

**BY ORDER OF THE COMMANDER  
SPACE LAUNCH DELTA 45**

**SPACE LAUNCH DELTA 45  
INSTRUCTION 91-206**



**5 MAY 2023**

***Certified Current, 21 November 2023  
Safety***

**DANGER AREA INFORMATION PLAN**

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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OPR: SLD45/SELF

Certified by: SLD45/SE  
(Col Patrick G. Youngson)

Supersedes: SLD45I91-206, 9 August 2021

Pages: 19

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This instruction provides information and guidance to ensure compliance with safety requirements as detailed in Department of the Air Force Instruction (DAFI) 91-202, *The US Air Force Mishap Prevention Program*. The activation of clear areas such as the Blast Danger Area (BDA), Vehicle Clear Contour (VCC), Flight Hazard Area (FHA), Flight Caution Area (FCA) and the Impact Limit Line (ILL) for each active complex on Cape Canaveral Space Force Station (CCSFS) and launch activities originating from Kennedy Space Center (KSC) are paramount to ensure risk (individual/aggregated) remains within governing Air Force (AF), Space Force (SF) and Federal Aviation Administration (FAA) AST safety requirements. It also establishes a timeline for the development of these danger areas, including the submittal of population numbers while providing guidelines for requesting authorization to remain within these areas. All provisions of Eastern and Western Range (EWR) 127-1, *Range Safety Requirements* and Space Systems Command Manual (SSCMAN) 91-710 Volume 6, *Range Safety User Requirements Manual -Ground and Launch Personnel, Equipment, Systems, and Material Operations Safety Requirements*, are applicable to this plan unless specifically modified or supplemented by appropriate authority. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*; route AF Form 847s from the field through Major Command publications/forms managers. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance (IAW) AFI 33-322, *Records Management and Information Governance Program* and disposed of IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) located at <https://www.af.mil/gcss-af61a/afirms/afirms>.

***SUMMARY OF CHANGES***

This document has been updated to reflect organizational changes. The Vehicle Clear Contour Hold Harmless and Indemnification policy has been updated to address additional circumstances.

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## 1. Purpose.

1.1. The Danger Area Information Plan assigns responsibilities and outlines procedures for clearing non-essential personnel (General Public (GP)) from the BDA, FHA, FCA, ILLs and if necessary, Special Control Areas (SCAs) for active launch programs on CCSFS. It further assigns responsibilities and outlines procedures for clearing GP from SCAs during certain pre-launch hazardous operations and on launch days and provides similar guidance to ensure the evacuation and sheltering of personnel as necessary. This plan also provides guidelines for requesting authorization to remain within these danger areas, describes launch day guidance for operational requirements and for establishing the VCC. Finally, it outlines the CCSFS population reporting process which is required for accurate launch day risk analysis.

## 2. Policy.

2.1. All GP will be evacuated from danger areas as defined in this plan or as published by the SLD 45 Safety (SLD 45/SE) office. Launch essential personnel (LEP), Neighboring Operations (NOP) and GP will be directed to either seek shelter in an approved launch shelter or evacuate affected areas based on forecast toxic propellant dispersion modeling. Personnel may also be asked to move away from windows in certain facilities based on forecast to T-0 distant focusing overpressure (DFO) modeling and/or to relocate/shelter based on forecast to T-0 debris and toxic dispersion modeling respectively. It is intended that this plan be accomplished with a minimum loss of man-hours as a result of personnel exclusion from hazardous areas. Additional mitigating actions may be required based on the launch operation.

## 3. Authority.

3.1. SLD 45/SE or designee will develop, publish, and implement procedures necessary to carry out this plan in compliance with EWR 127-1, SSCMAN 91-710V6, SLD45I 91-204, *Launch Vehicle On-Base Risk Mitigation Practices* and SLD 45 *Installation Emergency Management Plan* (IEMP) 10-2.

## 4. Responsibilities.

4.1. The SLD 45/SE or designee will:

4.1.1. Determine BDAs, SCAs, FHAs, FCAs, ILLs and VCCs.

4.1.2. Three weeks prior to a scheduled launch, develop BDA, FHA, FCA and VCC clear areas and provide this information for use in a mission-specific Population Reporting Spreadsheet as outlined in this SLD45I.

4.1.3. Three weeks prior to a scheduled launch, request mission-specific Launch Essential (LE) population data using a LE Population Reporting Spreadsheet to all applicable organizations, as a means to consolidate a listing of Launch Essential Personnel (LEP) regardless of their location. Neighboring Operations Personnel (NOP) shall be reported on the LE Population Reporting Spreadsheet as well.

4.1.4. Three weeks prior to scheduled launch, request mission-specific visitor population data using a Visitor Population Reporting Spreadsheet to all applicable organizations.

4.1.5. Two weeks prior to a scheduled launch, provide a consolidated Visitor Population Report to all applicable organizations, as a means to consolidate a listing of visitors.

4.1.6. Two weeks prior to a scheduled launch, begin to assess the risk of all personnel (LEP, NOP, GP) to ensure the risk remains under launch commit criteria as defined in AFI 91-202, based on LEP/NOP and visitor submittals and GP census data for on-base (CCSFS/KSC) and off-base populations, both in Brevard County and downrange.

4.1.7. On launch day, provide forecast debris, DFO and toxic propellant dispersion risk analyses as well as direct Cape Support to make applicable scripted announcements over the Cape Aural Warning System (CAWS) per SLD45I 91-204.

