

July 17, 1959
Address: 794-42 SS

To: R. E. Durand
From: R. K. Owen
Subject: Airborne Radioactive Contamination in SRE High Bay during
Reactor Operation.

It is hereby recommended that the SRE be shut down until the sources of the airborne radioactive contamination in the High Bay are located and repaired.

Intermittent airborne activity at SRE has long been a problem, but the primary reason for this recommendation was the condition occurring July 12, 1959 during power run #14 while the reactor was operating at about 1 Mwt. At this time, the High Bay atmosphere became contaminated. A high volume air sample taken in the High Bay showed an airborne activity of 3×10^{-7} uc/cc. This concentration is 300 times the maximum permissible concentration in air for unidentified beta gamma emitters (MPC = 10^{-9} uc/cc. An attempt to locate the cause of the release showed that reactor channel R7 containing a sodium level probe was the primary source of leakage.

On subsequent days during this power run, other leaks were found in reactor channels R29 and R50 and possibly in the Cerrobend seal.

Attempts at identifying this activity have to date been unsuccessful, however, the airborne contamination levels have in every case varied directly with reactor power. Even if identification of the activity showed it to have an MPC greater than 3×10^{-7} , repair of the leaks would be desirable in order to prevent the release of more toxic materials in the event of a serious fuel rupture.

/s/ R. K. Owen
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