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# Conduct of Operations Applicability Matrix for CMELS Light Science and Industry and General Industry Facilities at LLNL Site 200

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April 25, 2008

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This work performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

## **Appendix C Conduct of Operations Applicability Matrix**

### **Conduct of Operations Applicability Matrix for CMELS Light Science and Industry Facilities at LLNL Site 200**

**April 2008**

LLNL-TR-403182

This Worksheet applies to the following facilities:

Building 133      Building 241

Building 243      Building 281

Building 292      Building 293

Building 294      Building 361

Building 362      Building 366

Building 373      Building 378

Building 379

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## Conduct of Operations Applicability Matrix


This Matrix applies to the following facilities:

Building 133, Building 241, Building 243, Building 281, Building 292, Building 293,  
Building 294, Building 361, Building 362, Building 366, Building 373, Building 378,  
*Building 379*

Matrix table based on the LLNL Environment Safety & Health Manual Document 3.5,  
*Conduct of Operations for LLNL Facilities*

 4/23/08

Prepared by Greg Cooper, AD Facility Manager, CMELS

 4/24/08

Approved by Lori Souza, Deputy AD, Operations, CMELS

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NNSA/LSO Approval

This document has been reviewed and verified not to contain classified information.

ADC'ed by Laura Gilliom on April 23, 2008.

## Conduct of Operations Applicability Matrix for Light Science & Industry Facilities

The following table documents applicability of the Conduct of Operations elements per *ES&H Manual* Document 3.5, *Conduct of Operations for LLNL Facilities*, to operations in LLNL facilities. Applicable implementing documents, processes, and programs are listed.

<b>ES&amp;H MANUAL DOCUMENT 3.5 SECTION</b>	<b>REQUISITES FOR SECTION ELEMENTS</b>	<b>APPLICABLE YES/NO</b>	<b>RESPONSIBILITY FOR COMPLIANCE FMC/PMC<sup>1</sup></b>	<b>COMMENTS AND/OR REFERENCE FOR VERIFICATION OF COMPLIANCE</b>
<b>OPERATIONS ORGANIZATION ADMINISTRATION SECTION 1.0</b>				
1.2.1. Operations Policies	Operating policies and procedures should be defined (e.g., FSPs, IWS, IWS/SPs, Work Procedures, Standard Operating Procedures [SOPs]) including responsibilities for implementation.	Yes	FMC/PMC	LLNL <i>ES&amp;H Manual</i> Documents 2.1 & 2.2 CMELS-330, ISMS Implementation Plan CMLS-411, FSP 360 Complex CMLS-412, FSP 360 Complex, Biohazardous Operations
1.2.2. Resources	A long-range staffing plan that anticipates personnel losses should be developed and implemented for key positions that require special training/ qualification, certificates and/or licenses.	No	NA	There are no Key Positions identified for which special training/qualification, certificate and/or licenses are required.
	Staffing levels should comply with the level of ES&H support specified in resource planning documents.	Yes	FMC/PMC	CMELS-330 and <i>ES&amp;H Manual</i> Document 2.1 defines the role of the Authorizing Organization to allocate sufficient resources to ensure safe, efficient, and compliant operations. CMELS-330 defines the roles of the CMELS DAD/Ops to oversee and manage operations. The AD Resource Manager ensures ES&H needs are incorporated into budgets and resource planning.

<sup>1</sup> Facility Management Chain/Program Management Chain

## Conduct of Operations Applicability Matrix for Light Science & Industry Facilities

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	Define organizational responsibilities for both programmatic and support organization personnel.	Yes	FMC/PMC	<p>CMELS-330 (<i>Integrated Safety Management System [ISMS]</i>) and ES&amp;H Manual Document 2.1 (<i>General Worker Responsibilities and Integrated Safety Management</i>) describes organizational responsibilities for programmatic and support organizations.</p> <p>This and all CMELS documents cited in this worksheet can be found at the following URL:</p> <p><a href="http://sodium.llnl.gov/cmels/?url=library-policies_and_procedures">http://sodium.llnl.gov/cmels/?url=library-policies_and_procedures</a></p> <p>CMELS Organization Chart – AD Office  <a href="http://sodium.llnl.gov/cmls/?url=library-organizations">http://sodium.llnl.gov/cmls/?url=library-organizations</a></p> <p>AEED Organization Chart  <a href="http://sodium.llnl.gov/cmls/data/assets/images/org/aeed/aeed_orgcht.gif">http://sodium.llnl.gov/cmls/data/assets/images/org/aeed/aeed_orgcht.gif</a></p> <p>BBTD Organization Chart  <a href="http://sodium.llnl.gov/cmls/data/assets/images/org/btd/bbtd_orgcht.gif">http://sodium.llnl.gov/cmls/data/assets/images/org/btd/bbtd_orgcht.gif</a></p> <p>CBD Organization Chart  <a href="http://sodium.llnl.gov/cmls/data/assets/images/org/csd/csd_orgcht.gif">http://sodium.llnl.gov/cmls/data/assets/images/org/csd/csd_orgcht.gif</a></p> <p>MSTD Organization Chart  <a href="http://sodium.llnl.gov/cmls/data/assets/images/org/mstd/mstd_orgcht.gif">http://sodium.llnl.gov/cmls/data/assets/images/org/mstd/mstd_orgcht.gif</a></p>

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<i>ES&amp;H MANUAL</i> DOCUMENT 3.5 SECTION	REQUISITES FOR SECTION ELEMENTS	APPLICABLE YES/NO	RESPONSIBILITY FOR COMPLIANCE FMC/PMC <sup>1</sup>	COMMENTS AND/OR REFERENCE FOR VERIFICATION OF COMPLIANCE
	Identify the individual responsible for implementing the ES&H controls in the FSP or IWS/SP.	Yes	FMC/PMC	CMELS-330 and <i>ES&amp;H Manual</i> Document 2.1 defines roles, responsibilities, and authorities. Responsibilities by role are also defined in CMELS Facility Safety Plans (FSPs) 411 & 412. For IWS/SPs (formerly OSPs), the responsible individuals are specifically named.
1.2.3. Monitoring of Operating Performance	Operating and safety goals should be established.	Yes	FMC/PMC	CMELS-330 establishes commitments and metrics for meeting LLNL safety goals, performance measures, and the success of the ISMS. CMELS-330 assigns responsibility to the Authorizing Organization to define technical objectives of the work activity. Programmatic goals are defined by each program (in each Work request).
	Work supervisors or their designees should regularly observe important operational activities to identify and correct safety and operating deficiencies.	Yes	FMC/PMC	CMLS-305 ( <i>ES&amp;H Self-Assessment Plan</i> ) specifies schedules and requirements for self-assessments. CMELS senior management, Division management, and Work Supervisors routinely observe operations in walk-arounds. <i>ES&amp;H Manual</i> , Document 2.1, General Worker Responsibilities and Integrated Safety Management.
	Document and evaluate operating problems and develop corrective actions to improve performance.	Yes	FMC/PMC	CMELS-330 defines provisions for reviewing/analyzing safety data within the Directorate. CMLS-305 defines provisions for rolling up data to the Institutional level for trending. The CMELS Assurance Office also conducts an annual assessment, which reports on trends within the directorate.

