BY ORDER OF THE COMMANDER
30TH SPACE WING

30TH SPACE WING INSTRUCTION
91-201

5 JANUARY 2021

Safety

LAUNCH SUPPORT TEAM PROCESS

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This instruction extends guidance from AFPD 91-2, *Safety Programs*, safety policies, and processes for the Launch Support Team (LST) and associated agencies. It governs procedures, assigns responsibilities, directs actions, and establishes policies for conducting pre- and post-launch and landing activities. This instruction applies to all military, civilian, and civilian contractor personnel involved with aerospace vehicle launches from Vandenberg Air Force Base. For the purpose of this Instruction, launch may be used synonymously with landing when referring to the X-37B Orbital Test Vehicle Program and SpaceX Falcon 9 1st stage landings. Refer recommended changes and questions about this instruction to 30 SW/SEAP, 806 13th Street Suite 3 VAFB CA 93437-5202 using AF Form 847, *Recommendation for Change of Publications*. All records created as a result of processes prescribed in this publication will be maintained in accordance with (IAW) AFMAN 33-363, *Management of Records*, and disposed of IAW the Air Force Records Disposition Schedule located at **https://www.my.af.mil/afrims/afrims/afrims/rims.cfm.**

SUMMARY OF CHANGES

This publication has been revised and must be completely reviewed. This version incorporates the following changes: Moved LST Chief pre-launch requirements from **paragraph 2.1.5.1** to **Attachment 4**. Replaced Launch Decision Authority with Spacelift Commander, and added Range Safety Manager along with MFCO. Addressed new format requirements for Entry Access Listing submissions throughout the document. Revised support requirements for Bioenvironmental personnel. (**paragraph 2.2.2**) Eliminated requirement for 30 CES/CED and 30 CES/CEX to submit cover letters and Entry Authority List inputs. (**paragraph 2.3.2.1,**

2.3.2.4) Eliminated redundancies in definitions of the Flight Caution Area (**paragraph 4.6.1**, and hardened shelter recommendation when located in the Caution Area (paragraph 4.6.2.) Clarified emergency breathing apparatus requirements. (**paragraph 4.8**) Added Distinguished Visitor and Media Viewing Sites. (**paragraph 4.10.2**) Deleted directions for parking outside the Impact Limit Line. (paragraph 4.10.3) Addressed sequestering vehicles inside launch complex fence lines. (**paragraph 4.11.1**) Deleted privately owned vehicle restrictions (**paragraph 4.11.3, 4.11.4, 4.11.6.**) Deleted 30 SW/CC pre-briefs and Launch Readiness Review requirements. (paragraph 6.2, 6.3.) Deleted definitions of IDLH, LART, and PHZs, and added definitions of RSM, and LDA. (Attachment 1) Revised requirements in **Attachments 7 through 10**.

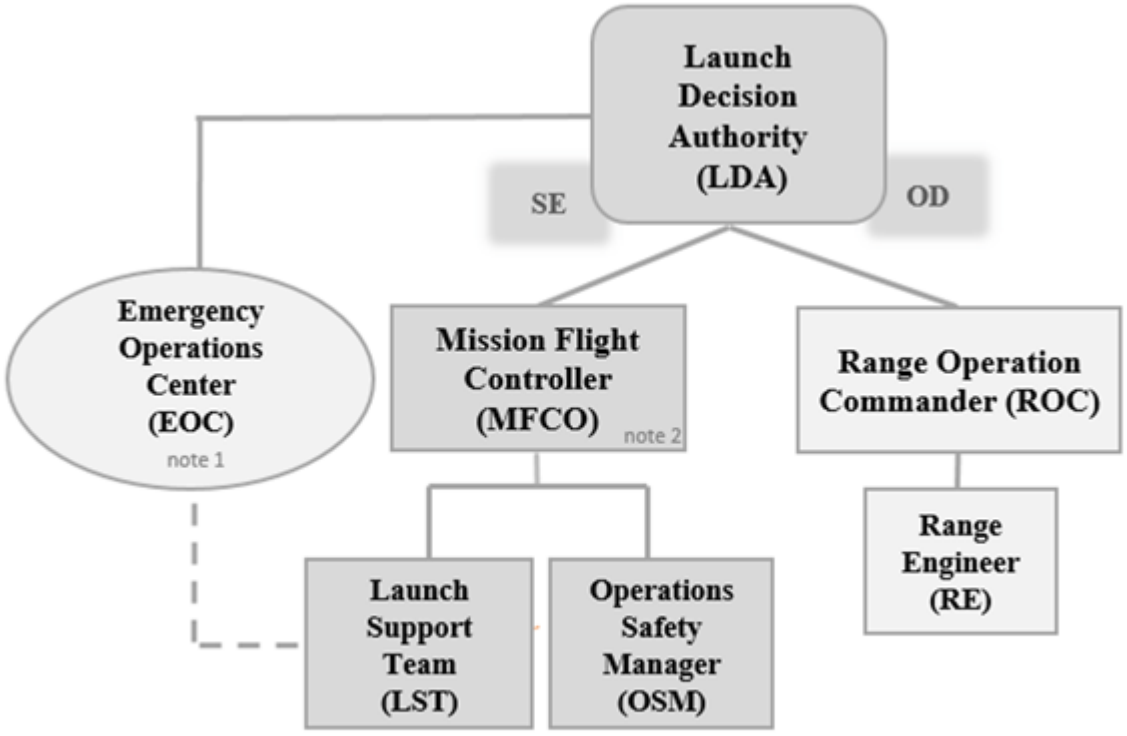
1. General Information.

1.1. **Overview.** This instruction establishes specific duties and responsibilities of the LST and other supporting agencies during pre- through post-launch operations. Specific responsibilities for supporting agencies are identified in **paragraph 2**

1.2. **Responsibility.** The 30 SW Pad Safety Office (30 SW/SEAP) is the Office of Primary Responsibility (OPR) for this instruction and is responsible for its currency. 30 SW/SEAP also ensures this instruction does not conflict with other directives. In the event of conflict, instructions from higher levels of command take precedence. Send written recommendations for improvements to 30 SW/SEAP.

1.3. **Reporting structure for Day of Launch (DoL) Operations is depicted below:**

Figure 1. Reporting Structure for DoL Operations.



Note 1. Dotted line depicts reporting following a launch anomaly with land impact.
Note 2. The acronyms "MFCO" and "RSM" are interchangeable for DoL reporting structure

1.4. **Terms and Acronyms.** Terms and acronyms used (see **Attachment 1**) are per U.S. Air Force Doctrine Vol. 1, *Air Force Glossary*, **www.doctrine.af.mil**, EWR 127-1 *Eastern and Western Range Safety Requirements Chapter 1 – Air Force Space Command Range Safety Policies and Procedures,* and AFSPCMAN 91-710, *Range Safety User Requirements Manual Volume 7 – Glossary Of References, Abbreviations and Acronyms, and Terms*.

1.5. **DoL Conditions.** During launch operations, support personnel listed on the Entry Authority List (EAL) may be moved or removed from inside the Impact Limit Line (ILL) due to DoL conditions.

2. Responsibilities:

2.1. 30th Space Wing (SW):

2.1.1. 30 SW/CP (Command Post):

2.1.2. Act in concert with the Western Range Operations Control Center (WROCC) and supports the LDA during a launch anomaly.

2.1.3. 30 SW/PA (Public Affairs):

2.1.3.1. Coordinate general populous launch viewing area locations outside the ILL with 30 SW/SELF (Flight Analysis) and 30 SW/SEAP no later than (NLT) 14 days prior to launch.

2.1.3.2. Submit a Mission Support Justification E Mail from the support organization's supervisor to the LST Chief 20 days prior to launch (**Attachment 3**), identifying manned locations inside the ILL, contact information, and number of personnel at each location.

2.1.3.3. Provide a launch support personnel EAL to the LST Chief NLT the LST Briefing, utilizing the format provided by the LST Chief.

2.1.3.4. Provide a representative to attend the LST Briefing.

2.1.3.5. Act as a member of the Emergency Operations Center (EOC) and advisor to the EOC Director (EOCD) following a launch anomaly.

2.1.4. 30 SW/SE:

2.1.4.1. 30 SW/SE or designated representative will co-chair the LST Briefing.

2.1.4.2. MFCO/RSM:

2.1.4.2.1. Provide a representative to attend the LST Briefing.

2.1.4.2.2. Obtain Hot Spill Toxic Hazard Zone data IAW 30 SWI 91-106, *Toxic Hazard Assessments* from 30 SW/SELF.

2.1.4.2.3. Submit a Mission Support Justification E Mail to the LST Chief 20 days prior to launch (**Attachment 3**), identifying manned locations inside the ILL, contact information, and number of personnel at each location.

2.1.4.2.4. Provide a launch support personnel EAL to the LST Chief NLT the LST Briefing, utilizing the format provided by the LST Chief.

2.1.4.2.5. During launch countdown the MFCO/RSM:

2.1.4.2.6. When required, ensure the LST Chief and 2ROPS/DON are provided with Hot Spill Toxic Hazard Zone data IAW 30 SWI 91-106, *Toxic Hazard Assessments* at T-105 and T-45 by 30SW/SELF.

