AGS/RHIC OPERATIONS PROCEDURES MANUAL

2.1 Operations Organization And Administration

Text Pages 1 through 4

Attachment

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Revision No. 03

Approved: _____ _____
AGS Department Chairman Date

_____ _____
RHIC Project Director Date

P. Ingrassia

2.1 AGS Operations Organization And Adminstration

1. Purpose

Responsibility for the safe and reliable Operation of the AGS complex resides with the on duty Operations Coordinator. The Operations Coordinator is the shift supervisor for the operating personnel and the focus for all operations related questions. The AGS complex is made up of a number of facilities that may include the Linac, the AGS ring, the main magnet power supply, the ring rf acceleration system, the injection equipment, the beam extraction equipment, the beam lines, the Tandem-to-Booster transfer line (TTB), the Booster, the AGS to RHIC transfer line (AtR) and Tandem Van De Graaff. Personnel that are responsible for the day-to-day operations of these facilities are members of the Accelerator Division, the Experimental Planning and Support Division, and the Controls Section. Additional personnel who support the operations belong to the RHIC Project, to the ES&H Services Division, and to the Plant Engineering Division.

2. Responsibilities

2.1 Operations

2.1.1 The personnel normally available (see OPM 2.5 for minimum requirements) to the Operations Coordinator during operations include:

2.1.1.1 One or two main control room operators, who report to the Operations Coordinator and are responsible for the control of the Linac, Booster, AGS, and external beams up to the production targets or injection to RHIC.

2.1.1.2 Collider Accelerator Support technicians, who report to the Operations Coordinator and are responsible for Collider Accelerator Operating Systems,

2.1.1.3 a Cryogenic Target Watch technician, who reports to the Collider Accelerator Support Group Coordinator, and is responsible for the operation of the liquid hydrogen targets,

2.1.1.4 and one Radiological Control Technician (RCT) reports to the Operations Coordinator and is responsible for pulsed and residual radiation measurements, and clearing high intensity secondary areas for beam.

2.1.1.5 Tandem Operators

2.1.1.6 Siemens and MMPS Operator

2.1.2 Personnel outlined in section 2.1.1 are shown on Attachment 8.1, "Shift Organization Chart".

2.1.3 In addition to the operational practices outlined in AGS-OPM Chapter 2, operating personnel have the following safety responsibilities:

2.1.3.1 safely operate the facility with adherence to procedures, technical specifications, accelerator safety envelope operating limits, and Operational Safety Limits

2.1.3.2 comply with the requirements of Laboratory ES&H Standards and SEAPPM.

2.1.3.3 follow good radiological protection practices and procedures to maintain personnel radiation exposures as low as reasonably achievable, and to reduce the generation of activated materials.

2.1.4 Supervisors of the personnel listed in Section 2.1.2 shall periodically review exposure trends of operating personnel.

2.2 Scheduling Physicist

2.2.1 The Scheduling Physicist, along with the Head of the Experimental Planning and Support Division, and the Accelerator Division's Head of Operations, set the schedule for the daily operation of the ion accelerator complex. The Operations Coordinator is charged with implementing the schedule.

2.3 Additional Personnel

2.3.1 Additional personnel available to the Operations Coordinator include the AGS and RHIC machine physicists and equipment systems specialists. Those persons repair equipment necessary for operations or provide trouble shooting expertise when machine physics or equipment problems arise.

2.3.2 Occasionally, it is necessary that parts of the Accelerator Complex be operated by Accelerator Physicists or System Specialists. The rules governing access to accelerator controls, by such individuals, are to be found in AGS-OPM 2.11. In order to be allowed access to accelerator controls, Accelerator Physicists and Systems Specialists shall:

2.3.2.1 recognize the role of the on-duty Operations Coordinator as the decision maker regarding the safe and reliable operation of the AGS

Complex

2.3.2.2 follow the orders of the Operations Coordinator, or his designate, during an emergency situation

2.3.2.3 not operate any AGS or RHIC Safety System controls at the MCR_2 console, including racks one through six, unless authorized to do so by the Head of the AGS Security Group or the RHIC Safety Systems Section Head, and

2.3.2.4 request permission to use the accelerator controls and state the purpose for the use of the controls, to the on-duty Operations Coordinator

2.4 Additional Operating Responsibilities -- Monitoring of Accelerator Performance

2.4.1 Regular meetings are held between the supervisors and group members of the various operating groups to discuss operational problems and possible corrective actions, safety, and other matters of concern. When appropriate, the business discussed at these meetings should be documented.

