

NOTICE

**CERTAIN DATA
CONTAINED IN THIS
DOCUMENT MAY BE
DIFFICULT TO READ
IN MICROFICHE
PRODUCTS.**

DECLASSIFIED

HW--15237

DE92 010910

RECORD CENTER FILE

RECEIVED

MAY 28 1956

300 AREA CLASSIFIED FILES

- Copy #1 - C. H. Gross
- #2 - J. E. Lhider
- #3 - H. M. Parker - C. M. Patterson
- #4 - R. S. Bell
- #5 - R. H. Beaton - J. B. Work
- #6 - T. B. Pugh - F. J. McKinnon
- #7 - T. Prudich
- #8 - Pink
- #9 - Yellow
- #10 - 700 File

Richland, Washington
November 29, 1949

TO: FILE

HANFORD WORKS

Area Investigation

Near Serious Accident

This Document consists of
3 Pages No. 9 of
10 Copies, 3 of

COPY 1 OF 1

Date of Occurrence: November 9, 1949
 Time: 8:42 P. M.
 Persons Involved: Operator and Technical Loaneo
 Injury or Damage: Superficial Laceration to Head of Operator.
 Damage to bell jar.

Area: 200 West
Division: S Division

Classification Cancelled (Change to
DECLASSIFIED)

By Authority of
BF O'Meally 3-12-73

By PM Eck 3-5-92
Verified by DA B. 3-6-

Description of Conditions Involved:

At approximately 8:42 P. M., November 9, 1949, an explosion involving Nickel Carbonyl occurred in Coating Hood No. 25, located in the 235 Building process area.

During the 8-4 shift, Nickel Carbonyl gas cylinders feeding the bell jar in Coating Hood No. 25 were changed by manipulating valves so that an unused cylinder would be brought into use. (Two gas cylinders are installed in a cabinet located under Hood 24, but only one cylinder is used at any given time). This change was made since processing difficulties were being encountered at this particular hood and it was possible that an impure Nickel Carbonyl gas might be a source of the difficulty. The 8-4 shift purged the gas line with five (5) portions of gas to assure that all gas from the cylinder formerly used had been displaced. Each portion of gas was exhausted from the bell jar by using the "roughing" pump.

After the 4-12 shift had relieved the 8-4 shift and finding both valves in the gas line closed the question arose as to whether or not the section of line between the closed valves had been purged. It was then decided to purge the gas line to assure that it was adequately cleaned.

This document contains information affecting the National Defense of the United States within the meaning of the Espionage Laws, Title 18, U.S.C., and its contents in any manner to be authorized or prohibited by law and its transmission or the revelation of its contents in any manner may result in the commission of a crime under Federal criminal laws.

MASTER REFERENCE COPY

DECLASSIFIED

DECLASSIFIED

HW-15237

File

-2-

November 29, 1949

- The operator bled Nickel Carbonyl gas into the bell jar until the pressure increased from 28 to 26 inches mercury, on the Bourdon vacuum gauge. At this point the operator opened the vent valve and then started exhausting the Nickel Carbonyl gas-air mixture by using the "roughing" pump. The Technical loanee had instructed the operator to rough out the gas and then vent the bell jar; evidently the instructions were misunderstood and the operations were performed in reverse order.

• An explosive mixture of air and Nickel Carbonyl developed and exploded in the bell jar. The explosion was of sufficient force to completely disintegrate the glass bell jar and force the rubber gloves inside out so that they extended into the operating gallery. Several pieces of glass pierced the gloves and were thrown into the operating gallery. One glove apparently brushed the operator's head (he was in a crouched position in front of the hood), and he received a superficial laceration to the scalp, possibly from a piece of glass.

Neither the operator nor the Senior Supervisor on shift realized that it was possible to develop an explosive mixture. The Technical loanee realized the possibility and gave instructions as to the order of operations, but apparently was not understood by the operator.

Observations:

1. The heating unit was off.
2. Gas lines were not broken in charging cylinders. Cylinders were switched by opening and closing valves only.
3. Examination of the hood after the explosion revealed that some oil (approximately 5 cc) was on the bottom of the hood adjacent to the bell jar base.
- 4. No definite purging procedure had been written for charging cylinders.
5. This type of purging is not a routine job.
6. The possibility of explosion had not been stressed. Emphasis had been placed on the toxic properties of the gas and carbon monoxide liberated on decomposition.
- 7. It is apparent that the information turned over at shift change was insufficient, in that there had been a misinterpretation of information.
- 8. The normal operating procedure is written and in use.

Recommendations:

Specific

1. Men should be thoroughly acquainted with material being handled.
2. Procedures must be written for all operations whether routine or not, and thoroughly covered with operators and supervision.
- 3. A study be made to determine use of an inert gas rather than air to purge system.

DECLASSIFIED

DECLASSIFIED

HW-15237

File

-3-

November 29, 1949

4. Valves on this system, both from cylinder and vent, be locked out.
Clearance be made through supervision for unlocking valves.

Responsibility

- 1 - 1 Lack of instruction and procedure.
2 - 1 Operator not following instructions as given.

INVESTIGATING COMMITTEE

T. Prudich, Chairman, S Division
F. E. Collins, Technical Division
K. K. Campbell, Maintenance Division
B. Weidenbaum, Technical Division
W. O. Goslin, Safety Division

VR Chapman for T Prudich

T Prudich:ed

DECLASSIFIED

END

**DATE
FILMED**

5 / 18 / 92

