

**ONLINE COPY RHIC OPERATIONS PROCEDURES MANUAL
- VALID FOR FIVE (5) WORKING DAYS**

RHIC Operations Procedures Manual

2.2 OPERATING PRACTICES

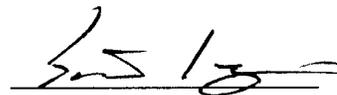
Text Pages 1 through 6

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Category A

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2.2 Operating Practices

1.0 Purpose and Scope

The guidelines in this procedure describe watch standing practices during operating periods that apply to all operating personnel, including important aspects of routine shift activities and watch standing practices.

Effective monitoring of accelerator equipment is necessary to detect abnormal conditions or adverse trends so that appropriate action can be taken before equipment malfunction occurs. Notifying shift supervisors promptly of unusual or unexpected situations helps ensure that proper attention is given to changing and unusual conditions. Equipment status and the authority to operate equipment should be understood by all operations personnel so that activities can be controlled and coordinated. Operations personnel should follow all the established rules for safety and quality assurance. A desire to conduct assigned tasks expediently should not interfere with safety and quality assurance rules.

2.0 Responsibilities

It is the responsibility of the on-shift operating crew to safely operate the accelerator through adherence to written procedures and sound operating practices. The authority for accelerator operations should be vested in the on-duty Operations Coordinator (OC) and transferred only through formal turnover to a qualified OC. If a special test, or abnormal condition arises, accelerator personnel should be aware that the responsibility and authority to determine corresponding operating conditions, system alignments, or equipment manipulations rests fully with the on-duty OC. He should not permit any individual to bypass or overrule his operational judgement. If this happens he should bring the matter to the attention of higher line authority for operations.

3.0 Prerequisites

None

4.0 Precautions

None

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5.0 Procedure

Guidelines

5.1 Authority to Operate Equipment

The person designated as the Shift Supervisor, as appropriate, is in charge of all activities relating to the operation of the accelerator and the safe operation of experiments. Any work by support groups during operations, which might impact the operation of the accelerator should be approved by the OC.

5.2 Operating Practice

Operations personnel operate the components which make up each facility with adherence to the engineering and technical specifications for each piece of equipment as well as having a regard for the operating limits and operational safety requirements of each device.

5.3 Safety Practices

Operations personnel shall comply with the applicable requirements in the BNL ES&H Standards Manual, RHIC SEAPPM, and the RHIC OPM.

5.4 Radiological Protection

All operating personnel should abide by the radiation safety provisions of the BNL RadCon Manual. A copy of this manual is maintained by the RHIC Project ES&H Office. Operational requirements have been incorporated into the RHIC OPM, RHIC SEAPPM and S&EP Procedure Manual, as appropriate.

5.5 Radiological Exposure

Supervisors are required to examine exposure histories of their personnel and restrict the duties of those having exposures above the Administrative Limits.

The RHIC Project goal is to keep individual and collective doses as low as reasonably achievable. In order to meet this goal the Administrative Limits are:

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5.5.1 Administrative Dose Limits

Administrative dose limits are an integral part of the dose reduction scheme employed by the Project. These limits are LESS than the dose limits set by DOE and Federal Regulations.

Administrative Limits for Visitors and Minors
<p>Untrained visitor, untrained User or untrained staff have a dose limit of 25 mrem per year or 100 mrem per year with written permission from ES&H Services Division Representative and RHIC Project Director.</p> <p>Minor (<18 years) dose limit is 25 mrem per year plus written permission from ES&H Division Representative and RHIC Project Director.</p>

Administrative Limits for Radiation Workers		
Period of Interest	Maximum Individual Dose Limit, mrem	Individual Dose Limit With Line Authority Approvals, mrem
Calendar Year	1000	1250 to 2000 (Lab Director Approval) 1000 to 1250 (RHIC Project Director Approval) 500 to 1000 (RHIC Project Director Approval)
Day	100	50 to 100 (Approval authority will be on the RWP)

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5.5.1.1 The maximum daily dose to a trained Radiation Worker (RW) is 100 mrem. A first-line supervisor or experiment spokesperson may approve a dose between 100 and 200 mrem. The S&EP Representative must be notified that such an approval was given. The maximum 13-week-interval dose allowance to RW-trained persons is 750 mrem, and the maximum calendar year dose is 1000 mrem. Various formal approvals must be obtained to go beyond these administrative limits.