2.1.4.2.7. Up-channel LST identified land area clearance issues to the LDA for resolution.

2.1.4.2.8. Provide "Clear to Pad" to the OSM when the aerospace vehicle has cleared the FHA.

2.1.5. 30 SW/SEAP LST Chief:

2.1.5.1. Pre-launch: Comply with the LST Chief Process Checklist (**Attachment 4**).

2.1.5.2. Launch Countdown:

2.1.5.2.1. Report to the designated fallback location at the time specified in the Launch Support Plan (LSP).

2.1.5.2.2. Coordinate and maintain communications with the Operations Safety Manager (OSM), MFCO/RSM, ASO (Aerospace Surveillance Officer), Interim Safety Board President (ISBP), and EOC.

2.1.5.2.3. Report to the Senior MFCO/RSM and provide status of roadblocks, evacuations, emergencies, or other ground activities affecting the area inside the ILL.

2.1.5.2.4. Direct positioning and activation of all roadblocks in support of launch activities.

2.1.5.2.5. After roadblocks are implemented, maintain positive control and accountability of personnel inside the Flight Hazard Area (FHA), Flight Caution Area (FCA), ILL, and Potential Hazard Zones (PHZ) (when applicable).

2.1.5.2.6. Direct evacuation of the FHA, FCA, ILL, and PHZ, as required.

2.1.5.2.7. Verify support agency personnel and equipment are ready to support the launch.

2.1.5.2.8. Provide a situational awareness briefing to the EOCD (Attachment 7).

2.1.5.2.9. Provide a by-location headcount of personnel inside the ILL to the EOCD and 30 SW/SE.

2.1.5.2.10. Provide LST fallback personnel with a T-30 minute situational awareness briefing (**Attachment 8**).

2.1.5.2.11. Respond to the MFCO/RSM final communications poll.

2.1.5.3. Nominal Post-Launch Actions:

2.1.5.3.1. Direct response units to recover the launch pad/landing pad after receiving clearance from the OSM.

2.1.5.3.2. Ensure only appropriate support agencies are allowed access to the site during normal post-launch recovery activities.

2.1.5.4. Land Impact Launch Anomaly Actions:

2.1.5.4.1. Relinquish operational control to the Incident Commander (IC) (on-scene Fire Chief).

2.1.5.4.2. Report to the IC and function as on-scene safety advisor to the EOC (See **Figure 1**).

2.1.5.4.3. Follow specific guidance in the LSP, Launch Anomaly Checklist (**Attachment 9**), and 30 SW Installation Emergency Management Plan 10-2.

2.1.5.5. Archive documentation per the LST Chief Post-Launch Documentation Checklist (**Attachment 10**).

2.1.6. 30 SW/SELF (Flight Analysis):

2.1.6.1. Provide a representative to attend the LST Briefing.

2.1.6.2. Coordinate areas to be evacuated with the LST Chief NLT 14 days prior to launch.

2.1.6.3. Assess risk to personnel located inside the ILL and coordinate evacuation requirements with the LST Chief.

2.1.6.4. Create and distribute a Launch Evacuation Letter to all stakeholder organizations. This letter informs organizations and off-installation property owners of impending launch operations and evacuation requirements.

2.1.6.5. Provide the LST with:

2.1.6.5.1. Launch Evacuation Letter and electronic map files for all affected launch areas. Deliver map files 35 days prior to launch.

2.1.6.5.2. When applicable, Hot Spill Toxic Hazard Zone data IAW 30 SWI 91-106, *Toxic Hazard Assessments*, as developed by the Risk Analysis Group (30 SW/SELR). The same data set will be provided to the EOC.

2.2. 30th Medical Group (30 MDG):

2.2.1. 30th Medical Operations Squadron Commander (30 MDOS/CC):

2.2.1.1. Provide standby personnel and equipment in support of all missile/space launches, to include clinical laboratory personnel to administer command-directed drug testing.

2.2.2. 30 MDOS/SGOJ (Bioenvironmental Engineering):

2.2.2.1. Prelaunch:

2.2.2.1.1. Provide a representative to attend the LST Briefing and, if requested, brief the identified health hazards for normal launch and launch anomaly scenarios.

2.2.2.2. Launch Operations:

2.2.2.2.1. If Bioenvironmental Engineering representatives are not required at the fallback; locate upwind and downwind teams at Bldg. 13850 through the launch cycle.

2.2.2.3. Post-Launch:

2.2.2.3.1. For government launches, clear launch site top side areas by performing atmospheric monitoring, if not previously accomplished by the Fire Response Team. Other launch agencies will accomplish their own monitoring unless prearranged with 30 MDOS/SGOJ.

2.2.2.3.2. For Minuteman Force Development Evaluation launches, perform atmospheric monitoring inside the Launch Facility (LF) Launcher Equipment Room when requested.

2.2.2.3.3. Act as an advisor to the IC and EOC following a land impact launch anomaly.

2.3. 30th Mission Support Group (30 MSG):

2.3.1. 30 MSG/CC or designated representative:

2.3.1.1. Co-chairs the LST Briefing.

2.3.1.2. Act as, or appoint a designated representative as EOCD for all launch activities.

2.3.1.3. Provide a launch support personnel EAL to the LST Chief NLT the LST Briefing, utilizing the format provided by the LST Chief.

2.3.1.4. Report to the LST fallback 90 minutes prior to launch to receive the situational awareness briefing (Optional).

2.3.2. 30th Civil Engineer Squadron (30 CES):

2.3.2.1. 30 CES/CED Explosive Ordnance Disposal:

2.3.2.1.1. Provide a representative to attend the LST Briefing.

2.3.2.1.2. Procure a current listing of all ordnance carried onboard the launch vehicle, to include the payload. This listing aids in identifying and accounting for explosives components following a land impact anomaly.

2.3.2.2. 30 CES/CEF (Fire Department):

2.3.2.2.1. Provide Fire Safety and emergency services briefing materials to the LST Chief NLT 1 duty day prior to the Pre-LST Briefing Meeting.

2.3.2.2.2. Provide a launch support personnel EAL to the LST Chief NLT the LST Briefing, utilizing the format provided by the LST Chief.

2.3.2.2.3. Provide a representative to attend both the Pre-LST Briefing Meeting and LST Briefing. Brief the Fire and Emergency Services and IC/Anomaly Response section of the LST Briefing.

2.3.2.2.4. Provide operations fire support for all launches. In the event of a post-launch fire or land impact anomaly, the Fire Chief embedded with the LST acts as the on-scene IC, directing emergency response operations and advising the EOC and LST on fire/recovery status until relieved or released by the EOCD.

2.3.2.2.5. Maintain a listing of all hazards carried onboard the launch vehicle. This listing aids in identifying hazards present during each launch. For NRO spacecraft launches, the NRO Payload Recovery Team releases amounts/quantities of payload hazardous materials to the IC/LST in the event a failure occurs resulting in a land impact.

2.3.2.3. 30 CES/CEO (Operations Flight):

2.3.2.3.1. Submit a Mission Support Justification E Mail from the support organization's supervisor to the LST Chief 20 days prior to launch (**Attachment 3**), identifying manned locations inside the ILL, contact information, and number of personnel at each location.

2.3.2.3.2. Provide a launch support personnel EAL to the LST Chief NLT the LST Briefing, utilizing the format provided by the LST Chief.

2.3.2.3.3. Act as an advisor to the EOC following a land impact launch anomaly.

2.3.2.3.4. Provide fire dozer(s) and crew(s) to support the fire department from a location pre-coordinated with the LST Chief and the Fire Operations Chief.

2.3.2.4. 30 CES/CEX (Readiness Flight):

2.3.2.4.1. Provide a representative to attend the LST Briefing.

2.3.2.4.2. Provide support to the LST Chief during pre- and post-launch activities.

2.3.3. 30th Security Forces Squadron (30 SFS):

2.3.3.1. 30 SFS/S3SL, Launch Operations Support:

2.3.3.1.1. Provide a representative to attend both the Pre-LST Briefing Meeting and the LST Briefing.

2.3.3.1.2. Provide functional area support as required to the LST.

2.3.3.1.3. Confirm 30 SFS/S3W will post "No Hunting/Outdoor Recreational Activities" signs 2 days prior to launch in the areas immediately affected by the launch and post warning signs at installation entry points 1 day prior to launch.

2.3.3.1.4. Physically check all areas within the ILL prior to launch verifying all personnel at each location are as annotated on the mission EAL. Reports discrepancies to the LST Chief.

2.3.3.1.5. Ensure all non-essential personnel found after the roadblocks go hard are reported to the LST and escorted outside the ILL.

2.3.3.1.6. Following roadblock activation, verify all personnel passing into the ILL through the Entry Control Point (ECP) roadblock are on the mission EAL. After roadblocks go hard, ensure all personnel entering or egressing the ILL are cleared through the LST Chief.