2.4.2 When appropriate, operations goals should be established in the following areas:

2.4.2.1 minimize the unavailability of safety systems
2.4.2.2 minimize personnel errors
2.4.2.3 maintain reasonably achievable particle losses
2.4.2.4 minimize lost facility capability
2.4.2.5 minimize the number of unscheduled shutdowns
2.4.2.6 maintain complete staffing and training
2.4.2.7 minimize hazardous and radioactive waste
2.4.2.8 minimize the number alarms/annunciations

2.4.3 Once specific goals are set, they should be audited throughout the running period.

2.5 With respect to RHIC areas where beam is authorized (W-,X-, and Y-Lines and the Collider), the AGS Conduct of Operations applies to RHIC personnel who support operations and report to the Duty Operations Coordinator. RHIC Line management shall still maintain line safety responsibility.

3. Prerequisites

None.

4. Precautions

None.

5. Procedure

None.

6. Documentation

None.

7. References

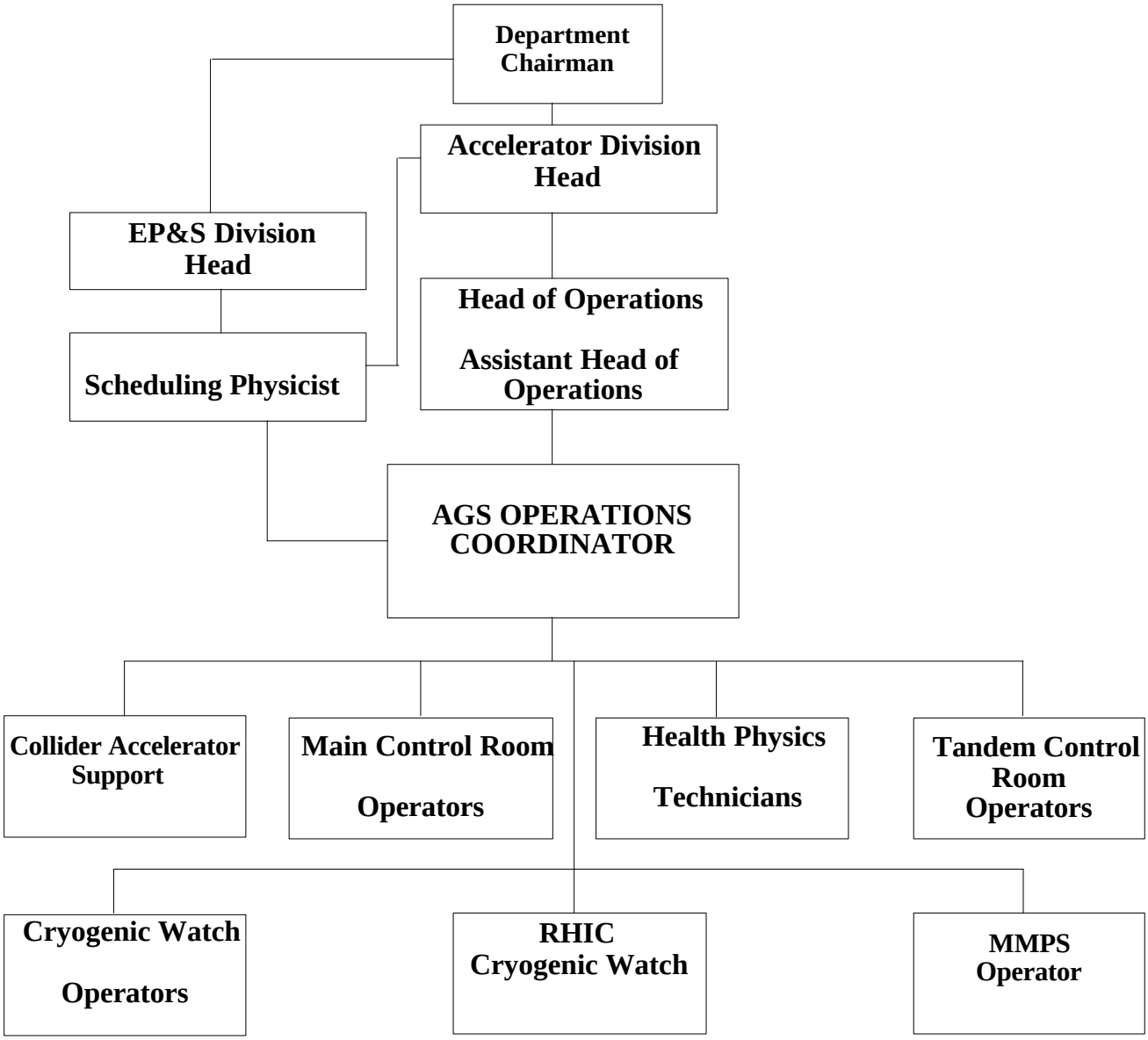
7.1 RHIC OPM 2.1 "RHIC Operations Organization and Administration During Periods Without Beam".