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1.2.4. Accountability	Written performance appraisals should provide feedback to workers about their safety and job performance.	Yes	FMC/PMC	CMELS-330 establishes requirements to ensure safety accountability is part of the performance appraisal process. CMELS-104 ( <i>Performance Appraisal, Ranking, and Salary Policy</i> ) requires that the Performance Appraisal include information on ES&H responsibilities and expectations, and that employees be appraised on the performance of those responsibilities.
	Formal performance appraisals should be provided at least annually and should document operational performance.	Yes	FMC/PMC	CMELS-330 establishes requirements to ensure safety accountability is part of the performance appraisal process. CMELS-104 ( <i>Performance Appraisal, Ranking, and Salary Policy</i> ) requires that the Performance Appraisal include information on ES&H responsibilities and expectations, and that employees be appraised on the performance of those responsibilities.
1.2.5. Management Training	Managers (NF/HHF/MHF) and work supervisors (ALL) should receive training in supervisory skills, ES&H issues specific to the facility, and facility operations in their area of responsibility.	Yes	FMC/PMC	CMELS-330 & <i>ES&amp;H Manual</i> Document 2.1 establish Authorizing Organization/Individual responsibilities to include designating an appropriate RI and to provide support to that RI and to ensure that individuals conducting the work possess the necessary skills, knowledge, and abilities (SKA). CMELS-330 assigns training responsibilities to the CMELS DAD/Ops to manage the CMELS Training Program and assigns responsibilities to Payroll Supervisors to develop personnel skills to ensure necessary SKAs. The Payroll Supervisors also ensure accuracy of the LTRAIN Questionnaire to develop LTRAIN profiles to identify Institutional and Organizational Training Requirements for managers and supervisors, and use LTRAIN to track completion of those courses.



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1.2.6. Planning for Safety	Safety preplanning and review process for routine work and new processes or experiments should be documented.	Yes	FMC/PMC	CMELS-330 and <i>ES&amp;H Manual</i> Document 2.1 establishes the Integration Work Sheet (IWS) process to review new work activities not commonly performed by the public and to set requirements to ensure operations are within the safety basis envelope of each facility.
<b>SHIFT ROUTINES AND OPERATING PRACTICES SECTION 2.0</b>				
2.2.1. Status Practices	Responsible operators/workers should be promptly notified of changes in equipment or system status.	Yes	FMC/PMC	CMELS S200 LSI facilities do not utilize multiple shifts. Equipment or systems for which prompt notification of status change is required are identified in IWSs. The methods of notification are defined in these documents.
	Operators/workers should be instructed to promptly notify the facility and/or program management chain (as appropriate) of abnormalities; abnormal, unusual or emergency events; changes in operational status; significant changes in schedules; and difficulties encountered in performing tasks.	Yes	FMC/PMC	CMELS-330 defines the occurrence reporting process for CMELS. FSPs also refer to the processes defined in CMELS-330. CMELS-330 discusses CMELS emergency response plans and processes. FSPs 411 & 412 also contain information on how to respond to emergencies. CMLS-409 ( <i>Site 200 Employee Emergency Response Self-Help Guide</i> ) (hard copies of this document are available in all laboratories and offices) also provides guidance to employees on reporting unexpected events and unknowns.
2.2.2. Safety Practices	Develop safety plans.	Yes	FMC/PMC	CMELS-330 and <i>ES&amp;H Manual</i> Document 3.3, "Facility Safety Plans and Integration Work Sheets with Safety Plans," implement the requirements to prepare FSPs and IWS/SPs. FSPs 411 & 412 also provide guidance for when IWS/SPs are required.  <i>ES&amp;H Manual</i> , Document 2.2, Managing ES&H for LLNL Work.

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	Workers are trained to properly operate equipment and understand the safety plans.	Yes	FMC/PMC	<p>CMELS-330 and <i>ES&amp;H Manual</i> Document 2.1 directs the RI to ensure worker qualifications including an understanding of the FSP and IWS/SP. FSPs 411 &amp; 412 describe appropriate responses to facility emergencies. Facility management provides FSP briefings to facility residents via BR2201 (Facility Safety Plan Training for Biological Facilities) and documents this in LTRAIN.</p> <p>Formal training is documented and verified through LTRAIN.</p> <p><i>ES&amp;H Manual</i>, Document 22.1, Emergency Preparedness and Response.</p>
	Adhere to requirements in the Industrial safety program.	Yes	FMC/PMC	<p>The Industrial Safety (IS) Program is documented in the IS Discipline Action Plans (DAP) maintained by ES&amp;H Teams 2 (Site 200), which captures the requirements of the <i>ES&amp;H Manual</i>.</p> <p><i>ES&amp;H Manual</i>, Documents 11.1, 11.2, 15.2, 16.1, 17.1, 18.1, 18.5, 22.4. and 42.1.</p>
	Adhere to requirements in the Health physics program.	Yes	FMC/PMC	<p>The Health Physics (HP) Program is documented in the HP DAP maintained by ES&amp;H Teams 2 (Site 200), which captures the requirements of the <i>ES&amp;H Manual</i>.</p>
	Adhere to requirements in the Industrial hygiene program.	Yes	FMC/PMC	<p>The Industrial Hygiene (IH) Program is documented in the IH DAP maintained by ES&amp;H Teams 2 (Site 200), which captures the requirements of the <i>ES&amp;H Manual</i>.</p> <p><i>ES&amp;H Manual</i>, Documents 11.1, 11.2, 12.2, 13.1, and 14.1.</p>

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	Adhere to requirements in the Criticality safety program.	Yes	FMC/PMC	The Criticality Safety Program is documented in the Criticality DAP maintained by ES&H Team 2, which captures the requirements of the <i>ES&amp;H Manual</i> , Document 20.6, Criticality Safety. In addition, the Criticality Safety Section of the Hazards Control Department reviews activities involving the potential for nuclear criticality at the request the Health Physicist or Facility Management.
	Adhere to requirements in the Fire safety program.	Yes	FMC/PMC	The Fire Safety (FS) Program is documented in the Fire Protection DAP maintained by ES&H Teams 2 (Site 200, which captures the requirements of the <i>ES&amp;H Manual</i> , Document 22.5, Fire.
	Adhere to requirements in the Environmental protection program.	Yes	FMC/PMC	The Environmental Protection Program is documented in the Environmental Protection DAP maintained by ES&H Teams 2 (Site 200), which captures the requirements of the <i>ES&amp;H Manual</i> . The electronic IWS system documents NEPA and other environmental reviews. More information regarding the environmental protection program can be found in Volume II of the <i>ES&amp;H Manual</i> , Document 30.1.
	Adhere to requirements in the ALARA program.	Yes	FMC/PMC	CMELS Site 200 facilities do not require a formal ALARA program in accordance with the LLNL <i>ES&amp;H Manual</i> Document 20.4 ("LLNL Occupational Radiation Protection ALARA Program") since individual occupational radiation doses in the facility are not likely to exceed 100mrem/year. However, FSPs 411 & 412 stress ALARA goals, and CMELS-330 requires RIs to integrate ALARA philosophy into operations.
2.2.3. Operator Inspection Tours	Procedures for Operator/FC tours should follow the guidance in Section 2.2.3.	No	NA	Daily shift tours are not utilized in CMELS S200 LSI facilities due to the low anticipated consequences of delayed discovery of abnormal conditions.

