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GEORGIA TECH FINDS ENERGY USE
FOR ARMY WASTE PROBLEM

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ATLANTA, GA.....Each year the U.S. Army disposes of thousands of pounds of explosive waste material that Georgia Tech researchers say could be used for energy.

Working with funds from the U.S. Army Armament Research and Development Command, researchers at Georgia Tech's Engineering Experiment Station have found that TNT-contaminated waste, when subjected to a thermo-chemical process called pyrolysis, can yield char, oil and gas--all of which are useful sources of energy.

Pyrolysis, a process which dates back to the Pharaohs, is the decomposition of solid organic waste brought about through the action of heat in the absence of oxygen or with limited amounts of oxygen. Dr. James Knight of EES says Georgia Tech has been perfecting what is called a continuous pyrolysis process for several years as a means of converting waste materials to useable, clean-burning fuels.

According to Knight, the Army is interested in the pyrolysis process as a way of safely disposing their explosive waste material while at the same time converting it to useable energy forms. Explosive waste material used in this project consists mainly of packing material such as cardboard

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and paper towels that have been contaminated with relatively small amounts of TNT. Ordinarily this material is disposed of either by open-air burning or by incineration. Any energy potential the material has is lost by using these disposal methods.

By using the pyrolysis process, however, this waste material is converted into energy sources--char, oil and gas--and could give the Army a new source of fuels for their bases. Test results show that this can be done without any explosion hazard.

Knight says the char, which is similar to coal, can be used by the Army for heating. "Actually," says Knight, "the char is much better than coal for heating because it has about the same heating value of coal but contains no sulphur and therefore is non-polluting. The Pittsburgh Energy Research Center, part of the U.S. Department of Energy, has done studies on the feasibility of mixing pyrolysis char with coal in order to lower sulphur levels and lessen pollution."

The recovered oil has about two-thirds the heating value of petroleum-based fuel oils, and Knight says it is a viable contestant for jobs now being performed with petroleum-based oil. Petroleum oil has approximately 18,000 Btu's per pound and pyrolysis oil has 12,000 to 13,000 Btu's per pound.

According to Knight, the pyrolysis-produced char and oil are storable and transportable fuels. However, the gas which is produced must be used on-site because it has a low-energy value per cubic foot, and all of its energy would be used in the transport process.