Memorandum

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TO: Zack Hansen and Judy Hunter
Ramsey/Washington Counties Resource Recovery Board
Joint Staff Committee

CC: Kate Bartelt, Ramsey County
Warren Shuros, Foth Companies (Foth)

FR: Susan Young, Foth

RE: Follow-up on Technology Siting and Permitting Analysis

Introduction

As part of the *"Preliminary Resource Recovery Feasibility Report"* and *"Technology Comparative Analysis"* presented to the Resource Recovery Project Board on January 30, 2014, Foth Infrastructure & Environment, LLC (Foth) provided preliminary information on various aspects of five (5) technologies. Additional information was requested to evaluate siting issues for three (3) of the technologies.

Technologies evaluated in this memo include:

- Gasification
- Mixed Waste Processing
- Anaerobic Digestion

Waste facilities are often called LULUs (Locally Unacceptable Land Uses). The term recognizes the local nature of most siting difficulties, and the adverse perception, or "unacceptableness" of this type of facility.

The facilities profiled below typically required some form of state or federal permit. However, the difficulty or ease of the siting process was based more on the local decisions required than the state or federal requirements.

The Role of Local Permits in the Siting Process

Facilities typically require local permits for zoning compliance and for storm water and/or site runoff water quality levels; building permits may be required depending on the size of the

community. Zoning is the provenance of each city. Variances from standard requirements; for instance, if required to build closer to a lot line or operate outside standard business hours are also the purview of the City. Storm water quantity and quality permitting is often split between cities and Watershed Management Districts.

Zoning and Conditional Use Permit (CUP) or Planned Unit Development (PUD) requests are typically reviewed by local government staff for compliance with local zoning and building codes, and the staff reports are reviewed by a Planning Commission comprised of volunteer citizens of the community. Their recommendations are usually reviewed and accepted or modified by the City Council. Technical aspects of projects are the legal basis of review by the public bodies, however, local opposition to a particular facility often sways these officials. This local opposition may or may not be based on fact. Local voter sentiments often have greater weight in a City Council decision than economics or policy issues or legal standing.

Local opposition to several national facilities was described in a recent article in "The Daily Climate,"[1] which characterized gasification, plasma arc and pyrolysis as the new breed of incinerators. The article noted that,

> *"Public outcry against the plants, whether motivated by fear or facts, has been a leading factor in the failure of companies to move proposals past the local permitting state. Since late 2012 citizen opposition has killed at least 11 proposals…"*

Allowing local opposition to a project to change decisions on non-technical grounds can, however, be costly for a community. The article listed a $2 million loss suffered by Ada County, Idaho when it cancelled a gasification plant contract after public protests. Also, the Wisconsin Court of Appeals reversed a permit revocation by the Green Bay Common Council. In the Green Bay example, the Council granted a permit for the pyrolysis facility, and eighteen months later, "facing strong public outcry" rescinded the permit alleging that they did not know that the plant would have smokestacks. Seven Generations Corp, the facility developer, sued the Council for lack of justification in their reversal. The Wisconsin Court of Appeals described the Council's revocation as "fickle and inconstant," "unconsidered" and "irrational," noting that, "no reasonable person could believe that a gas-burning engine would not produce exhaust, which must be expelled from the facility."

Experience in the metro area has also shown that city-specific permitting is a critical aspect of facility siting. Compliance with local zoning codes, and the ability to obtain a Conditional Use Permit (CUP) for site-specific conditions and facility needs have been "make or break" for facilities. For instance, the inability to obtain a CUP for expansion of HERC was cited by Hennepin County as the reason that they have ceased to pursue operation of that facility at design capacity, rather than the lower permit capacity currently allowed by the CUP. Operations in the North Hennepin Transfer Station in Brooklyn Park are limited by requirements of the City Fire Marshall that no yard wastes be dumped in the facility. Therefore, co-collected yard wastes and source separated food wastes cannot be taken to that transfer station.

[1] http://www.dailyclimate.org/tde-newsroom/2014/04/incineration-waffle

All three types of facilities (gasification, mixed waste processing and anaerobic digestion) are considered General Industrial or Heavy Industrial uses, depending on the city's specific zoning ordinance. The City of Newport, for example, considers the RRT facility to be zoned I2, General Industrial and the City of South St. Paul classifies the Sanimax facility as "Industrial." Both facilities needed special Use Permits from the respective cities to address issues such as traffic, lighting, odor control and other site-specific limitations.

