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Section C - Description/Specifications/Statement of Work

PERFORMANCE WORK STATEMENT FOR

U. S. MARINE CORPS TRAINING & EDUCATION COMMAND

RANGE AND TRAINING AREA MANAGEMENT (RTAM) BRANCH USMC RANGE MANAGERS TOOL KIT (RMTK) SUSTAINMENT AND UPGRADES

1.0 Background:

Training and Education Command (TECOM) RTAM, Army, Navy, and Air Force, requires technical support for the RMTK and Marine Corps Range and Training Area Management Systems (MCRTA including provisions of the RMTK tools approved for Foreign Military Sales customers. The RMTK and MCRTAMS support is provided for unit commanders, headquarter staffs, operating units, range mana cross-service users, and international customers in a desktop, web, and mobile environment. The RMTK is provided as a set of range safety standard metrics that relates range capabilities to specific trai requirements using established range safety standards. RMTK on MCRTAMS provides access to and supports the RMTK for safety, range use, range planning, and range support functions as MCRTAMS s and provides Geographic Information System (GIS) data for Marine Corps ranges and training range database in a web environment.

The RMTK is a suite of tools in the form of a software application that currently runs as an Environmental Systems Research Institute (ESRI) ArcMap Extension utilizing ESRI 3D Analyst and Spatial Analy extensions, ARC Server for the web enabled portions of MCRTAMS and in a Xamarin framework for the mobile environment. The danger zone tools within RMTK depict a three dimensional (3D) area associated with firing weapons/lasers/explosives where the risk of damage, injury or death does not exceed an acceptable level. The RMTK danger zone tools allow the user to create and modify danger zones. The danger zones encompass the ground and airspace for lateral and vertical containment of projectiles, fragments, debris, and components resulting from the firing, launching, and/or detonation of ordnance. This three-dimensional zone accounts for weapon accuracy, failures, ricochets, and broaches/porpoising of a specific weapon/munition type delivered by a specific aircraft type, laser energy and direct/indirec fire weapons ordnance. Danger Zones represent the minimum safety requirements designed for live fire training on Department of Defense (DOD) training ranges.

The Marine Corps is the lead and Chair of the Aviation Range Safety Sub-Group as designated by the DOD's Cross Service Range Use Standardization Working Group (RUSWG), the RTAM Branch is tasked t develop comprehensive strategies accommodating the differing Service and National perspectives, and varying needs for range utilization and safety, which forms the basis of the WDZ tool/data in addition tr Service considerations in the remainder of the RMTK tools. Specifically, the Weapons Danger Zone (WDZ) tool is the accepted United States Service air to ground danger zone tool for all air to ground activi to provide weapons danger zones and risk analysis. The RMTK tools may be provided to North Atlantic Treaty Organization (NATO) and other Partners for Peace (PfP) nations to facilitate interoperability. A Foreign ally may submit a new danger zone request and obtain access to an RMTK tool.

The RTAM Branch is responsible for establishing a cohesive management framework that ensures the objectives of the various sponsored initiatives are executed within program constraints. This includes establishing a cohesive management organization and support framework to execute management of business and technical attributes of program initiatives, oversight of prime vendor performance (e.g., prog investment), and coordinating actions among Integrated Product Teams (IPT) and other participating activities (e.g., NATO Range Safety Working Group, International Range Safety Working Group).

WDZ tool data cubes consist of the data necessary to determine the initial impact distribution (Delivery Accuracy), the ricochet impact distribution, and the failure mode impact distribution. These data are us to generate a combined probability distribution function (pdf) that defines the potential impacts from a training range event. While the term "Data Cube" is applied to the various subcomponents of the WDZ weapon model, the actual data cube is comprised of both organized multi-dimensional look-up tables (created in Microsoft Access) that sample a weapon's physical performance data and coefficient terms describing a polynomial approximation to a physical characteristic specific to the weapon's unique behavior. These interpolated data are integral to the data cube through various software interfaces and these data are used as a data point within the data cube. Weapon systems that have similar ballistic and failure mode characteristics use the same data and modeling format.

The RMTK suite of tools are created in VB.Net and C++ and Xamarin. The User Interface tools are written using VB.Net and the RMTK engine is compiled into a C++ Dynamic Link Library (DLL). database foundations of the tools are created in Microsoft Access and Microsoft SQL Server. The RMTK mobile tools will be developed and maintained for use in an iOS and Android. For the WDZ too WDZ Software Specification Documents Volume I-VI (Applicable Documents 7.0.15) provide detailed technical information regarding the WDZ tool required to create and integrate the WDZ data cubes.

2.0 Scope:

The scope of this Performance Work Statement covers RMTK technical support to TECOM and the RTAM Branch, including software maintenance, database development, engineering support, integration services, functionality and range safety parameter updates within the Multi-Service RMTK suite of tools, RMTK integration services and functionality updates within the MCRTAMS and the integration of E' SDZ, and WDZ into a mobile environment. The technical support also includes the services of subject matters with expertise relevant to the technical support or as otherwise described below.

In addition, the scope includes FMS purchases of the technical support and subject matter expertise.

Technical support is for the following RMTK tools:

Surface Danger Zones (SDZ) - SDZ Tool

Surface danger zones (SDZs) define the ground and airspace designated within the training complex (to include associated safety areas) for vertical and lateral containment of projectiles, fra components resulting from the firing, launching, or detonation of weapon systems to include explosives and demolitions. The SDZ Tool generates surface danger zones in accordance with par. MCO 3570.1C (Applicable Document 70.1). The size and shape of an SDZ is dependent on specific user input such as the location of firing points and targets, weapon system, ammuni and/or terrain. The capability to develop SDZs on the map serves as the basis for other RMTK uses, such as mission planning, range deviations, range modernization/planning, and range certif Weapon Danger Zones (WDZ) – WDZ Tool

Weapon danger zones (WDZs) define the ground and airspace for lateral and vertical containment of projectiles, fragments, debris, and components resulting from the firing, launching, a aviation delivered ordnance. The RMTK WDZ Tool creates WDZs for aerial platforms (fixed wing, rotary wing, and unmanned aircraft systems (UAS)) delivering air to ground weapons. The WDZ is dependent on a variety of aircraft delivery parameters to include airspeed, altitude, delivery angle, and aerial platform bearing to target. Range planners from all services must kn WDZs to safely execute single service and joint training exercises. The WDZ Tool will provide a common aviation delivered weapons danger zone format across the entire DoD and foreign mi Explosive training range danger zones – Explosive Training Range Tool (ETR)

RMTK will support breaching operations and explosives training by generating associated explosive danger zones. Definitions and parameters for the explosive danger areas are availabl (Applicable Document 7.0.5) Marine Corps Explosives Safety Program and Department of the Army Pamphlet (DA-PAM) 385-64 (Applicable Document 7.0.9) Explosive Safety. General Do application can be found in Naval Sea Systems Command (NAVSEA) NAVSEA OP5 Volume 1(Applicable Document 7.0.7), Ammunition and Explosives Ashore Safety Regulations for Production, Renovation and Shipping.

Laser Range Management - Laser Range Management Tool (LRMT)

RMTK will provide a tool to support and automate the certification and management of Army, Navy, Air Force, and Marine Corp laser ranges. Most tactical lasers operated on certified hazardous to personnel and are usually treated as direct fire weapons. The laser surface danger zones (LSDZ) associated with these lasers are generated by the LRMT in accordance with pa Military Handbook (MIL-HDBK) 828B (Applicable Reference 7.0.12), Range laser Safety, Operations Naval Instruction (OPNAVINST) 5100.27/MCO 5104.1A (Applicable Document Hazards Control Program, and Technical Bulletin Medical (TB MED) 524 (Applicable Document 7.0.8) Control Of Hazards to Health from Laser Radiation. The LRMT will develop L manage the inherent risks associated with ground and airborne laser designation training exercises.

On range noise - Noise Tool

Firing weapon systems causes noise, which can be an annoyance to both on-post and off-post residents. The Army Engineer Research and Development Center, Construction Engineering R (ERDC-CERL) has modeled noise contours associated with firing events. Noise contours are based on the weapon system, munitions, firing location, target location, and atmospheric conc allow Range Managers to place noise contours in the context of other map layers to gain better situational awareness of their range complex and take action to mitigate complaints. The R designed as a range management tool, not a National Environmental Policy Act (NEPA) noise compliance tool due to the difference between range and NEPA noise measurement requirements. On range ammunition storage potential explosion radii – On Range Ammunition Handling Tool (ORAH)

Ammunition temporarily stored in total support of the training mission for use on a range has an explosive potential that is hazardous to personnel and property. Definitions and parameters for 1 quantity-distance (ESQD) arcs are available in MCO 8020.10 (Applicable Document 7.0.5), Marine Corps Ammunition Management and Explosives Safety Policy Manual and DA PAM : Document 7.0.9), Army Ammunition and Explosives Safety Standards. General DoD guidance for this application can be found in NAVSEA OP5 Volume 1 (Applicable Document 7.0.7). RI the ESQD arcs in a map context.

