

Subject: Conduct of Operations Exceptions & Deviations	Number: LS-CO-0002	Revision: B	Effective: 10/22/2007	Page 1 of 24
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CHAPTER I - OPERATIONS ORGANIZATION AND ADMINISTRATION		
Guideline from DOE Order 5480.19, Change 2	Implementation in NSLS ConOps Manual	Exceptions & Deviations
CHAPTER: I "OPERATIONS ORGANIZATION AND ADMINISTRATION" 1. Operations Policies <ul style="list-style-type: none"> • Specify goals and the means to achieve them. • Specify the type of controls necessary to implement the policy. • Personnel should understand their authority and responsibility, through accountability. 	Chapter I – Section 1	None
2. Resources <ul style="list-style-type: none"> • Provide sufficient resources, material, and labor. • Do not use excessive overtime. • Provide technical support personnel. • Develop a long range staffing plan. 	Chapter 1 – Section 2	None
3. Monitoring Of Operations Performance <ul style="list-style-type: none"> • Refer to Chapter VI for operating problems. • Document problems for evaluation. • Supervisor should observe operations frequently. • Operations Goals should be to: <ul style="list-style-type: none"> • Minimize the unavailability of the safety system • Minimize personnel errors ----- • Conform to ALARA guidelines • Minimize loss of the facility capability • Minimize the number of unscheduled shutdowns • Complete inspections on a timely basis • Minimize the amount of overtime • Achieve and maintain complete staffing and training requirements • Minimize waste • Minimize the number of lighted annunciators • Goals should be measurable, achievable, and auditable. • Develop an Action Plan to meet goals. • Report results of audits to facility management and DOE. • Perform Self-Assessments. 	Chapter I ----Chapter V – Section 3 ----Chapter VIII – Section 7 ----Chapter XVI – Section 1 ----Chapter XVIII - Discussion	None

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CHAPTER I - OPERATIONS ORGANIZATION AND ADMINISTRATION**Guideline from DOE Order 5480.19, Change 2****Implementation in NSLS [ConOps Manual](#)****Exceptions & Deviations****4. Accountability**

- Hold workers and supervisors accountable for their actions.
- Use discipline and performance appraisals to ensure accountability.

Chapter I – Section 4

None

5. Management Training

- Formal training of supervisors and other management should be incorporated into overall training plan.

Chapter I - Section 5

None

6. Planning For Safety

- Provide guidance to personnel so that they understand safety requirements.
- Explain the role of Safety Analysis system to all operations personnel.

Chapter I – Section 6

None

CHAPTER II - SHIFT ROUTINES & OPERATING PRACTICES		
Guideline from DOE Order 5480.19, Change 2	Implementation in NSLS ConOps Manual	Exceptions & Deviations
1. Status Reports <ul style="list-style-type: none"> Notify Supervisor of changes in facility status, and all abnormalities and unexpected situations. 	Chapter II – Section 1	None
2. Safety Practices <ul style="list-style-type: none"> Adhere to BNL safety program, including the use of protective equipment. 	Chapter II – Section 2	None
3. Inspection Tours <ul style="list-style-type: none"> Perform inspection tours to ensure the status of equipment is known. Use tour to become familiar with the facility condition. Tour activities should include: <ul style="list-style-type: none"> Reviewing equipment status Looking for unexpected conditions Checking panel & annunciator operation Notation of any deficiencies found 	Chapter II – Section 3	None
4. Round Tours <ul style="list-style-type: none"> Use approved Round Tour Inspection Sheets Record key parameters to analyze performance of systems and equipment and to facilitate shift turnover. Round sheets should have the maximum and minimum values and operational safety limits highlighted for to facilitate comparison with noted values. Review recorded values for trends. 	NA	Round tours are not necessary since the main machine hardware is in a shielded area and not accessible during operations.
5. Personnel Protection <ul style="list-style-type: none"> Conform to DOE Order 5480.11 (ALARA). Assure proper use of Work Permits. Supervisors should review exposure trends of workers. 	Chapter II – Section 4 Chapter VIII – Section 6	None
6. Response to Indications <ul style="list-style-type: none"> Identify and correct faulty instruments. Believe instrument readings unless proven unreliable. 	Chapter II – Section 5	None
7. Resetting Protective Devices <ul style="list-style-type: none"> Understand current conditions prior to resetting protective devices. 	Chapter II – Section 6	None
8. Load Changes <ul style="list-style-type: none"> Supervisor must approve any changes. 	NA	This guideline does not apply to NSLS Operations.
9. Authority to Operate <ul style="list-style-type: none"> Operators should understand their authority to operate and that of the Supervisor. 	Chapter II – Section 7	None
10. Shift Operating Bases <ul style="list-style-type: none"> Establish places for administration, communications, and shift turnover. 	Chapter II – Section 8	None
11. Potentially Distractive Material <ul style="list-style-type: none"> Should be prohibited or controlled. 	Chapter II – Section 9	None

