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Chapter 10.3 Facility Readiness Reviews for Hazardous or Critical Facilities

10.3.1 Applicability of this chapter

10.3.1.1 You are required to follow this chapter if you:

- a. Oversee a facility described in paragraph 10.3.3 of this chapter.
- b. Are a member of an Operational Readiness Inspection (ORI) or a Use Readiness Review (URR) committee.
- c. Are a director with a facility that requires a facility readiness review or URR.

10.3.2 Definition of a facility readiness review

10.3.2.1 A facility readiness review is a review to determine whether a facility is ready to operate and operate safely after initial construction or modification. There are two levels of facility readiness reviews at JSC, depending on the hazards, criticality, or complexity of the facility, which are listed and defined below:

- a. An ORI is a rigorous formal inspection by a committee to approve a facility as ready to operate safely and effectively before it begins operations.
- b. A URR is a less rigorous and less formal review to approve less hazardous, complex, or critical facilities as ready to operate safely and effectively before they begin operations.

NOTE: Other requirements in this Handbook, such as Chapter 6.9, require readiness reviews for specific activities, such as hazardous testing. Chapter 10.3 only covers reviews necessary to approve initial facility operation or resuming facility operation after a modification.

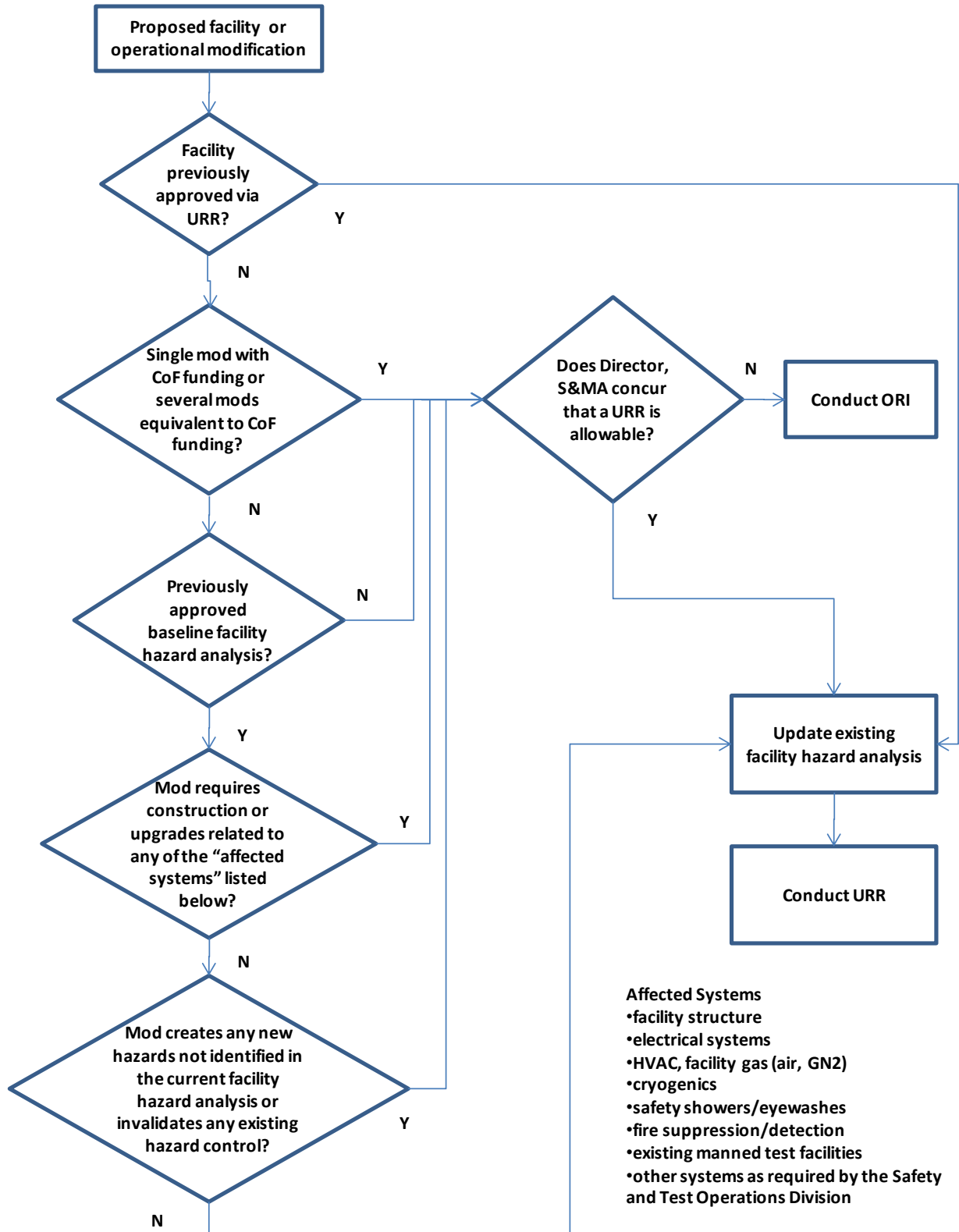
10.3.3 Requirements for facility readiness reviews

“Facility,” as used in this chapter, may be a building, a work area in a building such as a test chamber, or an outside work area. Facilities with a small risk of injury, damage, or mission failure, such as office buildings, don’t require a facility readiness review, but other standards may require acceptance testing of certain systems (see Chapter 10.1 of this Handbook). The table provides the criteria for which facilities shall have an ORI or a URR. An ORI or URR shall cover the facility, associated facility systems, and associated facility equipment. Test equipment will normally be reviewed and approved by the TRR process. In unique situations, test equipment may require a URR or ORI as designated by the Director, Safety and Mission Assurance, or their designee. Equipment which falls outside the definition of test equipment is considered facility test support equipment and is covered under the URR or ORI process. The Director, Safety and Mission Assurance, has designated personnel within the Safety and Test Operations Division to work with the facility organizational directors to determine the appropriate level of readiness review. Send questions about the facility readiness review process to the JSC-TSO-Mailbox with your contact information and someone from the Safety and Test Operations Division will contact you. Safety and Test Operations Division personnel can also be contacted at the JSC-TSO-Mailbox to assist with ORI or URR requests and expedite the approval process.

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<i>Facility . . .</i>	<i>ORI criteria . . .</i>	<i>URR criteria . . .</i>
New JSC Facilities	Major facilities that pose a significant risk of death, serious injury, serious property damage, failure of JSC's mission, or failure of space flight missions.	Facilities that pose a very low risk of death, serious injury, or mission failure. Facilities that pose a significant risk of minor injury, moderate property damage, or mission failure. The Director, Safety and Mission Assurance, or designee, shall concur that a URR, rather than an ORI, is allowable.
Modifications to JSC Facilities that were previously approved via an ORI or URR	See Flowchart below.	See Flowchart below.
Non-JSC Facilities where JSC personnel participate in hazardous operations	Non-JSC facilities with personnel in a vacuum or an oxygen-enriched environment with a contract or agreement with any non-JSC organization to support a JSC program that includes this chapter. This chapter applies to non-JSC facilities that: <ul style="list-style-type: none"> • Have altitude, space simulation, or hyperbaric chambers • Test or check out spacecraft • Use other equipment in operations with personnel in a vacuum or an oxygen-enriched environment 	Non-JSC facilities where other hazardous environments are involved at the discretion of Safety and Mission Assurance management or the managers overseeing personnel working at the facility

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- Affected Systems**
- facility structure
 - electrical systems
 - HVAC, facility gas (air, GN2)
 - cryogenics
 - safety showers/eyewashes
 - fire suppression/detection
 - existing manned test facilities
 - other systems as required by the Safety and Test Operations Division

Criteria for ORI and URR for facility modifications.

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10.3.4 When a facility readiness review is done

10.3.4.1 When required by paragraph 10.3.3 above, a facility shall have a facility readiness review before starting or resuming operations. The following apply:

- a. The organizational director responsible for the facility shall ensure that the facility readiness review is held before acceptance testing, but may conduct non-hazardous tests and check out the facility's systems and equipment before the facility readiness review unless the facility uses human subjects in a vacuum or an oxygen-enriched environment.
- b. You shall never put personnel in a hazardous environment or jeopardize NASA property or missions as a part of any test or checkout before:
 - (1) Completing at least an initial facility readiness review and resolving the committee's recommendations.
 - (2) Following human research policies and procedures, such as NPD 7100.8, "Protection of Human Research Subjects."

10.3.5 Appointing a review committee

10.3.5.1 The following outlines the process for appointing an ORI or a URR:

- a. For an ORI:
 - (1) The organizational director responsible for the facility coordinates with the Center director and Safety and Mission Assurance to select the ORI chair. They may also suggest potential members for the ORI committee.
 - (2) The Center director appoints the chairperson of the committee via a letter.
 - (3) The ORI chair selects the committee members, considering any suggestions made.
- b. For a URR:
 - (1) The division chief responsible for the facility nominates members for the URR committee and prepares an appointing letter for the signature of the responsible organizational director.
 - (2) The organizational director is the appointing authority and will appoint a committee chairperson.

10.3.6 Committee membership

10.3.6.1 A review committee normally has a chairperson, an executive secretary, and around six more voting members. The membership listed below is mandatory for ORIs. For URRs, Safety, Occupational Health, and Medical may waive their participation. A review committee shall have the following members and supporting personnel:

- a. The following rules apply to ORIs and may be considered by the appointing authority for URRs. The Center director may make exceptions to these rules to include highly qualified specialists as committee members:

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- (1) All committee members who are division chiefs or below shall come from an organization other than the one responsible for the facility. Personnel in the facility organization support the ORI committee.
- (2) At least two members shall be division chief level or above.
- (3) Other members shall be branch chief level or above.
- b. The committee chairperson who runs the committee shall be a division chief or above.
- c. The executive secretary does administrative tasks for the committee and:
 - (1) Advises the organization responsible for the facility as it prepares for the facility readiness review
 - (2) Develops a review schedule and agenda after consulting with the organization responsible for the facility
 - (3) Presents the schedule and agenda for approval at the first committee meeting
 - (4) Attends meetings held to prepare for the facility readiness review to provide direction, answer questions about the committee's requirements for the inspection, and assists in preparing waiver requests, if required
- d. If required, a doctor knowledgeable of occupational and environmental medicine requirements.
- e. An industrial hygienist if occupational health concerns are involved.
- f. One representative from the Safety and Test Operations Division or resident Safety and Mission Assurance Office.
- g. One representative from the quality branch. At JSC field sites, one person from the resident Safety and Mission Assurance Office may represent safety and quality.
- h. One representative from the organization that supplies the test subjects.
- i. Other members from disciplines such as facility engineering, facility management techniques, and test engineering. Members from non-JSC organizations are also desirable.
- j. Alternate members picked by the appointing authority to fill in for regular members who must be absent because of emergencies.
- k. Personnel who support the facility readiness review include:
 - (1) The management responsible for the facility, who will serve as the single point of contact with the review committee and make sure the facility is ready for the review.
 - (2) Personnel who operate the facility or those asked to support the review. These personnel shall cooperate with the review committee by providing information requested during the review.