4.1.8. Define potential hazard corridors based on forecast weather conditions under which probable hazards might occur during hazardous operations.

4.1.9. Define emission hazard corridors based on forecast conditions to be expected as a result of planned toxic emissions.

4.1.10. Refine operational hazard corridors after an accident has occurred to minimize casualties.

4.1.11. Develop Population Reporting training material and provide training to all SLD 45 Squadron Commanders, their personnel, and their partners, if requested.

4.1.12. Assist the control authority in activation of all aural and visual equipment to notify personnel inside a BDA, FCA, FHA, SCA or VCC at the time evacuation is required.

4.1.13. Assist the control authority in prompt evacuation of all personnel from a BDA, FCA, FHA, SCA or VCC when notification is given.

4.1.14. Through the 45 SFS Launch Operations Lead and the LEOC Director, ensure personnel access controls into the BDA, FCA, FHA, SCA or VCC such as roadblocks and barriers are established to restrict access to only approved LEP and NOP during launch operations, at the direction of OSM (Operations Safety Manger).

4.1.15. Confirm on-land portions of the BDA, FCA, FHA, SCA or VCC are clear and report status to the OSM at a pre-established point in the launch countdown.

4.1.16. Provide notification to the control authority when restrictions regarding BDA, FCA, FHA, SCA or VCC are removed, and people may reenter the area.

4.2. SLD 45 Spaceport Integration Office (SLD 45/SIO) will:

4.2.1. Establish and manage Launch View Placard Program to provide access to CCSFS to unbadged individuals for the sole purpose of launch viewing.

4.2.1.1. Appoint and train volunteer to manage each established launch viewing locations. Duties would include parking management and disseminating any critical safety information to all personnel at site. Volunteer will remain in radio contact with SLD 45/SIO during countdown and will ensure that launch visitors leaving locations do no block road access to personnel support post-launch activities. Each location with more than 10 launch placards checked out will have at least one volunteer.

- 4.2.1.2. Launch Viewing at the Deas (CCSFS South) Gate is open to the GP (if available) and does not require a Launch Viewing Placard or coordination with SLD 45/SIO or SLD 45 Launch Safety (SLD 45/SEL). SLD 45/SIO will provide SLD 45/SEL estimate of viewers at Deas Gate no later than 2 weeks prior to the scheduled launch date.
- 4.2.2. Establish new/alternative launch viewing locations.
  - 4.2.2.1. Provide SLD 45 Safety (SLD 45/SE) GPS coordinates and road name or facility number and other information requested.
  - 4.2.2.2. Proposed launch viewing sites require inspection and/or concurrence from Safety, Fire, Security and Civil Engineers prior to approval. AF Form 4437, *Deliberate Risk Assessment Worksheet*, is required for all viewing sites on SLD 45 properties.
- 4.3. The 45th Civil Engineer Squadron (45 CES) will:
  - 4.3.1. Maintain floor plans for each facility and population data for most Air Force real property at CCSFS.
  - 4.3.2. Provide SLD 45/SE an annual update to CCSFS population data (e.g., survey of facility managers).
  - 4.3.3. Notify SLD 45/SE of the start and completion of large-scale construction projects and major facility renovations.
- 4.4. The Commander, 45th Medical Group (45 MDG/CC) will:
  - 4.4.1. Provide consultation to SLD 45 SIO and SLD 45/SE on chemical and radiological effects, exposure standards, personal protective equipment (PPE) and certification of approved launch shelters.
- 4.5. All organizations will:
  - 4.5.1. Receive the SLD 45/SE provided mission-specific LE-NOP and Visitor Population Reporting Spreadsheet 3 weeks prior to a scheduled launch.
  - 4.5.2. Update the LE-NOP Population Reporting Spreadsheet and provide it back to SLD 45/SE or designee 2 weeks prior to a scheduled launch.
    - 4.5.2.1. The update shall include the total number of LE and NOP personnel per organization in facilities throughout CCSFS/KSC. NOP shall be reported on the LE Reporting Spreadsheet as well. Each location shall have a designated POC listed with a reachable phone number throughout the launch count. Failure to do so may result in a launch delay, violation of criteria or disapproval of the submitted request.
    - 4.5.2.2. Updates/changes should include all LEP and, where allowed, NOP numbers and locations.
  - 4.5.3. Submit all visitor requests using the Visitor Population Reporting Spreadsheet, to include number of visitors, locations and POCs with a reachable phone number throughout the launch count, to SLD 45/SE or designee no later than 2 weeks prior to the scheduled launch date. Failure to do so may result in disapproval of the submitted request. If any foreign visitors are present for launch activities, ensure all escort members have received Foreign Visitor Escort training.

- 4.5.3.1. Visitors and media will only be permitted to view launches from approved launch viewing sites as identified in the SLD 45/SE-provided Visitor Reporting Spreadsheet and must be accompanied by a sponsor from the hosting organization. The sponsor will maintain launch day communications with Cape Support (321-853- 5211) as well as brief visitors/media on evacuation and sheltering requirements, as applicable.
- 4.5.4. Mitigate the risk of damage to government, contractor and privately owned registered (Licensed) vehicles or high value non-launch associated equipment by removing these from the VCC. When registered vehicles or high value non-launch associated equipment (e.g., construction equipment) cannot be moved, an exception to the VCC policy may be requested to SLD 45/CC or designee, see [Attachment 4](#).
- 4.5.5. Inform all affected personnel within their organization, to include Mission Partners and persons with a CCSFS entry badge (temporary or permanent) sponsored by their organization, of the contents of this plan.
- 4.5.6. Notify personnel, to include Mission Partners and persons with a CCSFS entry badge (temporary or permanent) sponsored by their organization, of increased risk levels and appropriate response actions for those required to be within the FCA, FHA or downwind of a toxic hazard corridor.
- 4.5.7. Provide appropriate clear area information to personnel within their organization, to include Mission Partners who may be affected by exclusion or evacuation from a danger area.
- 4.5.8. Educate all persons sponsored by their organization of AF and SF policy regarding Cape access.
- 4.5.9. Ensure prompt evacuation of their personnel from danger areas.
- 4.5.10. Ensure all of their employees are aware of their responsibilities per SLD45I 91-204.
- 4.6. The SLD 45 Public Affairs (SLD 45/PA) Office will:
  - 4.6.1. Manage media personnel at designated location(s).

## 5. Procedures.

- 5.1. Resubmitting evolving launch day population data:
  - 5.1.1. Appropriate justification is required for all population changes/updates, including visitors, after the L- 2 week submittal deadline. If launch viewers are not using the Launch Viewing Placard Program, the requesting organization must submit justification to their Squadron Commander. Once verified, the Squadron Commander will contact SLD 45/SE in writing to request the population change. Any significant increase to any location of placard viewers will be coordinated by SLD 45/SIO to SLD 45/SE. This will be accomplished in the most time efficient manner to avoid major impact to publish launch products.
- 5.2. Calculating launch day risk:

5.2.1. SLD 45/SE personnel will evaluate the risk associated with all population categories, including visitors. If risk is determined to be within acceptable levels, an approved FCA/FHA Roadblock Access letter will be forwarded by SLD 45/SE or designee at L-7 days.

5.2.2. If risk criteria are exceeded for LEP and NOP, SLD 45/SE will notify the organization(s) whose location/classification are violating criteria and recommend mitigating actions to bring the risk within criteria. If mitigating actions cannot bring the risk within criteria, the violating organization(s) will be required to submit a waiver to SLD 45/SE for Range User and SLD 45/CC approval/disapproval.

5.2.3. If risk criteria are exceeded for GP (i.e., non-essential personnel, visitors and off-base personnel to include Brevard County and downrange overflight population), SLD 45/SE will attempt to reduce the overall risk to this population group by recommending relocation of personnel who are able to move. If criteria are still being violated, SLD 45/SE will submit a Range User-initiated waiver to SLD 45/CC for approval/disapproval. (NOTE: Waivers for these criteria do not apply to FAA-licensed launches).

5.2.4. A consolidated clear area requirements document (FCA/FHA Roadblock Access letter) will be prepared and submitted by SLD 45/SE or designee at L-7 days. A mission-specific Operational Plan shall be included which incorporates the SLD 45/SE defined BDA, FCA and FHA as well as the number and location of all LEP/NOP permitted to be inside danger area roadblocks, positioning of other launch support assets, location of roadblocks and barricades, and the VCC.

5.2.4.1. The SLD 45/SE approved FCA/FHA Roadblock Access letter and launch-specific Operational Plan will be distributed.

5.2.5. Forecast risk analyses will be performed to assess the risk associated with debris, DFO and toxic dispersion hazards. Debris mitigating actions may be required, which include relocation of groups/individuals and not populating certain areas/locations on launch day. Based on model output products, SLD 45/SE may require mitigating actions IAW SLD45I 91-204.

5.2.5.1. A launch area debris risk assessment, when required, will begin no earlier than (NET) L-84 hours. Results will be posted on the SLD 45 Launch Risk Forecast website.

5.2.5.2. A DFO risk assessment, when required, will begin NET L-24 hours. Results will be posted on the SLD 45 Launch Risk Forecast website.

5.2.5.3. A toxic dispersion risk assessment, when required, will begin NET L-48 hours. Results will be posted on the SLD 45 Launch Risk Forecast website.

### 5.3. Pre-Launch/Pre-Operational Requirements:

5.3.1. SLD 45/SE or designee will notify Cape Support by 1500L the preceding day when a specific BDA or SCA is to be closed.

5.3.2. Cape Support will make scripted announcements over the CAWS reminding personnel of an upcoming launch or operations affecting significant areas of the Cape. When Philips Parkway is to be closed, a public service announcement will be made over the CAWS at least 1 day prior to the scheduled operation, as allowable. If toxic propellant dispersion modeling forecasts toxic concentrations that exceed known exposure standards and/or forecasted DFO modeling shows significant risk levels, Cape Support will make scripted announcement, as directed by SLD 45/SE personnel and IAW SLD45I 91-204. These announcements will direct personnel in the affected Aural Warning Zones (AWZs) to take the appropriate mitigating action.

5.3.3. LEP who are in a potential downwind toxic hazard corridor must have appropriate breathing protection, currently a Self-Contained Breathing Apparatus as approved by 45th Operations Medical Readiness Squadron, Bioenvironmental Engineering (45 OMRS/SGXB), or access to an approved launch shelter IAW SLD45I 91-204.

