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4125

LOS ALAMOS SCIENTIFIC LABORATORY
MEMORANDUM

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November 9, 1954

4716

TO: Distribution

FROM: George I. Bell

SUBJECT: CONTROL OF RADIOACTIVE CONTAMINATION FROM LARGE YIELD WEAPONS.(U)

SYMBOL: T-649

The characteristics have been investigated of some large yield weapons [redacted] it is felt that one must use a fuel which contains a substantial amount of Li^6 and which is compressed by an efficient implosion system. Two detailed calculations have been made. However, no general survey has been made to explore the yield as a function of implosion system and Li^6 concentration.

[redacted]

DOE b(3)

DOE b(3)

CRM FILE BC
DD 38387

DEPARTMENT OF ENERGY DECLASSIFICATION REVIEW	
1ST REVIEW-DATE: 1-30-96	DETERMINATION [CIRCLE NUMBER(S)]
AUTHORITY: ☐AOC ☐ADC ☒ADD	(1) CLASSIFICATION RETAINED
NAME: R.A. Carpenter	2. CLASSIFICATION CHANGED TO:
2ND REVIEW-DATE: 1-31-96	3. CONTAINS NO DOE CLASSIFIED INFO
AUTHORITY: ADD	4. COORDINATE WITH:
NAME: R.A. Sanders	5. CLASSIFICATION CANCELLED
	(6) CLASSIFIED INFO BRACKETED
	7. OTHER (SPECIFY):

RESTRICTED DATA

This document [illegible] Restricted Data [illegible] Energy Act of 1954. [illegible] subject to Administrative and Criminal Sanctions.

96SA20B000009

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[redacted] Again, however, detailed calculations have not been carried out to determine a quantitative dependence on atomic number.

DOE b(3)

[redacted]

DOE b(3)

Detailed implosion and steady state burning calculations have been done [redacted] It is not felt that the known inaccuracies of the calculation are sufficient to permit the true yields to be more than about 50% higher than the above numbers.

DOE b(3)

The gamma radioactivity resulting from explosion of such a device [redacted]

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[redacted]

DOE b(3)

Other wall materials have been considered. [redacted]

DOE b(3)

It is to be noted that this number of active atoms [redacted]

DOE b(3)

Neutron capture cross sections are not accurately known in the relevant energy regions; [redacted]

DOE b(3)

[redacted]

Two graphs have been prepared to show how this [redacted] compares with fission product activity. They are somewhat simplified in that the involvement of many half lives and gamma energies has been ignored and only the dominant (and more or less average) decay [redacted] has been considered. The predominant gamma ray energy is 0.41 Mev, somewhat less than that for an average fission product decay.

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[redacted] DOE b(3)

the graphs. There it is indicated that for periods up to about two weeks, and in areas where contamination from fall-out might otherwise be heavy enough to be practically significant, [redacted] On the other hand, after a period of five or six weeks, [redacted] DOE b(3)

George I. Bell

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FIGURE 1

359-120 KEUFFEL & ESSER CO.
Logarithmic, 3 X 3 Cyc.

b (3)

FIGURE 2