Range clearance - Range Clearance Tool (RCT)

The Range Clearance Tool is designed to meet Marine Corps requirements to enhance the safety and sustainability of operational training ranges through the management and accountabil unexploded ordnance and munition, target, and other range-related debris. Use of the RCT is required for Marine Corps use with policy found in MCO 3550.9 (Applicable Document 7.0.2), I and MCO 3550.12 (Applicable Document 7.0.3), Operational Range Clearance.

Range design – Range Design Tool (RDT)

The Range Design Manual/Range Design Tool (RDM/RDT) is a software application within the RMTK which supports and assists regions and installations with range design and the initial modified Range Training Areas (RTAs). The tool assists installation range personnel through the range design process by providing the capability to create site maps with applicable progress analysis on the potential construction site and complete the initial construction form.

The RDM/RDT allows users to provide a detailed, scaled "blueprint style" overlay on any USMC range using multi-service and a comprehensive, specified design for individually aligned rang

articulate how to satisfy USMC range requirements. Range development and planning (RDAP) – RDAP Tool

The RDAP Tool will assist users in placing Army standard ranges as defined in Training Circular (TC) 25-8 (Applicable Document 7.0.10), Training Ranges on Army ranges. RMTK will all and rotate range footprints to allow them to fit within the confines of their allotted land resource. Users will be able to view potential range footprints (and their associated SDZ) in the context potential ranges, existing ranges and other information in an electronic map format.

Training event visualization (TEPS)

TEPS will provide situational awareness by displaying RMTK generated danger zones, (i.e. SDZs, LSDZs, WDZs and/or explosive danger zones) in the context of other installation and trainin Danger zones will be displayed in 3D with the ability to add time lines so that the 3D danger zones can be displayed in a graphic time line. TEPS will be capable of visualizing training at Combined Arms Live Fire Exercises (CALFEX-Army)/ Combined Arms Exercises (CAX-USMC) that use time sensitive events and utilize phaselines and movements. Probabilistic surface danger zones (PSDZ) – PSDZ Tool

The PSDZ tool will allow users to determine a SDZ utilizing ricochet data and terrain data to properly show the mitigation effects provided by the terrain. The methodology relies on usi ricochet data as the basis for an individual point to point PSDZ to be developed. The PSDZ will maintain the 1:1,000,000 chance of hazardous fragment escapement standard. The PSDZ Tool safety policy found in MCO 3570.1C (Applicable Document 7.0.1), by generating unclassified PSDZs, based on ricochet and terrain. The PSDZ Tool will allow the user to determine the prec contact with terrain. The PSDZ Tool incorporates specific probabilistic methodologies developed under the auspices of the North American Treaty Organization (NATO) Range Safety Wor International Range Safety Advisory Group and within the multi-national Technical Cooperation Program (TTCP). The PSDZ Tool incorporates the data and formula as outlined within *A* Publication (ARSP) 2 Volumes 1 & 2 (Applicable Documents 7.0.13). The tool incorporates deterministic surface danger zones of participating TTCP nations. The PSDZ Tool will allow a user for multiple targets and firing points for inclusion as a composite PSDZ. For terrain-mitigation, the tool will identify any intervening terrain (elevation data). Foreign Danger Zones – (FDZ, WDZ tools)

The FDZ tool creates SDZs in accordance with foreign policy documents approved by the service proponents.

RMTK Mobile applications

The RMTK mobile applications are SDZ, ETR, and WDZ. They are to be utilized in a mobile disconnected environment to allow basic creation of danger zones on mobile devices and f controls.

3.0 Objectives:

Listed below are nine (9) objectives that make up this PWS, which are further described in paragraph 4.3 Specific Requirements.

- 1. **RMTK Systems Support** This task encompasses sustaining support for the existing RMTK suite of tools and provision of SMEs with knowledge of ground to ground probabilistic methodologies and weapons technical requirements that will be included in the RMTK suite of tools. SMEs supporting RMTK Systems Support shall have in-depth knowledge of small and large caliber munitions and hc integrate small caliber danger zones and small caliber recovery the GIS environment.
- 2. RMTK Recommendations and Strategies This task is to provide recommendations and strategies concerning upcoming version changes, best practices, and hardware associated with RMTK that v Government develop its future years plan to support the RMTK.
- 3. MCRTAMS RMTK Systems Support This task ensures that the RMTK tools that are housed within MCRTAMS function as a cohesive

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program and is integrated with the desktop version of the RMTK as outlined in paragraph 4.3.3 of this PWS.

- 4. WDZ Tool Support This task requires the Contractor to provide subject matter expertise with knowledge of aircraft systems properties to include UAS, munitions, precision guided munitions/guidal and terminal effects to support the development of air-to-ground danger zones for the WDZ program and to update and maintain the WDZ program for the DoD Services.
- 5. RESERVED.
- 6. Help Desk Support This task is to provide help desk support.
- 7. WDZ training FMS only This task is to conduct formal WDZ training sessions.
- Foreign Military Sales This task is to provide approved FMS countries the above objectives other than Tasks 2 or 3 (RMTK recommendations and strategies and MCRTAMS RMTK systems suppor 9. RMTK Mobile Support This task ensures that the RMTK tools housed within RMTK mobile (ETR, SDZ, WDZ) function as a cohesive program and are integrated with the desktop version of the 1 outlined in paragraph 4.3.9 of this PWS.

4.0 Requirements: The Contractor shall support the TECOM RTAM effort consistent with the activities identified:

4.1 General Requirements: The Contractor shall provide all materials, equipment, personnel, and facilities necessary to support this capability requirement and deliver the types of services and deliverables specified by this PWS. The Contractor is responsible for providing suitable technical and analytical expertise to support ongoing responsibilities delineated in this PWS.

4.1.1 Place of Performance: Work efforts in support of this PWS will be accomplished at the Contractor's facility(ies). Short duration meetings may be held at TECOM or via teleconference.

4.1.2 Development Details: Data shall be sufficient, competent, and relevant to support Contractor's findings and consistent with fact. Third-Party or Contractor Proprietary, or commercial applications shall n be used unless previously approved in writing by the Contracting Officer Representative (COR).

4.1.3 Security Requirements: This contract will require the Contractor to have a Secret Facility Clearance and will require certain Contractor employees to obtain and maintain classified access eligibility. The Contractor shall have a valid Secret Facility Clearance prior to classified performance. The prime Contractor and all sub-Contractors (through the prime Contractor) shall adhere to all aspects of DoD Directiv 5220.22-M and DoD Manual 5220.22 Volume 2. All personnel identified to perform on this contract shall maintain compliance with Department of Defense, Department of the Navy, and Marine Corps Information and Personnel Security Policy to include completed background investigations (as required) prior to classified performance. This contract shall include a DoD Contract Security Classification (DD-254) as an attachment. Certain Contractor employees will be required to perform TF-I/I duties that will require favorably adjudicated Tier 5/3 Level investigations. The Defense Security Service (DSS) will not authorize the Contractor to submit the necessary tier level investigations solely in support of Tf level designation requirements, but are required to submit investigations in support of TF-I level designations. The Contractor will be required to provide a roster of prospective Contractor employees performing TF-I duties to the COR. This roster must include: full names, Social Security Numbers, e-mail addresses and phone numbers. The COR will verify the TF-I requirements and forward the roster to the GCASO. Contractor employees found to be lacking required investigations will be contacted by the GCASO. The Contractor shall notify the Government (written notice) within twenty-four hours of any Contractor personnel added or removed from the contract that have been granted classified access, issue Common Access Card (CAC).

