APPENDIX K- STATION SAFETY

Table of Contents: Page

1. Introduction K-1
2. WS Form B-48, Upper Air Program Review Guide. K-1
3. Upper-Air Safety Issues Inside the Office. K-2
4. Compressed Gas Safety…… K-2
5. The Upper Air Inflation Building. K-9
6. Safety Issues Prior to Release. K-16
7. Safety Training. K-17

Figures

K-1 Properly Secured Cylinders (non-seismic area…… K-3
K-2 Nested Cylinders NOT ALLOWED K-3
K-3 Typical Fill Valve with approved hose to nozzle, ¼ turn isolation valve, fill pressure gauge, stainless steel grounded table, and classified fill controller/solenoid K-5
K-4 Typical Inflation Building. K-7
K-5 Typical Inflation Building - with HISS. K-7
K-6 Acceptable Markings for Helium/Hydrogen Tubing K-8
K-7 Acceptable Markings for Helium/Hydrogen Tubing K-8
K-8 Helium Sign K-9
K-9 Hydrogen Sign K-9
K-10 NFPA 704 Placard for Hydrogen K-9
K-11 Foot Plate at Top of Stairs K-10
K-12 Authorized Personnel Only Sign. K-11
K-13 Typical Brass Non-Sparking Wrench K-12
K-14 Ceramic Scissors. K-13
K-15 Hydrogen Safety Poster K-15

1. Introduction. Safety is a vital part of the upper-air program. Each site shall have the required safety equipment and documentation on station. The site supervisor is responsible to ensure that proper safety procedures and practices are being followed. This emphasis on maintaining a safe work environment is especially important at sites using hydrogen or natural gas for inflation.

2. Upper Air Sites Inspections. The WS Form B-48, the Upper-Air Station Inspection Checklist is an excellent starting place for the site supervisor to ensure safety guidelines are being met. Annual Upper Air site inspections are essential to make sure the Upper Air facility and equipment are operating in an efficient, safe manner for office employees and that high quality Upper Air soundings are being disseminated.

2.1 Appropriate Upper Air site personnel shall complete and submit to their Regional Headquarters Office Form B-48, with updated photos at least once per year. If Regional

Headquarters Office personnel are conducting the inspection, they shall complete the Form B-48, as well as a Form B-33, Station Inspection Report. The observers shall do a visual inspection of the inflation building and inflation room prior to and during the inflation process.

2.2 After the Regional Headquarters Office has reviewed the B-48 form submitted by the site managers, and any needed corrections are completed, a copy of it shall be sent to the WSH Upper Air Program Manager. If the Regional Headquarters Office completed the inspection, a copy of the B-33 form shall be included. If there are urgent repairs or safety issues that cannot be resolved by the site manager or Regional Office staff, the WSH Upper Air program manager shall be contacted as soon as possible with request for assistance. Site managers shall not allow personnel to perform work at Upper Air site if there is recognized serious threat to employees' safety and health, until safety issue is resolved.

3. Upper-Air Safety Issues Inside the Office. These tasks inside the office need to be performed to ensure the upper-air program's safety:

a. A posting of the location of wires, antennas, and other obstructions throughout a 360 degree circle within a 1/4 mile of the launch site. This chart shall be prominently posted by the upper-air workstation inside the office. The station manager shall advise all the staff of the inherent dangers of trying to disentangle a balloon train from wires of any kind that carry an electrical current.

4. Compressed Gas Safety. The following requirements apply to all sites using helium, hydrogen or natural gas as a lifting gas.

4.1 Storage of Compressed Gas Cylinders. Compressed gas cylinders shall be stored in an upright position with the valve end up.

4.2 Caps. Compressed gas cylinder valves shall be protected from physical damage by means of protective caps, collars or similar devices when not in use.

4.3 Securing Gas Cylinders. Compressed gas cylinders shall be secured within a rack, framework, wall-mounted supports, cabinet or similar assembly designed for such use to prevent dislodgment.

Note: Only gas suppliers shall move the compressed gas cylinders.

4.3.1 Chains. Steel or stainless steel chains shall be used to secure compressed gas cylinders to a wall.

a. Chains shall be secured at approximately 2/3 (See Figure K-1) and, in seismically active areas, at 1/3 of the cylinder height.

