



Secondary Aluminum Sweat Furnace Workbook

Prepared for:
U.S. Environmental Protection Agency
Office of Air Quality Planning and Standards
Information Transfer and Program Implementation Division
Durham, North Carolina

September 2003

Prepared by:
EC/R Inc.
6330 Quadrangle Dr., Suite 325
Chapel Hill, North Carolina 27517



Acknowledgments



Acknowledgments

The US Environmental Protection Agency's Office of Quality Planning and Standards would like to express thanks and appreciation to everyone who provided insight, guidance and comments on the Secondary Aluminum Sweat Furnace Workbook. We received a great deal of assistance in developing the implementation tool.

We would like to specifically acknowledge the following people: John Schaefer, EPA OAQPS; Ingrid Ward, EPA OAQPS; Gil Wood, EPA OAQPS; Dan Eddinger, EPA HQ; Pamela Kogan, EPA HQ; Beth Termini, EPA HQ; Larry Wells, EPA Region 1; Avia Eyllon-Fodo, EPA Region 2; Uylaine Barringer, EPA Region 5; Robert Todd, EPA Region 6; Richard Wales, CA; Mark A. Prettyman, DE; Lu Burson, FL; Lisa Higgins, ME; Melissa Woolf, NE; Phyllis Copeland, SC; Bart Sponseller, VT; and Renee Lesjak Bashel, WI.

Special thanks to Ann Deering with EC/R, EPA's contractor, for her attention to detail and superb project management.



Table of Contents



Table of Contents

1.0	Introduction	1
1.1	What is the purpose of this document?	1
1.2	Who should use this document?	1
1.3	How should I use this document?	1
1.4	How do I get copies of this document?	1
1.5	What is the purpose of the regulation?	2
1.6	Does this guidance replace the regulation?	2
1.7	Whom may I contact if I have questions about the regulation?	2
1.8	How can I comply with the regulation?	3
1.9	How much will it cost me to comply?	6
1.10	What could happen if I don't comply?	11
2.0	Applicability	12
2.1	Who does this regulation apply to?	12
2.2	Does this regulation apply to all existing, new and reconstructed sweat furnaces?	12
2.3	What does "reconstructed" mean?	12
3.0	Explanation of Rule Requirements	15
3.1	Compliance Requirements	15
3.1.1	When must I comply?	15
3.1.2	What is an operating permit?	15
3.1.3	What is the emission limit for my sweat furnace?	16
3.1.4	What can I do to comply with the emission limit for my sweat furnace?	16
3.1.5	How do I conduct a performance test to demonstrate initial compliance?	18
3.1.6	How must I monitor my sweat furnace to demonstrate continuous compliance (e.g., ensure that it does not emit too much)?	20
3.2	Inspection Requirements	23
3.2.1	Safety Considerations	24
3.3	Plan Requirements	25
3.3.1	What is an OM&M plan?	25
3.3.2	What is a startup, shutdown, and malfunction plan and how do I implement it?	27
3.3.3	What is a site-specific test plan?	28
3.4	Notifications and Reporting Requirements	32
3.4.1	What reporting requirements are associated with the performance test?	32
3.4.2	What must I include in the notification of compliance status report?	34



Table of Contents



3.4.3	What information on emissions must I report?	36
3.4.4	What else must I report on a regular schedule?	36
3.4.5	What must I report about startups, shutdowns, and malfunctions?	36
3.4.6	What must new or reconstructed sources report?	38
3.5	Recordkeeping Requirements	39
3.6	Additional Requirements	41
4.0	Checklist	42
Appendix A – Glossary of Terms		A-1
Appendix B – Sweat Furnace Brochure		B-1
Appendix C – Example Reporting Forms		C-1
	Initial Notification Report	C-2
	Notification of Intent to Conduct a Performance Test	C-5
	Notification of Compliance Status Report	C-8
	Excess Emissions/Summary Report	C-12
	Annual Compliance Certification	C-19
Appendix D – Sweat Furnace Requirements from the Secondary Aluminum Production Rule		D-1
Appendix E - Maine’s OMM/SSM Plan		E-1



Table of Contents



List of Tables

Table 1: List of State Small Business Contacts	4
Table 2: Sample Costs for Sweat Furnace/Afterburner Packages	7
Table 3: Sample Costs for Afterburners	7
Table 4: Vendors of Sweat Furnaces and Afterburners	8
Table 5: Delegation of Authority for Secondary Aluminum NESHAP	29

List of Figures

Figure 1: Photograph of Coreco Sweat Furnace and Afterburner (Models 1231 and 1848)	9
Figure 2: Schematic of Coreco Sweat Furnace and Afterburner (Models 1231 and 1848)	9
Figure 3: Afterburner	10
Figure 4: Regenerative Afterburner	10
Figure 5: Large Sweat Furnace	13
Figure 6: Small Sweat Furnace	13
Figure 7: Small Sweat Furnace	14
Figure 8: More Sweat Furnaces	14
Figure 9: Decision-Tree for Bringing a Sweat Furnace into Compliance with the Secondary Aluminum Rule	47

Checklists

Checklist 1: How to Design and Conduct Performance Tests	19
Checklist 2: Actions to Take to Monitor the Operating Temperature of an Afterburner	22
Checklist 3: Actions to Take When Conducting the Annual Inspection of an Afterburner	23
Checklist 4: The Seven Basic Components of an OM&M Plan	26
Checklist 5: Summary of Sweat Furnace Reporting Requirements	33
Checklist 6: What to Include in the Notification of Compliance Status Report	35
Checklist 7: Summary of Sweat Furnace Recordkeeping Requirements	40



Introduction



1.0 Introduction

1.1 What is the purpose of this document?

In this workbook, you will find a summary and explanation of the regulation (or rule) that the United States Environmental Protection Agency (EPA) published to reduce hazardous air pollutants (HAPs) released into the air by sweat furnaces (and other processes used to make secondary aluminum). This workbook describes the components of the regulation and advises you on what to do to satisfy the regulation.

A **sweat furnace** is a furnace that is used only to reclaim aluminum from scrap metal that contains aluminum and iron. Sweat furnaces reclaim aluminum by applying heat to the scrap to melt the aluminum but not so much heat that the iron melts.

1.2 Who should use this document?

We, the EPA, designed this document to help you, sweat furnace owners and operators, understand the rule for Secondary Aluminum Production as it applies to sweat furnace operations. This document was also designed to help your State, local, or Tribal permitting agency implement the rule. This workbook does not replace the final rule and we will not likely update its content to include any requirements added to the rule after the date of this workbook.

1.3 How should I use this document?

You should begin by reading sections 1, 2, and 3 of this document to learn what the Secondary Aluminum rule requires you to do. You can then use the checklist in section 4 to remind yourself of what you have to do to comply with the rule and to note whether you have met each requirement.

1.4 How do I get copies of this document?

You can get a copy of this document at EPA's Air Toxics Website (<http://www.epa.gov/ttn/atw/>). Look under Rules and Implementation for Secondary Aluminum Production: <http://www.epa.gov/ttn/atw/alum2nd/alum2pg.html>.



Introduction



1.5 What is the purpose of the regulation?

Sweat furnaces release hazardous substances into the air when reclaiming aluminum. The most hazardous are dioxins and furans. Exposure to dioxins and furans increases the likelihood of developing cancer. The regulation protects people working or living near sweat furnaces by establishing an emission standard for dioxins and furans, thus reducing exposure by reducing emissions.

⌞ Sweat furnaces release into the air dioxins and furans, which increase the likelihood of developing **cancer**.

1.6 Does this guidance replace the regulation?

No. When using this document, remember that it **does not** replace or change the final rule and covers only requirements published on or before **12/30/02**. You should read the rule itself carefully, and keep up with new requirements printed after this date by periodically checking the *Federal Register* and subpart RRR of part 63 of title 40, chapter I of the Code of Federal Regulations (“40 CFR Part 63”). You can get copies of Federal Register notices by going to the Government Printing Office (GPO) website at www.access.gpo.gov/su_docs/aces/aces140.html or to your local library.

You may find the published regulation (“National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production; Final Rule”) in the March 23, 2000 issue of the *Federal Register*, pages 15710–15737. Changes to the rule were published on June 14, 2002 and December 30, 2002. The March 23, 2000 version of the regulation is available online at <http://www.epa.gov/ttn/atw/alum2nd/fr23mr00.pdf>. The most up-to-date version of the rule is available in subpart RRR of 40 CFR Part 63. We’ve included a summary list of all the rule requirements pertaining to sweat furnaces in Appendix D.

1.7 Whom may I contact if I have questions about the regulation?

There are a lot of places you can go for help, including your:

- ! State, local or Tribal air pollution control agency
- ! Local, regional, or national trade associations
- ! State’s Small Business Assistance Program
- ! EPA Regional Offices

State, local, or Tribal Contacts can change frequently. To obtain the most current contact information go to the STAPPA/ALAPCO website (<http://www.cleanairworld.org/scripts/stappa.asp>) and then to the membership directory. The directory will provide you with the current contact persons for your agency. Table 1 on pages 4-5



Introduction



has a list of State Small Business Contacts as of February 2003. You will also want to identify your State, local, or Tribal permitting authority since you will submit reports to your permitting authority. Your State small business contact can help you identify your permitting authority.

Some of the *Trade Associations* representing the secondary aluminum production industry include the Automotive Recyclers Association (<http://www.autorecyc.org/> or 703-385-1001) and the Institute of Scrap Recycling Industries (<http://www.isri.org/> or 202-737-1770).

Many States have *Small Business Assistance Programs* (SBAP). If you are a small business and do not know who your SBAP representative is, you can call EPA's Control Technology Center Hotline at (919)541-0800 or visit EPA's SBAP at <http://www.epa.gov/ttn/sbap/> for help. Table 1 contains a list of State small business contacts.

The definition of "small business" depends on the industry code that applies to your company. Contact the Small Business Administration (www.sba.gov or 1-800-UASK-SBA) to determine whether you are a small business.

You may speak with a representative of the *EPA Regional Office* that is appropriate for you. You may determine which Regional Office to contact by viewing the following Web page: <http://www.epa.gov/epahome/locate2.htm>.

1.8 How can I comply with the regulation?

You can comply with the rule by:

- ! demonstrating that your sweat furnace emits no more pollution than it is allowed to emit by either
 - < using a control device that meets the design requirements of the rule, or
 - < testing the emissions,
- ! monitoring to ensure that your sweat furnace continues to meet the requirements, and
- ! doing the necessary reporting and recordkeeping.

Section 3.0 will explain each of these steps in more detail. You will probably need to reduce the emissions from your sweat furnace in order to meet the requirements of the rule. You can reduce emissions from your sweat furnace by adding an air pollution control device to your sweat furnace, if you do not already have one. An afterburner is the most commonly used control device for sweat furnaces (see pages 9-10 for images of afterburners). An afterburner is a device that uses controlled flame combustion to convert air pollutants to less harmful substances. Other names for an afterburner are thermal oxidizer and incinerator.



State Small Business Contacts



Table 1: List of State Small Business Contacts

State	Contact	Telephone	Email
AK	Tom Turner	907-269-7582	tturner@envirvon.state.ak.us
AL	Blake Roper	334-213-4308	rbr@adem.state.al.us
AZ	Jack Bale	602-207-2254	bale.jack@ev.state.az.us
AR	Joe Bob Garner	501-682-0866	garner@adeq.state.ar.us
CA	Kathleen Tschogl	916-327-5762	kschogl@arb.ca.gov
CO	Cathy Heald	303-692-2034	cathy.heald@state.co.us
CT	Tracy Babbidge	860-424-3382	tracy.babbidge@po.state.ct.us
DE	Kim Finch	302-739-6400	kfinch@state.de.us
FL	William Davis	850-921-9580	william.davis@dep.state.fl.us
GA	Marvin Lowry	404-362-2656	marvin_lowry@mail.dnr.state.ga.us
HI	Patrick Felling	808-586-4528	pfelling@eha.health.state.hi.us
ID	Sally Tarowsky	208-373-0472	starowsk@deq.state.id.us
IL	Don Squires	217-785-1625	epa813@epa.state.il.us
IN	Erica Seydel Cheney	317-232-8598	eseydel@dem.state.in.us
IA	Dan Nickey	319-273-2079	
KS	Hamdy El-Rayes	800-578-8898	
KY	Rose Marie Wilmoth	502-564-2150x128	wilmoth@nrdep.nr.state.ky.us
LA	Jim Friloux	225-765-0735	jim_f@deq.state.la.us
ME	Julie Churchill	207-287-7881	
MD	Don Jackson	410-631-3165	djackson@mde.state.md.us
MA	Nancy Wrenn	617-292-5587	mwrenn@state.ma.us
MI	Dana Cole	517-335-1847	coled1@state.mi.us
MN	Charlie Kennedy	651-297-8615	charlie.kennedy@pca.state.mn.us
MS	Jesse Thompson	601-961-5167	jesse_thompson@deq.state.ms.us
MO	Byron Shaw	800-361-4827	nrshawb@mail.dnr.state.mo.us
MT	Bonnie Rouse	406-444-3641	brouse@state.mt.us



State Small Business Contacts



State	Contact	Telephone	Email
NE	Melissa Woolf	402-471-6624	melissa.woolf@ndeq.state.ne.us
NV	Marcia Manley	702-687-4670x3162	mmanley@ndep.carson-city.nv.us
NH	Rudolph Cartier, Jr., PE	603-271-1379	rcartier@des.state.nh.us
NJ	Ky Asral	609-292-0112	
NM	Robert Horwitz	505-827-2773	bob_horwitz@nmenv.state.nm.us
NY	Marian J. Mudar	518-402-7462	mudar@nysefc.org
NC	Edythe McKinney	919-733-0823	edythe_mckinney@p2pays.org
ND	Jeff Burgess	701-328-5150	jburgess@state.nd.us
OH	Mark Shanahan	614-728-3540	mark.shanahan@aqda.state.oh.us
OK	Steve Thompson	405-702-7100	steve.thompson@deqmail.state.ok.us
OR	Paul Burnet	503-229-5776	burnet.paul@deq.state.or.us
PA	Gene Delvecchio	717-772-8951	delvecchio.gene@dep.state.pa.us
RI	Joe Antonio	401-222-6822x4410	jantonio@dem.state.ri.us
SC	Phyllis T. Copeland	800-819-9001	copelapt@columb30.dhec.state.sc.us
SD	Joe D. Nadenicek	605-773-3151	joeN@denr.state.sd.us
TN	Ernest Blankenship	615-741-5262	eblankenship@mail.state.tn.us
TX	Israel Anderson	512-239-5319	ianderson@tnrcc.state.tx.us
UT	Renette Anderson	801-536-4478	randerso@deq.state.ut.us
VT	Judy Mirro	802-241-3745	judym@dec.anr.state.vt.us
VA	John Daniel	804-698-4311	jrdaniel@deq.state.va.us
WA	Bernard Brady	360-407-6803	bbra461@ecy.wa.gov
DC	Sandra Handon	202-535-2255	shandon@mail.environ.state.dc.us
WV	Dave Bassage	304-558-5929x203	dbassage@mail.dep.state.wv.us
WI	Pam Christenson	608-267-9384	pchristenson@commerce.state.wi.us
WY	Dan Clark	307-777-7388	dclark@missc.state.wy.us



Introduction



1.9 How much will it cost me to comply?

The cost varies greatly depending on whether you need to upgrade an existing afterburner, purchase a new afterburner, or purchase a new sweat furnace equipped with an afterburner. Depending on the age and efficiency of your existing sweat furnace, it could be more cost-effective in the long run to purchase a new sweat furnace equipped with an afterburner. If you purchase a new afterburner (or a new sweat furnace equipped with an afterburner), you should make sure that it comes with monitoring equipment and a data recorder, as well as a guarantee that it will comply with the Secondary Aluminum NESHAP. See Table 2 for sample costs for sweat furnace/afterburner packages and Table 3 for sample afterburner costs (all of these estimates are for units that would comply with the rule). Upgrading an existing afterburner that does not comply with the rule could cost several thousand dollars. See Table 4 for a list of contact information for vendors (note that this is not a complete list of all sweat furnace and afterburner vendors and that EPA does not endorse any particular vendor). See Figures 1 and 2 for a photograph and schematic of an example sweat furnace equipped with an afterburner. Figures 3 and 4 show examples of afterburners.

