DØ CRYO SYSTEM

ODH AND CRYO ALARM SYSTEM RESPONSE

ENGINEERING NOTE
3740.512-EN-246

John Urbin
5 April 90

revised by K. Dixon
5 April 91

DØ CRYO SYSTEM

ODH AND CRYO ALARM SYSTEM

OVERVIEW:

The DØ Cryo System is monitored by a computerized process control system and an ODH safety system. During steady state operations the cryo system will be unmanned and system experts will depend on communication systems for notification of system problems. The FIRUS system meets the minimum communication requirement and is supplemented with an autodialer which attempts to contact cryo operators by pager or phone.

THE PLAN:

The RD/Safety Department requires the ODH monitor system to be connected to the labwide FIRUS system, which enables the Communications Center to receive alarms and notify the proper experts of the condition. The ODH system will have two alarm points. One for an ODH alarm and one for a system trouble alarm.

The autodialer system has replaced a former cryo operations summation alarm point in the FIRUS system. This has freed space on the FIRUS system and has allowed the cryo experts more flexibility in setting up their own communication link.

The FIRUS and the autodialer systems receive alarms and access lists of experts to call for notification of problems. Attempts to contact these experts will continue until the alarm or alarms is acknowledged.

An example of a typical ODH alarm, FIRUS call-in list is:

1. RD/CRYO OPERATIONS PAGE 867
2. SYSTEM EXPERT #1 (HOME PHONE #)
3. SYSTEM EXPERT #2 (HOME PHONE #)

During normal working hours the cryo operators will have a list of system experts to call for onsite assistance. During accelerator shutdown periods when cryo operators are not on shift, the first call on the list would be changed to a system expert either by Lab pager or by home telephone.

There are two sets of strobe/horn alarms within the DØ Assembly Hall. The south "Cryo Tower" area includes the pipechase, gas mixing, argon storage dewar, pump, and control rooms. The "platform" area includes the detector and pit where it rests during assembly periods. Response for an alarm in any of these areas is essentially the same with the exception of the evacuation routes. Both response procedures and alarm/head location sketches are appended to this note.

9.5.0 ODH Situations

9.5.1 DØ - SOUTH DAB ODH ALARM RESPONSE

An ODH monitoring and warning system has been installed in the potentially hazardous areas of DAB South. See Appendix for hardware locations. The following addresses the proper rsponse to alarms from the ODH monitoring and warning system.

1. HORNS AND STROBES WILL BE ACTIVATED IF AN ODH CONDITION IS SENSED BY THE MONITOR SYSTEM.

2. ALL PERSONNEL IN THE SOUTH SECTIONS OF DAB MUST EVACUATE TO THE OUTDOOR AREA ADJACENT TO THE CRYO CONTROL ROOM.

3. INFORMATION FROM THE ODH STATUS PANEL MOUNTED ON THE OUTSIDE WALL NEAR THE EXIT DOOR AND REPORTS FROM THE PERSONNEL EXITING WILL HELP DETERMINE IF THERE IS A REAL ODH HAZARD. IF THERE IS ANY UNCERTAINTY, ASSUME A REAL EVENT AND CALL X3131 FOR FIRE DEPARTMENT ASSISTANCE. DO NOT REENTER THE BUILDING DURING A REAL EVENT WITHOUT FIRE DEPARTMENT SUPPORT AND SCBA EQUIPMENT.

4. IF THE ODH HEAD IN THE CRYO CONTROL ROOM IS NOT IN ALARM, CRYO OPERATORS MAY ACCESS THE THE ROOM THROUGH THE DOUBLE DOORS AND CHECK THE CRYO CONTROL SYSTEM TO HELP ANALYZE THE SITUATION.

5. THE ODH MONITORING SYSTEM IS TIED TO THE FIRUS SYSTEM, WHICH WILL ALERT THE COMMUNICATIONS CENTER AND ACTIVATE A CALL-IN LIST FOR EXPERT ASSISTANCE IN CRYO OR GAS SYSTEM PROBLEMS.

6. IN THE EVENT OF A REAL ODH INCIDENT A PLAN OF ACTION WILL BE COORDINATED BY THE EMERGENCY RESPONSE TEAM AND THE SYSTEM EXPERTS.

7. IN THE EVENT OF A FALSE ALARM THE SYSTEM EXPERTS WITH ASSISTANCE FROM THE ODH MONITOR EXPERTS MUST TAKE CORRECTIVE ACTION TO RESTORE THE ODH MONITORING SYSTEM TO NORMAL OPERATING CONDITION.

9.5.2 DØ - DAB PLATFORM AREA ODH ALARM RESPONSE

An ODH monitoring system has been installed in the platform level below the D0 detector. The following is the proper response to alarms from the ODH monitoring system.

1. HORNS AND STROBES WILL BE ACTIVATED IF AN ODH CONDITION IS SENSED BY THE MONITOR SYSTEM.

2. ALL PERSONNEL IN THE PLATFORM AREA AND THE LOWER ASSEMBLY HALL AREA MUST EVACUATE TO THE HIGH BAY AREA NEAR THE LARGE OVERHEAD DOOR OR THE MAIN CONTROL ROOM. CHOOSE A ROUTE THAT MINIMIZES THE ODH RISK; IE, AVOID WALKING THROUGH OR CLOSE TO AREAS WHERE THE HAZARD EXISTS.

