EASTERN RESEARCH GROUP, INC.

M E M O R A N D U M

TO: Jim Eddinger, U.S. Environmental Protection Agency/CG

FROM: Ruth Mead, Eastern Research Group

DATE: November 14, 1997

SUBJECT: Final Summary of October 14, 1997, ICCR Solid Waste Definition Subgroup Meeting

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1.0 INTRODUCTION AND PURPOSE OF MEETING

The third meeting of the Solid Waste Definition Subgroup was held on October 14, 1997, in Washington, DC. Attendees are listed in attachment 1. The goal of the subgroup is to make recommendations to the ICCR Coordinating Committee on the definition of non-hazardous solid waste for purposes of Section 129 of the Clean Air Act. At a previous meeting the subgroup developed draft definition language which specified that fuels burned to recover energy are not solid wastes. The agenda for this meeting included:

- review Federal Energy Regulatory Commission (FERC) waste definition;
- develop draft fuel definition (list of fuels and criteria);
- test draft fuel definition to see if it works for a range of materials; and
- wrap up, review flash minutes, and plan for next meeting.

2.0 DISCUSSION

The discussion is organized according to the following topics:

- discussion of FERC definition of waste;

- draft definition of fuels including (1) list of fuels, (2) benchmark fuels, and (3) fuel criteria; and

- review of draft solid waste definition language and points of consensus.

2.1 FERC definition of waste

At the previous meeting, Marv Schorr was asked to provide the Department of Energy (DOE) and FERC definition of waste fuel. The definition distributed by Mr. Schorr before the meeting is contained in attachment 2. Mr. Schorr explained that the context of the definition was to distinguish waste fuels from commercial fuels to encourage burning of non-fossil fuels. Small power production facilities can qualify for benefits if they get 75 percent or more of their energy input from biomass, waste, renewable resources, or geothermal resources and 25 percent or less from fossil fuels. The FERC definition of waste includes a market value criterion, and a list of approved waste fuels with a maximum Btu value specific to the waste. The general rationale was that if the Btu value was too high, or if there was a high market value for a material, it would be a commercial fuel rather than a waste fuel. FERC can add to or remove materials from the list of wastes.

A member noted that the FERC biomass definition seems broad and simple. Mr. Schorr replied that the purpose was solely to distinguish biomass from fossil fuel, so the definition did not need to be very specific.

A subgroup member commented that in the context of the FERC definition, being classified as a “waste” was positive because it allowed a small power generator to qualify for benefits. The program was developed during the energy crisis to reduce consumption of fossil fuels and encourage use of previously discarded materials as alternative fuels. The FERC definition does not address the environmental aspects of waste or fuel combustion in any way.

A member asked if there were any materials proposed to FERC as being wastes that were denied. Mr. Schorr replied that any materials that were denied were determined to be commercial fuels rather than wastes. The purpose was really to distinguish waste fuels from commercial fuels, not to distinguish wastes from fuels.

Subgroup members generally agreed that the FERC definition was developed in a different context than section 129 and does not set a precedent for the section 129 definition of solid waste.

2.2 Draft definition of fuels

Jim Eddinger and Jan Connery reviewed the ending point of the previous meeting and a procedure for developing a draft definition. At the previous meeting, there was general concurrence on a conceptual draft definition that "solid waste is sludge, garbage, refuse, and any discarded material that is burned. Fuels burned to recover energy are fuels and not solid wastes". The group had been asked to provide input on a list of materials that may be fuels and to suggest criteria for fuels prior to today's meeting. Mr. Eddinger suggested that the following four steps for today's meeting:

1. List obvious fuels.
2. Select benchmark fuels.
3. Develop criteria for [comparable] fuels, based on the benchmark fuels.
4. List materials that meet these criteria.

Some members felt that the word "comparable" is not needed in context of the criteria. The use of "comparable" could imply that, as under RCRA part 261, a material is first classified as a waste and then exempted as being comparable to a fuel. To avoid the stigma of being considered a "waste", several members would prefer that any material that meets specified fuel criteria be considered a fuel. With this qualification, subgroup members agreed to proceed with the four steps.

