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| JPL Environmental, Safety and Health Plan Requirements – For Flight Projects Form 2885-F |

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| **Legal Company Name Subcontractor/Collaborator/NASA/University**    **Contract Technical Mgr.** | **Lower-tier subcontractors included under this plan (if applicable)** |
| **Project Location**  JPL 4800 Oak Grove Drive  Building/Room/Area  Other (list address) | **Project Duration and Working Hours** |
| **Subcontractor Onsite Contact Information**  Name:  Phone:  Email: | **Legal Company Name/Subcontractor**  **Emergency Contact Information**  Name:  Phone:  Email: |

**The following were identified as relevant to your Scope of Work.**

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| **Safety Hazard 2885 Section No.** | |
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| **Safety Hazard 2885 Section No.** | |
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| [Water](#Water) | VII.5 |
| Other |  |

*\* The Introduction, General Safety, and Communicable Disease Transmission sections, apply to all services.*

1. **[Introduction](#IntroGeneralCommunicableDisease)**

For work that takes place at JPL or JPL-controlled facilities, Subcontractor agrees as follows:

1. Subcontractor will take all reasonable measures in the performance of the work under at JPL to protect the safety and health of Subcontractor’s employees and lower-tier subcontractors, JPL employees, and members of the public who might be affected by Subcontractor’s work.
2. Subcontractor will comply with all JPL-specific environmental, health and safety requirements (“JPL EH&S Requirements”).
3. Subcontractor will comply with all applicable federal, state and local laws and regulations.
4. Subcontractor will ensure all lower-tier subcontractors comply with all applicable federal, state and local laws and regulations, Subcontractor’s approved safety and health program, and all JPL EH&S Standards. Subcontractor will include the substance of this document in all lower-tier subcontracts issued under the subcontract.
5. Subcontractor will attend any necessary JPL Safety Briefings to cover JPL hazards prior to start of work.
6. Subcontractor agrees that additional hazardous operations may arise that are not fully anticipated at the time of contract award/completion of this document, JPL Environmental, Health and Safety Requirements – Form 2885F. As such hazardous operations are identified, Subcontractor agrees to amend the Safety and Health Plan as directed by the applicable section of this form.

*Note: This document addresses JPL EH&S Requirements and certain legal requirements as applied at JPL.*

1. **[General Safety](#CommunicableDiseaseTransmission)**

Subcontractor agrees as follows:

1. Emergencies/Incidents and Mishap Reporting
   1. Subcontractor will call 911 from any JPL landline phone in the event of an emergency, Dial (818)393-3333 or (818) 354-3333 from a cell phone or non-JPL phone and provide name, company, the nature of the problem and the location. For work being performed at Goldstone or Table Mountain Facility, refer to specific local emergency procedures at those facilities.
   2. Subcontractor will notify the CTM of all mishaps and close calls and must notify OSPO via the Immediate Mishap and Close Call (IMACC) Reporting Line (818) 354-2141 within 1 hour from the time of incident. Subcontractor working with Project team will notify System Safety Engineer if the incident involves only hardware.

1. **[Communicable Disease Transmission](#IntroGeneralCommunicableDisease)**
2. Subcontractor will, in general, comply with applicable communicable/infectious disease requirements issued by the Los Angeles County Department of Public Health.
3. Subcontractor will ensure all their employees review JPL’s Safe at Work requirements and the JPL Safe at Work Video available at <https://acquisition.jpl.nasa.gov/terms-conditions/>

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**Documentation and Additional General Safety**

The Subcontractor will provide a description of the tasks to be performed at JPL and include a list of all equipment and tools they plan to bring. The Subcontractor will also identify equipment and tools that they need to use that are provided by JPL. This description will be reviewed by the Project CTM, Project Cognizant Engineer (Cog E) (or designee) and the System Safety Engineer to identify what the potential hazards and controls are that are required by 8 CCR §3203 & §1509, working with the Subcontractor. The Subcontractor will work with the Project CTM and Cog E (or designee), the System Safety Engineer and the OSPO representative to ensure that the required training and documentation verifications are in place prior to commencing work at JPL. In addition, the Subcontractor view a Safety Awareness Orientation located at <http://www.jpl.nasa.gov/acquisition/terms-conditions/> prior to beginning operations.

During activities at JPL, the Subcontractor will review and follow any applicable JPL Risk Assessment reviews and attend applicable Job Safety Briefings.

1. **Definitions**

* California Code of Regulations (CCR) – California regulations, in particular those that apply to safety and health. CCR, Title 8 contains California Occupational Safety and Health Administration (Cal/OSHA) requirements; CCR, Title 17 contains California Department of Public Health (CDPH) requirements. The CCR may be accessed online at:
  + Complete CCR: <https://govt.westlaw.com/calregs/index>
* Cal/OSHA: <https://www.dir.ca.gov/dosh/LawsAndRegulations.htm>
* Contract Technical Manager (CTM) – The JPL Contract Technical Manager who represents JPL and manages the technical direction of the subcontract. The CTM also serves as the contact/liaison between the Subcontractor and OSPO.
* Occupational Safety Program Office (OSPO) – The JPL office and staff that are responsible for safety risk assessments and compliance. OSPO staff include the subcontracts Safety and Health Plan reviewers for both construction and general acquisitions, Subject Matter Experts (SMEs) and OSPO organizational representatives who will be performing compliance inspections of Subcontractor activities.
* Subcontractor- use of the term subcontractor is used to denote any entity doing work at JPL

1. **Safety Requirements**

**Submit a Safety/Health Plan (see Paragraph IV) that addresses each of the identified items checked off on page 1, per the JPL Environmental, Health, and Safety Requirements – Form 2885. It is the Subcontractor’s responsibility to identify and address any safety and health requirements that they will create and follow polices and hazard reviews in place for supporting JPL tasks.**

1. *[Asbestos Containing Material (ACM)](#Asbestos)* [– Subcontractor will consider all building materials that have been historically associated with asbestos as ACM until proven otherwise. JPL maintains a database of materials that have been sampled; reports are available upon request for an area or material in question.](#Asbestos) *Note that subfloor areas under raised computer floor tiles have been found to contain ACM. Entry into subfloors is prohibited without the proper training and respiratory protection.*

**Subcontractor Response:**

Accept Description: Click or tap here to enter text.

Not Applicable Explain (required if N/A): Click or tap here to enter text.

1. *[Confined Space Entry](#ConfinedSpace)*
2. Subcontractor will obtain a “Confined Space Entry Permit”, Form 2702, located under the Supporting Documents tile at <http://www.jpl.nasa.gov/acquisition/terms-conditions/> to allow and control entry into a confined space required such permit, in accordance with 8 CCR §5157. The entry permit must be provided to the Occupational Safety Program Office (OSPO) Confined Space Program Manager upon completion of entry.
3. Subcontractor will provide 24-hour advance notice to the CTM prior to scheduling entry into a confined space.

Note: Confined spaces found at JPL include, but are not limited to:

* + 1. Shipping containers
    2. Environmental test chambers

**Subcontractor Response:**

Accept Description: Click or tap here to enter text.

Not Applicable Explain (required if N/A): Click or tap here to enter text.

1. *[Electrical Safety](#ElectricalSafety)*
2. Subcontractor will allow only qualified electrical workers, as defined by Cal/OSHA, holding a valid certification issued by the State of California to install, repair and modify electrical installations, and wirings. Subcontractor’s qualified electrical workers will have NFPA 70E, Lockout/Tagout, first aid and cardiopulmonary resuscitation (CPR) current trainings certification available at the job site.
3. Before starting the job, the subcontractor will complete a job safety plan and then conduct a job safety briefing with the involved employees.
4. Subcontractor will ensure that all electrical work is performed on de-energized electrical circuits and equipment that are properly Locked and Tagged Out (LOTO).
5. If de-energizing introduces additional or increased hazards, or is infeasible due to equipment design, operational imitations, or maintenance requirements, Energized Electrical Work will be performed by a written “Energized Electrical Work Permit”, Form 7029, located under the Supporting Documents tile at <http://www.jpl.nasa.gov/acquisition/terms-conditions/>.
6. Electrical subcontractors will submit, as part of the SHP, an Electrical Safety Plan documenting their electrical safety program that directs activity appropriate to the risk associated with electrical hazards, in compliance with the latest edition of NFPA-70E requirements.
7. Subcontractor will perform and document Electrical Hazard Analysis before work is performed on live equipment operating at 50 volts and higher such as testing and trouble shooting.
   * 1. Refer to LOTO section of this document for additional requirements.

**Subcontractor Response:**

Accept Description: Click or tap here to enter text.

Not Applicable Explain (required if N/A): Click or tap here to enter text.

1. *[Elevated Work –Fall Protection, Scaffolds, Ladders](#ElevatedWorkFallProtectionScaff)*
2. The subcontractor/collaborator will utilize the following preferred order of hierarchy of controls when personnel are assigned to work at heights that may expose them to falls in excess of 6 feet:
   * 1. Hazard Elimination (preferred).
     2. Passive Fall Protection (physical barriers like guardrails around unprotected edges and covers over holes are examples of passive fall protection);
     3. Fall Restraint Systems;
     4. Personal Fall Arrest Systems.

1. If personal fall arrest, or personal fall restraint equipment is needed, the hazard and required controls shall be evaluated within the Subcontractor’s hazard analysis plan (e.g., safety plan, Job Safety Analysis, Instruction, build, assembly and test (iBAT), Procedures for Build, Assemble and Test (PBAT), fall prevention plan, etc.  All fall protection systems identified for use must be approved and inspected by the contractor’s appointed onsite Cal/OSHA required competent person. The assigned Competent Person must be present to identify any potential unsafe conditions and make any needed corrections to ensure regulatory requirements and safe work.

**Subcontractor Response:**

Accept Description: Click or tap here to enter text.

Not Applicable Explain (required if N/A): Click or tap here to enter text.

1. *Explosives*

Notify and coordinate with the JPL Explosives Safety Officer of all explosives.

**Subcontractor Response:**

Accept Description: Click or tap here to enter text.

Not Applicable Explain (required if N/A): Click or tap here to enter text.

1. *[Hazardous Material Use](#HazardousMaterialUse)*
2. Subcontractor will submit two (2) copies of all Safety Data Sheets (SDS) for review by the appropriate OSPO and JPL Environmental Affairs Program Office (EAPO) representatives before hazardous materials are brought on site. Subcontractor will contact the CTM for SDS related to hazardous materials to be used at the job site.
3. Subcontractor will report immediately all spills to CTM. If the spill results in an immediate hazard to subcontractor or JPL personnel or property, Subcontractor will call the on-Lab JPL Emergency number (818) 393-3333 for assistance. Subcontractor will contain and clean up all spills when directed based upon a determination of the hazard made by the JPL Fire Department.

**Subcontractor Response:**

Accept Description: Click or tap here to enter text.

Not Applicable Explain (required if N/A): Click or tap here to enter text.

1. *[Hearing Conservation](#HearingConservation) -* Includes tank venting, etc.
   1. Subcontractor will ensure subcontractor employees wear hearing protection in areas with elevated noise levels (>85 dBA).

**Subcontractor Response:**

Accept Description: Click or tap here to enter text.

Not Applicable Explain (required if N/A): Click or tap here to enter text.

1. *[Hot Work Permits (Hot work is any work involving burning, welding, grinding, cutting or similar operations capable of initiating fires or explosions)](#HotPermits)*
2. Prior to starting any hot work (e.g. welding, cutting, grinding or other hot work), Subcontractor will obtain a Hot Work Permit through JPL Fire Department with notification to the CM or the CTM.
3. A copy of the Hot Work Permit will be displayed prominently at the work location.
4. Subcontractors are required to have available and provide:
   * 1. Welding blankets
     2. Fire extinguishers
     3. Fire Watchers
     4. Welding Screens
   1. Fire watchers and fire extinguisher users must be trained and comply with 8 CCR, §4848, Fire Prevention and Suppression Procedure.

**Subcontractor Response:**

Accept Description: Click or tap here to enter text.

Not Applicable Explain (required if N/A): Click or tap here to enter text.

1. [*Human Factors (Work-Rest Cycles)*,](#HumanFactors) as related to safety, involves fatigue and stress that may lead to accidents. If Subcontractor personnel will be working greater than 60 hours/week over a two-week period that involves (1) flight hardware and software, test items, or test facilities, (2) on a task that is known to require extended work hours or varying work schedules, and (3) is scheduled and planned in advance, Subcontractor will submit, as part of the SHP, a Human Factors mitigation plan. The plan must include monitoring of subcontractor personnel, and provide transportation and lodging for persons who are at risk. Any subcontractor personnel on a human factors plan that requires transportation or lodging will be reimbursed for reasonable expenses through their employer.

**Subcontractor Response:**

Accept Description: Click or tap here to enter text.

Not Applicable Explain (required if N/A): Click or tap here to enter text.

1. *[Laser Use or Service on Laser Equipment](#Lasers)*

Notify and coordinate with the JPL Laser Safety Officer (LSO) regarding any operations involving Class 3B or 4 lasers.

**Subcontractor Response:**

Accept Description: Click or tap here to enter text.

Not Applicable Explain (required if N/A): Click or tap here to enter text.

1. *[Lifting Operations and Lifting Permits – Forklifts, Cranes, Hoists](#LiftingOperations)*

Notify and coordinate with the JPL Lifting Device Equipment Manager (LDEM) regarding any operations involving cranes, lifts, etc.

**Subcontractor Response:**

Accept Description: Click or tap here to enter text.

Not Applicable Explain (required if N/A): Click or tap here to enter text.

1. *[Lockout/Tagout (LOTO)](#LockoutTagout)*
   1. Subcontractor performing or participating in LOTO will submit their LOTO Program and LOTO Authorized Person training statement.
   2. For the purposes of lockout/tagout, only red padlocks will be used. Locks will be individually keyed.
   3. Each Lock will be installed along with a standard JPL Lockout tag stating “Do Not Operate.”

**Subcontractor Response:**

Accept Description: Click or tap here to enter text.

Not Applicable Explain (required if N/A): Click or tap here to enter text.

1. *[Pressure Vessels and Systems](#PressureVessels)*

Notify and coordinate with the JPL Pressure Systems Manager (PSM) regarding any operations involving pressure or vacuum system.

a) Any work on Pressure or Vacuum Systems, gas or air lines is subject to review, inspection and certification by the JPL Pressure Systems Manager (PSM). Subcontractor will submit, in the SHP, a Pressure Systems Work Plan to the CTM.

b) Subcontractors performing work at JPL Oak Grove Site and Table Mountain Facility that will involve the use of pressurized gases via compressed gas cylinders to include oxy/acetylene, air compressors, etc. will ensure the following:

1. All compressed gas cylinders will be transported, used, and stored in a vertically upright and secured position in accordance with all applicable regulatory regulations.
2. Air compressors with air receivers brought on site will have a valid/current California Permit in accordance with all applicable regulatory requirements, including but not limited to Title 8, Chapter 4, Subchapter 1, Article 3 of the CCR.

**Subcontractor Response:**

Accept Description: Click or tap here to enter text.

Not Applicable Explain (required if N/A): Click or tap here to enter text.

1. *[Radiation Sources / X-Ray Use](#RadiationSources)*

Notify and coordinate with the JPL Radiation Safety Officer (RSO) regarding any operations involving radioactive materials, x-rays or hazardous radiofrequency or electromagnetic radiation.

**Subcontractor Response:**

Accept Description: Click or tap here to enter text.

Not Applicable Explain (required if N/A): Click or tap here to enter text.

1. *[Transportation and Staging](#TransportationandStaging)*
2. For any operation that involves the delivery of equipment, supplies, etc., that will require blocking JPL roads or parking lots for more than five (5) minutes outside of the Subcontractor’s designated work area or designated staging areas, a Transportation and Staging Plan will be submitted to the CTM and JPL System Safety.
3. The Transportation and Staging Plan will be approved by the JPL Protective Services Division (PSD).
4. For operation of any utility vehicle i.e., golf carts, UTV, etc. the contractor will ensure their employees are trained or qualified to operate the vehicle in accordance with the vehicle’s owner’s manual and applicable regulatory requirements.
5. All Subcontractor motorized carts will be registered with the Protective Services Division (PSD).

**Subcontractor Response:**

Accept Description: Click or tap here to enter text.

Not Applicable Explain (required if N/A): Click or tap here to enter text.

