



ENGAGEMENT SIMULATION SYSTEMS PROGRAM MANUAL



September 2019

U.S. Department of Energy
Office of Enterprise Assessments
1000 Independence Ave, SW
Washington, DC 20585-1290

**ENGAGEMENT SIMULATION SYSTEMS
PROGRAM MANUAL**

Approved by: _____ Date: 08/28/2019

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Preface

As part of the U.S. Department of Energy (DOE) Office of Enterprise Assessments (EA), the Office of Security Assessments, within the Office of Enterprise Assessments, is responsible for conducting EA appraisal activities at DOE and National Nuclear Security Administration (NNSA) sites that possess high-value security interests, as mandated in DOE Orders 227.1A, *Independent Oversight Program*, and 226.1B, *Implementation of Department of Energy Oversight Policy*. To support this mandate, EA has established an engagement simulation systems (ESS) support program to provide ESS equipment and support for performance testing at DOE and NNSA sites.

This program manual describes the ESS support program and establishes roles and responsibilities for personnel implementing and overseeing the program. Although designed specifically for EA Federal and contractor personnel, this program manual may be useful to Federal field element and facility contractor personnel conducting performance testing using ESS-type equipment.

EA will periodically revise this manual in response to changes in DOE program direction and guidance, insights gained from appraisal activities, and feedback from customers and stakeholders. As part of the revision process, users of this manual are invited to submit comments and recommendations to the EA ESS Support Program Manager.

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Acronyms

| | |
|-------|---|
| CAT | Composite Adversary Team |
| CFR | Code of Federal Regulations |
| DOE | U.S. Department of Energy |
| EA | Office of Enterprise Assessments |
| EA-22 | Office of Security Assessments |
| ESS | Engagement Simulation Systems |
| F | Form |
| FOF | Force-on-Force |
| MILES | Multiple Integrated Laser Engagement System |
| NNSA | National Nuclear Security Administration |
| NTC | National Training Center |
| SF | Standard Form |

Definitions

Composite Adversary Team (CAT) – Designated individuals who act the part of adversaries during performance tests.

Engagement Simulation Systems (ESS) – Non-lethal engagement systems that permit players to simulate combat conditions and provide an accurate assessment of the effects of weapons fire during simulated hostile engagements. Several forms of ESS are available, such as multiple integrated laser engagement system (MILES), dye marking cartridge, blank fire, or inert systems.

Force-on-Force (FOF) Exercise – An exercise that uses protective force or other designated personnel in the role of an adversary force to simulate the actual engagement of protective forces.

Limited-Scope Performance Test – A performance test that evaluates specific skills, equipment, operations, or procedures. The events of the test may be interrupted to facilitate data collection and may be purposely directed by evaluators to achieve certain evaluation goals.

Multiple Integrated Laser Engagement System (MILES) – Equipment consisting of weapons-mounted laser transmitters and laser sensors that are mounted on potential targets (e.g., personnel, vehicles, buildings) to enable accurate assessment of the effects of weapons fire during simulated hostile engagements.

National Training Center (NTC) – A DOE organization comprising multiple training academies and programs that support the development and implementation of centralized, standardized training, curriculum development, and other training-related services. The NTC provides the infrastructure in support of these academies and programs.

Performance Test – A test to evaluate the ability of an implemented and operating system element or total system to meet an established requirement.

Performance Test Director/Coordinator – Individual responsible for all aspects of planning, conducting, and controlling performance tests during assessments, and coordinating and communicating activities and information with the ESS Support Program Coordinator and appropriate site personnel.

Section 1: Program Management

General Information

The U.S. Department of Energy (DOE) Office of Security Assessments (EA-22), within the Office of Enterprise Assessments (EA), provides feedback to internal and external stakeholders through independently evaluating the effectiveness of safeguards and security policies and programs throughout DOE and the National Nuclear Security Administration (NNSA). To carry out this mission, EA-22 plans and conducts a variety of appraisal activities, including performance testing that incorporates a broad range of threats and scenarios, in order to provide a complete and realistic evaluation of a site's safeguards and security system's readiness to protect DOE assets. This performance testing often includes limited-scope performance testing and force-on-force (FOF) testing using engagement simulation systems (ESS) equipment. This ESS support program manual establishes the management, operations, safety, and use of the ESS equipment and personnel in support of EA appraisals and other sanctioned activities. This manual serves to promote consistency, ensure thoroughness, and enhance the quality of the ESS support program.

The ESS support program is a Federal program and is required to comply with safety rules contained in DOE Order 473.3A, *Protection Program Operations*, and DOE Order 440.1B, *Worker Protection Program for DOE (Including the National Nuclear Security Administration) Federal Employees*. These policies require ESS firearms users to establish safety policies and procedures for security operations; train personnel to ensure that proper accident prevention controls are in place; and conduct formal appraisals (firearms safety assessments) to specifically assess the implementation of those procedures, personnel responsibilities, and duty assignments.

The objective of the ESS support program is to support the performance testing of the Department's most critical protection systems. The program benefits EA as well as the individual field offices and contractor organizations. Currently based in Albuquerque, New Mexico, the program provides an in-house inventory of dedicated ESS firearms and equipment. Program activities include trip planning and preparation; ESS firearm modifications; transportation and secure storage of ESS firearms and blank ammunition; providing and maintaining communication equipment and licenses; inventory control; and administrative functions. The program inventory includes materials that replicate specialized adversary firearms and equipment, such as rocket propelled grenades and improvised explosive devices. Contractor personnel who are fully trained and certified on the use, modification, repair, and maintenance of the equipment support the program.

Responsibilities

- **ESS Support Program Manager (Program Manager)** – Position held by a member of the EA-22 Federal staff responsible for ensuring that all administrative, logistical, safety, and funding requirements pertaining to the ESS support program are met and that ESS support program personnel are properly trained, briefed, and prepared to safely provide the required EA performance testing support.
- **ESS Support Program Coordinator (Program Coordinator)** – Position held by a staff member of the support contractor responsible for the overall implementation and execution of the ESS support program. Responsibilities include maintaining a cadre of properly trained and qualified technicians; directing and overseeing the technicians and any ESS support personnel when performing EA sanctioned activities; managing and overseeing day-to-day ESS training and

operations; performing the role of frequency manager for use of EA communication equipment (radios and repeaters); ensuring that personnel fully understand all details of their assigned tasks; and taking positive measures to ensure that those tasks are properly executed.

- **Safety Officer** – Position held by a staff member of the support contractor responsible for advising EA-22 contractor and Federal management and resolving issues necessary for the safe conduct of ESS support program activities and overseeing safety during activities that use ESS equipment.
- **Laser Safety Officer** – Position required by the Occupational Safety and Health Administration and held by a staff member of the support contractor responsible for ensuring the safe use of lasers during ESS support program activities.
- **ESS Support Program Technicians** – Personnel who augment the positions above and provide support as directed by the Program Coordinator. As support personnel, these individuals are responsible for reading and being familiar with this manual and the requirements for the positions/tasks to which they are assigned.

Scheduling

As part of the development of the annual EA schedule of activities, the Program Manager coordinates with the Program Coordinator on activities necessary to support multi-topic assessments, FOF exercises, and EA Composite Adversary Team (CAT) training. Other EA activities approved by the EA-22 Deputy Director or Director, such as field assistance requests, are supported at the discretion of the Program Manager and are dependent on resources and schedule availability.

Section 2: Services

General Information

The ESS support program offers a range of services in support of performance testing during EA appraisal activities, CAT training, and other EA sanctioned activities. Services include providing an operational inventory of ESS equipment and firearms (permanently modified for blank ammunition), such as handguns and rifles; materials that simulate specialized adversary firearms and equipment, such as rocket propelled grenades and vehicle-borne improvised explosive devices; support equipment, including controller/evaluator radios; and technicians/armorers trained in the maintenance, set up, and issuance of all ESS equipment and firearms. From an equipment standpoint, for sites without their own ESS capability or with an insufficient or outmoded ESS capability, the program is capable of offering short-term loan of a tailored package of well-maintained equipment on a case-by-case basis. For sites that have ESS equipment and have relied on factory service for equipment maintenance and repairs, the program provides access to skilled and qualified technicians who can support maintenance and repair services on a case-by-case basis.

EA Performance Testing

As part of the scheduling process for EA appraisals, performance testing activities using ESS equipment and personnel are scheduled throughout the year. The Program Coordinator works with EA performance test directors/coordinators, the CAT Program Coordinator, and applicable site representatives to identify needed support for such testing. EA relies on the timely delivery and reliable availability of equipment during performance testing and training activities. ESS support program staff provide assistance and support to resolve deployment, storage, and issue/retrieval problems that may arise before, during, or after deployment of equipment. The Program Coordinator is the primary interface with the DOE Frequency Spectrum Manager for approving the radio frequency used on EA radios and repeaters.

ESS support program staff ensure that ESS equipment is properly maintained and ready for deployment to support performance testing and EA sanctioned activities. The program staff are also responsible for supporting comprehensive data collection from performance testing. For example, the multiple integrated laser engagement systems (MILES) harnesses used during performance testing exercises store a great deal of relevant data, and at the end of testing, program staff download a complete report for each MILES harness detailing the time and nature of firearms engagements between individual players. This data, such as “hits” on target from specific firearms, “near misses,” misdirected fire, vehicle “kills,” and effectiveness of sniper fire from specific locations, helps EA performance testing personnel analyze and evaluate the assessed protective strategy.