2.2.1 List of fuels. The subgroup discussed materials that are considered to be fuels. The subgroup reached consensus that the following materials are fuels:

- hydrogen
- natural gas

- propane
- wood materials with natural levels of halogens, except railroad ties and pressure-treated wood
- bagasse
- fuel oils #1 through 6, diesel, gasoline
- gas from permitted coal gasification facilities

Regarding gas from coal gasification facilities, there was discussion that the fuel determination applied to the gas product from permitted facilities. Members stated that there have been environmental problems with the residuals from the old “town gas” or “city gas” production process.

The subgroup discussed the following materials, but did not reach a consensus:

- “biomass” in general
- the broad term “fossil fuels”
- culm and gob

These will be further discussed at the next meeting.

With regard to biomass, some subgroup members felt they would need to see a specific definition or list of materials before determining whether these materials were fuels or wastes. An environmental representative said information on the constituents would be needed, and was concerned that there could be high emissions from combusting some materials.

Jeff Shumaker volunteered to develop a list and/or draft definition of biomass materials before the next meeting. He asked subgroup members to send him lists of biomass materials they consider to be fuels.

Similarly, some members felt that the term “fossil fuel” is vague and could be interpreted in many different ways. The broad term could be interpreted to include some materials that some members consider to be wastes. This topic will be discussed further at the next meeting.

With regard to coal refuse (anthracite culm and bituminous gob), an environmental representative was not comfortable with considering these materials to be fuels because they have obviously been discarded in piles as a waste and because they have a low Btu value and high emissions of sulfur and other pollutants. A representative of sources that combust fuels and wastes noted that the culm and gob were discarded because of the high amount of rock, not because of high sulfur content. He stated that the processes have been developed to burn these materials cleanly and to efficiently recover energy. Also, historically the materials were used as a fuel for home heating and other applications. Another member stated that the section 112 or 129 regulations will include stringent emission limits so pollutant levels should not be a concern in classifying materials as wastes or fuels.

Environmental representatives stated that section 129 requires: regulation of small sources, dioxin emission limits, on-going testing and monitoring, and operator training and siting requirements. Thus, they are hesitant to remove materials from coverage under section 129. Others pointed out that at the last meeting, EPA stated that the same types of provisions could be included in regulations developed under section 112. An EPA representative passed out a handout on regulation of small sources under section 112 (attachment 3). The environmental representatives were concerned that under section 112, inclusion of these types of provisions are more discretionary whereas under section 129, they are required by the Act. Industry representatives commented that section 112 lists 189 HAPs to be considered rather than the 9 pollutants listed by section 129 and also requires testing and monitoring sufficient to determine compliance.

2.2.2 Benchmark fuels. There was a brief discussion of whether one or more of the materials listed by the group as fuels should be used as a benchmark to develop fuel criteria. Some members felt that the criteria should be developed such that every material on the list of fuels would meet the criteria. Some suggested different benchmarks for liquid versus solid fuels. EPA representatives explained that under the proposed comparable fuels exclusion in part 261, certain fuels were selected as benchmarks, and used to develop criteria. A material could be considered a fuel if it is either listed individually or meets the benchmark criteria. Listed fuels would not need to meet the criteria. The group did not agree on a benchmark approach or on using a limited

number of specific fuels as benchmarks. They decided to proceed with listing possible fuel criteria considering, in general, the fuels on the list.

2.2.3 Possible criteria for determining if a material is a fuel. During a brainstorming session, individual members suggested possible criteria for fuels. All suggested criteria are listed below:

- Btu content
- Overall net positive Btu value
- Technology exists to recover heat value and used to recover energy
- Heavy metal content
- Total halogen content
- Chlorine content
- Dioxin content
- Lignin content
- Predictable/consistent combustion properties
- Manufactured as a commercial fuel [should not be exclusionary]
- Maximum viscosity for liquids (?)
- Maximum water content for solids (?)
- Particle size for solids (?)
- Sulfur content (?)
- Total Nitrogen content (?)
- Economic value/Is there a market? [Group agreed to drop this criterion]

The first three listed criteria would distinguish situations where a material is being burned as a fuel to recover energy from situations where a material is being burned to get rid of it.

The content of the materials (next five criteria) were listed because some members felt that the potential for heavy metal and dioxin emissions are considerations in determining if a material is a fuel or a waste. One member stated that halogen emissions can be an environmental concern for reasons other than the possible contribution of chlorine to dioxin formation.