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2.2.4. Round/Tour Inspection Sheets	Procedures for Round/Tour Inspection Sheets should follow the guidance in Section 2.2.4.	No	NA	Daily shift tours are not utilized in CMELS S200 LSI facilities due to the low anticipated consequences of delayed discovery of abnormal conditions.
2.2.5. Personnel Protection	In addition to the discussion in Section 2.2.2 (Safety Practices), applicable personnel training/qualification should include the guidance in Section 2.2.5.	Yes	FMC/PMC	Operations personnel are trained to understand and comply with all area postings for exposure warnings and PPE requirements.
	Supervisors should review exposure trends.	Yes	FMC/PMC	Document 20.4, "LLNL Occupational Radiation Protection ALARA Program," requires ES&H Team Health Physicists submittal of notable trends or ALARA issues to facility and program management when facilities have established ALARA goals.
2.2.6. Response to Indications	Response to Indications should follow the guidance in Section 2.2.6.	Yes	FMC/PMC	Indicators important to the safe operation of systems and the desired response to abnormal readings are identified in applicable safety plans.
2.2.7. Resetting Protective Devices	Establish controls for resetting protective devices whose improper positioning/ operation could result in an impact to health, safety, the environment,.	Yes	FMC/PMC	Protective devices (other than circuit breakers, GFCIs, and fuses) and the appropriate response to a trip condition are identified in applicable safety plans. Section 8.2 of <i>ES&amp;H Manual</i> Document 16.1 "Electrical Safety Program" recommends supplemental training for workers who reset overcurrent protective devices.
2.2.8. Load Changes	Establish that load changes have been addressed.	No	NA	This attribute is not applicable (i.e., these facilities do not perform load changes).
2.2.9. Authority to Operate Equipment	Identify personnel authorized to operate facility equipment whose improper operation could result in an impact to health, safety, the environment.	Yes	FMC	Operation of all Plant Equipment (regardless of impact) requires approval of Facility Point of Contact. RHW personnel are approved to operate non-hazardous wastewater retention systems according to documented operating procedures.

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2.2.10. Shift Operating Bases	Establish shift operating bases for each shift position.	No	NA	Facilities don't contain operations or equipment that warrant designation of a shift operating base.
2.2.11. Potentially Distractive Written Material and Devices	Identify controls for Potentially Distractive Written Material and Devices.	No	NA	Facilities don't contain operations or equipment that could result in significant impact to ES&H or programs that warrant these controls.
<b>CONTROL AREA ACTIVITIES FOR DOE FACILITIES SECTION 3.0</b>				
3.2.1. Control Area Access	Control rooms associated with systems, equipment or processes where operator error could result in significant impact to health, safety, the environment or to programs are identified and physically delineated.	No	NA	These facilities do not have Control Rooms.
	Specify personnel who are authorized for access to control rooms	No	NA	These facilities do not have Control Rooms.
3.2.2. Professional behavior	Control room activities are limited to those essential for supporting operations.	No	NA	These facilities do not have Control Rooms.
3.2.3. Monitoring the Main Control Panels	Responsible operators should understand their responsibility for monitoring control room panels, including timely response to alarm conditions.	No	NA	These facilities do not have Control Rooms.
3.2.4. Control Operator Ancillary Duties	Ancillary duties should not interfere with the operators' shift responsibilities.	No	NA	These facilities do not have Control Rooms.

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3.2.5. Operation of Control Area Equipment	Only authorized personnel shall operate control area equipment.	No	NA	These facilities do not have Control Rooms.
<b>COMMUNICATIONS SECTION 4.0</b>				
4.2.1. Emergency Communications Systems	Ensure ready notification of workers during routine and emergency conditions.	Yes	FMC	Building intercom, emergency paging system, postings on equipment or facility entrances, or emergency bullhorns are available. An emergency call list is maintained by Fire Dispatch and updated by the building H&S Technicians.  Document 22.1, Emergency Preparedness and Response.
	Emergency communications are regularly tested for functionality.	Yes	FMC/PMC	Plant Engineering conducts routine PM and testing of alarm systems.  LLNL Site emergency communications systems are tested daily by the LLNL Alarms Division (Facility Management should ensure that emergency communications can be heard in the facility).
4.2.2. Public Address System	Public Address system is administratively controlled.	Yes	FMC/PMC	LLNL Alarms Division controls the Site emergency communication system.
4.2.3. Contacting Operators	Provide functional communication devices (telephones, paging systems) within the facility and immediate area.	Yes	FMC	Telephones throughout occupied facilities, emergency paging system, radio pagers, two-way radios for facility operations staff and electronic mail provide rapid communications.
	Provide safety alarms. Visual alarms should be used in noisy areas where audible alarms may go unnoticed.	Yes	FMC	Malfunctions of the telephones, building paging system, pagers, and electronic mail are infrequent. Telephone, alarms, and radio page systems have either battery or stand-by generator power.  <i>ES&amp;H Manual</i> , Document 12.1.

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	Communication systems should be available in remote areas where work is conducted, such as basements, lofts, and equipment rooms.	Yes	FMC	Building intercom and radio page provide coverage in out-of-the-way portions of the facilities.
	As appropriate, provisions should exist for locating key workers during off-hours, and during the workday while they are outside the facility.	Yes	FMC/PMC	Key operational personnel can be reached via radio pager and government-owned cellular telephone systems. Lists of emergency contact numbers are maintained by the CMELS payroll organizations.
4.2.4. Radios	Areas where radios are prohibited should be delineated.	Yes	FMC/PMC	Areas where radios are prohibited are posted.
4.2.5. Abbreviations and Acronyms	In emergency communications, limit use of abbreviations and acronyms to those in approved LLNL documents.	Yes	FMC/PMC	LLNL Alarms Division controls the Site emergency communication system and as a general rule do not use acronyms in emergency communications.
4.2.6. Oral instructions and Informal Communications	Oral Instructions and Informational Communications should follow the guidance in Section 4.2.6.	Yes	FMC/PMC	Oral instructions involving equipment operations should be clear and concise.
<b>CONTROL OF ON-SHIFT TRAINING SECTION 5.0</b>				
5.2.1. Adherence to Training Programs	Identify tasks requiring OJT.	Yes	PMC	OJT requirements are identified in Document 40.1, "LLNL Training Program Manual," and CMELS-330. CMELS-330 requires the RI to ensure required training, including on-the-job training (OJT), is completed and to ensure workers have necessary qualifications.

