Contractor Safety Handbook

Facility Management and Real Estate

EHS Supply Chain Global Security Services

Raytheon

Contractor Safety Handbook

Facility Management and Real Estate

EHS Supply Chain Global Security Services

Raytheon

This page is intentionally left blank

Table of Contents

1.0. Purpose and Scope

The Contractor Safety Handbook applies to all RMS Tucson sites and is provided to:

- Help contractors achieve "reasonable precautions for safety," as stated in the General Conditions section of the Contract for Construction.
- Promote dissemination of safe work practices.
- Remind contractors that, at a minimum, they must comply with the standards and regulations defined by the Occupational Safety and Health Administration (OSHA), the Environmental Protection Agency (EPA), local governments, and Raytheon Company.
- Remind contractors that they must practice good housekeeping on the job site and promptly report injuries, incidents and unsafe conditions.
- Explain that safety is important to Raytheon and failure to follow safe work practices may disqualify a contractor from performing work at Raytheon.

All accidents and near misses must be reported to a supervisor and Raytheon Missile Systems (RMS) Environmental, Health & Safety (EHS). Although some items discussed in this handbook may not directly apply to the job you will be performing, make sure that your supervisors, employees and subcontractors understand and comply with all applicable information. If you have questions, call EHS at 520.794.4347.

Raytheon will periodically review the work of contractors. However, Raytheon will not direct the day-to-day activities of contractors or supervise contractor employees. Any noncompliance issues will be reported to the Raytheon project manager (PM) and/or to the contractor's home office. If repeated violations are observed, work may be stopped. Raytheon will demand corrective action and/or pursue termination or suspension of the contract per Section 14 of the General Conditions of the Contract for Construction.

After reviewing this handbook, complete the attached forms (located in the back of this handbook) and forward to your Supply Chain Management (SCM) buyer.

1.1. Emergency Telephone Numbers

Emergency Telephone Numbers	
Airport Site Emergency	520.794.8311
Airport Site Nonemergency	520.794.8313
Rita Road Site	520.663.3911
Palo Verde (Buildings M09, M10, M11, M12)	911
Other locations (Bike Shop, 715)	911

2.0 General

2.1 Scope

RMS in Tucson is dedicated to providing a safe and healthy workplace for its employees, contractors and visitors. We believe that accident prevention and compliance with EHS programs are an integral part of our success. This handbook will assist you in understanding Raytheon's commitment to safety.

RMS employees, contractors and temporary workers are expected to follow all applicable EHS regulations during their daily routines. Following the rules outlined in this handbook will help you maintain standards of quality and safety while you work at RMS facilities in Tucson. Although the rules address the most common questions asked by contractors, they are not all-inclusive of EHS requirements that must be followed while working at RMS sites, and do not preclude more stringent or specific rules that you or your company may already follow.

2.2 Contractor Prequalification

Contractors are responsible for ensuring their subcontractors meet the minimum prequalification requirements set forth by RMS (see section 2.2.1 of this handbook). RMS maintains a list of contractors and subcontractors who meet minimum qualification requirements. All contractors must be on this list in order

to work at any RMS site. If a contractor chooses to use a subcontractor who is not on the list, he or she must request a prequalification package from Environmental, Health and Safety (EHS) or Supply Chain Management (SCM). After completion and submittal of the prequalification package, EHS and/or SCM will review it. If the contractor meets the minimum qualifications, he or she will be added to the list and will be eligible to work at RMS Tucson sites.

Prior to a contractor or subcontractor bidding on or receiving work for any RMS Tucson site, they must first be prequalified through RMS Supply Chain Management (SCM).

Minimum Contractor and Subcontractor Qualifications

- Contractors' injury rates must not exceed the Bureau of Labor Statistics (BLS) incidence rate for their industry categories.
- All notice of violations (NOV) issued to a contractor in the past three years must be provided to EHS and/or the PM for review.
- All contractors are required to provide EHS and/or the PM a written safety plan.
- All contractors are required to perform daily safety inspections. Safety inspections must be documented weekly and made available upon request.

To become prequalified, a contractor or subcontractor must submit an OSHA 300 log reflecting work performed during the three previous years. It is also required that all contractors and subcontractors read, fully understand, and acknowledge the receipt of the Contractor Safety handbook by signing the **Training Verification Form** found on page 54 of the handbook.

Contractors and subcontractors must also complete and submit **Form No. 22441RMS, Contractor Pre-Qualification**. These forms must be submitted to the contractor's RMS Tucson Supply Chain Management (SCM) buyer with the contractor's proposal or before contract award or issuance of a purchase order agreement. **Form No. 22441RMS** must then be submitted annually or before each job, whichever happens first. The contractor's and subcontractor's injury rates will be compared to their appropriate average industry rates, and EHS violations issued from regulatory agencies will also be reviewed. The purpose of this form is to ensure that we use contractors with strong safety and compliance performance. The buyer will submit this document to an EHS representative for review and contractor/subcontractor approval.

- Contractors must ensure that any subcontractor hired to do work also meets these same EHS requirements. Contractors must ensure that all contractor employees, subcontractors and subcontractors employees understand the information in this handbook.

2.2.1 Incident Investigation

If an incident investigation and report results in a safety violation it may affect a contractors ability to obtain future work.

2.3 Contractor Safety Checklist

Form No. 22438RMS, Contractor Safety Checklist, must be completed by the contractor before or at the time of each pre-con walkthrough. This form must be provided to the contractor by the SCM buyer, and in concert with the PM and the EHS compliance person. Completion of the form will be done in concert with the EHS department. Completed forms must be provided to the EHS department with a copy being kept by the contractor. The purpose of this form is to identify potential hazards early so preparations can be made to perform the work safely.

2.4 Regulatory Requirements

Contractors and subcontractors working on RMS Tucson sites must follow applicable federal, state and local requirements. This includes having a current hazard communication program, electrical safety program in accordance with NEC requirements, and a fall protection program. EHS may ask to review these programs at any time.

Contractors will be held responsible for ensuring that subcontractors follow all federal, state and local requirements applicable to the work being performed. Contractors must also perform and document, at a minimum, a weekly safety inspection of the work site. The contractor must make this documentation available upon request.