2.3.3.1.7. Provide Security Forces support for pre-launch aerial sweep operations (as required).

2.3.3.1.8. Coordinate with the LST Chief prior to positioning and activating roadblocks in support of launch activities.

2.3.3.1.9. Provide Oscar Control security support at the designated LST fallback location.

2.3.3.1.10. Provide security escort for personnel movement inside the FHA, FCA, and ILL as directed by the LST Chief.

2.3.3.1.11. Act as an advisor to the EOC following a land impact launch anomaly.

2.3.4. 30th Logistics Readiness Squadron Vehicle Dispatch Section (30 LRS/LGRVO):

2.3.4.1. Provide a representative to attend the LST Briefing.

2.3.4.2. Provide a wrecker on hard standby at 30 LRS to support launch activities.

2.3.4.3. Remove unauthorized vehicles from the launch operations safety control areas as directed by the LST Chief.

2.3.5. 30th Logistics Readiness Squadron Vehicle Maintenance Section (30 LRS/LGRVM):

2.3.5.1. Provide a representative to attend the LST Briefing.

2.3.5.2. Provide mobile maintenance on hard standby at 30 LRS to support launch day activities.

2.4. 30th Operations Group (30 OG):

2.4.1. 30th Space Communications Squadron Instrumentation Section (30 SCS/SCSOI):

2.4.1.1. Provide a representative to attend the LST Briefing.

2.4.1.2. Submit a Mission Support Justification E Mail from the support organization's supervisor to the LST Chief 20 days prior to launch (**Attachment 3**), identifying manned locations inside the ILL, contact information, and number of personnel at each location.

2.4.1.3. Provide a launch support personnel EAL to the LST Chief NLT the LST Briefing, utilizing the format provided by the LST Chief.

2.4.1.4. Establish communications with all manned locations through the Optics Control Center and report status of all personnel stationed inside the ILL to the LST Chief (when required).

2.4.2. 2d Range Operations Squadron (2 ROPS):

2.4.2.1. During launch countdown the MFCO:

2.4.2.1.1. When required, ensure the LST Chief and 2ROPS/DON are provided with Hot Spill Toxic Hazard Zone data IAW 30 SWI 91-106, *Toxic Hazard Assessments* at T-105 and T-45 by 30SW/SELF.

2.4.2.1.2. Up-channel LST identified land area clearance issues to the LDA for resolution.

2.4.2.1.3. Provide "Clear to Pad" to the OSM when the aerospace vehicle has cleared the FHA.

2.4.3. 2 ROPS/DON (Aerospace Surveillance Officer):

2.4.3.1. Provide a representative to attend the LST Briefing.

2.4.3.2. Advise the LST and MFCO/RSM of any reported land incursions inside the ILL during launch operations.

2.4.3.3. Following an anomaly, direct aerial surveillance support (if available) as requested by the EOCD.

2.4.4. 2 ROPS Director of Operations:

2.4.4.1. Provide a representative to attend the LST Briefing.

2.4.5. 30th Operations Support Squadron Weather Flight (30 OSS/OSW):

2.4.5.1. Provide a representative to attend the LST Briefing.

2.4.5.2. Submit a Mission Support Justification E Mail from the support organization's supervisor to the LST Chief 20 days prior to launch (**Attachment 3**), identifying manned locations inside the ILL, contact information, and number of personnel at each location.

2.4.5.3. Provide a launch support personnel EAL to the LST Chief NLT the LST Briefing, utilizing the format provided by the LST Chief.

2.4.5.4. Provide Hot Spill Editmet forecast to 30 SW/SELF. 30 SW/SELF provides data to 30SW/SELR, Risk Analysis, for execution of toxic risk modeling and generation of results. 30SW/SELF then provides the Toxic Hazard and Risk Report to the MFCO/RSM, SE, LST, 2ROPS/DON and the EOC (as required).

2.4.5.5. Act as weather advisor to the EOC in the event of anomaly (24-hour Weather Operations Center).

2.4.6. 2nd Space Launch Squadron (2 SLS):

2.4.6.1. For tasked launches and X37B Orbital Test Vehicle (OTV) landings:

2.4.6.1.1. Provide a representative to attend the LST Briefing.

2.4.6.1.2. Submit a Mission Support Justification E Mail from the support organization's supervisor to the LST Chief 20 days prior to launch (**Attachment 3**), identifying manned locations inside the ILL, contact information, and number of personnel at each location.

2.4.6.1.3. Provide a launch/landing support personnel EAL to the LST Chief NLT the LST Briefing, utilizing the format provided by the LST Chief. For launch/landing operations support contractor EALs from organizations without NIPRNET access, provide inputs in the Microsoft Excel electronic format (**Attachment 2**) to include supporting personnel name, rank, and location inside the ILL, contact information, and launch support position at T-0.

2.4.6.1.4. Pre-position a post-launch/landing site recovery team or mission assurance personnel for response to the launch/landing site (as required).

2.4.6.1.5. Provide 30 SW/SEAP with an approved Shallow Water/Land Impact Recovery Plan from the responsible launch/landing agency NLT 14 days prior to DoL.

2.4.6.1.6. Provide a qualified launch/landing systems subject matter expert to the LST at the fallback area to support anomaly resolution (as required).

2.4.6.1.7. Serve as AF EAL point of contact for contractors supporting 2 SLS operations. Ensure contractor EALs are submitted IAW **paragraph 2.4.6.1.3** NLT the LST briefing.

2.5. 576th Flight Test Squadron (576 FLTS).

2.5.1. For launches 576 FLTS units support:

2.5.1.1. 576 FLTS/DO (Director of Operations):

2.5.1.1.1. Provide a representative to attend the Pre-LST Briefing Meeting and the LST Briefing.

2.5.1.1.2. Provide briefing materials to the LST Chief NLT 1 duty day prior to the Pre-LST Briefing Meeting and brief launch vehicle hazardous commodities at the LST Briefing.

2.5.1.2. 576 FLTS/MOO (Maintenance Operations Officer):

2.5.1.2.1. Provide a qualified launch systems subject matter expert to the LST at the fallback area to support anomaly resolution.

2.5.1.3. 576 FLTS/TMOS (Scheduling Section):

2.5.1.3.1. Provide a representative to attend the LST Briefing.

2.5.1.3.2. Provide pre-and post-launch support for ICBM test program launches.

2.5.1.3.3. Submit a Mission Support Justification E Mail from the support organization's supervisor to the LST Chief 20 days prior to launch (**Attachment 3**), identifying manned locations inside the ILL, contact information, and number of personnel at each location.

2.5.1.3.4. Provide a launch support personnel EAL to the LST Chief NLT the LST Briefing, utilizing the format provided by the LST Chief. For support contractor EALs from organizations without NIPRNET access, provide inputs in the Microsoft Excel electronic format (**Attachment 2**) to include supporting personnel name, rank, and location inside the ILL, contact information, and launch support position at T-0.

2.5.1.3.5. Ensure 30 SW/SEAP receives an approved Shallow Water/Land Impact Recovery Plan NLT 14 days prior to T-0.

2.5.1.3.6. Serve as AF point of contact for the 576 FLTS contractor support personnel EAL. Ensure contractor EALs are submitted IAW **paragraph 2.5.1.3.4** NLT the LST briefing.

2.5.1.4. Air Force Nuclear Weapons Center/NIJ:

2.5.1.4.1. Provide a qualified individual to participate on the pad recovery team in the event of a hang fire or launch abort.

2.5.1.5. 576 FLTS/TMGE (Electro-Mechanical Team Section):

2.5.1.5.1. Provide launch facility keys to the OST when the LF is cleared and ready for launch.

2.5.1.5.2. Accomplish post-launch site recovery operations.

2.6. National Reconnaissance Office (NRO).

2.6.1. For both NRO and National Security Space launches (if applicable), the NRO will:

2.6.1.1. Provide a representative to attend the Pre-LST Briefing Meeting and LST Briefing.

2.6.1.2. Submit a Mission Support Justification E Mail from the support organization's supervisor to the LST Chief 20 days prior to launch (**Attachment 3**), identifying manned locations inside the ILL, contact information, and number of personnel at each location.

2.6.1.3. Provide a launch support personnel EAL to the LST Chief NLT the LST Briefing, utilizing the format provided by the LST Chief. For support contractor EALs from organizations without NIPRNET access, provide inputs in the Microsoft Excel electronic format (**Attachment 2**) to include supporting personnel name, rank, and location inside the ILL, contact information, and launch support position at T-0.

2.6.1.4. Provide briefing materials to the LST Chief NLT 1 duty day prior to the Pre-LST Briefing Meeting and brief payload recovery operations at the briefing.

2.6.1.5. Provide a qualified subject matter expert to the LST at the fallback area to support anomaly resolution.

2.6.1.6. Provide a pre-positioned Payload Recovery Team for launch anomaly response.

2.6.1.7. Provide the EOC with a qualified subject matter expert to assist the EOC following a launch anomaly.

2.6.1.8. Serve as AF point of contact for the NRO contractor support personnel EAL. Ensure support contractor EALs are submitted IAW **paragraph 2.6.1.3** NLT the LST briefing.