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5.2.2. On-shift Instructor Qualifications	Document instructor and evaluator qualifications.	Yes	PMC	Qualifications for OJT training instructors are determined by education, experience, background, subject area knowledge, and the ability to instruct others. AI and RI specify individuals authorized to conduct OJT for specific facilities, equipment, or operations. Completions of formal degree programs are documented in personnel records. Completions of classes during LLNL employment are recorded in LTRAIN.  <i>ES&amp;H Manual</i> Document 40.1.
5.2.3. Qualified Operator Supervision and Control of Trainees	Establish protocol for supervision and control of trainees.	Yes	PMC	FSPs, IWS/SPs, and/or IWSs define (as appropriate) conditions under which trainees may be used to support potentially hazardous work activities. The IWS lists names of qualified personnel to do the work activity.
	Ensure trainee awareness of hazards and operating limits.	Yes	PMC	CMELS-330 requires the RI to ensure that trainees only work according to existing procedures and IWSs, and that they are aware of operating limits and hazards. CMELS-330 requires the RI to ensure visitors, guests, students, and vendors either have the required training or work under the direct supervision of a qualified worker.
5.2.4. Operator Qualification Program Approval	Ensure the appropriate area supervisor has approved the OJT.	Yes	PMC	The RI documents and then either provides or approves OJT for personnel working under their direction. This process is reflected in the IWS authorizing the work.  Formal OJT programs may substitute for the RI documentation.
5.2.5. Training Documentation	Document OJT.	Yes	PMC	OJT training is documented in the Training Qualification Record maintained by the payroll supervisor in accordance with Document 40.1, "LLNL Training Program Manual." CMELS-330 defines record keeping requirements for training records.



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5.2.6. Suspension of Training	Ensure trainees understand their role during abnormal conditions.	Yes	FMC/PMC	CMELS-330 requires the RI to ensure that trainees only work with experienced personnel according to existing procedures, and that they are aware of operating limits and hazards. CMELS-330 requires the host and RI to ensure visitors, guests, students, and vendors either have the required training or are escorted.
5.2.7. Maximum Number of Trainees	Establish limits for the number of OJT trainees.	No	NA	CMELS does not limit the number of OJT trainees. OJT requirements are identified in Document 40.1, "LLNL Training Program Manual," and CMELS-330 requires the RI to ensure required training, including on-the-job training (OJT) for all trainees, is completed and to ensure workers have necessary qualifications.
<b>INVESTIGATION OF ABNORMAL EVENTS SECTION 6.0</b>				
6.2.1. Events Requiring Investigation	Identify types of events that require investigation	Yes	FMC/PMC	LLNL <i>ES&amp;H Manual</i> , Document 4.3, (LLNL Implementation Procedure for Reporting Occurrences to the Department of Energy (DOE) Order 231.1A, "Environment, Safety and Health Reporting," and DOE Manual 231.1–2, "Occurrence Reporting and Processing of Operations Information."

## Conduct of Operations Applicability Matrix for Light Science & Industry Facilities

<i>ES&amp;H MANUAL</i> DOCUMENT 3.5 SECTION	REQUISITES FOR SECTION ELEMENTS	APPLICABLE YES/NO	RESPONSIBILITY FOR COMPLIANCE FMC/PMC <sup>1</sup>	COMMENTS AND/OR REFERENCE FOR VERIFICATION OF COMPLIANCE
6.2.2. Investigation Responsibility	Identify Event Investigation responsibilities	Yes	FMC/PMC	CMELS-330 requires that the AD utilize the Assurance Manager to ensure that incident response, analysis, and recording conform to requirements of the LLNL <i>ES&amp;H Manual</i> .  CMS-322 specifies processes for investigation of abnormal events in accordance with the LLNL <i>ES&amp;H Manual</i> , Document 4.3, (LLNL Implementation Procedure for Reporting Occurrences to the Department of Energy (DOE) Order 231.1A, "Environment, Safety and Health Reporting," and DOE Manual 231.1–2, "Occurrence Reporting and Processing of Operations Information."
6.2.3. Investigator Qualification	Investigators complete training requirements	Yes	FMC/PMC	<i>ES&amp;H Manual</i> Document 4.6 specifies training requirements
6.2.4. Information to be Gathered	Collect required information	Yes	FMC/PMC	<i>ES&amp;H Manual</i> Document 4.6 specifies investigation procedures.
6.2.5. Event Investigation	Conduct structured review of events	Yes	FMC/PMC	CMELS-330 requires that the AD utilize the Assurance Manager to ensure that incident response, analysis, and recording conform to requirements of the LLNL <i>ES&amp;H Manual</i> .  CMELS-330 specifies processes for investigation of abnormal events in accordance with the LLNL <i>ES&amp;H Manual</i> , Document 4.3, (LLNL Implementation Procedure for Reporting Occurrences to the Department of Energy (DOE) Order 231.1A, "Environment, Safety and Health Reporting," and DOE Manual 231.1–2, "Occurrence Reporting and Processing of Operations Information."

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6.2.6. Investigative Report	Prepare investigative reports	Yes	FMC/PMC	CMELS-330 requires that the AD utilize the Assurance Manager to ensure that incident response, analysis, and recording conform to requirements of the LLNL <i>ES&amp;H Manual</i> .  CMELS-330 specifies processes for investigation of abnormal events in accordance with the LLNL <i>ES&amp;H Manual</i> , Document 4.3, (LLNL Implementation Procedure for Reporting Occurrences to the Department of Energy (DOE) Order 231.1A, "Environment, Safety and Health Reporting," and DOE Manual 231.1-2, "Occurrence Reporting and Processing of Operations Information."
6.2.7. Event Training	Evaluate events for training benefit and conduct the appropriate training	Yes	FMC/PMC	Need for training is considered as part of the process described in <i>ES&amp;H Manual</i> Document 4.6.
6.2.8. Event Trending	Patterns of deficiencies should be trended and a report (causes and trends) provided to the management chain.	Yes	PMC	CMELS-330 defines provisions for reviewing/analyzing safety data within the Directorate. CMLS-305 defines provisions for rolling up data to the Institutional level for trending.  Trend analysis requirements are included in CMELS-305, "ES&H Self-Assessment Plan."
	Information in the event trending report should be communicated to appropriate facility personnel	Yes	PMC	Reports are provided to FMs per <i>ES&amp;H Manual</i> Document 4.1.
6.2.9. Sabotage	Response and investigative procedures for suspected sabotage should include the guidance in Section 6.2.9.	Yes	FMC/PMC	<i>ES&amp;H Manual</i> Documents 4.5, 4.6 and 4.7 ( <i>Incidents – Notification, Analysis, and Reporting; Incident Analysis Manual; and ES&amp;H Analysis Methods</i> ) will be followed. CMELS-330 specifies processes for investigation of abnormal events.  <i>ES&amp;H Manual</i> , Document 22.1, Emergency Preparedness and Response; 4.6, Incident Analysis Manual.

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<b>NOTIFICATIONS SECTION 7.0</b>				
7.2.1.Notification Procedures	Establish notification procedures.	Yes	FMC/PMC	All personnel working in CMELS facilities and personnel working on CMELS activities in non-CMELS facilities and at offsite locations are responsible to notify the Facility Point of Contact (FPOC) and their division management of any unplanned events or unexpected conditions that could potentially be reportable (per CMELS-330).  <i>ES&amp;H Manual</i> , Document 4.3, LLNL Implementation Procedure for Reporting Occurrences to DOE.
7.2.2.Notification Responsibility	Identify the individual (facility management or program management) responsible for initiating the notification process.	Yes	FMC/PMC	CMLS-409 ( <i>Site 200 Employee Emergency Response Self-Help Guide</i> ), and CMELS-330 identify notification procedure and reporting chains. All CMELS operations managers (e.g. FMs, DDL/Ops, DAD/Ops, AIs, etc.) are required to complete EM2010. Training completions are documented in LTRAIN.  <i>ES&amp;H Manual</i> , Document 4.3, LLNL Implementation Procedure for Reporting Occurrences to DOE.
7.2.3. Names and Phone Numbers	Contact information for occurrence reporting is made available.	Yes	FMC/PMC	CMLS-409, and CMELS-330 identify notification procedure and reporting chains, which includes notification of the Assurance Manager.  LLNL Emergency Contact Roster.

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7.2.4. Documentation	Maintain a formal record of notifications.	Yes	FMC/PMC	<p>CMLS-409 (<i>Site 200 Employee Emergency Response Self-Help Guide</i>), and CMELS-330 identify notification procedure and reporting chains.</p> <p>All CMELS operations managers (e.g. FMs, DDL/Ops, DAD/Ops, Als, etc.) are required to complete EM2010. Training completions are documented in LTRAIN.</p> <p><i>ES&amp;H Manual</i>, Document 4.3, LLNL Implementation Procedure for Reporting Occurrences to DOE. Formal records of ORPS notifications are maintained by the Institutional Occurrence Reporting Manager.</p>
7.2.5. Communication Equipment	Maintain communication equipment adequate for notification procedure.	Yes	FMC/PMC	Communication equipment is maintained by the Institution.
<b>CONTROL OF EQUIPMENT AND SYSTEMS STATUS SECTION 8.0</b>				
8.2.1. Status Change Authorization and Reporting	Identify equipment and/or systems whose configuration must be maintained.	No	NA	There are no configuration items identified for these facilities.
	Establish a formal mechanism to authorize changes in configuration or status.	No	NA	There are no configuration items identified for these facilities.
	Establish a formal mechanism to ensure personnel are kept informed of any changes in the operational status of the equipment or systems.	No	NA	There are no configuration items identified for these facilities.
8.2.2. Equipment and System Alignment	Equipment and systems are aligned or checked for proper alignment before operation.	No	NA	There are no configuration items identified for these facilities.

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8.2.3. Equipment Locking and Tagging	Lockout and tagout procedures are in place.	Yes	FMC/PMC	Lockout and tagout is implemented through the IWS process in accordance with Document 12.6 of the LLNL <i>ES&amp;H Manual</i> . CMELS Facility Operations personnel do not perform lockout & tagout.
8.2.4. Operational Limits Compliance	Establish administrative controls that document compliance with operating limits.	Yes	FMC/PMC	Facility concurrence on work to be conducted as documented in an IWS, as described in CMELS-330 and <i>ES&amp;H Manual</i> Document 2.1, is provided to ensure the activity is within the safety basis envelope of a facility.  Authorizing Individuals monitor the work to ensure that hazards are identified, controls are developed and implemented, and that ES&H requirements are met. Where required, equipment run logs document that operating limits are observed, that critical measurement and test equipment is operational, and that routine maintenance and calibrations are conducted.
8.2.5. Equipment Deficiency Identification and Documentation	Establish method for identifying, reporting, and documenting equipment deficiencies.	Yes	FMC/PMC	CMELS-305, CMS-306 ( <i>Deficiency Tracking Management Plan</i> ) and CMELS-330 define processes to regularly self assess operations, facilities, activities and to report deficiencies. Other feedback and improvement techniques are defined in CMELS-330. Scheduled inspections/self-assessments are used in addition to employee reports and may initiate ITS deficiencies. Suspect Counterfeit Inspections are performed every three years.  <i>ES&amp;H Manual</i> , Document 4.2, "ES&H Issues and Deficiencies Management."

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8.2.6. Work Authorization and Documentation	Written authorization should be obtained for all shift activities (including modifications or maintenance) on equipment or systems important to safety, that affects operations, or that changes control indications or alarms.	Yes	FMC/PMC	<i>ES&amp;H Manual</i> , Document 2.1, "General Worker Responsibilities and Integrated Safety Management," and Document 2.2, "Managing ES&H for LLNL Work."
8.2.7. Equipment Post-Maintenance Testing and Return to Service	Establish post-modification/maintenance testing procedures for equipment or systems important to safety.	Yes	FMC/PMC	Safety Basis Documents do not identify any SSCs requiring post-maintenance testing. SSC's important to worker safety and their associated post-modification/maintenance testing procedures are identified in IWSs. Requirements for post modification/maintenance testing for fume hoods, glove boxes, and BSCs are identified in <i>ES&amp;H Manual</i> Document 12.4 "Work Enclosures and Local Exhaust Systems for Toxic and Radioactive Materials."
8.2.8. Alarm Status	Ensure there is a clear indication/understanding of alarm status.	Yes	FMC/PMC	Alarms important to worker safety as identified in IWSs are provided with appropriate signage to indicate meaning and status of alarm. Alarms whose indications are not required for worker, public or environmental safety are properly labeled.
8.2.9. Temporary Modification Control	Establish control for installing temporary modifications to SSCs under configuration management.	No	NA	There are no configuration items identified for these facilities.
8.2.10. Distribution and Control of Equipment and System Document	Establish system for document control and distribution for equipment or systems under configuration management.	No	NA	There are no configuration items identified for these facilities.

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<b>LOCKOUTS AND TAGOUTS SECTION 9.0</b>				
9.2.1. Lockout/Tagout Use	Work supervisors of LLNL and subcontract workers shall satisfy LLNL's lockout and tag program requirements described in Document 12.6.	Yes	FMC/PMC	Lockout and tagout is implemented through the IWS process in accordance with Document 12.6 of the LLNL <i>ES&amp;H Manual</i> .
9.2.2. Lockout and Tagout Implementation	Lockout/Tagout implementation shall be in accordance with Document 12.6.	Yes	FMC/PMC	Lockout and tagout is implemented through the IWS process in accordance with Document 12.6 of the LLNL <i>ES&amp;H Manual</i> .
	When appropriate, lockout and tag requirements are incorporated into (or referenced in) FSPs, IWS/SPs, or SOPs.	Yes	FMC/PMC	<i>ES&amp;H Manual</i> , Document 12.6, LLNL Lockout/Tagout Program.
9.2.3. Protective Materials and Hardware	Adequate protective materials and hardware for lockout and tagout are provided.	Yes	FMC/PMC	<i>ES&amp;H Manual</i> , Document 12.6, LLNL Lockout/Tagout Program.
9.2.4. Lockout/Tagout Program	A lockout/tagout program has been established.	Yes	FMC/PMC	Lockout and tagout is implemented through the IWS process in accordance with Document 12.6 of the LLNL <i>ES&amp;H Manual</i> .
9.2.5. Procedures for Lockout/Tagout	Lockout/tagout procedures are developed, documented, validated, and utilized.	Yes	FMC/PMC	<i>ES&amp;H Manual</i> , Document 12.6, LLNL Lockout/Tagout Program.
9.2.6. Application of Lockout/Tagout	Established lockout/tagout procedures cover the elements and actions described in Section 9.2.6 and Document 12.6.	Yes	FMC/PMC	<i>ES&amp;H Manual</i> , Document 12.6, LLNL Lockout/Tagout Program.



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9.2.7. Testing or Positioning of Equipment or Components	For temporary removal of Lockout/Tagout devices, follow the actions described in Section 9.2.7.	Yes	FMC/PMC	<i>ES&amp;H Manual</i> , Document 12.6, LLNL Lockout/Tagout Program.
9.2.8. Periodic Inspections	Conduct periodic inspections to determine adequacy of lockout/tagout program, as described in Document 12.6.	Yes	FMC/PMC	Lockout and tagout is implemented through the IWS process in accordance with Document 12.6 of the LLNL <i>ES&amp;H Manual</i> .
9.2.9. Caution Tags	Use of caution tags should follow protocol described in Section 9.2.9 and as described in Document 12.6.	Yes	FMC/PMC	<i>ES&amp;H Manual</i> , Document 12.6, LLNL Lockout/Tagout Program.
9.2.10. Training and Communication	Personnel shall have training consistent with Section 9.2.10.	Yes	FMC/PMC	<i>ES&amp;H Manual</i> , Document 12.6, LLNL Lockout/Tagout Program.
9.2.11. Lockout or Tagout Implementation	Only authorized, qualified personnel accomplish lockout/tagout, as described in Document 12.6.	Yes	FMC/PMC	<i>ES&amp;H Manual</i> , Document 12.6, LLNL Lockout/Tagout Program.
9.2.12. Notification of Personnel	Personnel affected by the lockout/tagout application or removal are notified, as described in Document 12.6.	Yes	FMC/PMC	<i>ES&amp;H Manual</i> , Document 12.6, LLNL Lockout/Tagout Program.
9.2.13. Outside Contractors	Outside contractors adhere to lockout/tagout procedures as described in Document 12.6.	Yes	FMC/PMC	<i>ES&amp;H Manual</i> , Document 12.6, LLNL Lockout/Tagout Program.
9.2.14. Group Lockouts or Tagouts	Adhere to group lockout/tagouts procedures as described in Document 12.6.	Yes	FMC/PMC	<i>ES&amp;H Manual</i> , Document 12.6, LLNL Lockout/Tagout Program.

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9.2.15. Shift or Personnel Changes	Adhere to procedures for transferring locks and tags when personnel or shifts change, as described in Document 12.6.	Yes	FMC/PMC	<i>ES&amp;H Manual</i> , Document 12.6, LLNL Lockout/Tagout Program.
<b>INDEPENDENT VERIFICATION SECTION 10.0</b>				
10.2.1. Components Requiring Independent Verification	Identify components/systems requiring independent verification whose improper positioning could result in an impact to health, safety, the environment, or significant impact to programs.	No	NA	No components have been identified in Safety Basis documentation for CMELS S200 LSI facilities or IWS's that are critical to ensure safe and reliable operation.
10.2.2. Occasions Requiring Independent Verification	Ensure that independent verification is conducted and documented following the guidance in Section 10.2.2.	No	NA	No components have been identified in Safety Basis documentation for CMELS S200 LSI facilities or IWS's that are critical to ensure safe and reliable operation.
10.2.3. Verification Techniques	Ensure that verification techniques are followed using the guidance in Section 10.2.3.	No	NA	No components have been identified in Safety Basis documentation for CMELS S200 LSI facilities or IWS's that are critical to ensure safe and reliable operation.
<b>LOGKEEPING SECTION 11.0</b>				
11.2.1. Establishment of Operating Logs	Identify operations, areas, or equipment where formal record-keeping is required, and assign logbook-keeping responsibilities.	Yes	FMC/PMC	Some programs require logbooks as part of their QA program. These logbooks are managed per the requirements in the respective ALQAP. Logbooks are required for cranes, facility-related oxygen deficiency monitors, forklift operations, radiation area monitors, and emergency eyewash/shower testing in CMELS Site 200 facilities.

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11.2.2. Timeliness of Recordings	Ensure information is added in a timely manner.	Yes	FMC/PMC	Logbooks are managed per the requirements in the respective ALQAP.  Logbooks for cranes, oxygen deficiency monitors, forklifts, and emergency eyewash/showers, pressing, drying, and radiography operations, and for quarterly interlock checks will be completed in accordance with the requirements listed in the applicable <i>ES&amp;H Manual</i> sections and CMLS-305.
11.2.3. Information to be Recorded	Specify the type of information to be entered in the logbook, using the guidance in Section 11.2.3.	Yes	FMC/PMC	Logbooks for cranes, oxygen deficiency monitors, forklifts, and emergency eyewash/showers, pressing, drying, and radiography operations, and for quarterly interlock checks will be completed in accordance with the requirements listed in the applicable <i>ES&amp;H Manual</i> sections.
11.2.4. Legibility	Logbook entries should be made in a legible and easily understood manner.	Yes	FMC/PMC	Some programs require logbooks as part of their QA program. These logbooks are managed per the requirements in the respective ALQAP.
11.2.5. Corrections	Follow Section 11.2.5 for correcting erroneous entries.	Yes	FMC/PMC	Some programs require logbooks as part of their QA program. These logbooks are managed per the requirements in the respective ALQAP.
11.2.6. Log Review	Regularly review the logbook for conformance with logbook-keeping requirements.	Yes	FMC/PMC	Work supervisors directly responsible for logbook entries regarding cranes, oxygen deficiency monitors, forklifts, eyewashes and showers, pressing, drying, and radiography operations, and for quarterly interlock check work areas will regularly review logbooks in their areas during informal self-assessments to check for conformance with logbook-keeping requirements and to spot trends that may indicate degrading operations so that corrective action can be taken before an emergency occurs.

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11.2.7. Care and Keeping of Logs	Maintain logbooks in a retrievable manner.	Yes	FMC/PMC	Logbooks for cranes, oxygen deficiency monitors, forklifts, eyewashes and showers, pressing, drying, and radiography operations, and for quarterly interlock checks will be protected from fire, water, or other types of damage.  Completed logbooks will be retained in a retrievable manner for time periods specified by the facility manager or program.
<b>OPERATIONS TURNOVER SECTION 12.0</b>				
12.2.1. Turnover Checklists	Identify personnel (by position), that require a shift turnover checklist.	No	NA	Shifts are not utilized in CMELS S200 LSI facilities.
	Develop shift turnover checklist(s).	No	NA	Shifts are not utilized in CMELS S200 LSI facilities.
12.2.2. Document Review	Oncoming operators and supervisors review documents specified on their checklists.	No	NA	Shifts are not utilized in CMELS S200 LSI facilities.
12.2.3. Control Panel Walkdown	Conduct control panel walkdowns as appropriate.	No	NA	Shifts are not utilized in CMELS S200 LSI facilities.
12.2.4. Discussion and Exchange of Responsibility	Conduct discussion and exchange of responsibility at shift change.	No	NA	Shifts are not utilized in CMELS S200 LSI facilities.
12.2.5. Shift Crew Briefing	Operations supervisors conduct crew briefing as required.	No	NA	Shifts are not utilized in CMELS S200 LSI facilities.
12.2.6. Reliefs Occurring During the Shift	Specify and document shift turnover responsibilities.	No	NA	Shifts are not utilized in CMELS S200 LSI facilities.