For this PWS tasking, the Contractor's facilities shall have a Facility Security Clearance (FCL) at the Secret clearance level to support Secret document storage. Contractor personnel shall gain access to the Jc Munition Effect Manual (JMEM) (Applicable Document 7.0.11) software suite, Combat Weapon Delivery Software (CWDS), air-to-ground Weapon System Evaluation Program (WSEP) database, All Weapon Information System (AWIS) database to help guide in the development of WDZ's. The Contractor shall store country specific data as needed to support the development of foreign nations' weapons danger zoi

4.1.4 Common Access Card (CAC) Requirement: The COR will identify and approve only those Contractor employees performing on this contract that require CACs in order to perform their job functions.] accordance with Headquarters, United States Marine Corps issued guidance relative to Homeland Security Presidential Directive – 12 (HSPD-12), all personnel must meet eligibility criteria to be issued a CA In order to meet the eligibility criteria, Contractor employees requiring a CAC must obtain and maintain a favorably adjudicated Personnel Security Investigation (PSI.) Prior to authorizing a CAC, the employ Joint Personnel Adjudication System (JPAS) record must indicate a completed and favorably adjudicated PSI or (at a minimum) that a PSI has been submitted and accepted (opened). The minimum acceptable investigation is a T-1 or a National Agency Check with Written Inquiries (NACI). If a Contractor employee's open investigation closes and is not favorably adjudicated, the Contractor must immediately retrie the CAC and return it to the COR.

Facility Security Officers (FSOs) are responsible for notifying TECOM Security Branch if any Contractor employee performing on this contract receives an unfavorable adjudication after being issued a CAC. The FSO must also notify the TECOM Security Branch of any adverse/derogatory information associated with the 13 Adjudicative Guidelines/Factors concerning any Contractor employee issued a CAC, regardless of whether a JPAS Incident Report is submitted.

Each CAC is issued with a "ctr@usmc.mil" e-mail account that the individual Contractor employee is responsible to keep active by logging in on a regular basis (at least twice a month), sending an e-mail acc clearing any unneeded e-mails. Contractors and Contractor employees **are prohibited** from "auto-forwarding" their .mil e-mail account to their .com e-mail account. If the "ctr@usmc.mil" e-mail account is 1 kept active, G-6 will deactivate the account and CAC will lose its functionality. Contractor employees shall solely use their government furnished "ctr@usmc.mil" e-mail accounts for work supporting the US conducted in fulfillment of this contract, and shall not use a Contractor supplied or personal e-mail account to conduct government business. The use of a Contractor or personal e-mail account for Contractor business or personal use is allowed, but only when using cellular or a commercial internet service provider.

If a Contractor employee loses eligibility for a CAC due to an adverse adjudicative decision, the Contractor employee also loses eligibility to perform on MARCORSYSCOM contracts. CACs are not issued convenience.

The Contractor shall develop a Work Breakdown Structure (WBS) for all tasks required in this contract, in accordance with the delivery schedule.

4.1.4 The Contractor shall participate and take notes/minutes in the quarterly Program Management Reviews (PMRs) and/or CMWG meetings, at a time and place to be designated by the Government, in accordance with delivery schedule. If the PMR is not to be conducted via electronic means (video teleconference, net meeting or other electronic means) the Contractor shall attend the quarterly PMRs in per at locations as designated by the Government. The Contractor shall be prepared to discuss all programmatic issues. The Contractor shall also provide paper and electronic copies of its presentations to the PMR/CMWG and all Government attendees 10 days prior to the PMR. The agenda, approximate number of attendees and additional topics for the quarterly program reviews will be sent by the Government the Contractor no later than 5 business days before the scheduled program review date.

| DELIVERABLE | FORMAT | DATE REQUIRED | Acceptable Quality Level (AQL) |
|----------------------------------|---|--------------------------------------|-----------------------------------|
| notes/minutes from the quarterly | MS Word Document, Power Point or Excel Spreadsheet/Worksheet (for | Initial submission 5 days after each | Error free upon second Contractor |
| Program Management Reviews | Windows) via email or on CD-ROM | PMR and/or CMWG. | submission to Government. |
| (PMRs) and/or CMWG meetings | | Contractor shall address all | |
| | | Government comments no later than | |
| | | 5 days | |

| 4.1.5 | The Contractor shall maintain and update the RMTH | K embedded help software, to include th | he Glossary of Terms, in accordat | nce with the delivery schedule. |
|-------|---|---|-----------------------------------|---------------------------------|
|-------|---|---|-----------------------------------|---------------------------------|

| DELIVERABLE | FORMAT | DATE REQUIRED | Acceptable Quality Level |
|-------------------------------|---------------------------------|-------------------------------------|-----------------------------------|
| Updates to RMTK help software | Embedded help in the RMTK tools | Initial submission As required and | Error free upon second contractor |
| and glossary of terms | | defined in WBS; The contractor will | submission to the Government. |
| | | address all Government comments | |
| | | and resubmit no later than | |
| | | 5 days after receipt | |

4.1.5.1 The Contractor shall ensure that the RMTK suite of tools will pass appropriate accreditation procedures, to include compliance with appropriate Defense Information Systems Agency Security Technical Implementation Guides (STIGs) (Applicable Document 7.0.14) and provide status quarterly in accordance with the delivery schedule.

| DELIVERABLE/ | FORMAT | DATE REQUIRED | Acceptable Quality Level |
|--------------|--------|---------------|--------------------------|
| PERFORMANCE | | | |
| REQUIREMENT | | | |

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| RMTK passes accreditation procedures | Embedded within RMTK | RMTK must obtain accreditation annually without a gap in accreditation. | The contractor will successfully resolve all issues within 5 days of identification of problem. |
|--------------------------------------|----------------------|--|---|
| | | The contractor will revise documentation associated with accreditation no later than 5 days after receipt of comments/errors | |

4.1.5.2 The Contractor shall perform secure configuration control of application code. The Contractor is allowed to follow industry best practices performing software development (includin secure off-site repositories).

4.1.5.3 Kick-Off meeting shall be conducted at Government facilities no later than 15 business days after award in accordance with the delivery schedule. The purpose of this kickoff meeting

Introduce key Government and Contractor personnel

Review terms and conditions of the contract

Review PWS requirements, schedule (to include travel) and deliverables to ensure understanding between all parties

Provide answers to Contractor questions regarding the administration of the contract

Establish preliminary dates for future program events

Discuss any other items the COR may deem appropriate to discuss

Obtain Non-Disclosure Agreements from ALL Personnel performing on this contract

In addition, administrative items, such as invoicing, communication mechanisms, access to Government systems, etc. will be addressed System Authorization Access Request 2875 forms provid Government for Common Access Card issuance.

4.1.5.4 The Contractor shall maintain and update the WDZ specification volumes I-VI in accordance with the delivery schedule.

4.1.5.5 The Contractor shall deliver a monthly status report in accordance with the delivery schedule.

4.1.6 Contractor employees shall identify themselves as Contractor personnel by introducing themselves or being introduced as Contractor personnel and displaying distinguishing badges or other vis identification for meetings with Government personnel. In addition, Contractor personnel shall appropriately identify themselves as Contractor employees in telephone conversations and in formal and is written correspondence.

4.1.7 Monthly Report The Contractor shall deliver a monthly report that details monthly significant events.

| DELIVERABLE | FORMAT | DATE REQUIRED | Acceptable Quality Level |
|-----------------------|---|---------------------------------------|------------------------------------|
| Monthly status report | MS Word Document, Power Point or Excel Spreadsheet/Worksheet (for | Initial submission on the 5th of each | Error free upon second submission. |
| | Windows) via email or on CD-ROM | month. | |
| | | The contractor shall correct errors | |
| | | and resubmit each submission within | |
| | | five days of receipt of Government | |
| | | comments | |

4.2 Reserved.

4.3 Specific Requirements:

4.3.1 RMTK Systems Support:

4.3.1.1 The Contractor shall incorporate and modify workflow to include all new/updated safety standards established into the RMTK suite of tools that are provided by the Government or c in the MCO 3570.1C (Applicable Document 7.0.1), MCO 3550.9 (Applicable Document 7.0.2), MCO 3550.10 (Applicable Document 7.0.4), Policies and Procedures for Range and Tr Management and MCO 3550.12 (Applicable Document 7.0.3).

- 4.3.1.2 The Contractor shall ensure that the RMTK suite of tools accurately define the operational capability of all the danger zones with information provided by the COR.
- 4.3.1.3 The Contractor shall ensure that the hazards associated with danger zones have horizontal and vertical components that are depicted and can be queried.

