NORA/OMB MEETING – May 31, 2012

Objective – Obtain confirmation in the final Non-Hazardous Secondary Materials ("NHSM") rule that, for purposes of meeting the legitimacy criterion requiring alternative fuels to contain contaminants at levels comparable to or lower than traditional fuels, off-specification used oil fuel can be compared to any traditional fuel, including solid or liquid traditional fuels, that can be burned in the same unit that burns off-specification used oil fuel.

DISCUSSION

1. The NHSM rule authorizes NHSM burned for energy recovery to qualify as a non-waste fuel if, among other things, the rule's legitimacy criteria are met. This preserves the ability for non-waste fuels to be burned for energy recovery in boilers (and other industrial devices), as opposed to having to be incinerated in commercial and industrial solid waste incinerators ("CISWIs").

2. A key legitimacy criterion, as proposed by EPA in its revisions to the NHSM rule, is that the NHSM fuel "contain contaminants . . . at levels comparable in concentration to or lower than those in traditional fuel(s) which the combustion unit is designed to burn. *In determining which traditional fuel(s) a unit is designed to burn, persons can choose a traditional fuel that can be or is burned in the particular type of boiler, whether or not the combustion unit is permitted to burn that traditional fuel.*" 76 Fed. Reg. 80452, 80530 (Dec. 23, 2011) (emphasis added).

The preamble to the proposal reiterates that "data for any traditional fuel the unit can burn or does burn may be used for these comparisons, whether or not the unit's air permit lists the traditional fuel." 76 Fed. Reg. at 80480-81.

3. Traditional fuels include, for example, coal, coke, natural gas, and oil.

4. Off-specification used oil fuel currently is burned for energy recovery in many industrial devices (*e.g.*, cement kilns, steel mills, utility boilers) that can burn both solid and liquid traditional fuels, including coal. These industrial devices are not permitted as CISWIs.

5. NORA seeks confirmation in the final NHSM rule that, in making the demonstration that off-specification used oil fuel meets the comparable contaminant legitimacy criterion, the used oil fuel can be compared to any traditional fuel that the unit in question can burn, including coal if the unit can burn coal. This position is consistent with the plain language of the proposed regulatory text and accompanying preamble text.

6. This also makes environmental sense – if a NHSM fuel must be compared to a traditional fuel for purposes of the comparable contaminant legitimacy criterion, it makes no difference from an environmental perspective whether the traditional fuel exists in a solid or liquid state, as long as the combustion unit can burn the traditional fuel.

7. Any other result would not make sense, have adverse environmental impacts and significantly harm the used oil recycling market. Nonetheless, while not stated expressly in the proposed regulatory revision, EPA appears to take the position that it intends to impose a "solid to solid" and "liquid to liquid" restriction on persons when evaluating whether a NHSM fuel meets the comparable contamination legitimacy criterion. *See* 76 Fed. Reg. at 80481. In other words, notwithstanding that a particular boiler or cement kiln can burn both solid and liquid traditional fuels, a person would be prohibited from comparing a liquid NHSM fuel (*e.g.* off-spec used oil fuel) to the solid traditional fuel (*e.g.*, coal or coke) that can be burned in the boiler or cement kiln for purposes of demonstrating that the liquid NHSM fuel meets the comparable contaminant legitimacy criterion.

8. Such a position would produce an illogical result. Consider the following example:

- NHSM alternative liquid Fuel A has lower contaminants than a traditional solid fuel and meets all the other legitimacy criteria. Both alternative liquid Fuel A and the traditional solid fuel can be burned in non-CISWI unit No. 1 (*e.g.*, a cement kiln).

- NHSM alternative Fuels B, C & D, are solids that have levels of contaminants comparable to a traditional solid fuel and also meet the other legitimacy criteria. Alternative Fuels B, C & D also can be burned in non-CISWI unit No. 1.

- Alternative Fuels B, C & D contain higher levels of contaminants than Alternative Fuel A.

- If there is a prohibition on comparing liquid Alternative Fuels to solid traditional fuels, Alternative Fuel A in the above example, which is lower in contaminants than Alternative Fuels B, C & D, could not be burned in non-CISWI unit No. 1, but would have to be incinerated in a CISWI unit, while Alternative Fuels B, C & D with higher contaminant levels could be burned in non-CISWI unit No. 1 for energy recovery.