8. Attachments

8.1 "Shift Operations Organization Chart".

Attachment 8.1

SHIFT OPERATIONS ORGANIZATION CHART



RHIC Detector Operations for Commissioning

The construction of the RHIC detectors is conducted in accordance with the requirements of the RHIC SEAPPM, the RHIC QA Manual, and the BNL ES&H Manual. The RHIC Experiment Safety Committee (ESC) carried out safety reviews of the large detectors, STAR and PHENIX on a subsystem-by-subsystem basis culminating with integrated detector safety systems reviews. The two small experiments, BRAHMS and PHOBOS were also reviewed by the ESC. These reviews are documented by meeting minutes as well as action items that are tracked in a database.

The ESC recommends installation of completed subsystems to the RHIC Project Director upon closure of action items and approval of relevant installation procedures. The RHIC Project Director then authorizes installation in the Assembly Buildings or Interaction Regions depending on the specific detector.

Safety analyses for the large experiments are included in this SAD. These are reviewed by the BNL ES&H Committee in accordance with BNL ES&H Standard 1.3.3. Modification of these facilities that require re-analysis and/or changes to the Accelerator Safety Envelop, are first reviewed and approved by the RHIC ESC and then forwarded to the BNL ES&H Committee for review. Recommendations of the BNL ES&H Committee are sent to the BNL Deputy Director for Operations for approval of the SAD (including the Accelerator Safety Envelop). The Accelerator Safety Envelop must also be approved by DOE.

As required by ES&H Standard 1.3.2, installed subsystems are subjected to an independent review by the Laboratory Operational Readiness Review Committee. Two categories of action items are generated and tracked to closure: Pre-start or Critical action items, and Post-start action items. Permission to operate a given subsystem is issued by the RHIC Project Director upon closure of the Pre-start items.

Personnel access control to the detector Interaction Regions and sweeps for beam operations, under the PASS system, are reviewed and approved by the AGS/RHIC Radiation Safety Committee.

Finally, authorization to start commissioning the detectors with beam in the respective Interaction Regions is given by DOE-BHG after the Accelerator Safety Envelop has been approved by DOE and the Laboratory Accelerator Readiness Review report is provided.

Since the RHIC detectors are complex and are geographically isolated from the Main Control Room, the detectors will operate as self-contained satellites with Main Control as the hub. As such, each detector will have an Experiment Commissioning Coordinator who acts as a liaison between the detectors and the accelerator personnel regarding status, running schedules and required maintenance. In addition, local Shift Leaders will assume first line responsibility for the safe operation of the detectors. They will operate under a set of procedures, approved by the ESC, that assure operation within the Accelerator Safety Envelop, adequate communications with the MCR Operations Coordinator and appropriate response to any emergency that may arise.