5.5.1.2 After a female RW trained person voluntarily notifies RHIC management that she is pregnant, she is considered a declared-pregnant radiation-worker for the purpose of fetal and embryo radiation protection. The dose to the fetus during the gestation period is to be no greater than 200 mrem at a rate of no greater than 20 mrem per month.

Given that there is greater uncertainty in the detection of low-level neutron dose and a Design Basis Accident (DBA) with a Collider beam could exceed 500 mrem in some RHIC Controlled Areas, supervisors should not employ declared-pregnant radiation workers around the Collider during operations without a review by the ALARA Committee. After a person voluntarily notifies the RHIC management that she is pregnant, she must follow-up and notify management when she is no longer pregnant.

5.5.1.3 Untrained Users, staff, or visitors are limited to no more than 25 mrem per year.

5.5.1.4 The annual dose limit to minors and students under age 18 years is 25 mrem. Exposures are administratively controlled. This is done by not allowing students under the age of 18 years to work in Controlled or Radiological Areas without written permission. Written permission must be obtained from the RHIC Project Director and the S&EP Representative.

5.6 Operator Inspection Tours

Operator tours should be of sufficient detail to ensure the status of equipment is known. The following activities should be conducted:

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- a) Components, such as alarm panels, autostart standby equipment should be inspected for abnormal or unusual conditions. Unexpected conditions such as equipment vibrations, unusual noises or smells, or excessive temperatures should be reported to the control room so that supervisors will be aware of the conditions and be able to direct repairs, troubleshooting, or additional operator action, as necessary.
- b) Equipment panel alarm light bulbs and annunciators should be periodically checked to ensure satisfactory operation of visual and audible abnormal condition indicators.
- c) Each operator should inspect all areas for which he/she is responsible and note any deficiencies that may be present. These deficiencies may include steam, oil, or water leaks; fire and safety hazards or radiological problems; seismic concerns such as open electrical panels and mobile objects; clogged floor drains, housekeeping or cleanliness problems; and building deficiencies such as inoperative lighting, roof leaks, or doors that do not close properly.

Operators should take appropriate action to correct or report deficiencies noted during tours. Equipment deficiencies should also be documented in accordance with the "Action Please" mechanism.

5.7 Response to Indications

Operators should believe instrument readings and treat them as accurate unless proven otherwise.

Ignoring an unusual reading because the operator believes an instrument is faulty can cause abnormal conditions to be undetected. In general, operators should check other indications, if possible, when unexpected readings are observed. Prompt action should be taken to investigate the cause of abnormal or unexpected indications so that prompt corrective action can occur. When malfunctioning or inaccurate instruments are discovered, they should be appropriately identified to prevent subsequent confusion and responsible personnel should be notified to effect repairs. In situations of operator doubt, operators should be instructed to achieve facility, personnel, and environmental safety above facility production.

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5.8 Resetting Protective Devices

When protective devices trip (e.g., Chipmunk alarms) an attempt should be made to understand the cause of the trip before the device is reset. Normally, before action is taken, an operator should ensure no abnormal condition exists that would preclude reset. However, because the consequences of inappropriately resetting protective devices vary considerably, good judgement and specific guidance are necessary in this area. The operations management should provide the appropriate guidance so that tripped protective devices will be properly addressed.

5.9 Load Changes

The OC should approve all power or process rate changes because these persons are held accountable for safe operation. Additionally, they will probably be the persons most knowledgeable of problems that occur as a result of load changes.

5.10 Indicator Light Deficiency Identification

Indicator light deficiencies are noted by operations personnel in the Action Please Log and deficient lights are labeled with deficiency tags that are available in the Main Control Room. These stickers are used to enhance operator awareness until indicators are repaired.

6.0 Documentation

None

7.0 References

None

8.0 Attachments

None



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