RRT and Sanimax are both located in historically industrial areas that have been home to unpleasant industries (e.g. stock yards and rendering plants) and which are not close or upwind from residences. No change in property use or zoning code was needed for the facilities, although both facilities required use permits. The Sanimax PUD has significant requirements for odor control; this is an offshoot of the history of the location, and of the community's desire to end their odiferous reputation.

Most cities in Minnesota are required to meet the M4 storm water permit rules, and therefore regulate storm water quantity and quality as part of the zoning or building permit process. Watershed Districts have additional permit requirements, typically focused on water quality instead of quantity. These permits are "above and beyond" any city requirements.

The RRT facility is covered by the South Washington Watershed District[2]. Sanimax is in is the Lower Mississippi River Watershed Management Organization, part of the Dakota County Soil and Water Conservation District[3]. Projects are not denied by Watershed Districts due to a project's nature, however, on occasion the District requirements for a project are very expensive to install and operate, or require mitigation and offsets that are not possible to cost-effectively accomplish. Both RRT and Sanimax are in locations that did not require extensive water quality management systems.

Gasification Facility Experience

Two gasification facilities either in production or in design process were evaluated for experience in siting a gasification facility. The Enerkem Edmonton, Canada facility is presently in start-up mode; the Enerkem facility in Pontotoc, Mississippi is in the permitting process.

Edmonton Enerkem

The Edmonton project is billed as a partnership between the City, Enerkem and Alberta Innovates, which is a collaboration of business, government and universities. The project is prominently featured on the City's website. The project location is on a highly industrial site, near a sewage treatment facility and far from residential areas.

The Edmonton Waste Management Centre (EWMC) is stated by the City to be North America's largest collection of modern, sustainable waste processing and research facilities, and is on a 94 acre site. The gasification plant is an expansion to the existing campus, which contained a transfer station, MRF, composting facility, electronics recycling facility and other waste-related

[2] www.swwdmn.org
[3] www.dakotaswcd.org/watersheds/lowermisswmo

enterprises. The site is in northeast Edmonton, "across the river" from residential areas, with an agricultural buffer between the river and the waste campus. The waste campus area is zoned IM, which in the Edmonton code is "for commercial, office and service uses."

Connie Boyce, the Director, Community Relations for the City of Edmonton Waste Management Services was asked what contributed to a positive siting experience for the waste campus, and the Enerkem facility. She replied that:

> *"Through extensive public education and engagement, the City has fostered community pride in our sustainable waste system. The addition of a waste to biofuels facility is perceived as a positive evolution in our waste system that will enable us to reach 90% diversion of household waste. The partnership entails an agreement between the City of Edmonton and Enerkem whereby the City provides the sorted and prepared feedstock (100,000 tonnes/yr) and pays Enerkem to process it. Enerkem is funding the construction and operation of the facility, on property owned by the City. There has been no opposition to this facility."*

Pontotoc Enerkem

The Pontotoc project is located just off a state highway west of town, in an industrial park near the airport and adjacent to the Pontotoc landfill. The surrounding area is forested land, pasture and industrial property and the nearest residences are 500 feet from the landfill boundary. Enerkem has purchased slightly more than 35 acres for the facility. Press articles about the facility have been uniformly positive about the location, noting the 70 jobs that will result.

The City of Pontotoc staff is not involved with the project, and in fact not all staff members are aware of the project. The City Clerk, Dexter Warren, noted that the facility is supposed to be coming but since nothing is done yet, he has heard very little from the community about the project. Local newspaper articles have been favorable, with a positive focus on new jobs and economic development. Ronnie Bole, with the Three Rivers Planning and Development District stated that they have been working with Enerkem to build the AD facility since 2007. Enerkem owns the site, and recently bought additional land next to the landfill. He noted that the company has invested "significant" money into the permitting process for the two facilities (mixed waste processing and the bio-refinery) and the community is excited about the benefits that they see from the two plants. The facilities are expected to begin removing recyclables from waste to result in marketable commodities, and cut the current landfill deposition in half. The expectation of 40 – 50 jobs, in addition to the construction jobs, is an important benefit to the surrounding area.

Mixed Waste Processing

Pope Douglas Solid Waste Management

The Pope Douglas Waste-to-Energy facility is a mass burn technology that has recently added mixed waste processing to the front end of the facility. The facility is in an area zoned 1B,

Industrial Business, well within the city proper, next to a college and near an airport and a hospital. The facility supplies heat to the hospital, the college, and several downtown buildings.

