Background Report Reference

AP-42 Section Number: 9.9.1

Background Report Section: 4

Reference Number: 66

Title: Letter from Brian L. Bursiek, Americana Feed Industry Association To Dallas Safriet, US EPA November 1, 1995

AFIA

AMERICAN FEED IND

AP-42 Section Reference 9.9.1
Report Sect. Reference 4/66

Post-it® Fax Note 7671 | Date
To Dallas Safriet | From BBurnett
Co./Dept. EPA | Co. AFIA
Phone # | Phone #
Fax # 919/541-0684 | Fax #

November 1, 1995

Dallas Safriet
Emissions Inventory Branch (MD-14)
Office of Air Quality Planning and Standards
U.S. Environmental Protection Agency
Research Triangle Park, NC 27711

RE: Draft AP-42 Section 9.9.1, Grain Elevators and Processes

AFIA appreciates the opportunity to comment on the AP-42 Draft Interim Emission Factors. In addition to the comments under this cover, I have also enclosed a copy of the comments submitted Monday, Oct. 30, 1995. I do not intend to reiterate those comments, but assume EPA will act to incorporate those into the final set of interim factors targeted for release Nov. 9, 1995.

DISCUSSION

Pg. 9.9.1-12, Animal Feed Mills

First paragraph, second sentence; Change scrap material to "by-products" and change meat scraps to "meat meal."

First paragraph, fifth line; Change Most mills pass feed ingredients, especially grains, through... to "Most mills pass selected feed ingredients, primarily grains, through..."

Second paragraph, first sentence; Insert the word "selected" between where and whole, to read; "...where selected whole..."

Third paragraph, last sentence; change to read; "...the meal is conditioned with steam prior to being pelleted."

Fourth paragraph, first sentence; change to read; "...the conditioned meal is forced through dies."

Pg. 9.9.1-13; Figure 9.9.1-8

There are "Potential PM/PM-10 Emission Sources" noted by a black dot. The palleting cyclone does not have a dot and should, as well as the bulk loadout above the truck.

Also, it is worth noting that many of the potential PM/PM-10 emission sources noted on the figure may be internal emissions. AFIA recommends EPA include in the description of the dot; "Potential PM/PM-10 Emission Sources. Some sources may be internal to the structure".

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Pg. 9.9.1-18

First paragraph; The paragraph mentions some fumigants that are no longer legal to use. AFIA recommends EPA reword the paragraph by not mentioning the fumigants EPA expects will not be emitted anyway.

Pg. 9.9.1-21

Third paragraph; This is an explanation of why all internal processes are being lumped into a single emission factor at an elevator. If an elevator does not have one of these operations, then it is being penalized by being required to use the total internal emission factor. Likewise, only a fraction of all grain may be handled by each system. In that regard, the facility calculated emissions should be reduce accordingly. AFIA recommends EPA keep the individual emission factors separate.

Pg. 9.9.1-23, Grain Processing Plants

Last paragraph, second sentence; Many feed mills operate a boiler for steam generation to condition pellet mash, heat liquid pipes, and provide comfort heat. AFIA recommends EPA insert the words "and boilers" between dryers and are, to read; "Natural gas-fired dryers and boilers are potential..."

AFIA suggest EPA add another paragraph to note the assumption using a 50% PM-10-to-TSP ratio for emissions from cyclones. It should be stated here, then the user will have reasoning to apply the assumption to cyclone exhausts for hammermills, flakers, and grain crackers. (On pg. 9.9.1-27, footnote "t" references pellet cyclones, but fails to mention its use on other system cyclones. In a phone conference with AFIA on Oct. 27, 1995, EPA acknowledged this assumption would be appropriate for all cyclones.)

Pg. 9.9.1-24, Table 9.9.1-3

The first category under Animal feed mills, the emission factors for Grain receiving and handling cites a reference "(h)", referring to Table 4-24. This interim document does not contain such a table. To ensure feed mills benefit from these interim emission factors for grain receiving, the "(h)" footnote on page 9.9.1-27 must be changed to read; "See applicable factors for elevators on page 9.9.1-19, Table 9.9.1-2."

Second category under Animal feed mills, Grain drying is a typo. Referencing back to the prior version of AP-42, this category use to be titled; Grain "Cleaning". AFIA recommends EPA make the change so the user will use the emission factor appropriately. In addition, as discussed during a phone conference with AFIA on Oct. 27, 1995, EPA agreed to use a 50% PM-10-to-TSP ratio for PM-10 emissions from cyclones. Values of 0.185 and 0.0415 should be inserted corresponding to oats and wheat respectively.