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10.3.7 Facility readiness review process

10.3.7.1 A facility readiness review usually follows this process. The chairperson may change the procedure to fit the circumstances as long as the intent of the procedure is fulfilled. The steps are:

- a. The committee meets when called together by the chairperson. The committee shall keep records of its proceedings. The review begins with:
 - (1) A committee briefing from those who designed or will operate the facility. This briefing shall summarize the information needed in paragraph 10.3.8 of this chapter.
 - (2) The committee tours the facility.
- b. The committee decides what other information and details are needed.
- c. The chairperson assigns teams of one to three members who investigate and gather the information and details needed and then report back to the full committee. Any committee member may investigate any item personally if he or she wants to.
- d. Committee members note discrepancies and recommendations and turn them in to the secretary, who assigns a control number.
- e. The full committee evaluates and classifies all recommendations. For ORIs, see paragraph 10.3.9 of this chapter. URR committees assign action items to the facility through committee consensus. Members with minority opinions may appeal to the appointing authority or the Safety and Mission Assurance Director.
- f. The committee reviews its recommendations or action items with facility personnel to make sure that the recommendations are understood and that the committee has not acted on the basis of inaccurate or incomplete information. The management responsible for the facility makes sure corrective actions are done.
- g. The committee issues its findings and recommendations in writing to the appointing official or others as necessary.
- h. The committee follows up to make sure the facility takes action on mandatory recommendations by the deadlines.
- i. The committee issues a final report and sends copies to the appointing authority and the manager responsible for the facility.
- j. The committee continues to act until the facility is approved for operations. This may involve overseeing or reviewing the results of acceptance testing.
- k. The appointing authority, after accepting the final report, disbands the committee unless he or she decides that the committee will do post-facility readiness review as described in paragraph 10.3.12 of this chapter.
- l. The committee shall ensure that any discrepancy that constitutes any safety hazard that will not be permanently abated by the time the facility is declared ready for operations is entered in the JSC Hazard Abatement Tracking System (HATS). Interim and final abatement plans will also be developed, implemented, and documented in HATS. See Chapter 3.5, "Hazard Correction Tracking," for details.

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10.3.8 Committee activities

10.3.8.1 The review committee shall make sure the following are adequate for safety, health, and operations:

- a. Facility design, construction, or changes.
- b. Facility staff, to include:
 - (1) Its size and organization
 - (2) The responsibilities of each staff member
 - (3) Training for each staff member
- c. Interfaces among and responsibilities for all organizations that operate or use the facility.
- d. Pre-operations inspection, quality control, and shakedown testing in the facility.
- e. Plans and procedures for normal and emergency operations.
- f. Facility baseline documentation described in Chapter 10.4, "Facility Baseline Documentation Requirements for Critical, Complex, or Hazardous Facilities," of this Handbook.
- g. Facility safety program, to include the following:
 - (1) Supporting safety services and facilities
 - (2) Hazard analyses
 - (3) Compliance with all safety requirements that apply to the facility, such as this Handbook and other JSC, NASA, NFPA, and federal requirements
 - (4) Human factors and occupational health.
- h. Reliability, failure mode and effects analyses, and single-point failure summaries.
- i. Other factors that directly or indirectly affect the safe operation of the facility.
- j. Environmental protection in JSC facilities.

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10.3.9 Classifying ORI committee recommendations

An ORI committee shall classify each recommendation in one of four categories and set deadlines to have actions on recommendations completed. The classifications are:

<i>Classification . . .</i>	<i>Vote required . . .</i>	<i>Other requirements . . .</i>
Mandatory—involves a credible risk of a mishap or an operational problem that could cause injury, death, major property damage, or a priority impact to the environment	One-third vote of the full committee	Note all votes for “mandatory” in minutes and reports if a recommendation doesn’t get the necessary one-third majority vote
Non-mandatory—involves risk of minor property damage, operational problems, or other impact to the environment where immediate action isn’t required	Any vote that doesn’t classify the recommendation as mandatory, further study needed, or rejected	None
Further study needed	A majority vote of the full committee	Assign action items for further study, track them to completion, and document the results in the final report
Rejected	A majority vote of the full committee	Document all “rejected” recommendations in the final report

10.3.10 Final report

10.3.10.1 The final report shall include:

- a. Recommendations or action items and their corrective actions. Use JSC Form 602, Operational Readiness Inspection/Operational Readiness Review Review Item Disposition (RID) to document the committee’s RIDs.
- b. Any waivers from recommendations or requirements.
- c. Recommendation for certification that the facility is approved for operation.
- d. A presentation before the JSC Management Council is required before the Center director grants certification. The facility manager conducts this presentation in conjunction with the committee chairperson.