CHAPTER III - CONTROL AREA ACTIVITIES

Guideline from DOE Order 5480.19, Change 2	Implementation in NSLS ConOps Manual	Exceptions & Deviations
1. Control Area Access <ul style="list-style-type: none"> • Only for official business • Restrict access to controls • Entry allowed by authorized individuals 	Chapter III – Section 1	None
2. Professional Behavior <ul style="list-style-type: none"> • Prohibit distractions 	Chapter III – Section 2	None
3. Monitoring the Main Control Panels <ul style="list-style-type: none"> • Take action to determine cause of abnormalities. • Provide backup to computer control systems. 	Chapter III – Section 3	All equipment is individually protected to "failsafe" and does not depend upon computer intervention.
4. Control Room Operator Ancillary Duties <ul style="list-style-type: none"> • Limit the ancillary activities of operators. • If appropriate, perform administrative duties away from controls. 	Chapter III – Section 4	None
5. Operation of Control Area Equipment <ul style="list-style-type: none"> • Operate only with specific authorization. • Trainees should be supervised. 	Chapter III – Section 5	None

CHAPTER IV - COMMUNICATIONS

Guideline from DOE Order 5480.19, Change 2	Implementation in NSLS ConOps Manual	Exceptions & Deviations
1. Emergency Communications Systems <ul style="list-style-type: none"> • Provide means to notify personnel of an emergency. • Periodically test emergency communications systems. • Control Area should be able to override the communications systems. 	Chapter IV – Section 1	None
2. Public Address Systems <ul style="list-style-type: none"> • Should be administratively controlled. • Includes the use of the paging systems. 	Chapter IV – Section 2	None
3. Contacting Operators <ul style="list-style-type: none"> • Distinguish between emergency and normal communications. 	Chapter IV – Section 3	None
4. Radios <ul style="list-style-type: none"> • Post areas where use of radios will cause interference with equipment. • Consider the use of dedicated radio channels for specific operations groups. 	Chapter IV – Section 4	None
5. Abbreviations & Acronyms <ul style="list-style-type: none"> • Use approved list for written and verbal communications. 	Chapter IV – Section 5	None
6. Oral Instructions & Information Communication <ul style="list-style-type: none"> • Should be clear and concise. • Use repeat back techniques to assure accurate communication. 	Chapter IV – Section 6	None

CHAPTER V - CONTROL OF ON-SHIFT TRAINING

Guideline from DOE Order 5480.19, Change 2	Implementation in NSLS ConOps Manual	Exceptions & Deviations
1. Adhere to Training Program <ul style="list-style-type: none"> Program should list requirements for training, and items to be accomplished. 	Chapter V – Section 1	None
2. On-Shift Instructor Qualification <ul style="list-style-type: none"> The qualifications of instructors must be defined. 	Chapter V – Section 2	None
3. Qualified Operator Supervision & Control of Trainees <ul style="list-style-type: none"> Careful observation of trainees is required. Instructor should discuss procedure steps in detail. Instructor should be able to intervene, if required. Instructors should verify any recorded readings and discuss the implications of trends and off-normal readings. 	Chapter V – Section 3	None
4. Operator Qualification Program <ul style="list-style-type: none"> Program should be approved and any changes reviewed by appropriate management. 	Chapter V – Section 4	None
5. Training Documentation <ul style="list-style-type: none"> Document classroom instruction, written exam, and On-the-Job Training requirements. 	Chapter V – Section 5	None
6. Suspension of Training <ul style="list-style-type: none"> If an abnormal or emergency condition occurs training should be suspended. 	Chapter V – Section 6	None
7. Maximum # of Trainees <ul style="list-style-type: none"> Set limits for number of students and the ratio of instructors to trainees. 	Chapter V – Section 7	None
8. Use of Trainees to Support Operations <ul style="list-style-type: none"> Document how and when trainees can be used. 	Chapter V – Section 8	None