There are many types of sweat furnaces in use today, ranging from large, high-tech furnaces to small, portable, “home-made” furnaces. We recognize that it may be costly to bring some furnaces into compliance with the rule and that there is the possibility that some owners or operators will choose to discontinue the use of their sweat furnaces rather than install control equipment to comply with the rule.

Small, portable sweat furnaces are common in many industries. For example, scrap yards use sweat furnaces to reclaim aluminum from many forms of scrap (sheet and cast aluminum) and automotive salvage yards use them to reclaim aluminum from unusable auto parts (such as transmissions).



Costs of Sweat Furnaces & Afterburners



Table 2: Sample Costs for Sweat Furnace/Afterburner Packages

Sweat Furnace Size (lb/hr)	Estimated Capital Cost for Sweat Furnace & Afterburner*	Vendor
250	\$20-25,000	United Group
500	\$30,000	United Group
1,000	\$128,000	Stinchombe Furnaces
2,000	\$207,800 (Model 1231)**	Coreco
2,500	\$220,000 (Model AS990)	United Group
5,000	\$437,500 (Model 1848)**	Coreco
Small	\$37,000	Stinchombe Furnaces

* These are estimates only; actual costs vary on a case-by-case basis. Unless otherwise noted, these estimates do not include installation costs but do include monitoring equipment.

** Does not include monitoring equipment.

Table 3: Sample Costs for Afterburners

Sweat Furnace Size (lb/hr)	Estimated Capital Cost for Afterburner*	Vendor
200	\$9,150	Stinchombe Furnaces
300	\$30,000	Crown Andersen 2000
500 - 5,000	\$30,000 - \$275,000	Crown Andersen 2000
1,000	\$27,362***	Stinchombe Furnaces
Any size	\$12 to \$25 per scfm** (regenerative afterburner)	HES

* These are estimates only; actual costs vary on a case-by-case basis. Unless otherwise noted, these estimates do not include installation costs or the cost of monitoring equipment.

** The higher cost corresponds to a smaller unit; scfm = standard cubic feet per minute.

*** Includes monitoring equipment.



Costs of Sweat Furnaces & Afterburners



Table 4: Vendors of Sweat Furnaces and Afterburners*

Vendors of Sweat Furnace/Afterburner Packages	Vendors of Afterburners
<p>College Research Corp. (Coreco) P.O. Box 577 Germantown, WI 53022 Phone: (262)255-4700 Fax: (262)255-5283 Email: coreco@netwurx.net http://www.corecocorp.com</p> <p>Stinchcombe Furnaces, Ltd. Unit 31A, Central Trading Estate, Cable Street, Wolverhampton, WV2 2RS United Kingdom Phone: 1 44 1902 870350 Fax: 1 44 1902 870880 Email: markham@tinyworld.co.uk</p> <p>United Group, Inc. 408 NW 14th Street Topeka, KS 66618 Phone: (800)999-0457 Fax: (785)232-4218 http://www.unitedgroupinc.com</p>	<p>Crown Andersen 2000, Inc. 306 Dividend Drive Peachtree City, GA 30269 Phone: (770)486-2000, (800)241-5424 Fax: (770)487-5066 Email: a2k@crowndandersen.com http://www.crowndandersen.com</p> <p>Huntington Environmental Systems (HES) 707C West Algonquin Road Arlington Heights, IL 60005 U.S.A. Phone: (847)545-8800 Fax: (847)545-1947 Email: info@huntington1.com Email: MACT111@aol.com http://www.huntington1.com</p>

* EPA does not endorse these vendors or any other vendor.



Pictures of Sweat Furnaces & Afterburners



Figure 1: Photograph of Coreco Sweat Furnace and Afterburner (Models 1231 and 1848)

Figure 2: Schematic of Coreco Sweat Furnace and Afterburner (Models 1231 and 1848)



Pictures of Sweat Furnaces & Afterburners



Figure 3: Afterburner
Figure 4: Regenerative Afterburner



Introduction



1.10 What could happen if I don't comply?

In addition to emitting hazardous pollutants like dioxin into the environment and potentially damaging the environment for not only your generation but many generations to come, if you fail to comply with the requirements of the rule, you could face legal action under the Clean Air Act. You may be assessed civil penalties of up to \$25,000 **per day** for non-compliance.



Does This Regulation Apply to Me?



2.0 Applicability

2.1 Who does this regulation apply to?

ALL secondary aluminum sweat furnaces. The regulation applies to you if you own or operate a sweat furnace and you are involved in the recovery of aluminum from scrap material—*regardless of the size or location of the furnace or how often the furnace is operated*.

A sweat furnace is a unit designed and used exclusively to reclaim aluminum from scrap that contains substantial quantities of iron by using heat to separate the low melting point aluminum from the scrap while the higher melting point iron remains in solid form. These units are also known as dry hearth furnaces. Figures 5 through 8 on the following pages show examples of sweat furnaces.

Due to their small size and portability, sweat furnaces are common in many industries. They are used to process scrap that cannot be processed in other furnaces. For example, scrap yards use sweat furnaces to reclaim aluminum from many forms of scrap (sheet and cast aluminum), and automotive salvage yards use them to reclaim aluminum from unusable auto parts (such as transmissions).

2.2 Does this regulation apply to all existing, new and reconstructed sweat furnaces?

Yes, the regulation applies to all existing sweat furnaces and all new or reconstructed sweat furnaces. A sweat furnace that was built after February 11, 1999 is considered a “new” sweat furnace. A sweat furnace that was reconstructed after February 11, 1999 is considered a “reconstructed” sweat furnace (see section 2.3 for a definition of reconstructed). See section 3.1.1 of this document for information on differences in regulations for existing and new/reconstructed sweat furnaces.

2.3 What does “reconstructed” mean?

Reconstructed or reconstruction has a specific meaning in the rule. For sweat furnaces, reconstruction means replacement of the components of a sweat furnace such that the fixed capital cost of the new components is greater than 50 percent of the fixed capital cost that would be required to construct a comparable new sweat furnace, and it is technologically and economically feasible for the reconstructed sweat furnace to meet the emission standard for dioxins and furans. Replacement of the refractory in a sweat furnace is not considered to be reconstruction. A sweat furnace that was reconstructed after February 11, 1999 is considered a “reconstructed” sweat furnace.



Photos of Sweat Furnaces



Figure 5: Large Sweat Furnace

Figure 6: Small Sweat Furnace¹

¹ This furnace is likely to not meet the requirements of the rule.



Photos of Sweat Furnaces



Figure 7: Small Sweat Furnace²

Figure 8: More Sweat Furnaces

² This furnace is likely to not meet the requirements of the rule.



Compliance Requirements



3.0 Explanation of Rule Requirements

This section includes explanations of the rule requirements. A checklist of these requirements is included in section 4.0 for your convenience.

3.1 Compliance Requirements

3.1.1 When must I comply?

- ! If your operation is an existing source (a sweat furnace that began construction or reconstruction on or before February 11, 1999), you must be in compliance with the rule by March 24, 2003.
- ! If you operate a new or reconstructed source (constructed or reconstructed after February 11, 1999), you must be in compliance with the rule by March 23, 2000, or upon startup, whichever is later.

3.1.2 What is an operating permit?

An operating permit is a legally enforceable document issued by a permitting authority to a source of air pollution (e.g., a facility operating a sweat furnace) that contains all of the air-related requirements that apply to the facility. These permits are commonly called “Title V” permits, because they are required by Title V of the Clean Air Act. They are also sometimes called “part 70” or “part 71” permits, because the specific requirements for permitting programs are included in parts 70 and 71 of chapter 40 of the CFR.

As an owner or operator of a sweat furnace, you will need to get an operating permit from your State, local, or Tribal permitting authority. Contact your State, local, or Tribal permitting authority to find out how to apply for an operating permit. Under the secondary aluminum regulation, the EPA has specified that the State, local, or Tribal permitting authority has discretion to allow sweat furnaces at small facilities (“area sources”) to defer getting an operating permit until December 9, 2004. Your facility is an area source if your facility has the potential to release into the air less than 10 tons per year of any individual hazardous air pollutant or 25 tons per year of any combination of hazardous air pollutants. You can find a list of hazardous air pollutants at <http://www.epa.gov/ttn/atw/188polls.html>. If your facility is an area source, check with your State, local, or Tribal permitting authority to find out whether there is a deferral for your sweat furnace operation. If so, you must apply for a permit by December 9, 2005.

Regardless of whether you need/have an operating permit, you will need to be in compliance by the dates specified in section 3.1.1 and stay in compliance.



Compliance Requirements



3.1.3 What is the emission limit for my sweat furnace?

If you want to convert measurements of dioxins and furans to TEQ units, you must use the procedures and equations in *Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-Dioxins and -Dibenzofurans (CDDs and CDFs) and 1989 Update*, EPA-625/3-3-89-016. The document is available from the National Technical Information Service (<http://www.ntis.gov/>). Order document number PB 90-145756.

A sweat furnace may not emit more than:

- ! 3.5×10^{-10} grains of dioxins and furans per dry standard cubic foot at 11 percent oxygen, or
- ! 0.80 nanogram of dioxins and furans toxicity equivalents (TEQ) per dry standard cubic meter at 11 percent oxygen.

Note that the unit of volume in the first form of the emission standard is a cubic foot, but the unit of volume in the second form is a cubic meter. You can use either of these forms of the emission standard because they are equivalent.

3.1.4 What can I do to comply with the emission limit for my sweat furnace?

You have two options to select from in showing that your sweat furnace complies with the emission limit:

1. Conduct a performance test whose results show that the emissions from the process are less than the emission limitation listed in section 3.1.3. See section 3.1.5 for an explanation of how to conduct a performance test. If the test shows that the emissions from your sweat furnace are higher than the emission limitation, you will need to lower your emissions. In most cases, you will choose to use a control device to reduce furnace emissions. An afterburner is the most commonly used control device for sweat furnaces. In some cases, you may choose instead to burn clean fuels or make other process modifications to meet the emission limitation.

L Tip: Wash materials before placing them into your sweat furnace in order to remove some of the chemicals that could be emitted into the atmosphere.



Compliance Requirements



2. If you do not do a performance test, you need to:
- ! Have an afterburner,
 - ! Have a residence time in the afterburner of 0.8 seconds³ or greater,
 - ! Monitor the temperature and maintain it at or above 1600°F, and
 - ! Record the temperature data and calculate 3-hour averages.

An afterburner is a device that uses controlled flame combustion to convert combustible materials to noncombustible gases. Other names for an afterburner are thermal oxidizer and incinerator.

By complying with these design requirements, you would not be required to conduct emissions testing to show compliance with the emission limit because the high temperature and residence time would ensure that you are meeting the regulation.

We expect that most of you will choose to comply with option #2. However, if you choose to conduct a performance test instead, you would likely need to hire a testing contractor to perform the test and prepare a report documenting the results of the test (your State, local, or Tribal air pollution control agency should have a list of contractors in your area). You may want to consider whether it would be more cost-effective in the long run to buy a new sweat furnace equipped with an afterburner that has a design residence time of 0.8 seconds or greater and an operating temperature of 1600°F or greater instead of conducting a performance test.

³ The final rule promulgated on 3/23/00 specified a design residence time of 2 seconds. However, this value was erroneous and had been corrected in the amendments published on 12/30/02 (67 FR 79808).



Compliance Requirements



3.1.5 How do I conduct a performance test to demonstrate initial compliance?

Unless you are using an afterburner meeting the design requirements specified in the rule, you must conduct a performance test (or provide the results of a representative test as described below) in order to show that the average concentration of dioxins and furans (averaged over three cycles) is less than the emission limitation. You will also establish the operating limits that you will continue to monitor to ensure the ongoing performance of the control device. Performance tests must meet all the specifications in Checklist 1 on the following page of this workbook. Your State, local, or Tribal air pollution control agency should have a list of contractors in your area who you can hire to conduct performance tests.

You may not need to conduct a performance test if you have already conducted a performance test in which you measured the required parameters (e.g., emissions, temperature). You must obtain approval from the regulatory agency with jurisdiction over your sweat furnace to substitute a previous performance test (see section 1.7 for contact information). You must satisfy all the following conditions to obtain approval:

Checklist 1 on the following page of this workbook refers to the “**operating cycle**.” In the context of sweat furnaces, operating cycle means the period including the charging and melting of scrap aluminum and the fluxing, refining, alloying, and tapping of molten aluminum (the period from tap-to-tap).

- ! Provide a copy of the complete emission test report from the previous performance test.
- ! In the previous performance test, you used the test methods and procedures listed in Checklist 1 on the following page of this workbook.
- ! Certify that you have not changed the design or operating procedures of either the sweat furnace or add-on pollution control equipment since the previous test.
- ! In the previous performance test, you monitored the operating parameters according to the procedures in Checklist 2.
- ! The emission test report documents how you monitored the operating parameters.



