

## NARRATIVE

**Employer Name:** Northrop Grumman

**Inspection:** 1648558

**Purpose:** Investigation of Fatality

### Opening Narrative

On or about 1/31/2023 Compliance Safety and Health Officer (CSHO) Daniel Burns (accompanied by CSHO Liz Carroll) conducted an inspection of Northrop Grumman located at 5000 S 8400 W, Magna, UT 84044. Opening conference was held with the [REDACTED] (Attorney), [REDACTED] (Attorney), [REDACTED] (Sr Engineering Manager), and [REDACTED] (Plant Site Manager). Credentials were presented and all applicable opening conference items were discussed and marked on the inspection checklist.

The company is a federal government contractor. The company has 3367 employees within the State of Utah.

### Inspection Narrative

This inspection is in regard the fatal event involving two employees from Northrop Grumman. On 1/30/2023, two employees entered a confined space located in building 2440 and both succumbed to an atmospheric hazard within that space. The structure in which the incident occurred used argon gas in its process. Leaks were known to occur within the space.

On or about 1/31/2023 [REDACTED], et al stated the following concerning the incident that occurred on 1/30/2023:

- The incident occurred in the pit area of autoclave 11 (AC) located in building 2440.
- A new pump had been installed and operations were ongoing to perform tests. As test were being performed, employees checked for leaks within the pit area using sonic ears.
- Entrance into the pit area of AC-11 requires smock, shoes, glasses along with an MSA Multigas Detector (MSA). Teams of two employees are used (spotter and entrant)
- Decedents were discovered by oncoming crew. Decedents were wearing "street clothes" and a pair of sonic ears were also located near the decedents.

On or about 1/31/2023, CSHO performed a walkaround inspection of building 2440. CSHO observed the following:

Note: Due to the nature of operations within building 2440, only basic descriptions of the area are provided in this narrative. Photos can be viewed within the case file.

- The ground level of AC11 had three access points.

- Four flights of stairs led from the ground level to the pit area which were preceded by a barricade for access.
- A sign that read “Confined space entry can be fatal. Entry by permit only” was affixed to the interior wall near the AC-11 pit stairway entrance.
- \*The footprint of the pit for AC-11 is approximately 13’ x 19’, and the height from the floor of the main level of building 2440 to the bottom of the pit is approximately 19’ 3”. The distance from the ground level of the AC-11 pit to the first landing is 60”.

\*Information on dimensions of the AC-11 pit area were provided by the employer

#### Employee Interviews:

Interviews were performed with 8 individuals.

#### Interviewee #1

- Familiar with building 2440
- Permission for entry given by building manager. Building employees must escort maintenance crew to required areas.
- Atmospheric monitoring is performed prior to entry using MSA. Building 2440 does not have an integrated monitoring system. MSA are housed at the docking stations in the office.
- If an oxygen-deficient area is encountered, employees are to evacuate and notify safety.
- Positions of the crew are assigned prior to entry of a confined space. A senior individual is paired with a less experienced employee. No entry is allowed without a spotter.
- Confined space entry training is done annually via computer learning tool (GLX). No untrained employees are allowed to enter a confined space.
- Maintenance crew does not have badge access to building 2440.
- Lines must be depressurized when performing maintenance for leaks.
- PPE consist of fire-resistant clothing, glasses, supplied air and gas monitor.

#### Interviewee #2

- Performs work in building 2440 once per week as assigned by supervisor.
- Last performed work in 2440 on 1/30/2023 (arrived at 7am, departed at 2-2:30pm). Checked pressure switches to determine if that is what was causing the leak. Decedents were the spotters for maintenance crew and did not enter the pit area during this time. Pressure in AC-11 reached 400 psi, then began to drop. Gave the suggestion to heat the o’ring to expand it, and call maintenance in the morning if the issue had not resolved.
- MSA is provided by operations crew.
- Not made aware of any oxygen-deficient atmosphere.
- No permit required to enter AC-11.

#### Interviewee #3

- Rebuilding heating elements the week prior to the incident.
- Electrical employees check in with building 2440 staff and receive MSA prior to entering pit area.
- Receive annual confined space entry training. Employees not allowed to enter a confined space if training is not current.

- Not made aware of leaks while onsite. Area has history of leaks (seal plate)
- Employees instructed to leave the area if their monitor alarms.