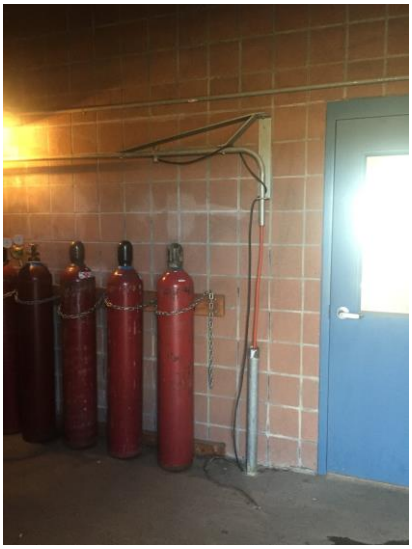

Figure K-1 - Properly Secured Cylinders (non-seismic area)

b. The working load rating of the chain and all connectors shall be 300 lbs minimum. Straight link steel or stainless steel ¼ inch chain is acceptable.
c. Metal racks may be utilized in lieu of chains and can allow cylinders to be stored and secured more than one cylinder deep against a wall. Metal racks shall be bonded/ grounded when used.

4.3.2 Nesting. Cylinders shall not be nested (See Figure K-2). Fire codes prohibit cylinder nesting at all NWS facilities.

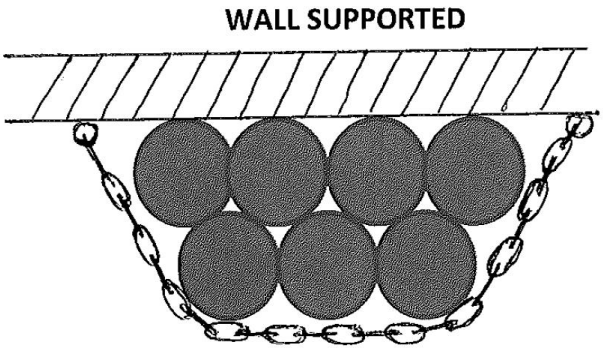

Figure K-2 - Nested Cylinders NOT ALLOWED

4.4 Corrosion/Damage. Any corroded, defective or damaged cylinders shall be returned to the supplier for inspection or removed from service and disposed of in a safe manner by the supplier.

4.4.1 If the safety cap cannot be removed by hand, the cylinder shall be marked as defective and removed from service.

4.4.2 If the cylinder valve cannot be operated by hand, the cylinder shall be marked as defective and removed from service.

4.4.3 Leaking cylinders shall be marked as defective and removed from service.

Note: Contact gas supplier as soon as possible and request removal of defective leaking cylinders

4.5 Combustible material. Combustible vegetation (if outdoors) and combustible storage shall be at least 10 feet from flammable gas cylinders.

4.6 Hydrogen pressure vessels (tanks) other than cylinders.

The following requirements apply to storage of compressed gas in tanks or similar pressure vessels.

4.6.1 Combustible material. Combustible vegetation (if outdoors) and combustible storage shall be at least 10 feet from flammable gas pressure vessels.

4.6.1.1 If hydrogen storage exceeds 5,000 cu ft total, then the separation distance to exposures shall be in accordance with NFPA 2, *Hydrogen Technologies Code*).

4.6.3 Pressure Relief Device

4.6.3.1 All pressure vessels shall be equipped with a pressure relief device designed to vent the vessel contents in the event of an overpressure.

4.6.3.2 Pressure relief shall occur at or below the rated pressure of the vessel (Maximum Allowable Working Pressure).

4.6.3.3 The pressure relief device shall be sized by the pressure vessel manufacturer or a qualified designer.

4.6.3.4 The pressure relief device outlet shall be routed to an approved vent stack (in accordance with NFPA 2, *Hydrogen Technologies Code*) with an approved vent stack cap that does not discharge hydrogen in a downward direction.

4.6.3.5 The pressure relief device shall be inspected or replaced in accordance with manufacturer's instructions.

4.6.3.6 Hydrogen pressure vessels shall be inspected and re qualified by an inspector certified in accordance with the National Boiler Inspection Code or similar at intervals not to exceed 10 years.