CAT Training

EA emphasizes realistic testing/training for CAT members while maintaining a rigorous level of safety and concern for the environment. To ensure the safe conduct of semi-annual CAT training, the Program Coordinator works with the Program Manager and CAT Program Coordinator to ensure that all Federal, contractor, and local site safety requirements and controls are effectively implemented. Scheduling of CAT training is considered when developing the EA-22 annual appraisal schedule. Key to supporting CAT training is the availability and reliability of the ESS equipment before and during the training. ESS support program staff must help manage scheduling conflicts and other activities such that resources are available when necessary. Training is typically held at Department of Defense facilities or other

government agency installations. Program staff ensure that ESS equipment is properly maintained and ready for deployment in support of CAT training. As the EA frequency manager, the Program Coordinator coordinates with appropriate frequency managers on use of radios and repeaters during training.

Field Assistance

On occasion, a field office may request the use of equipment and/or ESS technical support for site-specific performance testing. Once approved by the Program Manager, these requests are routed through the EA-22 Deputy Director or Director in writing from the responsible Federal manager of the requesting organization. Once approved, the request must be considered as part of the overall scheduling process to ensure that there are no conflicts with other EA activities and that the sites receive dedicated, professional support. The request must include the intended use of the items on loan. ESS weapon and equipment packages or individual items can be loaned and shipped directly to the site to enhance the realism and fidelity of FOF exercises. If requested, experienced ESS technicians are typically available to accompany the ESS firearms/equipment packages to individual sites, where they prepare, issue, recover, and maintain the equipment and assist site personnel with ESS equipment-related matters. Additionally, program personnel can provide downloads and a complete report for each MILES harness, detailing the time and nature of firearms engagements between individual players, to help the site improve its protective strategies and the associated response plans employed by the protective force.

EA Sanctioned Activities

EA may request support from the ESS support program for such things as providing equipment and technical support to the DOE NTC, modifying live firearms to function as ESS firearms in support of EA activities, and carrying out other requests from the Program Manager. These activities are scheduled as needed and are supported in accordance with available resources.

Section 3: Training and Qualifications

General Information

The ESS support program provides equipment and support as requested by the CAT Program Manager. The CAT program relies on the timely delivery and reliable availability of equipment during performance testing and training activities. Representatives of the ESS support program provide assistance and support to resolve deployment, storage, and issue/retrieval issues that may arise before, during, or after equipment use. These representatives also ensure compliance with applicable directives. The ESS Support Program Coordinator is responsible for providing guidance and direction to the ESS technicians and any adjunct ESS support personnel while in transit to or at the testing location.

Training/Qualifications

The Program Coordinator is responsible for ensuring that all ESS support program staff are trained and qualified to perform their assigned duties. Training requirements for individual staff members are specified at the discretion of the Program Coordinator and Program Manager; however, the ESS support program must maintain the following training and qualifications:

- DOE and/or firearms manufacturer armorer certification for all firearms maintained in the ESS support program inventory
- Joint Industry Standard Institute for Printed Circuits IPC-A-610
- Hazardous material training per 49 Code of Federal Regulations (CFR) 100-185
- Certified in deployment of smoke and diversionary devices
- All-terrain vehicle operator license(s)
- Laser Safety Officer certification
- DOE property management
- DOE-specific annual training (e.g., privacy awareness, annual security refresher brief, cyber training).

Section 4: Firearms and Equipment

General Information

The ESS support program maintains a full complement of ESS equipment, firearms, and ancillary equipment, including most small arms used by DOE protective forces. The inventory includes materials that replicate specialized adversary firearms and equipment, such as rocket propelled grenades; AK-47 assault rifles; improvised explosive device fire sets ranging from simulated anti-personnel devices to command-detonated, vehicle-borne devices; realistic hand-grenade simulators; blank ammunition; pyrotechnics; and various types of simulated breaching devices. Other equipment supporting the program includes hand-held radios and repeaters; MILES harnesses for personnel and vehicles; small arms transmitters; generators; reactive pop-up targets; all-terrain vehicles; personal protective equipment, such as ear and eye protection and safety vests; and a customized transport trailer.

Purchase

Equipment purchases should be accomplished on a two-year fiscal year planning cycle and as directed by EA. The Program Coordinator or designee conducts research and recommends equipment to support operational needs. Recommendations include the vendors, types, sizes, quantities, individual item cost, and justification. These recommendations are presented to the Program Manager and coordinated through the EA-22 Director for concurrence before being submitted to the EA contracting officer's representative for approval.

Inventory

The Program Coordinator maintains an accountability/tracking system of all equipment in accordance with DOE Order 473.3A, *Protection Program Operations*; 41 CFR 101, *Federal Property Management Regulations*; 41 CFR 102, *Federal Management Regulation*; 48 CFR 970.5204-21, *Department of Energy Property*; and methods contained in DOE Guide 580.1-1A, *Department of Energy Personal Property*, and also ensures that inventory levels are consistent with best business practices and sufficient to support operational needs. The inventory system must be annotated when equipment leaves the facility for any reason, such as a loan or support of performance testing, and updated when returned. When equipment is used for field support, such as performance testing or CAT training, a second inventory must also be maintained to track the issuance and return of firearms and other sensitive items from the transport trailer.

Maintenance

EA maintenance and repair services include:

- Ensuring that ESS firearms are functioning and have been modified to inhibit the introduction of live ammunition
- Maintaining and adjusting laser transmitters, where manufacturers allow, to ensure the accuracy and operability of ESS firearms
- Manufacturing and implementing approved ESS modifications to authorized EA firearms
- Ensuring that personnel and vehicle MILES harnesses are functioning

- Maintaining properly marked ESS magazines
- Maintaining approved blank ammunition
- Ensuring that the logistics trailer is operable and maintained in good working condition
- Ensuring that EA radios are functioning and that the frequencies used during testing/training are approved.

A field office may request ESS maintenance support, and the Program Manager approves these requests, which are routed through the EA-22 Deputy Director or Director in writing from the responsible Federal manager of the requesting organization. Once approved, the request must be considered as part of the overall scheduling process to ensure that there are no conflicts with other EA activities. On a case-by-case determination EA can provide labor; however, the requestor provides parts and shipping. Logistics are accomplished through coordination with the ESS Program Coordinator.

Transfer and Loan

When equipment is no longer needed to support EA activities, it may be excessed or transferred for use by other sites/programs. A Standard Form (SF)-122, *Transfer Order Excess Personal Property*, is used to formalize the transfer of equipment (see Appendix 1). Upon notification that a site/program has requested the equipment, it is prepared for shipment and removed from inventory. The ESS support program also includes the short term transfer of ESS equipment based on field office requests for support during site testing activities. DOE Form (F) 4420.2, *Personal Property Loan Agreement*, documents EA Federal approvals and formalizes the loan (see Appendix 2). Program personnel coordinate with the site to determine the equipment that is needed, ensure that it is in good operational condition, and prepare it for shipping. On return of the equipment, program personnel inspect each item and make repairs/maintenance as necessary. When equipment is on loan, the destination and date are annotated in the inventory system until each item is returned.

Destruction

If equipment is deemed to be unserviceable/unrepairable according to DOE Guide 580.1-1, *Personal Property Management Guide*, it can be destroyed only under the supervision of at least one contractor employee and a DOE Federal employee. Signatures of personnel supervising the destruction, along with a list of each item destroyed and its description, manufacturer, model, and serial number, are documented on a formal destruction certificate (see Appendix 3).

Transportation

Large quantities of the ESS inventory are transported using a trailer, specially procured by EA, which is designed to support the type and quantity of ESS firearms, equipment, and ammunition necessary to support EA activities. The trailer safely and securely stores ESS firearms, blank ammunition, and other related equipment while in transit to and from performance testing/training locations and while located at approved mission support locations. Some of this equipment is considered hazardous and must be transported per Department of Transportation guidelines for hazardous materials, which include, for example, packaging/storage configuration, placarding of the trailer, and driver regulations.

Frequency Management

Included in the inventory of program equipment are hand-held radios and repeaters. Before this equipment is used at various locations, the operating frequency must be identified and approved in accordance with the *U.S. Department of Commerce National Telecommunications and Information Administration (NTIA) Manual of Regulations and Procedures for Federal Radio Frequency Management*. The Program Coordinator is the frequency manager for EA communication equipment and provides the interface to the DOE Frequency Spectrum Manager and the points of contact for radio and frequency usage at DOE and NNSA sites and other training locations. When frequency usage is requested, the Spectrum Management Office's *Frequency Usage Request Form* (see Appendix 4) must be submitted to the DOE Frequency Spectrum Manager for approval.

Section 5: Safety

General Information

The ESS support program must ensure that all firearms and equipment successfully support the safe conduct of testing and training. Per 10 CFR 851, *Worker Safety and Health*, employers are required to evaluate the working environment for potential hazards and eliminate or mitigate them to a reasonable level. The Program Coordinator ensures that program activities are safe and adhere to established procedures, and that personnel under their cognizance adhere to the rules, regulations, and procedures of the site/organization.

ESS Firearms and Equipment

Hazards and control measures associated with ESS support program firearms and equipment are documented in a risk assessment developed by the Safety Officer and maintained by the Program Coordinator. Past accidents, occupational injury experience, procedure review, and similar items are used to determine the consequence and probability of injury associated with the use of this equipment. The following controls are necessary to ensure safe operations of ESS firearms:

- Equipment must not be removed from the ESS support program workspace or vehicles without the knowledge and authorization of the responsible ESS representative. All firearms are inspected and maintained by NTC certified armorers, and all deployed ESS equipment is accounted for before participants are released.
- All firearms and weapons used in ESS activities must be modified and dedicated for ESS use only and must be clearly marked.
- All ESS magazines must be clearly marked.
- All ESS blank-fire firearms must be equipped with live round inhibiting devices or ported chambers, as well as one or more additional engineered layers of safety to prevent the accidental introduction of live rounds. Additionally, with the exception of single shot grenade launchers, blank-fire firearms must be equipped with approved blank fire adapters or blast deflectors.
- ESS equipment includes MILES gear that operates by firing and detecting specially encoded laser signals. The lasers meet the U.S. Food and Drug Administration eye safety requirements (i.e., 21 CFR 1040.10 and 11 and American National Standards Institute Z136.1-6) and do not present an undue hazard to the eyes during normal operations. No special eye protection is required; however, personnel should be cautioned not to stare into the beam when within 10 meters (33 feet) of the laser, and not to view it with optical instruments, such as binoculars, when within 50 meters (164 feet).
- Transmitters of all laser engagement systems must carry caution stickers that are visible to persons in the vicinity of the transmitter and that contain the words, "INVISIBLE LASER RADIATION."

Pyrotechnics

The following controls are necessary to ensure safe operations of pyrotechnics and other explosives used as part of the ESS support program:

- Personnel who work with explosives must be trained and qualified in the tasks to be performed and must understand all safety standards, requirements, and precautions that apply to their work.
- All operations are to be conducted in a manner that exposes the minimum number of people to the smallest quantity of explosives for the shortest period of time, consistent with the activities being conducted.
- Transportation for all approved munitions is to be conducted in accordance with Department of Transportation regulations. Explosive devices must not be carried on commercial airline flights or in privately owned vehicles.
- Munitions shall be protected from abnormal stimuli or environments, such as impact, shock, high temperatures, and open flames. Smoking is prohibited within 50 feet of areas where munitions are being handled, transported, or stored.
- Live-fire firearms and live ammunition are not allowed in ESS support program work areas, except for firearms that are scheduled for ESS modification.
- Cartridges for shoulder-fired rocket signature simulator sleeves ignite at the rear of the weapon; common names for shoulder-fired rockets include light anti-armor weapon, Viper, and rocket propelled grenade. Anyone test-firing or conducting maintenance on a shoulder-fired rocket simulator must verify that the danger zone is clear (i.e., 30 feet to the rear and 5 feet to all sides of the shoulder-fired rocket simulator).

Emergencies and Accident/Injury Reporting

This section addresses reporting emergencies and accidents/injuries that may occur during training activities and while supporting performance testing, including official government travel, and/or in conjunction with work-related activities at the Albuquerque facility. A copy of this manual will be readily available at the Albuquerque facility and during all ESS activities. All emergencies and accidents/injuries must be reported immediately, including slips, trips, or falls; back, shoulder, neck, or other muscle strains; exposure to chemical fumes or radiation; cuts, broken bones, or bruises; motor vehicle accidents; food poisoning; occupational illnesses, including infectious diseases, if exposed while at work or on official travel; and hospitalizations for work-related accident, injury, or illness. Personnel who are present during an emergency or injury should provide an appropriate level of medical treatment as necessary (i.e., first aid, transport to the nearest medical facility, or notifying 911 or the appropriate emergency contact at the location). Accidents should be reported even if they do not result in an injury.

Emergencies and accidents/injuries must be reported immediately to the Program Coordinator or Safety Officer, who immediately notifies the Program Manager, who in turn notifies the Director, EA-22, and the support service contract task manager. The injured employee, with assistance from the Program Coordinator and/or Safety Officer, completes the necessary paperwork, including DOE F 5484.3, *Individual Accident/Incident Report*. The Program Coordinator and Safety Officer must keep blank forms readily available. If the employee cannot complete the necessary paperwork, they may designate an individual to act on their behalf. The Program Coordinator or Safety Officer completes sections 38, 39, and 41 in accordance with DOE Order 440.1B, *Worker Protection Program for DOE (Including the National Nuclear Security Administration) Federal Employees*, and, based on this information, determines whether the injury resulted from a work-related activity and whether other factors contributed to the cause. (Note: Once a form is completed, it becomes Official Use Only.) All necessary precautions shall be taken to protect the personally identifiable information provided on the form.

Once completed, all forms are forwarded to the Program Manager for review and submission. The Program Manager will work with appropriate DOE personnel to determine whether additional reporting is required. If so, appropriate reports will be disseminated through appropriate reporting channels, such as the Occurrence Reporting and Processing System, the Computerized Accident/Incident Reporting System, and Lessons Learned. The Program Coordinator and the Safety Officer must investigate the injury/incident and identify and implement corrective actions, or compensatory corrective actions, as necessary to prevent recurrence of the injury or illness.

Appendix 1: SF-122, Transfer Order Excess Personal Property

1.0

| STANDARD FORM 122 SEPTEMBER 1974 GENERAL SERVICES ADMINISTRATION FPMR (41 CFR) 101- 32.306 FPMR (41 CFR) 101- 43.315 | TRANSFER ORDER EXCESS PERSONAL PROPERTY | 1. ORDER NO. 2. DATE | | | | | |
|---|--|--|-------------|-----------------|------------------|--------------|-------------|
| 3. TO: General Services Administration* | | 4. ORDERING AGENCY (Full name and address)* | | | | | |
| 5. HOLDING AGENCY (Name and address)* | | 6. SHIP TO (Consignee and destination)* | | | | | |
| 7. LOCATION OF PROPERTY | | 8. SHIPPING INSTRUCTIONS | | | | | |
| 9. ORDERING AGENCY APPROVAL | | 10. APPROPRIATION SYMBOL AND TITLE | | | | | |
| a. SIGNATURE | b. DATE | | | | | | |
| c. TITLE | | | | | | | |
| | | 11. ALLOTMENT | | | | | |
| 12. GOVERNMENT B/L NO. | | | | | | | |
| 13. PROPERTY ORDERED | | | | | | | |
| GSA AND HOLDING AGENCY NOS. (a) | ITEM NO. (b) | DESCRIPTION (Include noun name FSC Group and Class, Condition code and, if available, National Stock Number) (c) | UNIT (d) | QUANTITY (e) | ACQUISITION COST | | |
| | | | | | UNIT (f) | TOTAL (g) | |
| | | | | | | | |
| 14. GSA APPROVAL | | a. SIGNATURE | b. TITLE | | | c. DATE | |
| FOR GSA USE ONLY | AGENCY AND LOCATION | | | | FSC | CONDITION | SOURCE CODE |
| | AGENCY | STATE | | | | | |
| | | | | | | | |

*Include ZIP Code

Appendix 2: DOE F 4420.2, Personal Property Loan Agreement

DOE F 4420.2
All Other Editions Are Obsolete

OMB Control No. (11-01) 1910-1000

**U.S. Department of Energy
Personal Property Loan Agreement
OMB Burden Disclosure Statement**

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Records Management Division, IM-11 GTN, Paperwork Reduction Project (1910-1000), U.S. Department of Energy, 1000 Independence Avenue, S.W., Washington, DC 20585; and to the Office of Management and Budget (OMB), Paperwork Reduction Project (1910-1000), Washington, DC 20503.

| | | | | | | | | | |
|--|----------|-------------------|------------|-------------------------------|--|--------------------|--|------------------|--|
| DOE-PMR 109-1.5103 | | 1. CONTROL NUMBER | | 2. LOAN DATE | | 3. EXPIRATION DATE | | 4. PAGE 1 OF | |
| 5. NAME-ADDRESS-TELEPHONE NO./FAX/EMAIL (LENDER) | | | | | 6. NAME-ADDRESS-TELEPHONE NO./FAX/EMAIL (BORROWER) | | | | |
| 7. PURPOSE OF LOAN AND LOCATION WHERE PROPERTY WILL BE USED | | | | | | | | | |
| 8. REFERENCE/CONTRACTUAL DOCUMENTATION/SHIPPING INFORMATION | | | | | | | | | |
| 9. ITEM NO. | QUANTITY | PROPERTY NO. | SERIAL NO. | PERSONAL PROPERTY DESCRIPTION | | | | ACQUISITION COST | |
| | | | | | | | | | |
| (If additional space is necessary, attach a separate sheet.) | | | | | | | | | |