One member noted that the combustion primer indicated that lignin could be a precursor to dioxin formation. Another member stated that lignin is contained in all wood materials, and that if lignin content is a criteria, it should be a numerical value rather than simply the presence or absence of lignin. He pointed out that the group has already agreed that some wood is fuel (see section 2.2.1).

Some members reiterated their position that pollutant levels should not be considered in defining fuels versus wastes because emissions will be addressed in developing the maximum achievable control technology (MACT) standards under section 112 and 129 for fuels as well as wastes.

A member brought up the need to prevent mixing a waste with a fuel and then calling the material a fuel. For example, she was aware of a situation where a cement kiln wanted to burn napalm. She also commented that she is aware of facilities that have started to burn tire-derived fuel by discussing it with regulators without changing their permits or informing the public. Another member suggested that if the group wants certain materials to always be considered wastes, one way to address this would be to develop a list of wastes as well as a list of fuels.

In discussing the criterion “manufactured as a commercial fuel”, subgroup members generally agreed this should not be exclusionary. For example, if a material is manufactured as a fuel it would generally be classified as a fuel. But if a material like wood was not manufactured specifically as a fuel, it could still be considered a fuel if it was listed or met the other criteria.

Several members expressed a desire to limit the number of criteria so the definition would be more simple and clear. One member asked if the group could reach consensus on not using the criteria listed above with “(?)”. Several members felt that viscosity, water content, and particle size were not relevant to the definition of fuel or waste. They noted that depending on the material and the combustor design, these characteristics may or may not be important to efficient combustion. They did not want the criteria to hinder advances in technology, and they felt that regulatory requirements for good combustion practices and emission limits would address any

concerns about potential emissions due to poor combustion. Some members also proposed not using sulfur and nitrogen content as criteria. They argued that facilities combusting 7 percent sulfur coal can meet stringent emission limits by using air pollution control devices. Several new source performance standards (NSPS) for SO_2 and NO_x already exist or are proposed, and the ICCR can consider NSPS NO_x as well as section 129 rules to address criteria pollutants. With regard to nitrogen, they commented that fuel levels are not always important because atmospheric nitrogen can also contribute to NO_x emissions from combustion sources.

Other members were not willing to agree at this meeting that the questioned criteria should be dropped from the list of possible criteria. The subgroup agreed to drop the criterion for economic value from the list. It was pointed out that any material burned to recover energy has some economic value and that it reduces the cost of purchasing other fuels to produce the needed energy. Also, market values change and such a criterion would be complex and difficult to define.

Fred Porter, a member of the audience from EPA, stated that if EPA were to develop criteria, he personally thought they would consider a Btu or net heating value criterion. They would also probably consider constituent levels based on a benchmark fuel, because one would generally think of fuels as not containing high levels of unusual contaminants. A material with high levels of contaminants would be more waste-like. The benchmark fuels chosen for section 129 could be different than those chosen for the proposed comparable fuels exclusion under part 261.

The facilitator reminded the group that if they do not reach consensus on fuel criteria, it is possible to present multiple recommendations with accompanying rationales to the Coordinating Committee. As an action item, members will develop specific proposals for fuel criteria and rationales and send these to subgroup members before the next meeting.

An environmental organization representative reminded the subgroup that their original charge was to develop a solid waste definition that used the part 261 definition as a starting point and provided a clear rationale for differences.

2.3 Review of draft solid waste definition language, points of consensus, and next steps

EPA and the facilitator asked the group whether there was consensus on the draft conceptual definition of solid waste developed at the September 19 meeting. At the previous

meeting some members had indicated that the language might need a little refinement. One member asked if the draft definition should be understood in the same context as the statute (RCRA). In particular, does solid waste include solid, liquid, and contained gaseous wastes. Others responded that it would be useful to add these words from the statutory definition into the draft section 129 definition. Consensus was reached on the following working definition:

> "For purposes of regulation under section 129, solid waste is sludge, garbage, refuse, and any discarded material including solid, liquid, semi-solid, or contained gaseous material, which is burned. Fuels burned to recover energy are not solid waste". The definition would then continue to list and define fuels.