2.5 Contractor Employee Training

Contractor employees performing work for Raytheon must complete applicable federal, state and local training or obtain necessary certification before commencing work tasks under the contract. Such training may include hazard communication, fall protection, confined space entry, powered industrial trucks (forklifts), asbestos and electrical work (lockout/tagout (LOTO), high-voltage training, etc.).

Raytheon reserves the right to request training records from contractors to verify that contractor employees are properly trained for the work being performed.

2.6 Inspections

EHS representatives and your Facility Services project manager (PM) may inspect your job site to evaluate compliance with these regulations and to help ensure the safety and health of the employees. In situations presenting imminent jeopardy to the safety or health of **personnel**,

or where damage to property or the environment appears highly probable, EHS or the PM has the authority to order immediate cessation of the work. Contractors must perform daily and weekly safety inspections; weekly inspections must be documented and made available upon request.

2.7 Conduct and Controlled Substances

The following activities and materials are prohibited on RMS Tucson sites: horseplay, fighting, gambling, swearing, alcoholic beverage consumption, weapons, narcotics, explosive materials, radios, cameras and tape recorders. Displays of inappropriate and offensive language or insignias on clothing or on personal items such as toolboxes are also prohibited. Any contractor suspected of being under the influence of drugs or alcohol will be escorted off RMS property and not be permitted to work at RMS facilities again.

2.8 Roles and Responsibilities

Contractors are responsible for complying with all regulations, notifying the PM of unsafe conditions found during the course of their work, ensuring that their employees have appropriate safety training, and holding routine safety meetings. All employees must be properly trained and adequately certified and/or qualified for their specific line of work. All work must be done in accordance with site environmental permits and applicable regulations.

EHS is responsible for environmental, health and safety compliance programs at RMS Tucson sites. EHS will prequalify construction and maintenance project contractors who meet established RMS standards. EHS will conduct random inspections of construction sites and has the authority to stop any work deemed unsafe or out of alignment with environmental requirements. Work cannot resume without EHS and PM approval. EHS is also responsible for minimizing losses and liability for Raytheon Company.

Asset Protection is responsible for fire- and life-safety compliance programs and issuance of hot-work permits at all RMS Tucson sites. Asset Protection conducts scheduled and random inspections of construction sites and will stop any work deemed unsafe. Work cannot resume without Asset Protection and PM approval. Fire Prevention is also responsible for minimizing losses and liability for Raytheon Company.

Project Managers are responsible for the overall project and contractor coordination. This includes inspecting construction sites and stopping any work deemed unsafe or out of alignment with environmental requirements. Work that is deemed unsafe cannot resume without EHS and PM approval.

Supply Chain Management (SCM) buyer is responsible for establishing and awarding a purchase order to the contractor. The SCM buyer also ensures that only prequalified contractors are used to perform construction and maintenance projects.

Security is responsible for the physical property and ensuring that all Raytheon security regulations are enforced. They may deny access to the plant site per EHS or PM instructions.

2.9 Restricting Access to Work Areas

It is the contractor's responsibility to install warning signs, safety cones, caution tape or other barricades to prevent unauthorized access to contractor work areas. This effort must be coordinated with the PM.

The contractor and contractor's employees are granted the right to question Raytheon employees who might enter the work area to determine if the Raytheon employees have a need to be there. If a Raytheon employee does not have a need to be in the designated work area or is not wearing appropriate personal protective equipment (PPE), the contractor shall ask the person to leave the work area. Incidences of unauthorized access must be reported to the PM or an EHS representative.

2.10 Occupied Areas

Contractors will be held liable for the cost of any interruption of Raytheon work due to contractor negligence. Activities that may potentially harm Raytheon employees must be properly controlled. Any area where Raytheon employees may be exposed to potentially hazardous activities must be secured as detailed below. Contractors will also be held liable for damage to production hardware or products due to negligence.

Performing demolition, repair work and construction within occupied company areas can present a variety of hazards to nearby personnel. It also makes it difficult, or impossible, for nearby personnel to accomplish necessary work.

Making provisions for these issues so that normal Raytheon operations can continue safely and productively, and to minimize interruptions to the construction project caused by employee complaints, is critical to project success.

The following steps are required unless written approval to do otherwise is obtained from the PM and EHS to ensure the protection and welfare of nearby occupants:

1. Post a project notice at various observation points around the work area advising of the work under way and the expected duration of the project. Provide a point of contact (POC) with an office and/or cellular phone number to the PM.

2. For work that involves construction, demolition or rearrangement:
   a. Perform work off-shift whenever possible.
   b. Before any demolition, inspect the area for signs of mold growth, water damage, asbestos or possible lead-containing paints. Contact the PM if such signs are observed. These areas must be assessed and corrected before demolition is begun.
   c. Enclose demolition/construction areas with fire retardant plastic sheeting from the floor to the ceiling.
      i. Ensure that enclosures provide adequate sealing around the work area and that the integrity of the enclosure is maintained for the duration of the project. When necessary, use a separate contractor who is trained to construct these enclosures. Acceptable fire retardant sheeting is:
         - T5-FR Griffolyn Fire Retardant Semi-transparent Sheet, 0.006" x 20' (or 16') x 100' (MM0405) from Reef Industries, Inc.
         - Polyethylene Sheeting 620 FR (not washed) 0.006" x 20' x 100', State Fire Marshal Registered No. F-325 from Westport Cartage Corp.

ii. Provide an enclosed vestibule or Z-door arrangement with provisions for project personnel to clean their shoes before exiting the enclosure.
iii. Provide HEPA-filtered negative air systems to control dust and provide fresh air into the enclosure during project work.
iv. Inspect the enclosure integrity daily.

d. If employees have offices that are located within the enclosure, relocate them out of the work area for the duration of the project.
e. Protect the HVAC from dust, fumes, odors and any other hazards that may be produced during the project.
f. Daily: Wet mop or wet sweep using a dust control product, or use a HEPA vacuum on the work areas inside the enclosure.
i. NOTE: Wax-based floor sweep products must not be used on conductive floors.
g. Package and transport materials — dust and debris removed from the enclosed project — to prevent contamination of non-project work areas outside of the enclosure. Materials may be wrapped in plastic, bagged and/or transported on a carrier as appropriate. Any contamination that does escape the enclosure must be HEPA vacuumed before personnel reoccupy the adjacent work areas on the next normal day of work.

h. Do not store flammable materials in the enclosure when work is not in progress.
i. Cover such items as desks, chairs, bookcases, furnishings and fixtures in the enclosure with fire retardant plastic sheeting.
j. The contractor must inspect the work area daily to ensure these work procedures are effective.