CHAPTER VI - INVESTIGATION OF ABNORMAL EVENTS

Guideline from DOE Order 5480.19, Change 2	Implementation in NSLS ConOps Manual	Exceptions & Deviations
<p>1. Events Requiring Investigation</p> <ul style="list-style-type: none"> • Establish criteria for when to perform an investigation. • List specific events requiring investigation. • Establish criteria for a "near miss" situation. • The following events require investigation: • Violation of design limits • Unusual, abnormal, or unexplained performance or safety conditions • Improper positioning of safety system features • Unexplained shutdown • Violation of a procedure or human error which could have serious implications • Failure of equipment with safety implications • Exceeding radiological or toxic substance limits • Actual or attempted sabotage • Review committee deems an investigation is necessary • Loss of Special Nuclear Material • Occurrence of repetitive problem 	Chapter VI – Discussion & Section 1	None
<p>2. Investigation Responsibility</p> <ul style="list-style-type: none"> • Manager has ultimate responsibility for consistency and thoroughness of event investigation. 	Chapter VI – Section 2	None
<p>3. Investigator Qualification</p> <ul style="list-style-type: none"> • Investigators should be knowledgeable with no vested interest or bias. • Investigators should be trained. 	Chapter VI – Section 3	None
<p>4. Information to be Gathered</p> <ul style="list-style-type: none"> • Collect the following information as soon as possible: • Initial condition of facility • Statements of operators and other personnel • Logs and computer printouts • Other pertinent documents 	Chapter VI – Section 4	None
<p>5. Event Investigation</p> <ul style="list-style-type: none"> • Depending on their significance the format should include : <ul style="list-style-type: none"> a. Event Reconstruction <ul style="list-style-type: none"> • Develop a chronological list of events. • Include a list of personnel involved in the event. b. Event Analysis and Evaluation <ul style="list-style-type: none"> • Determine the response of equipment and personnel. • Compare the actual and expected responses. • Determine the adequacy of procedures and factors effecting performance. • Compare the event with previous events. • Perform analysis to determine any detrimental effects which have occurred. 	Chapter VI – Section 5	None

CHAPTER VI - INVESTIGATION OF ABNORMAL EVENTS**Guideline from DOE Order 5480.19, Change 2****Implementation in NSLS [ConOps Manual](#)****Exceptions & Deviations**

5. c. Root-Cause Determination
Defined as casual factors that, if corrected, would preclude a recurrence of the event.

5. Event Investigation (cont.)**d. Corrective Action Determination**

- Determine actions.
- Assign responsibility to implement the corrective actions.
- Obtain final approval by Facility Manager.
- Can Include:
 - Changes in procedures
 - Training
 - Design Modifications
 - Changes in administrative controls

6. Investigative Report

- Report should include:
 - Description of the event
 - Impact of the event
 - Root causes of the event
 - Lessons learned from the event
 - Proposed corrective actions
 - Any positive aspects of the event (correct actions taken or planned)
 - The report should have the appropriate reviews and approvals.

Chapter VI – Section 5

None

7. Event Training

- Provide a mechanism to train personnel on aspects of the event in a timely fashion.

Chapter VI – Section 7

None

8. Event Trending

- Track patterns of deficiencies, such as operator errors and inadequate procedures.
- Keep a summary of all events for review.

Chapter VI – Section 8

None

9. Sabotage

- There should be an immediate investigation to:
 - Ensure operability of safety systems
 - Decide if facility should be shutdown
 - Minimize any impact of discovered sabotage and determine future actions

Chapter VI – Section 9

None

CHAPTER VII – NOTIFICATIONS**Guideline from DOE Order 5480.19, Change 2****Implementation in NSLS [ConOps Manual](#)****Exceptions & Deviations****1. Notification Procedures**

Notification procedures should include:

- Designation of specific responsibilities for notifications
- Identification of events and conditions requiring notifications
- Identification of primary and alternate personnel to notify in various situations
- Establishment of time requirements for notifications
- Definition of record-keeping requirements

Chapter VII – Section 1 & Discussion
 Chapter VI - Discussion
 Chapter VII – Section 3
 Chapter VII – Section 4

None

2. Notification Responsibility

- Operations supervisor has ultimate responsibility for notifications.

Chapter VII – Section 2

None

3. Names & Phone Numbers

- Include primary and alternate names with phone numbers and pager numbers in a readily accessible place.

Chapter VII – Section 3

None

4. Documentation

- Maintain record of notifications.

Chapter VII – Section 4

None

5. Communication Equipment

- Provide adequate equipment to address communication requirements.

Chapter VII – Section 5

None

CHAPTER VIII - CONTROL OF EQUIPMENT AND SYSTEMS STATUS

Guideline from DOE Order 5480.19, Change 2	Implementation in NSLS ConOps Manual	Exceptions & Deviations
1. Status Change Authorization and Reporting <ul style="list-style-type: none"> Operations supervisor is responsible for proper configuration and any changes. Operations Supervisor must be the focal point of shift operations. Authority for some minor changes may be delegated, but Operations Supervisor should remain informed. Good communication should be maintained between Operators and Operations Supervisor. Status changes should have the proper authorization and should be communicated to the operators. 	Chapter VIII – Section 1 Chapter II	None
2. Equipment & Systems Alignment <ul style="list-style-type: none"> Check systems for proper alignment before placing them in operation. Use alignment checklists to aid operators. Include the proper nomenclature in the checklists, and have lists signed off at each step. Check equipment in accordance with technical specifications and operational limits for start-up situations and after maintenance. Maintain checklists for review and analysis. 	Chapter VIII – Section 2	Beamline checklists that are no longer needed are discarded and not maintained.
3. Equipment Locking and Tagging <ul style="list-style-type: none"> All personnel should have training on responsibilities for locking and tagging and on manipulation of locks and tags. 	Chapter VIII – Section 2 Chapter IX	None
4. Operational Limits Compliance <ul style="list-style-type: none"> Compliance with operational limits should be documented. Documentation should include logs, status sheets, and checklists. Operations personnel should be appraised of requirements of operational limits. Compliance with limit should be reviewed. 	Chapter VIII – Section 4 & Discussion	None
5. Equipment Deficiency Identification & Documentation <ul style="list-style-type: none"> Methods to identify, document, communicate, and control deficiencies should be established. 	Chapter VIII – Section 1 & 5	None
6. Work Authorization and Documentation <ul style="list-style-type: none"> Operations Supervisor should document and authorize all activities which effect operations, safety, or change the control of alarms. Documentation of work in progress should be available for review. 	Chapter VIII – Section 6	None
7. Equipment Post-Maintenance Testing & Return to Service <ul style="list-style-type: none"> Equipment should be tested after maintenance to demonstrate its proper operation. Testing should be documented. 	Chapter VIII – Section 7	None
8. Alarm Status <ul style="list-style-type: none"> Status and control and alarm panels should be available and include information on: <ul style="list-style-type: none"> Alarms which have been disabled Inputs which have been disabled Alarms with set-point changes Actions of alarms with multiple inputs Appropriate actions should be taken to unmask simultaneous alarms from multiple sources. 	Chapter VIII – Section 8	None