#### Interviewee #4

- Decedents had a work schedule of 6am to 6pm.
- Annual training is required for confined space entry, and no employee is allowed to enter a confined space without completed training. Supervisors are notified by the GLX system when an employee is due for training.
- Preparation to work in the area is primarily done via on-the-job training.
- Pit area of AC-11 was reclassified as a non-permit required confined space.
- A new pump was installed the week prior to the incident.
- FV03 high pressure relief valve not working properly (draining).
- Decedents searched for leaks at or around 3:30pm and were instructed to notify supervisor once the system reached 1500 psi. Supervisor was called at or around 5:30pm by decedents to inform that 1500 psi had been reached. Decedents were instructed to “end the run”, which required the system to be cooled and depressurized (this process can be initiated from the control station and no employee entry into the pit area is needed). Ending the run would have taken longer than the remaining time of the decedents’ shift.
- Exhaust should be turned on while process is running.
- No catastrophic failure was indicated in the system record.

#### Interviewee #5

- Tasked with loading and unloading the autoclave.
- Does not perform maintenance. If maintenance is required, the supervisor is notified, and a work order is submitted.
- Enters AC-11 to check for leaks when the system has reached 400psi.
- Has received CSE training from the employer and is renewed annually. Does not believe that AC-11 is a confined space.
- PPE consist of glasses, boots, gloves, coveralls and MSA. MSA not always used inside AC-11.
- Has not encountered a low oxygen reading on MSA.
- Working hours the day of the incident were 6pm to 6 am (arrived at the facility around 5:45pm).
- Changeover is usually done in the break room. Employees will discuss issues from the previous shift. AC-11 and 8 were running, with AC-7 and the furnace off.
- Went to look for decedents when they did not show for change over. Decedents were found around 6pm inside the pit area. Went down into the pit area to try and help, when he made it to the third level, he felt dizzy within seconds. Started to go back up the stairs and had to crawl the last four step in order to exit the area.
- Not aware if decedents had a monitor.
- Exhaust was not on. Not aware of a specific procedure as to when the exhaust needs to be used.
- Work orders for maintenance usually responded to within 24 hours.

#### Interviewee #6

- Primary duties are to work on HVAC system.
- Performed work in building 2440 two weeks after incident on 1/30/2023.
- Has worked in the autoclave areas but has not worked inside the pits.
- Entry procedures include signing in and out along with leaving recording devices.
- A permit is required for work inside AC-7. Will use a monitor to check for CO and O2 and wears an N95 mask to filter trace elements.
- CSE training provided by employer annually (supervisor checks status).
- Escorted by 2440 staff while inside the building.

#### Interviewee #7

- Duties are to load autoclaves and monitor systems.
- AC11 runs for 5-6 days, consist of different segments in a run. Each segment can last for several hours.
- When the system reaches 400 psi, sonic ears are used to detect leaks. If leaks are found, the supervisor is notified and makes the decision to stop or continue the run.
- No entry into the pit is required to end the run.
- Hazards within the pit are high heat and slip/trip/fall.
- Uses an MSA when searching for leaks. Has not experienced an alarm from the monitor.
- AC-7 and 8 require a permit for entry. No permit required to enter AC-11 due to the area having stair access.
- Received CSE training from the employer.
- Arrived at building 2440 the day of the incident around 5:30pm, with his partner arriving around 5:45pm. Began to search for decedents when they did not arrive when expected and found them on the lower platform of the stairs in AC-11. Emergency services were contacted via cell phone (911). His partner attempted to go to the pit area of AC-11 to check on the decedents. He threw an MSA into the pit area but did not hear the device alarm. Had to assist his partner out of the pit area because his partner was in distress. He attempted to start the exhaust fan but needed to reset the breaker before it worked. He did not notice an MSA near the decedents.
- When AC-11 is running, the exhaust fan should be on.
- Ending a run can take several hours depending on the pressure at the time of stoppage.
- Noticed the pressure at the time the decedents were found was 1432 psi, and that employees do not enter the pit area at that pressure.
- Items left in the pit area would not disrupt the process, so retrieval of items would be necessary after the run has started.

#### Interview #8

- Performs inspections of fire protection systems and responds to emergencies.
- Has assisted others in performing inspections in building 2440. Inspections of fire suppression systems are performed month, and comprehensive inspections are performed quarterly.
- No inspections are performed inside the AC pit areas.

- Notified by Captain of two men down in building 2440 around 6pm on 1/30/2023.
- Informed by his partner that respiratory protection would be needed to enter the area.
- Observed two employees down on the third level. Checked for a pulse, but none was found.
- West Valley Fire arrived to assist with recovery.
- Did not notice monitors on either decedent.
- Rescue training performed at the station.

### **Closing Narrative**

On 1/31/2021 CSHO Burns held a closing conference with [REDACTED], [REDACTED], [REDACTED] and [REDACTED], all topics on the closing conference list were discussed. [REDACTED] and [REDACTED] were given a business card if further communication was needed.