2.7. Launch and Test Range System Integrated Service Contract (LISC) contractor.

2.7.1. The LISC contractor:

2.7.1.1. Provide a representative to attend the LST Briefing.

2.7.1.2. Submit a Mission Support Justification E Mail from the support organization's supervisor to the LST Chief 20 days prior to launch (**Attachment 3**), identifying manned locations inside the ILL, contact information, and number of personnel at each location.

2.7.1.3. Provide a launch support personnel EAL to the LST Chief NLT the LST Briefing, utilizing the format provided by the LST Chief.

2.7.1.4. Provide the LST with communications support for all pre-launch and launch activities.

2.7.1.5. Serve as EAL point of contact for contractor personnel supporting LISC operations.

2.8. Other Launch Agencies.

2.8.1. In support of their launch operations:

2.8.1.1. Provide a representative to attend the Pre-LST Briefing Meeting and LST Briefing.

2.8.1.2. Submit a Mission Support Justification E Mail from the support organization's supervisor to the LST Chief 20 days prior to launch (**Attachment 3**), identifying manned locations inside the ILL, contact information, and number of personnel at each location.

2.8.1.3. Provide a launch support personnel EAL to the LST Chief NLT the LST Briefing. EALs (**Attachment 2**) must be provided in Microsoft Excel electronic format to include supporting personnel name, rank, and location inside the ILL, contact information, and launch support position at T-0.

2.8.1.4. Provide briefing materials to the LST Chief NLT 1 duty day prior to the Pre-LST Briefing Meeting and brief launch vehicle hazardous commodities at the LST Briefing.

2.8.1.5. Provide a pre-positioned team to take positive control of the site following launch operations.

2.8.1.6. Provide qualified technical support to the LST at the fallback area to address or respond to an anomaly.

2.8.1.7. Provide 30 SW/SEAP with an approved Shallow Water/Land Impact Recovery Plan at least 14 days prior to DoL.

2.9. Hazardous Operations Support (HOS).

2.9.1. Submit a Mission Support Justification E Mail from the support organization's supervisor to the LST Chief 20 days prior to launch (**Attachment 3**), identifying manned locations inside the ILL, contact information, and number of personnel at each location.

2.9.2. Provide a launch support personnel EAL to the LST Chief NLT the LST Briefing, utilizing the format provided by the LST Chief.

2.9.3. Provide a representative to attend the LST Briefing.

2.9.4. Provide a representative at each designated manned location inside the ILL and a supervisor embedded with the LST to reconcile mission essential personnel against the launch EAL, provide HDV/ELSA for personnel located inside the FCA, perform emergency evacuation, and/or other tasks as required by the LST Chief.

3. LST Operational Requirements:

3.1. Major Launch Anomaly. The LST assists the IC and EOC with response to a launch vehicle land impact. EOC response to an emergency is covered in the Vandenberg Installation Emergency Management Plan 10-2 and coordinates with the IC, MFCO/RSM, and OSM to assure a safe, timely, and effective response. ISBP roles and responsibilities are addressed in 30SW Oplan 91-204.

3.2. Responsible Launch Agency. The responsible launch agency provides the required launch vehicle support personnel necessary to support the LST Chief at the fallback area at the required time IAW the LSP.

4. Safety Control Areas (SCAs). Launch operations are the most hazardous activities on Vandenberg AFB necessitating establishment of a SCA to control the hazard and prevent public exposure. The paragraphs below provide specific information on SCA requirements for missile and space launches:

4.1. Potential Hazard Zone (PHZ). A PHZ is a planning zone established prior to a specific operation to assess risk should an accidental cold spill or unplanned release, or a hot spill catastrophic abort occur. The zones are based upon the worst-case credible emission rate or source strength for a specific operation. A PHZ may have a Zone 1, 2 or 3 for nitrogen tetroxide/nitrogen dioxide vapor (N2O4/N02) and hydrochloric (HCL) gas. A PHZ may have a Zone 2 or 3 for hydrazine-family propellants. Hot Spill coordinates are provided electronically or by FAX by 30 SW/SELF to the LST. The decision on whether or not to compute a PHZ will be made on a case-by-case basis by 30 SW/SE. The LST Chief maintains a grid map, with overlays of the FHA/FCA. These maps are maintained at the fallback area.

4.2. Toxic Hazard Zone. Toxic Hazard Zone is a generic term describing an area in which predicted concentration of propellant or toxic byproduct vapors or aerosols may exceed acceptable tier levels. Predictions are based on analyzing potential source strength, applicable exposure limit, and prevailing meteorological conditions. THZs are plotted for potential, planned, and unplanned propellant releases, and launch operations.

4.3. Radiological Hazard Corridor. For launch operations when a minor radioactive source is present, a Radiological Hazard Corridor will be established as determined by the Radiation Protection Officer (Bioenvironmental Engineer) and 30 SW/SEAL. If a corridor is required, this information will be provided to the LST Chief by the OPR who will publish a Health Physics Addendum to the LSP.

4.4. Hazard/Danger Area/Explosives Clear Zone. During portions of pre-launch processing and static fire/tanking tests, certain tasks create potentially hazardous or dangerous conditions requiring evacuation of all nonessential personnel, and in some cases, all personnel from within the hazard/danger or Explosives Clear Zone area. The size of this area depends on the potential hazard involved.

4.5. Flight Hazard Area (FHA). The FHA, as defined in EWR 127-1/AFSPCMAN 91-710, is an area of potentially significant danger to personnel and equipment if a malfunction occurs during the early phase of launch vehicle flight. This restricted ground and air space extends to an unlimited altitude and includes the entire area where the risk of serious injury, death, or substantial property damage is so severe it is necessary to exclude all personnel and equipment not directly supporting the launch operation. The dimensions of the FHA vary with the missile or space system involved. The applicable LSP includes the FHA for the particular launch operation. Use the FHA shown in the LSP for pre-launch planning purposes. The FHA, if required, may be enlarged using launch day atmospheric calculations. The FHA may be expanded, but never reduced from the LSP size without appropriate risk analysis by 30SW/SEL and LDA approval. Immediately relay any expansion of the FHA by the MFCO/RSM to the LST Chief to evaluate possible area control changes. The only personnel allowed inside the FHA will be essential personnel as approved by the Chief of Safety and located inside a hardened shelter at T-0. The number of personnel allowed within the hardened shelter will not exceed the man loading of the facility or the number for which a two hour supply of breathing air is available. The LSP may contain additional safety requirements.

4.6. Flight Caution Area (FCA). The FCA, as defined in EWR 127-1/AFSPCMAN 91-710, is a hazardous launch area outside the FHA where injury or property damage could occur due to a missile flight failure. The area dimensions will vary with the missile or space system involved. The LSP will reflect the FCA for the particular launch operation and will be used for pre-launch planning purposes. If required, the FCA may be enlarged from the result of DoL wind calculations but never reduced without appropriate risk analysis by 30SW/SEL and LDA approval. The LSP may contain additional safety requirements.

4.6.1. The FCA is a restricted area, and only essential personnel are allowed to remain in the FCA during launch operations.

4.7. FHA/FCA requirements:

4.7.1. Access to, and movement within, the FHA/FCA are granted during pre-launch and post-launch operations only when such actions are essential to the missile/space launch mission and will be under the direct control of the LST Chief.

4.7.2. The FHA and FCA remain in effect until damage assessments and emergency actions are completed. Security Forces personnel, under control of the LST Chief, control access to the FHA/FCA. The primary concern is to protect life, and then to secure government assets. Launch anomalies or non-catastrophic mishaps requires securing the launch facility or Space Launch Complex (SLC) by the LST Chief, and establishing area control by Security Forces. After initial safety concerns are addressed, the LST Chief, in coordination with Security Forces and the OSM, may remove or adjust roadblocks as necessary for the specific hazardous condition noted during post-launch safing operations. Security concerns must be addressed before removing roadblocks.

4.7.3. The LST is responsible for developing and maintaining an accurate headcount and location of all personnel inside the ILL. This information will be relayed to the EOC and 30 SW/SE prior to launch and following a launch anomaly.

4.7.4. All personnel located inside or passing through the FCA, on or after T-0, will have immediately available to them a range safety-approved emergency breathing apparatus; i.e Emergency Life Support Apparatus (ELSA), Hooded Demand Valve (HDV), or Self-Contained Breathing Apparatus (SCBA).

4.8. Impact Limit Line (ILL). The ILL, as defined in EWR 127-1/AFSPCMAN 91-710, is the outermost boundary for containment of missile debris or specified debris fragments from a launch anomaly. The ILL is always constructed conservatively during the early launch planning phase so as to exclude grouping of nonessential personnel to the maximum extent possible. Remaining personnel groups within the ILL, including Distinguished Visitors (DVs) and media representatives, require prior approval from the 30th SW/CC and are subject to limitations of numbers and locations during the planning cycle. Additionally, further review for risk management purposes and possible relocation may be required on launch day. Wind conditions may be such on launch day that population centers outside of the ILL may likewise require risk management actions. Depending on the level of risk assessed, this may include off-base areas under memorandum of agreement with the base. For emergency evacuation purposes, personnel within the ILL at launch are encouraged to have appropriate breathing apparatus training. If deemed necessary by 30 SW/SE, ELSA/HDV/SCBA will be provided to affected personnel. All personnel in the ILL will have contact with the LST by means of radio, telephone, or their control center.

4.9. Fallback Area. Fallback Areas are activated for all launches and static fire operations. For static fire, the fallback location may be co-located with the Explosives Clear Zone Entry Control Point. Throughout the DoL cycle, fallback areas are restricted to mission essential personnel and equipment as authorized by the LST Chief. Site recovery and/or payload recovery teams will not be co-located with LST at the fallback area without LDA approval. Due to varying meteorological conditions, some fallback areas fall within the PHZ, and in the event of a mishap, could be within the toxic plume. The LST Chief evaluates and directs all activities related to safe operations within the PHZ.

4.10. Distinguished Visitor (DV), Media, and Public Viewing Areas:

4.10.1. North Vandenberg: Ronald Reagan Viewing Area (Del Punta) is the DV, media, and public viewing area for Minuteman III and Ground-Based Mid-Course Defense launches. Missile Alert Facility O1E is used as a DV viewing site for all Minuteman III launches. For launches from SLC-2 and 576E, the launch viewing area will normally be located at the bleachers adjacent to the Vandenberg Weather Station, Bldg. 21150, off of Corral Rd.

4.10.2. South Vandenberg: The Distinguished Visitors viewing area is at Bldg. 1521 (Rod & Gun Club). The alternative viewing area is the New Mexico Ave. Barrow Pit. The media viewing area is OS-45 for SLCs 3 and 4, and OS-62 for SLC-6 and SLC-8 missions.

4.11. Vehicles and Equipment Located in Launch Operations-Related SCAs. To limit the risk of damage to government, contractor, and privately owned vehicles or high value equipment in launch operations-related SCAs to include the ILL, FHA, FCA, and Explosives Clear Zones, the following criteria applies:

4.11.1. Government and Contractor Owned or Rented Vehicles. Government and contractor owned or rented vehicles directly supporting operations are authorized for use in SCAs. When practical, remove roadworthy non-essential vehicles and high value equipment from hazarded areas. It is permissible to sequester these vehicles inside launch complex fence lines during launch operations, provided the facility owner/operator certifies no personnel are associated with the vehicles and accepts liability for these additional assets.

4.11.2. Placarding of Unattended Vehicles Outside of Secured Fence Lines. The intent of vehicle placarding is to inform the LST (during area clearance) that no personnel are associated with the asset. Unattended government and contractor owned or rented vehicles inside the ILL must be identified and approved by the LST prior to the start of the operation. Owning agencies provide and display an approved placard in the vehicle identifying the owning organization and contact information.

4.11.3. Roadworthy equipment, especially high value equipment which can be easily and economically moved, should not be left in a SCA. The owning agency decides what equipment may or may not be moved within this category, and remains the sole responsibility and liability of the contractor or commander concerned. For all government launches, the contractor or commander provides a hold harmless letter (**Attachment 11**) accepting responsibility and liability of remaining equipment to 30 SW/SEAP NLT 48 hours before launch operations commence.

4.11.4. Auxiliary locations. Non-mission essential launch team members, trainees, equipment, and associated augmentees who do not have a direct role in launch operations at T-0 are to be positioned at auxiliary locations outside the ILL.

5. LST Actions During Launch Abort, Misfire, or Hangfire:

5.1. The LST remains in place, ready to support an anomaly response based on direction of the IC and/or EOCD. Access to the launch pad/facility must be coordinated through the OSM, based on specific procedures for the launch system involved. Once the mishap site is determined safe and secure, and with IC/EOCD approval, the LST Chief may adjust or lift roadblocks as necessary and/or release the LST.

5.2. The launch agency coordinates an Anomaly Response Plan with the LST. This plan will be included in the LSP.

6. Briefings and Meetings:

6.1. LST Briefing. Prior to each launch, 30 SW/SEAP presents a LST briefing. This briefing provides LST members and affected agencies with information such as evacuation of SCAs, a chronological order for LST safety actions, facilities/personnel locations inside the ILL, fire danger status, bio-environmental hazards, vehicle/payload hazards, and LST procedures for post-launch or abort contingencies. This briefing is co-chaired by the 30 SW Chief of Safety and 30 MSG Commander or their representatives.

6.2. EOC Director's Situational Awareness Briefing. Once the LST is formed at the fallback area and ILL roadblocks are activated, the EOCD has the option to receive a Situational Awareness Briefing at the fallback area (**Attachment 7**). The briefing covers countdown status; actual number of personnel stationed inside the FCA/FHA/ILL, personnel accountability worksheet, and updated toxic hazard zones when applicable. Following this briefing, the EOCD relocates to the EOC, located at the 30 CES Readiness Facility, Bldg. 11165. The alternate EOC location on South Vandenberg AFB is the Hot Shot Facility, Bldg. 860.

ANTHONY J. MASTALIR, Colonel, USAF
Commander

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFSPCMAN 91-710, *Range Safety User Requirements Manual Volume 7 – Glossary Of References, Abbreviations And Acronyms, And Terms*, 1 July 2004

AFPD 91-2, *Safety Programs* 1 May 2017

30SWI 91-106, *Toxic Hazard Assessments*, 3 July 2007

EWR 127-1 *Eastern and Western Range Safety Requirements Chapter 1 – Air Force Space Command Range Safety Policies and Procedures*, 31 December 1999

Abbreviations and Acronyms

2ROPS—2d Range Operations Squadron

2SLS—2d Space Launch Squadron

30CES—30th Civil Engineer Squadron

30CES/CED—Explosive Ordnance Disposal

30CES/CEF—Fire Protection

30CES/CEO—Operations Flight

30CES/CEX—Readiness Flight

30LRS/LGRVM—30thLogistics Readiness Squadron Vehicle Maintenance Section

30LRS/LGRVO—30th Logistics Readiness Squadron Vehicle Dispatch

30MDG—30th Medical Group

30MDOS—30th Medical Operations Squadron

30MDOS/SGOJ—Bioenvironmental Engineering

30MSG—30th Mission Support Group

30MSG/CC—Mission Support Group Commander

30OG—30th Operations Group

30OSS—30th Operations Support Squadron

30OSS/OSW—Weather Operations Flight

30SCS—30th Space Communications Squadron

30SCS/SCSOI—Instrumentation Section

30SFS—30th Security Forces Squadron

30SFS/S3SL—Launch Operations Support

30SW—30th Space Wing

30SW/CP—Command Post

30SW/PA—Public Affairs

30SW/SE—Chief of Safety

30SW/SEAL—Launch Vehicle Safety

30SW/SEAP—Pad Safety

30SW/SELF—Flight Analysis

30SW/SELR—Risk Analysis

576FLTS—576th Flight Test Squadron

576FLTS/TE—Operations Officer

576FLTS/TEA—Test Engineering and Analysis

576FLTS/TMGE—Electro-Mechanical Team Section

576FLTS/TMOS—Scheduling Section

AFNWC/NIJ—Air Force Nuclear Weapons Center Technical Engineering

ASO—Aerospace Surveillance Officer

AFSPC—Air Force Space Command

DoL—Day of Launch

EAL—Entry Authority List

EHZ—Emission Hazard Zone

ELSA—Emergency Life Support Apparatus

EMT—Electro-Mechanical Team

EOC—Emergency Operations Center

EWR—Eastern and Western Range

FCA—Flight Caution Area

FHA—Flight Hazard Area

HDV—Hooded Demand Valve

HOS—Hazardous Operations Support

IAW—In Accordance With

ILL—Impact Limit Line

LDA—Launch Decision Authority

LF—Launch Facility

LISC—Launch and Test Range System Integrated Service Contract

LSP—Launch Support Plan

LST—Launch Support Team

MFCO—Mission Flight Control Officer

MOCC—Maintenance Operations and Coordination Center

OPR—Office of Primary Responsibility

OSM—Operations Safety Manager

OST—Operations Safety Technician

PHZ—Potential Hazard Zone

POV—Privately Owned Vehicle

RSM—Range Safety Manager

ROC—Range Operations Commander

RSOR—Range Safety Operations Requirements

SCA—Safety Control Area

SCBA—Self-Contained Breathing Apparatus

SLC—Space Launch Complex

SWI—Space Wing Instruction

THZ—Toxic Hazard Zone

VAFB—Vandenberg Air Force Base

WR—Western Range

Terms

Aerospace Surveillance Officer (ASO)—The ASO is the Western Range (WR) representative responsible for ensuring launch area clearance of boats, trains, and aircraft during launch operations. The ASO surveilles and clears air, sea, and train traffic based on requirements established by 30 SW/SE.

Abort—The condition when missile lift-off fails to take place after entry into terminal count due to a deliberate action by the launch team.

Cold Spill—Release of toxic propellants in liquid or vapor form from a propellant transfer or vent operation.

Emergency Operations Center (EOC)—The EOC provides local situational command and control following a catastrophic launch anomaly and subsequent emergency response.

EOC Director (EOCD)—Following a land impact anomaly or post-launch fire, the EOCD is responsible for command and control of the disaster site and all responding agencies and personnel. The EOCD maintains safety and security of the mishap scene until it is transferred to the Interim Safety Board President, Single Investigating Officer, or Safety Investigation Board.

Entry Authority List (EAL) Request—The EAL is submitted from an organization to 30SW/SEAP to gain mission-essential personnel access inside the ILL after roadblocks have been activated on the DoL. The primary Air Force launch agency is responsible for the collation and submission from both launch agency and launch support contractor EALs. The agency submitting an EAL is responsible for ensuring all personnel listed are essential to the launch operation. 30SW/SEAP will combine the submitted launch agency and range EALs to create the final launch EAL. For agencies with access to the base Local Area Network, an EAL submission format will be sent to the organization's OPR that submitted a Mission Support Justification Letter **(Attachment 3).** For organizations without access to the base Local Area Network, the EAL submission (Attachment 2) is created in Microsoft Excel format and consists of each individual's full name, rank/grade, location within the controlled area at T-0, and contact information. EAL inputs will be submitted to the LST Chief NLT the LST Briefing in the approved electronic format.

Emission Hazard Zone (EHZ)—See Toxic Hazard Zone (THZ) for related definitions.

Explosives Clear Zone—A circular controlled surface area centered on the launcher or SLC. The specific dimensions vary with each missile or space system.

Fallback Area—An area outside the launch vehicle FHA activated for all launches that contain mission-essential personnel supporting the launch. The Fallback Area location for each LF or SLC is listed in the RSOR document.

Flight Caution Area (FCA)—The FCA is a controlled area outside the FHA where injury or property damage could occur due to an in-flight launch vehicle failure. During launch operations the FCA is restricted to mission-essential personnel equipped with a range-approved ELSA, HDV, or SCBA in their immediate possession.

Flight Hazard Area (FHA)—The FHA is an area where significant danger to personnel and equipment would exist in the event of a malfunction during early phases of launch vehicle flight. The FHA includes the ground and air space extending to an unlimited altitude where the risk of serious injury, death, or substantial property damage is so severe it necessitates exclusion of all personnel and equipment not directly needed to support the launch operation. Personnel required to be in the FHA during launch operations must be located in 30 SW/SE approved blast-hardened shelters with adequate breathing protection.

Hang Fire—A condition that exists when the ignition signal is known to have reached an initiator but ignition of the propulsion system is not achieved.

Hazard Area—A controlled area where hazardous operations or conditions exist. This area normally extends to the affected LF or SLC perimeter fence. Examples of hazardous operations include; igniter installation, fuel/oxidizer loading, destruct package installation, etc. Only authorized essential personnel may enter the area during hazardous operations.

Hardened Shelter—A facility is considered to be hardened when it is designed and constructed to provide resistance to blast and fragment damage and, when applicable, protects personnel inside from blast overpressure. A hardened shelter does not provide protection from atmospheric contamination. Personnel assigned to hardened shelters inside the FHA will be equipped with auxiliary breathing air in sufficient quantity to ensure their survival in the event of a launch mishap or fire.

Hot Spill—Release of toxic propellants through propellant combustion or liquid fuel system catastrophic failure during launch operations.

Impact Limit Line (ILL)—The line defining a limit beyond where a hazardous launch vehicle and/or payload debris shall not be allowed to impact. The ILL may be adjusted on the DoL to account for wind/weather conditions. Only mission-essential personnel listed on the EAL are allowed inside the ILL. Nonessential personnel desiring access to the ILL require prior approval from the 30th SW Commander.

Incident Commander (IC)—Following a catastrophic event, the Fire Chief assigned to the LST at the fallback area becomes the IC and directs all immediate emergency actions in response to the event. The IC maintains situational control until relieved by the EOCD.

Launch Agency—An organization conducting launch activities on Vandenberg Air Force Base.

Launch Decision Authority (LDA)—The individual vested with the authority to authorize launch from Vandenberg AFB. Normally this is the 30 SW Commander or designated individual.

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, persons specifically authorized by the Space Wing Commander to perform scheduled activities, and those personnel in training; the Range Users and Space Wing Commanders jointly determine, with Range Safety concurrence, the number of launch-essential personnel allowed within safety clearance zones or hazardous launch areas.

Launch Support Team (LST)—The LST, under the direction of 30 SW/SEAP, is a multi-discipline team of trained technical personnel pre-positioned to control the ILL and provide rapid response to emergencies and site recovery during missile or space DoL operations. The initial reaction of the LST following a catastrophic anomaly is to verify the survivability of all personnel within the ILL and to direct evacuation of hazarded manned locations. The LST Chief will then assist the EOCD as necessary and assume the role as the EOC's on-scene safety representative.

Launch Support Team Chief—The LST Chief is responsible for preparing and coordinating the LST Briefing, creating the LSP, and coordinating the EAL while providing overall LST leadership during pre-launch and launch operations. On DoL, the LST Chief directs pre- and post-launch activities to ensure key personnel and equipment are in place and ready to support the mission and ensures area safety by validating the launch site, FHA, FCA, and ILL areas are clear of all nonessential personnel prior to launch.

Misfire—A condition where a known ignition signal was sent but not received at the initiator.

Mission-Essential Personnel—See Launch-Essential Personnel.

Mission Flight Control Officer (MF—CO)—The MFCO is responsible for overall launch hazard assessment, determines safety readiness to support the launch, and monitors Flight Termination System checkout procedures. The MFCO monitors in-flight launch vehicle performance and initiates flight termination actions when the launch vehicle violates flight safety criteria. The MFCO, with the Senior MFCO's concurrence, provides the safety readiness GO/NO-GO decision to the LDA.

Mission Support Justification Letter—The Mission Support Justification E Mail from the support organization's supervisor to the LST Chief (Attachment 3), identifying manned locations inside the ILL, contact information, and number of personnel at each location.

Nonessential Personnel—Personnel not required for successful completion of a specific operation or personnel who do not meet the criteria for mission-essential or essential personnel.

Operations Safety Manager (OSM—)—The OSM, in coordination with the LST, is responsible for ensuring the FHA and FCA are clear for launch. The OSM is also responsible for site safety and reports site safety status as appropriate. The OSM controls site aural/visual warning devices, status and alert lights, and has control availability of pad video. The OSM is responsible for SLC/LF safety aspects to include countdown, pad clearing, and post-launch/anomaly re-entry.

Operations Safety Technician (OST—)—During the launch or static fire cycle, the primary OST is the designated individual appointed to assist the OSM with site clearance. Additional OSTs are assigned to the LST to accomplish ILL area clearance. The primary OST ensures safety functions are accomplished at the launch site during pre- and post-launch activities.

Payload Recovery Team (PRT)—The PRT's basic function is to locate and secure the payload following a launch anomaly resulting in land impact. At the direction of the 30 SW/CC, the PRT may be co-located at the fallback area with the LST for immediate response to a catastrophic launch anomaly. During emergency response, the PRT will follow direction from the IC. Equipment/debris will not be moved without approval from the ISBP or Safety Investigation Board President.

Potential Hazard Zone (PHZ—)—The PHZ is a safety zone established prior to a specific operation to minimize risk in the event of an accidental cold spill or unplanned release, or a hot spill from a catastrophic abort. The zones are based upon the worst-case credible emission rate or source strength for a specific operation.

Radiological Hazard Corridor—A corridor/area established encompassing all known or suspected radiological contamination.

Range Operations Commander (ROC)—The ROC is the senior WR representative for launch operations and serves as the liaison between the launch agency and the WR. The ROC manages, directs, and controls WR resources, ensuring all instrumentation is capable and ready to support all phases of launch operations. This includes WR instrumentation support, contingency support requirements, aircraft and sea craft support, and support by off-range assets. The ROC certifies WR readiness and provides the launch agency with the final overall WR GO/NO-GO recommendation.

Range Safety Manager (RSM)—The RSM is responsible for overall launch hazard assessment, determines safety readiness to support the launch, and monitors Autonomous Flight Safety Systems checkout procedures. The RSM monitors in-flight launch vehicle performance, and in the event of a ground impact anomaly, provides impact point data inputs to the LST. The RSM provides the safety readiness GO/NO-GO decision to the LDA.

Range Safety Operations Requirements (RSOR)—The RSOR describes the 30th Space Wing's range safety requirements for protecting the public, recovery personnel, and supporting operations on the Western Range.

Safety Control Areas (SCA)—SCAs are areas under the control of the LST/OSM with assistance from OSTs and Security Forces during missile build-up, hazardous operations, static fire, and pre- and post-launch activities. These areas include the LFs, SLCs, FHA, FCA, ILL, Radiological Hazard Corridor, Flight Line, Fallback Areas, Danger and Hazard Areas, and Explosives Clear Zones.

Safety Hold—A directive to either prevent an operation from starting, or stopping an operation already underway. Safety holds may be called if safety criteria cannot be assured or maintained, safety criteria is jeopardized, or an imminently dangerous situation exists. As necessary, the Launch Director will react to verbal inputs from the OSM or MFCO/RSM to enter a hold or prevent launch.

Tier 1—See Toxic Hazard Zone (THZ) for related definitions.

Tier 2—See Toxic Hazard Zone (THZ) for related definitions.

Tier 3—See Toxic Hazard Zone (THZ) for related definitions.

Toxic Hazard Zone (THZ—)—A generic term used to describe an area where predicted concentration of propellant or toxic byproduct vapors or aerosols may exceed acceptable exposure concentrations. THZs are expressed as Tier 3, 2, or 1 with Tier 3 representing the highest concentrations and Tier 1 the lowest. Plume predictions are based on an analysis of potential source strength, applicable human exposure limit, and prevailing meteorological conditions. THZs are plotted for potential planned and unplanned propellant releases and launch operations. THZs are referred to as Operational Hazard Zones (OHZs), Potential Hazard Zones (PHZs), and Emission Hazard Zones (EHZs). Refer to 30 SWI 91-106 for additional information.

Western Range (WR)—The WR provides command and control, metric data acquisition, instrumentation, communications, launch support services, and real-time range operations for space launch, ICBM testing, aeronautical, aerospace, and other programs originating from or culminating at VAFB. The 30 SW is responsible for WR operations.

Western Range Operations Control Center (WROCC)—A 30 SW facility used as the AFSPC Launch Operations Command Center. This facility is used by various agencies to include the Test Manager, Launch Analysis personnel, civilian contractors, and other mission-essential support personnel.

Attachment 2

ENTRY AUTHORITY LIST (MICROSOFT EXCEL FORMAT ONLY)

Table A2.1. Entry Authority List. (Microsoft Excel format only)

ENTRY AUTHORITY LIST,WXXXX						
NAME (LAST, FIRST, MI)	RANK	UNIT/ COMPANY	ZONE	LOCATION AT T-0	CONTACT INFORMATION AT T-0 LOCATION	LAUNCH POSITION
XXXX, XXXX	Enl	1 ASTS	See note 1	Location	606-2000	Red Team
XXXX, XXXX	Civ	Your org.		Location	Org radio	Team Lead

Note:
1. Build in the "Zone" column but leave it blank—for internal use only

Attachment 3

MISSION SUPPORT JUSTIFICATION E MAIL EXAMPLE

Table A3.1. Mission Support Justification E Mail Example.

To… Specific Mission LST Chief

SUBJECT: Mission Support Justification Letter for WXXXX

1. In accordance with 30SWI 91-101, the following location(s) inside the Impact Limit Line must be manned by our mission essential personnel in direct support of WXXXX.

T-0 LOCATION	**CONTACT INFORMATION**	**NUMBER OF PERSONNEL***
Bldg. XXX	606-XXXX	5
Bldg. XXX	Organization Radio	3
OS-XX	606-XXXX	8
FB-XX	606-XXXX	3
(*Directly reflects personnel numbers from the EAL submission "Location at T-0" column)		

2. Please direct questions to XXXXXXX (POC), at XXX-XXXX.

If different than paragraph 2, place support section supervisor's name, title, organization, and contact phone number here

Attachment 4

LST CHIEF PROCESS CHECKLIST

A4.1. 45-Days Prior to Launch:

A4.1.1. Begin checking the Maintenance Operations and Coordination Center (MOCC) Launch Forecast and Program Support Manager's sheet on a weekly basis. Both contain the launch date, launch vehicle type, Op number, LF or SLC number, and scheduled launch window time.

A4.1.2. Monitor the weekly operations schedule and MOCC schedule for launch-related activities.

A4.1.3. Establish a date, time, and place for the LST Briefing after de-conflicting scheduled mission events with the range Program Support Manager and/or the Launch Director or Mission Manager, and the 30 MSG/CC's calendar via the 30 MSG/CCS.

A4.1.4. Coordinate with 30 SW/SEAP personnel to fill launch positions based on the leave calendar, TDYs, and other conflicting missions.

A4.2. 35-28 Days Prior to Launch:

A4.2.1. Coordinate and schedule the 30th Operations Group Commander's Conference Room for the LST Briefing to be held 5 to 10 days prior to launch.

A4.2.2. Schedule the SE Conference or Training Room for the pre-LST meeting. At a minimum, invite 30 MDOS/SGOAB, 30 CE/CEF, 30 SFS/S3SL, and the range user to attend this meeting to review briefing slides and discuss day-of-launch actions. Request slide inputs no later than one full working day prior to the meeting.

A4.2.3. Send Email notification of the LST Briefing and Pre-LST Briefing Meeting dates and times along with the submission request for Mission Support Justification Letters and EAL inputs to designated email recipients. The Mission Support Justification Letter must be received NLT 20 days prior to launch and EAL inputs are due NLT the LST Briefing.

A4.2.4. Request an electronic map file of the mission ILL from 30 SW/SELF. Use this map to develop electronic maps for the LSP, LST Briefing slides, and LRR slides, and to create/print large hardcopy maps of the launch area.

A4.3. 28-20 Days Prior to Launch:

A4.3.1. Receive and audit Mission Support Justification Letters, comparing possible manned locations inside the ILL (based on previous missions) with unit submissions. In the event of no input from key organizations, contact the OPR.

A4.3.2. Develop the LSP (Attachment 5).

A4.3.3. If the fallback has not been recently used, request communications support and systems checkout.

A4.3.4. Review/provide input/attend the 30 SW/SE in-house Launch Readiness Review/Pre LRR briefing and update the mission stoplight chart.

A4.4. 14 Days Prior to Launch:

A4.4.1. Continue development of the LSP (Attachment 5).

A4.4.2. Prepare the safety portion of the LST Briefing, utilizing information from the LSP.

A4.4.3. Receive and compile briefings from applicable support agencies into the LST Briefing.

A4.4.4. For government launches, receive and post Hold Harmless letters (**Attachment 11**) from responsible organizations/contractors who require non-launch associated roadworthy (licensed) vehicles and/or high-value equipment to remain in the FHA/FCA. This letter is required anytime non-mission essential vehicles or high-value equipment will be located in the launch FHA/FCA.

A4.4.5. Update the Launch Readiness Review slides on the 30SW/SE "O drive" to include the ILL map and manning slide. Update the mission stoplight chart.

A4.4.6. Conduct the pre-LST Briefing Meeting. Discuss launch day actions and make changes as necessary to briefing slides and the LSP.

A4.4.7. Submit the LSP to the Chief, 30SW/SEAP for approval and signature.

A4.4.8. Print out the LST Briefing sign-in sheet.

A4.4.9. Print/bind slide handouts for 30 MSG/CC and 30 SW/SE.

A4.5. 10 Days Prior to Launch:

A4.5.1. Conduct the LST Briefing.

A4.5.2. Receive EALs from organizations requiring mission essential personnel within the ILL.

A4.5.3. Verify receipt of the launch agency Shallow Water/Land Impact Recovery Plan through 30 SW/SEAL.

A4.5.4. Verify receipt of the ISBP appointment letter and obtain a copy for the launch folder.

A4.6. 6 Days Prior to Launch:

A4.6.1. Ensure EAL lists have been received from the following agencies at a minimum:

A4.6.1.1. 30SW/SE.

A4.6.1.2. 30MSG Command Section.

A4.6.1.3. 30SFS/S3SL.

A4.6.1.4. 30SCS/SCSOI.

A4.6.1.5. 30CES/CEOEL.

A4.6.1.6. 30CES/CEF.

A4.6.1.7. Launch Agency (site recovery team/payload recovery team).

A4.6.1.8. LISC contractor.

A4.6.1.9. HOS contractor.

A4.6.2. Create/verify master EAL.

A4.6.3. Deliver both hard and soft copy maps to 30 SFS/S3SL.

A4.7. 3 Days Prior to Launch:

A4.7.1. From the EAL inputs, prepare the ILL day-of-launch manned locations accountability worksheet and provide to the mission Flight Analyst.

A4.7.2. If required, perform checkout of the fallback area communications systems.

A4.7.3. Provide HOS contractor and 30 SFS/S3SL with final EAL.

A4.7.4. Check inside the FHA/FCA for high-value equipment and road worthy (registered) vehicles. If necessary, request hold-harmless letters or e mail from organizations leaving vehicles/high-value equipment inside the ILL. (See **Attachment 4**, A4.4.4.)

A4.7.5. Establish an in-office show time for LST Safety personnel and HOS, keeping in mind travel time to the fallback area could take up to 30 minutes. Ensure LST members are afforded 10 hours crew rest (8 hours uninterrupted rest) prior to reporting to work.

A4.8. DoL:

A4.8.1. Ensure the vehicle is fueled and equipment is in the vehicle to include:

A4.8.1.1. Fax machine/printer and paper.

A4.8.1.2. ILL/crash maps. Bring easel if needed.

A4.8.1.3. LST briefcase with the required LST manuals to include:

A4.8.1.3.1. LSP.

A4.8.1.3.2. EAL on laptop computer.

A4.8.1.3.3. AFI 91-204 and 30SW OPlan 91-204.

A4.8.1.3.4. 30 SWI 91-101.

A4.8.1.3.5. AFI 10-2501.

A4.8.1.3.6. Briefing material for EOCD and LST T-30 minute briefings.

A4.8.1.3.7. Evacuation requirements.

A4.8.1.3.8. Recall Roster.