4.3.1.4 In addition to any other deliverables identified in this PWS, the Contractor shall submit a yearly deliverable of all items created, generated, produced to develop the RMTK sui limited to, algorithms (with function descriptions) or "pseudo" code formulas, databases, class diagrams, use cases, executable (object code) and non-executable (source code) with the delivery schedule.

| DELIVERABLE | FORMAT | DATE REQUIRED | ACCEPTABLE QUALITY LEVEL |
|---|---|--|--|
| RMTK Safety Updates Proposal | MS Word Document, Power Point or Excel Spreadsheet/Worksheet (for Windows) via email or on CD-ROM | The contractor shall acknowledge a request for a safety update proposal within 48 hours of receipt The contractor shall proposed a solution, including a timeline for its implementation of that solution, within 72 hours of receipt of the request for a safety undate proposal | Safety updates are critical. The contractor shall meet its obligation to acknowledge and implement safety solutions within the expected time frame 100% of the time. In addition, the updates proposal shall be error free upon submission 100% of the time. |
| RMTK Safety Updates | Executable file and integration of emergent safety requirements. | As mutually agreed upon in the proposed solution; if nothing is stated in the proposed solution, the executable file will be delivered and the integration will be completed no later than 72 hours after the request for a safety update proposal. | The contractor shall integrate the RMTK update accurately 100% of the time. |
| Compilation of yearly software Configuration Items/source code | Algorithms (with function descriptions) or "pseudo" code formulas, databases, class diagrams, use cases, executable (object code) and non-executable (source code) source codes. Delivered on CD/DVD. | The contractor will deliver the initial submission 45 days prior to the end of the PoP for Government review; The contractor will address all Government comments (including correcting errors) and resubmit no later than 5 days after receipt of Government comments | Final submission must contain no errors, address all Govt comments to COR's satisfaction, and be submitted to Govt no less than 5 days after receipt of Govt comments. |

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4.3.1.5 The Contractor shall ensure that any newly developed foreign danger zones are included in the RMTK FDZ.

4.3.1.6 The Contractor shall implement Government provided installation Range Design Plan data and update RMTK.

4.3.1.7 The Contractor shall develop and execute desktop and web RMTK test plans for MCRTAMS, Range Facilities Management Support System (RFMSS), and the Marine Corps,

4.3.1.8 The Contractor shall troubleshoot problems identified by the COR as related to GIS applications/extensions.

4.3.1.9 The Contractor shall deliver to the COR documentation on data quality and GIS workflows for the RMTK suite of tools in accordance with the delivery schedule.

| DELIVERABLE | FORMAT | DATE REQUIRED | Acceptable Quality Level |
|---------------------------|---|-------------------------------------|-----------------------------------|
| RMTK GIS data quality and | MS Word Document, Power Point or Excel Spreadsheet/Worksheet (for | As required for the tool release | Error free upon second submission |
| workflow(s) documentation | Windows) via email or on CD-ROM | schedule defined in the WBS; | |
| | | The contractor will correct errors/ | |
| | | address Government comments and | |
| | | resubmit no later than 5 days after | |
| | | receipt of Government comments | |

4.3.1.10 The Contractor shall maintain and update the web based range certification module resident on MCRTAMS.

4.3.1.11 The Contractor shall maintain the database for tracking of all range certifications in the Marine Corps within the MCRTAMS range certification module.

4.3.1.12 The Contractor shall maintain and update the PSDZ Tool with technical munitions data provided by the COR.

4.3.1.13 The Contractor shall maintain and update the LRMT with information concerning laser use on ranges and laser systems as provided by the COR.

4.3.1.14 The Contractor shall maintain and update the ETR Tool with explosives data and explosives training data as provided by the COR.

4.3.1.15 The Contractor shall maintain and update the Noise Tool for range noise with small caliber, large caliber, and air to ground data as provided by the COR.

4.3.1.16 The Contractor shall maintain and update the ORAH Tool with information for temporary ammunition storage on operational training ranges as provided by the COR.

4.3.1.17 The Contractor shall maintain and update the RCT with range clearance information as provided by the COR.

4.3.1.18 The Contractor shall maintain and update the RDT with range design drawings that are provided by the COR.

4.3.1.19 The Contractor shall maintain and update the RDAP with range planning information provided by the COR.

4.3.1.20 The Contractor shall maintain and update the TEPS with training event planning information provided by the COR.

4.3.1.21 The Contractor shall maintain and update the MCRTAMS implementation of the web ETR, SDZ, and WDZ to ensure compatibility with the desktop based version of RMTK.

4.3.1.22 The Contractor shall implement the Government database of foreign danger zones into the FDZ tool as provided by the COR.

4.3.1.23 The Contractor shall maintain, update, and integrate the desktop based RCT into a MCRTAMS web based RCT with information provided by the COR.

4.3.1.24 The Contractor shall deliver an updated production release of software once per year for all RMTK tools outlined in 2.0, Scope, in accordance with the delivery schedule.

| DELIVERABLE | FORMAT | DATE REQUIRED | Acceptable Quality Level |
|--------------------------|--|-------------------------------------|---|
| Updated of RMTK baseline | The Contractor shall provide the RMTK tools in executable form as baseline | As required for the tool release | All identified errors in code resolved within |
| | via email to the COR | schedule defined in the WBS; | 5 days. |
| | | The contractor will correct errors/ | |
| | | address Government comments and | |
| | | resubmit no later than 5 days after | |
| | | receipt of Government comments. | |

4.3.1.25 The Contractor shall perform regression testing of all RMTK tools set forth in 2.0, Scope, and deliver the test report to the Government that includes a plan to correct any defi accordance with the delivery schedule.

| DELIVERABLE | FORMAT | DATE REQUIRED | ACCEPTABLE QUALITY LEVEL |
|---------------------------------|--|---|------------------------------------|
| Regression test deficiency plan | MS Word Document, Power Point or Excel Spreadsheet/Worksheet (for Windows) via email or on CD-ROM | As required for the tool release schedule defined in the WBS; The contractor will correct errors/ address Government comments and resubmit no later than 5 days after receipt of Government comments | Error free upon second submission. |

4.3.1.26 The Contractor shall ensure that RMTK outputs are in a standard format compatible with RFMSS.

4.3.2 RMTK Recommendations and Strategies:

4.3.2.1 The Contractor shall provide recommendations that ensure compatibility with future modifications and/or improvements to version changes of computer operating systems, software, hardware database versions/types. The recommendations shall include known upcoming version changes to the computer operating systems, software, hardware, and database versions/types. The recommendations shall provide in the monthly status report in accordance with the delivery schedule.

4.3.2.2 The Contractor shall provide recommendations for specific RMTK management, safety, planning and risk analysis solutions that may apply to DOD range and training areas users and operators. The solutions shall be based upon upcoming version changes in ESRI software. The recommendations shall be provided in the monthly status report in accordance with the delivery schedule.

4.3.2.3 The Contractor shall provide specific information on Contractor proposed content and functionality improvements of the tools within RMTK based upon best practices for the GIS community in the monthly status report in accordance with the delivery schedule.

| DELIVERABLE | FORMAT | DATE REQUIRED | ACCEPTABLE QUALITY LEVEL |
|-------------|--------|---------------|--------------------------|
| | | | |

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| | | | • |
|--------------------------|---|-------------------------------------|------------------------------------|
| Recommendations document | MS Word Document, Power Point or Excel Spreadsheet/Worksheet (for Windows) via email or on CD-ROM | As required and defined in the WBS; | Error free upon second submission. |
| | | The contractor will correct errors/ | |
| | | address Government comments and | |
| | | resubmit no later than 5 days after | |
| | | receipt of Government comments | |

4.3.2.4 When development of new WDZs has be initiated by one or more of the Services and vetted through the Configuration Management Working Group (CMWG), the Contractor shall determine and propose the schedule and performance parameters associated with the development of the danger zone and forward the proposed information to the appropriate Service(s) for approval during the PMR in accordance with the delivery schedule. If the proposed WDZ schedule and development parameters are not approved at the PMR the Contractor will be required to adjust and resubmit within five days for CC approval.

| DELIVERABLE | FORMAT | DATE REQUIRED | ACCEPTABLE QUALITY LEVEL |
|----------------------|---|--|------------------------------------|
| Development schedule | MS Word Document, Power Point or Excel Spreadsheet/Worksheet (for Windows) via email or on CD-ROM | The contractor shall acknowledge a request for a development schedule 2 days of receipt The contractor shall deliver the schedule within 5 days of the acknowledgment | Error free upon second submission. |
| | | The contractor shall resubmit to correct errors within 5 days of receipt of Government's comments | |

4.3.3 MCRTAMS RMTK Systems Support: The Contractor shall define MCRTAMS functionality and ensure that the RMTK tools that will be housed within MCRTAMS will function and be compatible the desktop-based RMTK.

