docket number or Regulatory Identification Number (RIN) for this rulemaking. Note that all comments received will be posted without change to *http://www.regulations.gov* including any personal information provided. Please see the Privacy Act heading in the **SUPPLEMENTARY INFORMATION** section of this document for Privacy Act information related to any submitted comments or materials.

*Docket:* For access to the docket to read background documents, petitions for reconsideration, or comments received, go to *http://www.regulations.gov* and follow the online instructions for accessing the docket.

**FOR FURTHER INFORMATION CONTACT:** Gerald Powers, Drug and Alcohol Program Manager, Office of Railroad Safety—Office of Technical Oversight, telephone: 202–493–6313; email: