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PM-8013, Attachment A, Revision 35

Contractor Environment Safety & Health Handbook

Approved by:

/s/

Michael Beauchamp

Environmental Health & Safety Engineering Manager

Lockheed Martin Aeronautics Company

This handbook has been published by Lockheed Martin Aeronautics Company and applies to all LM Aero locations including satellite plants. Each site is authorized to make appropriate changes such as department names, company address, and emergency telephone numbers, etc., as long as the basic contents remain unchanged.

This publication is a digest of basic applicable standards and should not be considered as a substitute for provision of the Occupational Safety and Health Act of 1970 or other local, state, and federal occupational safety and health programs.

Any discrepancy between this publication and regulatory and contractual requirements shall be resolved by using the most stringent requirement.

ESH Contractor's Revision Log

Issue 35	Date December 2019	Description or Reason for Change
		<ul style="list-style-type: none"> • Update form for Fort Worth 12745 to 13126 (page 10)
Issue 34	Date October 2019	Description or Reason for Change
		<ul style="list-style-type: none"> • Revise evaluation process for subcontractors (page 10)
Issue 33	Date October 2018	Description or Reason for Change
		<ul style="list-style-type: none"> • Added blue light requirement for contractor vehicles (Fort Worth)
Issue 32	Date August 2018	Description or Reason for Change
		<ul style="list-style-type: none"> • Replaced ESH website links • Added Electrical PPE violation policy • Added concrete waste requirement • Added contractor vehicle parking restriction (Palmdale) • Updated wording for Asbestos • Added gate pass rule change (Palmdale) • Updated labeling asbestos requirement (Palmdale) • Changed welding shield requirement • Added EMCS number • Removed sentence off of Attachment B • Added energized work permit
Issue 31	Date October 2017	Description or Reason for Change
		<ul style="list-style-type: none"> • Changed sentence under fall protection requirements to read: "Follow the OSHA standard 1926.502 and Cal/Osha Article 24 paragraph Fall Protection. Contact safety with any questions regarding these requirements. Roof access plans require Approval from ESH."
Issue 30	Date July 2017	Description or Reason for Change
		<ul style="list-style-type: none"> • Revised Fall Protection Requirements

Issue	Date	
29	April 2017	<ul style="list-style-type: none">• Revised training badges expiration for 2 years, added FOD Awareness• Added Current National Electric Code and specific section for temporary and portable lights• Added barricade requirement for overhead work• Added spraying operations indoors and outdoors• Changed Fort Worth usage form number 10977• Added excavation permit requirement• Spotter requirement for portable ladders• Added light requirement for golf carts/all-terrain vehicles• Added Vehicle Permit requirements under parking• Added licensed under blasting• Added Overhead crane work requirement

		<ul style="list-style-type: none">• Added Load testing requirement• Changed POC issues Hot Work Permit• Changed fire watch requirement• Edited Attachment B• Added Example Hazardous Material Usage Log Attachment F• Palmdale Only change. CA response: On page 23, modify submission of completed chemical usage records from weekly to <u>monthly</u>.
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28	February 2017	<ul style="list-style-type: none"> Added statement to Contractor Environment, Safety and Health Program section (page 8) to address iCAR requiring Contractors to maintain copies of FOD/HRA for work described in their job instructions
27	February 2016	<ul style="list-style-type: none"> Revised owner to Micheal Beauchamp Revised section on container management (page 23) to address iCAR Remove references to VPP Clarified attire to be worn by Electricians Add references to CalOSHA Title 8 Add CARB requirements (CA only)
26	February 2014	<ul style="list-style-type: none"> Deleted Attach J; no longer required in MAR Deleted Attach K; no longer required for FTW Added vehicle safety requirement Added OSHA 30 construction requirement Added Contractor vehicle labeling requirement Added requirement in FTW for ESH Contractor training Added statement banning use of metal ladders Modified LOTO section to clarify Contractor responsibility. Renamed Attachments "I" and "J" to "G" and "H". Table of Contents Updated
25	Unknown	<ul style="list-style-type: none"> Issue 25 changes were not noted in the Revision Log.
24	March 2013	<ul style="list-style-type: none"> Fixed link (page 8,9,29 and Attachment D, F, I, J) to Contractor Safety Briefing. Changed Document Approval from Dorothye D. Currie to Lisa Bosserman (page 1). Corrected page numbers in Table of Contents
23	November 2012	<ul style="list-style-type: none"> Incorporated ability to utilize external Contractor for inspections (page 9-10). Removed requirement to label dumpsters with contents (page 25).
22	May 2011	<ul style="list-style-type: none"> Incorporated Contractor requirement regarding safety performance data and training records (page 7). Deleted fourth bullet and inserted ESH Contractor Briefing Statement and applicable requirements (page 8). Revised language regarding how Contractors are to complete ESH Form 12109 on page 8. Incorporated ESH 05 Procedure (page 16-17) Incorporated Lead Acid Batteries statement (page 20). Inserted the indented paragraph stating Permit requirement and land disposal document for Marietta (page 24). Clarification of chemical usage recording requirements (page 24). Clarified what constitutes a "closed container" (page 25).

		<ul style="list-style-type: none"> • Incorporated Palmdale’s Pesticide/herbicide site usage requirements (page 26). • Incorporated how completed site specific hazardous material product data information and SDS(s) are to be approved (page 28). • Incorporated POC instructions for completion of Hazardous Review Submittal Form 10121 (page 28). • Incorporated explanation of “significant” quantities regarding hazardous materials and definition of “new or unique” (page 28).
21	July 2010	<ul style="list-style-type: none"> • Replace Steve Hirtzel with Dorothee D. Currie’s as PM 8013 Approver • Incorporate changes requiring Contractors to complete ESH Contractor Questionnaire regardless if any tasks are to be performed Deleted tasks on (pages 8 and 9) • Incorporated requirement to have supervisor or superintendent to have a 10 hour training course (Palmdale only) • Incorporate the inclusion of VPP Program Requirements (page 10) • Incorporate Bloodborne Pathogen changes per site and subassembly plants (page 19) • Incorporate Specific Eye and Head Protection guidelines. (page 28) • Clarification of Fort Worth speed limit on page 30 • Facilities Construction Group name and telephone number change page 46
19	December 2009	<ul style="list-style-type: none"> • Incorporated how ISO 14001 information is to be disseminated via English and Spanish hyperlinks to affected Facilities POCs. (page 6) • Incorporated OSHA sanctioned Voluntary Protection Program (VPP) requirement for Contractor reporting regarding Contractor working 1000 hours quarterly –Fort Worth only. (page 6) • Revised language regarding who is responsible for handling Bloodborne pathogens. (page 11)
18	April 2009	<ul style="list-style-type: none"> • Incorporate Department Of Transportation requirements including criteria for acceptable transport of hazardous materials under DOT’s Materials of Trade (MOT) exceptions. • Pesticides Management (Marietta Only)
17	October 2008	<ul style="list-style-type: none"> • Removes Attachment C, HMRB example form, HMRB form completion referenced in the body of the text.
16	June 2008	<ul style="list-style-type: none"> • Adds vehicle idling requirements • Updates Contractor waste disposal requirements at Fort Worth • Adds Fort Worth Air Emissions Signage Requirements • Added permitted equipment malfunction contact information
15	April 2008	<ul style="list-style-type: none"> • Adds Contractor requirement to ensure that someone can communicate with all employees at the work site. (page 6) • Defines the use of a disciplinary process for ESH contractual noncompliance. (page 7) • Provides spill containment requirements. (page 17) • Provides refrigerant service or maintenance requirements. (page 17) • Updates Marietta emergency phone numbers. (page 36) • Adds requirement to provide weights of landfill and recycled wastes to site ESH(page 18) • Further defines Palmdale specific Hazard Communication requirements (page 21)

14	March 2007	<ul style="list-style-type: none"> • Adds referenced Table of Contents (page 4) • Expands electrical requirements to include arc flash protection and allows temporary use of extension cords used in series. (page 11) • Adds crane lift plan requirements (page 28) • Adds LM Aero fall protection req. (page 30) • Requires Contractor to maintain daily scaffold documentation. (page 34) • Adds additional fall protection requirements during steel erection. (page 34)
13	June 2006	<ul style="list-style-type: none"> • Deletes Attachment G & H • Updates Marietta requirements for greater than 55 Gallon of VOCs per job site
12	May 2006	<ul style="list-style-type: none"> • Updates ESH Training Requirements • Updates Palmdale Emergency Numbers
11	October 2005	<ul style="list-style-type: none"> • Handbook substantially revised
7-10	October 2005	<ul style="list-style-type: none"> • Do not exist. Issue numbers deleted to match AeroCode one page summary
6	April 2004	<ul style="list-style-type: none"> • Corrected attachment reference errors. • Clarified site specific references. • Clarified requirements on training documentation and prior coordination of hazardous waste disposal.
5	July 2003	<ul style="list-style-type: none"> • Includes requirements for all LM Aero sites. • Consolidated Environmental requirements for Contractors into the handbook • Renamed handbook
4	Dec 2001	Added additional information on the use of aerial lifts and scissor lifts. Revised head protection (hard hat) requirements. Deleted date on form FWP5057.
3	Sept 2001	Handbook completely rewritten.
2	Oct 1995	Updated references to LMTAS. Added information concerning vehicle operations on the Flight Line, Lockout/Tagout Programs, Personal Protective Equipment, and Trenching. Deleted information regarding Chemical Emergency Evacuation of Building 181 and numerical reference tables.
1	May 1987	Original Issue

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INTRODUCTION

APPLICABILITY

This handbook applies to all Contractors, Service/Technical Representatives, Vendors & Suppliers performing work/services or delivering goods on LM Aero owned or operated facilities. For purposes of brevity the above will be referred to in this document simply as Contractor.

POLICY STATEMENT

It is Lockheed Martin Aeronautics Company's (LM Aero's) policy to provide a safe and healthy working environment. The purpose of this handbook is to make all Contractor personnel aware of the critical need to maintain a safe workplace, to eliminate causes of accidents and provide direction on environment, safety & health, and fire requirements.

<https://www.lockheedmartin.com/en-us/suppliers/business-area-procurement/aeronautics/terms-and-conditions/environment-safety-health.html>

ESH is Everyone's Responsibility

LM Aero is registered to ISO 14001 Environment, Safety and Health Management System

CONTRACTOR ENVIRONMENT, SAFETY, AND HEALTH PROGRAM

All Contractors, Service/Technical Representatives, Vendors & Suppliers, including Subcontractor personnel, shall:

- Be familiar with and comply with all applicable Federal, State, and local and municipal environmental, safety & health, and fire regulations, statutes, rules and ordinances while working on LM Aero premises.
- Carefully read the ESH provisions of their contract, including, but not limited to, the assignment of personnel, training and safety equipment requirements.
- Ensure environment, safety, and health information, provided by LM Aero, is communicated to all their employees and Subcontractors working on-site.
- In Fort Worth, Marietta and Palmdale, Contractors shall review the ESH Contractor Safety Briefing and the applicable requirements of this handbook with their employees and Subcontractor employees before entering LM Aero premises. The ESH Contractor Safety Briefing can be found at the following internet link: <https://www.lockheedmartin.com/en-us/suppliers/business-area-procurement/aeronautics/terms-and-conditions/environment-safety-health.html> or may be obtained through your contract POC. The Contractor shall maintain written proof of the ESH Contractor Safety Briefing review for their employees and Subcontractor employees working on LM Aero leased or owned property. The Contractor will provide written proof of this training within 24 hours upon request by ESH or the contract POC.

- Upon entry into the facility and before starting any work, coordinate their activities with their assigned LM Aero POC. The POC shall communicate with LM Aero Safety & Health (S&H), Fire Protection Services (FPS), Environment Safety and Health (ESH), and other appropriate functions to establish safety, health, fire, and environmental precautions.
- In Fort Worth and Marietta Contractors shall have a designated supervisor on each job whenever performing work on LM Aero premises. The supervisor shall know the name and contact information of their LM Aero POC.
- The Contractor shall have at least one (1) person on site, at all times, who speaks and understands English and can effectively communicate with Contractor and Subcontractor employees.
- Construction/Maintenance type Contractors' supervisor and/or superintendent shall have received a minimum of 30-hour OSHA Construction Safety Training.
- All Contractors working on site must maintain a copy of any applicable FOD plans and Hazardous Risk Assessments (HRA) for the work described in their job instructions.
- General Contractors must complete ESH Questionnaire Form 12109 provided by LM Aero Supply Chain Management (SCM) Buyer for them and their Subcontractors if it is contemplated that the Contractors will be performing any tasks or services while on LM Aero leased or owned property. After completion, the general contractor must return their form to the buyer and have approved by ESH before a PO can be awarded. The subcontractor's form must be kept by the general contractor and will be provided within 24 hours of ESH request.

Both the Contractor and Subcontractor(s), regardless of tier, are subject to enforcement provisions of OSHA/CalOSHA and other federal, state, and local regulations.

Contractor and Subcontractor(s) work shall be subject to inspection by LM Aero, ESH and /or a third party inspector. Inspections by ESH and/or a third party inspector shall be documented on inspection form 11713 (13126 in Fort Worth). Documented inspections shall then be routed to the LM POC who will be responsible to flow them down to the prime Contractor and/or the Contractor responsible for the corrective action. The Contractor responsible shall document corrective actions and submit a corrective action report to the LM POC. The Contractor, LM POC, and inspector will track all violations until they are closed by an acceptable corrective action. Corrective actions shall be closed in a reasonable time frame, depending on severity, as determined by ESH. Inspection reports with no adverse findings shall be routed the same as described above. No further action need be taken.

When an unsafe act or condition is witnessed by ESH and/or the LM POC, a stop work order may be issued depending on the severity of the condition. A stop work order will be communicated to ESH management, Facilities management, the LM POC, and the Buyer. A corrective action plan must be submitted by the Contractor, and approved by ESH, before work is allowed to resume.

NOTICE

Failure of the Contractor to comply with safety, health, fire, or environment requirements may result in suspension of work and/or cancellation of the service, contract, or Purchase Order.

NOTICE

References in this handbook to OSHA standards shall mean the equivalent state OSHA standards (Cal/OSHA standards, Title 8, California Code of Regulations, in California).

References in this handbook to EPA standards shall mean the equivalent state EPA standards (Cal/OSHA standards, Title 26, California Code of Regulations, in California).

References in this handbook to DOT standards shall include any equivalent state DOT standards (e.g., TX DOT in Texas) corresponding to Code of Federal Regulations Title 49 (49CFR) including both hazardous Materials Regulations and Federal Motor Carrier Safety Regulations.

All OSHA or Cal/OSHA and EPA or Cal/EPA and DOT requirements are not contained in this handbook. The Contractor must be familiar with and comply with appropriate OSHA, EPA and DOT standards at the LM Aero site where they are working. If there is conflict between the information in this handbook and the OSHA, EPA and DOT regulation, the more stringent requirement(s) shall apply.

When performing non-construction work, Contractors should obtain copies of the OSHA *Occupational Safety and Health Standards for General Industry* (29 CFR Part 1910). We recommend that Contractors performing construction work obtain copies of the OSHA *Occupational Safety and Health Standards for the Construction Industry* (29 CFR Part 1926) before starting work at LM Aero. Copies of Federal OSHA standards may be obtained from the local OSHA area office, or through the Internet at <http://www.osha.gov> For California operations, obtain a copy of California Title 8 at <http://www.dir.ca.gov/title8/index/t8index.asp>.

SUBCONTRACTOR MANAGEMENT

Contractors are required to manage their Subcontractors and ensure their compliance to the LM Aero ESH Program. Contractors are to communicate the environment, safety, and health information, provided by LM Aero, to all Subcontractors working on-site. Review the applicable requirements of this handbook with Subcontractors before entering LM Aero premises.

LM Aero will enforce compliance to contractual Environment Safety and Health requirements and LM Aero ESH initiatives through a process of progressive discipline. Examples include, but are not limited to: warnings, suspension of work, expulsion from the work site, and removal from participation on bidding future LM Aero work and contract termination.

The Contractor shall ensure Subcontractors working on LM Aero premises have been trained on all applicable ESH regulations and are familiar with applicable sections of this LM Aero *Contractor's Environment, Safety and Health Handbook* (PM-8013). Documentation of training is explained in the paragraph titled "ESH Training". An updated version of this list will be maintained by the Contractor and kept available at the Contractor's field office or base of operations at the jobsite.

The Contractor will evaluate Subcontractors' Safety Performance based upon the following criteria and submit completed Subcontractor ESH approval form (12109) to LM Aero before bringing Subcontractor onsite.

- Evaluate the circumstances where a Subcontractor has had an occupational fatality (companywide) within the previous 3 years to ensure effective corrective actions are in place.
- Contractor shall evaluate Subcontractors' safety performance, by comparing the Subcontractor's OSHA-Injury/Illness" rates [i.e. Total OSHA-recordable cases per 200,000 hours and Lost Workday Cases (with days away from work) per 200,000 hours] against the most recent published OSHA data available for the Subcontractor's Standard Industrial Classification (SIC) code, or North American Industry Classification System (NAICS).
- The general Contractor will ensure:
 - The average of the Subcontractor's injury rates for the past 3 completed years is less than 125% of their 3-year SIC or NAICS average

If a general or subcontractor exceeds the injury rate requirements, they must provide a written explanation and identify their injury vehicles improvement actions to ESH. ESH will determine if the general and/or subcontractor is authorized to perform work on LM Aero property.

LM AERO ESH REQUIREMENTS

LM Aero will not provide Contractor personnel with safety equipment. Contractor personnel shall not use or operate LM Aero tools, machinery, equipment, vehicles, or cranes, or other material, unless specifically stated in the contract and approved by the POC. The LM POC must notify ESH when this occurs.

Contractors shall label all powered industrial vehicles (i.e. golf carts, fork lifts, scissors lifts) and personal vehicles with company name and a 24 POC prior to arriving on site so that it is easily recognizable to LM personnel.

The Contractor shall be responsible for obtaining the necessary Fire Protective Services (FPS) and/or Environment, Safety & Health (ESH) permits to conduct their work in compliance with regulations and LM Aero site requirements. Some environmental permits can only be obtained by ESH. In that event the Contractor will provide ESH with the information necessary to complete and submit the permit application.

The Contractor shall have available a list of employees designated as “Competent Persons” as defined and required by specific OSHA standards. Contractors shall maintain a list of employees designated as “Competent Persons”. Regardless of project scope/cost, every project shall have a designated competent person provided by either the general or Subcontractor. Contractors may use the form found in Attachment “G” or use their own equivalent form. The list will be maintained by the Contractor and kept available at the onsite Contractor’s field office or base of operations at the jobsite.

ESH TRAINING

The Contractor shall provide general and specific ESH training to their employees according to applicable OSHA, EPA and DOT standards for the work performed. Training may include, but is not limited to, competent Person, hazard communication, personal protective equipment, control of hazardous energy (lockout/tagout), confined space, fire extinguishers, fall protection, motorized work platforms, powered industrial trucks, refrigerant equipment installation or servicing, powder-actuated hand tools, scaffolding, high voltage electricity, trenching, hazardous material transportation (DOT), motor carrier safety (DOT), and hazardous waste management.

In Marietta, the Contractor shall provide to the POC prior to beginning work a signed High Risk Activity letter for contracts or projects where work involves the following activities: confined space entry, excavation and trenching, work at heights that requires fall protection, hazardous energy control (lockout tagout), high voltage electricity, Scaffold erection and use, and steel erection. The letter must be signed by the Contractor and indicate understanding and acceptance of obligation to maintain ESH training currency for the Contractor’s and Subcontractor’s employees for the duration of the project or activity. For projects or contracts that may exceed a year in duration, the Contractor will provide the POC a signed High Risk Activity letter annually.

The Contractor shall maintain written proof of ESH training for their employees and Subcontractor's employees working on LM Aero leased or owned property. The Contractor will provide written proof of training for their employees and Subcontractor employees within 24 hours upon request by ESH or the contract POC.

In Fort Worth all facilities and maintenance Contractors must receive ESH Training and wear their LM Aero issued "ESH Trained badge" before entering the worksite. ESH trained badges expire after two years, at which point all Contractors must be retrained. Additionally, all facilities and maintenance contractors must receive FOD awareness training. FOD awareness training expires after one year. It is the Contractor's responsibility to ensure timely training and retraining.

MEDICAL EMERGENCIES

Contractor shall have on-site personnel trained in first aid, as required by OSHA regulations. Contact your LM POC when your employee or your Subcontractor's employee is injured on LM Aero Premises.

LM Aero Medical and/or Security and Emergency Services Departments, where available, will provide or notify appropriate emergency responders for initial medical services (first response) for medical emergencies occurring on LM Aero premises. Offsite facilities not staffed with Security and Emergency Services personnel will use the 911 emergency reporting systems. If blood or other body fluids are present, the area and/or equipment shall be secured to prevent unauthorized personnel from coming into contact with the fluids. Contractor personnel (unless authorized to do so) shall not attempt to clean up blood or other body fluids.

Security and Emergency Service (SES) at Marietta facility only will be contacted to clean up and disinfect small to intermediate sites where body fluids Bloodborne Pathogens (BBP) are present and to remove and properly dispose of contaminated products. A contract service company will be employed to clean up and disinfect large sites involving BBP. Designated departments and/or trained employees will clean up and properly dispose Bloodborne Pathogens at the other sites and subassembly plants are as follows:

Fort Worth – (Facilities & Plant Engineering) Sanitation Personnel

Palmdale – Plant Engineering Sanitation Services

Marietta – SES and a Contract Service Company

Clarksburg – Volunteer trained employees

Johnstown – Trained general laborers and volunteer emergency responders

Meridian – Janitors and trained first aid employees

Pinellas- Maintenance Team and trained first aid responders

DEFINITIONS

Approved Substitute: A substance listed under the EPA's Significant New Alternative Program (SNAP) as a replacement for a class I or Class II ODS.

Buyer – Lockheed Martin Aeronautics Company (LM-Aero). Any reference to “Buyer” shall include its duly appointed representatives i.e. POC.

Competent Person – One who is capable of identifying existing and predictable hazards in the surroundings or working conditions, which are unsanitary, hazardous or dangerous to employees, and who is authorized to take prompt corrective measures to eliminate them. Work requiring a Competent Person shall not be performed on LM Aero premises without a Competent Person present at the job site.

Contractor – Any agent/agency engaged by LM Aero through written contract (or other written agreement) to perform work on LM Aero owned or operated premises i.e. Contractors, Service/Technical Representatives, Vendors & Suppliers that are performing services, construction, renovation, facilities maintenance or support tasks. This includes all tiers of Subcontractors bringing in workers and/or equipment to perform construction, renovation, and facilities maintenance or support tasks. For purposes of brevity the above will be referred to in this document simply as Contractors.

Not included are Contract employees working under LM Aero's direct supervision – they fall under LM Aero's employee ESH programs.

Excavation – Any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal.

Hazardous Material – Any chemical or substance which is a physical hazard, or an environmentally hazardous substance, hazardous waste, marine pollutant, elevated temperature material, material designated as hazardous in the 49CFR 172.101 Hazardous Materials Table, samples believed to be hazardous, and materials that meet the hazard class and division defining criteria in 49CFR Part 173.

Injury and Illness Prevention Plan – A safety plan required by CalOSHA for all employers in California as defined by Title 8, Section 3203

LM Aero – See Buyer.

Point of Contact (POC) – An LM Aero representative responsible for providing oversight of Contractors, to ensure compliance with the terms and conditions of the contract, Purchase Order, or other authorizing documents.

Refrigeration Technician: Any person who performs maintenance, service, repair, or preparation for disposal that could reasonably be expected to release class I or class II substances, or their approved substitutes, from appliances into the atmosphere.

Vehicle – Any means of transportation used to transport personnel and/or property/equipment (e.g., automobiles, trucks, lift trucks, scooters, and golf carts).

ACRONYMS

AC	-	AeroCode
ANSI	-	American National Standards Institute
AQMD	-	Air Quality Management District
CalEPA	-	California Environmental Protection Agency
CalOSHA	-	California Occupational Safety and Health
CARB	-	California Air Resources Board
CDL	-	Commercial Driver’s License
CFR	-	Code of Federal Regulations
CMV	-	Commercial Motor Vehicle
CP	-	Company Policy
DOT	-	Department Of Transportation
EPA	-	Environmental Protection Agency
ESH	-	Environment, Safety & Health
FMCSA	-	Federal Motor Carrier Safety Administration
FMCSR	-	Federal Motor Carrier Safety Regulations
FOD	-	Foreign Object Damage
FPS	-	Fire Protection Services
GFCI	-	Ground Fault Circuit Interrupter
HAP	-	Hazardous Air Pollutants
HMR	-	Hazardous Material Regulations
IIPP	-	Injury and Illness Prevention Plan (CA)
LM Aero	-	Lockheed Martin Aeronautics Company
SDS	-	Material Safety Data Sheet
MOT	-	Materials of Trade (DOT)
NEC	-	National Electric Code
NFPA	-	National Fire Protection Association
NIOSH	-	National Institute for Occupational Safety and Health
ODS	-	A Class I or Class II Ozone Depleting Substance
OSHA	-	Occupational Safety and Health Administration
PIV	-	Post Indicator Valve
POC	-	Point of Contact
PPE	-	Personal Protective Equipment
PSI	-	Pounds per Square Inch
RQ	-	Reportable Quantity (49 CFR 172.101 Table 1 to App. A)
S&H	-	Safety & Health

REFERENCES

- ISO 14001 Brochure ISO 14001 Standard
- 29 CFR Part 1910 Occupational Safety and Health Standards for General Industry
- 29 CFR Part 1926 Occupational Safety and Health Standards for the Construction Industry
- California Title 8 California Safety Orders
- ESH 05 Procedure 5.1.2 A briefing of all contracted employees shall be provided by the LM POC to communicate site specific ESH policies and procedures.
- 5.1.3 The LM POC and Contractor shall exchange information and coordinate actions with the site ESH organization regarding regulatory compliance, site-specific requirements/procedures plus Contractor procedures and training prior to the start of the work.
- 5.1.4 The Contractor shall ensure its employees have training to identify and manage workplace ESH risks, and knowledge of Contractor and site procedures that ensure environmental compliance and the safe performance of the contracted work (e.g., excavation and trenching, fall protection, scaffolding, crane operation, hazard communication, lock out/tag out, etc.) and are in full compliance with all applicable in-country rules and regulations, all LM command media, and the site-specific requirements. The Contractor shall maintain readily accessible records documenting that applicable, timely training has been completed. All ESH-related training and PPE shall be provided by the Contractor using qualified personnel to give training.

GENERAL REQUIREMENTS

The following LM Aero safety, health, fire, environmental, and transportation requirements and information are general requirements for safe performance, and are not a complete list of regulatory requirements. LM Aero's POC, ESH, and FPS Departments can provide additional information, on request.

AISLES, ROADS, AND EXITS

Do not close or impede the use of any aisle, road, or exit (even temporary) without the POC's approval.

DEPARTMENT OF TRANSPORTATION REQUIREMENTS

Contractors shall comply with all DOT requirements for transport of hazardous materials (HM) (Hazardous Material Regulations 49CFR Parts 100-185) and for operation of commercial motor vehicles (CMVs) (Federal Motor Carrier Safety Regulations 49CFR Parts 40, 303, 325, 350-399) when transporting HM or operating CMVs onto or off of Lockheed Martin Aeronautics property.

Contractors who transport hazardous materials under DOT's Materials of Trade (MOT) exceptions per 49CFR 173.6 must comply with all MOT exception criteria, including:

Materials of Trade Quantity Criteria:

The following hazard class/division quantity limits apply:

- For classes 3, 8, 9, divisions 4.1, 5.1, 5.2, 6.1 and ORM-D, the gross mass, including packaging, must not exceed:
 - PGI – 1 pound (0.5Kg) or 1 pint (0.5L)
 - PGII, PGIII, or ORM-D – 66 pounds (30Kg) or 8 gallons (30L)
 - Diluted mixture of Class 9 < 2% concentration – 400 gallons
 - For division 2.1 or 2.2 in a cylinder, the quantity must not exceed 220 pounds (100Kg) per cylinder
 - * For division 2.2, non-liquefied material, with no subsidiary hazard, in permanently installed tanks built to ASME standards, the capacity may not exceed 70 gallons
 - For division 4.3 material in PGII or PGIII, gross capacity < 1 oz. (30ml)
 - The total weight of ALL Materials Of Trade carried on one motor vehicle cannot exceed 440 lbs., not including class 9 mixtures (< 2% concentration) in packaging of < 400gallons.

Note that some types of DOT hazards (e.g., class 1, 2.3, 4.2, 7) do not qualify for MOT exceptions. Also note that hazmat that *is* allowed as MOT, must be in approved packaging that is no less effective than original manufacturer's packaging, must be secured against movement during transport, and must satisfy hazard communication requirement for marking with name of material including ID# for bulk packages and 'RQ' if material in one package > RQ quantity. Note also that chemical samples (e.g.,

environmental or IH samples being sent to lab for analysis) *may* qualify as MOT *if* the lab doing the analysis performs all of the ‘DOT functions’ including picking up the samples.

ELECTRICAL

Ensure activities involving electrical work and electrical equipment brought onto LM Aero premises conform to OSHA 29 CFR 1910 and/or 1926 electrical standards (or equivalent state OSHA standards), NFPA 70: National Electrical Code (NEC) 2017 and other applicable electrical codes, and this manual.

Contractor and Subcontractor workers shall not work on live equipment (greater than 50 volts) unless:

- De-energizing equipment introduces additional or increased hazards (such as cutting ventilation to a hazardous atmosphere location) or, it is Infeasible due to equipment design or operational limitations (such as when voltage testing is required for diagnostics).
- Fort Worth- Submitting Electrical work permit (attachment H) for live equipment. This permit is for manhole work **ONLY**.

When it is necessary to work on or near equipment “live”, Contractors must document to their LM POC their proposed work practices, which includes assessing the risks, using the proper tools and wearing adequate personal protection equipment described in NFPA 70E.

Ensure electrical equipment is properly maintained and in safe operating condition.

Extension cords shall be of the grounded type (3 prong), with the grounding prong intact. Extension cords are not to be more than 150 feet long and are to be plugged directly into an approved receptacle. Do not connect extension cords in series.

Flexible cords shall be used only in continuous lengths without splice or tape.

Flexible cords shall be connected to devices and fittings so that strain relief is provided, which will prevent pull from being directly transmitted to joints or terminal screws.

Extension cords, constructed of metal junction boxes and flexible cords shall not be used.

Extension cord sets used with portable electric tools and appliances shall be of three-wire type and shall be designed for hard or extra-hard usage. Flexible cords used with temporary and portable lights shall be designed for hard or extra-hard usage as defined by the National Electric Code ANSI/NFPA Article 400.

Flexible cords and cables shall be protected from potential damage. Sharp corners and projections shall be avoided.

Conductors entering boxes, cabinets, or fittings shall be protected from abrasion and openings through which conductors enter shall be effectively closed. Unused openings in cabinets, boxes, and fittings shall also be effectively closed.

All energized junction boxes, circuit breaker panels, and other electrical equipment shall be covered to prevent accidental contact.

All electrical equipment (e.g. machinery, power tools, extension cords, and lights) shall be grounded. Exception: Double insulated hand tools do not require grounding.

Use ground fault circuit interrupters (GFCIs) on all electrical tools, cords, and equipment. As an alternative, an Assured Grounding Program according to OSHA 29 CFR Part 1926.404(b) (1) (ii) (or equivalent state OSHA requirement) may be used if a Competent Person is designated.

GFCIs shall be used in wet or damp locations, outdoors and in inclement weather.

All lamps, provided for temporary, general illumination, shall be protected from accidental contact or breakage. Metal-case sockets shall be grounded.

Temporary lights shall not be suspended by their electric cords, unless designed to be suspended in this manner.

Only approved, explosion-proof electrical equipment (Class I, Division 1) shall be used in areas containing hazardous concentrations of flammable gases and/or vapors which exist continuously, intermittently, or periodically under normal operating conditions, or which exist frequently because of repair or maintenance operations.

Only approved explosion-proof electrical equipment (Class II, Division 2) shall be used in areas containing hazardous concentrations of dust.

Electricians must wear at a minimum Non-melting or Untreated Natural Fiber Clothing; Shirt (long sleeve); Pants (long); Safety glasses/goggles; Leather footwear; **(no short sleeve shirts, no shorts, no polyester clothing)**. This minimum clothing requirement will be strictly enforced for work in the sub-stations and all electrical decks 1-10. Violations of this requirement will lead to individual employee suspension from premises for 1 day. Further violations by employee will lead to permanent ban from working on premises.

Use an adequately rated test instrument to test each phase conductor or circuit part to verify it is de-energized.

Electricians should coordinate with LM POC and complete required documentation before accessing electrical equipment.

ELEVATED WORK

Do not perform work over LM Aero personnel, aircraft or equipment unless otherwise approved by the LM Aero S&H Department and coordinated by the POC.

When working in elevated locations, ensure materials and tools do not fall. Attach taglines or thongs to hand tools and wrap them around wrists or tie them to the belt to prevent tools from falling.

Contractors shall barricade areas under overhead work above isles, crosswalks, or high personnel areas and clear them of personnel. If this is not possible, work may be rescheduled to a time when personnel are not present.

Tools, materials, and trash shall not be dropped or thrown to or from elevated locations.

Use lifelines, lanyards, full body harnesses and other protective equipment to protect against fall hazards when guardrails or other recognized methods of fall protection cannot be utilized.

Exceptions: Fall protection requirements for scaffolds, steel erection, and stairways and ladders shall comply with OSHA 29 CFR Part 1926 Subpart L, "Scaffolding", Subpart R, "Steel Erection", and Subpart X, "Stairways and Ladders" or equivalent state requirements. Consult with a Competent Person before beginning work.

Do not use aerial lifts and scissor lifts as cranes, jack stands, or forklifts.

Contractors will wear fall protection equipment (full body harness and lanyard) while in the platform of aerial lifts and "cherry pickers". When working from an aerial lift or scissor lift, personnel shall maintain a firm footing on the platform floor while working therein. Do not use planks, step-stands, ladders, or other devices on the platform for achieving additional height or reach.

Notify the POC before working in or near a roof support structure or any other location where contact with energized overhead cranes or power lines may occur. The Contractor must implement their own energy control (lockout/tagout) procedure to adequately protect against potential hazardous energy sources.

EMERGENCY PROCEDURES

Ensure personnel are familiar with and know the location of the following emergency items:

- The nearest telephone and emergency numbers to call to report a Fire, a medical emergency requiring an Ambulance or a Chemical Spill. A Chemical spill is defined as a spill of any substance including water.

- The nearest fire extinguisher. LM Aero does not require Contractor personnel to use fire protection equipment but provides the equipment in the event the Contractor chooses to use it. In some circumstances the Contractor may be required to provide additional fire extinguishers.
- The nearest emergency exit.
- The nearest emergency eyewash and shower or water source, if applicable.

The means of notifying emergency services shall be posted by the Contractor at the work site. The Contractor shall notify all of the on-site personnel on how to best avail themselves of these services. See Attachment A.

If emergency medical services are not available within two (2) to four (4) minutes of the job site, the Contractor shall have at least one first aid and CPR certified worker. It is the Contractor's responsibility to assess the availability of emergency medical services.

The Contractor shall provide an approved first aid kit at the worksite. An example of the minimal contents of a generic first aid kit is described in American National Standard (ANSI) Z308.1-1978 "Minimum Requirements for Industrial Unites- Type First-Aid Kits".

ENVIRONMENTAL REQUIREMENTS

Lead Acid Batteries:

When installing machinery or equipment that contains lead acid batteries and the batteries are not specifically listed as a line item on the Purchase Order, the Contractor must notify ESH prior to installation.

Palmdale - Contractors shall provide POC copies of air permits and/or CARB related registration documents at the jobsite.

Contractors servicing permitted equipment must immediately contact ESH and then their LM-Aeronautics POC when they encounter, or cause, an equipment malfunction, or, encounter or cause operating conditions outside of the stated permit conditions.

The Contractor shall obtain written authorization from the POC prior to beginning renovation projects which include any land disturbances (clearing, grading, or excavation activities), the disturbance of any asbestos-containing material in a building or facility, or before the demolition of a building or facility, even when no asbestos is present.

The following activities are prohibited at all times while on LM Aero premises:

- No open burning.
- No activities which cause a nuisance off of the facility. Examples of a nuisance are excessive dust and odors that carry over to non-LM Aero sites.
- Entering LM Aero's premises with or using materials containing banned chemicals list found in Attachment "D".

- In Marietta, entering AF Plant 6 with or using materials containing banned chemicals in Attachment “D” and the Marietta Banned List found in the Contractors ESH briefing, provided by your POC.

Contractors shall not conduct the following activities without prior approval from the site POC and ESH:

- Outdoor painting, paint stripping or abrasive cleaning.
- Seal coating operations on parking lot pavement, roads or tarmac.
- Use of coatings and/or solvents.
- Any activities that involve significant usage of water or generation of wastewater.
- Any activities that result in discharging water or pollutants to a sink, or storm, floor or sewer drain.
- Any activities that disturb one acre of land or more.
- Connecting to any existing exhaust ducts or control equipment or installation of any equipment having air emissions.
- Transport on or off site of DOT hazardous materials requiring placarding without site POC and/or ESH knowledge.
- Dispose of waste material in LM Aero waste containers (e.g., dumpsters or roll offs)
- Dispose of hazardous waste without ESH approval.
- Dispose of waste materials, excavated soils and concrete.
- In Fort Worth, signs on fences, walls, equipment, exhaust stacks/vents, etc. are often required by federal, state or local regulatory requirements. Unless specifically directed in the contract, no signs should be painted over, covered or removed from a work surface or piece of equipment. Any signage that is handled during a project should be returned to the same or similar location and condition upon completion of work on that object, unless otherwise directed in the contract. If there is ever any question concerning a sign, notify the construction POC assigned to the project.”
- In Fort Worth, spray painting operations conducted indoors or outdoors.
- It is highly recommended that Contractors utilize non-gasoline powered vehicles wherever possible and that their access to inside work areas may be restricted if they use gasoline powered vehicles.
- All Contractors shall not allow excessive idling of vehicles at construction sites.
- Palmdale - In-use off-road vehicles shall not idle for more than 5 consecutive minutes
 - Park vehicle(s) on unpaved areas.

Contractor shall evaluate jobsite and activities and take action necessary to ensure no materials or wastewaters enter storm drains.

Keep material containers closed when not in use.

Contractors planning operations that may generate waste must notify the POC of all hazardous wastes likely to be generated as a result of Contractor activity and coordinate waste management activities with the POC. Contractor shall not dispose of any materials on LM Aero's premises without specific instructions and authorization from their POC and ESH. Obtain instructions from the POC and ESH regarding disposal of the following materials:

- Chemicals, paints, and toxic materials.
- Soil, construction debris, wash, or rinse waters.
- Protective clothing, laboratory equipment, medical devices (syringes/needles)
- Empty chemical containers, aerosol cans
- Batteries, absorbent materials, tires
- Used oil filters, air filters, paint filters
- Asphalt and concrete should be recycled
- If there is any doubt about disposal, contact your POC

Contractors shall handle, transport and dispose of all non-hazardous wastes in accordance with Federal, state, municipal, local and other rules, regulations, ordinances and requirements. Contractors must segregate hazardous waste from non-hazardous waste.

Operations involving the removal of unbroken lamps containing mercury or other hazardous constituents shall comply with the following universal waste requirements. Universal wastes must be stored to prevent leaking and breakage. Contact POC with any questions about appropriate handling.

- Used fluorescent, High Intensity Discharge (HID), sodium vapor, and metal halide lamps must be contained in the original bulb container or other sturdy packaging to prevent breakage. Contact your POC for information on appropriate packaging. In Marietta, shipping containers for unbroken waste lamps are provided by ESH.
- Containers of unbroken lamps must be labeled as "Universal Waste – Lamps" and contain the date of accumulation start, as well as any information required by site specific labels. Contact your POC for site specific labels.
- Containers must be dated when the first lamp is placed in the container, and the containers must be sealed when they are full.
- Full, closed containers of waste lamps with all required labeling should be delivered to the appropriate storage location as specified by the POC.
 - Fort Worth – Bldg. 216
 - Contractor deliveries of waste must be received by an LM Aero employee at Bldg. 216 during the hours of 7:00 AM – 3:45 PM Monday through Friday. Drop-offs of material are not authorized. Form FWP5255 must be attached to the materials. Contact Construction POC for the form.
 - Palmdale
 - Plant 10 – Bldg. 629

- Site 2 – Bldg. 250
 - Site 7 – Bldg. 722
- Marietta – Contact your POC for access to Used Lamp accumulation points.
- Operations involving the removal of broken lamps and/or lighting ballast(s) from the work site shall be coordinated with the POC prior to start of work. Broken lamps and/or lighting ballasts may be hazardous or state-regulated waste, and must be handled accordingly. Contact Hazardous Waste Operations (Marietta), HazMat (Palmdale), or Hazardous Waste Control (Fort Worth) for regulated waste containers.
- Unless otherwise directed by your POC, Contractors are responsible for providing storage and shipment containers for unbroken waste lamps. Containers must be appropriate to the size, type, and number of lamps being stored, and must be managed in a manner that prevents breakage (Lids fully closed and sufficient packing material to prevent breakage).

Call LM Aero FPS at 911 from any in-plant telephone (Fort Worth, Marietta, Palmdale) to report an actual or suspected spill or leak of oils, paints, acids, or other chemicals that have the potential for entry into soil, sinks, floor drains, or storm drains. Immediately notify your POC of any actual or suspected spills or leaks.

The following site reporting requirements apply:

- Fort Worth – Contractors shall complete a Hazardous Material Usage Log, Form 10977 and submit the log to the POC not later than the end of the calendar year. Jobs ending prior to the end of the calendar year will submit the completed Form 10977 to the POC at job completion. The POC shall provide the completed Form 10977 to ESH.
- Marietta – Contractors using greater than 55 gallons of material containing volatile organic compounds (VOC) per job shall complete a Hazardous Material Usage Log, Form 10977 and submit the log to the POC not later than the end of the calendar year. Jobs ending prior to the end of the calendar year may submit the completed Form 10977 to the POC at job completion. The POC shall provide the completed Form 10977 to the air quality engineer. Exemptions from this requirement must be approved by the Environmental Resources air quality engineer or department manager.
- Palmdale – Contractors must record daily usage of painting and coating products (Attachment F – Form 10977.) These completed chemical usage records must be submitted to ESH on a monthly basis.
 Palmdale – Pesticide/herbicide application Contractors must retain site usage records (previous year plus current) to provide ESH upon request. This information is typically requested on an annual basis.
 Palmdale – Water treatment Contractors must retain site usage records (previous year plus current) to provide to ESH upon request. This information is typically requested on an annual basis.

Palmdale – If a Contractor’s operations require air pollution permit(s), the Contractor shall maintain copies of Permit(s) to Operate, CARB related registration/documentation, or documentation to show an exemption from the permit requirements on-site. Contractors shall make the documentation readily available for all equipment and materials used by the Contractor.

ESH (Fort Worth and Palmdale) and Material Operations/Chemical Warehouse (Marietta) will retain manifests, land disposal restrictions documents, bills of lading, and other shipping documentation.

Contractors shall coordinate with their POC for site specific refrigerant tracking and reporting requirements.

Container Management:

- Roll-off containers used for the accumulation of material shall be covered and closed at the end of work shift.
 - “Keep covered and closed” refers to closing all roll-off doors and placing a cover (e.g. tarp) on the roll-off such that the entire top of the roll-off is covered (i.e. “end to end”).
- Alternate disposal methods will be approved by ESH.
- Roll-offs shall be labeled with the point-of-contact name with phone number for the container.
- Containers shall not be stored near storm drains.
- Containers used to accumulate hazardous waste must be labeled with LM Aero hazardous waste decals.
- Hazardous material and waste containers must be appropriate per DOT requirements, compatible with materials contained, not leaking, and not overfilled.
- All hazardous material containers transported on or off site other than MOT must bear all required DOT markings and DOT labels.
- Liquid storage containers, including mobile and stationary tanks with the capacity of 55 gallons or greater must have secondary containment. Any mobile petroleum tanks (e.g. on trailers) must have secondary containment around them at their parking site. Tanks mounted on motor vehicles (e.g. in beds of pickups, tank trucks) are excluded from this requirement.
- Contractor is to provide to Lockheed Martin site ESH POC weights of project construction and demolition debris that are going to landfill and materials that are recycled.
- Fort Worth Only: Contractors shall capture concrete cuttings and waste concrete (e.g. Ecopans) and its associated wastewater during sawcutting operations to prevent storm water impacts. Concrete cuttings and wastewater shall be provided to Hazardous Waste Control for disposal. Contractors should coordinate with their Lockheed Martin POC on proper disposal of concrete cuttings prior to start of work.

Spill Containment:

The presence of fuel or oil storage containers on site with an individual capacity of 55 gallons or greater and a combined total capacity of 1320 gallons or greater will require the Contractor to prepare an oil spill prevention, control, and countermeasure (SPCC) plan per the requirements in Title 40 Code of Federal Regulations (CFR) Part 112. Contact your LM Aero POC and coordinate with ESH if this condition is expected to exist. (NOTE: Only containers with a capacity of 55 gallons or greater are counted toward the total capacity. The gas tanks on vehicles and mobile equipment do not count toward the total capacity. The tank on a tank truck or tank trailer does count towards the total capacity if the tank holds fuel or oil and is kept on-site.)

Refrigerant Equipment:

All work that requires opening a refrigerant system or that could reasonably be expected to result in a release of Class I or Class II ozone depleting substance (ODS), or their approved substitutes, to the atmosphere shall utilize recovery/reclamation equipment that is certified by an EPA approved testing agency.

Refrigerant usage (installations, additions, removals, etc.) must be reported to the Lockheed Martin POC for possible inclusion in site air emissions inventories. Check with your contract POC or the ESH organization to determine if site-specific reporting form submittal is required.

Intentionally venting or releasing any Class I or Class II ODS, or their approved substitutes, to the atmosphere is expressly forbidden.

Pesticides Management

All pesticide / insecticide / rodenticide use must be approved by ESH and applied by the Licensed Commercial Applicator (company) currently under contract by Facilities & Plant Engineering (F&PE). Contractor approved pesticide / insecticide / rodenticide materials shall not be mixed or stored on site unless specifically authorized by ESH. Disposal of pesticide materials is the Contractor's responsibility.

Palmdale - Pesticide/herbicide application Contractors must retain site usage records (previous year plus current) to provide to ESH upon request. This information is typically requested on an annual basis.

EXCAVATIONS, FLOOR, AND ROOF OPENINGS

In areas where there is suspected or known contamination, soil samples must be analyzed to determine extent and type of contamination before start of excavation. An Excavation Permit is required. The LMCO POC will provide a copy to the Contractor to complete. The form is returned to the LMCO POC. The form is reviewed by many. Comments are made. The form is returned to the LMCO POC. The LMCO POC discusses the findings with the Contractor, the Excavator. The form is posted on site. Contractor should contact their LM POC and ESH to determine soil testing requirements. Spoil piles will not be removed from site without approval of the POC.

Before entry excavations and trenches shall be evaluated for confined spaces.

Ensure a Competent Person inspects all excavations before work begins and as needed during the shift. When the Competent Person finds evidence of a hazardous condition, exposed employees shall be removed from the hazardous areas until the necessary precautions have been taken to ensure their safety.

All excavations, regardless of depth, shall be barricaded or covered. If barricades are utilized and are left overnight they shall be equipped with appropriate lights or reflectors.

Walkways shall be provided where employees or equipment are required or permitted to cross over excavations. When walkways are utilized, a guardrail system shall be in place.

Temporary covers for holes in floors, roofs, and other walking/working surfaces shall be:

- capable of supporting, without failure, at least twice the weight of personnel, equipment, and materials that may be imposed on the cover at any one time
- Secured to prevent accidental displacement by the wind, equipment, or personnel.
- Color coded or marked with the word “HOLE” or “COVER” to provide warning of the hazard. If non-English speaking personnel are in the area, the wording shall be marked in a language personnel will understand.

Concrete patches/repairs shall be made with a material comparable to the material removed, and shall have a texture and surface similar to materials replaced and surrounding areas. Concrete repairs shall not be left with a sandy/gravelly surface that may cause an employee slip hazard.

FLAMMABLE, COMBUSTIBLE, TOXIC AND OTHER HAZARDOUS MATERIALS

Hazardous materials on LM Aero’s premises shall be labeled in compliance with OSHA 29 CFR Part 1910.1200, “Hazard Communication”. Hazardous materials shall be contained in approved containers and used, stored, and transported in accordance with ESH, FPS and DOT requirements. The Contractor shall coordinate with the POC for compliance with these guidelines. For all hazardous materials used on Lockheed Martin property, Contractors shall maintain SDSs on site, or be able to obtain them immediately

and produce them on request. Contractors shall not use banned hazardous materials. Contractors can obtain from the POC the identity of hazardous chemicals used in LM Aero operations to which Contractor's employees may be exposed.

Flammable and combustible liquids, such as solvents, paint thinners, gasoline, and diesel fuels shall be used and handled in a safe manner. No more than five (5) gallons of these materials may be stored at one location without specific approval from LM Aero's FPS Department. Only approved safety container shall be used to contain flammable and combustible liquids, except paint. Containers shall be limited to a five (5) gallon capacity and kept closed when not in use. Plastic containers shall not be used to contain flammable or combustible liquids.

All flammable materials shall be removed from the work site or properly stored at the end of each workday.

Adequate ventilation and/or respiratory protection shall be provided and maintained when flammable or toxic liquids are used, especially in enclosed areas. This precaution also applies to spray and/or brush painting.

HAZARD COMMUNICATION PROGRAM

LM Aero maintains a list of hazardous chemicals used by LM Aero employees at LM Aero facilities. Safety Data Sheets (SDS) for those hazardous chemicals is available from your POC, if requested. Contractors with employees working on LM Aero premises shall:

- Not bring any hazardous materials on LM Aero property containing chemicals on the LM Aero banned list or other local banned list.
- Review their contract(s) for information on hazardous chemicals. All bidders must be able to furnish a list for LM Aero approval, of chemicals, paints, cleaners, compounds, and other liquid products that will be used and an SDS for hazardous materials as defined by OSHA 29 CFR Part 1910.1200 (or equivalent state OSHA requirement).
- Inform their employees of the hazards they may encounter, provide training, and supply personal protective equipment required to safely perform their work.
- Each Contractor, including Subcontractors, shall maintain a SDS file at the work location for each hazardous material used on LM Aero property.
- Not use hazardous materials within 25 feet of HVAC inlet air ducts unless approved by your POC.
- In Ft. Worth provide to POC, before work starts, completed site specific hazardous material product data information and SDS(s) for each hazardous material to be used for Facilities Engineering and ESH approval.
- In Palmdale, for hazardous materials to be used on Lockheed Martin property, the following Contractors shall provide SDS's to the POC and ensure they are approved by Lockheed Martin Environmental Safety and Health before use.

- Pesticide or herbicide applicators
- Painting or coating applicators
- Flooring removal or installation Contractors
- Long-term general construction or maintenance Contractors, with personnel stationed on-site
- Any chemically-intensive operation or process that uses or stores significant concentrations or quantities of hazardous materials at LM Aeronautics or introduces new or unique chemicals that may otherwise significantly impact LM Aeronautics operations or employees. For purposes of this section, “significant” quantities of hazardous materials means storing/using containers with more than 500 pounds (solid), 55 gallons (liquid) or 200 cubic feet (compressed gas) on site for more than 30 days. The definition of “new or unique” chemicals is up to the discretion of ESH. Any proposed process that may trigger ESH concerns should be clarified first with ESH through the POC and will be managed on a case-by-case basis. Typical examples of projects requiring ESH approval may include specialty cleaning operations, drinking or other water treatment operations, or flushing/retrofill of oil-filled electrical transformers.
- Provide to the POC, before work starts, completed site specific *Hazardous Material Review Submittal form 10121*.

For purposes of this section, “significant” quantities of hazardous materials means storing/using containers with more than 500 pounds (solid), 55 gallons (liquid) or 200 cubic feet (compressed gas) on site more than 30 days. The definition of “new or unique” chemicals is up to the discretion of ESH. Any proposed process that may trigger ESH concerns should be clarified first with ESH through the POC and will be managed on a case-by-case basis. Typical examples of projects requiring ESH approval may include specialty cleaning operations, drinking or other water treatment operations, or flushing/retrofill of oil-filled electrical transformers.

- In Fort Worth and Marietta, Contractors should use only hazardous materials on the Approved Hazardous Materials List. You may view the approved hazardous materials list at <https://www.lockheedmartin.com/en-us/suppliers/business-area-procurement/aeronautics/terms-and-conditions/environment-safety-health.html>
- In Marietta, to use hazardous materials not on the approved hazardous material list the Contractor must:
 - Review the material SDSs for banned chemicals contained in Marietta banned chemical list found in the Contractor Safety Briefing and in the Aeronautics Hazardous Materials Elimination List (HMEL). Both lists can be found at the following URL [https://www.lockheedmartin.com/en-us/suppliers/business-area-procurement/aeronautics/terms-and-](https://www.lockheedmartin.com/en-us/suppliers/business-area-procurement/aeronautics/terms-and-conditions/environment-safety-health.html)

[conditions/environment-safety-health.html](#). Use of any material containing banned chemicals is prohibited. For all other materials, provide the Facilities POC with the SDS(s) and completed HMRB Submittal Form 11247, also found at the URL listed above, for each hazardous material to be used. Provide your POC the SDS as soon as possible as the approval process may take as long as three weeks/

- The POC will provide the SDSs to ESH for number assignment.
- ESH will assign a SDS number to each hazardous material and provide the numbers to the POC.
- the POC must then electronically submit each completed HMRB submittal form for each material, by SDS number, to the HMRB for approval. Materials are submitted at the following URL: http://maru208.mar.lmco.com/cgi-bin/newmims/main_menu
- Hazardous materials must be HMRB approved prior to being brought on site. ESH will notify the POC if the material is approved or disapproved. If disapproved an appeal can be filed, which will be presented to the HMMP by the POC.
- Emergency situation variance shall be approved by the POC and ESH

HOUSEKEEPING AND MATERIAL STORAGE

Maintain good housekeeping at all times. Clean work areas and store items neatly at the end of each work shift. Remove combustible material (e.g., trash, wood, rags, cardboard, paper) at the end of each day.

MACHINERY, TOOLS, AND EQUIPMENT

Contractor shall not use or operate LM Aero's tools, machinery, vehicles, cranes, or other equipment, unless approved and supervised by the POC.

Points of operation on power-transmission equipment (e.g., gears, chains, sprockets, belts, pulleys) and portable powered tools (e.g., portable grinders, portable saws, pneumatic nailers/staplers) shall be guarded.

Machines, tools, and equipment shall be inspected frequently and removed from service if defective.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Contractor shall be responsible for providing PPE and ensuring their personnel wear required PPE (e.g., eye protection, face protection, head protection, hand protection, hearing protection, foot protection, respiratory protection, fall protection) appropriate for the hazard. **LM Aero shall not furnish Contractor personnel with any PPE.**

Contractor personnel shall wear head protection (hard hats) when exposed to the possibility of head injury from impact, falling or flying objects, or electrical shock and burns. The Class of hard hat required to be worn shall be based upon the type of exposure to which personnel are exposed (e.g., impact and penetration, electrical shock and burns).

SPECIFIC EYE PROTECTION REQUIREMENTS

Contractor personnel shall wear eye protection, equipped with side shields when exposed to operations generating a hazard to the eyes and when in LM Aero areas where eye protection is required (glasses, side shields and goggles).

Contractor personnel shall wear eye and face protection in accordance with ESH's PM-8013 (Contractor Safety Handbook); all eye protection must comply with ANSI Z87.1-1989. Safety glasses shall include side impact protection (side shields); ordinary glasses (reading or non-occupational eye wear) do not provide required eye protection and if ordinary glasses are worn, ANSI Z87.1 cover glasses must be worn over them. Face shields alone do not meet the ANSI impact resistance requirements and shall not be used as primary eye protection; ANSI Z87.1 approved eye protection must be worn over face shields to meet eye protection requirements.

Eye protection must be provided when the following hazards are present:

- Dust and other flying particles, such as metal shavings or sawdust
- Corrosive gases, vapors, and liquids
- Molten metal that may splash
- Materials that may splash, such as chemicals
- Intense light from welding and laser eye/face protection must be tinted accordingly

The job tasks requiring eye protection could be, but are not limited to electrical work, drilling, sweeping, sawing, cutting, shaping, crushing, breaking, nailing, digging, boring etc. Moreover, eye protection will be required if any person is in the area where these hazards may exist. Eye protection will not be required in an office if the aforementioned hazards do not exist.

SPECIFIC HEAD PROTECTION REQUIREMENTS

Head protection must comply with ANSI Z89.1986. Hard hats are required where there is a potential for injury to the head from falling objects. Hard hats will be worn when these hazards are present:

- Falling objects such as tools
- Bumping head against objects, such as pipes or beams
- Contact with exposed electrical wiring or components

- Flying objects

Job tasks requiring head protection could be, but are not limited to crane operations, overhead construction work, some electrical work, working underneath low structures that could result in a struck against injury. Head protection will be required if a person is in the work area where these tasks are being performed. For example, if a worker is sweeping the floor where any of the above hazards exist, a hard hat must be worn.

Contractor personnel shall wear hand protection (gloves) when exposed to hand hazards. Gloves shall not be worn close to revolving/rotating machinery or equipment.

Contractor personnel shall wear hearing protection when performing tasks or working in areas where the noise level is above 85 dB (8-hour Time Weighted Average [TWA]).

Contractor personnel shall wear foot protection when exposed to foot hazards from sharp objects and impact.

Contractors shall maintain a Respiratory Protection Program in accordance with OSHA 29 CFR Part 1910.134, including respirator selection, medical examinations, training, and fit test, when the contracted activity requires respiratory protection.

Contractor personnel shall use fall protection equipment, such as full body harnesses and lanyards, in compliance with the requirements of OSHA 29 CFR Part 1926, Subpart E, “Personal Protective and Life Equipment” and OSHA 29 CFR 1926, Subpart M, “Fall Protection”.

PORTABLE LADDERS

Ensure ladders are in good condition and free from structural defects.

Immediately remove defective ladders from use, mark them as defective, and keep them from service until repaired.

If using a ladder in an aisle, roadway, or doorway, barricade the area around the ladder and/or post it to protect the ladder from being struck with a spotter watching the surrounding area.

No metal ladders shall be permitted for use on the worksite.

SMOKING

Smoking is prohibited on LM Aero property. Contractors caught smoking or using any tobacco products will be banned from the worksite.

VEHICLE OPERATIONS

The following general practices apply:

- Each passenger riding in a vehicle must be seated in a manufacturer approved seat while on LM Aero premises.
- Riding in the bed of pickups and trailers is prohibited.
- Wear seat belts in accordance with State motor vehicle laws, or when provided on equipment.
- Personnel shall not use electronic devices while operating vehicles on Aeronautics property, unless the vehicle is parked in a safe and legal location or, for voice communications only, unless a hands-free device is used.
- Pedestrians, aircraft, and authorized emergency vehicles have the right of way at all times
- Use extreme caution when passing through doors that lead to the outside of the building and when passing personnel doors that exit into traffic aisles.
- Ensure vehicles do not enter buildings unless approved by the POC or other authorized LM Aero representative.
- Use extreme caution at all times to avoid vehicle-pedestrian accidents, especially during lunch, break periods and at shift changes.
- Only emergency vehicles shall pass into or through hazardous areas enclosed by barricades or areas designated by signs as hazardous.
- All in-plant traffic accidents involving property damage or personal injury shall be reported immediately to the POC.
- When possible, equipment powered by internal combustion engines shall be vented outside, except for movement to or from the work area.
- Internal combustion vehicles parked shall be turned off to reduce air pollution.
- Vehicles and trailers shall not be overloaded as to weight or size of load. Material that cannot be safely transported in a vehicle, on a trailer or on a skid, shall not be carried by these means. If material has the potential for movement, it shall be adequately secured prior to movement.
- Standing on a moving vehicle is prohibited, unless the vehicle is designed for such operation (e.g., scissor lifts, aerial lifts). Manufacturer's specifications and recommendations shall be followed.
- Vehicles shall not be refueled inside any building. This includes the exchange of propane cylinders on propane-fueled vehicles.
- The Contractor shall ensure that each powered industrial truck (fork lift) operator is competent to operate a powered industrial truck safely, as demonstrated by the successful completion of the training and evaluation specified in OSHA 29 CFR Part 1910.178(a)
- Operators of commercial motor vehicles must have an appropriate driver's license or CDL and other records as may be required by Federal Motor Carrier Safety Regulations.

- Vehicles operating during hours of darkness, inclement weather, and poorly illuminated areas shall be equipped with operational headlights and taillights. This includes any golf carts or non-standard all-terrain vehicles.
 - Fort Worth Only: All contractor owned or leased vehicles (eg scooters, forklifts etc) operated inside any building shall be required to have blue collision avoidance lights.

Signals, Stop, and Yield Signs

- Vehicle operators shall use mechanical or standard arm signals when turning and shall observe all State and local traffic regulations while on LM Aero’s premises.
- Vehicle operators shall observe all posted traffic signs.
- Except on aisles equipped with “Stop” signs at the intersection, vehicles traveling on north-south aisle have the right-of-way over other vehicles. However, north-south vehicle operators shall continue to watch for pedestrians and slow down at intersections.

Speed Limits (Except Flight Line)

The rate of speed shall be reduced for existing road conditions. In congested areas, speeds shall be reduced. Unless otherwise posted the following speed limits are in effect:

- Marietta:
 - In buildings and in parking lots, 5 mph
 - Outside areas, 20 mph
- Palmdale:
 - Outside areas, 20 MPH
 - Parking lots, 10 MPH
- Fort Worth:
 - In buildings, 5 MPH
 - Outside areas, 20 MPH
 - Parking lots, 15 MPH

Flight Line

The following apply when operating vehicles on the flight line:

- Contractor personnel are not permitted on the flight line unless in the performance of a contractual job task. Entry onto the flight line requires POC authorization and shall only be through designated FOD checkpoints.
- The flight line speed limit is 15 MPH.
- Special purpose vehicles, such as tugs and forklifts, shall not exceed 10 MPH.
- Vehicles shall not operate in excess of 5 MPH when near aircraft.

- With the exception of emergency vehicles, vehicles shall not be driven within ten (10) feet of parked aircraft.
- Vehicles shall not be parked or driven closer than 25 feet in front of or 200 feet to the rear of any aircraft when the engine is running or about to be started.
- When parking on the flight line, vehicles shall not be parked pointed directly towards an aircraft.
- All vehicles shall approach parked aircraft with the driver's side of the vehicle toward the aircraft. This does not include vehicles parking in front of the run station.
- Vehicles shall not be parked in front of, or driven into the path of taxiing aircraft.
- Only vehicle operators licensed by the government shall be allowed to drive on or across the runways.
- Vans, pickups, and automobiles are not to be used for towing unless they are properly equipped for towing.
- At night, headlights directed toward moving aircraft will be turned off. Parking lights will be utilized.
- When the driver's seat is vacated, ignition is to be turned off, brakes set and gear lever placed in reverse. If the vehicle is equipped with an automatic transmission, the gear lever is to be placed in the park position.
- Vehicles left unattended on the aircraft parking ramp, shall utilize wheel chocks to secure the vehicle from rolling, unless the vehicle is equipped with a parking brake.

Parking

Vehicle Permits may be obtained from the LMCO POC with the approved Badge Request Form. Justification must be provided. Displayed at all times for security to check.

If authorized to bring vehicles onto the facility, observe in-plant parking regulations. Gate passes may be revoked at any time by LM POC or ESH.

Palmdale- Gate passes are not required for vehicles.

WARNING SIGNS AND BARRICADES

Erect and properly maintain necessary safeguards to protect Contractor personnel, LM Aero employees, and others. Isolate work areas from LM Aero operations and employees by using warning tape, barricades, or another effective means.

Before beginning work, inform the POC of work posing a potential danger to LM Aero personnel and obtain POC's written authorization to proceed.

SPECIAL REQUIREMENTS

ASBESTOS

Immediately report any contact with asbestos-containing or suspected asbestos-containing materials to the POC. Cease work immediately until the POC gives approval to resume work

Notify POC in advance of any maintenance, repair, renovation, construction, removal, demolition or salvage activities in which any materials contain asbestos. Unless directed otherwise by the POC, the Contractor shall provide notification to the POC who will notify ESH. LM Aero ESH will review plans for removal/demolition work and, if necessary, specify the requirements for establishing regulated areas and monitoring. ESH will ensure that notifications required by regulatory agencies are properly coordinated and submitted to the agencies within the time frames specified in the regulations.

Contact LM Aero POC in advance of small-scale, short duration operations, such as pipe repair, valve replacement, installing electrical conduits, installing or removing drywall, and other general building maintenance or renovations operations to establish acceptable monitoring and work practices.

All work shall be completed in a way that will not expose LM Aero's personnel to asbestos.

Contractor will post signs stating asbestos work is in progress and secure the immediate area with flagging (or equivalent material) to keep personnel from entering the area. The signs shall bear the following information:

**DANGER
ASBESTOS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
AUTHORIZED PERSONNEL ONLY**

Contractor shall take adequate precautions to prevent asbestos from becoming airborne. Extra caution should be exercised when working near air intakes and exhausts. Where possible all doors near the area shall be closed to prevent drafts.

Contractor shall comply with all applicable laws and regulations, including without limitation, the OSHA and Environmental Protection Agency (EPA) regulations relating to the handling or removal of asbestos. OSHA 29 CFR Part 1926.1101, Table 1, specifies, among other things, exposure limits, monitoring requirements, hazard communications, medical surveillance, record keeping, work practices and personal protective equipment.

Bags of asbestos waste/contaminated debris shall have a readily visible label and be legibly marked as follows:

DANGER

**DANGER
CONTAINS ASBESTOS FIBERS
MAY CAUSE CANCER
CAUSES DAMAGES TO LUNGS
DO NOT BREATHE DUST
AVOID CREATING DUST**

**Contractor's Name
Date
Location of Removal**

Bags of asbestos waste/contaminated debris shall be delivered to a waste accumulation area designated by the POC. Asbestos waste shall be disposed of at a landfill approved by ESH. ESH (Fort Worth and Palmdale) and Material Management (Hazardous Waste Operations) and/or ESH (Marietta) will retain manifests, land disposal restriction documents, bills of lading, and other shipping documentation.

In Palmdale, bags of asbestos waste/contaminated debris placed in rolloff containers shall have a readily visible label and legibly marked. Labels/Markings will be provided by HazMat.

Contractor, or their designated representative, shall inspect the job site at the end of each day to ensure all asbestos debris, in the area, has been properly cleaned up.

Abatement Contractors and Subcontractors shall provide a copy of the results of all area, personnel, and/or bulk sampling to the POC.

LM Aero ESH shall approve, in writing, any exceptions to the above.

BLASTING

Blasting operations shall be performed only by licensed and experienced personnel.

LM Aero ESH, FPS and Security must be notified of blasting operations at least 48 hours in advance.

No explosives shall be stored on Lockheed Martin/ Air Force property overnight.

The time for blasting and the control of traffic during such blasting must be cleared in advance with ESH and Security.

All blasting areas must have an appropriate “clear” zone established.

CHEMICAL PROCESSING AREAS

To avoid potential hazards or employee exposures, information on fluids contained in piping and tanks shall be obtained from the POC before starting work. No work with loose material and tools shall be performed over tanks. Loose items shall be fastened, with thongs, to a belt or wrist.

All overhead work, above any process tanks, shall be approved by the POC and affected departments prior to performing any work activities.

COMPRESSED GAS CYLINDERS

Cylinders showing evidence of damage or missing or defective components shall not be used. Damaged or defective cylinders shall be removed from service. Threads and fittings of cylinders, regulators, and valves shall not be modified.

All compressed gas cylinders must meet DOT requirements and must have current pressure tests.

Do not lift cylinders with ropes or chain slings.

If a cylinder is designed for a valve protection cap, ensure the cap is in place when the cylinder is not in use, not connected for use, or is being transported.

Cylinder valves shall be shut off when left unattended (e.g. breaks, lunch, end of work shift).

Store oxygen and fuel gas cylinders a minimum distance of 20 feet apart or separate them by a noncombustible barrier at least five (5) feet high having a fire resistance rating of at least 1/2 hour. Oxygen and fuel gas cylinders may be stored together, on cylinder carts, only when gases are in use.

Store propane cylinders, not in use on forklifts or other equipment, outside of buildings, in a storage area designated by LM Aero’s FPS or ESH Department.

Remove all compressed gas cylinders from LM Aero’s premises, upon job completion. Exception: At Fort Worth, Contractors assigned an area in the Building 181 Contractor Staging Area may retain their compressed gas cylinders, in their assigned areas, as needed to support continuing operations.

CONCRETE AND MASONRY CONSTRUCTION

All protruding reinforcing steel, onto and into which employees could fall, shall be guarded to eliminate the hazard of impalement.

CONFINED SPACE ENTRY

Contractors shall be informed, by the construction documents, statement of work, and/or their POC, if the workplace contains confined spaces (both permit and non-permit required).

All Contractors are responsible for developing and administering their own Permit Required Confined Space Program. The written program and confined space entries are subject to inspection by LM Aero's S&H Department and the POC. Contractors shall be informed, by their POC, of the elements, including the hazards identified and the experience the LM Aero has concerning the space that makes the space in question, a permit required confined space. The Contractor shall also be informed of any special precautions or procedures that LM Aero has implemented for the protection of employees in or near the permit required confined spaces where Contractor personnel may be working.

The POC shall ensure that LM Aero's FPS Department is notified of all permit required confined space operations involving Contractor personnel.

Contractors are responsible for obtaining rescue services and providing notification to the POC of the rescue service organization. At Fort Worth a two-way radio shall be obtained from LM Aero's FPS Department prior to entering a confined space. The Contractor shall notify LM Aero FPS department upon entering and exiting the permit required confined space, this shall include the number of workers entering and exiting.

Joint entry operations involving LM Aero's employees and Contractors shall be under the supervision and control of LM Aero's Entry Supervisor. With joint entry operations between two (2) or more Contractors, the Entry Supervisor shall be designated by the POC. Entry by the POC or any other LM Aero employee into a confined space occupied by Contractor personnel requires a LM Aero Confined Space Entry Permit.

Upon the conclusion of entry operations, Contractors shall brief the LM POC regarding the permitted confined space program followed and any hazards confronted or created in the space during entry. A copy of the permit, with any information accumulated by the Contractor concerning the confined space, including his classification of the confined space, hazards/problems encountered, and any comments, shall be forwarded to LM Aero's S&H Department for inclusion into the historical record(s) of the confined space(s).

CRANES AND HOISTING OPERATIONS

Do not use or operate LM Aero's cranes, hoisting equipment, or lifting attachments, without POC approval and supervision.

Inspect cranes, hoisting equipment, and lifting attachments before each use. Remove damaged or defective equipment from service. Do not lift loads over personnel.

Any work on, near or around the Overhead Cranes in Building 4 or 5 shall be coordinated with LMCO Project POC.

Ensure crane rail stops, equipped with visible flagging, are installed on all crane rails when work is to be performed in the crane path (e.g. aerial lift operations). Coordinate rail stop installation through the POC.

Load testing requirements shall be followed through ASME B30 series referenced under the OSHA standard 1910.6.

When requested by the LM POC or ESH representatives, provide a written lift plan. A written lift plan will include as a minimum:

- Make and model of the crane
- Name of the crane operator, documentation of training and competent person responsible for the execution of the lift plan.
- A copy of the crane's most recent certificate of annual inspection.
- A copy of the cranes maximum loads at various boom angles and radii.
- Utilizing the crane boom angle and radius information identify all loads that will exceed 75% of the crane capability.
- Identify if two or more cranes are required.
- Identify number of ground handlers and location of ground handlers
- Communication method between ground handlers and crane operator
- Location of material staging area
- Method of managing vehicle and pedestrian traffic

DEMOLITION

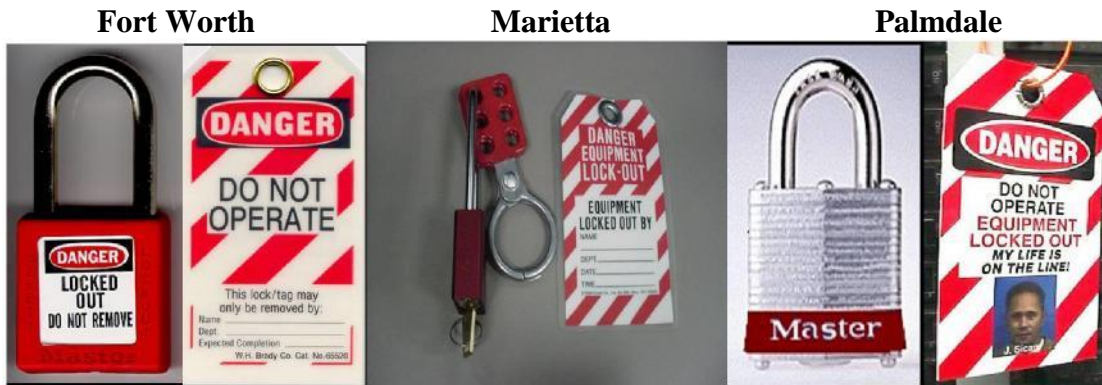
Projects requiring the demolition or removal of building structural members requires a written 11 working day notification to the POC whether or not asbestos is present in the work area.

ENERGY CONTROL PROCEDURES (LOCKOUT/TAGOUT) /SHUTDOWNS

The Contractor is responsible for developing and implementing their own effective lockout/tagout program that complies with OSHA 29 CFR Part 1910.147, “The Control of Hazardous Energy (Lockout/Tagout)” and NFPA 70E.

Equipment with sources of hazardous energy (e.g. electrical, mechanical, gravitational, hydraulic, pneumatic, chemical, thermal) or equipment with potential for environmental contamination shall be locked and tagged out prior to servicing or maintenance work being performed.

The Contractor and POC shall exchange information on each other’s Lockout/ Tagout Programs and identify the lockout and tagout devices to be utilized. LM Aero’s energy control lockout and tagout devices are shown below.



Any work done by a Contractor and LM Aero personnel, on the same equipment, at the same time, shall incorporate both Contractor’s and LM Aero’s lockout/tagout programs, utilizing lockout/tagout devices from both parties.

Palmdale - Contractors cleaning, repairing, maintaining or otherwise servicing LM Aero equipment shall use LM Aero’s lockout/tagout procedures.

All utility shutdowns shall be coordinated through the POC. Utility shutdowns include electrical, steam, compressed air, domestic water, sanitary sewer, industrial waste, air conditioning, heating and chilled water systems.

Contractors working on systems at 600 volts and above shall coordinate the shutdown and energy control procedures with the POC and the LM Aero’s Plant Engineering Department. Contractors working on systems less than 600 volts shall coordinate with the POC.

Fire protection equipment, including risers, hydrants, fire alarm panels, smoke detectors, valves, fire mains and any other fire protection equipment shall not be activated, altered, changed, deactivated, or worked on until notification is given to, and approval is granted by, LM Aero’s FPS Department.

LM Aero's FPS Department shall be notified when work has been completed on any fire protection system and before the system is tested and restored to service.

FALL PROTECTION

Contractors and their Subcontractors performing work above four or six feet depending on industry requirements shall:

- Use an approved method of fall protection.
- Follow the OSHA standard 1926.502 and Cal/Osha Article 24 paragraph Fall Protection. Contact safety with any questions regarding these requirements. Roof access plans require approval from ESH.

LM Aero Steel Erection fall protection requirements can be found in the Steel Erection Paragraph.

HOT WORK (WELDING AND CUTTING) AND TAR POTS

Cutting and/or welding are permitted in fire safe areas only. Within an operating plant or building, cutting and/or welding shall be done preferably in an area designated for such work, such as a maintenance shop or a detached outside location. Such areas shall be of noncombustible or fire-resistive construction, essentially free from combustible and flammable contents, and suitably segregated from adjacent areas. When it is not practical to move work (as in most construction activities) the area shall be made safe by removing combustibles or protecting combustibles from ignition sources (e.g. open flames, hot surfaces, sparks).

Hot work permits are required prior to performing welding, cutting, open flame, hot surface or spark producing operations e.g. grinding, outside of established welding areas. Hot work permits apply to cutting, welding (arc and gas), soldering and brazing operations, and tar pots. Instruction for obtaining hot work permits shall be obtained from the POC. Hot work permits are authorized by LM Aero's FPS Department and must be issued by LM POC prior to beginning any operations involving hot work. The duration of permit is specified by the person issuing it and the expiration date and time is noted on the permit. Permit is only good for conditions and location written on permit. Hot work permits shall be posted in the work area.

When an area cannot be made fire safe, LM Aero's FPS Department shall ensure a fire watch is provided. The Contractor shall provide a fire watch for all hot work operations and shall notify the LM Aero's FPS after they have performed the required 30 minute follow up. The permit is then signed by the Contractor and returned to FPS. LM Aero's FPS Department shall be notified by the LM Aero POC at least 48 hours in advance of planned hot work operations that will require a fire watch. The LM Aero POC will provide the FPS department the location, duration, and charge number for welding operation requiring stand by.

The Contractor Supervisor, in charge of the work, is responsible for moving all combustibles a safe distance away (at least 35 feet horizontally) and ensuring there are no openings in walls or floors where sparks or slag could fall and ignite combustibles. Flammable and combustible liquids are not allowed within 50 feet of hot work. If this is not possible, it is the Contractor Supervisor's responsibility to protect all exposed combustibles with fire resistant sheeting or blankets, before beginning hot work operations and provide a fire watch. All conditions of the permit must be met before the permit is signed and issued

Oxygen and acetylene bottles shall only be stored on welding carts when in use.

Hot work shall not be performed in any area where the fire protection sprinkler system is shut down, unless prior approval has been obtained from LM Aero's FPS Department. LM Aero's FPS Department shall ensure fire extinguishers, provided by the Contractor, are available in the work area before a hot work permit is issued, and shall insure Contractor personnel are made aware of the location of nearby extinguishers and/or other fire protection equipment (e.g. fire alarm boxes, fire hoses). Contractors are required to supply fire extinguishers for the hot work to be performed. Portable fire extinguishers shall be serviceable with appropriate current service tags attached and clearly labeled as belonging to the Contractor.

If a flammable atmosphere is suspected, or if the hot work is to be performed in a closed area containing flammables, LM Aero's FPS Department shall evaluate the atmosphere (Lower Explosive Limit (LEL) tests) and specify protective measures to be taken. With approval of the site FPS department, the Contractor may make these evaluations. A calibrated atmospheric measuring instrument will be used to perform these tests.

Special precautions shall be taken when welding or cutting metal, which has been used for fuel tanks, regardless of how long the fuel has been drained. The welding or cutting operation shall be ventilated and/or purged with nitrogen. Metals that are contaminated with chemical residue must be decontaminated before welding. Respiratory protection may be necessary for welders, depending on contaminant.

Hot work shall not be performed on any pressurized line (e.g. steam, air, gas, oxygen, acetylene) until pressure is removed and hazardous energy control (lockout/tagout) procedures are implemented. The POC shall be consulted if unsure or questions arise.

Arc welding performed in line of sight of open aisles or employee work areas, regardless of the height of the welding operation, shall be shielded.

Tar pots shall:

1. Not block any exits, means of egress, gates, roadways, or entrances and shall be located a minimum of 10 feet away from exits or other means of egress.
2. Not be placed where vapors may enter a building.
3. Not be placed within 50 feet of explosives operation or explosives storage facility, without the prior approval of LM Aero's FPS and S&H Departments.

4. Not be placed within 25 feet of any flammable or combustible liquid containers or storage areas.

5. Not be located inside or on the roof of any buildings.

6. Be attended by at least one employee knowledgeable in the operation and hazards of the equipment. The employee shall be within 25 feet of and within sight of the pot, at all times.

7. Have two fire extinguishers, with a rating of at least 20 B. Fire extinguishers shall be located within 25 feet of the tar pot.

Used roofing mops and rags shall be stored away from buildings and combustible materials. Discarded roofing mops and rags shall not be in contact with combustible materials.

IONIZING RADIATION

Contractors, utilizing ionizing radiation sources (radioactive materials or radiation producing machines), shall comply with all State or Nuclear Regulatory Commission (NRC) regulations.

Contractors using sources of radiation shall have any required license or registration. Out of state Contractors shall notify the applicable local radiation regulating agency where the radiation source will be used and gain approval prior to performing any operations.

A copy of the Contractor's license or registration, radiographer's qualifications, and a site safety plan shall be submitted to LM Aero's S&H Department prior to performing any radiographic operations.

Radiation sources shall not be stored overnight or left unattended on LM Aero's premises without prior authorization by LM Aero ESH. If permitted, equipment shall be stored in accordance with all local regulations and must be disabled via key removal, electronic keypad lock or other equally effective means.

LASERS

Lasers used at LM Aero's site shall comply with the requirements of State regulations as well as any other applicable Federal requirements in 21 CFR Part 1040 and industry standard ANSI Z136.1.

The POC must be notified in advance of operations requiring the use of Class IIIB and/or Class IV laser or laser products prior to entry into LM Aero's facility. The POC shall communicate this information to LM Aero's S&H Department.

Any Contractor suspected of being exposed to laser operations shall seek medical attention and report the exposure to their POC, who will pass the information onto LM Aero's S&H Department.

LEAD

Contractors will not perform work that involves lead unless specifically contracted to do so under the contract and is qualified to perform such work in accordance with 29 CFR 1926.62- *Lead* and its related appendices.

All painted surfaces shall be assumed to contain lead or other hazardous metals.

PAINTING

Painting shall be coordinated through the POC to prevent disruption to LM Aero's operations.

If painting in a confined space, evaluate the area for hazards and follow confined space entry requirements, coordinating with the POC. Contractor personnel shall comply with the applicable requirements of OSHA 29 CFR Part 1910.146 (or equivalent state OSHA requirement).

If painting on roofs, close air intakes for air handling systems to prevent intake of vapors into the ventilation system.

Do not use walls or partitions made of cardboard, plastic, or other combustible material, unless authorized by LM Aero's FPS/ESH Department.

Ensure that all paint containers are properly stored and paint related wastes are properly disposed.

POWDER-ACTUATED TOOLS

Only trained Contractor personnel shall use powder-actuated tools. Proof of certification must be provided to LM POC or ESH representative upon request.

Powder-actuated tools shall not be used in an explosive or flammable atmosphere.

The tool, studs, and cartridges shall be kept in a safe area. Only authorized Contractor personnel shall have access to the storage area. Tools or powder loads shall never be left unattended in a place where they would be available to unauthorized person. Boosters and cartridges shall be kept in a storage container under lock and key.

Misfires shall be identified, isolated and properly disposed.

SCAFFOLDS

Contractors shall be familiar with the type of scaffolds being used and the requirements specific to each type.

Erect, move, dismantle, or alter scaffolds only under a Competent Person's supervision and direction. Ensure work is performed only by experienced and trained personnel selected for such work by the Competent Person

The feasibility and safety of providing fall protection for personnel erecting or dismantling supported scaffolds is to be decided by a Competent Person. Fall protection shall be provided when erecting or dismantling scaffolds where the installation and use of such protection is feasible and does not create a greater hazard.

Scaffolds and scaffold components are to be inspected by a Competent Person for visible defects before each work shift and after an occurrence, which could affect a scaffold's structural integrity. Documentation of the scaffold inspection shall be maintained on the scaffold.

STEEL ERECTION

Activities involving steel erection issues shall conform to 29 CFR 1926 Subpart R- *Steel Erection*. Contractors and their Subcontractors shall:

- Use an approved method of fall protection.
- Accomplish a written Job Safety Analysis for all steel erection work and provide the Fall Protection Job Safety Analysis to LM POC or LM ESH when requested.

Attachment A

HELPFUL TELEPHONE NUMBERS

Fort Worth

Emergency Only Numbers

To Report a Fire, Chemical Spill or Medical Emergency

In-plant extension.....911

When calling from a cellular telephone 817-777-3473

Non-Emergency Numbers

Fire Protection Services 817-777-2163 or 817-777-2164

Plant Engineering..... 817-777-3134 or 817-777-3135

EMCS..... 817-777-7136

Facility Protection Services

In-plant extension.....7-2567 or 7-2569

When calling from a cellular.....817-777-2567 or 817-777-2569

Gate 2 817-777-4507

(After Hours) Gate 6817-777-4513

POC

Office Telephone Number

Pager Number

Cellular Telephone Number

Marietta

Emergency Only Numbers

Fire - Fire Protection Services 770-494-4911

Emergency Cell..... 770-494-3244

Non-Emergency Numbers

Environmental, Safety and Health – General Information 770-494-4121

Environmental Resources Department 770-494-6428

Hot Work Permits – Fire Protection Services 770-494-3970

Hazardous Waste Management – (Collection / Spills / Disposal) 770-494-4936 / 37
877-620-9398 (pager)

Safety – Days: 7:00 – 4:30 p.m. 770-494-4121

Safety – Swing shift: after 4:30 p.m. 770-494-2446

Environment, Safety & Health (nights, weekends, and holidays) 678-733-0035

Facilities Engineering/Support Facilities Maintenance Desk 770-494-2951

Facilities Engineering & Support 770-494-2762

Medical - Information 770-494-4131

Security – General Information 770-494-3473

HELP/Emergency (off site)
HELP/Switchboard (in-plant)

9-911
4-HELP (4-4357)

POC _____

Office Telephone Number

Pager Number

Cellular Telephone Number

Palmdale

Emergency Only Numbers

To report a fire, chemical spill or other emergency:

- At Plant 10 - Dial 911
- At Sites 2 & 7 - Dial 911

POC _____

Office Telephone Number

Pager Number

Cellular Telephone Number

Attachment B

Contractor Orientation Checklist Safety and Health Program

CONTRACTOR ORIENTATION CHECKLIST

Date: _____

Project Title: _____

Contractor Superintendent/Supervisor: __ _____

Contractor POC: _____

Representatives of the above named Contractor received orientation on the LM Aero Safety and Health program on date above. Specific orientation topics are listed: _____

Applicable OSHA/CalOSHA regulations

____ Contract specific Safety and Health requirements

____ LM Aero Contractor Safety and Health Programs

____ LM Aero Contractors Safety Handbook

____ Contractor's involvement in International Standard Organization (ISO) 14001

____ Operations specific Safety and Health requirements (as applicable)

____ Hazard Communication

____ Control of Hazardous Energy (Lockout/Tagout)

____ Confined Space Entry

____ Welding and Cutting (Hot Work Operations)

____ Fall Protection

____ Scaffold erection

____ Steel erection

____ Excavation

____ Crane Operations

____ Ionizing and non-ionizing radiation (lasers, RF)

____ Other _____

____ Other _____

____ Other _____

Other

Contractor is responsible for insuring flow-down of this information to all levels of employees working on the project. Contact Safety & Health if additional information is needed.

POC Signature: _____

Contractor Signature: _____

ESH Signature: _____

When complete, LM POC shall provide Contractor and ESH a copy of this attachment and maintain one copy on file.

Attachment C
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Attachment D

Hazardous Materials Elimination List

The Hazardous Materials Elimination List can be found at the following external web site and is applicable to all LM Aero Locations:

<https://www.lockheedmartin.com/en-us/suppliers/business-area-procurement/aeronautics/terms-and-conditions/environment-safety-health.html>

Example Form Filled Out for Fort Worth

FACILITIES CONTRACTOR HAZARDOUS MATERIAL USAGE LOG

LM Aero Point of Contact: LM Employee Name _____ Phone: 817-777-XXXX

Project Name: Contract Name Building(s): 4, 5, etc

Work Performed: Painting the guardrails yellow and painting new parking spots white

P.O. No.: 123456

Date	Manufacturer	Product Name	Amount Used	Amount Used Unit of Measure	I, 1SDS No "
01/15/16	Sherwin Williams	Yellow Paint Product (tcm	10	Gallons	123456
02/01/16	Sherwin Williams	White Paint Product (tcmS)	500	Gallons	654321
06/30/16					

Record all usage of hazardous materials on the project during the week (for Palmdale), or Record all usage of paints and solvents (cleaning, strippers, thinners, etc.) during the month (for Marietta), or Record all usage of paint during the year (for Fort Worth)

Palmdale Hazardous Material Usage: (total for week of _____ 20__)
Month and Day Year

Marietta: _____ 20__
Month Year

Fort Worth: 2016
Year

Attachment G Competent Persons (Marietta)

The Competent Persons form can be found at the following external web site and is applicable to LM Aero-Marietta:

<https://www.lockheedmartin.com/en-us/suppliers/business-area-procurement/aeronautics/terms-and-conditions/environment-safety-health.html>

Example form

Reference Only - the most current form is in the LM Forms Library. This is a Marietta form only.

Lockheed Martin Aeronautics Company - Marietta

CONTRACTOR COMPETENT PERSON DESIGNATION

OSHA Standard Requirements	Applicable to Subcontractor (yes / no)	Designated Competent Person (Name)
Subpart D - Health and Environmental Controls		
1926.53 Ionizing Radiation	<input type="checkbox"/> / <input type="checkbox"/>	
1926.55 Gases, Vapors, Fumes, Dusts, Mists	<input type="checkbox"/> / <input type="checkbox"/>	
1926.57 Ventilation	<input type="checkbox"/> / <input type="checkbox"/>	
1926.62 Lead	<input type="checkbox"/> / <input type="checkbox"/>	
Subpart E - Personal Protective Equipment		
1926.101 Hearing	<input type="checkbox"/> / <input type="checkbox"/>	
1926.103 Respirator Protection	<input type="checkbox"/> / <input type="checkbox"/>	
Subpart H - Materials Handling, Storage		
1926.251 Rigging Equipment for Material Handling	<input type="checkbox"/> / <input type="checkbox"/>	
Subpart J - Welding and Cutting		
1926.354 Welding, Cutting and Heating	<input type="checkbox"/> / <input type="checkbox"/>	
Subpart K - Electrical		
1926.404 Wiring Design and Protection	<input type="checkbox"/> / <input type="checkbox"/>	
Subpart L - Scaffolding		
1926.451 Scaffolding	<input type="checkbox"/> / <input type="checkbox"/>	
Subpart M - Fall Protection		
1926.502 Fall Protection Criteria and Practices	<input type="checkbox"/> / <input type="checkbox"/>	
1926.503 Training	<input type="checkbox"/> / <input type="checkbox"/>	
Subpart N - Cranes, Derricks		
1926.550 Cranes and Derricks	<input type="checkbox"/> / <input type="checkbox"/>	
1926.552 Hoists and Elevators	<input type="checkbox"/> / <input type="checkbox"/>	
Subpart P - Excavations		
1926.651 Specific Excavation Requirements	<input type="checkbox"/> / <input type="checkbox"/>	
1926.652 Requirements for Protective Systems	<input type="checkbox"/> / <input type="checkbox"/>	
Subpart Q - Concrete and Masonry Construction		
1926.705 Lift-Slab Operations	<input type="checkbox"/> / <input type="checkbox"/>	
Subpart R - Steel Erection		
1926.753 Hoisting and Rigging	<input type="checkbox"/> / <input type="checkbox"/>	
1926.754 Structural Steel Assembly	<input type="checkbox"/> / <input type="checkbox"/>	
1926.755 Column Anchorage	<input type="checkbox"/> / <input type="checkbox"/>	
1926.756 Beams and Columns	<input type="checkbox"/> / <input type="checkbox"/>	
Subpart S - Tunnels, Shafts, Caissons		
1926.800 Tunnels and Shafts	<input type="checkbox"/> / <input type="checkbox"/>	
1926.803 Compressed Air	<input type="checkbox"/> / <input type="checkbox"/>	

Important Notice: A hard copy of this blank form may not be the version currently in effect.
The current version of this form is the version in the LM Intranet.

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OHA & mem Requirements	MS 1 / 01	Oetrianatedontehnleeroceptsme
Subpart T - Derrection		
1926.650 FielWeldrYOPOralOns	<input type="checkbox"/>	<input type="checkbox"/>
1926.852 Choke	<input type="checkbox"/>	<input type="checkbox"/>
1926.659 ilochinzal Oamcleon	<input type="checkbox"/>	<input type="checkbox"/>
Subpart U- BlasUng and Use of E.9.10111v**		
1926.909 GY10,19rcnisons	0 <input type="checkbox"/>	
1926901 &Wei Cuallleatbna	p a	
Subpart V- Power Transmission and Oselbution		
.926 955 Ooo-loal Lees	II=	
SuSpart Stelnvayt and Ladders		
1926 1052 Ladders	0 71-	
1926.1080 Trainng Rocuramvnx	<input type="checkbox"/>	<input type="checkbox"/>
Subpart ttoxic and Hazardous Substance*		
1 9 2 6 . 1 1 0 1 A e l , t ' 1 1 d	<input type="checkbox"/>	<input type="checkbox"/>
1926 1127 Cadman	<input type="checkbox"/>	<input type="checkbox"/>

I codify that the listed employees we competent person, as defined and requited by specific OSHA standards, They are individual(s) capable 01 identifying waging and predictable hazards in the surroundings or 'Elblag conditions which are unsanitary, hazardous or dangerous for employees, and who has authorization to take prompt correctHe measures to eliminate them.

Have lak0 Company Name
COMMON SWIAMO DSO)

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Attachment H Electrical Work Permit (Fort Worth)

Energized Electrical Work Permit

(Substations, Manholes and Distribution Cables over 4 kilovolts, nominal)

Unless otherwise authorized by ESH, a copy of this completed permit shall be conspicuously displayed in the vicinity of the work. The original permit shall be retained in the close-out documents.

Date and Time covered by permit:

ELECTRICAL CONTRACTING CO.	NAME	TELEPHONE		
Company Name:				
Company Emergency Contact:				
Qualified Employee (Supervisor):				
PROJECT DESCRIPTION:				
LOCATION (BLDG/AREA):			FSR NUMBER:	
Demonstrate that deenergizing introduces additional or increased hazards or is infeasible due to equipment design or operational limitations (OSHA 1910.269(a)(1)(11)(9):				
Follow at minimum Safety Procedures from the Scope of Work				
Safety-related Work Practices to be employed:		YES	NO	N/A
Is a stand-by person required? OSHA 1910.269(1)(2)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grounds Installed (where applicable)? OSHA 1910.269(n)(2)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Back-Feed Sources Identified? OSHA 1910.269(w)(7)A		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
Safety-related Work Practices to be employed for manhole work:		YES	NO	N/A
Inside manholes containing energized circuits, has standing water been removed?		<input type="checkbox"/>	L	U
Confined Space Permit available? OSHA 1910.269e(6)		<input type="checkbox"/>	C	U
Is the manhole cover hot? OSHA 1910.269(e)(4)		<input type="checkbox"/>	C	<input type="checkbox"/>
If the manhole cover is fastened in place; cover loosened gradually to release any residual pressure? OSHA 1910.269(e)(4)		C	IT	<input type="checkbox"/>
Cables in manholes or vaults checked for the following abnormalities that could lead to a fault: OSHA 1910.269(t)(7)(i)		YLS	NO	N/A
Oil or compound leaking from cables or joints.		C	<input type="checkbox"/>	<input type="checkbox"/>
Broken cable sheaths or joint sleeves.		C	<input type="checkbox"/>	<input type="checkbox"/>
Hot localized surface temperatures of cables or joints,		L	<input type="checkbox"/>	U
Joints swollen beyond normal tolerance.		L	<input type="checkbox"/>	U
Comments:				

NOTE: Electrical lines shall not be considered de-energized unless locked out tagged out.

SHOCK HAZARD ANALYSIS:			
Nominal voltages of lines and equipment [OSHA 1910.269(a)(4)]:			
Minimum Approach Distance [OSHA 1910.269 MO} and 1910.269 App B]:			
Determine whether hazardous step and touch potential will develop (OSHA 1910.269 App C):`			
PPE Requirements (OSHA 1910 Subpart I App B):			
Comments:			
ARC FLASH HAZARD ANALYSIS [OSHA 1910.269(0(8) and 1910.269 App E]:			
Estimate of the available incident heat energy: °			
PPE Requirements:			
Comments:			
SAFETY REVIEW:	YES	NO	
Are there means employed to restrict the access of unqualified persons from the work area? (OSHA 1910.269(1)(1)0W:	C	<input type="checkbox"/>	
Job Breifing Conducted? [OSHA 1910.269(c)]:	0	<input type="checkbox"/>	
First-aid kit available? OSHA 1910.269(b)	C	<input type="checkbox"/>	
NEAREST HOSPITAL ADDRESS:			
EXISTING CHARACTERISTICS AND CONDITIONS [OSHA 1910.269(a)(4)]:			
Was the contractor informed about the following? (If the answer to ANY of the following is "NO", Electrical work SHALL NOT proceed)	Y	I	NO
Nominal voltages of lines and equipment	<input type="checkbox"/>	<input type="checkbox"/>	
Maximum switching-transient voltages ^E	<input type="checkbox"/>	<input type="checkbox"/>	
Presence of hazardous induced voltages ^F	<input type="checkbox"/>	<input type="checkbox"/>	
Presence of protective grounds and equipment grounding conductors	<input type="checkbox"/>	<input type="checkbox"/>	
Locations of circuits and equipment, including <i>electric</i> supply lines, communication lines, and fire-protective signaling circuits.	<input type="checkbox"/>	<input type="checkbox"/>	
The condition of protective grounds and equipment grounding conductors	<input type="checkbox"/>	<input type="checkbox"/>	
OSHA REQUIRED TRAINING (If the answer to ANY of the following is "NO", Electrical work SHALL NOT proceed) [OSHA 1910.269(a)(2)1:	YES	NO	
Safety related work practices, safety procedures, and other safety requirements that pertain to the job assignment?	C	<input type="checkbox"/>	
Applicable emergency procedures (such as manhole rescue)?	0	<input type="checkbox"/>	
The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment?	C	<input type="checkbox"/>	
The skills and techniques necessary to determine the nominal voltage of exposed live parts?	C	<input type="checkbox"/>	
The minimum approach distances specified in this section corresponding to the voltages to which the qualified employee will be exposed and the skills and techniques necessary to maintain those distances?	<input type="checkbox"/>	<input type="checkbox"/>	
The proper use of the special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools for working on or near exposed energized parts of electric equipment?	C	<input type="checkbox"/>	
The recognition of electrical hazards to which the employee may be exposed cud the skill and techniques necessary to control or avoid these hazards?	C	<input type="checkbox"/>	

Other Training	YES	NO	N/A
Confined Space Training? OSHA 1910.146(g)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
First Aid Training? (OSHA 1910.269(b)):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lockheed Martin ESH orientation? (PM8013)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Requester Signature			
Approval to perform the work on or near Energized Parts:			
TITLE	NAME	SIGNATURE	DATL
Qualified Employee(s)			
I agree that the above-described work can be done safely			
Signature:	NAME	SIGNATURE	DAN
NOTES			
<p>Back-feed: Energizing an otherwise deenergized circuit by a power source (backup generator, cogenerator, nearby power line, lightning) other than the deenergized power source . DIRECTIVE NUMBER: CPL 2-1.38 EFFECTIVE DATE: June 18, 2003</p>			
<p>Minimum Approach Distances: The closest distance an employee may approach an energized or a grounded object. The employer shall ensure that no employee approaches or takes any conductive object closer to exposed energized parts than the employer's established minimum approach distance, unless: The employee is insulated from the energized part (rubber insulating gloves or rubber insulating gloves and sleeves worn in accordance with paragraph (l)(4) of this section constitutes insulation of the employee from the energized part upon which the employee is working provided that the employee has control of the part in a manner sufficient to prevent exposure to uninsulated portions of the employee's body), or The energized part is insulated from the employee and from any other conductive object at a different potential... [1910.269(l)(3)(iii)]</p>			
Table R-6: Alternative Minimum Approach Distances for voltages of 72.5 kV and less			
Nominal voltage (kV)	Distance		
	Phase-to-ground exposure	Phase-to-phase exposure	
0.050 to 0.300 ¹	Avoid Contact	Avoid Contact	
0.301 to 0.750 ¹	1.09 feet	1.09 feet	
0.751 to 5.0	2.07 feet	2.07 feet	
5.1 to 15.0	2.14 feet	2.24 feet	
15.1 to 36.0	2.53 feet	2.92 feet	
36.1 to 46.0	2.76 feet	3.22 feet	
46.1 to 72.5	3.29 feet	3.94 feet	
For single-phase systems, use voltage-to-ground.			

NOTES (continued)

See Appendix C to 1910.269 — Protection From Hazardous Differences in Electric Potential
Step potential is the voltage between the feet of a person standing near an energized grounded object (the electrode). Touch potential is the voltage between the energized grounded object (again, the electrode) and the feet of a person in contact with the object... The employer can use an engineering analysis of the power system under fault conditions to determine whether hazardous step and touch voltages will develop. The analysis should determine the voltage on all conductive objects in the work area and the amount of time the voltage will be present.

Acceptable methods of grounding for employers that do not perform an engineering determination. The grounding methods presented in this section of this appendix ensure that differences in electric potential are as low as possible and, therefore, meet § 1910.269(n)(3) without an engineering determination of the potential differences. These methods follow two principles: (i) The grounding method must ensure that the circuit opens in the fastest available clearing time, and (ii) the grounding method must ensure that the potential differences between conductive objects in the employee's work area are as low as possible.

Incident Heat Energy: see Appendix E to § 1910.269-Protection From Flames and Electric Arcs
Underground electrical installations: if the assessment reveals an electric arc hazard, the employer must make the incident energy estimate required by 29 CFR 1910.269(1)(8)(ii)
https://www.osha.gov/dsg/power_generation/QandAFinal.pdf

Maximum Switching-Transient Voltages: see Appendix B to §1910.269 -- Working on Exposed Energized Parts: Transient overvoltages may be generated on an electrical system by the operation of switches or breakers, by the occurrence of a fault on the line or circuit being worked or on an adjacent circuit, and by similar activities. Most of the overvoltages are caused by switching...Conditions such as switching surges, faults, and lightning can cause overvoltages.

$T =$ maximum anticipated per-unit transient overvoltage; for phase-to-ground exposures, T equals T'' , the maximum per-unit transient overvoltage, phase-to-ground, determined by the employer under paragraph I)(3)(ii) of this section; for phase-to-phase exposures, T equals $1.35T''_G + 0.45$

Knowledge of the maximum transient voltage level is necessary to perform many routine transmission and distribution line jobs safely; however, no measurement is necessary in the determination of what the maximum level is. It can be determined by an analysis of the electric circuit, or the employer can assume the default maximum transient overvoltages... Similarly, employers can make determinations of the presence of hazardous induced voltages and of the presence and condition of grounds without taking measurements.
https://www.osha.gov/dsg/power_generation/QandAFinal.pdf

Induced voltage: means a voltage produced around a closed path or circuit by a change in magnetic flux linking that path. [DIRECTIVE NUMBER: CPL 2-1.38 EFFECTIVE DATE: June 18, 2003
SUBJECT: Enforcement of the Electric Power Generation, Transmission, and Distribution Standard]
Grounds can also discharge induced voltage from any nearby energized lines, including those energized by a lightning strike. In addition, grounds can discharge the voltage from any unexpected backfeed from a generator, and they may cause the generator's overcurrent device to trip. [https://www.osha.gov/SLTC/etools/electric_power/hazardous.html]
.. employers can make determinations of the presence of hazardous induced voltages and of the presence and condition of grounds without taking measurements.
<https://www.osha.gov/dsg/powergeneration/QandAFinal.pdf>