**LOS ANGELES COUNTYSOLID WASTE MANAGEMENT COMMITTEE/
INTEGRATED WASTE MANAGEMENT TASK FORCE
900 SOUTH FREMONT AVENUE, ALHAMBRA, CALIFORNIA 91803-1331
P.O. BOX 1460, ALHAMBRA, CALIFORNIA 91802-1460
www.lacountyiswmtf.org**

**GAIL FARBER, CHAIR
MARGARET CLARK, VICE-CHAIR**

November 20, 2013

Mr. John Skinner, Executive Director/CEO
Solid Waste Association of North America (SWANA)
1100 Wayne Avenue Suite 700
Silver Spring, MD 20910

Dear Mr. Skinner:

COMMENTS REGARDING THE DRAFT SWANA TECHNICAL PAPER T-11 FOR "EMERGING CONVERSION TECHNOLOGIES AS PART OF INTEGRATED SOLID WASTE MANAGEMENT"

Thank you for the opportunity to comment on the Draft SWANA Technical Paper T-11 for "Emerging Conversion Technologies as Part of Integrated Solid Waste Management." This document was provided by Joe Murdoch of SWANA to Mike Mohajer, a member of the Los Angeles County Solid Waste Management Committee/Integrated Waste Management Task Force (Task Force), for review and comments on October 9, 2013. SWANA is a leader in the international solid waste community and an authority that many municipalities look to for environmentally and economically sound training and resources.

Pursuant to Chapter 3.67 of the Los Angeles County Code and the California Integrated Waste Management Act of 1989 (Assembly Bill 939 [AB 939], as amended) the Task Force is responsible for coordinating the development of all major solid waste planning documents prepared by the County and the 88 cities in the County of Los Angeles with a combined population equivalent to approximately one-third of the California population. Consistent with these responsibilities and to ensure a coordinated and cost-effective solid waste management system in the County of Los Angeles, the Task Force also addresses issues impacting the solid waste management system on a Countywide basis. The Task Force membership includes representatives of the League of California Cities (Los Angeles County Division), the County of Los Angeles Board of Supervisors, the City of Los Angeles, the County Sanitation Districts of Los Angeles County, the waste management industry, environmental groups, the public, and a number of governmental agencies.

For the past decade the Task Force, in coordination with local governments such as the County of Los Angeles, has supported the development of conversion technologies as an alternative to landfills for disposal of post-recycled municipal solid waste (MSW). Conversion technologies are non-combustion thermal, chemical, mechanical, and

biological processes that are capable of converting post-recycled residual MSW into useful products and chemicals, green fuels like ethanol and biodiesel, and clean renewable energy.

We are supportive of SWANA's effort to develop a technical paper/guidance document on solid waste conversion technologies. This is a resource that will be useful to numerous jurisdictions including those represented on our Task Force. However, we are concerned that the document assumes conversion technologies are still "emerging" or experimental, an assertion that is not supported by the current state of technology development worldwide. Therefore, we would respectfully request your consideration of the comments below. Given the Task Force's extensive role in researching, evaluating, and promoting the development of conversion technologies for over a decade, we would appreciate the opportunity to further participate in the development of this Technical Paper.

Our specific comments are included as insertions/deletions in the enclosure, as provided to Mr. Murdoch by Mr. Mohajer on October 10, 2013; however, our general comments pertain to the overarching theme in the Draft Technical Paper that conversion technologies have not successfully operated on a commercial scale on traditional municipal solid waste feedstock for an extended period of time.

We respectfully repudiate that assertion with the following points:

- Conversion technologies are not experimental. They are operating in 28 countries including Australia, Europe, Japan, South Korea, South Africa, and the United States. Many facilities have been operating commercially for well over a decade using MSW as a feedstock.

- By the end of 2010, over 200 anaerobic digesters were processing nearly 6 million tons per year of biosolids and municipal solid waste in Europe. It is estimated that European capacity will increase to 9 million tons per year by 2015. ["Anaerobic Digestion of MSW in Europe", BioCycle, February 2010, Vol 51, No. 2, p.24]

- Since 2005, integrated facilities have become more common in Europe. Anaerobic digesters are used to process the wet component of the waste stream while composting is used to process the digestate ["Anaerobic Digestion of MSW in Europe", BioCycle, February 2010, Vol 51, No. 2, p.24]

- Zeus Global Gasification Database is tracking more than 300 existing gasification facilities worldwide. The United States Department of Energy found that world gasification capacity has grown to 56,000 megawatts thermal (MWth) of syngas output (roughly equivalent to 29,000 MWe) from 144 major operating plants that employ 427 gasifiers.