A member raised the concern that the definition does not address in-process combustion of materials for the purpose of recovering their chemical constituents. Examples would be carbon black manufacturing and pulp and paper industry black liquor boilers. Some members believed these examples should not really be considered wastes or fuels, but could be regulated under section 112 MACT standards. Members proposed adding a sentence to the definition such as "materials burned primarily to recover their chemical constituents are not solid wastes". Others were concerned that this type of language could open up unforseen situations. They were also concerned that having materials that are not either fuels or wastes would make the definitions seem ambiguous. The subgroup did not reach consensus on this suggestion. Another member asked if the terms "discarded" and "burned" needed any clarification. The group decided they did not. One stated that if a material is burned and it is not a fuel it would be a waste.

The subgroup then confirmed that there is consensus on the fuels listed in section 2.2.1. The subgroup then discussed that recommendations need to be made to the Coordinating Committee at the November 18 meeting. The subgroup was charged to develop recommendations by November and it is important to meet this schedule to keep the ICCR process moving. Members agreed that ideal recommendations would include:

- the draft language for the definition;
- the list of fuels;
- a list of criteria for fuels;

- perhaps a list of wastes; and
- a rationale.

It may be that consensus can be achieved on some of these items (e.g., the first two bullets), but that there are multiple recommendations on other aspects (e.g., the criteria). At the next meeting, the subgroup will need to determine where there is consensus and where consensus can not be reached. The recommendations, which may include multiple recommendations supported by various subgroup members, along with supporting rationales will need to be documented for presentation to the Coordinating Committee.

In order to accomplish as much as possible in the given time frame, subgroup members agreed to submit proposals for criteria prior to the next meeting and to meet on the evening of November 3 as well as all day November 4.

3.0 ACTION ITEMS

The following action items were assigned:

- Members should forward lists of biomass materials they consider fuels to Jeff Shumaker. He will develop a draft list or definition of biomass fuels and circulate it before the next meeting.
- EPA will E-mail possible fuel criteria listed during today's meeting to subgroup members.
- Members should develop specific proposals for fuel criteria with rationales and send these to subgroup members before the next meeting.

4.0 NEXT MEETING

The next meeting will be held in Washington, DC, November 3, starting at 7 p.m., and all day November 4, starting at 7 a.m. EPA will locate a hotel and notify subgroup members. The agenda for the next meeting will be:

- Revisit biomass and fossil fuels
- Discuss proposals for fuel criteria
- Final agreement on recommendations to present to the Coordinating Committee
- Preparation for the Coordinating Committee meeting

Discussion of the first two items must be concluded by the morning of November 4 so that the full afternoon can be spent on the last two items. ERG will bring a lap top to the meeting for use in documenting recommendations and Coordinating Committee presentation materials.

These minutes represent an accurate description of matters discussed and conclusions reached and include a copy of all reports received, issued, or approved at the October 14, 1997 meeting of the Solid Waste Definition Subgroup. Jim Eddinger, EPA.

Attachment 1

Attendance List

Attendance List

Subgroup Members

David Cooper

Jim Eddinger

Chuck Feerick

Frank Ferraro

Mike Fisher

Andy Roth

Marv Schorr

Jeff Shumaker

Mike Soots

Dick Van Frank

Jane Williams

Observers

Jan Connery (facilitator)

Russ Batson

Mary Beth Clary

Andy S. Counts

Barton Day

Leslye Fraser

Ruth Mead

Fred Porter

Attachment 2

Materials on FERC Definition of Waste Fuel

ACTION ITEM

*Marvin Schorr will fax subgroup members information on DOE definitions of “waste fuels.”

I was able to get an electronic version of the FERC definition of waste for energy production purposes. It is shown below from 18 CFR 292.202. It is used in one of the qualification criteria for a small power production facility which require that the primary energy source of the facility must be biomass, waste, renewable resources, geothermal resources, or any combination of those fuels, and 75 percent or more of the total energy input must be from those sources. The total energy input from oil, natural gas and coal may not exceed 25 percent in the aggregate. Thus, the definition of “waste” became important to qualify the facility for the benefits available to facilities that qualify. I do not know the current FERC criteria for determining whether something has “little or no current commercial value”.