9. The above result would lack any environmental justification and would be environmentally counter-productive. An otherwise legitimate alternative NHSM fuel would have to be incinerated in a CISWI unit while alternative NHSM fuels with higher concentrations of contaminants would not be regulated as solid wastes and could be burned for energy recovery in a non-CISWI unit.

10. As explained in NORA's earlier comments, such a result also would have a significant adverse impact on the used oil recycling market. Because the industrial devices that burn off-specification used oil fuel for energy recovery are non-CISWI units – *e.g.*, cement kilns, steel mills and utility boilers – a major market for legitimately and effectively burning off-specification used oil fuel for energy recovery would be eliminated. In addition, eliminating this recycling market also would effectively eliminate Do-It-Yourself ("DIY") used oil collection programs across the country.

TABLE 8—COMPOUNDS CONSIDERED CONTAMINANTS—WITH GROUP INFORMATION [26]—Continued

127	Phosphine				
128	Phthalic anhydride		SVOC		
129	* Polychlorinated biphenyls (PCBs) [34]	Consider PCBs as a Distinct Group.			
130	* Polycyclic Organic Matter (or Total PAH) [35]	Consider Total PAH as a Distinct Group			
131	1, 3-Propane sultone	VOC.			
132	β-Propiolactone	VOC.			
133	Propionaldehyde	VOC.			
134	Propoxur (Baygon)		SVOC		Nitrogenated.
135	Propylene dichloride (1, 2-dichloropropane)	VOC		Org. Halogen.	
136	Propylene oxide	VOC.			
137	1, 2-Propylenimine (2-methyl aziridine)	VOC			Nitrogenated.
138	Quinoline		SVOC		Nitrogenated.
139	Quinone		SVOC.		
140	* Radionuclides (including radon).[36]				
141	Styrene	VOC.			
142	Styrene oxide	VOC.			
143	* 2, 3, 7, 8-Tetrachlorodibenzo-p-dioxin & other dioxins [37]	Consider Dioxins/Furans as a Distinct Group.			
144	1, 2, 2, 2-Tetrachloroethane	VOC		Org. Halogen.	
145	Tetrachloroethylene (perchloroethylene)	VOC		Org. Halogen.	
146	Toluene	VOC.			
147	2, 4-Toluene diamine		SVOC		Nitrogenated.
148	2, 4-Toluene diisocyanate		SVOC		Nitrogenated.
149	o-Toluidine		SVOC		Nitrogenated.
150	Toxaphene (chlorinated camphenes)		SVOC	Org. Halogen.	
151	1, 2, 4-Trichlorobenzene	VOC		Org. Halogen.	
152	1, 1, 2-Trichloroethane	VOC		Org. Halogen.	
153	Trichloroethylene (TCE)	VOC		Org. Halogen.	
154	2, 4, 5-Trichlorophenol		SVOC	Org. Halogen.	
155	2, 4, 6-Trichlorophenol		SVOC	Org. Halogen.	
156	Triethylamine	VOC			Nitrogenated.
157	Trifluralin		SVOC	Org. Halogen	Nitrogenated.
158	2, 2, 4-Trimethylpentane	VOC.			
159	Vinyl acetate	VOC.			
160	Vinyl bromide	VOC		Org. Halogen.	
161	Vinyl chloride	VOC		Org. Halogen.	
162	Vinylidene chloride (1, 1-dichloroethylene)	VOC		Org. Halogen.	
163	* Xylenes [38]	VOC.			

[26] Spicer, Chester W. *et al.*, Hazardous Air Pollutant Handbook, Lewis, Boca Raton, FL, 2002, pg. 23–53.

[27] Volatile organic compounds (VOC) are identified here as organic compounds with a vapor pressure greater than 0.1 mm Hg at 25 °C.

[28] Semi-volatile organic compounds (SVOC) are identified here as organic compounds with a vapor pressure between 10^{-7} and 0.1 mm Hg at 25 °C.

[29] Organic halogens are identified here as any compound that contains both carbon and a halogen (chlorine, bromine, fluorine, or iodine).

[30] Cresols are a group that includes three compounds.

[31] Cyanide compounds are a group that includes hydrogen cyanide, propionitrile, cyanogens, and a number of possible particle phase compounds.

[32] Dibenzofurans are a group that includes 135 polychlorinated dibenzofurans (PCDFs).

[33] Glycol ethers are a group that includes roughly 30 compounds.

