**FSDP EXAMPLE**

The following document (SEAL-SSD-010) is provided as an example of possible layout for a Facility Safety Data Package (FSDP). Specific details on required content are included in AFSPCMAN 91-710 Volume 5, Attachment 2. The Range User has the flexibility to decide on document layout and format.

As described in Volume 5, Attachment 2, the FSDP provides a detailed description of the hazardous and critical systems of facilities or reusable launch vehicle/reentry vehicle operating locations assessed as critical. It is the medium from which final approval to activate the facility is obtained.

If the Range User chooses to use this template as a deliverable format, it is recommended that the Volume 5, Attachment 2 be used as a checklist for populating the existing sections and subsections, or adding new sections or subsections to the document, as needed. This FSDP example is by no means complete; therefore the Range User should use the Volume 5, Attachment 2 as the driver for document completion.

[*Guidance: Critical systems identified in Volume 3 of AFSPCMAN 91-710 that will be a part of a facility design and will not be addressed as part of any program MSPSP shall be addressed in the FSDP. As applicable, data requirements from Volume 3, Attachment 2 shall be included in the FSDP*. *Reference Vol 5, Attch 2, A2.2.3.13*]

**<Company Name>**

DRAFT

**FACILITY SAFETY DATA PACKAGE**

**FOR THE**

**<Title> PROGRAM**

Document Number: XXXXX

Revision X, 15 Sep 2020

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This document is meant as an example only. Detailed requirements

are included AFPSPCMAN 91-710 Vol 5, Attachment 2

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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**Document Change History:**

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| A | 15 Sep 20 |  |  |
|  |  |  |  |
|  |  |  |  |

[*Guidance: The “change” section contains a summary of all changes to the latest edition of the FSDP. All changes shall be highlighted using change bars or similar means of identification*.]

**PREFACE**

This document establishes and defines the <Company Name> CorporationFacility Safety Data Package (FSDP) and its elements as required by AFSPCMAN 91-710 [T] for the <Title> Program at Vandenberg Space Force Base (VSFB).

<Company Name> Corporation, located at Isle of Avalon, Florida, has contracted with the USAF to launch < Title > launch vehicles from the Western Range. The < Title > launch vehicle consists of two stages. The first and second stage propellants are RP-1 and LOX.

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Appendix C, Non-Destructive Inspection Plans and Test Results

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Appendix E, Demolition Plans.

Appendix F, Critical Facility and Structure Design Calculations.

Appendix G, WR Seismic Analysis.

[*Attachments may vary and are dependent on how the information in the GOP is provided*.]

**List of Figures**

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**GLOSSARY OF ACRONYMS AND DEFINITIONS**

**30th SW** 30th Space Wing

45th SW 45th Space Wing

**A&V** Activation & Validation

**AFSPCMAN** Space Force Space Command Manual

**C&C** Command & Control

**CC** Computer Console

**GN2** Gaseous Nitrogen

**LN2** Liquid Nitrogen

**LO2** Liquid Oxygen

**N/A** Not Applicable

**SLC** Space Launch Complex

**TBD** To Be Determined

**Temp** Temperature

**VSFB** Vandenberg Space Force Base

# Glossary of Acronyms & Definitions

**1. INTRODUCTION**

**1.1 Purpose**

This document provides a detailed description of the hazardous and safety critical systems of facilities or reusable launch vehicle/reentry vehicle operating locations associated with the <Title> Launch Vehicle and its associated ground support equipment. This submittal satisfies the applicable portions of the Volume 5, Attachment 2.

**1.2 Scope**

This FSDP applies to the hazardous and safety critical systems of facilities associated with the <Title> Program located at the Western Range at Complex 16 on Vandenberg Space Force Base (VSFB). It identifies the hazards associated with the use of the facility hazardous systems and subsystems during the course of <Title> Program launch operations.

All provisions of AFSPSMAN 91-710[T] are applicable except where changed or deleted by this document.

**2. <Program> FACILITIES OVERVIEW**

**2.1 Facilities**

[*Guidance: This section provides an overview of the associated facilities with the launch program. It should include a facilities/launch complex/system plan view and/or map that identifies each facility covered by the FSDP.*]

**2.3 Facility Responsibility**

[*Guidance: This section should identify organizational responsibility. In the majority of cases, the Range User will be the sole proprietor of the launch complex; therefore having the sole responsibility over the facilities, but in many cases there will be demarcation point that transfers responsibility to the Base Civil Engineering (CE) squadron. These demarcation points should be identified in this section.*]

**2.3.1 <Title> Program**

[*Guidance: Brief description of the program. This is also included in other deliverables such as the MSPSP and the GOP. Its inclusion in the FSDP allows for third parties interested in only the facility related hazards to get a good understanding of the program.*]

