"PRACTICAL OPERATING PROBLEMS OF ENERGY RECOVERY FROM MUNICIPAL WASTES"

by

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Why does it seem so difficult to design practical energy recovery facilities, when there are so many so-called experts in the field? Is it because Design Engineers are relying on manufacturers too much, or not enough? It is quite obvious that they do not rely on operating personnel. If operating personnel were consulted, perhaps we would not have as many engineering disasters as now exist.

Let us assume that the objectives have been defined by the local government agency, namely to have a Solid Waste and Energy Recovery facility. The main objective is to solve a solid waste problem; the secondary objective is to accomplish this by energy recovery. These objectives are quickly reversed by the Design Engineer, who, in most cases, is interested in providing a new innovative monument to the professional world. It is amazing, since solid waste became fashionable how many experts there are. Consulting Engineers, or rather Environmental Control Engineers (Consulting Engineers no longer exist) and large manufacturers who used to make such things as kitchen appliances now are all experts in Solid Waste Management. (Remember when solid waste was called garbage and no one really cared?) So now we have that rose called solid waste and a whole new ball game.

We are now about to design an Energy Recovery facility using municipal solid waste. Can they be reliable and durable? It took an oil shortage to get the utility companies interested. They still don't seem to be overly enthused, but, as a matter or Public Relations, stick to it. The markets that exist must determine the question of energy recovery.

Over the past five years many equipment manufacturers have jumped on the bandwagon and have developed new and innovative (there's those words again "new and innovative") equipment. How reliable is it? Does the Design Engineer depend on the manufacturer's sales pitch? If the equipment doesn't work as the Public Relations men envisioned, who is ultimately stuck?

Operations of such a facility depend on good systems design. How automatic should a facility be designed? How are the different modes of instrumentation integrated?

If the instrumentation or control room is so complex that no one can run it, what good is it? Where does all the instrumentation stop? There are many plants that have countless instruments, many not needed but are included merely at the whim of the Design Engineer or instrument manufacturer. It is interesting to note that many Design Engineers work from the percentage curve to determine their fee.

Manufacturers who have been in the garbage business for a good number of years, have developed some fine, reliable equipment. There are many solid waste and steam generating systems that have been in operation for years; but we keep looking for new and innovative programs. Our new philosophy is: if it isn't different, it can't be worth promoting. It is time to further develop and improve the existing equipment and while this is done the new and innovative programs will develop as we progress along a reasonable path.

In developing a good operating program several points must be considered:

1) optional operation;
2) ease of operation;
3) back-up or fail safe operation;
4) environmental acceptance;
5) working conditions

For optional operation we must never lose sight of our main objective- the solid waste problem. We must be able to handle a maximum quantity of solid waste and at the same time have optional reduction. Once we achieve our main objective, then we can concern ourselves with energy recovery.

The equipment, buildings, and grounds must all be designed to offer ease of maintenance and operation. There are not many good mechanics that are contortionists; although the way some of the equipment is designed or placed in a building you might think so. Always keep in mind a good maintenance program when designing any type of mechanical facility.

If a piece of equipment could fail, thereby jeopardizing the operation back-up equipment should be installed. Of course, space limitations and economic considerations must control such extra equipment installations. If this is the case then equipment must be made as fail safe as possible.

We must, of course, control environmental pollutants. The operation must be acceptable to the governing agencies, and also to the general public. This must also include buildings and grounds. The public is becoming aware of good pleasing designs, especially if they reside in the immediate area. A good pleasing exterior helps in morale.

Efficiency in operations depends a great deal on good, clean working conditions. Facilities that provide comforts for the employees are usually well run and maintained. Control rooms, offices; all working areas should be well lighted. Control instruments should be labeled and have large easy-to-read instruments, and should contain only the necessary instruments to properly run the operation. An easily defined schematic of the operation should be provided. A desk or large writing space should be provided at the control console and all instruments should be able to be read from this desk.

Trainging programs for operating personnel must be included in design and construction contracts. Equipment manufacturers should provide good training programs and maintenance manuals. The Design Engineer should check the qualification of existing personnel and any new personnel that may be required and recommend changes.

The Design Engineer that takes pride in a good operating facility and manufacturers that show responsibility for their equipment are far ahead in the solid waste race. Let's stop building monuments and stick to good operating facilities that do the job.