Again, we appreciate the work SWANA has done to expand our knowledge and understanding of a variety of solid waste topics including conversion technologies. We look forward to continuing to work with you on this important topic. If you have any questions, please contact Mr. Mike Mohajer of the Task Force at (909) 592-1147 or MikeMohajer@yahoo.com.

Sincerely,

Margaret Clark

Margaret Clark, Vice-Chair
Los Angeles County Solid Waste Management Committee/
Integrated Waste management Task Force and
Council Member, City of Rosemead

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Enc.

cc: Mr. Joe Murdoch, Senior Vice President HDR Inc/SWANA Board of Directors
Each Member of the Los Angeles County Integrated Waste Management Task Force
Each Member of the Alternative Technology Advisory Subcommittee

Los Angeles County Integrated
Waste Management Task Force
11-19-13 Comments

DRAFT SWANA TECHNICAL POLICY

T-11 FOR "EMERGING CONVERSION TECHNOLOGIES"

AS PART OF

INTEGRATED SOLID WASTE MANAGEMENT

Policy

SWANA supports the development of "Emerging Conversion Technologies" as an element of the integrated solid waste management system. "Emerging Conversion Technology" (ECT) is a general term to represent a solid waste management option ~~processing and/or disposal technologies~~ that convert post-diverted residuals municipal solid waste (MSW) into useful products, green fuels, and renewable energy through non-combustion thermal, ~~a fuel, chemical product, energy source, organic soil conditioner or other useful product. The technology may utilize thermal~~, chemical, mechanical and/or biological processes. ~~methods to process the municipal solid waste~~. The term "Emerging" is used to point out that these technologies while successfully in use in many foreign countries, there are none currently operating on a commercial scale in the U.S. ~~have not, for the most part, been successfully operated on a commercial scale, on traditional municipal solid waste feedstock for an extended period of time.~~

The "Emerging" nature of these technologies in the U.S. represents an inherent risk to communities who are developing MSW Conversion Technology facilities. ~~waste processing and disposal capabilities~~. Risks, similar to a waste-to-energy facility, may ~~can~~ include the following: that the regulatory agencies in the U.S. and some foreign countries ~~will~~ may not be familiar with the technology, leading to a lengthy permitting and approval process; that the technology may ~~will~~ not process MSW ~~waste~~ on a long- term and consistent basis as one may expect; ~~that the technology will not be able to process mixed municipal waste;~~ that the environmental performance of the technology ~~will~~ may not meet required standards;

that the product(s) produced by the technology will not be marketable; that the technology will not be able to operate on the basis of the economic pro forma provided and that the company promoting and/or operating the facility will remain solvent and committed to the technology. These risks and others may be present to varying degrees and may be able to be managed with appropriate planning.

It should be noted that SWANA supports various methods of waste prevention, reuse, recycling, composting, recovery (i.e. conversion technology and waste-to-energy processes) ~~processing~~ and disposal as part of an integrated waste management system. SWANA has developed technical policies to provide assistance to our members in making decisions regarding the components of their systems. These include the following Technical Policies: Policy T 2- Solid Waste Reduction; Policy T 6- Recycling as Part of Integrated Solid Waste Management; Policy T 7-Composting as Part of Integrated Solid Waste Management; Policy T 8- Waste to Energy as part of Integrated Solid Waste Management; Policy T 9- Landfilling as Part of Integrated Solid Waste Management.

For the purposes of this policy, SWANA has not included traditional waste to energy technologies, such as mass-burn and refuse derived fuel or conventional windrow or in-vessel composting in the definition of Emerging Conversion Technologies (ECT) as they are covered by the existing Policies T-8 and T-7, respectively .

The use of an ECT should be consistent with the USEPA Waste Management Hierarchy (http://www.epa.gov/wastes/nonhaz/municipal/hierarchy.htm) , and with the state and local government's integrated solid waste management plan, including existing and planned waste prevention, reduction, product stewardship, ~~and~~ recycling, and composting programs. Permitting of conversion technology facilities should be consistent with the established and long term capacity needs of local government and their integrated solid waste management plans. ECT projects require significant upfront capital, and the economic feasibility of these projects should be reviewed by financial

specialists. The full costs for the siting, design, construction and operation should be included in the costs assigned to a facility within an integrated solid waste management system, including residue management and disposal of waste that cannot be recovered/managed ~~processed~~ by the ECT. Expected revenues from sales of electricity, steam/heat, ~~-~~fuels or other products ~~recovered materials~~, as well as potential revenues related to renewable energy credits and carbon credits should be considered as part of the full cost accounting. The selection of an ECT, similar to any other waste management option, should be consistent with best practices regarding engineering, economics, environmental and public health issues. Again, like any other waste management option, ~~T~~ the use of ECT's should be based on the assurances that during siting, design, construction and operation, the facility will comply with all federal, state/provincial and local government rules, regulations and permits.