**2.3.2 Vandenberg Space Force Base (VSFB)**

[*Guidance: This section is included for programs that are operating at both VSFB and Cape Canaveral Air Station (CCAS) and which require two different FSDPs.*]

**2.4 Critical Facilities and Structures**

[*Guidance: This section includes the definition of critical facility or structure and ‘safety critical’. All critical facilities associated with the program are listed in this section.*]

**2.4.1 Emergency/Safety Critical Systems and Interfaces**

[*Guidance: Table 1. is provided as an example of critical systems/subsystems listing.*]

**Table 1. Critical Systems/Subsystems**

| **Critical Systems/Subsystem** | **Bldg XXXX** | **Bldg**  **XXXXa** | **Bldg**  **XXXXb** | **Bldg**  **XXXXc** | **Launch Pad** |
| --- | --- | --- | --- | --- | --- |
| Lightning protection | x | x | x | x | x |
| Bonding & grounding | x | x | x | x | x |
| Emergency eyewash | x | x | x |  |  |
| Air monitoring (humidity) | x | x |  |  | x |
| Air monitoring (O2) |  |  |  |  |  |
| Hazardous vapor detection system | x | x |  |  | x |
| Area warning systems | x | x | x | x | x |
| Emergency monitor & control panel | x | x | x | x | x |
| Guard rails or fall protection | x | x |  |  | x |
| Personnel, tool, and equipment tie-offs | x | x |  |  | x |
| Fire detection and alarm systems | x | x | x | x | x |
| Sprinkler/deluge systems | x | x |  | x |  |
| Drain and sump systems | x | x |  |  | x |
| Heating and ventilation systems | x | x | x | x | x |

**2.5 Facility Hazard Analysis**

[*Guidance: This section covers the facility hazards analysis performed for each facility. A brief description of the hazard analysis process should be provided and the extent of depth that has been applied, i.e. hazards resulting from facility, equipment, or function located therein. Include a table, or tables showing a hazards matrix for each facility.*]

[*Guidance: Table 2. is provided as an example of facility hazards listing.*]

**Table 2. Facility Hazards**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **HAZARDS** | **Bldg XXXX** | **Bldg**  **XXXXa** | **Bldg**  **XXXXb** | **Bldg**  **XXXXc** | **Launch Pad** |  |
| Fall hazards | X | X | X |  | X | Fall protection training, use of barricades/hand rails, placarded keep out zones, personnel fall restraints, site maintenance. |
| Trip hazards | X | X | X | X | X | Job-site maintenance, placarded keep-out zones, placarded trip hazard areas, safety training. |
| Sharp edges/sharp objects exposure | X | X | X | X | X | Design precluding sharp edges, Personal Protective Equipment (PPE), and training and awareness programs. |
|  |  |  |  |  |  |  |

**2.6 Seismic Analysis**

[*Guidance: Western Range Only: This section includes addressing the seismic-related hazards and controls associated with the facilities. Included are discussions on facilities and overturning hazards of equipment during a seismic event.*]

**2.6.1 Buildings XXXX**

*[Guidance: Discussion of facilities in use that are covered by this FSDP, i.e. provide overview on operations and function, provide details and figures to describe the general process of operations, and locations of facilities (cross-reference GOP and MSPSP if necessary, so as not to duplicate information).]*

**2.6.2 Launch Vehicle Transport and Staging Hardware**

*[Guidance: Discussion of launch vehicle transport system. If discussed elsewhere, i.e. MSPSP or GOP, provide a cross-reference to the document, so as to not duplicate information.]*

**2.6.3 Launch Facility/Launch Pad**

*[Guidance: Discussion of launch facility/launch pad.]*

**2.6.4 Seismic Analysis**

[*Guidance: Summary of seismic analysis results associated with hardware and support equipment used in all facilities captured in this FSDP.*]

**2.7 Explosives Site Plans**

[*Guidance: Discuss a summary of driving requirements (details of which are captured in the DDESB Explosives Site Plan). Discuss explosives limits and physical location of explosives storage and location of where the explosives license is maintained. Details, such as the Explosives Site Plan, may be captured in the Appendix section. Summary should include tables similar to Table 3*]

Table , Explosives Site Plans, Summary

| **Facility** | **ESP Letter** | **HD/NEW (lbs)** | **IBD (feet)** | **PTRD (feet)** |
| --- | --- | --- | --- | --- |
| Bldg XXXX | Doc Number | 1.3: # | X | X |
| Bldg XXXXa | Doc Number | 1.1: #  1.3: # | X | X |
| Bldg XXXXb | Doc Number | 1.1: # 1.3: # | X | X |
| Bldg XXXXc | Doc Number | 1.1: # 1.3: # | X | X |
| Note: Basis for the cited IBD & PTRD values were values published in the respective explosives site plan. | | | | |