4.7 Piping / Tubing Materials for Helium/Natural Gas/Hydrogen. Only approved dual stage hydrogen regulators, piping / tubing, and equipment shall be used. Engineering Handbook 1 lists authorized equipment stocked at NLSC:https://www.ops1.nws.noaa.gov/Secure/ehbs/EHB1files/ehb1jsec.pdf

4.7.1 Helium. Helium gas piping / tubing shall be designed and installed with any material intended for this use.

4.7.2 Natural Gas. Natural gas piping shall be designed and installed with any material approved for this use. Refer to the International Fuel Gas Code for allowable materials.

4.7.3 Hydrogen. New installations of flammable gas piping / tubing shall be designed and installed in 300 series stainless steel tubing from the storage container to the point of use per the

International Fuel Gas Code (IFGC) and the American Society of Mechanical Engineers (ASME) B31 Series Standards. Flexible tubing / hose is not permitted in new installations with the exception of a short 3-foot-long connector piece between the buoyancy fill valve and weather balloon nozzle for each site using hydrogen.

4.8 Gas Supply Manifold. A manifold at the gas supply is permitted for helium systems. Hydrogen supply systems shall not be manifolded unless the site uses a Hydrogen Inflation Safety System (HISS) or Autosonde system which both utilize excess flow control.

4.9 Hydrogen Emergency Shutoff Provisions. Hydrogen gas systems shall be provided with emergency shutoff valves at each point of use and at each source.

a. Shutoff at Source. A manual or automatic emergency shutoff valve shall be installed on supply piping at the cylinder or pressure vessel source. Automatic valves shall be fail safe. Cylinder valves may be used as the required emergency shutoff valve where the source of supply is limited to a single connected cylinder.

b. Shutoff at Point of Use. An emergency shutoff valve shall be installed on the supply piping at the fill valve on the inflation table (See Figure K-3).

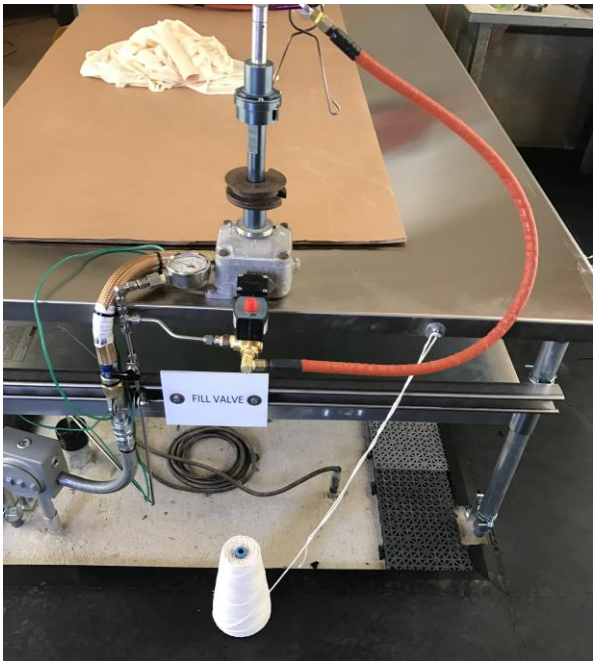

Figure K- 3 - Typical Fill Valve with approved hose to nozzle, ¼ turn isolation valve, fill pressure gauge, stainless steel grounded table, and classified fill controller/solenoid.

4.9.1 Manual Gas Shutoff. Quarter-turn valves shall be utilized for manual gas shutoff valves. These valves are quick acting and are of the indicating-type so that operators can quickly recognize valve position.

a. The manual valves at the hydrogen supply cylinder and at the fill table shall be normally closed and only opened when performing a balloon fill.
b. For sites using hydrogen cylinders with a single cylinder connected, the cylinder valve, which is not a quarter-turn valve is acceptable.

4.9.2 Automatic Gas Shutoff. Automatic gas shutoff is provided by use of a Hydrogen Inflation Safety System (HISS) and by the Autosonde systems for sites utilizing these systems.

4.10 Hydrogen Inflation Safety System (HISS). Some NWS sites have installed a safety system that addresses fire code issues associated with the use of hydrogen. This has primarily been driven by converting a site from helium to hydrogen as the primary inflation gas. Because fire codes prohibit filling of balloons with hydrogen and limit indoor storage quantity, these sites have addressed these prohibitions by installing a Hydrogen Inflation Safety System which justifies the use of hydrogen in NWS balloons and incorporates additional automatic safety features as well as relocation hydrogen storage to outdoors. Figure K-4 and K-5 show a typical UAIB layout without and with a HISS installed.

