

PRELIMINARY NOTIFICATION

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PRELIMINARY NOTIFICATION OF EVENT OR UNUSUAL OCCURRENCE PNO-V -80-64A

August 22, 1980

This preliminary notification constitutes EARLY notice of events of POSSIBLE safety or public interest significance. The information presented is as initially received without verification or evaluation and is basically all that is known by IE staff on this date.

FACILITY: General Atomic Company
San Diego, California
Docket No. 70-734

SUBJECT: EXPLOSION OF A CONTAINER OF UC-ThC POWDER

Update on PNO-V-80/64 issued on August 11, 1980:

The licensee reported the explosion of an aluminum container of UC-ThC on 8/11/80 at 10:30 A.M., PDT. The explosion occurred at 2:00 P.M. on 8/9/80. The aluminum container was believed to be inerted. The explosion was caused by loss of inerting gas, or by reaction with impurities, or a combination of both. The aluminum container was cylindrical, valve-topped and 150 in.³ in volume. It has a wall thickness of 0.034 mils.

The contents of the container were approximately 800 grams UC-ThC of which 200 grams were U-235. The contents of the container has been screened and the particle size range was from 106 to less than 1 micron.

An employee was holding the container at the time of the explosion and received a cut wrist. The cut was washed and found not to be contaminated.

Four employees were in the vicinity at the time. Nasal wipes of those persons indicated 94, 96, 103, and 855 disintegrations per minute, a qualitative indication that some internal deposition may have occurred. Eight additional nose wipes of other employees who were in the building but not in the vicinity of the explosion indicated less than 18 disintegrations per minute and, therefore, no qualitative indication of internal exposure. All employees in the facility at the time of the explosion have submitted urine samples. The urine samples submitted by the four employees in the immediate vicinity were processed on a rush basis. Those samples were analyzed for U-235 and natural thorium. The results of those samples for employees in ascending order of nasal wipes results were:

<u>Nose wipe d/m</u>	<u>U-235 as % MPLB</u>	<u>U-235 d/m/24 hours</u>	<u>Nat Th (mg)</u>
94	4.8%	4.2	0
96	4.0%	4.0	0
103	4.0%	3.5	0
855	15.7%	12.1	0

Lung counts for thorium on those four employees indicated no thorium lung deposition.

The maximum airborne concentration was measured at a sampling station five feet from the explosion and indicated 1.8×10^{-8} uCi/cc accounting for both ²³⁵U and thorium. Similar samples at six feet and twenty feet indicated 3×10^{-9} uCi/cc and 3×15^{-10} uCi/cc respectively. Those samples included the explosion and about seven hours of collection time prior to the explosion.

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-2-

The four employees in the vicinity of the explosion evacuated immediately. The longest exposure time to airborne activity was estimated as two minutes and was incurred by the person indicating the nasal wipe of 855 disintegrations per minute. No respiratory protective equipment was being worn at the time.

Region V's evaluation indicates that no exposures to airborne activity in excess of 10 CFR 20 limits occurred. That is confirmed by the licensee's urinalysis results.

Contamination levels in the vicinity of the explosion (dry scrap recovery area) ranged from 1000 to 50,000 dpm/100 cm². The best estimate of lost SNM was 69 grams which was reported to Region V Safeguards Branch on 8/13/80 by telephone. Damage to property was less than \$2000. Decontamination operations required about 48 hours but did not require the downtime of scrap recovery facilities.

Region V will review this incident during the next regularly scheduled inspection during the week of 09/08/80, at which time U-235 lung counts by Helgeson Enterprises will be available.

The licensee is continuing his investigation. Initial notification was made by the licensee to Region V by telephone on 8/11/80.

Neither the NRC nor the licensee plans to issue a press release. There has been no media interest.

This item is closed for Preliminary Notification reporting purposes.

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