Checklist for Performance Tests



Checklist 1: How to Design and Conduct Performance Tests

- G** At least 60 days before conducting a performance test, prepare and submit a “site-specific test plan” (see section 3.3.3) to the EPA regional office and/or the State, local, or Tribal regulatory agency that issues operating permits to sources of air pollution. That plan must meet the specifications in 40 CFR §63.7(c). You may not conduct a performance test until the regulatory agency has approved your site-specific test plan.
- G** Conduct every performance test according to the General Provisions in subpart A of 40 CFR Part 63.
- G** Conduct the first performance test. New and reconstructed sources must conduct the test by March 23, 2000 or upon startup, whichever is later. Existing sources must conduct the test by March 24, 2003.
- G** You must operate the sweat furnace at the highest production level and with materials that represent the range (or variety) of materials that you expect to process.
- G** Conduct the test three times.
- G** Sample dioxins and furans over the entire operating cycle.*
- G** Measure emissions at the outlet of the control device.
- G** Measure emissions according to Test Method 23 in appendix A of 40 CFR Part 60. You may use an alternative test method with the approval of the Administrator of the U.S. Environmental Protection Agency.
- G** You must conduct a performance test every 5 years if your sweat furnace is in a secondary aluminum production facility that is a major source (see Appendix A for a definition of “major source”).
- G** Report the results of the first performance test and all the subsequent tests in a “notification of compliance status report” (see section 3.4.2).

* Since a sweat furnace is a "batch process," the test should be conducted over one entire operating cycle; it does not need to be conducted for 3 hours as it would be for a continuous process.



Compliance Requirements



3.1.6 How must I monitor my sweat furnace to demonstrate continuous compliance (e.g., ensure that it does not emit too much)?

If you conducted a performance test:

- ! You must continuously monitor the operating temperature of the afterburner to show that you maintain the 3-hour block average⁴ operating temperature of the afterburner at or above the average temperature established during your performance test. (Checklist 2 on the following page explains how to monitor the operating temperature of an afterburner.)
- ! You should submit data gathered during the performance test with your Notification of Compliance Status (see section 3.4.2).
- ! You need to keep records of the monitoring data, and an easy way to do this is with an automatic data recorder.⁵
- ! Your sweat furnace or afterburner may malfunction, causing the value of an operating parameter to deviate from the value or range established during the performance test. When the latter event happens, you must quickly repair the equipment and take steps to prevent another breakdown.

If you did not conduct a performance test:

- ! You must continuously monitor the operating temperature of the afterburner to show that you maintain the 3-hour block average⁴ operating temperature of the afterburner at or above 1600°F (see Checklist 2).
 - " This requirement only applies to afterburners with a design residence time of 0.8 seconds⁶ or greater and an operating temperature of 1600°F or higher.

⁴ If your furnace does not run for three hours at a time, contact your permitting authority for alternative monitoring options. One possible alternative could be to monitor the temperature in 1-hour blocks. See section 63.1510(w) in the regulation for more information.

⁵ You only need to operate the data recorder when the sweat furnace is running, not during periods when the sweat furnace is idle.

⁶ The final rule promulgated on 3/23/00 specified a design residence time of 2 seconds. However, this value was erroneous and had been corrected in the amendments published on 12/30/02 (67 FR 79808).



Compliance Requirements



- " Residence time means the duration of time required for gases to pass through the combustion zone of the afterburner.
 - " Calculate residence time by dividing the volume (cubic feet) of the combustion zone of the afterburner by the volumetric flow rate of the gas stream in actual cubic feet per second (acfs).
 - For example, an afterburner with a volume of 30,000 cubic feet and a flow rate of 20,000 acfs would have a residence time of 1.5 seconds (e.g., $30,000 \text{ ft}^3 \div 20,000 \text{ acfs} = 1.5 \text{ seconds}$).
 - " If you need help calculating your residence time, contact your State small business representative.
- ! You need to keep records of the monitoring data, and an easy way to do this is with an automatic data recorder.⁵

If you use a control device other than an afterburner or have made other process changes to reduce emissions:

- ! Your operation, maintenance, and monitoring (OM&M) plan must reflect all of the necessary procedures and parameters you will use to ensure the continuous compliance of the sweat furnace with the emission limitation. See section 3.3.1 in this workbook and section 63.1510(b) of the rule for more information.
- ! Your monitoring equipment should have a data recorder⁵ so you can automatically keep records of your monitoring data.

You may apply to the Administrator of the U.S. Environmental Protection Agency for permission to use alternate monitoring requirements. Section 63.1510(w) in the regulation describes the process you would follow to submit an application.



Checklist for Monitoring Afterburner Temperature



Checklist 2: Actions to Take to Monitor the Operating Temperature of an Afterburner

1. If you have an afterburner, you must install, calibrate, maintain, and operate a device to continuously monitor and record the operating temperature of the afterburner. You must satisfy the requirements for continuous monitoring systems in subpart A of 40 CFR Part 63.
2. You must make sure that the temperature monitoring device satisfies all of the following specifications:
 - G It is installed at the exit of the combustion zone of the afterburner.
 - G It records the temperature in 15-minute block averages and 3-hour block averages (for example, if 15-minute blocks last from 3:00 to 3:15, 3:15 to 3:30, etc., then a 3-hour block could last from 3:00 to 6:00). It must record the temperature at least once in each 15-minute interval.
 - G The response range of the data recorder must include the following values: (1) zero and (2) 1.5 times the “average temperature.” The average temperature is either 1600°F (if you have an afterburner with a design residence time of 0.8 seconds or greater and an operating temperature of 1600°F or higher) or the temperature that you determine using the method described below in step #3.
3. If your afterburner does not have a design residence time of 0.8 seconds or greater and an operating temperature of 1600°F or higher, you must determine the “average temperature” that you will use to verify the operation of your data recorder using the following steps:
 - G Before the first test of the performance of your afterburner, evaluate the performance of the temperature monitor according to 40 CFR §63.8.
 - G When you conduct your performance test, you must conduct three test runs.
 - G Continuously measure and record the operating temperature for each run.
 - G Record the 15-minute block average temperature for each run.
 - G Record the 3-hour block average temperature for each run.
 - G Calculate the “average temperature” by adding the three 3-hour block average temperatures, and divide by three.
 - G Use a thermocouple-potentiometer system or an alternative approved method.



Checklist for Inspecting Afterburners



3.2 Inspection Requirements

You must inspect every afterburner at least once a year. Repairs must be made according to your OM&M plan. Follow Checklist 3, and record the results of your inspection.

Checklist 3: Actions to Take When Conducting the Annual Inspection of an Afterburner

- G Inspect all burners, pilot light assemblies, and pilot light sensing devices for proper operation.
- G Clean the pilot light sensors.
- G Inspect the combustion air for proper adjustment.
- G Inspect baffles and other internal structures to ensure their structural integrity.
- G Inspect dampers, fans, and blowers for proper operation.
- G Inspect sealing to make sure it is proper.
- G Inspect motors for proper operation.
- G Inspect the refractory lining of the combustion chamber. Clean and replace the refractory lining as necessary.
- G Inspect the shell of the afterburner for corrosion and hot spots.
- G For the burn cycle that follows the inspection, document the proper operation of the afterburner. Document adjustments to the afterburner.
- G Verify that the afterburner is in good operating condition.
- G Follow your operation, maintenance, and monitoring plan when making repairs.



Safety Considerations



3.2.1 Safety Considerations

Other than inspecting your furnace regularly, one of the most important things you can do to ensure the safety of your workers is to have good housekeeping practices for your aluminum scrap inventory and equipment. Bad housekeeping can result in contaminated product and a hazardous working environment. Good housekeeping suggestions are provided below, although they are not required by the Secondary Aluminum rule.

; **Warning:** Never put into your sweat furnace any aluminum that may contain a liquid. An explosion could occur!

Make sure your aluminum scrap is dry and free of ice before introducing it into the sweat furnace. Additionally, there should be no water in the molds or in the sweat furnace prior starting the sweat furnace. When added to molten metal, water will expand to 4,500 times its normal size in less than a second. This sudden expansion can result in an explosion.

Keep contaminants, such as magnesium and lead, out of the sweat furnace feedstock. Magnesium can cause unsafe conditions in the furnace because it is extremely volatile; it ignites easily and burns to a very high temperature. This can lead to furnace damage, aluminum oxidation, and contamination. Lead oxidizes with aluminum and can be an inhalation health hazard. Lead is also an unwanted contaminant in the finished product.

Finally, due to the extreme heat generated by a sweat furnace, proper protective equipment should be worn when smelting aluminum. Also, make workers aware of the fire and electrical hazards involved in operating sweat furnaces.



Plan Requirements



3.3 Plan Requirements

3.3.1 What is an OM&M plan?

An operation, maintenance, and monitoring plan (OM&M Plan) describes the actions you will take to ensure proper operation of a sweat furnace and the device that controls emissions of dioxins and furans.

- ! You must prepare a written OM&M Plan and follow it.
- ! You must give the plan to the EPA regional office and/or the State, local, or Tribal regulatory agency that issues operating permits to sources of air pollution. The regulatory agency will review your plan and may require changes before approving your permit application.
- ! If needed, you may change the original plan; you will have to give the revised plan to the regulatory agency for their review.

Tip: Good operation and maintenance of your equipment helps prevent pollution.

Checklist 4 on the following page lists the seven basic components of an OM&M plan; section 63.1510(b) in the regulation has more specific information on these components. The OM&M plan is one component of the application that you make for a part 70 or part 71 permit (see section 3.1.2 for more information). Appendix E contains an example OM&M plan developed by the State of Maine.



Checklist for Your OM&M Plan



Checklist 4: The Seven Basic Components of an OM&M Plan

- G A list of the parameters of the sweat furnace and emission control device that you must set and monitor to ensure that the sweat furnace does not emit too much.
- G The schedule for monitoring the parameters in the list.
- G A description of the actions you will take to properly operate and maintain each sweat furnace and the afterburner or other emission control device.
- G A description of the actions you will take to properly operate and maintain the device that monitors the parameters in the list.
- G The actions you will take to monitor the parameters on your list.
- G The actions you will take to repair a sweat furnace or emission control device (“corrective actions”) when the value of a parameter differs from its target value or range.
- G The schedule you will follow to maintain a sweat furnace or emission control device.



Plan Requirements



3.3.2 What is a startup, shutdown, and malfunction plan and how do I implement it?

You must prepare and implement a written plan that describes how you will start a sweat furnace and shut it down to minimize air pollution emissions, and what you will do to minimize air pollution emissions when the sweat furnace or air pollution control or monitoring equipment malfunctions. This is called a startup, shutdown, and malfunction (SSM) plan. The description of procedures must be specific. You must include the plan in the notification of compliance status report, which is described in section 3.4.1.

A more specific description of the contents of the plan appears in 40 CFR §63.6(e)(3), which explains the purpose of an SSM plan, what it should include, and how to keep SSM records. Your plan must include the following procedures:

- ! What you will do to determine the cause of malfunctions.
- ! How you will record the cause of malfunctions.
- ! How you will record the time the malfunction began and ended.
- ! What you will do to repair malfunctioning equipment.
- ! How you will record the actions you will have taken to repair malfunctioning equipment and minimize emissions during malfunctions.

You must follow the requirements in 40 CFR §63.10(b) for keeping records of startups, shutdowns, and malfunctions and the actions you take during these events. You must record and report actions that are inconsistent with the procedures in your plan for startups, shutdowns, and malfunctions. Appendix E contains an example SSM plan developed by the State of Maine.

L Tip: Update your SSM plan as needed to ensure that you are prepared to handle all malfunctions.



Plan Requirements



3.3.3 What is a site-specific test plan?

Before conducting a performance test, you must prepare and submit a “site-specific test plan.”⁷ That plan must meet the specifications in 40 CFR §63.7(c). You may not conduct a performance test until the regulatory agency has approved your site-specific test plan. You must submit the site-specific test plan at least 60 days before the first performance test.

If you choose to conduct a performance test, you likely would want to hire a testing contractor to perform the test. The contractor would also be able to prepare the site-specific test plan for you. Your State, local, or Tribal air pollution control agency should have a list of contractors in your area.

Submit the site-specific test plan to your regulatory agency. If your sweat furnace is in a State with an approved operating permit program but for which delegation of authority under section 112(l) of the Clean Air Act has neither been requested nor approved, you must submit the report to the Regional Administrator in the regional office of the U.S. Environmental Protection Agency for your State. Table 5 indicates for each State whether the State, local, or Tribal permitting authority has been delegated the authority to approve site-specific test plans. Contact your State, local, or Tribal permitting authority to confirm its delegation status, as information in Table 5 may have changed.

⁷ If your State, local, or Tribal permitting authority has not received delegation of the authority to approve site-specific test plans, the U.S. EPA regional office in your area will need to approve the plan. See Table 5 for a list of States



Plan Requirements



Table 5: Delegation of Authority for Secondary Aluminum NESHAP

State	City/County	Major Sources		Area Sources	
		State, local, or Tribal permitting authority	EPA Regional Office	State, local, or Tribal permitting authority	EPA Regional Office
AK	All		X		X
AL	City of Huntsville	X		X	
	Jefferson Co.	X		X	
	Rest of State		X		X
AR	All		X		X
AZ	All		X		X
CA	All	X			X
CO	All	X		X	
CT	All		X		X
DC	All		X		X
DE	All		X		X
FL	All	X		X	
GA	All	X		X	
HI	All		X		X
IA	All	X		X	
ID	All		X		X
IL	All	X		X	
IN	All		X		X
KS	All	X		X	
KY	Jefferson Co.		X		X
	Rest of State	X		X	
LA	All		X		X
MA	All		X		X



Plan Requirements



State	City/County	Major Sources		Area Sources	
		State, local, or Tribal permitting authority	EPA Regional Office	State, local, or Tribal permitting authority	EPA Regional Office
MD	All		X		X
ME	All	X		X	
MI	All		X		X
MN	All		X		X
MO	All	X		X	
MS	All	X		X	
MT	All	X		X	
NC	All	X		X	
ND	All	X		X	
NE	All	X		X	
NH	All	X			X
NJ	All	X			X
NM	All		X		X
NV	All		X		X
NY	All		X		X
OH	All		X		X
OK	All		X		X
OR	Lane Regional Air Pollution Authority		X		X
	Rest of State	X		X	
PA	Allegheny Co.	X		X	
	Rest of State	X			X
RI	All	X			X
SC	All	X		X	
SD	All		X		X



Plan Requirements



State	City/County	Major Sources		Area Sources	
		State, local, or Tribal permitting authority	EPA Regional Office	State, local, or Tribal permitting authority	EPA Regional Office
TN	Chattanooga-Hamilton Co.		X		X
	Rest of State	X		X	
TX	All		X		X
UT	All	X		X	
VA	All	X		X	
VT	All	X		X	
WA	All		X		X
WI	All		X		X
WV	All	X			X
WY	All	X		X	



Notification & Reporting Requirements



3.4 Notifications and Reporting Requirements

Checklist 5 on the following page lists the notifications and reports you are required to submit.