4.10.1 HISS safety features. The HISS incorporates numerous safety provisions including:

a. Excess flow with automatic shutoff. Automatically shuts off flow of hydrogen through a normally closed solenoid valve located outside. The safety function is to automatically shut off the flow of hydrogen gas if the mass of hydrogen flowed is excessive. A mass flow meter precisely measures the quantity of hydrogen flowed per fill event (a batch process) and automatically terminates gas flow with a normally closed solenoid valve at ~150% of the expected fill volume for a given balloon.
b. Ventilation interlock. Hydrogen cannot flow unless the active exhaust ventilation system is continuously operating.
c. Excess fill time. The system shall terminate the flow of hydrogen if the fill time exceeds 30 minutes. Most uninterrupted fills shall complete in about 10-12 minutes.
d. Excess flow rate – Flow rates that can result in excess nozzle pressure shall automatically terminate the flow of hydrogen.
e. Automatic and emergency shutoff provisions shall be provided. This limits the volume of hydrogen that could be released if all other safety features failed.
f. The HISS requires manual reset for each fill event.
g. Pressure gauge at fill table.
h. Hydrogen storage and regulator located outdoors.

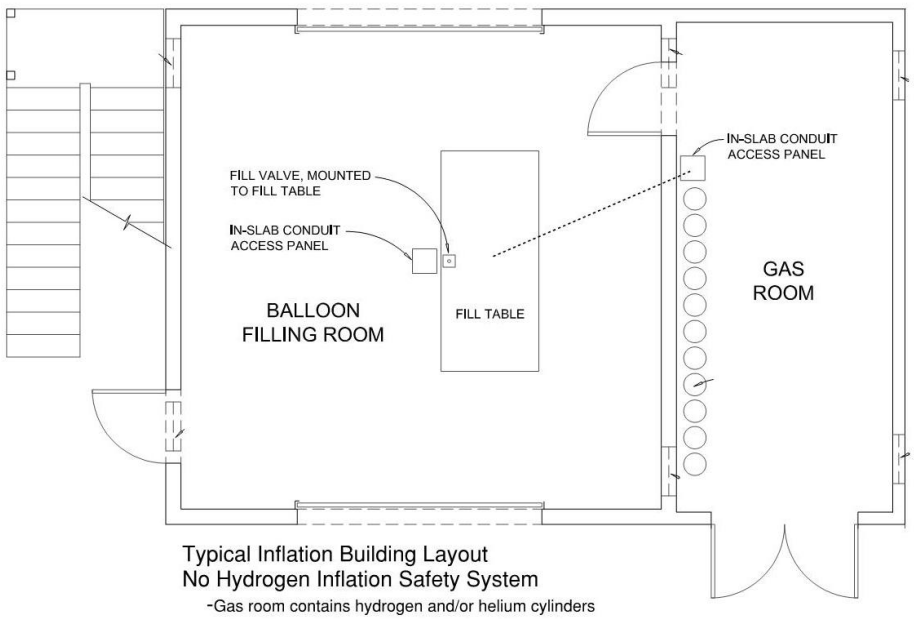

Figure K-4 – Typical Inflation Building

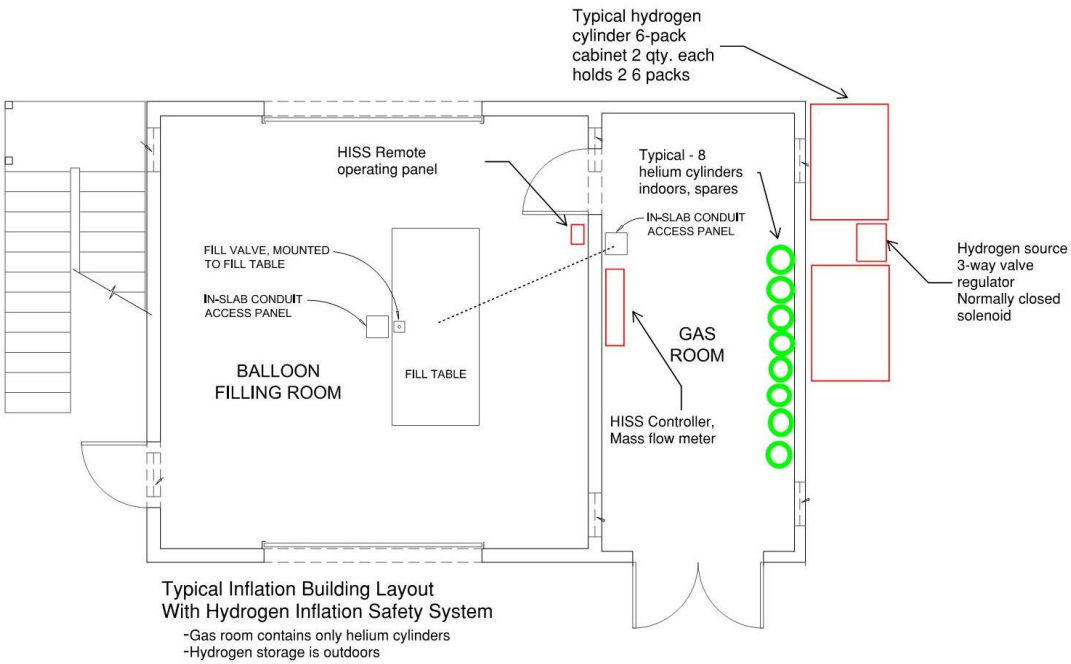

Figure K-5 – Inflation Building Typical – with HISS

4.11 Excess Flow Control. There are no requirements for excess flow control with helium gas inflation systems. The hydrogen regulator must be set at 15 psig or less. 4.11.1 For hydrogen cylinder or pressure vessel installations, the hydrogen regulator must be set at 15 psig or less.

4.11.2 For sites with a HISS or an Autosonde, excess flow control is provided by the system.

4.12 Hazard Identification and Warnings.

4.12.1 Marking of Compressed Gas Piping/Tubing. Piping/tubing systems shall be marked in accordance with ASME A13.1 and the following:

a. Markings used for piping/tubing systems (See Figures K-6 and Figure K-7) shall consist of the content's name and include a direction-of-flow arrow.

Figure K-6 Acceptable Markings for Helium and Hydrogen Tubing

b. Markings shall be provided at each valve; at wall, floor or ceiling penetrations; at each change of direction; and at not less than every 20 feet or fraction thereof throughout the piping / tubing run.
c. Piping / tubing that is designed or intended to carry more than one gas at various times (i.e., primary use hydrogen with helium use as backup) shall have appropriate signs or markings posted at the manifold, along the piping / tubing and at each point of use to provide clear identification and warning.

Figure K-7 Acceptable Markings for Helium/Hydrogen Tubing

4.12.2 Compressed Gas Warning Signage. Rooms or outdoor storage areas containing compressed gases shall be conspicuously labeled: COMPRESSED GAS. This requirement applies to helium as well as hydrogen and a sample sign is shown in Figure K-8. Areas with hydrogen also need a hydrogen sign as shown in Figure K-9 below.

Figure K-8 – Helium Sign

Figure K-9 – Hydrogen Sign

4.12.3 NFPA 704 Placards for Firefighter Awareness. All hydrogen sites shall have NFPA 704 placards with numbering as shown below in Figure K-10 at entrances to locations where hydrogen is stored.

Figure K-10 - NFPA 704 Placard for Hydrogen

5. The Upper-Air Inflation Building. The upper-air inflation building is where most of the items dealing with safety are based. Responsibility for safety lies with all on-site personnel. The site supervisor shall stay alert to issues that need attention and act promptly to ensure problems are resolved. (**Note:** Section 2 of this Appendix includes discussion of safety inspections).

.

5.1 Generic Safety Issues for All Inflation Sites. There are generic aspects with the inspection of the inflation building that are common to both hydrogen and helium sites. There are also items that pertain strictly to hydrogen sites.