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<b>OPERATIONS ASPECTS OF FACILITY CHEMISTRY AND UNIQUE PROCESSES SECTION 13.0</b>				
13.2.1. Operator Responsibilities	Identify the samples requiring analysis and analysis to be performed, and define the range of acceptable results.	No	NA	There are no routine programmatic or facility-related sampling and analyzing efforts of operating parameters. Some institutionally required chemical analysis to protect ES&H is performed by EPD and the ES&H Team.
	Ensure that workers involved in sampling and analyses understand their responsibilities.	No	NA	There are no routine programmatic or facility-related sampling and analyzing efforts of operating parameters. Some institutionally required chemical analysis to protect ES&H is performed by EPD and the ES&H Team.
13.2.2. Operator Knowledge	Ensure workers have the necessary training and equipment to carry out their specified tasks.	No	NA	There are no routine programmatic or facility-related sampling and analyzing efforts of operating parameters. Some institutionally required chemical analysis to protect ES&H is performed by EPD and the ES&H Team.
13.2.3. Operator Response to Process Problems	Respond to out-of-range results or process parameters.	No	NA	There are no routine programmatic or facility-related sampling and analyzing efforts of operating parameters. Some institutionally required chemical analysis to protect ES&H is performed by EPD and the ES&H Team.
13.2.4. Communication Between Operations and Process Personnel	Maintain communication between operations and process personnel.	No	NA	There are no routine programmatic or facility-related sampling and analyzing efforts of operating parameters. Some institutionally required chemical analysis to protect ES&H is performed by EPD and the ES&H Team.

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<b>REQUIRED READING SECTION 14.0</b>				
14.2.1. File Index	Identify documents to be included in each facility's required reading program.	Yes	FMC/PMC	FSPs are the only facility-level document identified as required reading; all residents must read the sections applicable to their work. Workers are required to read the IWSs for their work. Each IWS identifies any supplemental required reading for each activity (e.g., SP, Hazard Assessment and Control, Engineering Safety Note, etc.).
14.2.2. Reading Assignments	Identify which documents must be read by individuals (by position).	Yes	FMC/PMC	FSPs are the only facility-level document identified as required reading. Workers are required to read the IWSs for their work. Each IWS identifies any supplemental required reading for each activity (e.g., SP, Hazard Assessment)
	Required reading documents should be available in the facility or in the program area.	Yes	FMC/PMC	Documents identified in the IWSs are either uploaded to the IWS or are maintained by the RI for that activity. Facility specific documents are maintained at: <a href="http://sodium.llnl.gov/cmels/">http://sodium.llnl.gov/cmels/</a>
14.2.3. Required Dates for Completion of Reading	Designate completion dates for required reading.	Yes	FMC/PMC	Formal FSP training is provided by CMELS, and completion is documented in LTRAIN. Each RI verifies that their employees complete the required reading for their activity. Each employee will electronically sign the IWSs for any IWS/SPs under which they work.
14.2.4. Documentation	Provide a system for documenting that workers have completed the required reading.	Yes	FMC/PMC	Formal FSP training is provided by CMELS, and completion is documented in LTRAIN. Each RI verifies that their employees complete the required reading for their activity. Each employee will electronically sign the IWSs for any IWS/SPs under which they work.

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14.2.5. Review	Regularly review and update the required reading list.	Yes	FMC/PMC	FSPs are reviewed and re-issued at least every three years.
<b>TIMELY ORDERS TO OPERATORS SECTION 15.0</b>				
15.2.1. Content and Format	Describe how special instructions (short and long term) will be developed for communication to workers/operators.	Yes	FMC/PMC	Instructions for work activities are identified through the IWS for programmatic work activities. Facility instructions (such as shut down of hoods or retention tanks) are communicated by the Facility Point of Contact to building residents through e-mail, building announcements, paper postings, etc. Special instructions to programmatic workers are communicated directly by managers and supervisors via e-mail, telephone, and/or personal communication.
	Document how orders that are issued to supplement operating procedures will be incorporated.	Yes	FMC/PMC	Instructions for work activities are identified through the IWS for programmatic work activities. Facility instructions (such as shut down of hoods or retention tanks) are communicated by the Facility Point of Contact to building residents through e-mail, building announcements, paper postings, etc. Special instructions to programmatic workers are communicated directly by managers and supervisors via e-mail, telephone, and/or personal communication.
15.2.2. Issuing, Segregating, and Reviewing Orders	Describe process for issuing Shift Orders/Instructions to workers/operators.	Yes	FMC/PMC	Instructions are issued through e-mail, building announcements, phone calls, alpha-numeric pagers, paper postings, in-person verbally, etc.
	Describe process for issuing Standing Orders/Instructions to workers/operators.	Yes	FMC/PMC	Standing orders are documented and issued in the work authorization documents (IWS's, PWS's, Service Work Authorization docs, etc.).

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15.2.3. Removal of Orders	Remove/cancel expired or outdated orders.	Yes	FMC/PMC	Cancellation of standing orders are documented and issued in the work authorization documents (IWS's, PWS's, Service Work Authorization docs, etc). Cancellation of shift orders is made through e-mail, building announcements, phone calls, alpha-numeric pagers, paper postings, in-person verbally, etc.
<b>OPERATIONS PROCEDURES SECTION 16.0</b>				
16.2.1. Procedure Development	Identify equipment/operations that require operating procedures.	Yes	FMC/PMC	The need for operating procedures in accordance with Document 3.4 of the <i>ES&amp;H Manual</i> is determined through the IWS process. Equipment/systems that need operating procedures from a programmatic impact standpoint are managed in accordance with CMLS-901. Instructions for equipment operation can also be identified through the IWS for programmatic and facility equipment.
16.2.2. Procedure Content	Ensure that the content of operating procedures conforms to prescribed guidelines	Yes	FMC/PMC	Document 3.4 of the <i>ES&amp;H Manual</i> defines requirements for operating procedures. CMELS-904 ( <i>Control of Unclassified Management Documents</i> ) defines CMELS requirements for work procedures.
16.2.3. Procedure Changes and Revisions	Specify a method for initiating temporary and permanent changes to operating procedures	Yes	FMC/PMC	Document 3.4 of the <i>ES&amp;H Manual</i> defines requirements for operating procedures. CMELS-904 defines CMELS requirements for work procedures.
16.2.4. Procedure Approval	Identify procedure approval protocol.	Yes	FMC/PMC	Document 3.4 of the <i>ES&amp;H Manual</i> defines requirements for operating procedures. CMELS-904 defines CMELS requirements for work procedures.
16.2.5. Procedure Review	Identify procedure review protocol.	Yes	FMC/PMC	Document 3.4 of the <i>ES&amp;H Manual</i> defines requirements for operating procedures. CMELS-904 defines CMELS requirements for work procedures.