4.3.3.1 The Contractor shall maintain and update the RMTK interfaces incorporated within MCRTAMS in accordance with the delivery schedule.

| DELIVERABLE | FORMAT | DATE REQUIRED | ACCEPTABLE QUALITY LEVEL |
|-----------------------------|--|---------------------------------------|------------------------------------|
| RMTK interfaces for MCRTAMS | The Contractor shall deliver source code and forms for MCRTAMS | Annually as defined in WBS | Error free upon second submission. |
| Items/source code | | | |
| | | 5 days to correct errors and resubmit | |

4.3.3.2 The Contractor shall update the web enabled versions of ETR, SDZ, and WDZ RMTK tools in combination with the stand-alone versions of RMTK tools.

4.3.3.3 The Contractor shall ensure that all tools are engineered to run in the current and planned versions as derived from PWS 4.3.2 version of MCRTAMS.

4.3.3.4 The Contractor shall ensure that tools are engineered to run in the current and planned versions as derived versions from PWS 4.3.2 server version of the ESRI software.

4.3.3.5 The Contractor shall ensure that all RMTK tools are engineered to run in the current and planned versions as derived from PWS 4.3.2 version of Citrix.

4.3.4 WDZ Tool Support:

4.3.4.1 The Contractor shall update and submit data cubes for Government provided information regarding aircraft within the WDZ Tool.

4.3.4.2 The Contractor shall submit an Integrated Master Schedule (IMS) of WDZ priorities established by the multi-service CMWG quarterly in accordance with the delivery schedule.

| DELIVERABLE | FORMAT | DATE REQUIRED | ACCEPTABLE QUALITY LEVEL |
|----------------------------|---|---------------------------------------|------------------------------------|
| Integrated master schedule | MS Word Document, Power Point or Excel Spreadsheet/Worksheet (for | Quarterly as defined in the WBS | Error free upon second submission. |
| | Windows) via email or on CD-ROM | | |
| | | 5 days to correct errors and resubmit | |

4.3.4.3 The Contractor shall deliver a matrix of WDZ dependencies that will preclude the development of the IMS for the Government. If there are any dependencies creating obstacles to the development of WDZ or associated data cube, the Contractor shall update the dependencies list and inform the Government in accordance with the delivery schedule.

| DELIVERABLE | FORMAT | DATE REQUIRED | ACCEPTABLE QUALITY LEVEL |
|---------------------|--|--|------------------------------------|
| Dependencies matrix | MS Word Document, Power Point or Excel Spreadsheet/Worksheet (for Windows) via email or on CD-ROM | Monthly in the monthly status report; 5 days to correct errors and resubmit | Error free upon second submission. |

4.3.4.4 The Contractor shall deliver the results of verification and validation of WDZs with any pertinent updates to the Government annually in accordance with the delivery schedule.

| DELIVERABLE | FORMAT | DATE REQUIRED | ACCEPTABLE QUALITY LEVEL |
|-------------------------------------|---|---------------------------------------|------------------------------------|
| Verification and validation results | MS Word Document, Power Point or Excel Spreadsheet/Worksheet (for | Annually as defined in WBS | Error free upon second submission. |
| | Windows) via email or on CD-ROM | | |
| | | 5 days to correct errors and resubmit | |
| | | 5 days to correct errors and resubmit | |

4.3.4.5 The Contractor shall deliver test plans for quality control procedures annually in accordance with the delivery schedule.

| DELIVERABLE | FORMAT | DATE REQUIRED | ACCEPTABLE QUALITY LEVEL |
|---------------|--|---------------------------------------|------------------------------------|
| QA test plans | MS Word Document, Power Point or Excel Spreadsheet/Worksheet (for Windows) via email or on CD-ROM | Annually as defined in WBS | Error free upon second submission. |
| | | 5 days to correct errors and resubmit | |

4.3.4.6 The Contractor shall integrate new weapons data into the WDZ database, WDZs, modules, and/or models when provided by the COR.

4.3.4.7 The Contractor shall gather designated weapons dispersion data from DoD departments and approved Foreign Allies (that have approval from the COR). Whenever the data is proven to be deficient calculate WDZs, the Contractor shall document the deficiencies in the monthly status report. The COR will review and provide the necessary data and/or allow the Contractor to use modeling and simulation techniques to calculate WDZs. The Contractor shall deliver to the COR the weapons data and methodology used to develop a WDZ in accordance with the delivery schedule.

| DELIVERABLE | FORMAT | DATE REQUIRED | ACCEPTABLE QUALITY LEVEL |
|-------------|--------|---------------|--------------------------|
| | | | |

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| Compiled data from DoD departments and approved foreign | MS Word Document, Power Point or Excel Spreadsheet/Worksheet (for Windows) via email or on CD-ROM | Annually as defined in WBS | Error free upon second submission. |
|--|---|---------------------------------------|------------------------------------|
| allies. In addition, when data is | | | |
| insufficient to calculate a WDZ | | 5 days to correct errors and resubmit | |
| develop methodology, a new WDZ | | - | |

4.3.4.8 The Contractor shall present problems, resolutions and suggestions in the monthly status report with its recommendations, courses of action, and time constraints, in accordance with the delivery schedule.

| DELIVERABLE | FORMAT | DATE REQUIRED | ACCEPTABLE QUALITY LEVEL |
|------------------------------------|---|---------------------------------------|------------------------------------|
| Problems, resolutions, suggestions | MS Word Document, Power Point or Excel Spreadsheet/Worksheet (for | Monthly in the monthly status report; | Error free upon second submission. |
| for WDZ | Windows) via email or on CD-ROM | 5 days to correct errors and resubmit | |

4.3.4.9 The Contractor shall acknowledge receipt of all WDZ problems, suggestions, and communications from the COR in one working day. The contractor shall respond with a proposed way ahead no late than 5 working days after receipt. The Contractor shall maintain a record of these activities that can be reviewed by the COR upon request and shall be provided at the scheduled quarterly reviews, in accordat with the delivery schedule.

| DELIVERABLE | FORMAT | DATE REQUIRED | ACCEPTABLE QUALITY LEVEL |
|--|-----------|---|----------------------------|
| Acknowledgment of Government communication | Via email | Not later than one working day after Government notice | 100% timely Acknowledgment |

4.3.4.10 The Contractor shall update and maintain the WDZ Tool desktop version.

4.3.4.11 The Contractor shall deliver regression test plan results to the COR for review and approval, at every Quarterly PMR, in accordance with the delivery schedule.

| DELIVERABLE | FORMAT | DATE REQUIRED | ACCEPTABLE QUALITY |
|------------------------------|---|---------------------------------------|------------------------|
| | | | LEVEL |
| Regression test plan results | MS Word Document, Power Point or Excel Spreadsheet/Worksheet (for | Quarterly as defined in WBS | Error free upon second |
| | Windows) via email or on CD-ROM | 5 days to correct errors and resubmit | submission. |

4.3.4.12 The Contractor shall ensure that WDZs developed will generate three-dimensional WDZs for single and composite multi-weapon releases including: (1) terrain profile, (2) weapon trajectories, (3 broached/porpoising ordnance, ricochets, (4) fragmentation, and (5) explosive effects that include the capability of using terrain to mitigate the effects of broaching/porpoising or ricochet. The Condevelop and integrate new WDZs into the baseline when provided by the COR.

4.3.4.13 The Contractor shall deliver "Data Cubes," in accordance with the delivery schedule, that define weapon trajectories and ricochets while utilizing Circular Error Probable for Training (CEPt) Polygons and incorporate range scores and Joint Munitions Effectiveness Manual (JMEM) (Applicable Document 7.0.11) Air-to-Ground Weaponeering System (JAWS) JMEM tables for Collateral Damage/Fragmentation Arcs.

| DELIVERABLE | FORMAT | DATE REQUIRED | ACCEPTABLE QUALITY LEVEL |
|-------------|---|---------------------------------------|-------------------------------------|
| Data cubes | MS Word Document, Power Point or Excel Spreadsheet/Worksheet (for | As developed and defined in the | Data cubes are error free on second |
| | Windows) via email or on CD-ROM and an extension executable form as | WBS | resubmission. |
| | baseline. | | |
| | | 5 days to correct errors and resubmit | |

4.3.4.14 The Contractor shall deliver all design documentation and methodologies used to develop any weapons data cubes, in accordance with the delivery schedule.

| DELIVERABLE | FORMAT | DATE REQUIRED | ACCEPTABLE QUALITY LEVEL | |
|---|--------|---|------------------------------------|--|
| WDZ specification volumes MS Word Document, Power Point or Excel Spreadsheet/Worksheet (for Windows) via email or on CD-ROM An | | Annually at least 45 days before end of POP | Error free upon second submission. | |
| | | 10 days to correct errors and resubmit | | |
| Design documents | | As required and defined in the WBS; 10 days to correct errors and resubmit | Error free upon second submission. | |

RESERVED:

4.3.6RESERVED:

4.3.7 Help Desk Support: The Contractor shall provide subject matter expertise for "tier 3" high level help desk tech support for the WDZ tool and it shall be limited to COR designated personnel only. Tier : for handling the most difficult or advanced WDZ programmatic problems as provided by the COR (i.e., not limited to, computer crashing on a particular part of the WDZ program, internal failure of the progr error messages that can't be easily derived, weapons anomalies). The Help Desk shall be available 0800-1700 Eastern Time. The Contractor shall record and resolve trouble calls in accordance with the deliv schedule.

| DELIVERABLE | FORMAT | DATE REQUIRED | ACCEPTABLE QUALITY LEVEL |
|---------------------------|---|---------------------------------------|------------------------------------|
| Help desk support metrics | MS Word Document, Power Point or Excel Spreadsheet/Worksheet (for Windows) via email or on CD-ROM | Monthly in the monthly status report | Error free upon second submission. |
| | | 5 days to correct errors and resubmit | |

4.3.8 Foreign Military Sales:

For FMS, the weapons data shall be in database format, tables from existing country policy, or weapons manufacturer data and may in some cases need to be derived by the SME for inclusion in the existing RMTK suite of tools. The danger zone data shall be in a database format and/or converted to a format that will allow the RMTK to utilize the data to create specific foreign danger zones. SME recommendat for foreign database data consumption by RMTK will allow an FMS requirement to be executed within the existing RMTK framework. Services in support of this effort shall require information to be provide by SMEs who are knowledgeable of air-to-ground and ground-to-ground weapons, munitions properties and aircraft systems properties and how the munitions interact with the aircraft, the delivery systems combined with effects on the range in either a ground to ground or air to ground training activity. In addition, SMEs are required to advance the foreign weapons danger zone knowledge understanding and SMEs are to interpret the foreign probabilistic variances of all aspects of weapons and aircraft for inclusion in the RMTK suite of tools.

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|------------------------------|--|--|--------------------------|
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| DELIVERABLE | FORMAT | DATE REQUIRED | ACCEPTABLE QUALITY LEVEL |
| RMTK Tools for FMS | Data file via email and on CD-ROM | As required and defined in the WBS | Error free upon second |
| | | 5 days to correct errors and resubmit | submission. |
| 4.3.8.1 The Contractor sha | Ill include and verify COR-provided FMS small arms danger zones f | for foreign military sales into the FDZ tool. | |
| 4.3.8.2 The Contractor sha | Il include and verify COR-provided FMS tanks and fighting vehicle | e danger zones for foreign military sales into the FDZ tool. | |
| 4.3.8.3 The Contractor sh | all include and verify COR-provided FMS grenade danger zones for | r foreign military sales into the FDZ tool. | |
| 4.3.8.4 The Contractor sh | all include and verify COR-provided FMS danger zones for anti-tan | k rockets for foreign military sales into the FDZ tool. | |
| 4.3.8.5 The Contractor sh | all include and verify COR-provided FMS anti-tank missiles for for | preign military sales into the FDZ tool. | |
| 4.3.8.6 The Contractor shall | l deliver desktop WDZ Tool Modules for country-specific fighter, fiz | xed wing, and UAS aircraft. | |
| 4.3.8.7 The Contractor shall | l deliver desktop WDZ Tool Modules for country-specific rotary wir | ng aircraft. | |
| 4.3.8.8 The Contractor shall | l deliver Data Cubes for a Gravity Delivered, Non-Guided Bomb. | | |
| 4.3.8.9 The Contractor shall | l deliver Data Cubes for a BDU-33. | | |
| 4.3.8.10 The Contractor sh | all deliver Data Cubes for a MK-106. | | |
| 4.3.8.11 The Contractor sha | ll deliver Data Cubes for a MK-20. | | |

4.3.8.12 The Contractor shall deliver Data Cubes for a MK-62.4.3.8.13 The Contractor shall deliver Data Cubes for a MK-63.

4.3.8.14 The Contractor shall deliver Data Cubes for a MK-64.

4.3.8.15 The Contractor shall deliver Data Cubes for a MK-76.

4.3.8.16 The Contractor shall deliver Data Cubes for a MK-77.

4.3.8.17 The Contractor shall deliver Data Cubes for a MK-81.

4.3.8.18 The Contractor shall deliver Data Cubes for a MK-82.

4.3.8.19 The Contractor shall deliver Data Cubes for a MK-83.

4.3.8.20 The Contractor shall deliver Data Cubes for a MK-84.

4.3.8.21 The Contractor shall deliver Data Cubes for a CBU-97.

4.3.8.22 The Contractor shall deliver Data Cubes for a CBU-89B.

4.3.8.23 The Contractor shall deliver Data Cubes for a CBU-87.

4.3.8.24 The Contractor shall deliver Data Cubes for a BDU-48.

4.3.8.25 The Contractor shall deliver Data Cubes for a BDU-38.

4.3.8.26 The Contractor shall deliver a Data Cube for multimode guidance weapons.

4.3.8.27 The Contractor shall deliver Data Cubes for a LGTR/ELGTR.

4.3.8.28 The Contractor shall deliver a Data Cubes for AGM-114 A-F, K, L, M-N, P, Q, and R.

4.3.8.29 The Contractor shall deliver a Data Cube for AGM-65.

4.3.8.30 The Contractor shall deliver a Data Cube for Brimstone.

4.3.8.31 The Contractor shall deliver a Data Cube for a GBU-10.

4.3.8.32 The Contractor shall deliver a Data Cube for a GBU-12.

4.3.8.33 The Contractor shall deliver a Data Cube for a GBU-16.

4.3.8.34 The Contractor shall deliver a Data Cube for a GBU-24 modes 1-4.

4.3.8.35 The Contractor shall deliver a Data Cube for a GBU-31.

4.3.8.36 The Contractor shall deliver a Data Cube for a GBU-32.

4.3.8.37 The Contractor shall deliver a Data Cube for a GBU-38.

4.3.8.38 The Contractor shall deliver a Data Cube for a GBU-44.

4.3.8.39 The Contractor shall deliver a Data Cube for a GBU-48.

4.3.8.40 The Contractor shall deliver a Data Cube for a GBU-49.

4.3.8.41 The Contractor shall deliver a Data Cube for a GBU-51.

4.3.8.42 The Contractor shall deliver a Data Cube for a GBU-54.

4.3.8.43 The Contractor shall deliver a Data Cube for a GBU-56.

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- 4.3.8.44 The Contractor shall deliver a Data Cube for a Griffin.
- 4.3.8.45 The Contractor shall deliver a Data Cube for Paveway.
- 4.3.8.46 The Contractor shall deliver a Data Cube for a Matra.
- $4.3.8.47 \ \ The \ Contractor \ shall \ deliver \ a \ Data \ Cube \ for \ single \ mode \ guidance \ we apons.$
- 4.3.8.48 The Contractor shall deliver Data Cubes for a CBU-105.
- 4.3.8.49 The Contractor shall deliver Data Cubes for a CBU-104.
- 4.3.8.50 The Contractor shall deliver Data Cubes for a CBU-103.
- 4.3.8.51 The Contractor shall deliver a Data Cube for unguided Rockets.
- 4.3.8.52. The Contractor shall deliver a Data Cube for guided Rockets.
- 4.3.8.53 The Contractor shall deliver a Data Cube for the APKWS guided rocket.
- 4.3.8.54 Reserved.
- 4.3.8.55 The Contractor shall deliver a Data Cube for 7.62mm.
- 4.3.8.56 The Contractor shall deliver a Data Cube for 12.7mm.
- 4.3.8.57 The Contractor shall deliver a Data Cube for 20mm.
- 4.3.8.58 The Contractor shall deliver a Data Cube for 25mm.
- 4.3.8.59 The Contractor shall deliver a Data Cube for 27mm.
- 4.3.8.60 The Contractor shall deliver a Data Cube for 27mm FAP.
- 4.3.8.61 The Contractor shall deliver a Data Cube for 30mm.
- 4.3.8.62 The Contractor shall deliver a Data Cube for 40mm.
- 4.3.8.63 The Contractor shall deliver and verify FMS pre-existing, customer-developed databases into the FDZ tool.
- 4.3.8.64 The Contractor shall deliver and verify FMS pre-existing, customer-developed databases into the WDZ tool.
- 4.3.8.65 FMS Software Maintenance for the RMTK suite of tools: The Contractor shall update and maintain the RMTK suite of tools for foreign purchasers. The Contractor shall resolve any software er resulting from operating system upgrades or version changes of the RMTK suite of tools and deliver corrected software.
- 4.3.8.66 FMS Training Support. The Contractor shall conduct one (1) week initial training for users on the basics of the RMTK tools. Training will be for a maximum of ten (10) students and will be conduc in Purchaser's country or in the U.S at the Contractor's facility, as determined by the FMS Country.
- The air to ground courses will be taught in English utilizing USMC formal school code (M02WDZM) and the ground to ground course to be taught will be M02HB3M. The instruction shall include operation all features of the FMS RMTK tools and practical exercises. Contractor will provide all audiovisual equipment to conduct the training. The Contractor shall create, print and ship hard copies of all course materials for all students. The course materials are deliverables under this contract.
- NOTE: All students will have an English Comprehension Level test score of seventy percent (70%) or higher. (This statement is included in all FMS Case Letter of Offer and Acceptance for countries that don have English as their primary language).
- 4.3.8.67. **FMS Help Desk Support**: The Contractor shall perform Tier 1 to Tier 3 help desk support for individual FMS customers during U.S. regular working hours of 0800-1700 Eastern Time for issues resulting from the Contractor's creation, testing, or verification of any RMTK data issues; or issues resulting from use or installation of the RMTK suite of tools. Tier 1 support is defined as the initial support level 1 support, fornt-end support, support line 1, and various other headings denoting basic level technical support function Tier 2 support is defined as a more in-depth technical support level. It is synonymous with level 2 support, support line 2, administrative level support, and various other headings denoting basic level technical support function troubleshooting and analysis methods. Tier 3 is defined as high-level help desk tech support for handling the most difficult or advanced programmatic problems. The Contractor shall forward any software problem reports that are beyond the scope of the support software issues identified in the previous sentence to the COR for resolution. The Contractor shall report all help desk support via the monthly statu reports.
- 4.3.8.68 **<u>RMTK Mobile-FMS</u>**: The Contractor shall update and deliver the ETR, SDZ, and WDZ RMTK mobile application tools based on the Government's current version. The Contractor shall update deliver the FMS mobile application once a quarter to the latest version. The Contractor shall maintain the versions in concert with the USMC version to ensure that all data is compatible and able to run is mobile environment.