Third category under Animal feed mills, Grain milling, Hammermills, Cyclones; the PM-10 emission factor indicates ND. As discussed during a phone conference with AFIA on Oct. 27, 1995, EPA agreed to use a 50% PM-10-to-TSP ratio for PM-10 emissions from cyclones. A value of 0.06 should be inserted, and the statement; "PM-10 emissions assumed to be 50 percent of PM emissions," added to footnote "m".

Third category under Animal feed mills, Grain milling, Hammermills, Baghouse; the PM emission factor should be changed to average in the new data AFIA submitted to EPA on Oct. 23, 1995. Two data points; 0.0028 and 0.0013 lbs/ton (TSP) should be averaged with 0.022 lbs/ton (TSP) to produce the value of 0.0087 lbs/ton (TSP). This new number should replace the 0.022 value. And, as discussed during the phone conference with AFIA on Oct. 27, 1995, the 0.0087 lbs/ton value should also be used as the PM-10 emission factor, considering the belief that most emissions are comprised of PM-10 or smaller.

Third category under Animal feed mills, Grain milling, Flaker, Cyclone; the PM-10 emission factor indicates ND. As discussed during a phone conference with AFIA on Oct. 27, 1995, EPA agreed to use a 50% PM-10-to-TSP ratio for PM-10 emissions from cyclones. A value of 0.075 should be inserted, and the statement; "PM-10 emissions assumed to be 50 percent of PM emissions," added to footnote "q".

Third category under Animal feed mills, Grain milling, Grain cracker, Cyclone; the PM-10 emission factor indicates ND. As discussed during a phone conference with AFIA on Oct. 27, 1995, EPA agreed to use a 50% PM-10-to-TSP ratio for PM-10 emissions from cyclones. A value of 0.012 should be inserted, and the statement; "PM-10 emissions assumed to be 50 percent of PM emissions," added to footnote "q".

Fourth category under Animal feed mills, Pelletizing operations, Pellet coolers, Cyclones; should be modified as indicated in AFIA's letter to EPA dated Oct. 30, 1995 (copy enclosed).

CONCLUSION

AFIA appreciates the opportunity to comment on the AP-42 Draft Interim Emission Factors. AFIA understands EPA intends to finalize this interim document this week. In that regard, I will be traveling on business on Thursday and Friday, Nov. 2-3, 1995. I will plan to call you during one of those days to see if you have any questions. If I can not be reached and you need to discuss any of the issues raised in these comments or the comments submitted on Oct. 30, 1995 (copy enclosed), please call Mr. Paul Luther, Purina Mills, Inc., St. Louis, MO, Phone: 314/768-4630. He has worked closely with me in developing AFIA's comments and will be able to answer your questions.

Sincerely,

Brian L. Bursiek
Director, Feed Production
AFIA

cc Tom Lapp, MRI

Enclosure

AMERICAN FEED INDUSTRY ASSOCIATION

October 30, 1995

Dallas Safriet
Emissions Inventory Branch (MD-14)
Office of Air Quality Planning and Standards
U.S. Environmental Protection Agency
Research Triangle Park, NC 27711

RE: AP-42 Draft Interim Emission Factors -- Pelleting Cyclones

Dear Mr. Safriet:

AFIA appreciates the opportunity to comment on the AP-42 draft interim emission factors. I understand you will be sending AFIA a review copy today, and accepting comments through the end of this week.

AFIA has responded with comments in Dec. 1993, and again in Oct. 1994, as the agency has moved to finalize the 5th edition of AP-42. AFIA appreciates EPA's understanding in making the necessary improvements to bring the document in-line with today's manufacturing practices and technologies as relates to feed manufacturing facilities.

I will be out of the office on a business trip Thursday and Friday of this week, and due to EPA's tight time constraints, I am submitting these comments today. AFIA will review the draft interim emission factors when received tomorrow, but wanted to submit these recommendations now to give the agency ample time to review, ask questions, begin incorporating, and still meet the Nov. 9, 1995, release date.