## Conduct of Operations Applicability Matrix for Light Science & Industry Facilities

<b>ES&amp;H MANUAL DOCUMENT 3.5 SECTION</b>	<b>REQUISITES FOR SECTION ELEMENTS</b>	<b>APPLICABLE YES/NO</b>	<b>RESPONSIBILITY FOR COMPLIANCE FMC/PMC<sup>1</sup></b>	<b>COMMENTS AND/OR REFERENCE FOR VERIFICATION OF COMPLIANCE</b>
	Ensure that new operating procedures and those undergoing major revision are verified for correctness and operationally tested prior to final approval and use.	Yes	FMC/PMC	Document 3.4 of the <i>ES&amp;H Manual</i> defines requirements for operating procedures. CMELS-904 defines CMELS requirements for work procedures.
	Review operating procedures to ensure they are kept current.	Yes	FMC/PMC	Document 3.4 of the <i>ES&amp;H Manual</i> defines requirements for operating procedures. In accordance with the <i>ES&amp;H Manual</i> , FSPs are updated at least every three years and IWS/SPs are reviewed at least annually. CMELS-904 defines CMELS requirements for work procedures.
16.2.6. Procedure Availability	Copies of applicable operating procedures are available and controlled.	Yes	FMC/PMC	Document 3.4 of the <i>ES&amp;H Manual</i> defines requirements for operating procedures. CMELS-904 defines CMELS requirements for work procedures. RIs routinely upload current copies of relevant procedures and safety plans to their IWSs. Facility-specific documents are maintained at: <a href="http://sodium.llnl.gov/cmels/">http://sodium.llnl.gov/cmels/</a>
16.2.7. Procedure Use	Operators/Workers should be instructed in the use of procedures.	Yes	FMC/PMC	Document 3.4 of the <i>ES&amp;H Manual</i> defines requirements for operating procedures. CMELS-904 defines CMELS requirements for work procedures. RIs routinely upload current copies of relevant procedures and safety plans to their IWSs. Facility-specific documents are maintained at: <a href="http://sodium.llnl.gov/cmels/">http://sodium.llnl.gov/cmels/</a> Activity Responsible Individuals are responsible to ensuring that workers are trained in the proper use of applicable procedures.

## Conduct of Operations Applicability Matrix for Light Science & Industry Facilities

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<b>OPERATOR AID POSTINGS SECTION 17.0</b>				
17.2.1. Operator Aid Development	Identify and maintain operator aids that must be controlled.	No	NA	Operator aids whose accuracy is critical to operating a system or piece of equipment so that it does not produce a significant impact to health, safety, the environment, or programs are not used in these facilities.
17.2.2. Approval	Identify the individual responsible for approving operator aids.	No	NA	Operator aids whose accuracy is critical to operating a system or piece of equipment so that it does not produce a significant impact to health, safety, the environment, or programs are not used in these facilities.
17.2.3. Posting	Ensure that operator aids are posted so that they do not obscure or interfere with instruments or controls.	No	NA	Operator aids whose accuracy is critical to operating a system or piece of equipment so that it does not produce a significant impact to health, safety, the environment, or programs are not used in these facilities.
	Ensure that operator aids are legible and posted as close as practical to the system or equipment with which they are associated.	No	NA	Operator aids whose accuracy is critical to operating a system or piece of equipment so that it does not produce a significant impact to health, safety, the environment, or programs are not used in these facilities.
17.2.4. Use of Operator Aids	Operator aid developers and users should understand their purpose (e.g. convenience, not requirement, supplement to approved procedures) and limitation (not used in lieu of approved procedure)	No	NA	Operator aids whose accuracy is critical to operating a system or piece of equipment so that it does not produce a significant impact to health, safety, the environment, or programs are not used in these facilities.

## Conduct of Operations Applicability Matrix for Light Science & Industry Facilities

<b>ES&amp;H MANUAL DOCUMENT 3.5 SECTION</b>	<b>REQUISITES FOR SECTION ELEMENTS</b>	<b>APPLICABLE YES/NO</b>	<b>RESPONSIBILITY FOR COMPLIANCE FMC/PMC<sup>1</sup></b>	<b>COMMENTS AND/OR REFERENCE FOR VERIFICATION OF COMPLIANCE</b>
17.2.5. Documentation	Maintain a listing of all approved operator aids.	No	NA	Operator aids whose accuracy is critical to operating a system or piece of equipment so that it does not produce a significant impact to health, safety, the environment, or programs are not used in these facilities.
17.2.6. Review	Ensure that operator aids are regularly reviewed to verify they are current and appropriate.	No	NA	Operator aids whose accuracy is critical to operating a system or piece of equipment so that it does not produce a significant impact to health, safety, the environment, or programs are not used in these facilities.
<b>EQUIPMENT AND PIPING LABELING SECTION 18.0</b>				
18.2.1. Components Requiring Labeling	Identify and maintain a listing of equipment and piping that should be labeled in accordance with section 18.2.1.	Yes	FMC/PMC	Plant Engineering Standards PEL-M-11009, (Rev. G or latest revision) for equipment, and PEL-M-02650, (Rev. A or latest revision) for piping and valve identification.
18.2.2. Label Information	Use the Plant Engineering Department standards for label requirements and abbreviations.	Yes	FMC/PMC	Plant Engineering Standards PEL-M-11009, (Rev. G or latest revision) for equipment, and PEL-M-02650, (Rev. A or latest revision) for piping and valve identification.
	Ensure workers are trained or instructed before performing maintenance on labeled equipment.	Yes	FMC/PMC	Plant Engineering Standards PEL-M-11009, (Rev. G or latest revision) for equipment, and PEL-M-02650, (Rev. A or latest revision) for piping and valve identification.
18.2.3. Label Placement	Use Plant Engineering Standards PEL-M-11009, (Rev. G or latest revision) (for equipment) and PEL-M-02650, (Rev. A or latest revision) (for piping and valve identification) for label placement.	Yes	FMC/PMC	Plant Engineering Standards PEL-M-11009, (Rev. G or latest revision) for equipment, and PEL-M-02650, (Rev. A or latest revision) for piping and valve identification.

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<b>ES&amp;H MANUAL DOCUMENT 3.5 SECTION</b>	<b>REQUISITES FOR SECTION ELEMENTS</b>	<b>APPLICABLE YES/NO</b>	<b>RESPONSIBILITY FOR COMPLIANCE FMC/PMC<sup>1</sup></b>	<b>COMMENTS AND/OR REFERENCE FOR VERIFICATION OF COMPLIANCE</b>
18.2.4. Replacing Labels	Ensure processes (e.g. post-maintenance tests, lineup sheets, etc.) include provisions to check for labels that are missing, damaged or have incorrect information and new labels are promptly provided.	Yes	FMC/PMC	Plant Engineering Standards PEL-M-11009, (Rev. G or latest revision) for equipment, and PEL-M-02650, (Rev. A or latest revision) for piping and valve identification.