F Contact your State, local, or Tribal permitting authority to find out to whom you should submit your reports and plans.

3.4.1 What reporting requirements are associated with the performance test?

You must notify your regulatory agency of your intent to conduct a performance test at least 60 days before the scheduled date of the test. You must also notify them of the scheduled date of the test.

L Tip: Maintain a calendar or schedule of required notifications and reports in a visible place.

You must report the results of performance tests to your regulatory agency. Submit a complete report that documents test methods and procedures, operation of the sweat furnace and add-on pollution control equipment, and the operating parameters and their acceptable values. Submit the report with your notification of compliance status (within 60 days after the compliance date that applies to you).



Checklist of Your Reporting Requirements



Checklist 5: Summary of Sweat Furnace Reporting Requirements

Report	Deadline for Existing Sources	Deadline for New Sources
G Initial notification	July 21, 2000	July 21, 2000 or 120 days after startup, whichever is later
G Notification of anticipated date of performance test	60 days before performance test	60 days before performance test
G Site-specific test plan	60 days before performance test	60 days before performance test
G OM&M plan	March 24, 2003	90 after performance test or 90 days after startup if not conducting a performance test
G Notification of compliance status report	May 23, 2003	90 after performance test or 90 days after startup if not conducting a performance test
G Excess emissions/summary reports	Semi-annually, 60 days after calendar half (e.g., 3/1 & 8/30)	Semi-annually, 60 days after calendar half (e.g., 3/1 & 8/30)
G Annual compliance certifications	With one of the semi-annual reports	With one of the semi-annual reports
G SSM reports	30 days after calendar half when a SSM occurred (e.g., 1/30 & 7/30)	30 days after calendar half when a SSM occurred (e.g., 1/30 & 7/30)
G Report of actions inconsistent with SSM plan	2 working days after event (phone report) and 7 working days after event (letter report)	2 working days after event (phone report) and 7 working days after event (letter report)



Notification & Reporting Requirements



3.4.2 What must I include in the notification of compliance status report?

You must submit a complete “notification of compliance status report” within 60 days of the compliance date that applies to you. Checklist 6 lists the items that you must report. If you do not need to conduct a performance test, then some of the items in Checklist 6 do not apply to you.

An official of your company must sign the report and certify its accuracy.

You may submit the report in several ways:

- ! in an application for an operating permit,
- ! in an amendment to an application for an operating permit, or
- ! as a separate document.

You may also submit the report in parts; you do not need to duplicate previously-submitted parts. However, if you do submit the report in parts, you should indicate in the report that you are doing so. You must submit all the parts within 60 days of the compliance date that applies to you.

Submit the report to your regulatory agency. In addition, if your sweat furnace is in a State with an approved operating permit program but for which delegation of authority under section 112(l) of the Clean Air Act has neither been requested nor approved, you must also submit the report to the Regional Administrator in the regional office of the U.S. Environmental Protection Agency for your State. Table 5 (starting on page 28) indicates for each State whether the State, local, or Tribal permitting authority has received delegation of authority. Contact your State, local, or Tribal permitting authority to confirm its delegation status, as information in Table 5 may have changed.



Checklist for Your Notification of Compliance Status



Checklist 6: What to Include in the Notification of Compliance Status Report

- G** A complete performance test report for each sweat furnace that contains the following information:
 - G** All the data from the test.
 - G** All measurements from the test.
 - G** All calculations from the test.
- G** Approved site-specific test plan.
- G** Performance evaluation test results for each continuous monitoring system.
- G** Acceptable value or range of values for the parameters of the afterburner or other add-on control device that you will monitor to ensure that the sweat furnace does not emit too much.
- G** Supporting documentation for the acceptable parameter values.
- G** Description of the procedure used to establish the acceptable parameter values. Include the operating cycle or time period used in the performance test.
- G** Information that shows that your capture/collection system satisfies the requirements of the regulation.
- G** If you operate an afterburner to control emissions from a sweat furnace and you do not need to conduct a performance test, information that documents the design residence time and design operating temperature of the afterburner. The afterburner manufacturer's specifications may be sufficient.
- G** Operation, maintenance, and monitoring plan.
- G** Startup, shutdown, and malfunction plan.



Notification & Reporting Requirements



3.4.3 What information on emissions must I report?

You must submit an “excess emissions/summary report” to your regulatory agency every 6 months. The report is due 60 days after the end of each 6-month period.

You must submit a report even if your sweat furnace and add-on pollution control equipment operated properly (within the normal parameters). State in the report that excess emissions were not made during the report period. You must also provide the information specified in 40 CFR §63.10(c).

You must provide additional information in the excess emissions/summary report if a sweat furnace or add-on pollution control equipment did not operate properly. The required information depends on the following circumstances:

- ! If the afterburner temperature or the actual value of any other significant parameter went outside the range required for compliance with the emission standard.
- ! If an action taken during startup, shutdown, or a malfunction was inconsistent with your startup, shutdown, and malfunction plan.

3.4.4 What else must I report on a regular schedule?

Every year, you must certify continuing compliance with the regulation. You complied if your sweat furnace and add-on pollution control equipment operated properly (within the normal parameters), and you met all the monitoring, recordkeeping, and reporting requirements.

3.4.5 What must I report about startups, shutdowns, and malfunctions?

When actions that you take during startups, shutdowns, and malfunctions are consistent with the procedures in your SSM plan, you must keep records demonstrating that you followed the procedures in your SSM plan (for example, this may take the form a checklist). On a semi-annual basis, you must submit a report confirming that you took actions consistent with your plan during startups, shutdowns, and malfunctions that occurred during the semi-annual reporting period. These reports are due 30 days after the end of the calendar half (e.g., due 7/30 for the calendar half covering 1/1 through 6/30).



Notification & Reporting Requirements



If you take actions during a startup, shutdown, or malfunction that are not consistent with your SSM plan, you must:

- ! record the actions that you took during the event,
- ! report the event to your regulatory agency (e.g., by telephone) within 2 working days of commencing the actions inconsistent with your plan, and
- ! submit a letter within 7 working days after the end of the event reporting that you took actions inconsistent with your plan.



Notification & Reporting Requirements



3.4.6 What must new or reconstructed sources report?

If you build a new furnace or reconstruct a furnace at a major source of hazardous air pollutants, you must apply for approval to construct or reconstruct. If you build a new or reconstructed furnace that is not at a major source of hazardous air pollutants, you must submit a notification (see sections 2.2 and 2.3 for an explanation of new and reconstructed). Check with your State, local, or Tribal permitting authority to find out if you need a construction permit prior to construction or reconstruction.

You must submit the notification or application as soon as you can before construction is planned. The notification or application must include all the information required by 40 CFR §63.5(b). Specifically your notification or application must include:

- ! Your name and address
- ! A notification of intent to construct a new source
- ! The address of the source
- ! Identify that you are subject to the Secondary Aluminum NESHAP
- ! When you expect to start construction
- ! When you expect to finish construction
- ! When you expect to start your sweat furnace
- ! The hazardous air pollutants that you will emit and how much
- ! Other information including the air pollution equipment you will operate and the control efficiency of the equipment



Recordkeeping Requirements



3.5 Recordkeeping Requirements

You must maintain files that contain all the reports and notifications that are required by this regulation. You must keep records for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, or record. The records from the most recent 2 years must be on the premises of the facility at which the sweat furnace is located. You may use microfilm, computer disks, magnetic tape, or microfiche to store records. You may submit information on paper or on a labeled computer disk. If you use the latter, you must create the electronic documents in formats that allow EPA's staff, or the staff of your State, local, or Tribal air pollution control agency, to open them with software they use (e.g., Word Perfect, Microsoft Word).

If you control emissions of dioxins and furans with an afterburner, you must keep additional records.

- ! Records of 15-minute block average operating temperature of the afterburner.
- ! Records of any period when the average temperature in any 3-hour block period falls below the value necessary to prevent excess emissions.
- ! Explanations, which may be brief, of the cause of temperatures that are too low.
- ! Descriptions of the actions taken to repair the afterburner.
- ! Records of annual inspections of afterburners.

You must keep the records specified in 40 CFR §63.10(c) if you operate a continuous monitoring system. These records include: all required monitoring measurements, information about malfunctions, the data and time of periods during which the monitoring system was inoperative or out-of-control, and other records.

You must keep records of the annual inspections of emission capture/collection and closed vent systems, and records for any approved alternative monitoring procedure or test method. Additionally, you must have at hand the current startup, shutdown, and malfunction plan. You must also have the records that document how you followed the plan. Checklist 7 on the following page lists the records you must keep.



Checklist of Your Recordkeeping Requirements



Checklist 7: Summary of Sweat Furnace Recordkeeping Requirements

- G For afterburner: records of 15-minute average operating temperature, including any period when average temperature in any 3-hr block period falls below compliant operating parameter value with a brief explanation of cause and corrective action taken; records of annual inspection
- G For capture/collection systems: records of annual inspection
- G Copies of all notifications and reports and their supporting documentation
- G Records of occurrence and duration of each SSM or malfunction of operation of process, control, and monitoring equipment
- G Records of actions inconsistent with your SSM plan and actions consistent with your SSM plan
- G Records of measurements needed to demonstrate compliance
- G Records of performance test results
- G Records of any approved alternative monitoring or test procedure
- G SSM plan
- G OM&M plan



Additional Requirements



3.6 Additional Requirements

Appendix A in the Secondary Aluminum regulation lists all the elements in the “General Provisions” which also apply to secondary aluminum producers. You must meet these requirements as indicated in Appendix A of the rule. In addition, the rule contains many other requirements which apply to other types of equipment at secondary aluminum production facilities. If you operate any of these other types of equipment (e.g., scrap shredders, chip dryers, other types of furnaces), you should read the applicable parts of the rule.

There may also be water or solid waste regulations for your facility, in addition to the air regulations summarized above. Check with your State, local, or tribal permitting authority to find out whether there are other regulations that apply to you.



Checklist



4.0 Checklist

This checklist is provided for your convenience. If you are able to complete all of the items on this checklist satisfactorily, then you are likely to be in compliance with the Secondary Aluminum rule. This checklist uses "we" to denote what you and your facility do; it uses stars (★) and "you" to give important instructions to you and your facility about each item in the checklist. While the requirements are listed in an order in which you might want to complete them, it is not necessary to complete them in the order in which they are listed in this checklist. Figure 9, following the checklist, provides a decision-tree format for helping you know some of the actions you might need to take to comply with the Secondary Aluminum rule. Figure 9 is not as comprehensive as the checklist below because it is focused on the technical aspects of a compliant furnace, not on the testing, reporting and recordkeeping requirements.

Air Quality Requirements⁸

A-1 ^{Yes No}
 9 9 We submitted an *initial notification* within 120 days after the effective date of the regulation (March 23, 2000) or 120 days after starting up our facility.

★ Section 3.4 contains more information on the notifications you must submit.

A-2 ^{Yes No N/A}
 9 9 9 We submitted a *notification of intent to conduct a performance test* at least 60 days before we were scheduled to conduct a performance test.

★ You must conduct the test by your compliance date (3/24/03 for existing sources and 3/23/00 or upon startup for new and reconstructed sources).

★ This requirements does not apply to you if your sweat furnace is equipped with an afterburner that has a design residence time of 0.8 seconds³ or greater and an operating temperature of 1600°F or greater. You should check the "N/A" box.

⁸ There may also be water quality and solid waste requirements that apply to your facility. Check with your State, local, or Tribal permitting authority.



Checklist



A-3 Yes No N/A
 9 9 9 We submitted a *site-specific test plan* at least 60 days before we were scheduled to conduct a performance test.

Q This requirements does not apply to you if your sweat furnace is equipped with an afterburner that has a design residence time of 0.8 seconds³ or greater and an operating temperature of 1600°F or greater. You should check the “N/A” box.

Q See section 3.3.3 for more information on what to include in your test plan.

A-4 Yes No
 9 9 We operate an afterburner with a design residence time of 0.8 seconds or greater and an operating temperature of 1600°F or greater.

OR

 Yes No
 9 9 We conducted a test to show that the emissions of dioxins and furans are at or below 3.5×10^{-10} grains of dioxins and furans per dry standard cubic foot at 11 percent oxygen (or 0.80 nanogram of dioxins and furans toxicity equivalents [TEQ] per dry standard cubic meter at 11 percent oxygen).

Q You have two options for complying with this standard, see section 3.1.4 of this document for details.

A-5 Yes No
 9 9 We have prepared, submitted, and are following our *OM&M plan*.

Q You must submit your OM&M plan to the EPA regional office and/or the State, local, or Tribal regulatory agency that issues operating permits to sources of air pollution.

Q For more information on what to include in an OM&M plan, see section 3.3.1 of this document.



Checklist



- A-6 ^{Yes No}
 9 9 We have prepared and are following our *Startup, Shutdown, & Malfunction (SSM) plan*.
- Q You must submit your SSM plan as part of your notification of compliance status report (see requirement A-7).
 - Q See section 3.3.2 for more information on what to include in your SSM plan.
- A-7 ^{Yes No}
 9 9 We submitted a complete *notification of compliance status report* within 60 days after our compliance date.
- Q An official from your company must sign the report and certify its accuracy.
 - Q The following items must be included with your notification of compliance status report. See section 3.4.2 and Checklist 6 for a full description of items to include in your report.
 - ! A complete performance test report, if required
 - ! Your approved site-specific test plan, if required
 - ! Your approved OM&M plan
 - ! Your current SSM plan
 - Q You may submit your report in parts (e.g., the items do not all have to be submitted at the same time).



Checklist



- A-8 Yes No
 9 9 We demonstrate continuous compliance with the emission standard. Check **ONE** of the following:
- G If we conducted a performance test to demonstrate initial compliance: we monitor the 3-hour block average operating temperature of the afterburner to ensure that it is at or above the temperature we established during the performance test.
 - G If we have an afterburner with a design residence time of 0.8 seconds⁹ or greater and an operating temperature of 1600°F or greater: we monitor the 3-hour block average operating temperature to ensure that it is at or above 1600°F.
 - G If we use a control device other than an afterburner: we demonstrate continuous compliance according to the procedures we included in our operation, maintenance, and monitoring (OM&M) plan.
 - Q See section 3.1.6 and Checklist 2 for more information on continuous compliance.
- A-9 Yes No
 9 9 We inspect every afterburner at least once a year, and make repairs according to our operation, maintenance, and monitoring (OM&M) plan (see requirement A-4).
- Q See section 3.3 for an inspection checklist.
- A-10 Yes No
 9 9 We submit an *excess emissions/summary report* every 6 months, within 60 days of the end of each 6-month period (e.g., submit by 8/30 for 1/1 - 6/30 period).
- Q Section 3.4.3 provides an explanation of this report.

