

Computer-based Training NSTS/ISS13830

Payload Safety Review and Data Submittal Requirements



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Instructions

1. Test your knowledge of the content by taking the quiz contained on the next few pages.
2. To see the next slide: 1) use the page up/down keys; or 2) click anywhere other than on the underlined text.
3. Read the question at the top of each page. Click on the answer of your choice. A correct answer will make a “cymbal” sound; an incorrect answer will make a “boing” sound. If you do not hear the sounds, assure that your wave sounds are enabled (right click the audio icon on your toolbar; select “open volume controls;” the “mute” should not be checked). If you prefer to manually track your answers, you may use the answer key at the back of this quiz.
4. To end the slide show, press the “Esc” key, or click in the small box in the lower left-hand corner of your slide show page and select “End Show.”

Question 1

Approval Authority for an noncompliance report (NCR) rests with whom?

Sec 10, Para 10.1

- A. Assigned Payload Safety Engineer
- B. Payload Organization (PO) Program Manager (PM)
- C. PO technical lead
- D. ISS Program/Space Shuttle Program

Question 2

For a typical PSRP Review Agenda, the Action Item Review is scheduled next to last in order to review and agree to the following: 1) actions assigned during the meeting and 2) dates those actions are due. The actions are printed and signed during the review [at the end].

Section 6.1.2

True

False

Question 3

What is a safety NCR that is applicable for one flight?

Section 10.2

- A. Verification
- B. Certificate of Compliance Exception
- C. Deviation
- D. Waiver

Question 4

What is a safety NCR that may be approved for unlimited use?

Section 10.2

- A. Waiver
- B. Deviation
- C. Verification
- D. Certificate of Compliance Exception

Question 5

At what phase would the Fracture Control Summary Report appear?

Section 7.1

- A. Phase 0
- B. Phase III
- C. Phase I
- D. Phase II

Question 6

Hardware that 1) has previously flown on the shuttle or station and 2) has payload-related hardware are exempt from the process outlined in NSTS/ISS 13830.

Section 3

True

False

Question 7

The PO must perform a safety analysis that uses established analytical techniques and that includes on-orbit verification/reverification of hazard controls, if necessary, at both the system and subsystem levels.

Section 4, Para 4.1.1 & 4.1.2

True

False

Question 8

The PO must conduct a systematic safety analysis and submit a Safety Data Package (SDP) in support of safety reviews to be conducted by the flight operator (JSC) and the launch/landing site operator (KSC).

Introduction

True

False

Question 9

After the Phase III closure, test failures, anomalies, or accidents involving payload flight hardware or software should be included in a reflight review for any subsequent flights but do NOT need to be reported to the PSRP/GSRP for the current flight.

Section 5.7.2

True

False

Question 10

NSTS/ISS 13830 establishes design requirements for payloads.

Section 3

True

False

Question 11

What data is expected in a Phase II flight SDP that is NOT provided in the Phase I SDP?

Section 6.4.1, page 22

- A. Updates to Phase I data (or rationale for deletion)
- B. List of hazard controls that require crew procedures and/or training
- C. A record of test failures, anomalies, and accidents involving qualification or potential flight hardware or baselined flight software if the software is used for hazard control
- D. The status of all action items assigned to the PO during phase I
- E. All of the above

Question 12

When should a PO address hazards associated with a payload returning to Earth via the shuttle from the ISS?

Section 8.2.2

- A. In an updated SDP that is presented to the PSRP once the return manifest is completed
- B. In the initial Phase I/II/III SDP and HRs
- C. During the integrated Phase III review only

Question 13

The PO must provide the flight Certificate of Safety Compliance (CofC) to the PSRP Executive Secretary no later than 10 days prior to the Flight Readiness Review (FRR).

Section 5.7.1

True

False

Question 14

The only official record of Action Item closure is in formal meeting minutes.

Sec 5.6.2

True

False

Question 15

The safety assessment for changes to design, configuration, or operations of payload hardware after the Phase III closure do NOT need to be reported to the PSRP/GSRP if there are NO safety implications.

Section 5.7.2

True

False

Question 16

What are the possible dispositions for Hazard Reports?

Sec 4, Para 4.3.2

- A. Approved as written, approved with modification, approved with an action to be performed by the PO and/or the PSRP/GSRP, not approved
- B. Approved, approved with a waiver granted by the PSRP, approved by the cognizant engineer, not approved
- C. Approved, copy sent to all PSRP board members, approved by a majority vote of the PSRP Board and then filed until the payload flies, not approved
- D. Approved, disapproved, approved with a waiver, disapproved and sent back for rewrite

Question 17

What is an NCR?