2.11 Housekeeping

Contractors are responsible for keeping their work areas orderly and neat. If their work areas pose tripping or slipping hazards to Raytheon employees or contractors, proper warning signs must be posted. At the close of each workday, the contractor must clean and free the work area of trash, debris, tools, equipment, dust, extension cords and similar hazards.

For extremely dusty work, sweeping must be done throughout the day. Use moistened (not kerosene-based) sweep materials.

Follow these general housekeeping rules:

- Compressed air must not be used to clean floors, clothes or any surface.
- Contact the PM for temporary storage areas.
- Consult with the PM for waste and trash disposal. Some contracts will require the contractor to provide a construction waste container.

- Use drip pans or mats for oily equipment (e.g., pipe thread equipment).
- Areas around fuse boxes, electrical switch panels, fire extinguishers and other emergency equipment must be kept clear and readily accessible at all times.

2.12 Traffic and Parking

Vehicle traffic and parking at RMS sites is regulated and enforced per OSHA 1926.601 Motor Vehicles. If your job requires special parking, check with your PM. Do not park in Restricted Areas or Reserved Parking areas unless you have obtained the permission of the Security department. Access for emergency response vehicles must be maintained at all times.

Personnel may not be transported in the rear of trucks unless they are seated and only where permanent seats and seat belts are provided. Secure all loads to prevent accidental spills.

Vehicles or equipment with a body or haulage capacity of 2½ cubic yards or more must be equipped with a backup alarm. Obey posted speed limits. Due to the amount of vehicles and pedestrian traffic, Raytheon strictly enforces the traffic and parking rules.

2.13 First Aid and Medical Emergencies

Except where agreed upon in advance by contract, the contractor is responsible for the provision of emergency

medical treatment and transportation of injured contractor personnel to the contractor's designated medical facility. The contractor is responsible for ensuring that each contractor employee knows how to contact the arranged provider of these services before commencing work. The contractor must provide all necessary first aid supplies for his workers.

2.14 Accident and Injury Reporting

You are required to report all accidents and injuries involving your employees or subcontractors to the responsible PM immediately. A written report delineating specifics of the accident or injury must be prepared by the contractor and submitted to the EHS department within 48 hours of each occurrence. The contractor must report any accidents that meet the reporting requirements to OSHA.

3.0 Equipment and Tools

3.1 Policy

Contractors must not operate Raytheon-owned equipment such as forklifts, man lifts, tools, company cars, trucks, ladders, work stands, cranes, hoists, or any other Raytheon-owned piece of equipment or tools, unless authorized by Raytheon in the PO/contract before the equipment/tools in question are used. If such usage is authorized by contract, the contractor will be required

to provide appropriate training to contract personnel. If contractors use Raytheon-owned equipment, they do so at their own risk and liability.

All electrical equipment and powered hand tools used on RMS Tucson sites must be NRTL-certified/UL-listed. Portable internal combustion engines must not be used on any RMS sites without prior EHS approval.

3.2 Hand and Portable Tools

Because damaged tools may result in injuries, all tools brought onto RMS Tucson sites must be in good working condition. Tools must only be used for the purpose for which they were designed (e.g., screwdrivers must not be used for prying). All tools must be collected at the end of each shift and locked in appropriate toolboxes or bins. RMS Tucson is not responsible for lost or stolen tools. Tools requiring certification for use (e.g., powder-actuated tools) must be used in accordance with the manufacturer's certification, and their users must be properly certified.

When using hand tools, follow these rules:

- Tools must be in good condition. Electrical cords must not be frayed, damaged or modified.
- Portable tools must be connected to the electrical supply by means of a 3-wire cable and 3-pin plug and socket (double insulated tools excepted). Where a 3-phase power supply is used, 4-wire cable and 4-pin plugs and sockets with ground connections must be used.

- Nonsparking tools must be used in areas when an ignition source may cause a fire or explosion (e.g., flammable liquid storage areas or paint booths).
- Wear eye protection when using powered hand tools.
- Ground-fault circuit interrupter protection must be used when operating power tools outdoors, on roofs, in wet areas, or on construction sites where temporary wiring is present.
- Never remove any safety devices or guards from power tools.
- Tools that have been altered or modified must not be used.

3.3 Mobile Lifts

All mobile lifts, including forklifts, man lifts and scissor lifts, must be in good working condition, their inspection certificates up to date and must be made available for inspection upon request by EHS. Only trained and authorized personnel may operate these vehicles on RMS sites. If fall protection is required to operate mobile lifts, the contractor will provide the appropriate fall protection systems and train employees as required.

- No fossil-fueled equipment indoors
- Wear seat belts while using fork lifts (all except scissor lifts)
- No standing on guard rails; personnel must remain on the working platform at all times

3.4 Noisy Equipment

Equipment that emits enough noise to disturb RMS employees or exceed OSHA action levels (85 decibels or more) must be used in isolated areas, off-site, or on second shift. Such equipment includes grinders, saws, drills, powder-actuated tools, and jackhammers. Contractor employees operating noisy equipment must wear appropriate hearing protection. Use of powder-actuated tools requires posting of 8x10-inch warning signs. The contractor must ensure that employees using powder-actuated tools are trained and currently certified.

3.5 Cranes, Hoists and Rigging

Any lifts over buildings, floors and roofs (airport safety flag required if over a roof); into elevators; over plant roads; or over potentially populated or pedestrian areas, must be coordinated with your PM. All required barricades and warning signs must be used. Outriggers must be properly set for all lifts. Tag lines and proper rigging are required. Comply with OSHA 29 CFR 1926, Subpart CC-Cranes & Derricks in Construction, and ASME B30.5, Mobile and Locomotive Cranes, when operating cranes at RMS Tucson sites. Only crane operators certified in accordance with 29 CFR 1926.1427, Operator Qualifications and Certification, may operate cranes or hoists at RMS Tucson sites. **Do not** operate cranes within 15 feet of electrical power lines (a spotter with an air horn is required for

any lift in close proximity to power lines). Movement of oversized loads must be coordinated with the PM. All permits required by Tucson Airport Authority must be obtained.