CHAPTER VIII - CONTROL OF EQUIPMENT AND SYSTEMS STATUS

Guideline from DOE Order 5480.19, Change 2	Implementation in NSLS ConOps Manual	Exceptions & Deviations
9. Temporary Modification Control <ul style="list-style-type: none"> • Provide administrative controls for temporary changes in configuration and procedures. • Controls should provide the following: <ul style="list-style-type: none"> • Technical oversight • Formal approvals • Safety reviews • Installation approval • Independent verification of installation or removal • Documentation of modification • Updating of operating procedures • Training in modifications • Periodic audits of outstanding modifications 	Chapter VIII – Section 9	None
10. Distribution & Control of Equipment & Systems Documents <ul style="list-style-type: none"> • Provide system for distribution of controlled documents. 	Chapter VIII – Section 10	None

CHAPTER IX - LOCKOUTS & TAGOUTS**Guideline from DOE Order 5480.19, Change 2****Implementation in NSLS [ConOps Manual](#)****Exceptions & Deviations****1. Lockout/Tagout Use**

- Definitions
 - Lockout is the placement of a lock to render a device inoperable.
 - Tagout is the application of a warning device on a control indicating the control must not be used when the tag is removed by authorized persons.
- Use of keys should be controlled.

Chapter IX – Section 1

None

2. Lockout and Tagout Implementation

- If a isolating device can be locked out, it should be.
- If a isolating device can not be locked out, it should be tagged out.
- If major modifications to equipment are made, the addition of lock out capability should be considered.
- The following are example administrative controls:
 - Generate a list of devices that must be locked out
 - Establish criteria for locking out
 - Control the distribution of and access to keys
 - Specify techniques for verifying the position of locked components
 - Document when the position of normally locked component is changed
 - Perform periodic checks of locked components

Chapter IX – Section 1

None

3. Protective Materials and Hardware

- Includes locks, tags, and chains.
- Lockout and Tagout devices should be singularly identified, and meet the following requirements:
 - Able to withstanding the environment in which they are installed.
 - Standardized in size, shape, or color
 - Substantial enough to prevent removal (50# pull minimum)
 - Carry the name of the person applying the device
 - Carry a "Warning" notice

Chapter IX – Section 1

None

4. Lockout/Tagout Program

- Establish procedures for the program.

Chapter IX – Section 1

None

5. Procedures for Lockout/Tagout**a. Procedures should include, but are not limited to following:**

- Statement of intended use
- Specific steps for placing, removing and transferring of tags and locks
- Testing requirements to verify the isolation of the energy source

b. Specific procedures are not required when all the following requirements are:

- Machine has no stored energy after shutdown
- Machine has a single, easily identifiable energy source
- Isolation of the source will completely de-energize the machine
- Machine is isolated from the energy source and locked out
- A single lockout device only is required
- Lockout is under the exclusive control of authorized personnel

Chapter IX – Section 1

None

CHAPTER IX - LOCKOUTS & TAGOUTS**Guideline from DOE Order 5480.19, Change 2****Implementation in NSLS [ConOps Manual](#)****Exceptions & Deviations**

- Servicing does not create a hazard to other personnel
- Employer has a good accident record on the use of Lockout/Tagout
 - c. **Documentation of Lockout/Tagout**
- Usage should be documented and periodically reviewed.