**2.8 Lightning Protection and Grounding and Bonding**

**2.8.1 Lightning Protection Systems (LPS)**

[*Discuss summary of LPS for all facilities required having LPS: driving requirements, design, commissioning and testing, LPS type (i.e. integral, mast, or catenary), and surge suppression levels of protection. Discuss associated lightning risk that drives the need for LPS. Reference in-service inspection requirements. (Detailed LPS package are captured in the DDESB Explosives Site Plan deliverables.) This discussion can be tied into Bonding and Grounding section. Detailed information may be captured in Appendix section and should include layout of counterpoise grounding wells, down conductors, and internal facility grounding points.]*

**2.8.2 Grounding and Bonding Systems**

[*Guidance: Discuss in detail the facility grounding and bonding systems. Identifying grounding distribution, counterpoise, grounding rods location; providing insight into wire gauge, tech ground location, and commissioning testing and required driving standards. This discussion can be tied into LPS section.*]

**2.9 Hazardous Condition Warning System**

[*Guidance: Discuss the hazardous condition warning system that is place, where it is located, and definition of colored light bank conditions. Public Address system, klaxon system and training and implementation of the hazard awareness. Include locations where placard identifying hazardous conditions are located. Use figures and plan views as aids, if necessary. Identify required training and awareness program and whether FD involvement is required.]*

**2.10 Weather Monitoring and Notifications**

[*Guidance: Discuss system details for weather monitoring and notification.*]

**3. BUILDING XXXX BUILDING**

[*Guidance: Discuss specific facility. Do not repeat if details have been provided above in section* ***2.6.1.*** *Repeat this section for each facility included in this FSDP*. *Some of the subparagraphs may not apply to all facilities. Not all possible systems, or subsystems are included below.*]

[*Guidance: Example of layout would be to repeat this section for Building XXX, XXXa, XXXb, Launch Pad, etc.*]

**3.1 Safety Critical Systems and Subsystems**

[*Guidance: Discuss safety critical systems and subsystems. May use a cross-reference to section* ***2.4.1****.*]

**3.1.1 Lightning Protection**

[*Guidance: Discuss particulars of this facilities Grounding and Bonding. If already sufficient detail is included in section* ***2.8.1****, only provide a cross-reference.*]

**3.1.2 Bonding and Grounding**

[*Guidance: Discuss particulars of this facilities Grounding and Bonding. If already sufficient detail is included in section* ***2.8.2****, only provide a cross-reference.*]

**3.1.3 Static Electricity**

[*Guidance: Discuss program details on how static electricity is prevented. Include reference standards, environmental control, mitigating measures implemented, PPE, and measurements, etc.*]

**3.1.4 Hazardous Classified Location**

[*Guidance: Discuss National Electric Code hazardous classification of facility. Provide details of measures implemented to circumvent electrical ignition for flammable or combustible atmospheres.*]

**3.1.5 Launch Facility Electrical Power**

[*Guidance: Discuss power distribution for normal operations. Where the power comes from, where the Civil Engineering Squadron (CES) demarcation ends, the distribution of 480/208/115 VAC panels. Include electrical block diagram. Detailed schematics can be included in the Acceptance Data Package (ADP) Appendix. Discuss redundancies, UPS, power conditions, critical power panels and 115V single phase operation power. DC voltage if necessary.*]

**3.1.6 Backup Power Sources**

[*Guidance: Discuss backup power. Provide details of generator(s), kVA, VAC, etc. Discuss what critical loads are covered and their functions. Discuss the extent of time coverage of backup power: refueling cycle, manned support, etc. Provide details on the automatic transfer switch (ATS) and the power loss sensing strategy.*]

**3.1.7 Emergency Egress**

[*Guidance: Discuss emergency egress and evacuation details. Show exits and routes from facilities to final rendezvous points. Provide plan views for egress and routes and any unique requirements associated with egress (i.e. evacuation and egress from heights requiring special PPE and rigging, etc.*]

**3.1.8 Aural/Visual Control Assembly**

[*Guidance: Discuss aural/visual warning system, define color code and entry requirements. Show location on facility plan drawing. Cross reference section* ***2.9****, if necessary.*]

**3.1.8 Hazardous Commodity Lockers**

[*Guidance: Discuss details on hazardous commodities lockers: driving requirements, type (chemical, waste, ordnance), and locations. Include any 3rd party verifications (i.e. Government personnel) involvement, if necessary.*]

**3.1.9 Fall Protection**

[*Guidance: Discuss specifics of fall protection requirements: driving requirements, location where required, overseeing program, type, anchor locations and ratings, etc.*]