| DELIVERABLE | FORMAT | DATE REQUIRED | ACCEPTABLE QUALITY LEVEL |
|-----------------------------|-----------------------------|---------------------------------------|------------------------------------|
| Updated FMS release of RMTK | Executable form as baseline | As required and defined in the WBS | Error free upon second submission. |
| Mobile ETR, SDZ, and WDZ | | | |
| | | 5 days to correct errors and resubmit | |

4.3.9 RMTK Mobile Support:

For ETR, SDZ, and WDZ RMTK mobile, the Contractor shall update from the Government's current version of (5.1.1.1 and Android Version 5.1.1(Lollipop)) to the most current version as derived from the WBS. The Contractor shall update the mobile application once a quarter to the latest version. The Contractor shall maintain the versions to ensure that all data is compatible and able to run in the mobile environment.

| DELIVERABLE | FORMAT | DATE REQUIRED | ACCEPTABLE QUALITY LEVEL |
|---|-----------------------------|---|------------------------------------|
| Updated US release of RMTK Mobile ETR, SDZ, and WDZ | Executable form as baseline | As required and defined in the WBS 5 days to correct errors and | Error free upon second submission. |
| | | resubmit | |

5.0 Reserved

6.0 Facilities and Travel Requirements:

6.1 Facilities: The majority of work efforts in support of this task will be accomplished at the Contractor's facilities. The Contractor shall possess the capability for teleconferencing as well as a suitable infrastructure throughout the period of performance to support the scope of activities. Such facilities are not reimbursed as ODCs. Laptops, cellular equipment/services, and other items of convenience are not reimbursable as ODCs.

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6.2 Travel: Performance under this contract will require travel by Contractor personnel. The Contractor is responsible for making all necessary arrangements for its personnel. The anticipated travel locations and frequency are identified in the tables below. Please be advised that these locations are not all inclusive and the Government reserves the right to add additional locations as the requirement dema

Government expectations of travel will be to the following CONUS and OCONUS locations, but will not include in-theater locations (e.g., Iraq, Afghanistan):

| Estimated US travel | | | | | |
|---------------------|---------------------|-------------|------------------|--|--|
| Place | Number trips yearly | Number days | Number personnel | | |
| Quantico, VA | 4 | 5 | 3 | | |
| Fort Eustis, VA | 3 | 5 | | | |
| | | | | | |
| | | | | | |
| Camp Pendleton, CA | 2 | 5 | 3 | | |
| Camp Butler, OKI | 1 | 9 | 2 | | |
| Fort Polk, LA | 1 | 5 | 3 | | |
| Fort Carson, CO | 1 | 5 | 3 | | |
| Fort Knox, KY | 1 | 5 | 3 | | |
| Fort Belvoir, VA | 1 | 5 | 3 | | |
| Fort Hood, TX | 1 | 5 | 3 | | |

Estimated FMS travel

| Place | Number trips yearly | Number days | Number personnel |
|-----------------|---------------------|-------------|------------------|
| Adelaide, AUS | 1 | 10 | 2 |
| Copenhagen, DEN | 1 | 8 | 2 |
| Bristol, GBR | 2 | 10 | 3 |
| Brussels, BEL | 1 | 8 | 2 |
| Quebec, CAN | 1 | 7 | 2 |
| | | | |
| Adelaide, AUS | 1 | 9 | 4 |
| Stockholm, SWE | 1 | 7 | 2 |
| Meppen, DEU | 1 | 7 | 2 |

6.2.1 No travel may occur without prior approval from the Contracting Officer Representative (COR). The Contractor is required to submit a travel estimate to include, at a minimum: number of tr dates/duration of trip; departure and arrival locations per travel; airfare per traveler; baggage fees (if required); parking fees (if required); hotel duration and cost per traveler; rental car duration and cost; e tolls; and Meals and Incidentals expenses (M&IE) (please remember first and last day of travel is only 75% of allowed M&IE).

6.2.2 Travel Policy. The Government will reimburse the Contractor for allowable travel costs incurred in performance of the contra accordance with FAR Subpart 31.2. Travel required for tasks a under this contract will be governed in accordance with: Federal Travel Regulations prescribed by the General Services Administration for travel in the conterminous 48 United States, (hereinafter the FTI Travel Regulation, V 2, DoD Civilian Personnel, Appendix A, prescribed by the Department of Defense, for travel in Alaska, Hawaii, the Commonwealth of Puerto Rico, territories and possessions of the States (hereinafter JTR); and Standardized Regulations (Government Civilians, Foreign Areas), Section 925 "Maximum Travel Per Diem Allowances for Foreign Areas," prescribed by the Department of the SR).

6.2.3 Travel and M&IE are authorized for travel beyond a fifty-mile radius of the Contractor's office whenever a task assignment requires work accomplished at a temporary alternate worksite. No t M&IE will be charged for work performed within a fifty-mile radius of the contra office. The Contractor will not be paid for travel or subsistence for Contractor personnel who reside in the metropolitar which the tasks are to be performed. Travel performed for personal convenience, in conjunction with personal recreation, or daily travel to and from work at the Contractor's facilities will not be reim Similarly, travel from a telework site to the metropolitan area in which the tasks are being performed will not be reimbursed if it exceeds 90 miles from the telework site.

(a) For travel costs other than described above, the Contractor will be paid on the basis of the actual amount incurred to the extent that such travel is necessary the performance of services under the is authorized in advance by the COR in writing.

(b) When transportation by privately owned conveyance is authorized, the Contractor will be paid on a mileage basis not to exceed the applicable Government transportation rate as contained in the SR. Authorization for the use of privately owned conveyance will be indicated in the contract. Distances traveled between points will be shown on invoices as listed in standard highway mileage guice.

(c) The Contractor agrees, in the performance of necessary, authorized travel, to use the lowest cost mode commensurate with the requirements of the mission as set forth in the basic contract and i with good management principles. When it is necessary to use air or rail travel, the Contractor agrees to use coach, tourist class, or similar accommodations to the extent consistent with the si economical accomplishment of the mission for which the travel is being performed.

(d) The Contractor's invoices shall include receipts or other evidence substantiating actual costs incurred for authorized travel. In no event will such payments exceed the rates of common carriers. The passed through at cost; the Contractor may not charge a fee on travel costs.