6. Application of Lockout/Tagout

The program should cover the following procedures:

- a. **Preparation for Shutdown**
 - Inform affected personnel of hazards and of controls to be used.
- b. **Machine or Equipment Shutdown**
 - Use established procedures.
- c. **Equipment Isolation**
 - Apply the lockout or tagout device.
- d. **Affixing Locks/Tags**
 - Securely affix tags with qualified personnel.
- e. **Stored Energy**
 - Render safe any stored energy and prevent any re-accumulation.
- f. **Verification of Isolation**
 - Before starting work, verify isolation of the device.
- g. **Release from Lockout/Tagout**
 - Before restoring equipment, perform the following:
 - (1) **Equipment/Workspace**
 - Machine or equipment is operationally intact
 - Inspect area and remove non essential items
 - Person removing the tag/lock should assure that the equipment is properly aligned.
 - (2) **Personnel**
 - Check that affected personnel are safe and are informed of energization.
 - (3) **Lockout/Tagout Device Removal**
 - The person who applied the isolation device shall be the one to remove it.
 - Document removal of tag via logbook or other methods.
 - Procedures for removal by a person other than who placed the device:
 - Verify that the person who placed device is not available.
 - Make reasonable efforts to inform the person who placed the device that it has been removed.
 - Ensure that the affected personnel are informed.

Chapter IX – Section 1

None

7. Testing or Positioning of Equipment or Components

- When a temporary removal is required:
- Clear the equipment of tools and materials
- Ensure that personnel leave from the area
- Remove the lockout/tagout device
- Perform testing to assure lockout
- De-energize and reapply the lockout/tagout device

Chapter IX – Section 1 & 2

None

CHAPTER IX - LOCKOUTS & TAGOUTS**Guideline from DOE Order 5480.19, Change 2****Implementation in NSLS [ConOps Manual](#)****Exceptions & Deviations****8. Periodic Inspections**

- Perform audit for compliance with program.

Chapter IX – Section 3

None

9. Caution Tags

- Do not use for personnel protection
- Tags should show:
 - Tag identification system
 - Information on any precautions
 - Signature of person applying the tag
 - Keep records of use
 - Apply so that the tag does not interfere with operation of equipment.

Chapter IX – Section 4

None

10. Training and Communication**a. Training should include:**

- Recognition of hazards
- Purpose of procedures
- Recognition of the Tagout/Lockout devices

b. Training on limitations of tags

- Tags are warning device only, with no physical protection.
- Tags should be removed by the person who applied them.
- Tags must be legible.
- Tags must withstand environment.
- Tags must be securely attached.

c. Training on limitation of locks

- Locks may hinder facility systems necessary for safety.

d. Retraining

- Provide when there is a change in job, equipment, or hazard.

Chapter IX – Section 1 & 5

None

11. Lockout or Tagout Implementation

- Implementation shall be by authorized, qualified personnel only.

Chapter IX – Section 1

None

12. Notification of Personnel

- Notify appropriate supervisors or other personnel when lockout/tagout devices are applied or removed.

Chapter IX – Section 6

None

13. Outside Contractors

- Plant and contractor personnel should inform each other of their requirements.

Chapter IX – Section 1

None

14. Group Lockouts

- Procedures must be developed for crews equivalent to procedures for personnel Lockout/Tagout.

Chapter IX – Section 1

None

15. Shift or Personnel Changes

- Procedures should be developed to assure the continuity of Lockout/Tagout protection between personnel or shifts.

Chapter IX – Section 1

None

CHAPTER X - INDEPENDENT VERIFICATION**Guideline from DOE Order 5480.19, Change 2****Implementation in NSLS [ConOps Manual](#)****Exceptions & Deviations****1. Components Requiring Independent Verification**

- Components that ensure safe and reliable operation, as determined by safety analysis, should receive independent analysis in accordance with the following requirements:

a. Safety-Related Systems

Not required if:

- Mispositioning would not affect the system performance
- Mispositioning would be immediately known to operator
- Independent verification would involve significant radiation exposure

b. Non-Safety Related Systems

- Independent verification would be appropriate if mispositioning could lead to unplanned shutdowns, challenges to safety systems, or cause the release of radioactive or hazardous material.

Chapter X – Section 1

None

2. Occasions Requiring Independent Verification

- Returning equipment to service after maintenance.
- Removing equipment from service.
- Periodic checks during normal operation

Chapter X – Section 2

None

3. Verification Techniques - General Guidelines**a. Independence**

- Should be conducted in a manner to identify the component, its required position and actual position.

b. Remote Position Indicators

- Perform check local to the device, unless precluded by ALARMS.

c. Process Parameters

- Should not be used as the only indication of a components' position. A review should be made to determine when these parameters would be acceptable.

d. Throttled Valves

- Position indicators should be used in conjunction with observing the actions of valve actuator to proper verification.

e. Surveillance Testing

- Independent verification should be used only when proven to satisfy independent verification requirements.

f. Operation Self-Appraisal and Verification

- Should be performed periodically to ensure that the ES&H considerations, and operations functions are being conducted in accordance with established criteria.