Pete Olmscheid, Director of Pope Douglas Solid Waste Management stated that an expansion of the mass burn facility and the front end MRF had two public hearings, neither of which had any attendees to comment on the project.

The facility, in his words, is "well known and well loved." The staff conducts many tours of the facility for the general public, and has been proactive in permitting and community relations over the life of the facility. When the mass burn facility was expanded, they conducted air emission risk assessments, and self-imposed lower than state standard limits for air emissions. The MRF is considered to be a "fuel purification process," supporting the mass burn technology to minimize emissions. The campus also holds a HHW facility, yard waste drop off, scrap metal drop off and processing and the offices.

Mr. Olmscheid noted that his siting lessons learned were:

- Be proactive
- Be positive
- Educate the residents yourself

Red Wing Mixed Waste Processing

The City of Red Wing Public Works Department provides management and support services for the Integrated Solid Waste Management Campus. The campus has a mass burn facility which is in an extended outage leading to permanent closure, a mixed waste processing facility that separates recyclables and prepares RDF, facilities for management of recycling commodities, construction and demolition material, and industrial, residential and commercial waste generated in the City of Red Wing and surrounding communities in Goodhue County and Wabasha County and an ash landfill.

The mass burn facility was built in 1982, and requires significant capital funds to catch up on deferred maintenance and effect improvements. There is a lack of local support for the mass burn facility, and some local opposition to processing of MSW to RDF. The City received a CAP grant from the MPCA to build the existing processing lines, and has applied for a Renewable Energy Development Grant to expand and improve the RDF capabilities.

Jeff Schneider, the Deputy Director for Solid Waste in the Red Wing Public Works Department noted that opposition to mass burn or RDF is led by relatively few individuals, who are not long-time residents of the city. Their letters-to-the-editor and statements at City Council meetings focus on the "evils of burning," and advocate no generation of waste and/or landfill disposal. Individuals that hear them, who subsequently come to the Integrated Solid Waste Campus are surprised by the modern waste diversion and processing that occurs, and a typical response to tours of the facility is, "this is great!" He noted that overcoming the image of old, dirty, smelly burners and getting the word out that modern facilities are protective of the environment and

conserving of resources is critical to siting processes. He advocates tours, regular informative presentations to the City council and public interest groups.

Anaerobic Digestion

Rock Tenn, St. Paul, MN

Between 2006 and 2008 the St. Paul Port Authority evaluated energy generation possibilities for the RockTenn paper recycling plant in St. Paul. One of the first alternatives explored was a RDF Combustion facility on the RockTenn site that would burn RDF. Local opposition to this alternative encouraged RockTenn to form a citizen's advisory committee which advised the Port Authority in its study on conservation opportunities and waste heat usage options and on a variety of renewable fuel and technology options.

Building an anaerobic digestion facility at the St. Paul plant was discussed, and was preferable to a RDF Combustion facility, but the option was not favored by the citizen advisory committee. The Port Authority concluded that it was technically feasible, economically viable and environmentally sound to offset RockTenn's use of natural gas if the price could be discounted through revenues and carbon credits from a biogas facility in rural Minnesota. Anaerobic digestion of organic waste materials in rural Minnesota was determined to be the cleanest and least environmentally disruptive option to the Twin Cities metro area.[4]

The Port Authority eventually invested in anaerobic digestion at the Liberty Paper Mill in Becker, MN to treat wastewater from the cardboard recycling process. The AD facility, called "The People's plant" was welcomed in Becker. Liberty Paper is one of the city's three top employers, and the City is proud that it is a recycling operation. The AD project was considered to be a triple win: saving Liberty money for wastewater disposal, generating energy for the facility, and saving local jobs. The AD project was a collaborative effort of the County of Sherburne, the City of Becker, the St. Paul Port Authority and a local economic development organization, the Initiative Foundation.

Hometown Bioenergy

The Hometown Bioenergy project in Le Sueur County uses an anaerobic digester that provides the Minnesota Municipal Power Agency (MMPA) with a sustainable power generation element to comply with the Minnesota Renewable Energy statutes. The facility began operation in January, 2014. Food processing and agricultural wastes are the feedstock for the facility. Biogas from the digesters is used to fuel electrical generators, and produces 8 megawatts of electricity. MMPA is an electrical cooperative, in which each city member owns their distribution system, and MMPA generates the power for the grid. Member cities include North St. Paul, Anoka, Shakopee and nine other cities.