1. **Environmental Requirements**

1. *[Air Quality](#AirQuality)*
   1. JPL is in the South Coast Air Basin and subject to South Coast Air Quality Management District (SCAQMD) regulations; therefore, all Subcontractors will use materials compliant with SCAQMD rules and regulations.
   2. Subcontractor will post equipment operating permits as necessary. Contact the EAPO Air Quality Program and JPL CTM for any questions regarding proper permitting requirements.
   3. Subcontractor will use SCAQMD compliant paint gun(s). Prior to the use of paint gun(s), contact the EAPO Air Quality Program and JPL CTM to ensure the use of paint gun(s) has been approved and/or is appropriate to use.
   4. Subcontractor will submit a Rental Generator Information Sheet to the EAPO Air Quality Program for approval prior to delivery of any generator to JPL.
   5. For stationary source internal combustions engines, Subcontractor will log beginning and ending hour meter and/or fuel meter readings and submit the log at least monthly to the EAPO Air Quality Program and JPL CTM.
   6. Before hazardous materials are brought onsite, the Subcontractor will submit an Outside Subcontractor Chemical Form to the EAPO Air Quality Program for approval. Subcontractor will also submit two (2) copies of Safety Data Sheets (SDS) for review by the EAPO Air Quality Program. (Note: the EAPO may request the Subcontractor keep a usage log of chemicals that have regulated usage limits).
   7. No ozone depleting chemicals may be used at JPL. For a listing of such chemicals see http://www.epa.gov/ozone/science/ods/classone.html
   8. No NESHAP Halogenated Solvents may be used at JPL (i.e.: Carbon Tetrachloride, Chloroform, Methylene Chloride, Perchloroethylene, Trichloroethylene, and 1-1-1-Trichloroethane)
   9. Restricted use of Volatile Organic Compounds (VOC) for cleaning purposes: Subcontractor will contact the CTM and the EAPO Air Quality Program for prior authorization to use any VOC at JPL.

**Subcontractor Response:**

Accept Description: Click or tap here to enter text.

Not Applicable Explain (required if N/A): Click or tap here to enter text.

1. *[Hazardous Waste](#HazardousWaste)*

*Note: Unless otherwise specified in the Subcontract, at the conclusion of the project Subcontractor will remove from the site all chemical containers with unused product (Onsite disposal or discharge of partially or completely filled chemical containers is prohibited).*

* 1. Subcontractor will coordinate with the CTM and the EAPO Hazardous Waste Program for approval of any hazardous waste onsite accumulation, transport or disposal. Subcontractor is responsible for off-site disposal of hazardous waste.
  2. Subcontractor is responsible for properly segregating hazardous waste. Subcontractor will maintain onsite hazardous waste containers in a manner that is compliant with the Resource Conservation and Recovery Act (RCRA), and applicable State laws.
  3. Subcontractor will supply their own D.O.T. compliant containers for hazardous waste accumulation and transport.
  4. Subcontractor will ensure onsite hazardous waste containers are kept indoors (or covered if outside) and closed at all times except when adding waste to the container.
  5. Subcontractor-generated hazardous waste will be shipped by an EAPO Hazardous Waste Program-approved hazardous waste transporter to an EAPO Hazardous Waste Program-approved treatment/storage/ disposal facility (TSDF) when the quantity limitation (1 quart of extremely hazardous or 55 gal of hazardous waste) is reached, or within nine (9) months of the waste accumulation start date whichever occurs first.
  6. Subcontractor will prepare Hazardous Waste transport and disposal documentation (i.e.: Manifests, Land Disposal Restriction Forms and Profiles), and send copies of the draft documents to the EAPO Hazardous Waste Program for approval at least 72 hours prior to scheduled transport. Only the EAPO Hazardous Waste Program representative or designee has the authority to sign manifests for loads of hazardous waste or extremely hazardous waste.
  7. Subcontractor will manage all empty hazardous materials containers greater than five (5) gallons, and empty extremely hazardous waste containers, as hazardous waste.
  8. Waste Fluorescent light tubes will be boxed, and sent to the rear of Building 305.

**Subcontractor Response:**

Accept Description: Click or tap here to enter text.

Not Applicable Explain (required if N/A): Click or tap here to enter text.

1. *[Solid and Non-Hazardous Waste (i.e., Non-Friable ACM, Construction Waste, etc.)](#SolidNonHazardousWaste)*
   1. Subcontractor will not use JPL solid waste containers for disposal of any waste without prior approval from the EAPO. Disposal of solid waste is the responsibility of the Subcontractor. Subcontractor will procure a waste container for solid waste they generate and arrange for its disposal.
   2. Subcontractor will prepare Non-Hazardous Waste Manifests and Profiles, and send copies of the draft documents for approval to the EAPO Hazardous Waste Program at least 72 hours prior to scheduled transport. Only the EAPO Hazardous Waste Program representative or designee has the authority to sign manifests for loads of non-hazardous waste from JPL.
   3. Subcontractor will ensure the proposed disposal facility is permitted to accept the waste being shipped. The disposal facility will be approved by JPL EAPO prior to shipment.
   4. Subcontractor may dispose of scrap metal in the JPL scrap metal roll-off bin.
   5. Subcontractor may dispose of cardboard in the JPL cardboard roll-off bin.

**Subcontractor Response:**

Accept Description: Click or tap here to enter text.

Not Applicable Explain (required if N/A): Click or tap here to enter text.