The Skagit County Resource Recovery Facility (SCRRF) was developed in the mid-1980s to combust all of the county’s unrecycled garbage. The design, construction and operation of this project is the first of three waste-to-energy projects (along with Spokane and Tacoma) developed in the State of Washington. Their successful development in the shadows of the highly touted Seattle recycling efforts, a nearby “incinerator,” and the notorious wood waste industry “tepee burners” is remarkable. In addition, the SCRRF project was the first application of the Italian Technitalia technology on solid waste in the United States.

Based on review of the SCRRF design and discussions with the county staff, several design modifications may be warranted for similar projects in the future. First, the shredder at one end of the pit for oversize materials that might not pass through the kiln feed opening is a high maintenance item. The knives require sharpening every 3 months. Either a spare set of shredder teeth kept on hand or a second shredder providing redundancy should be considered.

Second, the magnetic metal separator for the bottom ash is susceptible to frequent plugging. The use of a trommel or screen separator may alleviate this operational problem.

The ash bins should be redesigned to eliminate cross members such that the lid halves close on, and support, each other. Ash is now dumped on the floor and a front-end loader is used to fill the bins. Another modification to the ash bins is the addition of a stainless steel or other corrosion resistant liner to resist the acidic corrosion of the bottom ash and the alkaline corrosion of the fly ash. Mixing of the bottom ash and fly ash might also reduce the overall corrosivity.

Finally, since ash management was a significant design parameter, a front end separation program or operation to remove items like automobile batteries may enhance the ash quality and facilitate management of the combined ash stream.

The arrangement of equipment in the plant building resulting in a “dirty side” and a “clean side” has operational appeal. This innovative approach warrants consideration at future installations of all sizes and technologies.

Maintaining the continuity of solid waste combustion, even to the detriment of power generation is a principle which the designers of waste-to-energy facilities must clearly understand. The recycling of the energy inherent in the combusting of waste is a fortuitous benefit but must always be seen as secondary to the environmentally appropriate disposal of solid waste.

The true success of this design will be in the long term operation of the facility. Common weaknesses of other early applications of new technologies may yet be encountered by the SCRRF. Time will be the ultimate judge of its serviceability.

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