

LUBRICATING THE ENGINES SUPPLYING POWER TO THE WASTEWATER TREATMENT PLANTS

Large internal combustion engines are found at many wastewater treatment plants. They are used to produce electricity for the power needs of the entire plant, or as standby power should the electric power supplied by the municipal facility fail.

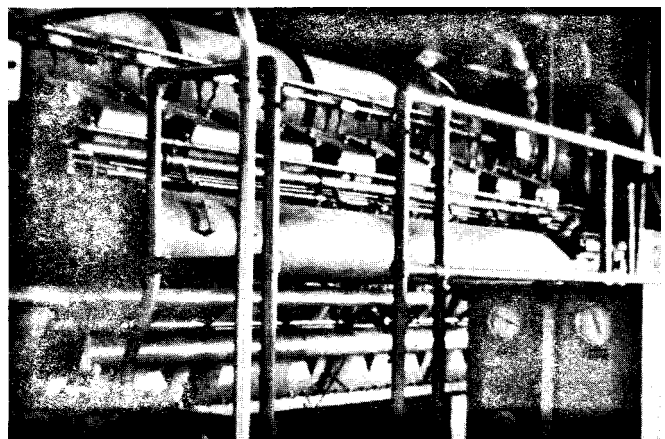
The power generated is used to drive blowers for aeration, or compressors, pumps and other mechanical equipment such as sludge collectors, digester stirrers, power operated valves and some-times serve as a source of cogeneration of heat. They may be gas, diesel fuel or dual-fuel engines. Gas or dual-fuel engines are usually chosen in order to utilize the methane gas generated in the sludge digestion process at the plant.

Most or all of the methane produced is drawn from the digesters and compressed into storage tanks. Any excess methane gas is either sold to surrounding communities, industries or if not utilized, is "flared off."

Electricity is generally the most convenient source of power, especially for operating small units distributed around the plant. In fact, most of these are made for electric operation. Because of this, many plants use their sludge gasses to power the engines driving generators. Some of these engines may serve only in case of failures of the municipal supply, or to reduce the excessive demand for electricity during peak loads. It is desirable that the engine efficiently deliver the horsepower needed. Therefore, a conscientious preventive maintenance program should be established for this equipment.

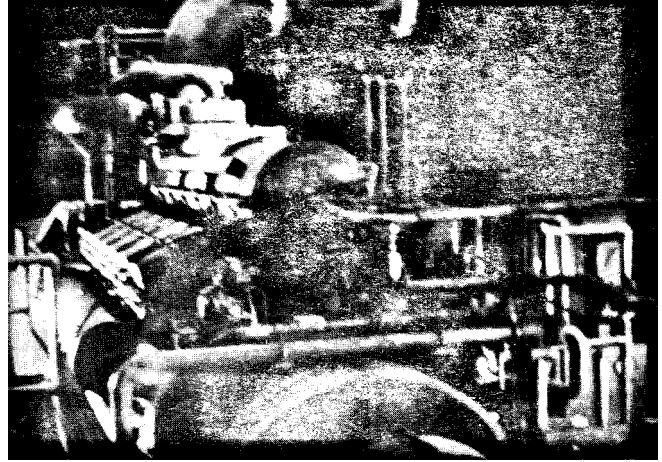
Whether or not to convert the gas to power and choosing the type and capacity of the engine to be employed is entirely an economic consideration.

Conversion of sludge gas to standby power can fulfill a major need in most plants. The type of engine generally operating on sludge gas is the high compression, dual-fuel diesel which can operate over the entire range from minimum ignition fuel oil requirements and gas, to 100 percent fuel oil with no gas. Supercharged engines, with automatic throttling of air supply to maintain more constant air to gas ratio, appear to be the engine of choice under conditions of partial load, frequently found in engine generator sets.



Sewage plant designers have found that dual-fuel engines provide a degree of versatility in that such engines may operate on fuel oil or fuel oil and gas combinations when sufficient quantities of gas are not produced to operate the engine. But regardless of the type of fuel a top quality SG/CD engine oil will normally be used for most engines. Those certain gas engines requiring a low ash oil should be supplied with the same quality level.

There are certain brands of low ash oils on the market, but the majority of all requirements can be met with LE's 8940-8941 MONOLEC® Natural Gas Engine Oil, 8800 MONOLEC ULTRA" Engine Oil, LE'S 8410-8450 MONOLEC GFS® Engine Oils, or LE'S 8330-8340 MONOLEC PLUS" Engine Oils. All these products are compounded from the very finest midcontinent 100% paraffinic base oils and special additives and inhibitors which generally far outperform conventional oils. The wastewater treatment plant operator should investigate these high quality oils for their economics and energy savings. The recommended LE lubricants for the typical installation are as follows:



DIESEL, GAS OR DUAL-FUEL ENGINES

CRANKCASE:

Gas/Dual-Fuel	8940-8941 MONOLEC Natural Gas Engine Oil 8330-8340 MONOLEC PLUS Engine Oil
Gas/Dual-Fuel & Diesel Diesel	8400 Series MONOLEC GFS Engine Oil 8800 MONOLEC ULTRA Engine Oil

FUEL SUPPLY ADDITIVE:

Gas/Dual-Fuel	2300 L-X Heavy Duty Chemical Supplement
Gas/Dual-Fuel & Diesel	2410-2430 BTU ⁺ Diesel Fuel Improver

GREASE FITTINGS:

1275 ALMAPLEX Industrial Lubricant, or
3752 ALMAGARD Vari-Purpose Lubricant
4622 MONOLEC MULTIPLEX Industrial Lubricant

OIL LUBRICATED POINTS:

Any MONOLEC® Engine Oil



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