During the past five years there have been a myriad of technologies that have been proposed in a pilot or experimental fashion. Communities considering ECT's as part of their integrated solid waste management system should pay particular attention to the commercial viability of the technology. A primary question should be "Has this technology demonstrated the ability to consistently (, without interruption, during a prescribed period of time, under the specific performance requirements of the community) operate on a (waste feedstock (quality and quantity) consistent with the adopted integrated waste management plan ~~processing and disposal requirements~~ of the community, in an environmentally sound manner?"

Position/Recommendations

The following are considered to be best practices in the planning, siting, design and operation of ECT facilities as a part of an integrated solid waste management system:

1. Planning for ECT facilities should consider the following factors:

- evaluation of need for the technology based on current and projected waste volumes and characteristics,
- evaluation of compatibility with recycling, composting and source reduction efforts in the community's integrated solid waste plan, and economic and environmental viability of these options,
- evaluation of the risk posture of the community with and without an ETC,
- evaluation of the potential delivery process and business model (Design/Build, Design Build Operate, Design Build Own Operate, etc.)

The use of experienced consultants and attorneys for development of dependable feasibility, procurement and contract documents is recommended. Consideration of ECT's should include the following evaluations and verifications prior to commitment to a technology: (a check list could also be provided):

a. Independent engineering evaluation of comprehensive Mass and Energy balance.
b. Site visit to operating facility(s) to verify viability of the technology.
c. Verification of operations, availability and capacity, on mixed municipal waste feed stock and/or post-diverted MSW residuals for an extended, continuous period of time.
d. Identification of pre-processing and other feedstock requirements.
e. Verification of environmental performance.
f. Determination of scale-up requirements and restrictions. Verification of the quality and quantity of facility products (electrical production, fuel, recyclables etc.) and byproducts (residue)
g. Comments from local users and regulators on the viability of the facility.

2. Sites for ECT facilities should be selected based on the following principles:

- consistency with local land use conditions and zoning codes,
- consideration of project waste availability and energy demand for the immediate surrounding area to minimize transportation and transmission costs, and
- siting in proximity to existing infrastructure such as roads, rail access, utilities, transmission lines, steam loops/customers, collection/transfer systems, materials recovery facilities and residue reuse or disposal sites,
- consideration of disparate impacts to poor and minority communities.

3. Facilities should be designed by registered professional engineers and other licensed professionals with clearly demonstrated knowledge in ECT facility design, and shall be designed in accordance with the following principles:
   - designed for long term operation at high availability levels,
   - designed for environmental excellence in operations, including use of energy efficient equipment, minimizing use of chemicals and water, reuse of resources within operations, zero discharge of wastewater,
   - designed in a manner to maximize recovery of energy and other useable products
   - designed with a means for the measurement of incoming solid waste and out-shipped residue energy and products,
   - designed with a means for the screening of incoming solid waste,
   - designed to include or be a part of a system that includes household hazardous waste and electronic waste recovery programs, when appropriate,
   - designed to control of run-on and run-off to minimize or prevent surface water contamination,
   - designed with a means to minimize generation of and control emissions of green house gases and other air quality contaminants to ensure compliance with applicable regulations,
   - designed to incorporate continuous emissions monitoring systems,

- Designed to minimize wastewater generation , and on-site reuse,
- designed to support the beneficial use of residue,
- designed for maximum recovery of reusable materials from residue, and
- designed to allow for the safe transport and disposal of unusable residue in permitted disposal areas.
- designed to allow observation of the facility and facilitate education of the public on the facility process.

4. Construction of ECT facilities shall be conducted by licensed contractors familiar with industrial level energy generating facilities with appropriate construction management, monitoring and certification experience.
5. ECT facilities should be properly commissioned and tested to ensure achievement of performance guarantees.
6. Operation of ECT facilities shall aspire to the following principles:
   - operated under the management of a provincial/state certified manager/operator in those provinces/states where certification is required,
   - operated by a manager with certification by ASME in the appropriate category of management and operation,
   - operated using an asset management program, as well as preventive and predictive maintenance programs performed to minimize outages and down time,
   - operated using to real-time operational and emissions data to enable operation at highest standards,
   - operated by providing training of all on-site personnel appropriate to assigned area of responsibility,

- operated with high standard safety programs (such as OSHA) focused on worker health and safety as well as the safety of customers and contractors at the facility,

- operated with a provision for controlled access to facility and use by only authorized users,

Because ECT proponents have been aggressive in approaching public sector waste management professionals, several communities have developed a "Check List" of questions that are required to be answered before the waste professionals will entertain additional discussion of the proposed technology. A sample "Check List" can be provided upon request.

Approved by the International Board on XXX, 2013.

_____, International Secretary
Dated _____, 2013