⁹ The final rule promulgated on 3/23/00 specified a design residence time of 2 seconds. However, this value was erroneous and had been corrected in the amendments published on 12/30/02 (67 FR 79808).



Checklist



- A-11 ^{Yes No}
9 9 We submit *semi-annual SSM reports* to report startup, shutdown, and malfunction events for which we took actions that were consistent with our SSM plan.
- Q These reports are due 30 days after the end of each calendar half.
 - Q More information about SSM-related reports can be found in section 3.4.
- A-12 ^{Yes No}
9 9 We submit *immediate SSM reports* to report startup, shutdown, and malfunction events for which we took actions that were inconsistent with our SSM plan.
- Q An initial report must be made within two working days of the event, and a letter report must be submitted within 7 working days of the event.
 - Q More information about SSM-related reports can be found in section 3.4.
- A-13 ^{Yes No}
9 9 We maintain copies of all of the records we are required to keep.
- Q These records must be kept for at least 5 years, and the most recent 2 years of records must be kept on-site. Records must be accessible within 24 hours of a request to see them.
 - Q Records may be kept in hard copy, or you may use microfilm, computer disks, magnetic tape, etc. to store them.
 - Q See section 3.5 and Checklist 7 for a checklist of all of the records you must keep.

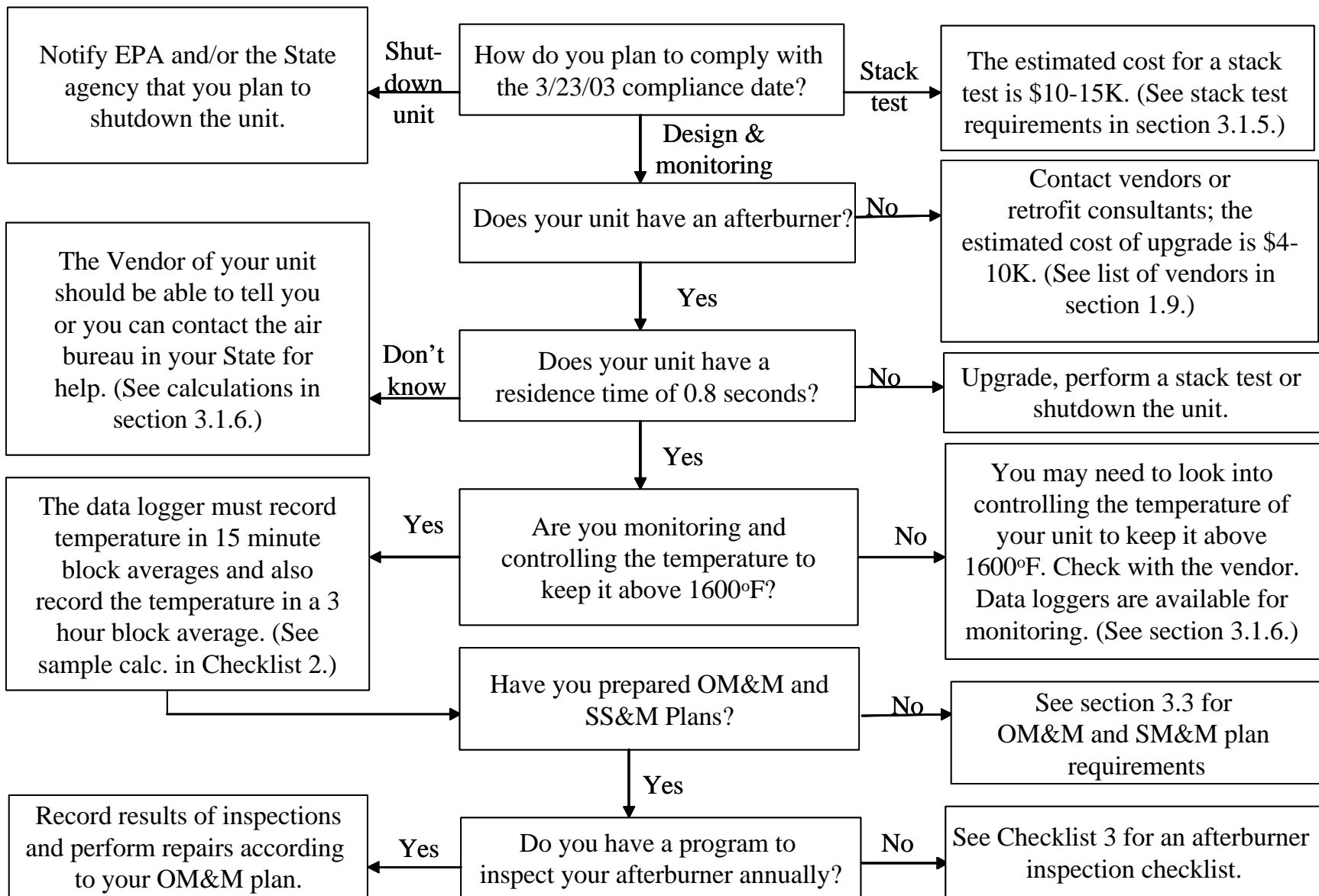


Figure 9: Decision-Tree for Bringing a Sweat Furnace into Compliance with the Secondary Aluminum Rule



Appendix A



Appendix A – Glossary of Terms

Common Definitions for Some Terms Used in this Document

Afterburner

A device that uses controlled flame combustion to convert combustible materials to noncombustible gases. Other names for an afterburner are thermal oxidizer and incinerator.

Ambient Air

Any unconfined portion of the atmosphere: open air, surrounding air.

Capture/Collection Systems

Equipment that is used to capture and collect air pollution (e.g., particulate matter).

Control Device

Equipment, other than inherent process equipment, that is used to destroy or remove air pollutant(s) prior to discharge to the atmosphere (e.g., afterburner).

Dioxins and Furans (D/F)

Tetra-, penta-, hexa-, and octachlorinated dibenzo dioxins and furans.

Emission

Any discharge or release of an air contaminant to the ambient air.

Excess Emissions

Any emissions greater than those permitted by the sweat furnace emission limitation.

HAP

Any hazardous air pollutant listed in or pursuant to section 112(b) of the Clean Air Act.

Major Source

An stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants.

Operating Cycle

The period including the charging and melting of scrap aluminum and the fluxing, refining, alloying, and tapping of molten aluminum (the period from tap-to-tap).



Appendix A



Operating Parameter

A variable, measurable property that indicates the performance/operation of a system (e.g., temperature, pressure, flow rate).

Residence Time

For an afterburner, the duration of time required for gases to pass through the afterburner combustion zone.

Sweat Furnace

A furnace used exclusively to reclaim aluminum from scrap materials that contain substantial quantities of iron by using heat to separate the low-melting point aluminum from the scrap while the higher melting point iron remains in solid form.

TEQ

The international method of expressing toxicity equivalents for dioxins and furans as defined in “Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-Dioxins and -Dibenzofurans (CDDs and CDFs) and 1989 Update” (EPA-625/3-89-016).



Appendix B



Appendix B – Sweat Furnace Brochure

A brochure entitled “New Regulation Controlling Emissions from Secondary Aluminum Production (Sweat Furnace Operations)” can be found at <http://www.epa.gov/ttn/atw/alum2nd/sealum.pdf>.



Appendix C



Appendix C – Example Reporting Forms

On the following pages are examples of the reports that you need to submit to comply with the Secondary Aluminum NESHAP. These examples are designed for any source complying with the rule, not just sweat furnace owner/operators, so parts of the reports may not be applicable to you.



Appendix C



Initial Notification Report

*This is a **sample** notification form that you can use to comply with 40 CFR 63.1515(a). See <http://www.epa.gov/ttn/atw/alum2nd/alum2pg.html> for more information about the rule. You should complete separate forms for each plant at which secondary aluminum production occurs.*

Applicable Rule: 40 CFR Part 63 Subpart RRR - National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production. Initial notification is being made in accordance with §63.1515(a) [this serves as the identification of the relevant standard, as required by §63.9(b)(2)(iii)].

I. GENERAL INFORMATION

Print or type the following information for each plant that produces secondary aluminum (§63.9(b)(2)(i)-(ii)):

Owner/Operator _____

Street Address _____

Mailing Address _____

Website (optional) _____

Plant Name _____

Plant Contact/Title _____

Plant Contact Phone Number (optional) _____

Plant Street Address _____

Plant Mailing Address _____

Plant Fax Number (optional) _____

Plant Email Address (optional) _____

Plant 4-digit Standard Industrial Classification (SIC) Code(s) (optional; for help see <http://www.osha.gov/oshstats/sicser.html>) _____

Plant UTM coordinates (optional; for help see <http://terraserver.homeadvisor.msn.com/>) _____

Plant Permit Number (optional) _____



Appendix C



II. CERTIFICATION *(Note: You may edit the text in this section as deemed appropriate)*

Based upon information and belief formed after a reasonable inquiry, I, as a responsible official of the above-mentioned facility, certify that the information contained in this notification is accurate and true to the best of my knowledge.

Name of Responsible Official: _____

Title of Responsible Official: _____

Signature

Date

III. SOURCE DESCRIPTION

1. **Check** your existing/new source status (optional):

G Existing source [affected source(s) constructed on or before February 11, 1999; must comply with Secondary Aluminum NESHAP by March 24, 2003]

G New source [affected source(s) constructed or reconstructed after February 11, 1999; must comply with Secondary Aluminum NESHAP by March 23, 2000 or upon initial startup, whichever is later]

G New source at an aluminum die casting facility, aluminum foundry, or aluminum extrusion facility [must comply with Secondary Aluminum NESHAP by March 24, 2003 or upon initial startup, whichever is later]

2. **Indicate** your anticipated compliance date (§63.9(b)(2)(iii)): _____

3. **Briefly describe** the nature, size, design, and method of operation of your plant, including the operating design capacity (§63.9(b)(2)(iv)): _____

4. **Check** your major/area source status (§63.9(b)(2)(v)):

G Major Source [potential plant-wide hazardous air pollutant (HAP) emissions exceed 10 tons/year for a single HAP or 25 tons/year for a combination of HAP's]

G Area Source [potential plant-wide HAP emissions total less than 10 tons/year for a single HAP or 25 tons/year for all HAP's]



Appendix C



Check the emission estimation method used to determine major/area source status (optional):

- G** Previous source test data
- G** Manufacturer's test data
- G** Industry emission factors
- G** Other method (specify) _____

5. **Indicate** the number of each type of affected source/emission unit that exists at your plant and the hazardous air pollutants (HAP) emitted¹ from each point (§63.9(b)(2)(iv); see definitions in §63.1503):²

Number	Affected Source	HAP Emitted					
	Sweat furnace	QSb QHF	QAs QPb	QCd QMn	QCr QHg	QD/F QNi	QHCl
	Aluminum scrap shredder	QSb QHF	QAs QPb	QCd QMn	QCr QHg	QD/F QNi	QHCl
	Thermal chip dryer	QSb QHF	QAs QPb	QCd QMn	QCr QHg	QD/F QNi	QHCl
	Scrap dryer/delacquering kiln/decoating kiln	QSb QHF	QAs QPb	QCd QMn	QCr QHg	QD/F QNi	QHCl
	Dross-only furnace	QSb QHF	QAs QPb	QCd QMn	QCr QHg	QD/F QNi	QHCl
	Rotary dross cooler	QSb QHF	QAs QPb	QCd QMn	QCr QHg	QD/F QNi	QHCl
	Group 2 furnace ("clean furnace")	QSb QHF	QAs QPb	QCd QMn	QCr QHg	QD/F QNi	QHCl
	Secondary Aluminum Processing Unit (consisting one or more group 1 furnaces and in-line fluxers)	QSb QHF	QAs QPb	QCd QMn	QCr QHg	QD/F QNi	QHCl

¹ Possible HAP emitted from Secondary Aluminum production facilities include: antimony (Sb) & compounds, arsenic (As) & compounds (inorganic), cadmium (Cd) & compounds, chromium (Cr) & compounds, dioxin/furans (D/F), hydrochloric acid (HCl), hydrogen fluoride (HF), lead (Pb) & compounds, manganese (Mn) & compounds, mercury (Hg) & compounds, and nickel (Ni) & compounds. Area sources are **only** subject to emission standards for D/F, not the other HAP.

² See applicability flowcharts to determine whether or not your facility is subject to Subpart RRR.



Appendix C



Notification of Intent to Conduct a Performance Test

This is a sample notification form that you can use, at your discretion, to comply with 40 CFR 63.1515(a)(6). See <http://www.epa.gov/ttn/atw/alum2nd/alum2pg.html> for more information about the Secondary Aluminum Production rule.

Applicable Rule: 40 CFR Part 63 Subpart RRR - National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production. Notification of intent to conduct a performance test is being made in accordance with §63.1515(a)(6).

I. GENERAL INFORMATION

Print or type the following information for each plant that produces secondary aluminum (§63.9(b)(2)(i)-(ii)):

Owner/Operator _____

Street Address _____

Mailing Address _____

Website (optional) _____

Plant Name _____

Plant Contact/Title _____

Plant Contact Phone Number (optional) _____

Plant Street Address _____

Plant Mailing Address _____

Plant Fax Number (optional) _____

Plant Email Address (optional) _____

Plant 4-digit Standard Industrial Classification (SIC) Code(s) (optional; for help see <http://www.osha.gov/oshstats/sicser.html>) _____

Plant UTM coordinates (optional; for help see <http://teraserver.homeadvisor.msn.com/>) _____

Plant Permit Number (optional) _____



Appendix C



II. CERTIFICATION *(Note: You may edit the text in this section as deemed appropriate)*

Based upon information and belief formed after a reasonable inquiry, I, as a responsible official of the above-mentioned facility, certify that the information contained in this notification is accurate and true to the best of my knowledge.

Name of Responsible Official: _____

Title of Responsible Official: _____

Signature

Date

III. TEST INFORMATION

1. **Check** the box that applies (§63.7(b)(2)):

G This is an initial notification of intent to conduct a performance test.