Chapter X – Section 3

None

CHAPTER XI - LOGKEEPING

Guideline from DOE Order 5480.19, Change 2	Implementation in NSLS ConOps Manual	Exceptions & Deviations
1. Establishment of Operating Logs <ul style="list-style-type: none"> Logs should be established for all key control points including operations supervisor, and control room operator. Provide narrative sections on round sheets when logs are not used at a particular control point. 	Chapter XI – Section 1	Round sheets are not used.
2. Timeliness of Recordings <ul style="list-style-type: none"> Log information should be recorded as soon as possible to prevent inaccuracies. 	Chapter XI – Section 2	None
3. Information to be Recorded <ul style="list-style-type: none"> Provide written guidance to define the type, scope, and format of entries. <p>Minimum information required:</p> <ul style="list-style-type: none"> Changes in facility operating mode or condition Record of critical data Abnormal facility configurations Status changes in safety-related or important equipment Occurrences of reportable events Initiation and completion of surveillance tests Actions that breach operational safety limits Security incidents Out-of-specification chemistry or process results Shift reliefs 	Chapter XI – Section 3	None
4. Legibility <ul style="list-style-type: none"> Logs must be legible, understandable and suitable for photocopying. 	Chapter XI – Section 4	None
5. Corrections <ul style="list-style-type: none"> Do not erase or cover up entries; score them out with a single line. 	Chapter XI – Section 5	None
6. Log Review <ul style="list-style-type: none"> Logs must be reviewed periodically by supervisors. 	Chapter XI – Section 6	None
7. Care and Keeping of Logs <p>Provide written guidance on the disposition of completed logs:</p> <ul style="list-style-type: none"> Make available for operators returning after an absence Storing for expected life of the facility Retrieving stored logs 	Chapter XI – Section 7	None

CHAPTER XII - OPERATIONS TURNOVER**Guideline from DOE Order 5480.19, Change 2****Implementation in NSLS [ConOps Manual](#)****Exceptions & Deviations****1. Turnover Checklists**

Checklists should document that the following have been reviewed:

- Equipment checklists showing status, and noting any abnormal lineups or valid alarms
- Round sheets and logs
- Operator checklists providing vital information on key operational and safety parameters
- Operations Supervisory Checklists showing facility status, planned maintenance, and tests

Chapter XII – Section 1

NSLS does not require turnover checklists.

2. Document Review

- A review of documents and checklists, as required, should be made to ensure that the operators review and understand the important operations history, the present status of the equipment, and any planned events.

Chapter XII – Section 2

None

3. Control Panel Walkdown

- Walkdown the control panels to determine the plant's status by observing system lineups, switch positions, lighted annunciators, chart recorders, and status lights.
- Oncoming and outgoing personnel should review control panels together.

Chapter XII – Section 3

The NSLS does not use control boards.

4. Discussion and Exchange of Responsibility

- When all operations personnel are confident that the oncoming personnel are fully cognizant of plant conditions, and conditions are stable, the oncoming operators and supervisor should state that they take responsibility for the shift, and note such in the appropriate log.

Chapter XII – Section 4

None

5. Shift Crew Briefing

- Briefing of operators and support groups, as required, should be conducted by the Operations Supervisor and include a review of the facility status, equipment problems, and changes in progress or planned changes.

Chapter XII – Section 5

None

6. Reliefs Occurring During the Shift

- Relief reviews and walkdowns should be performed as required, depending on the familiarity of the oncoming persons with the current conditions.

Chapter XII – Section 6

None

CHAPTER XIII - OPERATIONS ASPECTS OF FACILITY PROCESS CONTROL

Guideline from DOE Order 5480.19, Change 2	Implementation in NSLS ConOps Manual	Exceptions & Deviations
1. Operator Responsibilities <ul style="list-style-type: none"> Operators should be able to recognize out-of-specification process parameters, adverse trends, and be familiar with corrective actions. 	Chapter XIII – Section 1 Chapter II.	None
2. Operator Knowledge Operators should be knowledgeable of processes and safety that affect operation and should be able to analyze off-normal situations and take action to correct the causes. Examples of process information include: <ul style="list-style-type: none"> Water pH, and conductivity Hazards associated with chemical storage Properties and hazards of such gases as hydrogen, nitrogen, carbon dioxide, chlorine, and halon Water-treatment equipment use Knowledge of operating limits, characteristics of off-normal and unique processes, and associated response and recovery conditions. 	Chapter XIII – Section 2 Chapter II.	None
3. Operator Response to Process Problems <ul style="list-style-type: none"> Operators should be capable of making the appropriate responses to process conditions. 	Chapter XIII – Section 3 Chapter II.	None
4. Communication between Operators & Process Personnel <ul style="list-style-type: none"> Operators should receive reports from, and communicate with, process personnel about important process matters. 	Chapter XIII – Section 4	None