3.6 Elevators (Personnel, Freight and Dumbwaiters)

Construction and Maintenance must be done by qualified personnel. Contractor must use LOTO procedures when working on electrical or mechanical systems. Energy maps must be reviewed and verified annually. All elevator shafts must be considered a confined space. Fall protection must be used when working on or near elevator shafts. Restraint systems must be used in elevator shafts having more than one car.

4.0 Hazardous Materials and Wastes

4.1 Policy

Contractors will receive the **Pre-use Authorization for Hazardous Materials Form** from their Supply Chain Management POCs or their PMs. This form must be completed and submitted to the PM monthly whenever hazardous materials (solvents, gases, paints, etc.) are used on RMS Tucson sites. The form will be submitted for approval to the Raytheon PM or EHS representatives before work begins. Contractors must provide and have available

on-site all manufacturers' Material Safety Data Sheets (MSDS) for hazardous materials listed on the form. EHS shall review the **Pre-use Authorization for Hazardous Materials Form** and MSDSs and inform the contractor if hazardous materials are approved for use on RMS Tucson sites. All chemicals must be labeled in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200). Within 10 days of the end of each calendar month, a summary of actual chemical usages must be provided to the Raytheon PM.

Hazardous materials used on RMS Tucson sites must have appropriate identification and warning labels and must be stored and transported properly within the facility. Incompatible hazardous materials (e.g., acids and bases) must be stored and/or used separately. Contractors must ensure that they read and understand the material safety data sheets for the hazardous materials they are using. The contractor must remove unused hazardous materials from all RMS sites at the end of each project.

4.2 Paints, Sealants, Adhesives and Mastics

Contractors must only use EHS-approved paints, sealant, adhesives and mastics on RMS Tucson sites. This group of materials (water- and/or solvent-based) should not be applied in occupied areas. Some work may need to be done during off-hours to ensure Raytheon employees are not exposed. Mastics containing asbestos must not be used. Contractors must submit the **Pre-use Authorization for**

Hazardous Materials Form to EHS for approval before beginning work.

No person may employ, apply, evaporate or dry an architectural coating containing photochemically reactive solvents or thin or dilute architectural coatings with a photochemically reactive solvent on RMS sites in Tucson.

4.3 Solvents and Flammable Materials

Contractors must not use solvents or any other type of similar flammable material without the prior approval of the PM and EHS. The usage of any chemicals that contain volatile organic compounds (VOCs) at any Raytheon site must be included in the monthly chemical usage summary submitted by the contractor. Contractors must submit the **Pre-use Authorization for Hazardous Materials Form** to EHS for approval before beginning work.

4.4 Pesticides

All pesticide applications must be performed in accordance with site's Pest Management Plans (PMP) where applicable. Raytheon PMP covers restricted use and nonrestricted use pesticides, rodenticides, fungicides, herbicides and insecticides. Principles of Integrated Pest Management (IPM) must be employed over traditional pest control where practical. Only state-certified applicators may apply restricted-use pesticides, and a copy of all applicator licenses must be provided to EHS before performing work on RMS Tucson sites.

All pesticides, including the method and location of proposed application, must be preapproved by EHS. The Raytheon PM must be notified of all pesticide applications in order to inform Raytheon employees with cautions to remove eating utensils and to wash items exposed during spraying. Contractors must ensure that appropriate warning signs are posted stating the date, time and location of pesticide use before beginning the application. Pesticide application must be done in unoccupied areas only. Physical barricades may be needed to ensure that employees cannot wander into a pesticide application area.

4.5 Spent, Unused or Surplus Hazardous Materials

All spent, unused and surplus hazardous materials or contaminated material (such as contaminated rags, containers, brushes, clothing, etc.) remains the property of the contractor and must be removed from RMS Tucson sites by the contractor. RMS does not assume responsibility or liability for the materials identified above, as they remain the responsibility of the contractor.

The contractor is responsible for the proper management, packing, collection, transportation, and applicable disposal of these hazardous materials in compliance with applicable city, state and federal regulations. Spent, unused or surplus chemicals and contaminated material must not be disposed of in Raytheon trash dumpsters, left on-site, or dumped down any drain.

4.6 Hazardous Materials Release or Spills

The contractor must immediately call the appropriate site-specific emergency phone number (listed at the front of this handbook) when chemicals, paints, resins or other hazardous materials belonging to and under the control of the contractor are spilled at an RMS Tucson site, into storm drains, or dumped into the sanitary sewer.

In the event of a spill, Raytheon Fire Department/Security Dispatch will notify EHS, and EHS will determine if regulatory or emergency response agencies are required to be notified in order to protect employee health and safeguard the environment.

The contractor is responsible for the management of any spilled material, which may include cleanup costs, containers, and movement of the material off-site under the contractor's name. The contractor assumes all liability for hazardous materials used, spilled or released while working on RMS sites.

4.7 Hazardous and Universal Wastes

All hazardous and universal waste generated from Raytheon-owned equipment (e.g., waste oils, refrigerants, etc.) must be properly placed in appropriate containers. Contractors must coordinate proper container labeling and storage with the PM. The management of waste generated from Raytheon-owned equipment is the responsibility of Raytheon.

4.8 Recycling and Reuse

Contractors are responsible for separating and recycling materials removed from the jobsite. Raytheon will provide recycle bins and will monitor contractor recycling efforts. Recyclable materials will be separated as follows:

1. Scrap metal: Remove foreign material from scrap metal before placing it in the recycle bin.
2. Cardboard: Remove internal packing (foam, etc.) and fold flat.
3. Wood: All scrap wood must be collected.

Raytheon will provide and maintain separate bins for each recyclable material near the jobsite. The contractor is still responsible for removing all trash generated by the project from the plant site.

Also, the contractor is to capture reusable items such as doors, door hardware, fixtures, counter tops, sinks or other types of reusable building materials. The contractor will transport these items to RMS Airport site, building 819, for processing.