G My facility previously submitted a notification of intent to conduct a performance test; however, my facility isn't able to conduct the performance test at the previously scheduled time. Describe the circumstances that require you to change your scheduled performance test (optional): _____

2. **Complete** the following table for each affected source and type of control system that will undergo performance testing (§63.7(b)(1); 63.9(f)):

Source ID (optional)	Emission Point ID (if applicable) (optional)	Type of Control System (optional)	Control System ID (if applicable) (optional)	Type of Test (Initial or periodic)	Date Scheduled (mm/dd/yyyy)

3. **Have you** prepared a site-specific test plan for conducting the scheduled test that includes a test program summary, the test schedule, data quality objectives, and both an internal and external quality assurance (QA) program (§63.7(c)(2)(i))? [*Note: You do not need to submit the plan with this notification unless the Administrator has requested you to do so.*]

G Yes **G** No



Appendix C



4. If you have prepared a site-specific test plan, do your **data quality objectives** include your pre-test expectations of the precision, accuracy, and completeness of the data (§63.7(c)(2)(i))?
G Yes **G** No

5. If you have prepared a site-specific test plan, does your **internal QA program** include, at a minimum, the activities planned by routine operators and analysts to provide an assessment of test data precision (such as sampling and analysis of replicate samples) (§63.7(c)(2)(ii))?
G Yes **G** No

6. If you have prepared a site-specific test plan, does your **external QA program** include, at a minimum, plans for test method performance audits (PA) during the performance test? Audit activities include an opportunity for on-site evaluation by the Administrator of instrument calibration, data validation, sample logging, and documentation of quality control data and field maintenance activities (§63.7(c)(2)(iii)).
G Yes **G** No



Appendix C



Notification of Compliance Status Report

This is a sample notification form which you can use to comply with 40 CFR 63.1515(b). See <http://www.epa.gov/ttn/atw/alum2nd/alum2pg.html> for more information about the rule. You should complete a separate form for each plant at which secondary aluminum production takes place.

Applicable Rule: 40 CFR Part 63 Subpart RRR - National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production. Notification of compliance status is being made in accordance with §63.1515(b).

I. GENERAL INFORMATION

Print or type the following information for each plant that produces secondary aluminum:

Owner/Operator _____

Street Address _____

Mailing Address _____

Website (optional) _____

Plant Name _____

Plant Contact/Title _____

Plant Contact Phone Number (optional) _____

Plant Street Address _____

Plant Mailing Address _____

Plant Fax Number (optional) _____

Plant Email Address (optional) _____

Plant 4-digit Standard Industrial Classification (SIC) Code(s) (optional; for help see <http://www.osha.gov/oshstats/sicser.html>) _____

Plant UTM coordinates (optional; for help see <http://terraserver.homeadvisor.msn.com/>) _____

Plant Permit Number (optional) _____

II. COMPLIANCE INFORMATION

1. **Submit** documentation/analysis supporting your determination of source status (§63.9(h)(2)(i)(E)). My source is a (check one): **G**major source **G**area source



Appendix C



2. **List** each air pollution control device or method (§63.9(h)(2)(i)(F)):

Emission Point	Control Device or Method	HAP(s)* Controlled ¹				Control Efficiency(%)
		QSb QD/F QMn	QAs QHCl QHg	QCd QHF QNi	QCr QPb	
		QSb QD/F QMn	QAs QHCl QHg	QCd QHF QNi	QCr QPb	
		QSb QD/F QMn	QAs QHCl QHg	QCd QHF QNi	QCr QPb	
		QSb QD/F QMn	QAs QHCl QHg	QCd QHF QNi	QCr QPb	
		QSb QD/F QMn	QAs QHCl QHg	QCd QHF QNi	QCr QPb	

*HAP = Hazardous Air Pollutant

3. **Submit** a complete copy of your initial performance test report, which should include all dates, associated measurements, and calculations, including visible emissions and opacity tests (§63.1515(b)(1)). **List** the methods used and the results of the initial performance test (§63.9(h)(2)(i)(A),(B),(D)):

Emission Point	HAP tested	Test Method	Test result	Emission Limit

¹ Possible HAP emitted from Secondary Aluminum production facilities include: antimony (Sb) & compounds, arsenic (As) & compounds (inorganic), cadmium (Cd) & compounds, chromium (Cr) & compounds, dioxin/furans (D/F), hydrochloric acid (HCl), hydrogen fluoride (HF), lead (Pb) & compounds, manganese (Mn) & compounds, mercury (Hg) & compounds, and nickel (Ni) & compounds.



Appendix C



4. **List** methods that will be used to determine continuous compliance, along with the established operating range or value for each parameter to be monitored (§63.9(h)(2)(i)(C); §63.1515(b)(4)):

Emission Point	Parameter	Operating Cycle or Time Period	Continuous Compliance Method	Established Range/Value	
					Grange Gmax Gmin
					Grange Gmax Gmin
					Grange Gmax Gmin
					Grange Gmax Gmin

Describe the procedures used to establish the operating parameter (§63.1515(b)(4)): _____

Describe the monitoring and reporting requirements with which your facility must comply (§63.9(h)(2)(i)(C)): _____

5. **Submit** the following information, if applicable:

- G** For continuous monitoring systems: approved site-specific test plan and performance test evaluation results (§63.1515(b)(2))
- G** For units required to perform unit labeling: verification of unit labeling (§63.1515(b)(3))



Appendix C



- G** For capture/collection systems: design information and analysis, with supporting documentation, demonstrating conformance with requirements (§63.1515(b)(5))
- G** For bag leak detection systems: analysis and supporting documentation showing conformance with EPA guidance and specifications (§63.1515(b)(6))
- G** For afterburners used to control emissions from scrap dyers/delacquering kilns/decoating kilns subject to alternative emission standards: manufacturer’s specifications or analysis documenting a design residence time of no less than one (1) second (§63.1515(b)(7))
- G** For afterburners used to control emissions from sweat furnaces not subject to performance tests: manufacturer’s specifications of analysis documenting a design time of no less than 0.8 seconds² and a design operating temperature of no less than 1600°F (§63.1515(b)(8))

7. **Submit** your startup, shutdown, and malfunction (SSM) plan (§63.1515(b)(9)).
8. **Submit** your approved operating, maintenance, and monitoring (OM&M) plan (§63.1515(b)(10)).

III. CERTIFICATION *(Note: You may edit the text in this section as deemed appropriate)*

I **certify** that my _____(specify affected sources and emission units) is/are in compliance with each applicable requirement in §63.1500 through §63.1520, the Secondary Aluminum Production NESHAP. I certify that this report is true, accurate, and complete (§63.9(h)(2)(i)(G)).

Name of Responsible Official: _____

Title of Responsible Official: _____

Signature

Date

² This requirement was changed from 2 seconds to 0.8 seconds in rule amendments proposed on June 14, 2002 (67 FR 41125).



Appendix C



Excess Emissions/Summary Report

This is a sample notification form which you can use to comply with 40 CFR 63.1516(b). See <http://www.epa.gov/ttn/atw/alum2nd/alum2pg.html> for more information about the rule. You should complete a separate form for each plant at which secondary aluminum production takes place.

Applicable Rule: 40 CFR Part 63 Subpart RRR - National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production. This excess emissions/summary report is being submitted in accordance with §63.1516(b).

I. GENERAL INFORMATION

Print or type the following information for each plant that produces secondary aluminum:

Owner/Operator _____

Street Address _____

Mailing Address _____

Website (optional) _____

Plant Name _____

Plant Contact/Title _____

Plant Contact Phone Number (optional) _____

Plant Street Address _____

Plant Mailing Address _____

Plant Fax Number (optional) _____

Plant Email Address (optional) _____

Plant 4-digit Standard Industrial Classification (SIC) Code(s) (optional; for help see <http://www.osha.gov/oshstats/sicser.html>) _____

Plant UTM coordinates (optional; for help see <http://terraserver.homeadvisor.msn.com/>) _____

Plant Permit Number (optional) _____

II. EXCESS EMISSIONS AND CMS PERFORMANCE REPORT

A. Excess Emissions

1. Have any excess emissions or exceedances of a parameter occurred during this reporting period (§63.10(e)(3)(v))? **G** Yes **G** No [If no, go to section II.B.]



Appendix C



2. If you answered yes, **complete** Table 1 on the following page for each period of excess emissions and/or parameter monitoring exceedances that occurred during startups, shutdowns, and/or malfunctions of your affected source, or during periods other than startups, shutdowns, and/or malfunctions of your affected source (§63.10(c)(7)-(11)).



Appendix C



Table 1. Excess Emissions and Parameter Monitoring Exceedances.

Note: Use a separate line for each period of excess emissions and/or parameter monitoring exceedances of your affected source.

Nature of Event or Problem		Excess Emissions and/or Parameter Monitoring Exceedances Occurred:				Start Date (mm/dd/yyyy)	Completion Date (mm/dd/yyyy)	Nature and Cause of any Malfunction (if known)	Corrective Action Taken or Preventive Measures Adopted
Excess Emissions	Parameter Monitoring Exceedance	During Startup	During Shutdown	During Malfunction	During Another Period				

Table 2. Continuous Monitoring System Out-of-Control Periods, Repairs, and Adjustments.

Note: Use a separate line for each period of excess emissions and/or parameter monitoring exceedances of your affected source.

CMS Type	Manufacturer	Process ID Number	Start Date (mm/dd/yyyy)	Completion Date (mm/dd/yyyy)	Nature and Cause of Any Malfunction (if known)	Corrective Action Taken or Preventive Measures Adopted	Nature of the Repairs or Adjustments Made to the CMS that was Inoperative or Out of Control



Appendix C



B. CMS Performance

1. Has a continuous monitoring system (CMS) been inoperative (except for zero/low-level and high-level checks), out of control (as defined in §63.8(c)(7)(i)), repaired, or adjusted during this reporting period (§63.10(e)(3)(v))? **G** Yes **G** No [If no, go to section III.]
2. If you answered yes, **complete** Table 2 on the previous page for each period a CMS was out of control, repaired, or adjusted (§63.10(c)(5)-(6), (10)-(12); 63.8(c)(8)).
3. **Indicate** the total process operating time during the reporting period (§63.10(c)(13):
_____ days

III. SUMMARY REPORT - GASEOUS AND OPACITY EXCESS EMISSION AND CONTINUOUS MONITORING SYSTEM PERFORMANCE

1. **Indicate** the reporting period covered by this submittal and the date of this summary report (§63.10(e)(3)(vi)(C),(M)):

Reporting period beginning date: _____/_____/_____

Reporting period ending date: _____/_____/_____

Summary report date: _____/_____/_____
2. **Complete** the following process description and monitoring equipment information tables **for each affected source process unit** (§63.10(e)(3)(vi)(B),(D)-(H)):

Process Description

Total operating time of affected source during the reporting period (days)	
Process unit name	
Process unit description	
Emissions and/or operating parameter limitations specified in the relevant standard(s)	



Appendix C



Monitoring Equipment Information

Type	Latest Certification or Audit Date (mm/dd/yyyy)	Manufacturer	Model	HAPs Monitored

3. **Complete** the following emission data summary table for each affected source (§63.10(e)(3)(vi)(I)):

Total duration of excess emissions/parameter exceedances - opacity (min.)	
Total duration of excess emissions/parameter exceedances - gases (hours)	
Total operating time of affected source during the reporting periods (days)	
Percent of total source operating time during which excess emissions/parameter exceedances occurred (percent)	
Summary of causes of excess emissions/parameter exceedances (percent of total duration by cause)	
Startup/shutdown	%
Control equipment problems	%
Process problems	%
Other known causes	%
Other unknown causes	%
TOTAL	100%



Appendix C



4. **Complete** the following CMS performance summary table for each affected source (§63.10(e)(3)(vi)(J)):

Total duration of CMS downtime - opacity (min.)	
Total duration of CMS downtime - gases (hours)	
Total operating time of affected source during the reporting periods (days)	
Percent of total source operating time during which CMS were down (percent)	
Summary of causes of CMS downtime (percent of downtime by cause)	
Monitoring equipment malfunctions	%
Nonmonitoring equipment malfunctions	%
Quality assurance/quality control calibrations	%
Other known causes	%
Other unknown causes	%
TOTAL	100%

5. Have you made any changes in CMS, processes, or controls since the last reporting period (§63.10(e)(3)(vi)(K))? **G** Yes **G** No

If you answered yes, please describe the changes: _____

IV. CERTIFICATIONS (*Only include those certifications which apply to your facility*)

Only unpainted aluminum chips were used as feedstock in any thermal chip dryer during this reporting period.

Only dross was used as the charge material in any dross-only furnace during this reporting period.

Each furnace was operated such that the level of molten metal remained above the top of the passage between the sidewell and hearth during reactive fluxing, and reactive flux, except for cover flux, was added only to the sidewell or to a furnace hearth equipped with



Appendix C



an add-on air pollution control device for PM, HCl, and D/F emissions during this reporting period.

Each group 1 furnace without add-on air pollution control devices subject to emission limits in §63.1505(i)(2) processed only clean charge during this reporting period.

Only clean charge materials were processed in any group 2 furnace during this reporting period, and no fluxing was performed or all fluxing performed was conducted using only nonreactive, non-HAP-containing/non-HAP-generating fluxing gases or agents, except for cover fluxes, during this reporting period.

Only nonreactive, non-HAP-containing, non-HAP-generating flux gases, agents, or materials were used at any time during this reporting period.

Based upon information and belief formed after a reasonable inquiry, I, as a responsible official of the above-mentioned facility, certify that the information contained in this notification is accurate and true to the best of my knowledge. *(You may edit the text in this certification as deemed appropriate)*

Name of Responsible Official: _____

Title of Responsible Official: _____

Signature

Date

V. ATTACHMENTS

Submit with this report the results of any performance test conducted during the reporting period, including one complete report documenting test methods and procedures, process operation, and monitoring parameter ranges or values for each test method used for a particular type of emission point tested.



Appendix C



Annual Compliance Certification

This is a sample annual compliance certification that can be used to comply with 40 CFR 63.1516(c). See <http://www.epa.gov/ttn/atw/alum2nd/alum2pg.html> for more information. You should complete separate forms for each plant at which secondary aluminum production occurs.

Applicable Rule: 40 CFR Part 63 Subpart RRR - National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production. Annual compliance certification is being made in accordance with §63.1516(c).

I. GENERAL INFORMATION

Print or type the following information for each plant that produces secondary aluminum:

Owner/Operator _____

Street Address _____

Mailing Address _____

Website (optional) _____

Plant Name _____

Plant Contact/Title _____

Plant Contact Phone Number (optional) _____

Plant Street Address _____

Plant Mailing Address _____

Plant Fax Number (optional) _____

Plant Email Address (optional) _____

Plant 4-digit Standard Industrial Classification (SIC) Code(s) (optional; for help see <http://www.osha.gov/oshstats/sicser.html>) _____

Plant UTM coordinates (optional; for help see <http://terraserver.homeadvisor.msn.com/>) _____

Plant Permit Number (optional) _____



Appendix C



II. CERTIFICATION *(Note: You may edit the text in this section as deemed appropriate.)*

I certify that any period of excess emissions, as defined in §63.1516(b)(1), that occurred during the year were reported as required by 40 CFR Part 63 Subpart RRR and that all monitoring, reporting, and recordkeeping requirements were met during the year.