A4.8.1.3.9. Flashlight.

A4.8.1.3.10. Tape.

A4.8.1.3.11. Pen/pencils, tablet, highlighters, paper, mapping protractor/ruler, log sheets.

A4.8.1.3.12. Laptop computer. Update computer on the local area network prior to dispatching to the fallback site.

A4.8.1.3.13. Radios with spare batteries and charger.

A4.8.1.3.14. Toxic Hazard Corridor equipment (protractor, checklist).

Attachment 5

LAUNCH SUPPORT PLAN CHECKLIST

A5.1. Use the following to create a new LSP for emerging launch programs:

A5.2. Sources of information. Use manned location information from like-mission EAL inputs (**Attachment 2**) as needed along with the following sources of information:

A5.2.1. Program-specific Operations Requirements and Operations Directive documents.

A5.2.2. Range Schedule.

A5.2.3. Program Support Manager's information sheet.

A5.2.4. RSOR document (Back Az/Program locations).

A5.2.5. Launch agency countdown manual (to match countdown events to required LSP steps).

A5.2.6. Related launch program LSPs from the office archive (for reference).

A5.2.7. On-station reporting instructions. Review for accuracy and applicability to the upcoming launch.

A5.3. Material included in the LSP:

A5.3.1. Launch information; i.e. launch site, Whiskey Op number, launch window time, and launch date.

A5.3.2. OSM console telephone numbers (get from the OSM).

A5.3.3. Launch site telephone numbers. The OSM may furnish and verify site telephone number(s) by location for the LF/SLC (when available).

A5.3.4. Fallback telephone number and designated Fax number.

A5.3.5. WROCC Staff Safety Officer (Chief of Safety/Chief Engineer) telephone/fax numbers.

A5.3.6. ASO console phone number (2 ROPS/DON, 606-4472).

A5.3.7. Launch information; i.e. System, Operations Whiskey number, launch site, launch date, and launch window time (Range Scheduling Launch Forecast or Program Support Manager's information sheet).

A5.3.8. Key safety personnel.

A5.3.9. T-times, L-times, or I-times (system dependent). Consult with the OSM to determine applicability via the launch countdown manual.

A5.3.10. Time on station reporting instructions (Use T-0 calculator tool). Review for accuracy and applicability to the upcoming launch.

A5.3.11. Sequence of events. Contact support agencies to ensure accuracy and address potential conflicts.

A5.3.12. Manned locations within the ILL (for personnel accountability).

A5.3.13. Primary LST members located at the operational fallback area.

A5.3.14. Nominal post-launch action procedures.

A5.3.15. Anomaly response action procedures.

A5.3.16. General restrictions for Primary and Alternate fallback areas as listed in EWR 127-1 or AFSPCMAN 91-710.

A5.3.17. Attachments to the LSP. Include a map of the area (FHA/FCA/ILL), and Health Hazard Summary.

A5.3.18. Signature block for Chief, 30 SW/SEAP.

A5.3.19. "FOUO" marking.

Attachment 6

LST BRIEFING CHECKLIST

A6.1. LST Briefing.

A6.2. On the day of the briefing, perform the following:

A6.2.1. Arrive at the scheduled location approximately 30 minutes prior to the briefing. Prepare the room for presentation and checkout the overhead projector/computer setup.

A6.2.2. Place LST Briefing sign-in sheet and pens on the table by the entrance.

A6.2.3. Request attendees sign the briefing attendance sign-in sheet.

A6.2.4. Introduce yourself.

A6.2.5. State the purpose of the briefing and classification.

A6.2.6. Identify key personnel associated with the launch.

A6.2.7. Identify launch information (site, operation number, launch window).

A6.2.8. Review local times for each milestone (T-, L-, or I- times) in the LSP.

A6.2.9. Discuss post-launch actions (site securing, scrub launch, major anomaly).

A6.2.10. Identify hazardous materials. Brief personnel on Personnel Protective Equipment such as respiratory requirements associated with the launch.

A6.2.11. Explain 30 SFS/S3SL roadblocks and sweeps.

A6.2.12. Identify manned locations.

A6.2.13. Remind attendees EAL inputs are due now.

A6.2.14. Point out authorized distinguished visitors, press, and base population viewing sites.

A6.2.15. Cover any mission unique items.

A6.2.16. Introduce briefing agencies to include:

A6.2.16.1. Fire Chief.

A6.2.16.2. Launch agency.

A6.2.16.3. NRO Payload Recovery Team (Supports National Security Space launch missions and, X37B Orbital Test Vehicle landing operations).

Attachment 7

EOC DIRECTOR SITUATIONAL AWARENESS BRIEFING

A7.1. Perform the following when accomplishing the EOCD Situational Awareness Briefing:

A7.2. Discuss manned locations inside the FCA/FHA/ILL.

A7.3. Provide number of personnel at each location and sheltering requirements.

A7.4. Highlight method of contact at each location: For example telephone number, radio, voice direct line, etc.

A7.5. Review egress routes inside the FCA/FHA/ILL.

A7.6. When applicable, review THZs and relationship to manned locations.

A7.7. Provide an update on launch countdown progress (green/red and why).

Attachment 8

T-30 LST SITUATIONAL AWARENESS BRIEFING CHECKLIST

A8.1. Brief fallback personnel on the following:

A8.1.1. Launch countdown progress (green/red and why).

A8.1.2. Sheltering requirements during an anomaly.

A8.1.3. Location of the alternate fallback location in the event of an anomaly.

A8.1.4. Vehicles parked in the direction of egress with keys in the ignition (Inside ILL only).

Attachment 9

LAUNCH ANOMALY CHECKLIST

A9.1. The LST Chief ensures the following LST response actions are taken:

A9.1.1. If the fallback is inside the ILL, shelter all LST personnel.

A9.1.2. Contact the following:

A9.1.2.1. HOS units to verify status of manned locations.

A9.1.2.2. 30 SCS/SCSOI to verify Optical sites status.

A9.1.3. Provide current personnel status within the ILL via the LST Net to EOCD, OSM, and MFCO/RSM.

A9.1.4. Obtain impact location coordinates, debris pattern, and impact time from the MFCO/RSM via the Safety Net and plot the debris pattern/THZ footprint on the map.

A9.1.5. Advise all affected agencies within the plotted area of required actions.

A9.1.6. Ensure the IC addresses the following response actions:

A9.1.6.1. Verify ELSAs/HDVs/SCBAs are readily available for all personnel at all locations inside the Caution Area and any location requiring personnel egress through the Caution area.

A9.1.6.2. Account for all personnel located inside the ILL.

A9.1.6.3. Update LST personnel on current situational status/information.

A9.1.6.4. Ensure all personnel use radio communication and keep radio communications/traffic to a minimum.

A9.1.6.5. No actions will be taken without the IC’s approval.

A9.1.6.6. When hazarded, convoy to the alternate reporting location.

A9.1.7. Convoy Briefing:

A9.1.7.1. Direct vehicle evacuation order (SF will occupy the lead vehicle, the LST Chief will occupy the trail vehicle).

A9.1.7.2. Communicate via the Safety Radio coded channel.

Attachment 10

LST POST-LAUNCH DOCUMENTATION CHECKLIST

A10.1. The LST Chief will prepare a: Launch Support Team Historical Package to be scanned and filed in the Local Area Network "O" drive. At a minimum, this package should include the following:

A10.1.1. LSP.

A10.1.2. LST Briefing Attendance Roster.

A10.1.3. LST Briefing Package.

A10.1.4. Program Support Manager sheets and/or Task Force Activity Schedule (if applicable).

A10.1.5. Hold Harmless Letter(s) (when submitted).

A10.1.6. Additional launch support documentation.

A10.1.7. Events log/problems encountered.

A10.1.8. Mission Support Justification Letters and EAL.

A10.2. Document follow-on corrective action to solve problems encountered.

A10.3. Inform the OSM and Chief of Pad Safety: When files are uploaded and ready for review.

Attachment 11

HOLD HARMLESS AGREEMENT EXAMPLE (SEE NOTES 1 AND 2)

Figure A11.1. Hold Harmless Agreement Example (see notes 1 and 2).

Memorandum for 30/SW/SEAP Date

From: (company/govt organization name here)

Subject: Hold Harmless Letter

We have been informed our vehicles and high-value equipment must be removed from designated Hazard and Caution Areas due to scheduled launch operations on _____(date) that could result in damage or destruction of our property.

In lieu of moving owned or rented equipment and company rented or owned vehicles from this area, we elect to leave the following items in place during the launch:

30 Ton Crane
Tractor and flatbed trailer
50 foot JLG Lift
Forklift

We assume all liability for and hold the government harmless in the event of damage or destruction of said equipment and vehicles due to launch operations or post-launch fires. To aid with identification, roadworthy vehicles will be placarded for ease of recognition.

John L. Jones, Operations Manager
Precision Drilling Inc.
V# 805-925-0000

Note 1: The letter must state the company or organization assumes all liability and will hold the government harmless in the event of property damage or destruction.

Note 2: The letter may be emailed or delivered hard copy, but must be received NLT one day prior to launch.