PELLETING CYCLONES

As we discussed late Friday, AFIA has one additional recommendation to improve pelleting (cyclone) emission factors as relates to today's technologies. AFIA suggests the agency create two sub-categories as follows:

Emission Source	Control Type	PM	PM-10
Pelletizing Operations			
Pellet coolers	Cyclones:		
	High Efficiency	0.137	0.069
	Standard	0.433	0.217

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DISCUSSION

AFIA believes the data that exists in AP-42 is good data. Some testing was conducted several years ago, and some conducted recently. Within the feed industry, many facilities still operate older, less efficient cyclones, while many new or remodeled facilities operate newer, more efficient cyclones.

Cyclones constructed today are designed to be more efficient. Also, many high volume installations, if space permits, will install multiple cyclones operating in series in a single air stream serviced by a single fan. Such an arrangement is significantly more efficient than older installations of single cyclones.

Some new designs of more efficient cyclones do not even resemble the shape or "look" of older designs. Reduced emissions can result by either using single cyclones of notably higher efficiency, or by installing multiple cyclones in series. These arrangements are uniquely different in performance from older single cyclones, just as baghouses are notable different in performance from various cyclone designs and installations.

RECLASSIFYING EXISTING AP-42 EMISSION FACTORS

Recognizing the differences in cyclone designs and installations, AFIA reviewed the AP-42 pellet (cyclone) test data. A summary of the data is as follows:

Reference No.	TSP (lbs./ton)	Cyclone Type
4	0.833	Single
4	0.917	Single
4	0.044	Single
4	0.50	Single
4	0.28	Single
4	0.32	Single
4	0.49	Single
4	0.16	Triple*
18	1.21	Single
38	0.197	Single
41	0.037	Single
Wayne Farms (AFIA,10/23/95)	0.150	Triple*
Wayne Farms (AFIA,10/23/95)	0.100	Triple*
Hay & Grain (AFIA,10/23/95)	0.126	Single
Hay & Grain (AFIA,10/23/95)	0.236	Single

* There are three data points specifically corresponding to triple cyclone installations. Averaging results in a value of 0.137 lbs/ton (TSP), and 0.069 lbs/ton (PM-10) using a 50% PM-10-to-TSP ratio. This is the value used in the table on page 1.

The remaining 12 data points are older studies, specifically on single cyclones. **Averaging results in a value of 0.433 lbs/ton (TSP), and 0.217 lbs/ton (PM-10) using a 50% PM-10-to-TSP ratio.** This value is also reflected in the table on page 1.

Note: The third data point, 0.044 lbs/ton, on the table on page 2 is a corrected value. In comparing a summary of data from the Oct. 1993 draft to the May 1994 draft, it appears a typo occurred. The value was 0.044 lbs/ton, and was changed to 0.074 lbs/ton. See the three attached pages. AFIA recommends EPA make this correction before publishing the interim emission factors.

CONCLUSION

The above mentioned reclassification of existing AP-42 data will allow the user to choose which emission factor best represents his/her installation. Modern, high efficient cyclones, single or multiple installations, can be represented by the **High Efficiency** emission factor. Older, less efficient single cyclones can be represented by the **Standard** emission factor.

AFIA recommends EPA make the necessary changes to the draft interim emission factors to reflect this reorganization of pellet cyclone data. Along with the other changes that have been incorporated into the interim document, AFIA believes AP-42 has evolved into a document which can be very useful to industry and state permit authorities in assessing a facility's emission status.

AFIA is willing to visit with the agency regarding any of these comments. Please call me if you have questions.

