

8.12.2 Securing Hazardous Gas Devices From Operation

1. Purpose

- 1.1 To provide guidelines for the completion of Part C of the Collider-Accelerator Support (CAS) Maintenance and Safety Check-Off List for Apparatus Employing Hazardous Gas.
- 1.2 To provide for the notification of Operations Coordinators (OC) and others whose routine may be impacted by the operation of the device.

2. Responsibilities

The CAS Watch Supervisor is responsible for implementing and completing Part C of the CAS Maintenance and Safety Check-Off List for Apparatus Employing Hazardous Gas.

3. Prerequisites

- 3.1 Trained and qualified CAS Watch Supervisor.

4. Precautions

- 4.1 A new check-list shall be issued each time that a hazardous gas device is initially filled or following the completion of Part C of an existing check-list.
 - 4.1.1 ex: A filled device is secure from operation for a week to allow for repairs. Part C of the existing check-list must be completed and a new check-list issued before refilling.

5. Procedures

- 5.1 The Hazardous Gas System Operator informs the CAS Watch Supervisor that he is starting to "Dump" the system of hazardous gas.
- 5.2 The CAS Watch Supervisor implements Part C of the CAS Maintenance and Safety Check-off List for Apparatus Employing Hazardous Gas by signing the "Dump Started" section.
 - 5.2.1 Review the operation of the respective building crane and inform the Rigging Crew Lead-Man of the new operating restriction. (See [C-A-OPM 8.12.1.](#))
- 5.3 The Hazardous Gas System Operator completes Items #1, #2, and #4 of the check-list by satisfying the requirements of the Part C Notes.

- 5.4 The Hazardous Gas System Operator and CAS Watch Technician completes Item #3 of the check-list by satisfying the requirements of the Part C Notes.
- 5.5 The CAS Watch Supervisor completes Item #5 of the check-off by informing (directly) the OC/Designate that the device is clear of hazardous gas.
- 5.6 The CAS Watch Supervisor reviews and completes Part C of the check-off by signing the "Dump Completed" section.
 - 5.6.1 Inform the CAS Technical Groups Supervisor and the Rigging Supervisor that the device is clear of hazardous gas.
 - 5.6.2 Review the status of the respective building crane and inform the Rigging Crew Lead-Man that the device is clear of hazardous gas and the former restrictions are removed.
 - 5.6.3 Update the Hazardous Gas Locations Maps at the Main Control Room (MCR), Experimental Control Room (ECR) and East Hold Point #1.
 - 5.6.3.1 Update the Hazardous Gas Location Book at the MCR.
 - 5.6.3.2 Update the Hazardous Gas Location Board at the ECR.
- 5.7 File the completed check-off into the CAS Watch Log.

6. **Documentation**

- 6.1 CAS Watch Log
- 6.2 CAS Watch Supervisor Report
- 6.3 MCR Hazardous Gas Locations Book
- 6.4 Hazardous Gas System Log
- 6.5 The Completed CAS Maintenance and Safety Check-off List for Apparatus Employing Hazardous Gas.

7. **References**

- 7.1 [C-A-OPM 8.11.3](#), "Emptying H2 Targets".
- 7.2 [C-A-OPM 8.12.1](#), "Crane Clearance Procedure".
- 7.3 CAS Procedures and Instructions Manual D.2.0, "Notifying the Operations Coordinator of Hazardous Gas Devices".
- 7.4 CAS Procedures and Instructions Manual D.4.0, "Requirements for the Use of the CAS Maintenance and Safety Check-List for Apparatus Employing Hazardous Gas".

8. Attachments

- 8.1 CAS Maintenance and Safety Check-Off List for Apparatus Employing Hazardous Gas (Form BNLF 1766A).
- 8.2 Reference Notes for Part C (Form BNLF 1766A).