Sec 10

- A. Non-Compliant Return
- B. Non-Compliance Review
- C. Non-Compliance Peer Review
- D. Non-Compliance Report

Question 18

What defines an on-orbit reconfigured payload?

Sec 8, Para 8.2.1

- A. A payload scheduled for deployment, but fails to operate in accordance with Standard Operating Procedures (SOP)
- B. A payload that is deployed then returned back to the orbiter for analysis upon landing
- C. A payload that will be physically changed (modular substitution/addition) or experience a change in its planned use or manifested location
- D. A payload that is launched from the orbiter and placed in Low-Earth Orbit (LEO)

Question 19

In addition to safety, both the GSRP and the PSRP review each payload for mission success and accomplishment of scientific objectives.

Section 3, Scope

True

False

Question 20

Hazard Reports (HR) are prepared on what JSC Forms?

Sec 4, Para 4.3.2

- A. JSC Form 44, JSC Form 542C, and JSC Form 1230
- B. JSC Forms 764, and 1114A
- C. NASA Form 1114A, and NSTS Form 1230
- D. JSC Forms 1230, 542, and 542B-1

Question 21

During what timeframe should the PO be providing weekly updates to open verification items on the flight Verification Tracking Log (VTL)?

Section 5.7.3

- A. From L-60 days until L-30 days, when all verifications should be closed
- B. From L-60 days until post landing
- C. From L-60 days until 4 PM Central time the last business day prior to launch or until closed even if after launch
- D. From Phase III until L-60 days

Question 22

Match the following:

Sec 11

Match the following:

___ Certificate of Safety Compliance

- A. JSC Form 542C
- B. JSC Form 44
- C. JSC Form 542B
- D. JSC Form 1230
- E. JSC Form 764
- F. JSC Form 1114A

Question 23

NSTS 13830C, “Payload Safety Review and Data Submittal Requirements,” applies to payloads intended for flight on the International Space Station (ISS) and/or the Space Shuttle.

Preface

True

False

Question 24

When a group of payloads will be flown together on a common rack, carrier, module, etc., the mission manager who is responsible for integrating the payloads may separately submit individual payloads or various groups of payloads for safety reviews that correspond to their development schedules. However, all the experiments and the carrier, rack, or module, etc. must be addressed together at an integrated phase III safety review.

Section 8.1

True

False

Question 25

What is the purpose of the data requirements in Section 7?

Section 7

- A. To list a minimum set of data required to support hazard reports
- B. To categorize data requirements by technical discipline
- C. To addresses Design-for-Minimum-Risk (DFMR) criteria
- D. All of the above

Question 26

Phase III must be completed no later than _____ days prior to the delivery of the Payload to the launch site.

Sec 5, Para 5.5

- A. Sixty
- B. Ninety
- C. Ten
- D. Thirty

Question 27

The PO is responsible to identify copyrighted data. If copyright is identified, the PO must either grant the Government or acquire on behalf of the Government a license to reproduce and distribute any copyrighted data.

Sec 4, Para 4.3.1.2, Pg.8

True

False

Question 28

Which hazard requires the PO to submit a JSC Form 44?

Section 7.5

- A. Structures
- B. Non-Ionizing Radiation
- C. Ionizing Radiation
- D. Fluid Propulsion systems

Question 29

Since toxicological test sample data may change many times during the course of experiment development, the PSRP has allowed special dispensation for this data to be brought directly to the PSRP meetings rather than to be submitted with the SDP.

Section 4, Para 4.3.1.2

True

False

Question 30

Transmittal letters must contain a specific statement that identifies the location of any proprietary data located in the SDP. Where in the SDP should the words "PROPRIETARY" be placed?

Section 4, Para 4.3.1.1

- A. On the first and last pages of the SDP
- B. On every page of the SDP
- C. Only on the transmittal letter
- D. Only on the top and bottom of each page that contains proprietary data

Question 31

The PO will accomplish all but what function?