#### 5.4. Evacuation:

5.4.1. If personnel are located in buildings that are not approved launch shelters (i.e., do not have a brown triangular sign stating that the building is a launch shelter) and scripted toxic announcements are made in their AWZ(s), they must evacuate to an approved launch shelter for a non-affected AWZ. If toxic modeling forecasts dwell time and concentrations which exceed the approved launch shelter capabilities in the affected area, personnel will be directed to evacuate the area in question. This information will be provided via the CAWS and is in compliance with SLD45I 91-204.

5.4.2. Except for authorized rooftop viewing areas, personnel will not be allowed to view launches from rooftops because of potential danger from a launch catastrophe or structural failure of the roof. A listing of authorized rooftop viewing locations is available from SLD 45/SIO. Personnel desiring to view a launch from one of these locations or to have their facility designated as a viewing area should contact SLD 45/SIO.

5.4.3. When evacuation notification is given, flashing red beacons in the vicinity of the launch pad will be activated and warning horns, located in the danger area, will be sounded by SLD 45/SE or designee. 45th Security Forces Squadron (45 SFS) will establish Danger Area roadblocks and ensure all personnel leave the applicable danger area (exceptions are those personnel authorized to remain as shown on the SLD 45/SE-approved FCA/FHA Roadblock Access letter for the operation).

5.4.4. 45 SFS will inform SLD 45/SIO Launch Integration Officer Console and SLD 45/SE or designee when the BDA, FCA/FHA and or SCA roadblocks have been established. Once Danger Area roadblocks have been established ("Hard Down"), no vehicles will be allowed inside roadblocks without specific approval of SLD 45/SE or designee. Changes to the roadblock access must be coordinated real-time through SLD 45/SE or designee. Increases to the approved FCA/FHA Roadblock Access letter will be requested through 45 SFS to SLD 45/SE or designee. SLD 45/SE or designee will coordinate technical approval through the Range Operations Commander (ROC) and safety approval through the RAC. Approval will flow back through safety approval directly with the RAC by the ROC. If technical and safety approval is obtained, the ROC will notify SLD 45/SE or designee who will coordinate access provisions with 45 SFS.

#### 5.5. Roadblock Control:

5.5.1. 45 SFS will maintain control over traffic at roadblocks as designated in the applicable FCA/FHA Roadblock Access letter. Vehicles and GP will not be allowed to proceed unless specifically authorized by SLD 45/SE or designee.

5.5.2. Personnel whose official duties are inside ILLs but outside the danger area roadblocks may enter or remain inside the ILL, unless calculations performed by RAC personnel indicate a violation of AFI 91-202 criteria or governing FAA AST regulations on commercially licensed missions. 45 SFS will appropriately direct personnel when mitigating actions are initiated by RAC personnel.

5.5.3. 45 SFS at roadblocks and/or on roving patrols will query individuals to ensure that entry is for official business only and that LEP have appropriate PPE, if required, based on analysis by RAC personnel.

5.5.4. Vehicles and personnel necessary at LEOC will require permission to enter from SLD 45/SE or designee, through 45 SFS.

#### 5.6. Missile Destruct or Explosion:

5.6.1. If a missile destruct or vehicle malfunction occurs affecting the launch area, Cape Support will make scripted announcement over the CAWS as directed by RAC personnel IAW SLD45I 91-204.

5.6.2. Appropriate on-console announcement will be made on the Range Countdown net by the ROC.

5.6.3. Roadblocks will remain hard down but lifted as soon as practical after mission/accident termination, as approved by the Emergency Operations Center Director and directed by SLD 45/SE.

5.6.3.1. Flashing red beacons in the launch pad area will be turned off.

5.6.3.2. 45 SFS will remove barricades.

### **6. Information.**

6.1. Questions concerning this instruction should be directed to the SLD 45 Launch Safety Flight Analysis group (SLD 45/SELF), (321) 494-5845.

STEPHEN G. PURDY, JR.  
Major General, USSF  
Commander

**Attachment 1****GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFI 33-322, *Records Management and Information Governance Program*, 23 March 2020

DAFI 91-202, *The US Air Force Mishap Prevention Program*, 12 March 2020

SSCMAN 91-710V6, *Range Safety User Requirements Manual – Ground and Launch Personnel, Equipment, Systems, and Material Operations Safety Requirements*, 27 December 2022

SLD45I 91-204, *Launch Vehicle On-Base Risk Mitigation Practices*

SLD 45 *Installation Emergency Management Plan (IEMP) 10-2*, 18 January 2023

EWR 127-1, *Range Safety Requirements, Range User Handbook*, 21 August 1995

***Adopted Forms***

AF Form 847, *Recommendation for Change of Publication*

AF Form 4437, *Deliberate Risk Assessment Worksheet*

***Abbreviations and Acronyms***

**45 CES**—45th Civil Engineer Squadron

**45 MDG**—45th Medical Group

**45 OMRS**—45th Operations Medical Readiness Squadron

**45 SFS**—45th Security Forces Squadron

**AF**—Air Force

**AFI**—Air Force Instruction

**AWZ**—Aural Warning Zone

**BDA**—Blast Danger Area

**CAWS**—Cape Aural Warning System

**CCSFS**—Cape Canaveral Space Force Station

**DFO**—Distant Focusing Overpressure

**EWR**—Eastern and Western Range

**FAA**—Federal Aviation Administration

**FCA**—Flight Caution Area

**FHA**—Flight Hazard Area

**GP**—General Public

**IAW**—in accordance with

**ILL**—Impact Limit Line

**KSC**—Kennedy Space Center

**L**—Launch minus

**LE**—Launch Essential

**LEP**—Launch Essential Personnel

**NASA**—National Aeronautics and Space Administration

**NET**—Not Earlier Than

**NOP**—Neighboring Operations Personnel

**OPR**—Office of Primary Responsibility

**PPE**—Personal Protective Equipment

**POCs**—Points of Contact

**RAC**—Risk Assessment Center

**ROC**—Range Operations Commander

**SCA**—Special Control Area

**SF**—Space Force

**SLD 45**—Space Launch Delta 45

**SLD 45/PA**—Space Launch Delta 45 Public Affairs

**SLD 45/SE**—Space Launch Delta 45 Safety

**SLD 45/SEL**—Space Launch Delta 45 Launch Safety

**SLD 45/SELF**—Space Launch Delta 45 Launch Safety Flight Analysis

**SLD 45/SIO**—SLD 45 Spaceport Integration Office

**SLD45I**—Space Launch Delta 45 Instruction

**SSCMAN**—Space Systems Command Manual

**T-** \_Time minus

**VCC**—Vehicle Clear Contour

### *Terms*

**Blast Danger Area**—a hazardous clear area; clearance prior to establishment of a major explosive hazard such as vehicle fuel/oxidizer load and pressurization; the area subject to fragment and direct overpressure resulting from the explosion of the booster/payload.

**Danger Areas**—safety clearance zones during certain pre-launch hazardous operations with a well-defined Special Control Area and launch operations with defined mishap probabilities, including the Impact Limit Line, Flight Hazard Area and Flight Caution Area.

**Flight Caution Area**—a hazardous launch area; the controlled surface area and airspace outside the flight hazard area (FHA) where individual risk from a launch vehicle malfunction during the early phase of flight may exceed  $1 \times 10^{-6}$ ; when activated, only personnel essential to the launch operation (launch-essential) or essential to specific/current operations while performing operational critical tasks at the launch base (neighboring operations) are permitted in this area.

**Flight Hazard Area**—a hazardous launch area; the controlled region of land, sea, and air about the launch pad and flight azimuth where individual risk from a malfunction during the early phase of flight may exceed  $1 \times 10^{-5}$ ; because the risk of serious injury or death from blast overpressure or debris is so significant, only launch-essential personnel/neighboring operations personnel are permitted in this area during launch. The area must be surveyed, publicized, controlled, or evacuated in order to protect public health and safety and the safety of property.

**General Public**—all persons who are not in the launch-essential personnel or neighboring operations personnel categories; for a specific launch, the general public includes visitors, media, and other non-operations personnel at the launch site as well as persons located outside the boundaries of the launch site who are not associated with the specified launch.

**Hazardous Launch Area Clearance**—required clearances; concurrence from the Chief of Safety must be obtained for all personnel required or requesting to be in a hazardous launch area during launch operations; launch essential personnel and neighboring operations personnel may be permitted within the impact limit line, the FCA, and the FHA provided applicable individual risk criteria is met; non-essential personnel may be permitted inside the impact limit lines with Space Launch Delta Commander approval.

**Impact Limit Line**—a hazardous launch area; the boundary within which trajectory constraints and flight termination systems are used to contain an errant launch vehicle and vehicle debris. Launch essential and neighboring operations personnel are permitted within the impact limit lines. With Space Launch Delta Commander approval, non-essential personnel may be permitted within this area; however, the collective risk will not exceed acceptable standards for the general public.

**Launch-Essential Personnel**—the minimum number of persons necessary to successfully and safely complete a hazardous or launch operation and whose absence would jeopardize the completion of the operation; this designation also includes people required to perform emergency actions according to authorized directives, people whose presence is necessary to perform their assigned duties (e.g., mission assurance personnel performing an observation in compliance with contractual obligations), persons specifically authorized by the Space Launch Delta Commanders to perform scheduled activities, and those personnel in training; the Range Users and Space Launch Delta Commanders jointly determine, with Range Safety concurrence, the number of launch-essential personnel allowed within safety clearance zones or hazardous launch areas.

**Launch Vehicle**—a vehicle that carries and/or delivers a payload to a desired location; a generic term that applies to all vehicles that may be launched from the Eastern Range, including but not limited to airplanes; all types of space launch vehicles, manned space vehicles, missiles and rockets and their stages; probes; aerostats and balloons; drones, remotely piloted vehicles; projectiles; torpedoes and air-dropped bodies.

**Launch Emergency Operations Center**—an Eastern Range team responsible for responding to launch emergencies. The primary mission is to save lives, protect property, prevent adverse public relations and return to normal launch operations as soon as possible after flight termination.

**Neighboring Operations Personnel**—those individuals, not associated with the specific/current operation or launch currently under consideration, who are required to perform safety, security or critical tasks at the launch base and who are aware of the launch mission risks and trained in mitigation tasks or accompanied by properly trained escorts.

**Non-essential Personnel**—See General Public.

**Safety Clearance Zones**—the restricted areas designated for day-to-day prelaunch processing and launch operations to protect the public, launch area and launch complex personnel; these zones are established for each launch vehicle and payload at specific processing facilities, including launch complexes; includes hazard clearance area and hazardous launch area.

**Special Control Area**—safety clearance zone established for certain pre-launch hazardous operations to protect launch complex personnel and the public from hazards which could spread over a large area due to potential toxic material release or explosive propagation. Often associated with transportation routes.

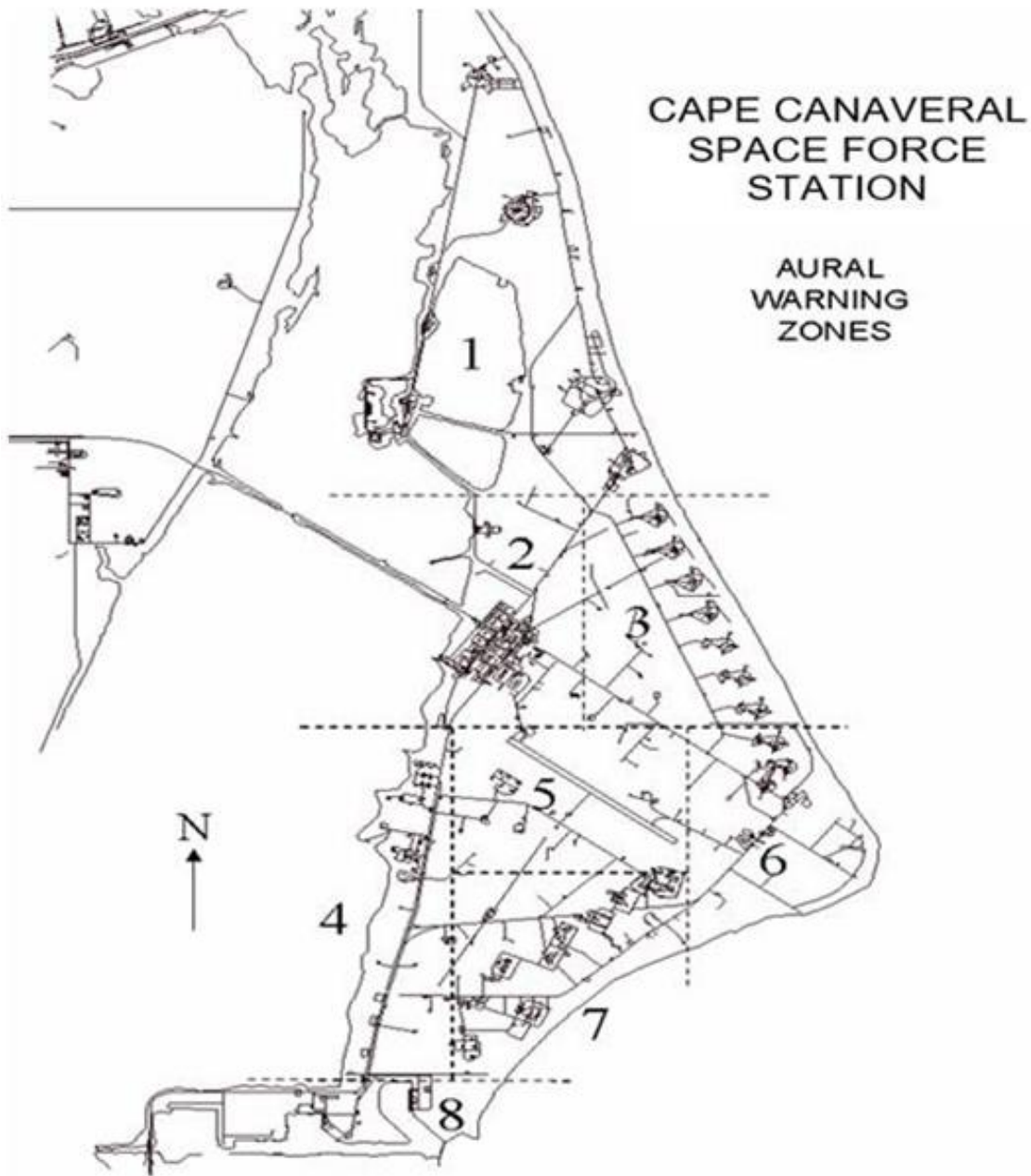
**Vehicle Clear Contour**—a hazardous launch area based on critical asset hit-probability requirements per Range Commanders Council (RCC) 321, *Common Risk Criteria Standards for National Test Ranges* and NASA Procedural Requirements (NPR) 8751.5, *Range Flight Safety Program*; the controlled area inside the VCC where asset risk from a launch vehicle malfunction during the early phase of flight exceeds  $1 \times 10^{-3}$  hit-probability for Kinetic Energy (ft.-lbs.) fragments that can cause damage to vehicles. When activated, only vehicles and/or non-launch associated high value equipment that are addressed in a processed “Hold Harmless and Indemnification Agreement,” per [Attachment 4](#) are permitted in this area.

Attachment 2

AURAL WARNING ZONE LOCATION MAP

A2.1. Impact Limit Lines (ILLs) and mission-specific Danger Areas. Will be published for all launch programs when this information is known on a per-mission basis.

Figure A2.1. Aural Warning Zone Location Map.



Attachment 3

EXAMPLES OF LAUNCH ESSENTIAL (LE)/NEIGHBORING OPERATIONS PERSONNEL (NOP) AND VISITOR POPULATION REPORTING SPREADSHEETS

Figure A3.1. Example of Population Reporting Spreadsheet.

Mission-specific population data will be gathered using the below spreadsheet and will be used by Space Launch Delta 45 Safety (SLD 45/SE) for launch day risk analysis. For missions not allowing NOP, the Group Name will not be highlighted and only LE will be allowed in this field. The below directions for filling in the spreadsheet must be strictly followed in order for the database:

A	B	C	D	E	F	G	H	I
Site	Location (Floor, section number, description)	Inside FCA	Inside FHA	Group Name	Number of Personnel	Point of Contact	Comment	
61900 - MORRELL OPERATIONS CENTER	1, 1, OFFICE	NO	NO	Launch Essential	35	John Smith, 853-xxxx, john.smith.provide.overall.C3.for.launch.and.range.event		
78-225 - Road Block 22 South	0, 0, Outdoors	NO	NO	Launch Essential	2	John Smith, 853-xxxx, john.smith.Launch.Support.Personnel		
67-0355 - OPERATIONS & CHECKOUT BUILDING	4, 3, LAB&CONTROL	NO	NO	Launch Essential	15	John Smith, 853-xxxx, john.smith.Launch.day.KSC.EOC.Support		
20185 - WEATHER STATION BLDG	1, 2, BALLOON BAY	NO	NO	Launch Essential	1	John Smith, 853-xxxx, john.smith.Previously.Facility.20186		
47105 - Complex 40 Launch Stand	0, 0, Outdoors	NO	YES	Neighboring Ops	13	John Smith, 853-xxxx, john.smith		
130115 - SECURITY ENTRY CONTROL BUILDING	1, 1, Guard Area	NO	NO	Neighboring Ops	1	John Smith, 853-xxxx, john.smith.Security.Support		
	71	W/A	W/A		0			
		W/A	W/A		0			
		W/A	W/A		0			
		W/A	W/A		0			

**\*\* INSTRUCTIONS \*\***

The spreadsheet utilizes required pulldown selections for the color-coded columns.

**Column A (Site)**, type facility in cell, use pulldown and select/scroll to the facility you wish to report population for. (Now a searchable cell)

**Column B (Location)**, use pulldown and select the location within the facility that will be populated. The first number is floor, second number is section and then description. It is most important to differentiate between population being inside or outside.

**Column C and D (Inside FCA or Inside FHA)** will be populated automatically depending on if the facility is located within the FCA or FHA.

**Column E (Group Name)**, use pulldown and select if personnel are LE or NOP (not allowed for FAA-licensed missions). Visitors will not be reported to you using this form.

**Column F (Number of Personnel)**, enter number of personnel you are reporting.

**Column G (Point of Contact)**, enter name, phone number and e-mail address.

**Column H (Comment)**, enter LE justification.

**Figure A3.2. Example of Visitor Population Reporting Spreadsheet.**

Visitor mission-specific population data will be gathered using the below spreadsheet and will be used by SLD 45/SE for launch day risk analysis. Only visitors will be allowed on this form. The below directions for filling in the spreadsheet must be strictly followed in order for the data to be correctly ingested into our database:

A	B	E	F	G	H
Xxxx - Mission Name	For Columns of this color, use searchable drop down				
Site	Location (floor, section number, description)	Group Name	Number of Personnel	Point of Contact	Comment
E_Csway - Eastern end of NASA Causeway	0, 0, Outdoors	Visitor	500	Group Name (John Smith), 321-xxx-xxxx	
LOOPRD - LOOP ROAD	0, 0, Outdoors	Visitor	50	Group Name (John Smith), 321-xxx-xxxx	
KS-0900 - LAUNCH CONTROL CENTER	4, 1, OFFICE/EQUIPMENT ROOM	Visitor	150	John Smith, 321-xxx-xxxx	up to 150 on 4th floor
KS-0900 - LAUNCH CONTROL CENTER	1, 1, CAFETERIA/ENTRY/COMPLEX CONTROL CENTER	Visitor	50	John Smith, 321-xxx-xxxx	up to 50 on the 1st floor
SOUTH IT - South end of ITL Causeway	0, 0, Outdoors	Visitor	50	John Smith, PA, 321-xxx-xxxx	media
	-	Visitor	0		

**\*\*INSTRUCTIONS\*\***

**The spreadsheet utilizes required pulldown selections for the color-coded columns.**

**Column A (Site),** must use searchable pulldown; begin typing facility number in cell, select pulldown and the facility you wish to report population for will be available for you to select (You cannot overwrite pulldown selection).

**Column B (Location),** must use pulldown and select the location within the facility that will be populated. The first number is floor, second number is section and then description. It is most important to differentiate between populations being inside or outside (You cannot overwrite pulldown selection).

**Column E (Group Name),** Visitors will be prepopulated in form.

**Column F (Number of Personnel),** enter number of personnel you are reporting.

**Column G (Point of Contact),** enter name, phone number and e-mail address. You must include a POC name and phone number.

