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Subject: Yellow Alert: Defective Breathing Air Compressor Hose

**Title: Defective Breathing Air Compressor Hose**

Identifier: RL--ERC-1998-0001

Date: June 24, 1998

**Lessons Learned Statement:** All KURI, 3/4 inch ID, Food Grade, 300 psi rated air hose used to connect breathing air compressors with terminal equipment should be pressure tested to verify that the compression fittings will hold. (No testing is required for hose connecting the terminal compressor equipment, such as a distribution box, to the respirator face piece. This hose must be purchased only from the manufacturer of the face piece and cannot be altered.)

**Discussion of Activities:** On April 20th an air hose connector failed when a high capacity (150cfm) air compressor was valved on line. This was the third failure of this type in approximately 12 months, with three different types of hose crimps. Whip check were in use so no employee hazard occurred. Also all of the failures occurred prior to connecting employees to the system, when pressure at the outlet manifold of the compressor was at maximum (approximately 120 psi). Corrective actions previously taken were:

- a. Hoses were sent back to the manufacturer and four sided crimps were installed to replace 2 sided crimps.
- b. Several hoses were sent to a local hose manufacturer and the four sided crimps were replaced with band crimps.

**Analysis:** The hose was returned to another local hose manufacturer to determine the cause of failures, which were assumed to be from the type of crimps being used (reference Lessons Learned ALO-AO-MHSM-PANTES-1977-0079). However, pressure testing of these hose and crimp combinations indicated that the cause of the failures was not the type of crimp, but the poor fit of the hose to the end compression fittings. Although the hose was rated to 300 psig, the end fittings consistently failed at 150 psig, or less.

The food grade hose specified by the original compressor manufacturer has a non-typical wall thickness and the interior of this hose is very slick.

The compression fittings commonly used for this size hose were too small in diameter to adequately engage the crimping collar. A slightly larger diameter compression fitting was found that in combination with a 6 sided crimp would not fail at a static pressure test of 300 psig.

**Recommendations:** All 3/4 inch ID KURI hose used to connect compressors to terminal equipment should be refitted with Ancor Compression Fitting #P/N 29-12-12, with 6 sided crimp.

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