6.2.4 Car Rental. The Contractor will be reimbursed for car rental, exclusive of mileage charges, as authorized in the basic contract or upon approval COR, when the services are required to be pe beyond the normal commuting distance from the Contractor's facilities. One Car rental for a team at one site will be allowed for a minimum of four (4) persons per car, provided that such number or comprise the TDY team

6.2.6 Per Diem. The Contractor will not be paid for per diem for Contractor personnel who reside in the metropolitan areas in which the tasks are being performed. Per Diem will not be paid on a performed within a fifty-mile radius of the Contractor's home office or the Contractor's local office. Per Diem is authorized for Contractor personnel beyond a fifty-mile radius of the Contractor's home of offices whenever a task assigned requires it be done at a temporary alternate worksite. Per Diem is not authorized for travel from a telework site to the metropolitan area in which the tasks are performed, not be reimbursed unless the travel exceeds 90 miles from the telework site. Per Diem will be paid to the Contractor only to the extent that overnight stay is necessary and authorized and this contra authorized per diem rate will be the same as the prevailing per diem in the locality. These rates will be based on rates contained in the FTR, JTR or SR. The applicable rate is authorized at a flat seve (75%) percent on the day of departure from Contractor's home or local office, and on the day of return. Reimbursement to the Contractor for per diem will be inited to ac payments to per diem defined herein. The Contractor shall provide supporting documentation for per diem expenses as evidence of actual payment.

6.2.7 The Government will not reimburse the Contractor for costs incurred beyond the Not to Exceed price for travel. The Contractor must obtain the COR's approval in writing prior to travel occurrin

7.0 Applicable Documents:

- 7.0.1 MCO 3570.1C Range Safety
- 7.0.2 MCO 3550.9 Range Certification
- 7.0.3 MCO 3550.12 Operational Range Clearance
- 7.0.4 MCO 3550.10, Policies and Procedures for Range and Training Area (RTA) Management
- 7.0.5 MCO 8020.10 Marine Corps Explosives Safety Program
- 7.0.6 OPNAVINST 5100.27/MCO 5104.1A Navy Laser Hazards Control Program
- 7.0.7 NAVSEA OP5 Volume 1, Ammunition and Explosives Ashore Safety Regulations for Handling, Storing, Production, Renovation and Ship
- 7.0.8 Technical Bulletin Medical (TB MED) 524 Control of Hazards to Health from Laser Radiation
- 7.0.9 DA-PAM 385-64 Army Ammunition and Explosives Safety Standards
- 7.0.10 TC 25-8 Training Range on Army ranges
- 7.0.11 Joint Munitions Effectiveness Manual
- 7.0.12 MIL-HDBK 828C, Range LASER Safety
- 7.0.13 Allied Range Safety Publication 2 Volumes 1 & 2
- 7.0.14 Defense Information Systems Agency's Security Technical Implementation Guides
- 7.0.15 WDZ specification volumes I-VI
- 7.0.16 RMTK Mobile Assessment

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8.0 Data Rights:

8.1 While the Contractor will be developing software based upon a commercial license, the Government considers the updates and developments as non-commercial software, subject only to the software publisher's license restrictions for software developed exclusively at private expense (if applicable). 8.2 This contract is subject to DFARS 252.204-7000. The Government does not consider any information developed as part of a deliverable (including software code) as falling within the exceptions set forth in (a)(2) or (a)(3) of DFARS 252.204-7000 without the express written permission of the contracting officer.

9.0 Subject Matter Experts:

Subject Matter Expert(s) (SMEs) must be knowledgeable in air-to-ground and ground-to-ground weapons, munitions properties and aircraft systems properties, how the munitions interact with the aircraft the delivery systems combined with effects on the range in either a ground to ground or air to ground training activity. SMEs must understand and interpret the probabilistic variances of all aspects of wea and aircraft for inclusion in the RMTK suite of tools. SMEs are required to integrate complex mathematical formulas into a GIS extension/interface that is compliant with Marine Corps Order (MCO) 357 (Applicable Documents 7.0.1), Range Safety and MCO 3550.12 (Applicable Documents 7.0.3), Operational Range Clearance, doctrines. The information provided by SMEs shall support the Government i development of danger zones for inclusion in the tools. In addition to providing subject matter expertise, SMEs are required to advance the Government's knowledge.

The Contractor shall provide fully trained and experienced SMEs and technical personnel for the performance of the requirements of this effort. The background for such personnel must include training necessary for keeping personnel abreast of industry advances and for establishing proficiency on equipment, computer languages, and computer operating systems that are available on the commercial market Training of Contractor personnel shall be the responsibility of the Contractor at its own expense.

The Government shall neither supervise Contractor employees nor control the method by which the Contractor performs the required tasks. Under no circumstances shall the Government assign tasks to, or prepare work schedules for, individual Contractor employees. The Contractor shall manage its employees and to guard against any actions that is of the nature of personal services, or that gives the perception personal services. If the Contractor believes that any actions constitute, or are perceived to constitute, personal services, it shall be the Contractor's responsibility to notify the Procuring Contracting Officer (P immediately.

10.0 Government Furnished Information (GFI): t.

10.1WDZ specification volumes I-VI. (PRE/POST AWARD)

10.2USMC formal school code (M02WDZM) program of instruction, lesson plans, course descriptive data, and concept cards. (POST AWARD)

10.3 IMS (POST AWARD)

10.4 RMTK algorithms (with function descriptions) or "pseudo" code formulas, databases, class diagrams, use cases, executable (object code) and non-executable (source code) codes. (POST AWARD) 10.5 Study "assessment of the RMTK" (post award)

11.0 Definitions:

Broaching – Heavy weight Ordnance (e.g., Mk-83 or Mk-84) that after impact and surface penetration re-emerges with sufficient energy to become airborne again with a different trajectory. If the ordnance retains its fins and regains symmetry, then it can travel an extended distance (perhaps a mile or more). More often the bomb body tumbles until it impacts again the surface until finally coming to rest. Expret in some arenas as "porpoising".

12.0 Reserved.

13.0 Acronyms:

AQL – Acceptable Quality Level

AMPS - Aviation Mission Planning System ARSP - Allied Range Safety Publication AWIS - All Weapon Information System

CALFEX - Combined Arms Live Fire Exercise (Army) CAX - Combined Arms Exercise (Marine Corps)

CEPt – Circular Error Probable for Training

CMWG - Configuration Management Working Group CWDS - Combat Weapon Delivery Software

COR – Contracting Officer Representative

CPARS - Contractor Performance Assessment Report System CWDS - Combat Weapon Delivery Software

DISA - Defense Information Systems Agency DLL - Dynamic Link Library

DOD - Department of Defense

ERDC-CERL - (Army) Engineer Research and Development Center, Construction Engineering Research Laboratory ESRI - Environmental Systems Research Institute

ETR - Explosive Training Range (Tool) FDZ - Foreign Danger Zone

FMS – Foreign Military Sales GFI – Government Furnished Information GIS – Geographic Information System GUI – Graphic User Interface

IMS - Integrated Master Schedule

INFADS - Internet Navy Facility Assets Data Store IPTs - Integrated Product Teams

JMEM - Joint Munitions Effectiveness Manual JAWS - Joint Aviation Weapon System

JTR - Joint travel Regulation

LRMT - Laser Range Management Tool MAGTF - Marine Air to Ground Task Force

MCRTAMS - Marine Corps Range and Training Area Management System MCSC - Marine Corps Systems Command

MCO - Marine Corps Order

NATO - North Atlantic Treaty Organization NAVFAC - Naval Facilities

NEPA - National Environmental Policy Act

OPNAVINST - Office of the Chief of Naval Operations Instruction ORAH - On Range Ammunition Handling (Tool)

Pdf - Probability Density Function PfP - Partnership for Peace

PFPS - Portable Flight Planning System PMR - Program Management Review PCO - Procurement Contracting Officer PSDZ - Probabilistic Surface Danger Zone PWS - Performance Work Statement

QASP - Quality Assurance Surveillance Plan RCD - Range Capabilities Document

RDAP - Range Development and Planning RFQ - Request for Quote

RDM - Range Design Manual RDT - Range Design Tool

RFMSS - Range Facility Maintenance Support System RMTK - Range Managers Tool Kit

RTA - Range and Training Area

RTAM - Range and Training Area Management RUSWG - Range Use Standardization Working Group SAAR - System Authorization Account Request

SDZ - Surface Danger Zone SIN - Special Item Number SME - Subject Matter Expert

STIG - Security Technical Implementation Guides TECOM - Training and Education Command TEPS - Training Event Planning System

TTCP - The Technical Cooperation Program UAS - Unmanned Aircraft System

USMC - United States Marine Corps WAWF - Wide Area Work Flow WBS - Work Breakdown Structure WDZ - Weapons Danger Zone

WSEP - Weapon System Evaluation Program

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