**3.1.10 Work Platforms**

[*Guidance: Discuss specifics of work platform requirements: driving requirements, location where required, overseeing program, type, and ratings, etc.*]

**3.1.11 Fire Protection System**

[*Guidance: Discuss specifics of Fire Alarm/Fire Suppression/Fire Protection system(s).*]

**3.1.12 Emergency Eyewash/Showers**

[*Guidance: Discuss locations of eyewash/shower stations, driving requirements for their need.*]

**3.1.13 Ventilation System**

[*Guidance: Discuss details of ventilation system, if critical (i.e. emergency hypergolic system venting, or critical ECS). Include details on capacity, flows, humidification, dehumidification, etc.*]

**3.1.14 Emergency Power Cutoff**

[*Guidance: Discuss any Emergency Power Cutoff. Include details as to why it is necessary, processes and functions to which power is de-energized, impacts of power cut off, power reset processes, alarms triggered,* *and any FD involvement on alarm conditions, if necessary.*]

**3.1.15 Emergency Monitor and Control Panel**

[*Guidance: Discuss details of any Emergency Monitoring and Control Panels in use. Include panel layout, locations of panels and monitoring points, what is being monitored, types of alarms being sent (i.e. PA system), and any FD involvement on alarm conditions, if necessary.*]

**3.1.16 Ground Support Pressure Systems**

[*Guidance: Discussion of fluid system trailer specifics, design parameters (DOT, ASME, etc.), whether they meet AFSPCMAN 91-710 criteria, discrepancies, and waivers. Cross-reference MSPSP or GOP, if necessary, so as not to duplicate information.*]

**3.1.17 Facility Warning Systems**

[*Guidance: Discuss particulars to the Facility Warning System. Cross-reference section* ***2.9****, if necessary.*]

**3.1.18 Hazardous Vapor Monitoring System**

[*Guidance: Discussion of any required hazardous vapor monitoring system. Identify vapors to be detected, threshold detection levels vs. allowable lower limit toxicity thresholds. Identify driving requirements and mitigation strategy, as well as any alarms or notifications and secondary processes or functions that are triggered by a vapor alarm (i.e. emergency ventilation, klaxon, evacuation, egress, etc.).*]

**3.1.19 Mechanical and Electrical**

Discuss any critical mechanical and electrical infrastructure, its function and location (i.e. critical power, HVAC, environmental control system (ECS), and communication equipment list).

**3.1.20 Site Communications**

[*Guidance: Discuss details on communications supporting critical functions and processes: fiber, copper wire, hardline data speeds, operating parameters, etc. Include plan view or figure showing distribution between critical facilities. Cross-reference MSPSP or GOP, if necessary, so as not to duplicate information.*]

**3.1.21 Facility and Structure Design**

[*Guidance: Discuss facility occupancy, structural design documentation, design calculations, drawings and specifications. These may be Range User developed, or existing through 30CES.*]

**3.1.22 Demolition Plans**

[*Guidance: Discuss any demolition that must occur, or has occurred that is associated with the critical facility. This section is only applicable to facilities that have been, or are undergoing demolition as part of a major, critical facility modification project.*]

**3.1.23 Post-Activation Requirements**

[*Guidance: Discuss briefly what is required after activation: i.e. inspection and testing. Reference Appendix D NDE Inspection Plans. Also included discussion of any associated inspection and testing that is performed by others, i.e. CES, etc.*]

**3.1.24 Volume 3 Data**

[*Guidance: Discuss critical systems identified in Volume 3 of this publication that will be a part of a facility design* ***and will not be addressed*** *as part of any program MSPSP. As applicable, data requirements from Volume 3, Attachment 2 shall be included in the FSDP. Critical systems include the following:*

* *Material handling equipment*
* *Systems with acoustic hazards*
* *Ionizing radiation sources*
* *Nonionizing radiation sources*
* *Hazardous materials*
* *Pressure systems*
* *Ordnance systems*
* *Electrical and electronic systems*
* *Motor vehicles*
* *Operations safety console*
* *Hazardous and safety critical computing systems and software*
* *Unique RLV and reentry vehicle O&M systems.*]

**3.1.25 Test Plans and Test Results**

[*Guidance: Discuss summary of test plans and test results for all previous cirtical systems and subsystems. These can be provided in a simple Table format in this section, or under each individual section above. Actual test plans and results can be captured in Appendix* ***C****, or referenced as a Range User document.*]

**3.2 Emergency and Critical System Design Drawings and Specifications**

[*Guidance: Discuss and provide reference to the location of critical system drawings and/or specifications. Some may be included in Appendix D to the FSDP, or referenced location in the CE drawing vault, or referenced ‘upon request’ on the Range User’s servers. At minimum provide list of top drawings for each critical system, or subsystems.*]

**APPENDICIES**