4.9 Asbestos-Containing Material (ACM)

Contractors must not use asbestos-containing construction materials (ACM) in any RMS Tucson facility. Some building materials in RMS buildings (such as fire proofing, pipe insulation, vinyl floor tile, mastic, roofing materials, spray-on decorative ceilings, and walls) may contain

asbestos. Contractors are expected to be knowledgeable about the various types of materials that may contain asbestos and be able to recognize when this suspect material is encountered.

Because ACM may be encountered before, during or after construction projects, the contractor has the duty to question whether a material contains ACM and may halt work until such a determination can be made. If suspect material is encountered, work must be stopped immediately and the PM must be notified.

Damage to existing inventories of ACM materials that are a direct result of contractor activities must be reported to the PM immediately. Remediation of any such damage will be carried out by Raytheon. Contractor work areas will be inspected for such damage before final acceptance of project completion. Contractors are required to inspect their work areas on an ongoing basis and report damage immediately to the PM.

4.10 Asbestos and Lead

Asbestos and lead may be present in buildings. Before any renovation or demolition project, Raytheon will review its asbestos and lead surveys to identify all ACM and lead containing surfaces in the area. Contractors will be told the locations of these materials when they are known.

Contractors must not abate any asbestos- or lead-containing materials. The Facility Services PM

(in coordination with a licensed contractor) has the sole responsibility for completing abatement work.

5.0 Environmental Requirements

5.1 Environmental Permits, Registration and Notifications

If an environmental permit, registration or notification is required for work by a contractor on RMS Tucson sites, the contractor must provide such documentation to EHS for review and approval.

5.2 Refrigerant Management

Raytheon has an established refrigerant management program to minimize emissions of refrigerants, to ensure compliance with EPA regulations, and to minimize the potential for catastrophic releases. All contractors providing new equipment must do so in accordance with Raytheon Standard Specification Sections 220500, Common Work Results for Plumbing; 230500, Common Work Results for HVAC; 232300, Refrigerant Piping and Raytheon Standard HVAC; and any notes documented on construction drawings.

It should also be noted that RMS' system of operation assumes that only Raytheon employees remove refrigerant from devices before they are removed from the site, replaced, or repaired by contractors.

The contractor must use only trained and certified refrigerant technicians. A copy of technician certification must be provided to the Raytheon refrigerant coordinator and PM before the commencement of any work. Contractors must provide Raytheon with a copy of their notification to the EPA of an approved Refrigerant Recovery machine.

The refrigerant contractor must provide written documentation for work requiring the transfer of refrigerant. Hard copies of these forms must be provided to the Raytheon Refrigerant Database coordinator and PM. These records must include detailed information such as volume of refrigerant added, lost or recovered; location of leaks; and verification of refrigerant leak testing. Recovered Raytheon refrigerant must be collected in Raytheon recovery cylinders and stored as directed by the refrigerant coordinator. Refrigerant or refrigerant oil must not be removed from an RMS Tucson site without prior EHS approval.

There are rare instances where Raytheon will choose to sell refrigerant appliances that are in good condition. In this case, Form 22578RMS must be completed by both the Raytheon seller and the external buyer. This documentation must be given to the Raytheon Database Coordinator for input into the Raytheon Refrigerant Database.

All refrigerant work performed on Raytheon equipment must be documented by the contractor and the information

transferred to the Raytheon Refrigerant Database coordinator before the completion of the contractor's work. No refrigerant appliance, refrigerant gas, or refrigerant oil can leave RMS Tucson sites unless authorized by the PM and EHS.

5.3 Air Emissions

Any operation or activity which involves the release of significant quantities of dust, vapors, fumes or mist must be approved by EHS before starting work. Examples include large applications of floor, wall or roof coatings; spray applications; cement cutting; and sandblasting. Activity permits must be obtained from the Pima County Department of Environmental Quality when required for road construction, trenching, land-stripping and blasting in accordance with Pima County Title 17. A copy of the permit must be provided before starting work.

Any operation that requires the use of equipment that generates air contaminants or emissions, such as portable engines or cleaning equipment using chemicals, must be reviewed and approved by EHS before on-site use.

For portable, non-road engines (e.g., generators) brought onsite, the contractor must provide EHS the following information:

1. Make/model serial number
2. Rated capacity (horsepower)
3. Daily usage (hours)

Engine stack exhaust must not exceed 20 percent opacity/visible emissions after startup. If opacity/visible emissions exceed 20 percent, as determined using EPA's Method 9 testing, the equipment must be shut down and removed from the site until repaired or replaced.

5.4 Endangered and Protected Species

All individuals entering desert areas, unpaved road surrounding desert areas, and undisturbed areas must be trained in identification of the Pima Pineapple Cactus and have knowledge of the Endangered Species Law and Arizona Native Plant Law. Extreme caution must be used to prevent disturbance of the Pima Pineapple Cactus or violation of Arizona Native Plant Law.

5.5 Storm Drains and Sanitary Sewer

Liquid or solid material(s) must not be discharged onto the ground or into an on-site storm drain and/or sanitary sewer system(s) without prior EHS approval. Rinsing of an area (or piece of equipment) **must not** be used as a cleaning method for work residues, including metal filings, spilled material, or leaks from equipment. Contractors must follow proper cleanup procedures to remove work residue from the area.

Care must be taken during chemical storage and transfer to prevent the possibility of accidental spillage of chemical products. If storage of chemical products on-site is

approved by Raytheon, secondary containment must be used and the containment must have 110 percent containment capacity of the largest container.

6.0 Compressed Air and Gas Cylinders

6.1 Compressed Air

Operators must use hoses and couplings with safety blast holes that are designed to handle compressed air. Couplings are not to be altered and must be inspected before use. Hose clamps must not be used on compressed air hoses.

Compressed air must not be used to clean floors, or any other surfaces. Air hoses must never be supported from conduit. Before uncoupling hoses, shut off the valves and bleed the hoses.

6.2 Compressed Gas Cylinders

Gas cylinders must be secured in a vertical position to a stable structure. Valve protection caps must be on and secured when cylinders are not in use. Flammable gas cylinders must be kept at least 20 feet from flammable liquids, highly combustible materials such as oil and grease, and oxidizers. They must also be kept at a safe distance from arcing electrical equipment, open flames, or other sources of ignition. Flammable gas may not be stored within 20 feet of oxidizers (oxygen). Acetylene and oxygen cylinders may only be located together during cutting or welding.