I **certify** that the _____ *(specify affected sources and emission units)* is/are in compliance with each applicable requirement in §63.1500 through §63.1520, the Secondary Aluminum Production NESHAP. For operations that are not in compliance, provide a written description of your non-compliant operations, including any corrective actions being taken.

Name of Responsible Official: _____

Title of Responsible Official: _____

Signature

Date



Appendix D



Appendix D – Sweat Furnace Requirements from the Secondary Aluminum Production Rule

	Requirement(s)	40CFR Section	Deadline/Frequency
Emission Standards	<ul style="list-style-type: none"> 0.80 ng D/F TEQ per dscm (3.5×10^{-10} gr/dscf) @ 11% O₂ 	§63.1505(f)	<u>Existing sources</u> : 3/24/03 <u>New sources</u> : 3/23/00 or upon startup, whichever is later
Operating Requirements	<ul style="list-style-type: none"> Operate in accordance w/OM&M plan If equipped w/add-on APCD: design & install emission capture & collection system in accordance w/<u>Industrial Ventilation: A Manual of Recommended Practice</u>; vent captured emissions through a closed system, except that dilution air may be added to control temperature at fabric filter inlet If equipped w/afterburner: Maintain average afterburner operating temperature for each 3-hour period at or above average operating temperature established during performance test or 1600°F if a performance test was not conducted & afterburner has design residence time of 0.8 seconds or greater & operating temperature of 1600°F or greater 	§63.1506(c), (h)	Compliance date
Testing Requirements	<ul style="list-style-type: none"> Submit notification of intent to conduct performance test Submit site-specific test plan Conduct performance test to measure D/F emissions at control device outlet; no performance test is required if afterburner has design residence time of 0.8 seconds or greater & operating temperature of 1600°F or greater If equipped w/afterburner: conduct performance evaluation of temperature monitoring device, measure & record average afterburner temperature for each 15-minute period during performance test Establish operating parameter values 	<ul style="list-style-type: none"> 63.1515(a)(6) 63.7(c)(2) 63.1512(f); 63.1511(b); 63.1511(e) 63.1512(m) 63.1511(g) 	<ul style="list-style-type: none"> 60 days before test 60 days before test <u>Existing sources</u>: by compl. date; <u>New sources</u>: by 90 days after compliance date; <u>Major sources</u>: every 5 years thereafter During performance test
Monitoring Requirements	<ul style="list-style-type: none"> If equipped w/add-on APCD: annually inspect all emission capture, collection, & transport systems to ensure that systems continue to operate in accordance w/standards If equipped w/afterburner: monitor avg. temperature for each 15-minute block; determine 3-hr block averages; conduct annual inspection 	§63.1510(d),(g)	Compliance date



Appendix D



	Requirement(s)	40CFR Section	Deadline/Frequency
Reporting Requirements	<ul style="list-style-type: none"> Initial notification Notification of anticipated date of perf. test Site-specific test plan OM&M plan Notification of compliance status report Excess emissions reports Annual compliance certification/summary report SSM reports Report of actions inconsistent w/SSM plan 	<ul style="list-style-type: none"> 63.9(b)(2) 63.1515(a)(6) 63.7(c)(2)(iv) 63.1510(b) 63.1515(b) 63.1516(b) 63.1516(b),(c) 63.10(d)(5)(i) 63.6(e)(3)(iv); 63.10(d)(5)(ii) 	<ul style="list-style-type: none"> 120 days after eff. date or startup 60 days before perf. test 60 days before perf. test <u>Existing sources</u>: by compliance date; <u>New sources</u>: by 90 days after performance test (or 90 days after compliance date if no test required) <u>Existing sources</u>: 60 days after compliance date; <u>New sources</u>: by 90 days after performance test (or 90 days after compliance date if no test required) Semi-annually, 60 days after cal. half Annually, with one of excess emissions reports 30 days after calendar half when a SSM occurred 2 working days after event (phone report) & 7 working days after event (letter report)



Appendix D



	Requirement(s)	40CFR Section	Deadline/Frequency
Recordkeeping Requirements	<ul style="list-style-type: none">• For afterburner: records of 15-minute average operating temperature, including any period when average temperature in any 3-hr block period falls below compliant operating parameter value with a brief explanation of cause & corrective action taken; records of annual inspection• For capture/collection systems: records of annual inspection• Copies of all notifications & reports & their supporting documentation• Records of occurrence & duration of each SSM or malfunction of operation of process & control equipment• Records of actions inconsistent w/SSM plan & actions consistent w/SSM plan• Records of measurements needed to demonstrate compliance• Records of performance test results• Records of any approved alternative monitoring or test procedure• SSM plan• OM&M plan	<ul style="list-style-type: none">• 63.1517(b)(2)• 63.1517(b)(14)• 63.1517(a)• 63.1516(a)• 63.1516(a)• 63.10(b)(2)(vii)• 63.10(b)(2)(vii)• 63.1517(b)(15)• 63.1517(b)(16)• 63.1517(b)(16)	Keep records for at least 5 years, may keep off-site after first 2 years; records must be accessible within 24 hours of request



Appendix E



Appendix E - Maine's OMM/SSM Plan

Introduction

The State of Maine has developed this sample Operation, Maintenance and Monitoring (OMM) Plan and Start-up, Shutdown, and Malfunction (SSM) Plan to assist owners and operators of sweat furnaces in meeting the OMM/SSM plan requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Secondary Aluminum Production. This plan was developed with the help of other states (Nebraska, South Carolina, Colorado, and Nevada), EPA and the Institute of Scrap Recycling Industries, Inc. It should cover what most state and local air permitting agencies will ask for in the submission of these plans. Owners and Operators should use this plan as a guide, making necessary changes so that it fits their process and equipment. This plan is for sweat furnace operations that have decided not to perform a stack test to determine compliance; i.e. operate an afterburner with the appropriate residence time and at the designated temperature. Sources that have performed a stack test may have different requirements not discussed in this plan.

The guide was based primarily on equipment manufactured by United Group Sweat furnaces and Johnson Burners. Feel free to contact your state/local air pollution control agency, Small Business Assistance Program or regional EPA office for additional assistance.



Appendix E



NESHAP for Secondary Aluminum Production Sweat Furnace OMM and SSM plan

Table of Contents

Plan approval and certification	E-3
Safety	E-4
Operating/Start-up/Shutdown Standard Operating Procedures	E-5
Emergency Shutdown	E-6
General Maintenance	E-6
Scheduled Maintenance	E-7
Monitoring	E-8
Standard Procedures to Take During SSM Events	E-8
Monitoring System Malfunctions	E-8
Catastrophic Event Such as Fire, Lightning, Weather or Other Acts of God	E-9
Malfunctions That Require Special Reporting	E-9
Malfunctions – Troubleshooting	E-9
Glossary/Abbreviation Table	E-13
References	E-15
Appendix 1	E-16
Appendix 2	E-17
Appendix 3	E-18



Appendix E



Plan approval and certification

Attached is our Operation, Maintenance and Monitoring Plan and our Start-up, Shutdown Malfunction Plan which fulfill the requirements of 40 CFR Part 63 Subpart RRR.

I CERTIFY THE INFORMATION CONTAINED IN THIS PLAN TO BE ACCURATE AND TRUE TO THE BEST OF MY KNOWLEDGE. I CERTIFY THAT THE OM&M PLAN SATISFIES ALL THE REQUIREMENTS OF 40 CFR 63.1510.

Print or type the name and title of the Responsible official for the plant

Name

Title

(Signature of Responsible Official)

(Date)

A responsible official can be:

- * The president, vice president, secretary, or treasurer of the company that owns the plant
- * The owner of the plant
- * The plant engineer or supervisor
- * The government official if the plant is owned by the federal, state, city, or county government; or a ranking military official if the plant is located on a military base.



Appendix E



Safety

Water

Operators need to be aware of certain situations, which may result in an unsafe working environment when smelting aluminum. One of these situations is when water is introduced to molten metal. When this occurs, the water expands so fast that an explosion can result. Therefore metal should be dry and free of water and ice before introducing it to the smelter. In addition, there should be no water in the molds or in the unit.

Lead

An unwanted contaminant in your finished aluminum. Lead will oxidize with the aluminum and maybe carried up the stack, which may result in a health hazard.

Magnesium

This metal should never be placed in your furnace, due to its extremely volatile nature. It ignites easily and burns to very high temperatures. This will lead to furnace damage, aluminum oxidation and contamination. If magnesium should happen to get into the furnace and ignite, it must be raked out with the iron residue. Be extremely careful not to come into contact with the burning magnesium and never put water on burning magnesium under any circumstances! Do not look at the burning metal. A simple test to check for magnesium is to apply vinegar to a broken or cut part of the metal. If it is magnesium, the vinegar will bubble. This reaction does not occur with aluminum.

Another test is to cut the surface of the metal with a sharp knife. The aluminum will cut easily and form a curl of metal. Magnesium will be brittle and snap and pop off in small pieces.

IF YOU ARE IN DOUBT AS TO WHETHER OR NOT THE METAL IS MAGNESIUM, DO NOT CHARGE IT INTO THE FURNACE.

Proper personal protection equipment (PPE) should be worn while smelting aluminum.

In addition to the above suggestions, many health and safety requirements can be found in state and federal Occupational Safety and Health Administration regulations (OSHA).



Appendix E



Operating/Start-up/Shutdown Standard Operating Procedures

Unit Start-up pre-start up checklist

1. Electrical supply status.
 2. Fuel supply off.
 3. Perform safety inspection of area – remove tripping hazards.
 4. Visually inspect furnace.
 5. Check fuel level in fuel tank(s).
 6. Ensure there is no standing water in unit, ingot holders, or in/on scrap metal.
 7. Sort metal avoiding metal with magnesium, zinc, or lead and use only dry metal.
- * SEE SAFETY SECTION CONCERNING HAZARDS OF MAGNESIUM AND LEAD

Start-up

1. Turn power supply on
2. Turn blower switch(s) “on” and ensure they are operating correctly
3. Open fuel valves to primary/holding chamber(s) and afterburner
4. Turn ignition switch on to start burners
5. If there is moisture in the primary chamber, run an hour before smelting to dry it out
6. Set to manufacturer’s recommended temperature for primary/holding chambers
7. Set afterburner temperature to 1600°F; afterburner must be started up before charging with scrap
8. After temperatures have stabilized, move charging table in place
9. Deposit aluminum onto table

Charging and Raking

1. Open charging door, watching out for flame flashback from burner
2. Charge aluminum, use rake to optimize melting
3. Continue to charge until the furnace requires raking. Rake ash onto holding bin
4. Repeat charging procedure if necessary

Pouring Metal

1. Operator must put on suitable full-coverage gear prior to pouring molten metal.
2. When chamber is full, prepare molds. Molds must be absolutely dry. Water exposed to molten metal will cause an explosion
3. Open chamber, remove dross, aluminum should be very fluid
4. Position empty mold beneath spout. Remove iron plug, install new cone on the plug. Pierce cone in tapping hole
5. Insert plug and cone into tap out block and seat securely when mold is full
6. Place new mold and repeat procedure as necessary



Appendix E



Shutdown

1. Make sure molten metal is drained and dross has been raked out.
2. When final load is removed; turn off all burners. Do not turn off blowers.
3. It is extremely important to keep burner blowers on until furnace has become sufficiently cool to avoid radiant heat damaging the burners. Turn off blowers once the primary/holding chamber and the afterburner temp is less than 800 °F
4. Turn off main power supply to unit. If unit is being utilized the next day, the procedure may be different.
5. For extended shutdown, cover and protect manual fuel valves

Emergency Shutdown

If an emergency shutdown is necessary such as in the loss of power, remove all metal from the unit (molten as well as dross). Operate blowers if possible to prevent heat damage.

General Maintenance

Refractory Repair

Due to the severe nature of the applications, refractory is subject to both thermal and physical shock leading to the need for refractory repair.

To extend refractory life, the interior of the furnace should be cleaned and inspected weekly during regular operations. If the unit is shutdown for an extended period, then it should be inspected monthly. When cracks appear to be more severe than normal or when physical shock results in damage, repairs should be made at once.

Repair Procedures – Patching

For cracks and small patch repairs, plastic refractory can be used. All foreign material must be removed. Old refractory must be torn back to a sound body. Patches should be keyed in to solid refractory.

Do not attempt to install frozen or dried-out plastic. Any dried-out plastic should be discarded. Frozen plastic must be thoroughly thawed out before use. Also, installed plastic must be protected from freezing until dried out.

Clean cracks or holes thoroughly, then coat surface of old refractory with thinned firebrick mortar using a paintbrush. Apply plastic refractory by tamping in into the cavity. Proper compaction of the material is essential. A pneumatic hammer, equipped with heads sized and shaped proportionate to the job at hand, will work well for this.

If work is stopped on a plastic installation, the exposed surface should be covered with plastic sheets or wet burlap sacks to prevent dry-out. On resumption of the installation, a layer of the



Appendix E



exposed surface should be trimmed off to expose workable material. Continue compacting the plastic into the cavity until the repaired surface is flush with the existing surface. Heat dryout should start within 48 hours after installation.

Repair – Pouring Castable

For larger repairs or replacement of cast refractory sections (e.g. floors, roofs, doors) the procedure to be used will be dictated by the type of castable. It is important to match the material being used for repair to the original type of castable.

Refer to the refractory manufacturer's recommendations when mixing castables. Install castables non-stop until job is complete. If anchors are involved in the repair, be sure they are properly installed prior to beginning the pour. After completion of the job, follow the instructions for the recommended curing and dry-out procedures.

Scheduled Maintenance

The following items are to be maintained on a regular basis:

Combustion air blowers

Blow dirt out of the fan wheels with an air hose monthly. If dirt builds up on the fan blades, first scrape clean, then blow air out.

Flame sensors

Safety switch with thermocouple sensor – replace thermocouple annually.

Electronic safety with flame rod – Clean rod with emery cloth monthly; replace if it is badly burned.

Electronic safety with ultraviolet sensors – Clean UV scanner lens monthly; replace sensor annually.

Oil burners

Check and clean burner nozzles every six months.

If system is equipped with a fuel filter, the filter cartridge should be replaced after the first two weeks of operations, and every six months following that.