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10.3.11 Addressing review committee recommendations and action items

10.3.11.1 As the manager responsible for the facility, you shall:

- a. Take corrective action on all mandatory ORI recommendations and URR action items by the committee deadlines.
- b. Never conduct any operations that involve personnel in a hazardous environment before corrective action on mandatory recommendations is complete.
- c. Consider non-mandatory ORI recommendations or any other URR recommendations for early implementation.
- d. Present actions taken to the committee for approval and provide written documentation as necessary.
- e. Discuss any mandatory ORI recommendation or URR action item that you can't take action on because of cost, operational, or schedule impacts with the committee. If the committee doesn't change the recommendation or action item, you shall request a waiver. Follow these rules for waivers:
 - (1) Request a waiver from the Center director through the committee for recommendations that don't involve JSC, NASA, NFPA, state, or federal requirements.
 - (2) Follow the waiver process in Chapter 1.3, "Written Safety And Health Program," of this Handbook for waivers from JSC, NASA, NFPA, state, and federal requirements. Make sure the ORI committee also reviews the waiver requests.
 - (3) Have the senior manager from the organization that supplies test subjects concur on any waiver request that involves the safety of human subjects.
- f. Keep a copy of the final report, as described in Chapter 10.4 of this Handbook.

10.3.12 Post-facility readiness reviews

As the manager responsible for the facility, you are encouraged to bring the review committee or another committee in to review your facility and operation, especially if your facility uses human subjects in a vacuum or an oxygen-rich environment. It is recommended that you hold such a review at least once each 6 months or more often if you think it is necessary due to conditions or special problems in the facility. Make sure written records of any post-facility readiness reviews are sent to the appointing authority.

10.3.13 Non-JSC facilities

10.3.13.1 Facility readiness reviews are done on non-JSC facilities as described in paragraph 10.3.3 of this chapter. If JSC has a contract or an agreement with your non-JSC organization as described in paragraph 10.3.3 of this chapter, you shall:

- a. Send JSC a list of facilities that you believe require a facility readiness review. You shall send this list within 14 days of signing the contract or agreement, or at any later time when you find that a facility readiness review is needed.
- b. The list shall include information to help JSC evaluate your facilities, such as:

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- (1) A general description of the facility and its operations
- (2) What JSC project the facility supports
- c. Follow this chapter with these exceptions:
 - (1) The person in charge of your site or a higher-level official will be the appointing official. He or she will fulfill the responsibilities of the appointing authority found in this chapter.
 - (2) Committee members shall be equal in rank to JSC division and branch chiefs as described in paragraph 10.3.6 of this chapter. JSC will arrange for committee members from government organizations if necessary.
 - (3) The same committee members may participate in more than one review. However, you shall keep the review for each facility and its records separate from reviews and records for other facilities.
- d. Allow JSC to send qualified observers if necessary. These observers shall have access to all committee meetings and records.
- e. Send the final report to the Director, Safety and Mission Assurance. He or she shall send the report and his or her personal assessment of the facility's overall safety to the JSC Center Director. The report is to include all information on waivers to mandatory ORI recommendations or URR action items and the schedule and due dates for corrective action on all mandatory and non-mandatory ORI recommendations or URR action items.
- f. Send a plan for post-facility readiness reviews recommended in paragraph 10.3.12 of this chapter to the JSC Center Director and the Director, Safety and Mission Assurance.

10.3.14 Maintaining ORI committee reports

The facility manager or lab manager shall keep a copy of the report as a part of the Facility Baseline Documentation (see Chapter 10.4 of this Handbook). The Safety and Mission Assurance director sends ORI reports to the NASA Headquarters Safety and Risk Management Division as requested. Resident Safety and Mission Assurance Offices will keep copies of ORI reports for JSC remote sites.