7.0 Personal Protective Equipment

7.1 Policy

Personal protective equipment (PPE) such as hard hats, respiratory protection, and hearing or eye protection must be worn if required for the job. Furnishing PPE is the responsibility of the contractor, not Raytheon. It is the contractor's responsibility to train contract employees in the proper use, care and storage of PPE, provide required medical surveillance, and enforce the wearing of PPE by contract employees. The equipment you provide must be in good condition and carry the appropriate American National Standards Institute (ANSI) or National Institute of Safety and Health (NIOSH) approvals.

7.2 Respiratory Protection

Correct respiratory protection and dust masks must be worn when sanding, spraying and/or applying a material that requires such equipment. All respirators must be NIOSH-approved, and employees must be properly certified and included in an OSHA-compliant respiratory protection program.

Users of disposable masks (e.g., dust masks) must have received training on the information in Appendix D of the OSHA Respiratory Protection Standard. Documentation of this training must be made available to RMS upon request. Dust masks can only be used while performing tasks that do not require respiratory protection.

8.0 Elevated Work

8.1 Policy

Elevated work must be coordinated in advance with your PM. Areas below elevated work sites must be properly barricaded and appropriate signs must be posted before starting work. Contractors must be trained in the use of all work-related equipment and must wear appropriate PPE. All equipment must be in good working condition.

8.2 Overhead Work

Overhead work, including rooftop work, must be coordinated with your PM. Areas below must be barricaded, and warning signs must be posted. Work being performed above ceiling tiles, in catwalks, on rooftops, or in attic areas must only take place when areas below are unoccupied, or when coordinated carefully with your PM. Doors entering into an overhead work area must be locked. Any loose objects, such as tools or other equipment, must be secured to ensure that they cannot fall down onto ceiling tiles or to the floor below.

8.3 Fall Protection Systems

Engineering controls such as guardrails must be used in lieu of fall protection systems whenever possible. A fall-restraint system must also be used whenever possible, before resorting to the use of a fall-arrest system and associated equipment.

Where the use of engineering controls or a fall-restraint system is not possible, safety harnesses with compatible shock absorbing lanyards must be worn by employees exposed to fall hazards of 4 feet or greater. Employees working within 6 feet of an unprotected roof edge must also use a safety harness and shock absorbing lanyard. Safety harnesses must be tied off to a rated anchorage point, not to a ladder, scaffold or other such equipment. Where convenient or accessible tie-offs are not available, further coordination with your PM and EHS is required. Fall protection systems must be maintained in good condition; modifications to such equipment is prohibited.

8.4 Ladders

- Inspect ladders before use. Ladders must be placed in a position in which both footrails have a secure footing and contact the floor evenly. Ensure extension ladders are properly secured.
- A ladder must not be placed in front of doorways unless the door is locked or blocked open and appropriate warning signs are posted. Cones must be placed around ladders or other climbing equipment used near occupied areas or pedestrian walkways.
- Standing on the top two rungs or on top of a ladder is prohibited.
- When using a ladder near electrical energy sources, the ladder must be made of nonconductive material (e.g., fiberglass).

- Ladders must be stored in an appropriate space.
- Ladders must be removed from the premises when work is completed.

8.5 Scaffolding

Scaffolding must be constructed in accordance with OSHA 1926 Subpart L regulations. Contractors must provide a qualified person to erect and dismantle scaffolding.

9.0 Electrical Work

9.1 Policy

Electrical work must comply with the National Electric Code (NEC), OSHA, and any other applicable codes.

When working on a de-energized electrical circuit, a circuit breaker, or other electrical disconnect, the device must be locked out/tagged out with a personal lock/tag. When personnel might be exposed to open boxes or live conductors, barriers must be erected.

Covers must be replaced at the completion of the work for that day and/or when work is suspended for a day or more. Unused conductors must be properly identified and terminated.

All circuit breaker boxes must have each circuit identified. Disconnects must identify the branch circuit of equipment that they control.

Live electrical work is prohibited unless absolutely

necessary. In such instances, a live electrical work permit compliant with NFPA 70E must be provided and completed by the contractor. The permit must be authorized by EHS and Facility Services before work begins.

9.2 Electrical Protection — Ground-Fault Protection

Ground-fault protection must be used by personnel using temporary wiring installations to supply power to equipment used during activities such as construction, remodeling, maintenance, repair or demolition of buildings, structures or equipment. All 110, 115 or 120 Volt, single-phase 15, 20 and 30 ampere receptacle outlets that are not part of the permanent wiring of the building or structure, and are being used by personnel, must have GFCI protection provided.

9.3 Lockout/Tagout

Contractors must inform their assigned PM of their lockout/tagout procedures. Contractors must implement and maintain an effective lock out/tag out program to protect employees from the unexpected energization, activation or start-up of machines (e.g., lathes, drill presses, band saws, belt drives) and/or equipment during service, adjustment, calibration or maintenance.

Contractor personnel must provide and use their own lockout/tagout accessories (locks, tags, nylon ties, multihasps, etc.) to perform general and specific lockout/tagout procedures. Lockout/tagout information concerning the service or maintenance of RMS-owned machinery and/or equipment will be provided by your designated PM.

9.4 Live Electrical Work — Arc Flash

Work on or near exposed energized electrical conductors is a last resort and made only after all other possibilities for establishing an electrically safe work condition have been exhausted. De-energizing machines, systems and equipment using lockout/tagout applications must be the primary method of performing electrical-related maintenance and repair. Reference Tucson Control of Hazardous Energy Instruction, INST-EHS-408-1, for RMS requirements.

Contractors conducting live electrical work on RMS sites must comply with the requirements of the latest edition of the NFPA 70E standard, and RMS Tucson Electrical Safety Instruction, INST-EHS-406-1.

The permit must be authorized by EHS and Facility Services before beginning work.