Sincerely,

Brian L. Bursiek
Director, Feed Production
AFIA

TABLE 4-15. DATA USED TO DEVELOP FILTERABLE PM EMISSION FACTORS FOR GRAIN PROCESSING FACILITIES

Emission source	Type of control	Reference No.[a]	Average measured filterable PM emission factor[b] lb/ton	kg/Mg	Type of grain[c]	Data quality rating
Animal feed mills						
—Grain receiving and handling[e]	—	—	d	d	—	—
—Hammermills	Cyclone	38	0.121	0.0604	corn, wheat, soybeans	A
		41	0.01	0.005	corn	C
	Baghouse	37	0.022	0.011	oats, barley, alfalfa, corn	B
—Flaking	Cyclone	4	0.15	0.076	corn, barley	C
—Grain cracker	Cyclone	4	0.0242	0.0121	corn	C
—Pellet coolers	None	38	5.43	2.71	corn, wheat soybeans	A
		41	41	20	corn, wheat soybeans	C
		41	27	13	corn, wheat, cottonseed, soybeans	C
	Cyclones	4	0.833	0.416	NA	C
			0.917	0.458	NA	C
			0.044	0.022	mixed feed	C
			0.50	0.25	NA	C
			0.28	0.14	NA	C
			0.32	0.16	NA	C
			0.49	0.24	NA	C
		18	1.21	0.604	mixed feed	A
		38	0.197	0.0984	corn, wheat, soybeans	A
		41	0.036	0.018	corn, wheat, soybeans	C
			[illegible]	3.0	corn, wheat, cottonseed, soybeans	C
Carob kibble roaster	None	11 (continued)	6.0	3.0	carob	D
Wheat mills						
—Receiving[d]	None	26	0.77	0.38	wheat	C
		33	0.202	0.101	wheat	B
	Cyclones	26	0.0094	0.0047	wheat	C
	Baghouse	33	0.0002	0.0001	wheat	B
—Grain handling[d]	None	26	0.488	0.244	wheat	C
	Cyclones	26	0.011	0.0055	wheat	C
—Cleaning house separators	Cyclones	36	0.0087	0.0043	wheat	C
			0.016[g]	0.0080[g]	wheat	C
—Roller mill	None	38[f]	70	35	wheat	C

TABLE 4-18. DATA USED TO DEVELOP FILTERABLE PM EMISSION FACTORS FOR GRAIN PROCESSING FACILITIES

Emission source	Type of control	Reference No.[a]	Average measured filterable PM emission factor[b] lb/ton	kg/Mg	Type of grain[c]	Data quality rating
Animal feed mills						
—Grain receiving and handling[d]	—	—	d	d	—	—
—Grain cleaners	Cyclone	18	0.490	0.245	oats	A
			0.247	0.123	oats	A
			0.083	0.042	wheat	A
—Hammermills	Cyclones	38	0.121	0.0604	corn, wheat, soybeans	A
		41	0.01	0.005	corn	C
	Baghouse	37	0.022	0.011	oats, barley, alfalfa, corn	B
—Flaking	Cyclone	4	0.15	0.075	corn, barley	B
—Grain cracker	Cyclone	4	0.0242	0.0121	corn	C
—Pellet coolers	None	38	5.43	2.71	corn, wheat soybeans	A
		41	41	20	corn, wheat soybeans	B
	Cyclones	4	0.833	0.416	steer feed	B
			0.917	0.458	poultry feed	C
			0.074	0.037	mixed feed	C
			0.50	0.25	poultry feed	C
			0.28	0.14	poultry feed	C
			0.32	0.16	steer feed	C
			0.49	0.24	steer	C
			0.16	0.081	mixed feed	B
		18	1.21	0.604	mixed feed	A
		38	0.197	0.0984	corn, wheat, soybeans	A
		41	0.037	0.018	corn, wheat, soybeans	B
Carob kibble roaster	None	11	6.0	3.0	carob	D
		(continued)				
Wheat mills						
—Receiving[d]	None	26	0.77	0.38	wheat	C
		33	0.202	0.101	wheat	B
	Cyclones	26	0.0094	0.0047	wheat	C
	Baghouse	33	0.0002	0.0001	wheat	B
—Grain handling[d]	None	26	0.488	0.244	wheat	C
	Cyclones	26	0.011	0.0055	wheat	C
—Cleaning house separators	Cyclones	36	0.0087	0.0043	wheat	C
			0.016[e]	0.0080[e]	wheat	C
—Roller mill	None	36[f]	70	35	wheat	C

May 94 ? Typo?

COMPANY NAME: RALSTON PURINA COMPANY MILL 2

SOURCE IDENTIFICATION: Pellet Mill

SOURCE TEST FOR: Particulates

PROCESS WEIGHT RATE: 10 Tons/hr Mixed Feed

DATE:

May '94 Appendix

RUN	(STACK) OUTLET	SCF	ACFM	SCFM	%H2O	TEMP, °F	% ISOKINETIC	GRAINS/SCF	EMISSIONS, LBS/HR.
1		28.01	17830.62	16436.65	2.65	100	94.37	.0023	.3240
2		28.35	18,054	16832.07	3.25	90	93.20	.0044	.6281
3		29.13	17971.38	16938.85	2.86	86	95.11	.0025	.3691

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AVG. PARTICULATE EMISSIONS: .4404 lbs./hr.

0.4404 / 10 = 0.044

ALLOWABLE EMISSIONS: 14.97 lbs./hr.

STANDARD CONDITIONS: Dry, 70°F., 29.92 in. Hg

ALLOWABLE EMISSIONS BASED ON CHAPTER 17-2.04 of THE STATE OF