LETTERS

Letters, unlike papers and technical notes, are for the rapid publication of both fact and opinion on technical subjects and are therefore not subject to the referee review process.

LEAD ISOTOPE SEPARATION

Dear Sir,

Reference is made to the article "Liquid Metal Breeder Reactor (LIMB) Nuclear Evaluation" by Robert J. Teitel and John B. Brown on page 13 of the February issue of **Nuclear Applications.**

Some time ago I called to the attention of Dr. Teitel the advantage of tetramethyl lead over tetraethyl lead in isotope separation. However, the use of enriched lead depends on whether the over-all economics of this concept permits the extra burden of the separative process.

Consider, also, the growing alarm over the use of leaded gasolines as related to air pollution and the lung cancer mystery. In addition, there is some concern over soil contamination by lead residues along highways.

The availability of a volatile intermediate in quantity production is a significant factor particularly since the diffusion separation is inherently expensive. However, with increased pressures from the anti-pollution factions this advantage seems likely to disappear long before breeder power reactors attain importance.

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DAMAGED CONTROL-ROD-BASKET REMOVAL

Dear Sir,

Not infrequently, size and space limitations present reactor operators with problems in the disposal of large or unwieldy irradiated objects from reactor vessels or spent-fuel storage facilities. Often the problem seems disproportionately difficult when in reality a simple straightforward solution may be close at hand. In the interest of reassuring other reactor operators, we offer such an experience at the Army's SM-1 reactor along with the method we ultimately chose for solution of the problem. The simplicity of the tool devised, and the ease with which the operation was conducted, once the problem was placed in proper perspective, should encourage other operators.

During fuel-handling operations conducted in June 1960, two control-rod baskets were damaged. Although repair of one was accomplished in place, attempts to repair the second were unsuccessful. The dimensions of the damaged assembly (approximately 9-ft(2.7m) long, with the dashpot piston and rack portion of the drive attached) precluded its removal intact through the fuel-transfer chute. Disassembly was impractical, as was also removal through the top of the vapor container or through the side entrance to the building. The damaged basket assembly was stored in the inner shield tank while preparations were made for cutting it into manageable lengths underwater.

A special cutting tool, locally fabricated from commercially available materials, comprised an air motor driving a 12-ft(3.7m) shaft connected to a flexible grinding wheel (Fig. 1) and the necessary handling and clamping devices. Transverse motion of the grinding wheel was provided by cam action through tension on the feed chain. Although means of removing cuttings from the work area had been provided by means of pump suction, it was not utilized during the cutting operation for fear of damaging the available pump.

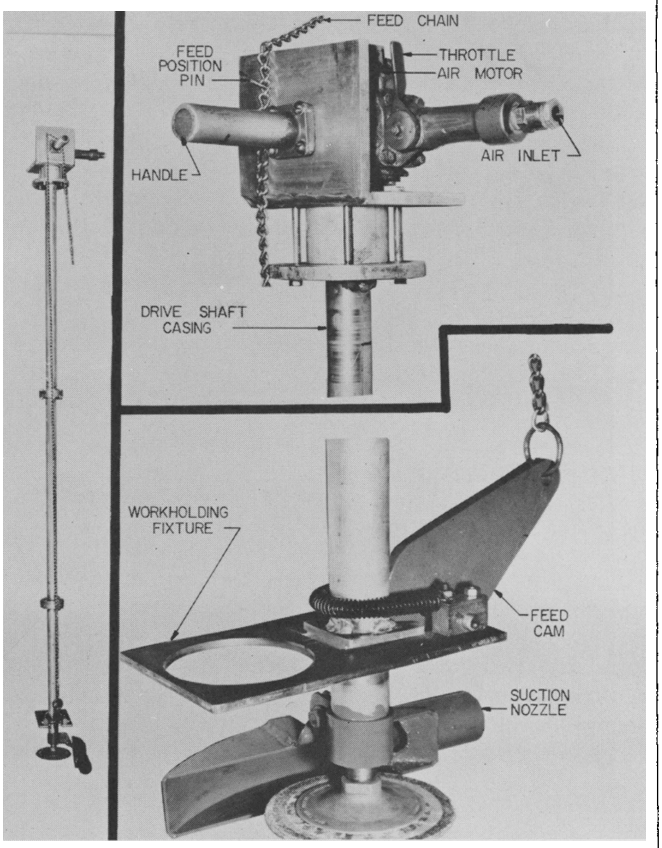

Fig.1: Cutting Tool