The AD facility is located in mined portions of a gravel pit. The surrounding land use is predominantly agricultural. The property, which had a Conditional Use Permit for mining, was annexed from the Town of Ottawa into the City of Le Sueur in a willing partnership to facilitate

[4] Evergreen Energy Final Report, September 29, 2008

the AD facility. After annexation, the property was zoned by the City to the General Industry classification.

An opposition group did form against this project, the Le Sueur Area Concerned Citizens. Stated concerns of the group included potential health effects from transported waste to the facility, emissions from the facility, reliability of the technology, uncertainty about aspects of the project that they believed they were "in the dark" about, and cost-effectiveness. The group had access to technical expertise and conducted an active outreach campaign. They did not appear to have political strength in the City, as the project progressed with few delays related to local government oversight.

Sanigreen/Sanimax

A joint venture of Sanimax and Green Energy partners plan to construct the Sanigreen Bioenergy facility in South St. Paul. It is expected to use organics wastes from local food processing facilities, schools, grocery stores and residential food wastes as the feedstock to produce natural gas, electricity and an organic fertilizer by-product. South St. Paul was the long-time home to stock yards, processing facilities and rendering plants, and wishes to shed its unfavorable reputation. Sanimax is an existing business, and is one of ten local industries that are known as offensive odor generators. The Sanigreen facility would be built next to the existing Sanimax plant.

Local review of the project was complicated by the long history of odor issues in the area; Sanimax is considered one of the four largest odor generators in the city. Citizens and Council members also noted that a 2010 Sanimax facility expansion to process poultry was supposed to result in reduced odors, but odor complaints increased after that expansion. Council members noted at several meetings that they want the 150 construction jobs, 20 full time jobs and $80,000 in property tax revenue, but wanted safeguards to protect existing residents' quality of life and property values. To effect the Sanigreen review, the City, at Sanimax' s expense, hired a consulting firm to evaluate odor, trucking, noise and other issues. Sanimax, Twin City Hide, Twin City Tanning and Dakota Premium Foods also formed an "odor consortium" with a website and odor hotline, and olfactory monitoring devices to pinpoint and resolve odor issues.

An existing 2008 PUD was modified by the Council in August of 2013. The 2008 PUD had odor and ozone emission requirements; the ozone requirements are still not being met according to the City. The new PUD requires monitoring of odors to meet baseline standards, and ongoing monitoring after facility start-up to assure that the new facility does not emit more odors than the current plant. The plant was planned to break ground in the fall of 2013, but the City states that a Building Permit has not yet been applied for, and that construction can not begin before the permit is issued. The Building Permit will require staff, not Planing Commission or Council review, and staff do not anticipate any adverse action, assuming that the building contractor meets the standard City requirements.

General Siting Practices

Siting a "new" facility at the location of a previous facility can minimize the local objection to the facility. This is especially true if there is not an actual or perceived increase in objectionable traffic, odors or emissions from the "new" facility and if a good neighbor relationship had been established by the existing facility. Placing a facility on property that is already zoned for the industrial use is much easier than changing a zoning classification or a community Comprehensive Plan to allow a currently non-conforming use.

Public information and education early in the siting process is critical to success. Communities that value economic development, job creation and support of existing industries need to hear about those aspects of a new facility. Openness of the facility to tours of similar facilities and questions about its operation, and prompt responses to community requests for information also ease the siting process.

Facilities that discussed things they would have done differently to have better outcomes stated that the following strategies would have made a difference:

- Develop a positive, coherent message from the beginning of the project that describes the need, benefit, costs and technology of the project.
- Answer all questions in a factual manner. Do not become defensive or avoid topics.
- Tell your story, and all components of your story. Missing pieces become questions, or imply that you have something to hide. For instance, if there are physical site attributes that dictate the specific location of a facility (access to a power grid, truck transportation routes, specific soil conditions, co-location to a waste heat user, etc.) make those facility needs known so that less-objective attributes (choosing the poor side of town or being downwind from desirable neighborhoods) are not conjured as siting reasons.
- Seek multiple venues and opportunities to present your project; no successfully sited facility expressed that they had gone to too many meetings, or made too many presentations.