[redacted]

contribute. It should be pointed out that everything included in the Curtiss shipment has been handled before on test operations, although this is probably the most complex shipment yet made.

Tritium

Tritium, a radioactive isotope of hydrogen, is combustible, highly toxic and quite expensive. It's combustible properties offer no problem since the amount of tritium as a volume of gas is so small that its chemical energy may be neglected. The value of the tritium, in excess of one million dollars, calls for more than the usual amount of care in the protection of the containers and their contents and in consideration being given to salvage.

Tritium must be considered as a highly toxic element because of its radioactivity. However, it is carried in cases which, while not yet proven in stockpile experience, have been subjected to careful engineering and testing. The tritium will be carried at high pressure (thousands of pounds) in small stainless steel bottles which have been designed to a strength of four times the actual pressure and have been tested to an excess pressure of at least 50%. These smaller containers are carried inside

Att 6 [redacted]

of larger containers which are, themselves, pressure sealed and tested to withstand the lower pressure that would accumulate in the larger container if the smaller container should leak out of all its contents. Furthermore, the larger container is provided with a pressure gauge which will be checked periodically to see if there has been a leak in the inner container. Portable monitoring devices will, from time to time, be used to monitor for the presence of even negligible amounts of tritium; the storage area of the Curtiss will be constantly monitored.

Aside from the required careful handling of tritium containers and the periodic monitoring control that will be carried on, it is probably more significant to assure that tritium containers are not exposed to combustible environment. It is certain that the design of the present containers are such that they can safely withstand an increase in temperature of something like 300°F. However, exposure to any fire of any size for a reasonable length of time will most certainly affect the safety of the contents. An incipient fire around these containers may be fought by standard fire control techniques. A large fire, detected late, that would affect the tritium containers would require that damage control personnel be provided with full-face rescue breathing apparatus.

Nuclear Material Containers

There will be two containers carrying standard fissionable components. These may be considered inert except when involved in a large-scale fire. Incipient fires may be fought by standard fire control techniques; in a large-scale fire, detected late, damage control personnel should wear respiratory protection (full-face assault masks or better) and work from upwind. The high value of these containers indicate more than usual care in their handling and consideration for salvage.

Detonators

Spare detonators will be carried in suitcase-like containers. The explosive material in these detonators is small in amount and has substantially less sensitivity than is met with in military or commercial detonators. The nature of the components and of their packaging is such that the loss of one detonator by explosion will not propagate others. The only realistic possibility of accident involving detonators is an environmental fire. Such a fire may be fought by standard fire control procedures.

Lithium Hydride

The total weight of lithium hydride (or similar material) to be shipped is substantially less than has been carried aboard the Curtiss on a previous operation. All this material will be packaged in sealed containers. Although lithium hydride is water sensitive in that it reacts with moisture to evolve hydrogen, the packaging is considered to be so reliable that any fire in the environment of this storage may be fought with the standard fire fighting techniques. In the absence of water lithium hydride burns at a rate slower than wood.

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by any nuclear yield, nevertheless, the problem of contamination of the immediate shop and possibly the entire ship may be so great that the ship will be rendered unsuitable for habitation until extraordinary decontamination procedures are undertaken.

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Standard fire-fighting and rescue techniques may be employed by airfield damage control personnel. Crews should work from upwind. The high value of tritium makes salvage desirable.

Lithium Hydride

Lithium hydride (or hydride-like pieces) will be carried aboard aircraft in sealed containers. The reliability of the packaging and the low combustibility of this material (it burns more slowly than wood) indicate there is no significant risk as an aircraft cargo.

Of course lithium hydride is water sensitive, liberating large quantities of hydrogen when allowed to come in contact with water. However, in any serious mishap at an airfield there is no reason why emergency crews cannot use standard fire-fighting techniques, particularly for salvage and rescue work. Any hydrogen generated out-of-doors would dissipate rapidly and even if the hydrogen did ignite its energy contribution to a serious aircraft fire would be modest compared to the aircraft fuel.

Nuclear Material Containers

These may be considered inert except when involved in a large-scale fire. Aboard an aircraft, incipient fire may be fought by standard fire control techniques. In a major untoward incident that may occur on a takeoff or landing, the airfield damage control personnel should wear respiratory protection (full-face assault masks or better) and work from upwind. The high value of these containers indicate more than usual care in their handling and consideration for salvage.

Detonators

See paragraph above, in discussion of Curtiss shipment, dealing with these components.

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2A - Col. H. R. Fleming, JTF
3A - T. Shipman, LASL
4A - W. Ogle, LASL
5A - G. Felt, LASL
6A - H. S. Allen, LASL
7A - H. S. Allen, LASL

[redacted]

12A - C M & R

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