Section 4

- A. Perform technical review of the Safety Data Package.
- B. Document compliance with safety requirements
- C. Perform safety analysis
- D. Identify Hazards

Question 32

Implementation of the payload safety process is the joint responsibility of the Payload Organization (PO) and

Introduction

- A. JPL & JSC
- B. GFSC & KSC
- C. JSC & KSC
- D. KSC & MSFC

Question 33

Payloads or elements of payloads that have flown on the space shuttle or the ISS and are manifested again are known as:

Section 9

- A. Reflown hardware
- B. Return cargo
- C. Multipayload cargo complement
- D. Series hardware

Question 34

Payloads or elements of payloads that are of the same or similar design as previously flown hardware are known as:

Section 9

- A. Series hardware
- B. Return cargo
- C. Multipayload cargo complement
- D. Reflown hardware

Question 35

The NSTS/ISS 13830 establishes all data that is required for a thorough review of the payload hazards by both the PSRP and the GSRP. Should either Panel need additional information, the Executive Secretary must request a variance to the 13830.

Section 3, Scope

True

False

Question 36

Which group includes examples of ground hazards?

Section 4, Para 4.2

- A. Repetitive, routine motions; clean room compliance; and lack of clear instructions from supervisors
- B. Inadvertent release of corrosive, flammable or cryogenic materials; electrical shock; and rupture of composite epoxy overwrapped pressure vessels
- C. Lack of Personal Protective Equipment (PPE), working under suspended loads, and heat injuries
- D. Noise hazards, Foreign Object Debris (FOD), and vehicle traffic

Question 37

What is the preferred method to submit a flight SDP?

Section 4, Para 4.3.1

- A. Three hard copies to the Executive Secretary, PSRP at JSC.
- B. Electronically to the Data Management System (DMS) with no hard copy submission
- C. Electronically to the DMS followed by a hard copy transmittal letter, document signature pages, and signed original HRs to the JSC PSRP Executive Secretary
- D. Two copies: one to the Chairman, GSRP at KFC and one to the PSRP Executive Secretary at JSC

Question 38

The Phase 0 flight safety review is held during the concept phase of payload development or at the start of payload design; the Phase I flight safety review is held near the preliminary design review; Phase II flight safety review is held near the critical design review; and the Phase III flight safety review is associated with completion of payload safety verifications and/or the start of ground processing.

Sec 5, Para 5

True

False

Question 39

Which item(s) below are NOT included in the purpose of NSTS/ISS 13830?

Section 2

- A. Explain two-fault tolerance
- B. Define the payload series/reflight review process
- C. Describe preparation for and conduct of the safety review and safety review process variations
- D. Identify content of the SDP

Question 40

What data is expected in a Phase III flight SDP that is NOT provided in the Phase II SDP?

Section 6.5.1

- A. Updates to phase II data (or rationale for deletion)
- B. Payload flight safety VTL
- C. Identification of flight safety noncompliances, including a signed copy of each approved safety waiver and/or deviation attached to the applicable HR
- D. All of the above

Question 41

When is a Noncompliance Report (NCR) approval required?

Section 5.6.2

- A. At phase III
- B. Any time before launch
- C. At phase II
- D. Before the end of the mission
- E. At phase I

Question 42

Which is NOT a type of meeting of the PSRP?

Sec 5, Para 5.3

- A. Out-of-Board Meeting
- B. Critical Design Review Meeting
- C. Safety Technical Interchange Meeting (TIM)
- D. Formal Meeting

Question 43

The PSRP/GSRP assess applicable payload hardware for which of the following mission phases:

Section 3, Scope

- A. Prelaunch, launch, ascent
- B. On-orbit
- C. Entry, landing, postlanding
- D. All of the above

Question 44

Although not an exhaustive list, what are some common payload flight hazards of concern to the PSRP?

Section 4, Para 4.2

- A. Collision, corrosion, electrical shock, and inability to egress
- B. Payload hardware reuse and on-board computer failures
- C. Malfunctioning Extravehicular Activity (EVA) equipment, and navigational errors
- D. Navigational errors and repositioning of payloads while on orbit

Question 45

The Payload Safety Review Panel (PSRP) will assess the payload design and flight operations; the Ground Safety Review Panel (GSRP) will assess the Ground Support Equipment (GSE) design and ground operations.

Introduction

True

False

Question 46

Based on the Phase I SDP, new payloads are categorized by the PO into three categories of complexity known as Basic, Intermediate, or Complex with respect to hazard potential.

Sec 5, Para 5.4

True

False

Question	Answer
1	D
2	True
3	D
4	B
5	B
6	False
7	True
8	True
9	False
10	False

Question	Answer
11	E
12	B
13	True
14	False
15	False
16	A
17	D
18	C
19	False
20	D

21	C
22	F
23	True
24	True
25	D
26	D
27	True
28	C
29	False
30	D
31	A

32	C
33	A
34	A
35	False
36	B
37	C
38	True
39	A
40	D
41	A
42	B
43	D
44	A
45	True
46	False

TEST COMPLETED