**CAS MAINTENANCE AND SAFETY CHECK-OFF LIST FOR APPARATUS EMPLOYING
HAZARDOUS GAS**

HAZARDOUS GAS TYPE: _____ LOCATION / COLUMN: _____
 EXPERIMENTER: _____ NUMBER: _____ LIAISON: _____

PART-A

**MAINTENANCE CONDITIONS TO BE SATISFIED PRIOR TO OPERATION
COMPLETE CHECKED ITEMS**

	Note	Items	Date	By
Building Gas Detection System	1			
Local Gas Detection System	2			
Stack Fire Detection System	3			
Target Fire Monitor System	4			
Building Emergency Roof Fans	5			
Local Exhaust Fan	6			
Local Roof Fan Crash	7			
Local Evacuate System	8			
H. P. Vent System (Dump Lines)	9			
H. P. Vent System (Cylinder Rack)	10			
H. P. Vent System (Burster Disc.)	11			
H. P. Vent System (Drip Legs)	12			
H. P. Vent System (Chain Valve)	13			
Target Vacuum Alarm	14			
Target Trouble Alarm	15			
Experimenter's Power Interlock	16			
Warning Signs (No Smoking)	17			
Fire Extinguishers (2 minimum)	18			
Portable Gas Detector at EAG	19			
Exit Paths Cleared	20			
Safety Review Sticker Valid # _____	21			
All Extraneous Material Removed	22			
Hold Point Fully Operational	23			
Action Sheets Posted	24			
ABOVE ITEMS COMPLETED : DATE _____ TIME _____ BY _____ <div style="text-align: right;">BSG Supervisor</div>				
SPECIAL INSTRUCTION / COMMENTS : _____ _____ _____ _____				

Attachment 8.1

**CAS MAINTENANCE AND SAFETY CHECK-OFF LIST FOR APPARATUS EMPLOYING
HAZARDOUS GAS**

PART-B

CAS OPERATIONAL CHECK-OFF FOR FILLING A HAZARDOUS GAS SYSTEM

HAZARDOUS GAS TYPE: _____	LOCATION / COLUMN: _____
EXPERIMENTER: _____	NUMBER: _____ LIAISON: _____
APPROVAL TO FILL DEVICE: DATE _____	TIME: _____ BY: _____
LIAISON	
PERMISSION TO FILL: DATE _____	TIME: _____ BY: _____
Watch Supervisor	
DEVICE PURGED: DATE _____	TIME: _____ BY: _____
Hazardous Gas Operator	

PART-C

CAS OPERATIONAL CHECK-OFF FOR DUMPING A HAZARDOUS GAS SYSTEM

DUMP STARTED: DATE _____	TIME: _____	BY: _____		
Watch Supervisor				
REASON: _____				
CONDITIONS TO BE SATISFIED BEFORE DUMP IS COMPLETED COMPLETE CHECKED ITEMS				
	Note	Items	Date	By
Device Purged and Cleared of Hazardous Gas	1			
Vent System Purged and Cleared of Hazardous Gas	2			
Bleed Off Any Pressure Lines	3			
Hazardous Gas or Liquid Removed	4			
Coordinator Notified (Area Cleared of Gas)	5			
DUMP COMPLETED: DATE _____	TIME: _____	BY: _____		
Watch Supervisor				

PART-D

CAS OPERATIONAL CHECK-OFF FOR DUMPING A HAZARDOUS GAS SYSTEM

COMPLETE CHECKED ITEMS

	Note	Items	Date	By
Warning Signs Turned Off (No Smoking)	1			
Drip Leg Drain Valves Open	2			
All Monitoring Equipment is Locked Out	3			
ABOVE ITEMS COMPLETED: DATE _____	TIME: _____	BY: _____		
BSG Supervisor				

BNLF 1786A

NOTES:

CAS MAINTENANCE AND SAFETY CHECK-OFF LIST
FOR APPARATUS EMPLOYING HAZARDOUS GAS

PART "C"

REFERENCES:

C-A-OPM 8.11.3,	"Emptying LH2 Targets".
C-A-OPM 8.12.2,	"Securing Hazardous Gas Devices from Operation".
CAS-P&I D.2.0,	"Notifying the Operations Coordinator of Hazardous Gas Devices".
CAS-P&I D.4.0,	"Hazardous Gas "Maintenance Safety Check-Off".

1. To ensure that device is purged and cleared of hazardous gas, check with Hazardous Gas Operator depending on type of device.
2. To ensure that vent system is purged and cleared of hazardous gas, check with Hazardous Gas Operator depending on type of device.
3. The Hazardous Gas Operator shall ensure that all appropriate pressure lines have been bled off and shall initial item #3.

The CAS Watch Technician shall ensure that all Burster Disc pressure has been bled off and shall initial item #3.

4. Check with Hazardous Gas Operator to ensure that all hazardous gas or liquid is removed from the building.
5. Reference CAS-P&I D.2.0, Notifying the Operations Coordinator of Hazardous Devices.

Notify Operations Coordinator that area is cleared of hazardous gas.

Attachment 8.2