Kingfisher

INDUSTRY CASE
STUDY SHEET NO. 1

Industry:
Waste Water Treatment
Plant:
Energy From Waste

Energy from Waste Plant

Key Benefits

- **Improved wear resistance**
- **Maintain blending capacity**
- **Prevention of material build-up**
- **Cheaper than replacing**
- **Internal liner can be repaired in position**
- **Out performs traditional liners by a factor of 6 to 8 times**

WEAR PROTECTION IS KEY TO CONTINUOUS PRODUCTION & OPTIMISED WHOLE LIFE COSTS IN SLUDGE- ENERGY- FROM- WASTE (EFW) PLANTS

Problem

Sewage contains 10 times the amount of energy needed to treat it; and it is technically feasible to recover energy from sludge. As a renewable energy source, it can be used directly in wastewater treatment, reducing a facility's dependency on conventional electricity, or as a fossil fuel substitute supplying the power utility cement and mineral processing industries with a secondary fuel source in lieu of coal, to reduce emissions of greenhouse gases. Using solids as a resource, rather than a waste, may help stressed public budgets as well. However, as with any energy from waste (EFW) operation, there are costs involved. Wastewater solids must be processed prior to disposal, and solids handling accounts for as much as 30% of a wastewater treatment facility's costs.

As with all forms of energy, continuity of supply is paramount. This means that the plants that process sewage sludge into pellets or granulate are continuous operations that cannot stop for adhoc repairs and refurbishment. Militating against achieving 24/7 operation is the nature of the sludge itself. On its passage through sewers, sewage becomes contaminated with flood debris, sand, grit, deposits from environmental structures, residue from the land mass, plus metallics, and plastics. Sand and grit, in particular, are a major problem, due to their high silica content. They are highly abrasive, causing problems of wear and erosion with the equipment used to treat and process the sludge: equipment such as pipework, augers, screw casing, mixers, blenders, driers, separators, screens, centrifuges, mechanical conveyors, presses, driers, ducting, filters housings, fans and fan casings.

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Solution

All of this equipment can benefit from wear protection in order to deliver overall systems that reduce erosion and cavitations and improve material flow. However, a survey by wear protection specialist, Kingfisher Industrial has found that wear protection isn't optimised to its full benefit, and that water industry awareness of the cost and operational benefits of wear protection in the processing of wastewater and sludge is minimal.

Kingfisher has calculated that, on average users of its wear protection systems – Polymer, Ceramic and Metallic - benefit by a factor of at least 5 times their initial outlay, with many installations benefiting from wear life of up to 20-years following appropriate wear treatment. "It is far more profitable for companies in continuous process industries to employ suitable wear protection than having to provide maintenance and repair of equipment at regular intervals, due to problems associated with wear and corrosion," said John Connolly. "Reduced maintenance means reduced risk, reduced cost and generates more production uptime over longer periods – all of which are critically important to improve the efficiencies of companies that operate 24/7."

Results/Conclusion

For example: if a wear protection lining system is used for within a pipeline then the user can specify thinner walled pipe, as the lining will provide the protection. This might mean 5mm wall thickness for the pipe rather than 10mm, with a commensurate 50% saving in cost. This downsizing is possible because the pipe work becomes a carrier for the wear resistant lining, the synergy of the two meeting the requirements for pressure, temperature and wear protection.

A process plant that is equipped with a well designed wear protection system also offers additional benefits, in that the process operator has little or no maintenance requirements over the lifetime of the installation. This means no ongoing cost problems of interruptions to production as a result of breaking down pipe work for maintenance at regular intervals. It also means that no specialist labour is required, avoiding the safety risks of personnel working at height, performing hot work and lifting operations. Also avoided are the tasks of organising access platforms and plant hire, with their attendant costs – and risks; and those of devising clean up procedures for any spillages that can occur when process pipe work is perforated, thus creating an environmental issue or potential breach of legislation. As a result, the system user benefits from continuous operational gains which defray the cost of the protection system, guaranteeing a prompt return on investment.

The requirement for green energy means that the demand for energy from waste can only grow The technology for processing sludge is still relatively new, so treatment plants have a breathing space in which to adopt best practice in wear protection, ensuring that their processing effort in supplying highly demanding market sectors, such as steel, cement and power generation, is as reliable, continuous and cost effective as possible.

For a free onsite consultation or a simple quote please contact Kingfisher Industrial on 01384 410777 or email us on enquiries@kingfisher-industrial.co.uk

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