CHAPTER XIV - REQUIRED READING

Guideline from DOE Order 5480.19, Change 2	Implementation in NSLS ConOps Manual	Exceptions & Deviations
1. File Index <ul style="list-style-type: none"> • A list of the types of documents to be included in the required reading file should be maintained including: • Changes in the process • Changes in equipment design • Information on industry and facility operating experiences • Information necessary to keep operations personnel informed of current facility activities • Material should be screened to ensure that only the appropriate material is kept in file. 	Chapter XIV – Section 1 Chapter VIII – Section 10	None
2. Reading Assignments <ul style="list-style-type: none"> • A method should be in place to designate which documents need to be read and where they can be found and filed. 	Chapter XIV – Section 2 Chapter VI – Section 6	None
3. Required Dates for Completion of Reading <ul style="list-style-type: none"> • A required completion date, based on the material, should be determined for all material. • Documents required to be read before shift assignments should be clearly designated. 	Chapter XIV – Section 3	None
4. Documentation <ul style="list-style-type: none"> • Reading should be documented and a file maintained with information. 	Chapter XIV – Section 4	None
5. Review <ul style="list-style-type: none"> • Periodic reviews of the required reading program should be performed. • Material which has been read by all should be either discarded or filed, as appropriate. 	Chapter XIV – Section 5	None

CHAPTER XV - TIMELY ORDERS TO OPERATORS

Guideline from DOE Order 5480.19, Change 2	Implementation in NSLS ConOps Manual	Exceptions & Deviations
1. Content and Format <ul style="list-style-type: none"> • Operations orders should contain special operations requirements, administrative directions, special data collection requirements, trending requirements, and other short-term matters. • Orders should be clearly written, dated, and maintained. • Operations orders program should not be used to change operating procedures. • Information intended to be permanent should be incorporated in administrative procedures. 	Chapter XIV – Section 1	None
2. Issuing, Segregating and Reviewing Orders <ul style="list-style-type: none"> • Orders should be issued by the operations supervisor to operating personnel. • Orders should be segregated into long-term and daily orders to facilitate review. • Daily orders that are extended should be reviewed daily. • Long-term orders should be reviewed periodically. • Review of orders should be documented in log books. 	Chapter XIV – Section 1, 2 , & 3	None
3. Removal of Orders <ul style="list-style-type: none"> • Outdated orders should be removed or canceled. • Operations supervisors should review orders to assure they are current. 	Chapter XIV – Section 3	None

CHAPTER XVI - OPERATIONS PROCEDURES**Guideline from DOE Order 5480.19, Change 2****Implementation in NSLS [ConOps Manual](#)****Exceptions & Deviations****1. Procedure Development**

- Procedures should be developed to assist in the development and review of operations procedures and should include methods and formats for them.
- Procedures should be developed giving administrative and technical direction for all anticipated operations, system changes, alarm responses, and abnormal or emergency situations also giving the appropriate responses.
- The detail in the procedure should be consistent with the complexity of the task, the experience and training of the person performing the task, the frequency of performance, and the consequences of errors.

Chapter XVI – Section 1

None

2. Procedure Content

The following requirements should be followed to assure that the content conforms to the prescribed guidelines:

- Scope and applicability should be apparent. Emergency procedures should be easily distinguishable from other procedures by use of a color code.
- Procedures should incorporate information from appropriate reference sources.
- Prerequisites and initial conditions, including verification of the condition of the equipment to be used, should be detailed and set out in a place within the procedure which is easily found.
- Definitions should be explained.
- Procedures should be easily understood and actions clearly stated.
- Procedures should contain only one action per step.
- Procedures should contain sufficient but not excessive detail based on the skill level of those executing the procedure.
- Warnings, notes, and cautions should be easily recognizable.
- Warnings and cautions should precede the step to which they apply and appear on the same page.
- Procedures should be technically and administratively accurate and include sufficient information and correct references.
- Sign-offs should be provided for each critical step.
- Limits and tolerances for operating parameters should be consistent with readable accuracy of instruments.
- Criteria for surveillance or test procedures should be easily understood. If calculations are required, they should be explained.
- Sequence of procedural steps should conform to normal or expected operational sequences.
- Procedures should incorporate human factors, such as exact references to components and documents, and include highlights of operational limits, warnings, and cautions.
- Emergency operating procedures should consider single and multiple causalities.
- References to procedural steps unrelated to the procedure being used should be avoided.
- Component or system shutdown and restoration requirements following shutdown, maintenance, or surveillance should be specified.

Chapter XVI – Section 2

NSLS does not require sign-offs for each critical step of a written procedure. When applicable, separate checklists are used for verification & inspection and only require one signature for the complete checklist.

CHAPTER XVI - OPERATIONS PROCEDURES**Guideline from DOE Order 5480.19, Change 2****Implementation in NSLS [ConOps Manual](#)****Exceptions & Deviations****3. Procedure Changes and Revisions**

The review and approval process for each procedure and change should be documented. Procedure changes imply temporary changes, to a procedure without retyping it. Procedure revisions constitute the retyping and reissuance of the procedure. Changes and revisions should conform to the following:

- Procedure changes should be documented in a logbook readily available for operator reference.
- Procedure changes and revisions should be made when errors or omissions are noted.
- Procedure revisions should be started when a temporary change has been outstanding for a long period of time.
- Procedure revisions should be implemented concurrently with modifications.
- Information on changes or revisions should be communicated to operations personnel through shift briefings or through required reading.
- The reasons behind important procedure steps should be documented to assure their importance is maintained.
- Procedure reviews should involve a walk-through or a similar process.