[34] PCBs are a group that includes 209 congeners.

[35] Polycyclic Organic Matter (POM) is a group that theoretically may include millions of compounds. Only 100 or so, however, have been identified and studied.

[36] Radionuclides are a group that includes uranium, radon, and radium isotopes.

[37] Dioxins are a group that includes 75 polychlorinated dibenzo dioxins (PCDDs).

Tables 7 and 8 do not include the 17 compounds specifically removed from the proposed regulatory definition of contaminants in § 241.2. As discussed in section II.D.1., HCl, Cl_2, HF), NO_X, and SO_2 are excluded from Table 8 and replaced by the elements chlorine, fluorine, nitrogen and sulfur in Table 7. This is necessary because of differences between NHSMs prior to combustion and the emissions that will result from that combustion. NHSMs prior to combustion are not expected to contain the CAA 112/129 pollutants HCl, Cl_2, HF, NO_X or SO_2, and measuring forms of their precursors (the elements chlorine, fluorine, nitrogen and sulfur) is the only way to account for these pollutants prior to combustion.

In addition, fine mineral fibers, PM, and coke oven emissions are excluded because they are unlikely to exist in NHSMs prior to combustion. Diazomethane, white phosphorus and titanium tetrachloride are also excluded because their reactivity makes their presence in NHSMs very unlikely.[39] Finally, the three cresol isomers are included in Table 8 under cresols/cresylic acid, itself a listed HAP; and similarly, the three xylene isomers are included in Table 8 under xylenes, also a listed HAP.

[38] Xylenes are a group that includes three compounds.

b. What does "designed to burn" mean?

To meet the contaminant legitimacy criterion, persons must compare contaminants in the NHSM they wish to burn to contaminants in the traditional fuel the unit is "designed to burn." [40] Today's proposal codifies that data for any traditional fuel the unit can burn or does burn may be used for these comparisons, whether or not the unit's

[39] Spicer, Chester W. *et al.*, Hazardous Air Pollutant Handbook, Lewis, Boca Raton, FL, 2002, pp 11–21.

[40] As explained in Section II.D.2.a, today's proposed rule makes it clear that "contaminants" may be an individual contaminant or group of contaminants.

air permit lists the traditional fuel. The reason such comparisons to traditional fuel(s) are conducted is to assist in making a determination of whether or not the NHSM is being discarded, which makes differentiating between "can burn" and "does burn" irrelevant. Please note that for a unit to be able to burn a traditional fuel, it needs an appropriate feed mechanism (*e.g.*, a way to load solid fuel of a particular size into the unit). The unit would also need the ability to adjust physical parameters to ensure spatial mixing and flame stability per unit specifications.

Traditional fuels are defined in § 241.2 as follows: "*Traditional fuels* means materials that are produced as fuels and are unused products that have not been discarded and therefore, are not solid wastes, including: (1) fuels that have been historically managed as valuable fuel products rather than being managed as waste materials, including fossil fuels (*e.g.*, coal, oil and natural gas), their derivatives (*e.g.*, petroleum coke, bituminous coke, coal tar oil, refinery gas, synthetic fuel, heavy recycle, asphalts, blast furnace gas, recovered gaseous butane, and coke oven gas) and cellulosic biomass (virgin wood); and (2) alternative fuels developed from virgin materials that can now be used as fuel products, including used oil which meets the specifications outlined in 40 CFR 279.11, currently mined coal refuse that previously had not been usable as coal, and clean cellulosic biomass. These fuels are not secondary materials or solid wastes unless discarded."

Because most combustion units can burn different—but related—traditional fuels, broad groups of similar traditional fuels may be used when comparing contaminants. The most common traditional fuel categories burned at major source boilers are coal, wood, oil and natural gas, as evidenced by data submitted to the EPA's OAQPS.[41] [42]

To further clarify the impact of the new proposed "designed to burn" language on contaminant comparisons, potential categories for coal, wood and oil are described below. A coal group could include data on anthracite, lignite, bituminous and sub-bituminous coal. A wood or biomass group could include data on unadulterated lumber, timber, bark, biomass and hogged fuel. An oil group could include data on fuel oils 1–6, diesel fuel, kerosene and other petroleum based oils.[43] [44] In cases where a unit can burn traditional fuels from several categories, such as a boiler that can burn either coal or biomass, contaminant comparisons could be made using data from either fuel category at the combustor's discretion. In other words, if a facility burns biomass in its combustion unit, but that same combustion unit could also burn coal, the facility could compare its secondary material to either traditional fuel.

