MEASURE: HB 4081
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SUBMITTED BY: Joseph Miller

Hampton Susan

Subject: FW: Recommendation Opposing HB 4081

-----Original Message-----
From: Joe Miller [mailto:jmiller@saintmarys.edu]
Sent: Monday, February 06, 2012 3:11 PM
To: Rep Bailey; Rep Gilliam; Rep Boone; Rep Krieger; Rep Bentz; Rep Thompson; Rep Witt; Rep KenyGuyer
Cc: Patrino Beth; Hauck Kristi; Loretta Pickerell; Peter Spendelow
Subject: Recommendation Opposing HB 4081

Feb. 6, 2012

Oregon House Energy, Environment and Water Committee:
Jules Bailey, Co-Chair
Vic Gilliam, Co-Chair
Deborah Boone, Co-Vice Chair
Wayne Krieger, Co-Vice Chair
Cliff Bentz
Jim Thompson
Brad Witt
Alissa Keny-Guyer

Dear Members of the Committee:

am writing to strongly encourage you to oppose HB 4081. The bill "provides that conversion waste plastics that cannot be economically recycled to oil using pyrolysis is considered recycling for certain purposes."

The arguments for opposing HB 4081 are many.

A. In the comments I sent on Jan. 18 (pasted below) urging opposition to LC 156 [now HB 4081], I indicated (#2) that:
"LC 156 is written as if all waste plastics are equivalent. They aren't. Plastics are divided into seven types based upon resins. Some of these types create fewer pollution problems, and are much more easily recycled and have bigger recycling markets. Others, such as #3 (polyvinyl chloride - PVC) and #6 plastic (polystyrene - PS), create many more health hazards and environmental impacts throughout their life cycle, and are difficult to recycle and have limited markets. [1,2]"

I also indicated (#4) that:
"In comments Oregon PSR submitted in opposition to last year's version of LC 156 (HB3597), I noted (representing PSR) that Agilyx says it can process all types of plastic (#s 1-7), and is fully permitted in Oregon. The reality, however, is that as a result of the Feb., 2010 permit hearing for Plas2Fuel (now Agilyx) in Tigard, DEQ modified the permit for Plas2Fuel to prohibit the processing of polyvinyl chloride (PVC, #3) plastic beyond incidental contamination amounts in the pyrolysis unit. [6-9]"

Re both of the above, the following paragraphs from a presentation by Peter Spendelow to the Board of the Association of Oregon Recyclers on Dec. 12, 2011 entitled "Plastic Pyrolysis ironmental Analysis" are instructive. The presentation is available as a Word document om Dr. Spendelow at DEQ.

"Air Toxics

Pyrolysis displaces the production of some fossil fuel, and thus can take a credit for reducing air toxics emissions related to that reduction, but pyrolysis itself can release air toxics. The amount of air toxics released though depends on the types and amounts of plastics being pyrolyzed. Chlorinated plastics such as PVC and PVDC, as well as other halogenated plastics are of particular concern due to the products that can be produced in pyrolysis. Pyrolysis facilities indicate that they can take 10-15% PVC in their feedstock, and the local company Agilyx, in their survey form as part of the American Chemistry Council study on this subject, indicated that they could take loads as high as 70% PVC. Yet an initial air quality source test indicated that enough hydrochloric acid may be released by the facility in the course of a year to require a Title V air quality permit. Plastics recycling generates relatively little hazardous air pollutants when compared to these sorts of results." ...

"In summary, it could be a good idea to support considering plastic-to-oil technology as being the equivalent of recycling if in fact the environmental benefits of the two were comparable. However, they are not. For energy conservation, plastics pyrolysis appears to fall considerably below recycling, but well above landfilling. For greenhouse gas generation, plastics pyrolysis appears close to or a bit lower than landfilling, and both are significantly worse than recycling. For air toxics, concerns over the release of hydrochloric acid are substantial for pyrolysis of mixed plastics, and other chlorinated hydrocarbons are also of concern. Recent analysis by DEQ shows that increased plastics recycling looks to be one of the best opportunities for increased energy savings and reduced greenhouse gases for all the different materials being considered, but these savings will be substantially diminished and in some cases reversed if the plastic is converted to oil instead of retaining its chemical integrity through recycling."

B. In my comments of Jan. 18, I indicated (#3) that "the best and highest use of the safer plastics we currently produce (#'s 1, 2, 4, and 5) is to expand the markets to recycle these plastics even more ... not to turn the plastics into oil for their energy value. Peter Spendelow makes exactly that point with considerable authority in the last sentence above.