5.1.1 Outside the Inflation Building. The following items shall be routinely checked outside the inflation building:

a. The area surrounding the inflation building shall be clear of obstacles, including snow and ice, and be level to allow the operator an environment that is safe to launch the balloon.
b. The areas around the overhead doors and side doors shall be free of ice and snow. Salt or ice melting particles shall be available in case of icy conditions.
c. The building, when not in use, shall have all doors locked to ensure unauthorized persons do not have access to the area.
d. The foot and hand railings shall be secure and sturdy. A foot rail or kick plate shall be installed at the top of the stairs leading up to the radome to eliminate the potential of personnel possibly slipping off or falling from the stairs during icy or slippery conditions (See Figure K-11).

Figure K-11 - Foot Plate at Top of Stairs

e. All outside lights shall work and the area shall be well lit.
f. A communication system is required and shall be turned on prior to an individual going out to the inflation building. This is to ensure an open line of communication is kept with the office. This requirement is especially needed for launches during inclement weather and to ensure that if an operator is injured there is a means of calling for help.
g. Overhead doors and louvers shall be in good operational condition.
h. Entrance to the stairwell leading to the top of the roof or radome shall be either secured or have an “Authorized Personnel Only” sign chained across the stairs (See Figure K-12).

Figure K-12, Authorized Sign Only

5.1.2 Inside the Inflation Building. The following items are required inside the inflation building at all sites:

a. The floor shall be kept clean and free of debris.
b. Fire extinguishers with a minimum 2A:10B:C rating (typically achieved by a 5 lb. agent weight dry chemical stored pressure type) shall be placed inside the inflation building and also inside the radome (no more than 2 are required for a typical UAIB) and inspected annually by a certified, licensed fire extinguisher service company and visually inspected for adequate pressure and access and initialed off monthly by station personnel.
c. The inflation table shall be clean and free of dirt.
d. Expendable items stored in the inflation building shall be stored within electrically grounded metal cabinets.
e. The interior of the building shall be well lit.
f. The gas cylinders shall be properly marked (contents) and secured individually to ensure they cannot topple over (See Figure K-2). g. To achieve code compliance, no more than five (5) hydrogen cylinders shall be stored/used indoors The limit applies depending on cylinder type / capacity and applies to all hydrogen cylinders regardless of fill status (e.g., empty, full or partially full). The limit is based on the 1,000 cubic feet allowed indoors by fire codes and the most common cylinder size which holds about 200 cubic feet when full.
h. Hydrogen cylinders in excess of the five (5) allowed indoors, shall be located outdoors.

Compliance Note: *UAIBs that are currently operating with more than 1,000 cubic feet of hydrogen stored indoors, shall achieve compliance by 2023 or annually extend compliance with a written justification approved by NWS HQ.*

i. Caps shall be on all cylinders full and empty not connected to the supply line.
j. Cylinders shall be pre-positioned by gas supply vendors to minimize NWS personnel from moving cylinders themselves. Compressed gas cylinders shall not be rolled or stored on their sides, dragged or slid.
k. Cylinders shall not be manifolded unless a HISS or Autosonde (both of which feature automatic excess flow control) has been installed. Hydrogen supply shall be from only one cylinder.
l. First-aid kits shall be available at the inflation building or in the Weather Forecast Office building.

Note: Procedures for emergency communications, (e.g., telephone, cell phone, two-way radio) including frequency of contact with weather forecast office, shall be established for personnel who must perform work in Upper Air Building Alone.

m. One spare UL approved, NWS standard regulator for each gas used shall be available.
n. The fill rate follows NWS instructions and do not exceed 15 psig for hydrogen.

Note: For HISS sites the regulator is pre-set to achieve the safe fill rate. Do not adjust the regulator.

o. The "Hydrogen Safety Poster" (See Figure K-5) shall be displayed in the cylinder storage area for all sites using hydrogen except those using a HISS or an Autosonde which have unique signage requirements.
p. All gas tubing, hose and fittings shall be annually leak tested using a gas leak detection fluid such a "Snoop" or equivalent at a pressure of 30 ±5 psig.

5.2 Hydrogen or Natural Gas Sites. The following additional rules apply to sites using flammable gas such as hydrogen or natural gas:

5.2.1 The connection to a hydrogen cylinder is a standard CGA-350 fitting with left handed threads (reverse of most threaded fittings). The wrench size needed is 1-1/8 inch. Only UL-listed spark proof tools are to be used. WSH approved tools shall be used on the gas tank regulator and any other components or equipment near the gas tanks and hoses. See Figure K-13 showing a typical non-sparking brass wrench. Ceramic scissors (see Figure K-14) or other approved scissors shall be used to cut the twine during preparation of the radiosonde flight train

Figure K-13 – Typical Brass Non-Sparking Wrench

Figure K-14 - Ceramic Scissors

5.2.2 Smoking or lighting of flammable materials shall not be allowed within 25 feet of buildings where hydrogen gas is stored or generated.