TERMS AND CONDITIONS OF LOAN

1. The borrower shall:
 - a. return the loan item(s) in like condition as received from Lender, normal wear and tear excepted, and free of contamination, on or before the expiration date, unless the loan period is formally extended or the loan is terminated before the due date.
 - b. in case of loss or damage of the property loaned, reimburse the Lender at the current price of replacement or repair.
 - c. assume all costs involved in preparation, handling, loaning, disconnecting, and transportation from and to the Lender.
 - d. agree to indemnify and hold harmless the Lender and the Department of Energy against any and all liability, loss, damages, claims and costs incidental hereto as a result of Borrower's use or possession of the loaned property.
 - e. use the loan property only for the purposes specified in this loan agreement.
2. The above property shall not be modified, loaned, or transferred to a third party without the written permission of the Lender.
3. The Borrower shall account for, or permit inspection of, the loaned property by the Lender after proper notification.
4. This is U.S. government property. Title to the property is vested in and will remain with the U.S. and the property shall be used only for official purposes. The Lender reserves the right to cancel the loan or to recall the loaned property upon 30 days' notice.

Accepted By:

| | | |
|--|-------|------|
| Borrowing Agency/Organization Approval | Title | Date |
|--|-------|------|

Approved By:

| | | |
|--------------------------------|-------|------|
| Signature of Authorized Lender | Title | Date |
|--------------------------------|-------|------|

Approved By:

| | | |
|-------------------------------|-------|------|
| Department of Energy Official | Title | Date |
|-------------------------------|-------|------|

INSTRUCTIONS FOR DOE F 4420.2

This form is used by U.S. Department of Energy (DOE) offices and DOE management and operating contractors to loan property which is not excess for short durations to other DOE offices and contractors, other Federal agencies, foreign government and foreign organizations, and others for official purposes in support of DOE, in accordance with DOE-PMR 109-1.5104.

- Block 1: Self-explanatory. Assigned by lender.
- Blocks 2 and 3: Enter effective and completion dates after DOE Headquarters approval.
- Block 4: Enter total number of pages in space provided.
- Block 5: Enter name, address, and telephone number of DOE office or DOE management and operating contractor.
- Block 6: Enter name of organization or agency. May include attention line with name of point of contact.
- Block 7: Must be provided. Should refer to the experiment and/or research involved.
(If additional space is necessary, attach separate sheet.)
- Block 8: Enter applicable support agreement and export license information.
- Block 9: Provide all pertinent information.

Signatory Information:

- Accepted By: Type or print name and title of borrower. Provide signature and date.
- Approved By: Type or print name and title of DOE or DOE management and operating contractor official.
Provide signature and date.

Approved By: Self-explanatory

Appendix 3: Destruction Certification Example



DESTRUCTION CERTIFICATE EA-22-15-001 U.S. GOVERNMENT EXCESS EQUIPMENT

The equipment listed on the attached listing were destroyed on this day, April 14, 2015, at the Albuquerque ESS Support Facility under the supervision of a Department of Energy federal employee and at least one DOE Office of Enterprise Assessments (ES-22) contractor employee. This procedure is in accordance with DOE Guide 580.1-1. The equipment was deemed to be unserviceable/unrepairable. Under the direction and approval of GSA, the Contracting Officer for Eagle Research Group, Inc. support contract, the Department of Energy's Headquarters' Organizational Property Management Officer and under authority of the Federal Management Regulation (FMR) 102-36.330(b) public notice of this destruction was not given in the interest of public safety. The equipment was demilitarized in accordance with the FMR 102-36 following guidance in DOD 4160.21-M-1 (Defense Demilitarization Manual).

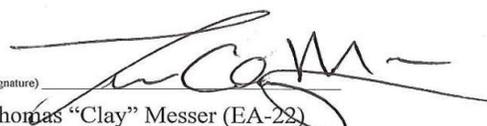
Attester's Signatures

EA-22 Contractor Employee Witness

(Signature) 
 Roy A. Neal,
 EA-22 ESS Support Program Coordinator
 Eagle Research Group, Inc.

(Signature) 
 ROB SIM
 EAGLE RESEARCH

DOE Federal Employee Witness

(Signature) 
 Thomas "Clay" Messer (EA-22)
 ESS Support Program Manager
 U.S. DOE Headquarters