TITLE 18--CONSERVATION OF POWER AND WATER RESOURCES

CHAPTER I--FEDERAL ENERGY REGULATORY COMMISSION, DEPARTMENT OF ENERGY PART 292--REGULATIONS UNDER SECTION 201 AND 210 OF THE PUBLIC UTILITY REGULATORY POLICIES ACT OF 1978 WITH REGARD TO SMALL POWER PRODUCTION AND CONGENERATION--Table of Contents

Subpart B--Qualifying Congeneration and Small Power Production Facilities

Section 292.202 Definitions.

For purposes of this subpart:

(a) Biomass means any organic material not derived from fossil fuels;

(b) Waste means an energy input that is listed below in this subsection, or any energy input that has little or no current commercial value and exists in the absence of the qualifying facility industry.

Should a waste energy input acquire commercial value after a facility is qualified by way of Commission certification pursuant to section 292.207(b), or self-certification pursuant to section 292.207(a), the facility will not lose its qualifying status for that reason. Waste includes,

but is not limited to, the following materials that the Commission previously has approved as waste:

1. Anthracite culm produced prior to July 23, 1985;

2. Anthracite refuse that has an average heat content of 6,000 Btu or less per pound and has an average ash content of 45 percent or more;

3. Bituminous coal refuse that has an average heat content of 9,500 Btu per pound or less and has an average ash content of 25 percent or more;

4. Top or bottom subbituminous coal produced on Federal lands or on Indian lands that has been determined to be waste by the United States Department of the Interior's Bureau of Land Management (BLM) or that is located on non-Federal or non-Indian lands outside of BLM's jurisdiction, provided that the applicant shows that the latter coal is an extension of that determined by BLM to be waste;

5. Coal refuse produced on Federal lands or on Indian lands that has been determined to be waste by the BLM or that is located on non-Federal or non-Indian lands outside of BLM's jurisdiction, provided that applicant shows that the latter is an extension of that determined by BLM to be waste;

6. Lignite produced in association with the production of montan wax and lignite that becomes exposed as a result of such a mining operation;

7. Gaseous fuels, except:
   (i) Synthetic gas from coal; and
   (ii) Natural gas from gas and oil wells unless the natural gas meets the requirements of Section 2.400 of this chapter;

8. Petroleum coke;

9. Materials that a government agency has certified for disposal by combustion;

10. Residual heat;

11. Heat from exothermic reactions;

12. Used rubber tires;

13. Plastic materials; and

14. Refinery off-gas.

Attachment 3

EPA Handout on Regulating Small Sources under Section 112

Area Sources Under Section 112

Under Section 112(c), the Administrator is required to publish a list of all categories and subcategories of major sources and area sources. Major sources are defined under section 112(a) as any source or group of sources located within a contiguous area and under common control that emit or have the potential to emit considering control, 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. The Administrator may establish a lesser quantity for a major source on the basis of the potency of the air pollutant, persistence, potential for bioaccumulation, other characteristics of the air pollutant, or other relevant factors. An area source is defined as any source of hazardous air pollutants which is not classified as a major source.

In addition to publishing a list of all categories of major and area sources, section 112(c) also requires the Administrator to publish a list of each category and subcategory of area sources which present a threat to human health or the environment (by such sources individually or in the aggregate) which warrant regulation. This list must include sufficient categories or subcategories of area sources to ensure that area sources representing 90 percent of the area source emissions of the thirty hazardous air pollutants that present the greatest threat to public health are subject to regulation by November 2000.

Section 112(e) requires the Administrator to promulgate regulations establishing emission standards for categories and subcategories of sources listed for regulation, as expeditiously as practicable, assuring that:

(1) emission standards for not less than 40 categories and subcategories shall be promulgated by November 1992

(2) emission standards for not less than 25 percent of the listed categories andsubcategories shall be promulgated by November 1994

(3) emission standards for an additional 25 percent of the listed categories and subcategories shall be promulgated by November 1997

(4) emission standards for all categories and subcategories shall be promulgated by November 2000

Section 112(d) requires the Administrator to promulgate regulations establishing emission standards for each category of major and area sources listed for regulation which require the maximum degree of reduction in emissions of hazardous air pollutants. However, with respect to categories and subcategories of area sources listed, the Administrator may elect to promulgate standards for categories and subcategories of area sources which provide for the use of generally available control technologies to reduce emissions of hazardous air pollutants.