5.2.3 In the event of a hydrogen fed fire and non-hydrogen fire, the following procedures shall be followed:

a. Immediately exit the Upper Air Inflation Building

b. Turn off Hydrogen Safety System outside
c. Call 911 for local fire emergency response and notify the Station Manager
d. Do not extinguish the fire with an extinguisher.

5.2.4 In the event of rupture or leak of a hydrogen filled balloon, the following procedures shall be followed:

a. Immediately exit the Upper Air Inflation Building
b. Turn off NWS Hydrogen Safety System outside
c. Notify the Station Manager

d. Allow 15 minutes for building to ventilate naturally.5.3 Electrical Safety.

a. All electrical switches, lights, heaters and wiring must meet National Electrical Code (NEC) requirements related to classified (hazardous, explosion proof) locations in the Inflation Room.
b. The correct classification for a typical UAIB using hydrogen is: Class I, Division 2, Group B for hydrogen.
c. For sites with a HISS, the classified area is limited to within a 5-ft. radius (e.g., sphere) of the balloon buoyancy fill valve. Other areas in the Fill Room do not require classified electrical equipment (based upon safety systems installed).
d. Bonding and Grounding. Exposed noncurrent-carrying metal parts, including metal gas piping systems, that are part of flammable gas supply systems located in a hazardous (electrically classified) location shall be bonded to a grounded conductor in accordance with the provisions of the NWSM 30-4106, Lightning Protection, Grounding, Bonding, Shielding and Surge Protection Requirements.. Static-producing equipment located in flammable gas storage or use areas shall be grounded.
e. The Fill Room table shall be constructed of metal conductive material to facilitate bonding and grounding for hydrogen fill sites. A metal table is superior to wood or nylon webbing for hydrogen inflations to allow bonding and grounding of the table and reduce the potential for a static discharge and possible ignition. The table shall have smooth finishes and no sharp surfaces or edges to prevent puncturing the balloon.

Compliance Note: *UAIBs that are currently operating with non-metal fill tables shall achieve compliance by 2023 or annually extend compliance with a written justification approved by NWS HQ.*

f. All overhead door runners shall be electrically grounded for hydrogen fill sites. Grounding can be accomplished by using a grounding wire and connecting it to a nearby grounding rod.

g. The hydrogen fill system including the inflation hose, nozzle, and inflation table shall be grounded with the frame of the building and have a resistance of less than 5 ohms per NWSM 30-4106 at a 5 year frequency.
h. An anti-static mat shall be placed at the head end of the inflation table where the operator stands during the process of attaching the balloon to the nozzle and tying of the balloon after inflation.

i. The Hydrogen Safety poster shall be prominently displayed in the inflation room and cylinder storage area. (See Figure K-15).

HYDROGEN SAFETY POSTER

HYDROGEN FACTS

- ✓ Colorless
- ✓ Odorless
- ✓ Rapidly diffuses in air
- ✓ Flame is nearly invisible (pale blue)
- ✓ Rapidly rises in air (~45 mph)

HYDROGEN FIRES

In the event of a hydrogen fed fire:

1. Exit the building.
2. Turn off NWS Hydrogen Safety System outside.
3. Call 911 then Notify MIC.
4. Do not extinguish the fire with an extinguisher.

HYDROGEN BALLOON RUPTURE

In the event of rupture or leak of a hydrogen filled balloon:

1. Exit the building.
2. Turn off NWS Hydrogen Safety System outside.
3. Notify MIC.
4. Allow 15 minutes for building to ventilate naturally.

NON-HYDROGEN FIRE

1. Exit the Building
2. Turn off NWS Hydrogen Safety System outside.
3. Call 911 then Notify MIC.

HYDROGEN CYLINDER SAFETY

1. Safety caps shall be installed unless cylinder is "in use" with the regulator connected.
2. Cylinder valve shall be closed unless a balloon is being filled.
3. All cylinders shall be secured with non-combustible restraints such as metal chain.
4. Mark defective cylinders (safety cap or valve cannot be turned by hand, leaks, damage, etc.).
5. No combustible storage within 10 ft. of cylinders.