***Destruction Certificate EA-22-15-001
Asset Listing***

| Asset Description | Manufacturer ID | Model | Serial Number | <input checked="" type="checkbox"/> |
|------------------------------------|---|-----------|---------------|-------------------------------------|
| Goggle, Night Vision - PVS7 | ITT Defense Electronic | F5001P | 6841 | <input checked="" type="checkbox"/> |
| Goggle, Night Vision - PVS7 | ITT Defense Electronic | F5001P | 6861 | <input checked="" type="checkbox"/> |
| Goggle, Night Vision - PVS7 | ITT Defense Electronic | F5001P | 6897 | <input checked="" type="checkbox"/> |
| Goggle, Night Vision - PVS7 | ITT Defense Electronic | F5001P | 6905 | <input checked="" type="checkbox"/> |
| Goggle, Night Vision - PVS7 | ITT Defense Electronic | F5001P | 10395 | <input checked="" type="checkbox"/> |
| Goggle, Night Vision - PVS7 | ITT Defense Electronic | F5001P | 10430 | <input checked="" type="checkbox"/> |
| Goggle, Night Vision - PVS7 | ITT Defense Electronic | F5001P | 10449 | <input checked="" type="checkbox"/> |
| Goggle, Night Vision - PVS7 | ITT Defense Electronic | F5001P | 10469 | <input checked="" type="checkbox"/> |
| Goggle, Night Vision - PVS7 | ITT Defense Electronic | F5001P | 10474 | <input checked="" type="checkbox"/> |
| Goggle, Night Vision - PVS7 | ITT Defense Electronic | F5001P | 10478 | <input checked="" type="checkbox"/> |
| | | | | |
| Light, Aiming, Infrared, AN/PAQ-4C | L-3 Communications Corp./ Insight Technology, Inc. | AN/PAQ-4C | 088861B | <input checked="" type="checkbox"/> |
| Light, Aiming, Infrared, AN/PAQ-4C | L-3 Communications Corp./ Insight Technology, Inc. | AN/PAQ-4C | 088866B | <input checked="" type="checkbox"/> |
| Light, Aiming, Infrared, AN/PAQ-4C | L-3 Communications Corp./ Insight Technology, Inc. | AN/PAQ-4C | 089285B | <input checked="" type="checkbox"/> |
| Light, Aiming, Infrared, AN/PAQ-4C | L-3 Communications Corp./ Insight Technology, Inc. | AN/PAQ-4C | 106400B | <input checked="" type="checkbox"/> |
| Light, Aiming, Infrared, AN/PAQ-4C | L-3 Communications Corp./ Insight Technology, Inc. | AN/PAQ-4C | 106402B | <input checked="" type="checkbox"/> |
| Light, Aiming, Infrared, AN/PAQ-4C | L-3 Communications Corp./ Insight Technology, Inc. | AN/PAQ-4C | 135922B | <input checked="" type="checkbox"/> |
| Light, Aiming, Infrared, AN/PAQ-4C | L-3 Communications Corp./ Insight Technology, Inc. | AN/PAQ-4C | 135923B | <input checked="" type="checkbox"/> |
| Light, Aiming, Infrared, AN/PAQ-4C | L-3 Communications Corp./ Insight Technology, Inc. | AN/PAQ-4C | 135924B | <input checked="" type="checkbox"/> |
| Light, Aiming, Infrared, AN/PAQ-4C | L-3 Communications Corp./ Insight Technology, Inc. | AN/PAQ-4C | 135926B | <input checked="" type="checkbox"/> |
| | | | | |
| | | | | |
| | | | | |

Appendix 4: Frequency Usage Request Form

| | | |
|--------------------------|---|---------------------|
| Company Form FRM-0000 | FREQUENCY COORDINATION (FC) INFORMATION FORM (Required for All Exercises) | 04/08/19 Rev. 01 |
|--------------------------|---|---------------------|

| Exercise Information | | | |
|---|----------------------|--|-------------------|
| Exercise/Project Name | | Organization | |
| Operations Start Date | Operations Stop Date | Testing Times (if applicable) | DOE Serial Number |
| From | To | | |
| Point of Contact(s) PRIMARY | | Email | Phone |
| ALTERNATE | | Email | Phone |
| Location: Latitude | Longitude | City/State OR Area, Bldg Number | |
| Frequency Required (include preferred frequencies) | | | |
| Radius of Operations From Center Point | | Peak Power To Be Used | |
| Station Class/Type | | Emissions (Occupied Bandwidth) | |
| Ground or Air Operations (if Air add altitude range or highest) | | Manufacturer & Model of Equipment (provide specification sheets if possible) | |
| Brief description of how the Radio Frequency will be used: | | | |
| | | | |
| Authorization | | | |
| After approval of your request for frequency clearance, you will be issued a control number by the Spectrum Management Office (SMO) indicating you have been cleared for your exercise. If you have any questions or need assistance, please contact the Spectrum Management Office at 702-295-4766/ 702-295-5098 or SpectrumManagement@nv.doe.gov | | | |
| REVIEWED BY SMO | | DATE | |
| CONTROL NUMBER | | | |