Corporate EHS Standard 04.02

1. (2.1) LOTO
2. (2.5) Verification of energy map accuracy

10.0 Impairment Work

10.1 Policy

Power and network outages must be coordinated through the project field engineer and the field engineer will submit the request through the solution center. Some hot work may require that life safety systems (fire alarms or risers) be disabled during the hot work procedure to prevent false fire alarms. The impairment coordinator must be consulted to assist in identifying areas or situations where this may be a concern and coordinate scheduling with the Facility Services fire PM planner. For all hot work activities, a fire watch must be provided by the person performing the work during activities and for 60 minutes after activities have ceased, including any break activity.

10.1.1 Definitions

Fire Watch — The assignment of a person or persons to an area for the express purpose of notifying the fire department and/or the building occupants of an emergency, preventing a fire from occurring, extinguishing small fires, or protecting the public from fire or other dangers.

Hot Work — Operations including cutting, welding, thermite welding, brazing, soldering/sweating, grinding, thermal spraying, thawing pipe, installation of torch-applied roof systems or any other similar activity.

Hot Work Permit — A permit issued by the responsible person at the facility under the hot work program permitting welding or other hot work to be done in approved locations and prepermitted by the fire code official.

Hot Work Program — A permitted program, carried out by approved company-designated personnel, allowing them to oversee and issue permits for hot work conducted by their personnel, contractors or at their facility.

Impairment — A shutdown of a fire protection/suppression system or portion thereof. The two types of impairments are emergency and planned. An emergency impairment results from an unexpected occurrence. A planned impairment is scheduled for the purposes of repair or modifications.

Impairment Coordinator — A position that is assigned for the purpose of coordinating and authorizing planned impairments and dealing with emergency impairments to ensure the fire and life safety of a protected structure.

Nuisance Alarm — Any alarm caused by mechanical failure, malfunction, improper installation or lack of proper maintenance, or any alarm activated by a cause that cannot be determined.

Red Tag Permit (FM Global) — A tag used to indicate that a fire protection/suppression system, or part thereof, has been removed from service.

10.2 Hot Work Permits

Hot work, including cutting, welding, brazing, soldering, sweating and using open-flame devices, grinding, powder-driven fasteners, heat treating, thawing pipe, hot riveting, or torch-applied roofing, must be coordinated in advance through the field engineer to the solution center, then to the facilities maintenance planner, who will coordinate with the impairment coordinator. Hot work non-production soldering requires a hot work permit before any hot work begins.

A hot work permit must be requested through the field engineer, who will submit the request through the solution center to the facilities maintenance planner, who will coordinate with the impairment coordinator at least **48 hours** before work begins. All permit requests, including requests for off-hours work, will be reviewed on a case-by-case basis. Each permit is signed by the worker performing the work, who commits to ensuring the work will be performed according to prearranged requirements.

Due to the potential for serious injury or property damage, Raytheon will not tolerate violations of Hot Work Permit requirements. Failure by the contractor to obtain a Hot Work Permit or failure to abide by a permit requirement will result in immediate job shutdown and reprimand, including the possibility of employees or contractors being removed from the site.

10.3 Fire Watch and Rescue Services

Fire watch personnel must be provided by the contractor and the fire watch must remain at the job location for at least 60 minutes following completion of the project. Fire watch must be supplied with an appropriate fire extinguisher and be trained in its use and in the sounding of the local area alarm. The area must be monitored for three hours after the 60 minute fire watch. If hot work is done in an open area where passers-by may be present, shielding that protects personnel from associated hazards must be used.

11.0 Excavations and Confined Spaces

11.1 Policy

Any excavations 5 feet or more in depth that personnel will enter must be protected by a system of shoring, sloping of the ground, benching, or an alternate method that meets the requirements of OSHA construction standards (CFR 1926, Subpart P). All excavations must be barricaded and/or appropriate warning signs posted. No excavating can be done without the knowledge of your PM. The excavation must be monitored by a competent person. The contractor must have current drawings for the job being performed. Utilities must be located (e.g., by using ground-penetrating radar and/or potholing) before excavation can begin.

11.2 Barricades and Warnings

All excavations must have barricades and warnings to alert employees to the danger in the immediate area and physically stop them from coming too close to the opening. Doors leading into the area must have warning signs. Signs must be illuminated so they are visible at night.

11.3 Confined Space Entry Permit

All contractors whose employees must enter confined spaces where permits are required are responsible for developing, implementing and maintaining their own confined space entry program and must submit this program to the Raytheon project manager (PM) for review.

This program must include permitting, training and meeting the requirements of OSHA 29 CFR 1926.21 and 29 CFR 1910.146. Raytheon confined spaces are labeled for easy identification. Raytheon shall request proof of training before allowing confined space entry.

Contractors are responsible for:

- Obtaining information regarding confined spaces from the Raytheon PM.
- Coordinating entry operations with the Raytheon PM.
- Calling Raytheon Dispatch at 520.794.8313 before and after entering a permit required confined space.
- Providing the Raytheon PM their confined space program.

- Providing the Raytheon PM with training certification of all personnel involved with the entry.
- Providing appropriate and adequate monitoring equipment with current calibration certifications.
- Providing a fully trained rescue team throughout the duration of the confined space entry. In the event of an emergency, the rescue team must contact one of the following, depending on location: Airport 520.794.8311; Rita Road 520.663.3911; Palo Verde, Bike Shop, and other locations, 911.
- Having all equipment set up and ready for entry before permitted to do so.
- Locking out all sources of energy that affect the confined space.
- Purging, venting and putting into place a ventilation system.
- Securing the area.
- Ensuring all personnel use appropriate PPE.
- Using escape harnesses unless doing so creates a greater hazard.
- Using special lighting and non-sparking tools when required.
- Supervising the entry until all work in the space is complete.

12.0 Ionizing Radiation, X-Ray and Laser Usage

Use of X-ray equipment or ionizing radiation sources requires compliance with all safety and licensing requirements of the Arizona Radiation Regulatory Agency and the Raytheon radiation safety officer. Radiographers or operators of X-ray or ionizing radiation equipment must

produce copies of their current certifications to the PM.

Use of Class 3b or 4 lasers, or laser devices with accessible Class 3b or 4-energy, must comply with all safety and licensing requirements of the Arizona Radiation Regulatory Agency and the Raytheon laser safety officer.