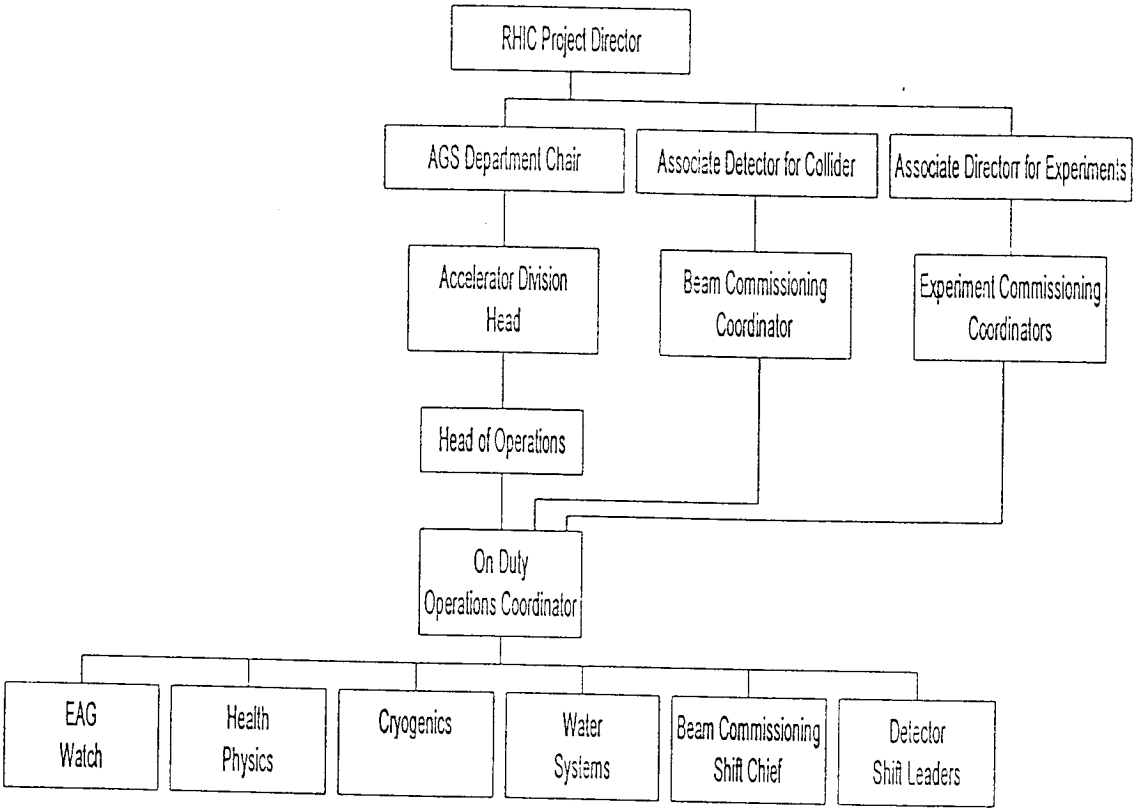
The commissioning of the RHIC collider and detectors will be carried out under the responsibility and authority of the RHIC Project Director as per the attached memorandum. The corresponding organization chart is shown in Figure 3-B-4. The detector Shift Leaders are accountable to the RHIC Project Director and Associate Project Director for Experiments for construction, installation and commissioning; to the respective detector collaboration for detector maintenance, data flow and physics analyses; and to the MCR Operations Coordinator during beam operations.

When the accelerator is running with beam, the MCR Operations Coordinator is the focal point who is authorized to maintain or restore the accelerator and related experiments to operational status. The Operations Coordinator keeps current on the status of the experiments and in the event of incompatibility or conflict provides a resolution. For assistance in carrying these duties, the Operations Coordinator consults with the Head of Operations and the Beam and Experiment Commissioning Coordinators regarding programmatic matters.

The detector Shift Leaders will notify and obtain approval from MCR prior to introducing flammable gases into the detectors. MCR should also be notified prior to energizing or shutting down major pieces of apparatus such as magnets and their power supplies.

The detector safety systems will be under configuration control. Requests for changes or bypass should be forwarded to Main Control and approval will be granted upon consultation with the cognizant Safety Committee Chair or designee.

Operating Organization for RHIC Commissioning



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for the U.S. Department of Energy

Memo

date: *May 3, 1999*

to: *J. H. Marburger*

from: *Thomas Kirk, ALD-HENP and Satoshi Ozaki, RHIC Project Director*

subject: *Interim Line of Authority for Commissioning*

Commissioning of the RHIC collider and detectors will be carried out under the responsibility and authority of the RHIC Project Director. For the sake of expediency, it was decided that commissioning will be carried out using specific operations procedures for RHIC equipment, developed as appropriate, under the AGS Department Conduct of Operations. Namely, actual day-to-day operations, including safety related matters, will come through the AGS line of command that, at present, reports to the ALD-HENP. It was agreed between T. Kirk and S. Ozaki, with consent of D. Lowenstein, that the AGS Department will report to the RHIC Project Director, S. Ozaki, for the purpose of the RHIC facility commissioning. The Department will continue to report to the ALD-HENP for all other matters.

This formal arrangement should establish a comprehensive line of authority to facilitate smooth commissioning of RHIC.

This memo is to request your concurrence on this arrangement.

Concurrence: John Marburger 5/3/99
John H. Marburger/Date

cc: P. Paul
D. Lowenstein
G. Malosh