Some fossil fuel derivatives (*e.g.*, petroleum coke, coal tar oil) and alternative fuels (*e.g.*, clean cellulosic biomass) are defined as traditional fuels and, therefore, do not need to meet the legitimacy criteria to be burned. The EPA lacks sufficient contaminant data, however, to assist those wishing to compare NHSM to these traditional fuels. In addition, other units currently exist that burn only NHSMs. Both situations raise the question of what traditional fuel(s) to use for contaminant comparisons. In addition to being able to burn derivative fuels, alternative fuels, or NHSM, most combustion units can also burn other traditional fuel(s). In such cases, it is appropriate to make the comparison to one of the traditional fuel categories discussed above: either coal or wood for solids or oil for liquids. For example, if a combustion unit only burns a solid form of NHSM, the combustor could compare contaminants in the NHSM against either coal or wood in order to demonstrate compliance with the contaminant legitimacy criterion, provided the combustion unit is designed to burn such solid forms of fuel.

c. What contaminant comparisons are allowed?

Regardless of the specific methodology chosen, a comparison will have to be made for each contaminant or group of contaminants between a traditional fuel or group of traditional fuels and the NHSM. Generators or combustors can use either traditional fuel data collected by the EPA or their own data for traditional fuel comparison values.[45] Generators or combustors are responsible, however, for either providing NHSM comparison values in cases where testing is required or documenting why testing is unnecessary. Examples of acceptable NHSM data could include both laboratory test results from a specific generator or combustor and industry-recognized values provided by a national trade organization.

Given data for a particular traditional fuel, it makes intuitive sense to base the traditional fuel comparison value on the upper end of its statistical range. Anything less could result in "traditional fuel" samples being considered solid waste if burned in the very combustion units designed to burn them—not the Agency's intent in either the 2011 NHSM final rule or today's proposed rule.[46] Given that selection, acceptable NHSM comparison values would include the upper end of a statistical range, a calculation involving the mean and standard deviation, or perhaps a single data point in situations where data are limited. It would not be appropriate to compare an average NHSM contaminant value to the high end of a traditional fuel range, as the existence of an average implies multiple data points from which a more suitable statistic (*e.g.*, range or standard deviation) could have been calculated.

If each NHSM comparison value is comparable to or lower than its corresponding traditional fuel value, the material would be considered to meet the contaminant legitimacy criterion. An initial assessment would not generally need to be repeated, provided the facility continues to operate in the same manner and use the same type of NHSMs as when the original assessment was made.

We would finally note that despite presenting several approaches for calculating NHSM comparison values, such as the upper end of a statistical range or a calculation involving the mean and standard deviation, today's preamble discussion does not preclude other reasonable methodologies. In the context of an inspection or enforcement action, the Agency will evaluate the appropriateness of alternative methodologies and data sources on a case-by-case basis when determining

[41] EPA, Office of Air Quality Planning and Standards (OAQPS), Emissions Database for Boilers and Process Heaters Containing Stack Test, CEM & Fuel Analysis Data Reported Under ICR No. 2286.01 and ICR No. 2286.03 (Version 6). February 2011. *http://www.epa.gov/ttn/atw/boiler/boilerpg.html#TECH.*

[42] The fuel analysis information in this OAQPS database is one example of a "national survey" of traditional fuel information, as referenced in the proposed contaminant legitimacy criterion at § 241.3(d)(1)(iii).

[43] We do not believe that the oil group should include unrefined crude oil or gasoline, as neither is typically burned in combustion units subject to the CAA sections 112 or 129 standards.

[44] Used oil is a special case and does not need to undergo the contaminant comparison. If it meets the specifications in 40 CFR Part 279.11, it is a traditional fuel. If it does not meet the specifications (*i.e.*, it is "off-spec" oil), it is a solid waste under the 2011 NHSM final rule.

[45] The EPA has collected current information on levels of contaminants in traditional fuels, which can be found at *http://www.epa.gov/epawaste/nonhaz/define/index* and used by the regulated community as they so choose. The EPA will update this information as appropriate.

[46] Traditional fuels, as defined in § 241.2, are not required to meet the legitimacy criteria, and this scenario is only used to explain the logic behind basing a traditional fuel comparison value on the upper end of a statistical range.