**Column H (Comment),** enter any further information needed.

#### Attachment 4

### VEHICLE CLEAR CONTOUR (VCC) HOLD HARMLESS AND INDEMNIFICATION POLICY

**Table A4.1. Vehicle Clear Contour (VCC) Hold Harmless and Indemnification Policy.**

1. All registered vehicles (private, government, or contractor owned) and non-launch associated high value equipment are prohibited from parking within the VCC, once the VCC is established.
2. The VCC is defined for launch operations based on Range Commanders Council (RCC) 321 critical asset hit-probability requirements.
3. Commander, Space Launch Delta 45 (SLD 45/CC) approval is required for exceptions to the VCC policy. Exceptions may be approved for:
  - 3.1. Specific operations (e.g., construction or a given launch operation) provided a signed “Hold Harmless and Indemnification Agreement” is found to be sufficient by SLD 45/SE. Such exception requests must include a detailed justification rationale. The requestor must also provide a list of vehicles and/or non-launch associated high value equipment that will remain inside the VCC to SLD 45/SE when submitting a Hold Harmless and Indemnification Agreement (see next page). This list will include a description of the vehicles with license tag numbers and description of non-launch associated high value equipment and the location of both types of assets. The requestor must also provide a contact person and phone number, who will be authorized to resolve any issues with the number or location of the assets. This list must be submitted at least one day prior to each associated launch operation.
  - 3.2. Life of the program or extended durations provided a signed “Hold Harmless and Indemnification Agreement” and proof of insurance are found to be sufficient by SLD 45/SE. These documents along with a detailed justification must be submitted with the exception request to waive the vehicle listing requirement of 3.1. Proof of adequate insurance must be resubmitted to SLD 45/SE annually for reevaluation.
4. Submit all VCC exception requests to SLD 45/SE at least 2 months prior to the scheduled launch or the beginning of operation (e.g., construction at launch site).
5. Range Users seeking exceptions to the VCC policy are reminded that space launch operations are highly hazardous activities involving both explosive/inert debris, and dangerous toxics, with the possibility of damages in the event of a catastrophic launch abort, or even from a nominal launch. Prudent steps to safeguard equipment are highly recommended. Range Users are also reminded that the Fire Department will take a defensive posture in an incident involving gasoline-powered vehicles, and/or high-pressure tankers, which may result in additional damage to launch sites and Range User property.

#### **HOLD HARMLESS AND INDEMNIFICATION AGREEMENT**

**PLEASE READ THE FOLLOWING CAREFULLY:**

1. In consideration for the United States Air Force/United States Space Force permitting (Company Name) to leave registered vehicles or non-launch associated high value equipment, herein described as assets, on or in (describe area) during (list specific launch campaigns/operations or "all activities" for the specified duration) at Cape Canaveral Space Force Station, Florida, I, the undersigned, certify that I am authorized to bind (Company Name) and enter into the following agreement on behalf of (Company Name). This agreement will remain in effect for (list specific launch campaigns/operations or specific duration).
2. **Company Name.** Acknowledges that this release is a relinquishment of rights to sue or file a claim against the United States, United States Air Force or the United States Space Force for damages or losses to, or damages or losses caused by, assets left inside the Vehicle Clear Contour (VCC), resulting from (list specific launch campaigns/operations or "all activities" for the specified duration).
3. **Company Name.** Agrees to hold harmless and absolve the UNITED STATES GOVERNMENT, the DEPARTMENT OF DEFENSE, the UNITED STATES AIR FORCE, the UNITED STATES SPACE FORCE, PATRICK SPACE FORCE BASE, and CAPE CANAVERAL SPACE FORCE STATION, its officers, agents or employees (military or civilian), all cooperating organizations, and any other parties connected with (list specific launch campaigns/operations or "all activities" for the specified duration) in any way, individually or collectively and acting officially or otherwise, for damages or losses to, or damages or losses caused by, (Company Name) assets left inside the VCC.
4. For any demand, claim, or suit for damages or losses to, or damages or losses caused by, (Company Name) assets left inside the VCC during and resulting from (list specific launch campaigns/operations or "all activities" for the specified duration), (Company Name) agrees to indemnify the above-named parties for all damages, expenses, attorney's fees and costs if the injury or damage was suffered or sustained as a result of (list specific launch campaigns/operations or "all activities" for the specified duration), or any activities associated herewith, to include environmental cleanup costs or injury to the public caused by damages or losses caused by (Company Name) assets left inside the VCC during and resulting from (list specific launch campaigns/operations or "all activities" for the specified duration).
5. The undersigned certifies that (Company Name) has requisite insurance against all damages, expenses, and costs if any injuries or damage is suffered or sustained in or near (describe area) or as a result of the storage of the assets therein, as a result of (list specific launch campaigns/operations or "all activities" for the specified duration).

6. **Company Name.** Acknowledges that the number of assets, types of assets and the location of the assets must be coordinated with Space Launch Delta 45 Safety (SLD 45/SE) prior to each applicable operation (launch, wet dress rehearsal, etc.) unless excepted. (Company Name) will provide a list of assets that will remain inside the VCC to SLD 45/SE, the Cape Fire Department, and Cape Security (45th Security Forces Squadron (45 SFS/S3O)) at least one day prior to the operation unless excepted. This list, if not excepted, will include a description of the assets, license tag numbers (if applicable) and the location of the assets. (Company Name) also acknowledges they are encouraged to locate as many assets as possible in the same location away from the main entrance/exit points needed for emergency responders. (Company Name) will provide a contact person and their phone number who will be authorized to resolve any issues SLD 45/SE may have with (Company Name)'s implementation of this Hold Harmless and Indemnification Agreement.

7. In signing the foregoing release, the undersigned hereby acknowledges and represents:

- a. That he/she has read the foregoing release, understands it and signs it voluntarily;
- b. That he/she is over the age of 21;
- c. That he/she is an authorized agent for (Company Name) and is authorized to sign a release of this nature binding all members, agents, officers, servants and employee of (Company Name); and
- d. That, if applicable, legal counsel has reviewed this document.

In Witness Whereof, the undersigned has hereunto set his hand and seal this the \_\_\_\_ day of \_\_\_\_\_ 20\_\_.

\_\_\_\_\_  
Authorized Representative

\_\_\_\_\_  
Date