The burner internals should be checked at the same time the nozzles are inspected, to be sure the spark electrodes and wires are in good condition and are not corroded. The internals should be cleaned and checked for leaks at that time. This would also be a good time to clean the blower.

The oil pump on the burner is direct driven by the blower motor through a flexible coupling. The coupling is a vital part of the oil system, and should be periodically inspected for wear, damage and loose components.



Appendix E



An annual burner inspection is required by the NESHAP for Secondary Aluminum Production. See Appendix 1 for a check sheet.

Monitoring

The parameter monitored to determine compliance is temperature. The temperature will be controlled so that it meets the required 1600°F 3-hour block average. Once the unit is operation and stable, the temperature will be controlled between _____ to _____. Temperatures outside this range will require corrective action or troubleshooting to determine why the temperature is outside this range. Temperature recorded and monitored prior to start-up of the unit.

The monitoring system consists of the following:

_____ *Temperature probe*
_____ *data logger (range includes zero and 1.5 times the average temperature).*

See picture of location of probe; probe is located at the exit of the combustion zone of the afterburner.

Temperature monitoring device records the temperature in 15 minute block averages (with a minimum of one cycle of operation per 15 minutes) and 3-hour block averages.

Data logger is uploaded into the PC every _____ day(s) or week(s)

Calibration

The temperature probe and unit is calibrated and accuracy is certified every 6 months per the manufacturer's instructions.

****Appendix 2 includes manufacturer's manuals on equipment which includes procedures for proper operation and maintenance of the temperature monitoring system.*

Standard Procedures to Take During SSM Events

1. Record events in the log sheet (Appendix 3) or in a logbook.
2. Determine what caused the malfunction.
3. Correct the malfunction.
4. If malfunction or correction was not covered by the plan, submit required special reporting as mentioned below.

Monitoring System Malfunctions

1. Confirm equipment status.
2. Identify the part that has failed.
3. Repair or correct the malfunction such as replace defective parts, reinstall software, etc.
4. If system cannot be repaired either monitor using a spare temperature meter or shutdown the unit as soon as practicable until it is repaired.



Appendix E



5. Record info on malfunction sheet (Appendix 3).
6. Record what was done on the malfunction form or in a logbook. If malfunction or correction was not covered by the plan, submit required special reporting as mentioned above.

Catastrophic Event Such as Fire, Lightning, Weather or Other Acts of God

1. Contact appropriate emergency personnel, if necessary, usually the fire department.
2. After emergency response is complete, ensure that the situation is now safe and no longer hazardous.
3. Determine the status of system.
4. Correct or repair the malfunction.
5. Shutdown as soon as practicable if failure cannot be repaired.
6. Record information on malfunction sheet.

Malfunctions That Require Special Reporting

1. A malfunction not covered by the OMM/SSM plan or actions taken are not consistent with the Plan must be reported to your local permitting agency by phone or fax within 2 working days. A written report must follow within 7 days.
2. If a temperature monitoring/data logging system malfunction is not covered by the OMM/SSM plan, it must be reported within 24 hours by phone or fax after the malfunction and followed up with a letter within 14 days.
3. The Plan must be revised to include malfunctions originally not covered by the Plan. Changes to the Plan must be made within 45 days of the malfunction. The revised plan must be included with the semi-annual report.

Malfunctions – Troubleshooting

These are manufacturer's recommendation on what maybe causing the failure or problem and what to check or do.

Note: Not all malfunctions are covered below. If not covered, we will refer to the owner's manuals for the malfunctions. (Appendix 2). If not listed in the manual, the manufacturer/vendor will be consulted.

Temperature too low

1. Too little fuel - adjust fuel flow.
2. Temperature control system (if equipped with one) is malfunctioning – determine cause of malfunction, such as a temperature probe malfunction, and repair or replace if possible. Do not operate the equipment with out being able to monitor and record the temperature.
3. Check Temperature monitoring system.

Flame detector failure

Burner won't light off- flame detector must be replaced.



Appendix E



Loss of fuel

1. Check fuel level.
2. Check for line break.

Loss of power

1. Check breakers to see if it is a localized problem, if it is repair/correct problem.
2. If it is not, initiate emergency shutdown of sweat furnace.

Opacity

Make sure burner is on and functioning properly (see burner section). Burner nozzles may need to be cleaned.

Burner malfunctions

Unit temperature control/burner system asking for unit to start up and reach a certain temperature, but burner will not start:

- Check to see if high limit control “locked out”.
- Check to see if low water cut-out “locked out”.
- Check to see if burner flame safeguard programmer “locked out”.
- Check to see if blower motor overload relay is tripped.
- Inspect blower motor circuit protection tripped.
- Inspect blower defective.

Burner starts but will not complete the pre-purge cycle

1. Blower air pressure switch not making.
2. Fuel pressure switch not making.
3. Auxiliary contact on blow starter open.
4. Auxiliary contact on oil pump start open (if used).
5. Defective flame safeguard programmer module.

Purge complete but ignition not attempted

Low fire start switch not making (if used).

Ignition attempted but unsuccessful (gas ignition systems)

1. On initial start-up, gas line maybe filled with air. Repeat ignition several times to purge.
2. Low pilot gas cock closed .
3. Pilot gas pressure insufficient.
4. Ignition transformer defective.
5. Pilot solenoid valve defection.
6. Ignition electrode insulator cracked or dirty.
7. Ignition electrode gap improperly set.



Appendix E



8. Incorrect flame scanner sighting.
9. Flame scanner defective.

Ignition attempted (direct spark oil systems)

1. Ignition electrode gap improperly set.
2. Ignition electrode insulator cracked or dirty.
3. Ignition electrode/oil nozzle gap incorrect.
4. Ignition transformer defective.
5. Low fire oil pressure incorrectly set.
6. Dirty or damaged oil nozzle(s).

Pilot established but main flame ignition is unsuccessful

1. Main fuel valve closed.
2. High fuel pressure switch tripping when main fuel valve opens.
3. Main gas control valve completely closed at low fire.
4. Improper fuel/air ratio at low fire.

Main flame established but burner shutdown then modulation to high fire

1. Improper fuel/air ration at mid firing range.
2. Insufficient gas pressure from main regulator.
3. Low fuel pressure switch set too high.
4. High limit control set too low or defective.

Burner remains at low fire with increasing load demand

1. Modulating controller set too low or defective.
2. Modulating motor defective.
3. Control system in “manual, low fire” mode.

Lack of flame retention when firing on oil

1. Dirty or damaged oil nozzle(s).
2. Fuel/air ratio is adjusted too fuel rich.

Creation of soot in furnace when firing on oil

1. Dirty or damaged oil nozzle.
2. Fuel/air ratio is set too fuel rich.
3. Spray angle of nozzle not correct for furnace.
4. Air adjustment band set too far back for the application.
5. Damaged air diffuser.



Appendix E



Low fire oil pressure can't be set low enough on modulating systems

1. Oil leakage past teflon seal.
2. Oil leakage past the O-ring seal in the supply/return isolating fitting on the drawer assembly.

Improper oil atomization

1. Dirty or damaged oil nozzle(s).
2. Oil leakage past teflon seal.
3. Oil leakage past the O-ring seal in the supply/return isolating fitting on the drawer assembly.

Improper fuel/air mixing and/or high CO firing on gas

1. Gas orifice damaged.
2. Premix barrier ring damaged.
3. Gas leakage through damaged gas manifold.
4. Fuel/air mixture is incorrect.

High CO firing on oil

Fuel/air mixture set too "lean".

High OC & HC on oil

Fuel/air mixture set too "rich".

Intermittent shut-downs when firing on oil

1. Oil coating on the flame scanner lens.
2. Flame scanner not properly sighting the flame.
3. Flame scanner is "weak".
4. Flame amplifier is defective.
5. Air infiltration in the oil.

Proper oil supply pressure can't be set high enough

1. Clogged oil filter.
2. "Weak" oil pump.
3. Air in oil.

Oil supply pressure varies & oil pump "screams"

Air in Oil



Appendix E



Glossary/Abbreviation Table

Afterburner – means an air pollution control device that uses controlled flame combustion to convert combustible materials to noncombustible gases.

CO – Carbon Monoxide

Cast- Any object made by pouring molten metal into molds

CFR – Code of Federal Register. Book which lists Federal Regulations.

MACT – Maximum Achievable Control Technology. Used interchangeably for the National Emission Standards for Hazardous Air Pollutants. These are regulations created to reduce emissions of hazardous air pollutants through the use of control technology.

Malfunction – means any sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment or a process to operate in a normal or usual manner. Failures that are caused by poor maintenance or careless operation are not malfunctions.

Mold - A form of cavity onto which molten metal is poured to produce a desired shape

OMM – operation, maintenance, and monitoring

Opacity – means the degree to which emissions reduce the transmission of light and obscure the view of an object in the background. In terms of smoke, the less you can see through smoke coming out of a stack the higher the opacity.

Owner or operator – mean any person who owns, leases, operates, controls or supervises a stationary source.

PC – personal computer

UV – ultraviolet. This has a wavelength shorter than visible light. Scanners detect ultra-violet light in flames

Residence time – for an afterburner, the duration of time required for gases to pass through the afterburner combustion zone.



Appendix E



Responsible Official -

A responsible official can be:

- * The president, vice president, secretary, or treasurer of the company that owns the plant
- * The owner of the plant
- * The plant engineer or supervisor
- * The government official if the plant is owned by the federal, state, city, or county government; or a ranking military official if the plant is located on a military base.

SSM – start-up, shutdown and malfunction

Sweat furnace – means a furnace that is used only to reclaim aluminum from scrap metal that contains aluminum and iron. Sweat furnaces reclaim aluminum by applying heat to the scrap to melt the aluminum but not so much heat that the iron melts.



Appendix E



References

- OMM/SSM plan submitted to DHEC by Mintz Scrap Iron
- OMM/SSM plan submitted to State of Colorado by Nichols Aluminum
- MAGTFTC/MCAGCC OMM plan
- Secondary Aluminum, MACT Control Device Malfunction Plan – Afterburner – EPA
- Plant ABC Malfunction Plan – EPA
- SSMP Guide - EPA
- Johnson Burner's owner's manual
- Part 63 General Provisions
- NESHAP for Secondary Aluminum Production



Appendix E



Appendix 1

Annual Afterburner Inspection Checklist

- G** Inspected all burners, pilot assemblies and pilot sensing devices for proper operation and clean pilot sensor
- G** Cleaned pilot sensor
- G** Inspected the combustion air for proper adjustments
- G** Inspected baffles and other internal structures to ensure structural integrity
- G** Inspected dampers, fans, and blower for proper operation
- G** Inspected for proper sealing
- G** Inspected motors for proper operation
- G** Inspected combustion chamber refractory lining; cleaned and replaced as necessary
- G** Inspected afterburner shell for corrosion and/or hot spots
- G** Afterburner is operating properly following this inspection and/or any adjustments resulting from this inspection

I verify that the equipment is in good operating condition and all the repairs were performed in accordance with the Operation, Maintenance and Monitoring plan.

Name of Owner/operator

Date



Appendix E



Appendix 2

Residence time calculation for unit
Manufacturers owner's manual
Burner manual
Monitoring system manuals



Appendix E



Appendix 3

SSM sample logsheet
SSM event reporting form
Routine Maintenance checklist



Appendix E



Logsheet to Record Start-up, Shutdowns and Malfunctions - Draft

Plant Name : _____

Address _____

Date	Start time	End Time	Total Time	Check if Normal		What Malfunctioned?		Describe abnormal start-up/shutdown and/or malfunction and what you did to correct it.	Followed SSM Plan	Initials
				Start-up	Shutdown	Equipment	Temp. monitoring system			
ex-8/1/2003	8:00 AM	5:00pm	9 hours	x	x				yes	LPH
ex-8/1/2003	1:00pm	2:00pm	1 hour			burner		burner motor failed; had spare on-site; replaced.	yes	LPH

Note: If start-up, shutdown or malfunction is not covered by the plan or what you did to fix the malfunction was different than your SSM plan you must fax or call to your local air permitting agency with-in 2 days following up with a letter within 7 days. If the continuous emission monitoring system malfunctioned and is not covered by your plan or what you did to fix it was not covered in your SSM plan, then you must fax or call your local air permitting agency with-in 24 hours following up with a letter within 14 days.

The above report maybe be used as your semi-annual SSM report to be sent in 30 days after the end of each calendar half (due July 30th and January 30th).

I CERTIFY THE INFORMATION ABOVE TO BE ACCURATE AND TRUE TO THE BEST OF MY KNOWLEDGE. ACTIONS TAKEN DURING SS&M EVENTS WERE CONSISTENT WITH THE SSM PLAN; Letters/forms explaining actions that were inconsistent with the plan are attached to this form. The plan has been revised to incorporate these events.

Name

Signature

Title

Date



Appendix E



Sample Start-up, Shutdown, & Malfunction Report Form - DRAFT

For reporting of procedures inconsistent with or malfunctions not covered by the Plan

Plant: _____
Address: _____

Malfunctioning device: _____

Date of Malfunction: _____

Time malfunction began (estimated): _____ Time malfunction ended: _____

Total duration of malfunction: (in hours & minutes) _____

Suspected cause of malfunction: _____

Corrective action(s) taken: _____

Were your actions consistent with the Malfunction Plan during the malfunction?
yes no

If your actions were not consistent with the Malfunction Plan during the malfunction, explain why you took other actions:

Do you believe that any excess emissions and/or parameter monitoring exceedances occurred during the malfunction? yes no

Which, if any, units were shut down because of malfunction: _____

Your name: _____ Title _____

Signature of Responsible Official: _____
Title: _____

Note: Fax or call this information into your local air permitting agency within 2 working days of the event and sent a letter within 7 working days of the event
If malfunction occurred on the temperature monitoring system then Fax or call this information in with-in 24 hours and follow-up with a letter with-in 14 days to your local permitting agency.



Appendix E



Sample Maintenance Checklist

Monthly									
Blow dirt out of fan wheels with air hose									
Check fan blades, if dirty; scrape clean, then blow out with air									
Clean electronic safety with flame rod - replace if badly burned									
Clean UV scanner lens monthly (electronic safety)									
Every 3 months									
Examine thermocouple protection tubes for erosion and pitting									
Replace tube before it burns out or if there is obvious damage									
Every 6 months									
Check and clean oil burner nozzles									
Replace fuel filter cartridge									
Check burner internals; inspect spark electrodes and wires									
Clean internals and check for leaks									
Clean blower									
Inspect oil system coupling									
through a flexible coupling									
Lubricate fan motors									
Annually									
Replace thermocouple									

Date and initial for each maintenance activity