Bob Barrows of Oregon DEQ addresses the same issue -- but for conversion technologies in general (including pyrolysis of plastics to oil) -- in the closing paragraphs of his "Briefing Paper: What are "Conversion Technologies"? (Nov. 2, 2011, p. 5):
http://www.deq.state.or.us/lq/pubs/docs/sw/2050vision/BriefingPaperConversionTechnologies.pdf

"The capital requirements for building conversion technology facilities and their likely need for long-term contracts to ensure an adequate feedstock waste stream may limit the future flexibility of materials management efforts.

Issue: Given the lack of experience in the US with conversion technology facilities and the expense of building them, conversion technologies for solid waste carry higher uncertainty and risk. While conversion technology facilities can fulfill needs in the current waste recovery infrastructure, locking in the use of waste for energy production may create barriers to expanded recycling or composting in the future, thereby negating the greater environmental benefit from recycling or composting."

C. DEQ is currently attempting to create rules covering Conversion Technologies Facilities, and has formed an advisory committee to contribute input to this goal. I am a member of this committee.
http://www.deq.state.or.us/lq/sw/conversiontechnology.htm

Given (a) the lack of operational and emissions experience in the US with conversion technology facilities in general (as described by Barrows), (b) the fact that DEQ is just now attempting to create rules covering such facilities, (c) the well established finding that the best and highest use of the safer plastics we currently produce (#'s 1, 2, 4, and 5) is

to recycle these plastics ... not to turn them into oil for their energy value, and (d) that doing the latter competes with and may undermine the former, the decision on HB 4081 is clear. HB 4081 should be opposed.

'ncerely,

Joseph Miller PhD
1030 SW Jefferson St., Apt 534
Portland, OR 97201

Former Member, Board of Directors
Oregon Chapter, Physicians for Social Responsibility
812 SW Washington Street, Suite 1050
Portland, Oregon 97205

Associate Professor of Psychology Emeritus Saint Mary's College Notre Dame, IN 46556

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cc: Loretta Pickerell, Manager, Solid Waste Policy and Program Development, DEQ
cc: Peter Spendelow, Oregon Department of Environmental Quality

PRIOR COMMENTS

January 18, 2012

Oregon House Energy, Environment and Water Committee:
Jules Bailey, Co-Chair
: Gilliam, Co-Chair
borah Boone, Co-Vice Chair
Wayne Krieger, Co-Vice Chair
Cliff Bentz
Jim Thompson
Brad Witt
Alissa Keny-Guyer

Dear Members of the Committee:

I am writing to strongly encourage you to oppose LC0156. LC0156 proposes that "solely for the purpose of encouraging the recovery of energy from waste plastics that cannot be economically recycled", the conversion by pyrolysis to oil of waste plastics that cannot be economically recycled be considered recycling under the solid waste hierarchy.

LC0156 should be opposed for many reasons:

1. LC0156 modifies and distorts Oregon's statutory solid waste management policy and hierarchy -- a hierarchy that prioritizes recycling over energy recovery based upon its lower life-cycle natural resources and energy demands, and its lower production of pollutants and global warming gases.

2. LC0156 is written as if all waste plastics are equivalent. They aren't. Plastics are divided into seven types based upon resins. Some of these types create fewer pollution oblems, and are much more easily recycled and have bigger recycling markets. Others, such #3 (polyvinyl chloride - PVC) and #6 plastic (polystyrene - PS) create many more health azards and environmental impacts throughout their life cycle, and are difficult to recycle and have limited markets. [1,2]

3. While Oregon and our country's longer-term need is to move toward zero waste and from petroleum based plastics to bio-plastics and bio-resins wherever possible, the best and highest use of the safer plastics we currently produce (#'s 1, 2, 4, and 5) is to expand the markets to recycle these plastics even more -- as is happening [3,4] -- not to turn the plastics into oil for their energy value.

4. It's not at all clear that pyrolysis to oil technologies can safely process plastics such as PVC. Processing waste plastic into synthetic crude oil using pyrolysis is exactly the technology that Oregon Physicians for Social Responsibility and others opposed at a hearing in Feb. of 2010 to grant an air quality permit to Plas2Fuel Corporation (now Agilyx) in Tigard. [5]

In comments Oregon PSR submitted in opposition to last year's version of LC0156 (HB3597), I noted (representing PSR) that Agilyx says it can process all types of plastic (#s 1-7), and is fully permitted in Oregon. The reality, however, is that as a result of the Feb., 2010 permit hearing for Plas2Fuel (now Agilyx) in Tigard, DEQ modified the permit for Plas2Fuel to prohibit the processing of polyvinyl chloride (PVC, #3) plastic beyond incidental contamination amounts in the pyrolysis unit. [6-9]