3. INFORMATION FROM THE ODH STATUS PANEL MOUNTED IN THE MAIN CONTROL ROOM AND NEAR THE NORTH ENTRANCE AND REPORTS FROM THE PERSONNEL EXITING WILL HELP DETERMINE IF THERE IS A REAL ODH EMERGENCY. IF THERE IS ANY UNCERTAINTY, ASSUME A REAL EVENT AND CALL X3131 FOR FIRE DEPARTMENT ASSISTANCE. DO NOT RE-ENTER THE BUILDING DURING A REAL EVENT WITHOUT FIRE DEPARTMENT SUPPORT AND SCBA EQUIPMENT.

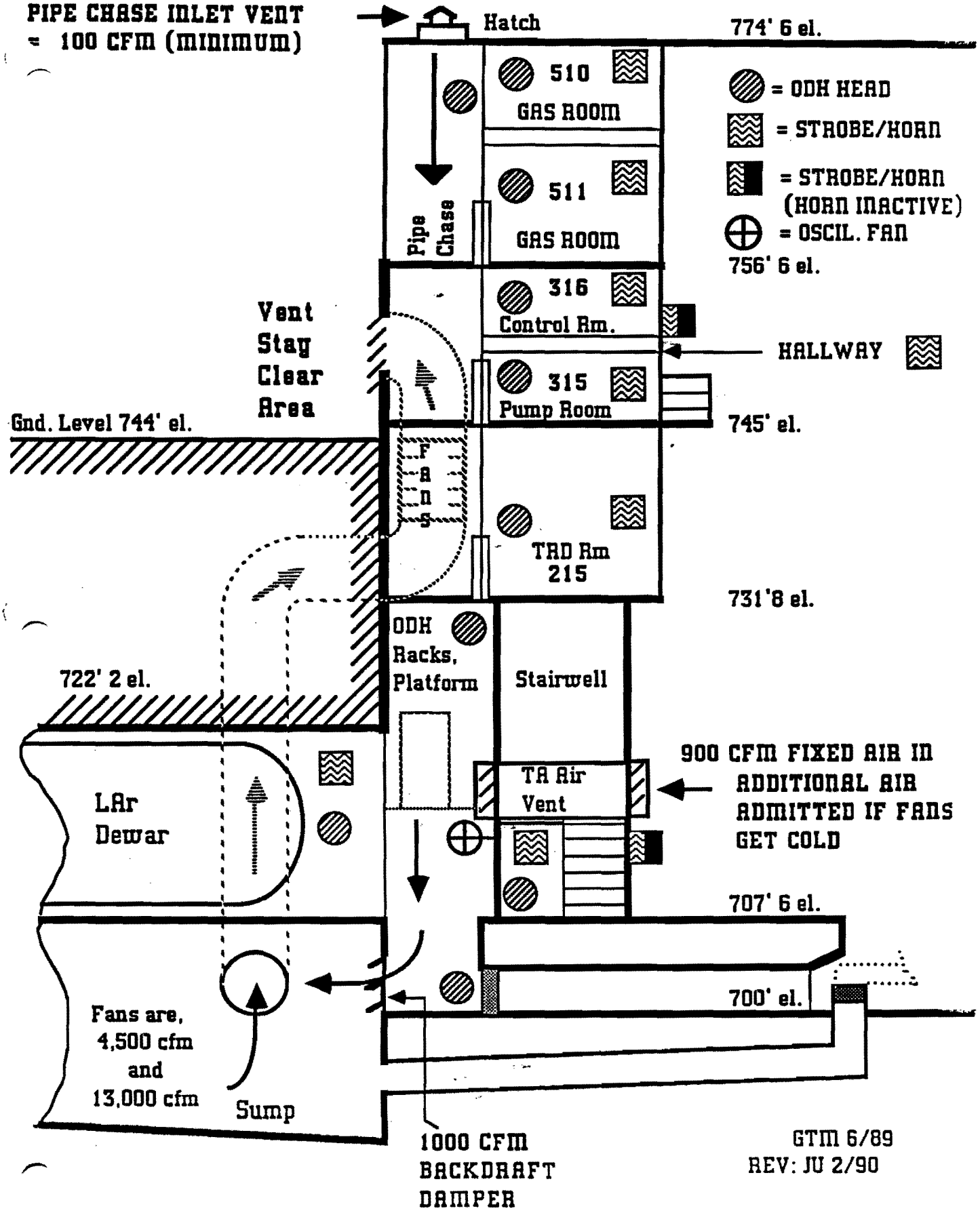
4. IF THE ODH HEAD IN THE CRYO CONTROL ROOM AND/OR MAIN CONTROL ROOM IS NOT IN ALARM, CRYO OPERATORS MAY ACCESS THE ROOM THROUGH THE DOUBLE DOORS AND CHECK THE CRYO CONTROL SYSTEM TO HELP ANALYZE THE SITUATION.

5. THE ODH MONITORING SYSTEM IS TIED TO THE FIRUS SYSTEM AND THE CRYO SYSTEM'S AUTODIALER, WHICH WILL ALERT THE COMMUNICATIONS CENTER AND ACTIVATE A CALL-IN LIST FOR EXPERT ASSISTANCE IN CRYO OR GAS SYSTEM PROBLEMS.

6. IN THE EVENT OF A REAL ODH INCIDENT, A PLAN OF ACTION WILL BE COORDINATED BY THE EMERGENCY RESPONSE TEAM AND THE SYSTEM EXPERTS.

7. IN THE EVENT OF A FALSE ALARM, THE SYSTEM EXPERTS WITH ASSISTANCE FROM THE ODH MONITOR EXPERTS WILL TAKE CORRECTIVE ACTION TO RESTORE THE ODH MONITORING SYSTEM TO NORMAL OPERATING CONDITION.

LAr DEWAR: ODH VENTING/AIR INLETS



ODH ALARM PROVISIONS