Figure K- 15- Hydrogen Safety Poster

For sites where a HISS has been installed a set of updated posters providing both local operation instructions and hydrogen safety notifications shall be posted.

5.2.5 Hydrogen Generators. Hydrogen can be generated on site through the use of an electrolyzer (which makes hydrogen gas from water using electricity). The following requirements apply to sites with hydrogen generators.

a. Untrained personnel shall not be allowed to perform service of maintenance on hydrogen generators.
b. Hydrogen generators shall be installed as specified by the manufacturer's installation instructions.
c. Hydrogen generator manufacturers require room ventilation to provide a steady flow of outside air whenever the unit is in operation.
d. Hydrogen generators which are designed for operation in a non-classified (non-hazardous) electrical area are acceptable. For example, some hydrogen generators utilize internal powered ventilation and an internal hydrogen gas detector which shuts the unit down upon detection of gas at 30% of the Lower Flammability Limit (LFL), or 1.2% concentration in air. These engineered features combine to allow use of the hydrogen generator in a room that is electrically unclassified.
e. Hydrogen generators that use a gas vent shall be routed to an approved vent stack (in accordance with NFPA 2, Hydrogen Technologies Code) with an approved vent stack cap that does not discharge hydrogen in a downward direction.

5.2.6 HISS Ventilation. Active exhaust ventilation shall be installed in the Fill Room in locations where a HISS system is installed. The justification for each site requires mechanical exhaust ventilation as a hazard mitigation. The ventilation system is interlocked with the HISS. Ventilation requirements generally include:

a. Exhaust shall be within 12 inches of the ceiling since hydrogen is lighter than air.
b. Interlocks. Exhaust ventilation must be on to initiate gas flow and interlocked to the HISS so there can be no flow of gas if the ventilation system is not operating. The interlock is electrical.
c. Timer. Systems shall operate continuously during balloon filling operations and the exhaust ventilation must run for at least 60 minutes once activated.
d. Mechanical ventilation shall be at a rate of not less than 1 cubic foot per minute per square foot of floor area or as required by the site specific analysis.
e. The location of both the exhaust and inlet air openings shall be designed to provide air movement across all portions of the floor or room to prevent the accumulation of vapors.
f. Exhaust air shall not be recirculated.

5.2.8. Combustibles/Waste at UAIB

a. Combustibles within Fill Room. Only a minimal amount of combustible materials shall be allowed inside the inflation building. Combustible materials shall be placed within a metal storage cabinet when not in use. Combustible items shall be limited to only those supplies needed for the operation and stock quantities shall be maintained as low as reasonable. A roll of string or twine used for balloon launching can be stored on or near the fill table. Trash cans shall be kept outside the inflation building or shall be metal and have a lid securely in place.

6. Safety Issues Prior to Release. The following shall be followed prior to launching a balloon:

a. Sites located within 5 nautical miles of an active runway for a controlled airport shall

contact the aircraft controlling authority and **notify Air Traffic Control** that a balloon will be released.

Note:	The requirement for filing a Notice to Airmen (Notam) is no longer necessary. The radiosondes used by the NWS do not meet the size and weight requirements that demand a Notam be filed. This does not, however, eliminate the coordination call if a site is located within 5 Nautical Miles (nm) of an active runway at a controlled airfield.

Part 101 and/or any NOAA WX Balloon operations are authorized everywhere. NOAA and other groups are to follow their normal coordination process and procedures for releasing these balloons.

(U.S., Canadian and Mexican registry) Part 135 operations are authorized everywhere IFR and VFR, including the TFR's, as long as the operation within the TFR's is strictly conducive to that required for landings and departures.

7. Safety Training Requirements.

7.1 NWS Hydrogen Safety Awareness Training available at Commerce Learning Center shall be completed by all certified Upper Air observers and personnel involved maintenance/repairs of Upper Air buildings and equipment.

7.2 Initial hydrogen generator training is offered by the manufacturer at the time of the generator installation. Previously certified employees provide training to new hires on hydrogen generator operations and safety procedures.

7.3 Autosonde classroom training is provided by manufacturer during system installation.