13.0 Explosives Safety: Integrated Test Facility (ITF)

ITF is the end-point in the manufacturing process for missile production at RMS in Tucson. Therefore, the ITF site contains high explosives. There are special training requirements and procedural protections that have been put in place. Contractors must adhere to these requirements.

Construction/maintenance contractors and technical services providers must receive specialized training before entering ITF. This training is administered by Facility Services field engineers and must be coordinated by the PM. Those contractors not under the Facility Services sphere of control must contact Facility Services to complete the training.

Contractors must review the evacuation procedures for a specific ITF building before entering it, per the building safety standard operating procedure.

Contractors must review and comply with the requirements of Tucson ITF Explosives Safety Plan Instruction, INST-EHS-419. Requirements in this document include the use of hot work and other permits, smoking restrictions,

unique environmental hazards and vehicle operating guidelines. These requirements must be referenced during the pre-project planning by the PM.

13.1 Process Safety Management (PSM)

Contractor employees involved in maintenance, repair, turnaround, major renovation or specialty work on or near processes covered under the PSM standard are managed through the RMS Facility Services contractor management process, "Contractor Safety Oversight program" (INST-EHS-413-1), and "Tucson ITF Explosives Safety Plan" (INST-EHS-419). Contractor entry into covered process areas is limited to controlled access points and requires an RMS-issued security badge. RMS employee escorts are also required for contractors in specified areas. Contractor employees must complete the RMS explosive safety class and Process Safety Management training before working unescorted in all-up round facilities.

Contractors must confirm that their employees working within ITF have completed all required training in accordance with OSHA, contractor and RMS standards before beginning work. Contractors must provide training documentation upon request.

PSM information flow to the contractor is performed by the PM. Contractor complaints concerning safety and health conditions must be reported to the PM or EHS.

When work is being conducted in ITF, the contractor will meet with the Facility Services field engineer and a ITF Safety Team member each day before beginning work to discuss that day's activities and hazards associated with the work to be performed. RMS will advise the contractor of any work-area-specific hazards. Contractors must notify RMS of hazards associated with contracted work and any other hazards they may encounter in the area, regardless of whether hazards are related to the contractor's scope of work. Contractor employees must participate in the RMS incident investigation for any near-miss or other incident at the ITF site, regardless of whether they witnessed the incident or were directly involved.

Facility Services field engineers and EHS engineers routinely inspect and document contractor activities and safety practices. Inspection frequency is determined by the field engineer and/or EHS team members based on the level of risk and level of safe performance demonstrated by the contractor employees. Field engineers and EHS team members have the authority to stop work or dismiss contractor employees for serious violations.

14. OSHA Voluntary Protection Program (VPP)

Voluntary Protection Programs promote effective worksite-based safety and health. In the VPP, management, labor, and OSHA/ADOSH establish cooperative relationships at workplaces that have implemented a comprehensive safety and health management system. Raytheon has achieved Star certification through the four management principles of VPP:

1. Management Leadership and Employee Involvement
2. Worksite Analysis
3. Hazard Prevention and Control
4. Safety and Health Training

VPP is a core value at Raytheon because it:

1. Affirms management's commitment to providing a safe and healthful workplace
2. Increases employee participation in safety and health programs
3. Improves the site's safety and health process
4. Reduces worker injuries and illnesses
5. Is important to our customer; DoD sites are now challenged to achieve VPP certification
6. Enhances the Raytheon-ADOSH partnership
7. Fosters trust and confidence
8. Provides ADOSH with the opportunity for input on safety and health matters

15. Definitions

Bureau of Labor Statistics (BLS). The principal fact-finding agency for the federal government in the broad field of labor economics and statistics. The BLS is an independent national statistical agency that collects, processes, analyzes and disseminates essential statistical data to the American public, the U.S. Congress, other federal agencies, state and local governments, businesses and labor organizations.

Competent Person. One who is capable of identifying existing and predictable hazards in their surroundings or working conditions that are unsanitary, hazardous or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate such hazards.

Notice of Violation. A formal, written notification of significant noncompliance that is sent with a cover letter. The notice of violation is issued for violations of law, regulations, permits, certifications, licenses or registrations that warrant legal action if not corrected.

Permit. An authoritative document or official certificate of permission; a written order granting special permission.

Qualified Person. One who by possession of a recognized degree, certificate or professional standing, or who by extensive knowledge, training and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter, the work or the project.

Subcontractor. An individual or business that is contracted to perform part or all of the obligations of a contract from another entity. Note: Contractors are responsible for ensuring their subcontractors meet the minimum prequalification requirements.

Training. The process of becoming proficient in a specific area through instruction and practice, or developing or forming proper habits, thoughts or behavior in a specific area through discipline and instruction.

Appendix A: Compliance and Training Acknowledgements

The Contractor certifies that it implements procedures to ensure work performed on RMS Tucson sites by the Contractor's employees, and any subcontractors, is performed in accordance with Raytheon requirements and all applicable federal, state, and local safety, health and environmental regulations.

Contractors verify that they have received and understood the requirements identified in the Raytheon Contractor Safety Handbook for Outside Contractors and will comply with the requirements.

Training Verification

I certify that employees assigned to perform work on Raytheon RMS property have completed all safety training as required by OSHA and fully meet the qualification requirements to complete the assigned work. All necessary personal protective equipment required to complete the contracted work must be in the possession of the contract employees and utilized when required. Employees have been trained in its proper use.

Material Safety Data Sheets for all hazardous materials to be used on this job have been provided to Raytheon Environmental, Health and Safety and the contractor's employees have been trained on the hazards of the materials and the associated potential hazards of the work environment.

I affirm that the above information provided is to the best of my knowledge, true, accurate and complete.

Company Principal Officer (print)

Principal Officer (signature) Date

This page is intentionally left blank

Appendix B: RMS Forms

Forms:

- 22441RMS, Contractor Safety Pre-Qualification
- 22438RMS, Contractor Safety Checklist
- 22650RMS, Pre-use Authorization for Hazardous Materials

Notes

Notes

Notes

Raytheon Company
Missile Systems
P.O. Box 11337
Tucson, Arizona
85734-1337

Raytheon

Customer Success Is Our Mission

Version 2.0 6/13