Chapter XVI – Section 1 & 3
Chapter XII, XIV, & XV.

NSLS does not require procedure changes to be documented in operation logs. Operations personnel are notified of procedural changes via e-mail, group meetings/minutes, and/or direct communication.

4. Procedure Approval

- Operating procedures should be approved by the Operations Supervisor.
- Procedures which affect safety-related equipment and emergency procedures should be reviewed by the safety review committee of the department or facility.
- Revisions to the procedures should receive the same level of approval as the initial versions. New and revised procedures should be approved before use.
- Temporary changes should be approved by a least two individuals, one of whom must be the Operations Supervisor.

Chapter XVI – Section 1 & 4

None

5. Procedure Review

- Procedures should be reviewed before they are issued and at periodic intervals to assure that information is accurate and that human factors have been considered.
- Applicable procedures should be reviewed after an unusual occurrence, or other significant event.
- New procedures should be walked through to ensure their workability.

Chapter XVI – Section 1 & 5

None

6. Procedure Availability

- Controlled copies of procedures should be maintained in control areas for operator reference, and in other areas as appropriate.
- Working copies should be controlled and a system put in place to ensure outdated procedures are replaced.

Chapter XVI – Section 1 & 6

None

7. Procedure Use

- The requirements for using the procedures should be understood by all operators.
- Operators need not look up the emergency procedures when taking immediate actions in emergency situations, but the procedures should be reviewed immediately after to validate the action.

Chapter XVI – Section 7

None

CHAPTER XVII - OPERATOR AID POSTINGS

Guideline from DOE Order 5480.19, Change 2	Implementation in NSLS ConOps Manual	Exceptions & Deviations
1. Operator Aid Development <ul style="list-style-type: none"> Anyone can develop an aid, but facility personnel must be informed of the importance of controlling such information. 	Chapter XVII – Section 1	None
2. Approval <ul style="list-style-type: none"> The Operations Supervisor must approve all operator aids. Aids which alter procedures should be incorporated into procedures. 	Chapter XVII – Section 2	None
3. Posting <ul style="list-style-type: none"> Posted materials should be located near their area of use and not obscure any instruments or controls. Aids should be protected and properly secured. 	Chapter XVII – Section 3	None
4. Use of Aids <ul style="list-style-type: none"> Aids should supplement approved procedures and not be used in lieu of them. 	Chapter XVII – Section 4	None
5. Documentation <ul style="list-style-type: none"> A listing of all approved operator aids should be maintained and audited. 	Chapter XVII – Section 5 & 6	NSLS does not require operator aids to be listed or entered into the operations log.
6. Review <ul style="list-style-type: none"> The approved aid list should be reviewed periodically to assure outdated aids are removed and missing aids are replaced. As procedures are updated, related aids should be updated. 	Chapter XVII – Section 6	None

CHAPTER XVIII - EQUIPMENT and PIPING LABELING**Guideline from DOE Order 5480.19, Change 2****Implementation in NSLS [ConOps Manual](#)****Exceptions & Deviations****1. Components Requiring Labeling**

- Valves
- Major Equipment
- Switches
- Circuit Breakers
- Fuse Blocks
- Instruments and Gages
- Electrical Busses and Switchgear
- Cabinets (Relay, Terminal)
- Room Doors
- Emergency Equipment (Fire Alarm Stations, Intercom Equipment)
- Fire Protection Equipment

Chapter XVIII – Section 1

Valves are labeled when deemed appropriate. Only authorized & trained personnel are permitted to operate special NSLS utility equipment in building mechanical equipment rooms. In addition, step-by-step procedures that include diagrams of these system(s) are located at the system location for use by the authorized individuals.

2. Label Information

- Information on labels should be consistent with information found in procedures, and system diagrams.
- Labels should be permanent, securely attached, and easy to read.
- If color coding is used, it should be consistent.
- Piping should indicate the fluid contained and the normal direction of flow. OSHA color coding should be used, and piping containing hazardous fluids or gasses should be uniquely identified.
- Labels should be suitable for their environment.

Chapter XVIII – Section 1 & 2

None

3. Label Placement

- Labels should be placed on or as near as possible to equipment to be labeled.
- Labels should be oriented for easy reading.

Chapter XVIII – Section 3

None

4. Replacing Labels**a. Identifying Lost or Damaged Labels**

- Procedures should be established to replace labels that are lost or damaged.
- Post maintenance tests should include a review of labels.
- Where informal labeling is used, it should be replaced with proper labels.

b. Providing New Labels

- There should be methods and facilities to create required labels.
- Replacement of labels or attachment of temporary labels should be verified.

Chapter XVIII – Section 4

None