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1.-2. H. W. Bellas
3. C. B. Buford
4. C. L. Cowan ←
5. G. Dessauer
6. L. W. Fox
7. A. A. Johnson
8. F. E. Kruesi
9. W. P. Overbeck
10. L. H. Thacker
11. O. A. Towler
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TO: C. L. Cowan
P-8 Group
University of California
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FAST NEUTRINO PRODUCTION

SUMMARY

At the request of the Los Alamos Neutrino Group (through C. B. Buford), a calculation was made to determine the production rate of fast neutrinos from the reaction:

$$_0n^1 + {}_3Li^7 \longrightarrow {}_3Li^8 \xrightarrow{0.83\ sec} {}_4Be^8 + e^- + \nu + 13.4\ Mev$$

The attached graph gives the production rate of fast neutrinos in number/MW-sec as a function of the power level in MW for the P reactor. The errors in the estimation are of the order of ± 5%.

DISCUSSION

The neutrino production rate was obtained from estimated tritium production rates as given in DP-56 and DPSP-55-442. The constants used in the calculation were:

σ(Al)	0.22 b
$\sigma(Li^7)$	0.033 b
$\sigma(Li^6)$	950 b
Energy released/fission	198 Mev

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By O. A. Towler
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