REDUCED GRAVITY OFFICE
AIRCRAFT OPERATIONS DIVISION

NASA-LYNDON B. JOHNSON SPACE CENTER
ELLINGTION FIELD
HOUSTON, TEXAS

HAZARD ANALYSIS

TITLE

DOC. NO.: DATE: mm/dd/yy

Prepared By:	
Concurrence:	Test Requester
Concurrence:	RGO Flight Safety
Concurrence:	JSC Safety & Test Operations
Concurrence:	Facility Engineer
Approved By:	RGO Test Director
Approved By:	Chief, AOD

NO. OF PAGES: 6

REVISIONS

Letter	Date	Author	Description
DRAFT			

1. TEST PURPOSE

1.1 PURPOSE

Define the purpose of this document as in the following example.

This document contains an analysis of the hazards involved with the performance of the test program described in ESTA-TP-[insert test number]. Controls are defined to mitigate the hazards and an assessment of the risk remaining is made.

1.2 SCOPE

Define the scope of this document as in the following example.

This hazard analysis covers the hazards of handling and operating the test article as well as the hazards involved in integrated operation of the test article, test system, and facility. Hazards involved in operation of facility systems that are not specific to this test program are covered in the hazard analyses for those facility systems

1.3 SYSTEM PURPOSE

Define the system purpose. Refer to applicable test plan.

1.4 SYSTEM FUNCTIONAL DESCRIPTION

Describe the system function with as much detail as applicable.

2. HAZARD ANALYSIS SUMMARY

Hazards for this test program are listed below.

2.1 ELECTRICAL POTENTIAL:

Discuss possible hazards

2.2 SHRAPNEL OR BLAST WAVE OVER-PRESSURIZATION:

Discuss possible hazards

2.3 FIRE

Discuss possible hazards

2.4 HIGH TEMPERATURES:

Discuss possible hazards

2.5 LOW TEMPERATURES:

Discuss possible hazards

2.6 IONIZING RADIATION:

Discuss possible hazards

2.7 HIGH ENERGY ELECTROMAGNETIC FIELDS:

Discuss possible hazards

2.8 OXYGEN DEFICIENT ATMOSPHERES:

Discuss possible hazards

2.9 TOXIC ATMOSPHERE:

Discuss possible hazards

2.10 HIGH SOUND LEVELS:

Discuss possible hazards

2.11 SHARP POINTS OR EDGES:

Discuss possible hazards

2.12 COLLISIONS:

Discuss possible hazards

2.13 CRUSHING FORCES:

Discuss possible hazards

2.14 ENVIRONMENTAL POLLUTION:

Discuss possible hazards

2.15 TEST ARTICLE:

Discuss possible hazards

3. DOCUMENTS REVIEWED

3.1 DRAWINGS AND COMPONENT LISTINGS

List drawings and component listings reviewed for applicability to this test operation.

3.2 HAZARD ANALYSIS REPORTS

List hazard analyses reviewed for applicability to this test operation.

3.3 OTHER DOCUMENTS

JPR 1700.1	JSC Safety and Health Handbook
JSC 17773	Instructions for Preparation of Hazard Analysis Reports

AOD 33896	Test Equipment Data Package Requirement and Guidelines NASA JSC RGO
AOD 33897	Equipment Design Requirements and Guidelines
JPR-1710.13	Design, Inspection, and Certification of Pressure Vessels and Pressurized Systems

4. SUPPORTING INFORMATION

4.1 RISK ASSESSMENT CODES (RAC's)

Consequence

Class	Description
I	**Catastrophic** A condition that may cause death or permanently disabling injury, facility destruction on the ground, or loss of crew, major systems, or vehicle during the mission; schedule slippage causing launch window to be missed; cost overrun greater than 50% of planned cost.
II	**Critical** A condition that may cause severe injury or occupational illness, or major property damage to facilities, systems, equipment, or flight hardware; schedule slippage causing launch date to be missed; cost overrun between 15% and not exceeding 50% of planned cost.
III	**Moderate** A condition that may cause minor injury or occupational illness, or minor property damage to facilities, systems, equipment, or flight hardware; internal schedule slip that does not impact launch date; cost overrun between 2% and not exceeding 15% of planned cost.
IV	**Negligible** A condition that could cause the need for minor first-aid treatment but would not adversely affect personal safety or health; damage to facilities, equipment, or flight hardware more than normal wear and tear level; internal schedule slip that does not impact internal development milestones; cost overrun less than 2% of planned cost.

Likelihood Estimate

Letter	Description
A	**Likely** to occur (e.g., probability > 0.1).
B	**Probably** will occur (e.g., 0.1 ≥ probability > 0.01).
C	**May** occur (e.g., 0.01 ≥ probability > 0.001).
D	**Unlikely** to occur (e.g., 0.001 ≥ probability > 0.000001).
E	**Improbable** (e.g., 0.000001 ≥ probability).

Consequence Class	Likelihood Estimate				
	A	**B**	**C**	**D**	**E**
I	1	1	2	3	4
II	1	2	3	4	5
III	2	3	4	5	6
IV	3	4	5	6	7

If the RAC is…	***Then the risk is…***

If the RAC is…	*Then the risk is…*
1	**Unacceptable** – All operations shall cease immediately until the hazard is corrected, or until temporary controls are in place and permanent controls are in work. A safety or health professional shall stay at the scene at least until temporary controls are in place. RAC 1 hazards have the highest priority for hazard controls.
2	**Undesirable** – All operations shall cease immediately until the hazard is corrected or until temporary controls are in place and permanent controls are in work. RAC 2 hazards are next in priority after RAC 1 hazards for control. Program Manager (directorate level), Organizational Director, or equivalent management is authorized to accept the risk with adequate justification
3	**Acceptable with controls** – Division Chief or equivalent management is authorized to accept the risk with adequate justification
4–7	**Acceptable with controls** – Branch Chief or equivalent management is authorized to accept the risk with adequate justification

5. DISTRIBUTION

Original AOD / Test Director
AOD / Branch Test File
AOD / Building 990
AOD Flight Safety
NS2 / Safety and Test Operations

HAZARD	CAUSE	EFFECT	Sev/Prob RAC	CONTROLS	VERIFICATION	DISPOSITION Sev Prob RAC