

(*) 1990 - Army fails WSS system in gas results below
IT claims Army never tested its mask connections on
fielded canteens - but fails WSS system.

GPS
UGL

MAY 1990

NATICK
FIF
manager

1st ~~Technical~~ Test that
FIF failed -
due to Army not
putting in properly B.

Message # 3 : 814/ 0VIES/
Date: Wed, 23 May 90 8:09:18 EDT
From: donald davis
To: mcninematnick

1000 <ddavis@natick-emh1.army.mil>

----- Forwarded message 1:

Date: Thu, 17 May 90 13:23:55 EDT
From: donald davis 1000 <ddavis@natick-emh1.army.mil>
To: tfmitch@crdec4.apgea.army.mil, wkDavis@crdec8.apgea.army.mil,
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Cc: cwilliam@natick, rgranche@natick, igardell@natick,
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Subject: (*) MDS-1 Technical Test Status/Revision

Due to the series of events which have transpired during the
chemical agent testing of the MDS-1 at CRDEL, it has become
necessary to rethink the objectives of the testing being
conducted.

Army
Re THINKS
OBJECTIVES
OF
FIF TESTING -
using of course -
FIF funds for
their own
objectives
(illegal use
of funds?)

Testing commenced the week 30 Apr 90 and immediately an
off-gassing sulfur compound (curing agent) from the rubber
components of the MDS-1 was determined to be causing a false
positive reading from the MINICAMS agent detection monitoring
equipment. CRDEC test personnel were successful in "tuning out"
the false sulfur signal being seen by the MINICAMS. Testing was
"re-started" on 07 May 90.

Day 1 testing involved HD vapor exposure of five MDS-1
(without butyl sleeve/cap) for a period of six hours with
continued monitoring to 24 hours. Air flow rate through the
MDS-1, for MINICAMS monitoring purpose, was 1.0 liter/minute
(1/m). The MINICAMS detected small amounts (5-10 nanograms (ng))
of agent penetration immediately for each of the five MDS-1 being
tested. This penetration remained consistent and steady for the
six hours HD vapor was introduced into the test environment. Once
the HD vapor was stopped, agent detection values began to drop
until becoming negligible, holding steady through the remainder of
the monitoring period (cumulative amounts averaged approximately
2.0 micrograms (μ g)).

After some discussion, it was surmised the MI/mask drink tube
(MI/MDT) connections on both ends of the MDS-1 were responsible
for the immediate detection of agent in all five MDS-1.
Investigation into whether the MI NBC canteen cap, when initially
designed, was tested for resistance to vapor penetration when
mated with the mask drink tube turned up nothing. Day 3 of
testing saw this HD vapor scenario repeated, again using five
MDS-1, with similar results seen with regard to initial agent
detection, the point at which the penetrating agent begins to
decrease and the reduction to negligible amounts after the vapor
is stopped. However, the average cumulative amount of agent

(*)
Army finds
its fielded
mask/canteen
cap connection
is untested!

CAS
VAPOR
TEST

1990 - Army failed WSB/Cyan systems in 905 TEST. Decides
p202 to ~~plan something~~
"determine as much information about the
system as it is possible"

B1

increased to approximately 6.8 μ g. The increase in cumulative agent penetration from Day 1 to Day 3 is thought to be caused by the orientation of the MI/mask drink tube connection, as previously mentioned.

Day 2 testing involved exposing three MDS-1 (again, no butyl sleeve/cap) to HD in the form of liquid droplets, corresponding to

10.0 g/m based on the approximated surface area of the MDS-1. Again, air flow through the MDS-1 was 1.0 l/m and monitoring was performed for 24 hours. Although initially lower than the values seen in the vapor test, agent penetration amounts and behavior during the first six hours of liquid HD testing were similar the vapor tests. Based on the evaporative effects of the HD droplets, which were placed on the tubing and bulb connectors only, agent penetration began decreasing after the 6-7 hour time frame. However, at approximately the 10-11 hour time frame, agent penetration increased substantially and continued to the end of the 24 hour monitoring period. Cumulative agent penetration of the three MDS-1 were 32.4, 32.6 and 32.8 μ g.

Army
Assumed for
TSST
FIF would
fail Type
classification -
DO altered not
of TSST to
"determine as much
information about the
system as is possible"

Due to the fact that HD penetration of the MDS-1 during liquid agent testing was over eight times greater than allowable skin contamination levels, it was assumed IECOM/PM/Natick recommendations for procurement of this modified ND1 MDS-1 prototype would ultimately be unfavorable. Therefore, it was decided that the remainder of the technical testing should be revised to determine as much information about the system as is possible. It is recommended that the following test iterations replace the original test plan.

HD LIQUID TESTING

Test Conditions

Reason

Orientation; Flow : Agent Applied

- | | |
|------------------------------------|-------------------------------|
| 1. No Silv/Cap: 1 l/m: Tubing/Conn | Done. original plan |
| 2. No Silv/Cap: 1 l/m: Tubing | Determine deficient component |
| 3. No Silv/Cap: 0 l/m: Tubing | Verify MI/MDI vapor effect |
| 4. No Silv/Cap: 1 l/m: Conn | Verify deficient component |
| 5. No Silv/Cap: 1 l/m: Bulb | Determine deficient component |
| 6. Sleeve/Cap: 0 l/m: Sleeve | Test operational mode |

* 0 l/m denotes no forced air flow through the MDS-1. Sampling of the air in the MDS-1 will be performed using the MINLAMB sampling system

All liquid HD test variations will be performed on a total of six MDS-1.