5. Plastics contain lots of toxics and additives, and some plastics contain more toxics and additives than others. Since the pyrolysis chambers are sealed, all the toxics and additives in the plastics that are depolymerized have to wind up somewhere. That "somewhere" would include the synthetic crude oil, which will then be sent to refineries and which will wind up in their emissions, and/or the ultimate end use environmental impacts of the fuels and lubricants produced. That "somewhere" will also be in the noncondensable gases from the plastics that will be incinerated in the thermal oxidizer pollution control unit of the pyrolysis technology, and the air emissions from this incineration. [5]

6. One dimension of a life cycle analysis is to compute the total greenhouse gas emissions produced by an approach or technology. One might ask how a waste to energy approach such as Agilyx compares to recycling as currently defined in the solid waste hierarchy.

The "Frequently Asked Questions" page on the Agilyx website [10, accessed 1/18/12] contains the following question and answer:

Have you performed a Greenhouse Gas/Carbon Footprint Analysis?
Yes. The results show that the net carbon footprint of Agilyx's technology is favorable.

A recent study [11] reached a rather different conclusion. The study presented by Joshua Skov compared the end-of-life plastic carbon dioxide footprints of the Plas2Fuel (now Agilyx) technology to recycling, landfilling, incineration and other scenarios. It found, in part, that in terms of production of Metric Tonne Carbon Dioxide Equivalents ($MtCO_2e$):
-- recycling is the best end-of-life scenario
-- Plas2Fuel outperforms all incineration options
-- landfilling looks better than Plas2Fuel with "carbon goggles" on, but only if nothing else matters

But enough. For the above and other reasons, I strongly encourage you as members of the House Energy, Environment and Water Committee, to oppose LC0156.

Sincerely,

Joseph Miller PhD
1030 SW Jefferson St., Apt 534
Portland, OR 97201

Former Member, Board of Directors
Oregon Chapter, Physicians for Social Responsibility
812 SW Washington Street, Suite 1050
Portland, Oregon 97205

Associate Professor of Psychology Emeritus Saint Mary's College Notre Dame, IN 46556

[1] Plastics Impact Human Health - Sustainable Plastics? / Institute for Local Self-Reliance http://www.sustainableplastics.org/problems/plastics-impact-human-health

[2] Plastics Recycling Remains Low | Sustainable Plastics? / Institute for Local Self-Reliance http://www.sustainableplastics.org/problems/plastics-recycling-remains-low

[3] Scientists Develop Highly Recyclable Plastic - New York Times 3/9/10 http://green.blogs.nytimes.com/2010/03/09/scientists-develop-highly-recyclable-plastic/

[4] GE Unveils New "Carbon-Reducing" Recycled Plastics - Worldwatch Institute http://www.worldwatch.org/node/4454

[5] Joseph Miller Testimony to DEQ re Plas2Fuel Pyrolysis Proposal for Tigard, OR 5/26/10 http://www.psr.org/chapters/oregon/assets/pdfs/miller-testimony-plas2fuel-pyrolysis-2-10.pdf

[6] Joseph Miller Testimony to the Oregon House Energy, Environment and Water Committee on HB 3597 4/18/11 http://www.psr.org/chapters/oregon/assets/pdfs/miller-testimony-enenvwatcomm-hb3597-4-18-11.pdf

[7] Joseph Miller Testimony to the Oregon Joint Tax Credits Committee on HB 3597A (Engrossed) 5/3/11 http://www.psr.org/chapters/oregon/assets/pdfs/miller-testimony-jtccomm-hb3597a-5-3-pdf

[8] Joseph Miller Additional Testimony to the Oregon Joint Tax Credits Committee on HB 3597A (Engrossed) 5/4/11 http://www.psr.org/chapters/oregon/assets/pdfs/miller-testimony-jtccomm-hb3597a-5-4-11.pdf

[9] Joseph Miller Testimony to the Oregon Joint Tax Credits Committee re Agilyx and HB 3597A (Engrossed) 5/9/11 http://www.psr.org/chapters/oregon/assets/pdfs/miller-testimony-jtccomm-agilyx-hb3597a-5-9-11.pdf

[10] Frequently Asked Questions - Agilyx http://www.agilyx.com/our-technology/faq.html

[11] A Different Kind of Waste-to-Energy: The Case of Plastic to Crude, Session 4: Waste-to-Energy Opportunities and Barriers. Presentation for ACCO Conference Managing Waste, Portland, OR, Oct. 19, 2010, by Joshua Skov, Principal, Good Company, Eugene, OR http://www.accoonline.org/ccls/Waste2010/ACCO-CCLS-October2010-Session4-Skov-Slides.pdf

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cc: Loretta Pickerell, Manager, Solid Waste Policy and Program Development, DEQ