GENERAL SERVICES ADMINISTRATION
Federal Supply Service
Authorized Federal Supply Schedule Price List

On-line access to contract ordering information, terms and conditions, up-to-date pricing, and the option to create an electronic delivery order is available through GSA Advantage®, a menu-driven database system. The INTERNET address for GSA Advantage® is GSAAdvantage.gov

SCHEDULE TITLE: Multiple Award Schedule

CONTRACT NUMBER: GS07F0070Y

For more information on ordering from Federal Supply Schedules click on the “buy” button at the following link: https://www.gsa.gov/buying-selling/purchasing-programs/gsa-schedules.

CONTRACT PERIOD: 11/01/16-10/31/21

CONTRACTOR: Training & Consulting, LLC dba TCI
PO Box 591813
San Antonio, TX 78259
Phone: 703-530-7735

CONTRACTOR’S Internet address/web site where schedule information can be found (as applicable).
www.tci-training.com

CONTRACT ADMINISTRATION SOURCE: Erin Blake, 703-530-7735, eblake@tci-training.com

BUSINESS SIZE: Small; Service-Disabled Veteran-Owned Small Business
Customer Information

1a. Table of awarded Special Item Numbers (Sins) with appropriate cross-reference to item descriptions and awarded price(s).

<table>
<thead>
<tr>
<th>SIN</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>611430ST</td>
<td>Security Training</td>
</tr>
</tbody>
</table>

1b. Identification of the lowest priced model number and lowest unit price for that model for each special item number awarded in the contract. This price is the Government price based on a unit of one, exclusive of any quantity/dollar volume, prompt payment, or any other concession affecting price. Those contracts that have unit prices based on the geographic location of the customer, should show the range of the lowest price, and cite the areas to which the prices apply.

<table>
<thead>
<tr>
<th>SIN</th>
<th>MODEL</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A for Services</td>
<td>N/A for Services</td>
<td>N/A for Services</td>
</tr>
</tbody>
</table>

1c. If the Contractor is proposing hourly rates, a description of all corresponding commercial job titles, experience, functional responsibility and education for those types of employees or subcontractors who will perform services shall be provided. If hourly rates are not applicable, indicate “Not applicable” for this item.

See Pricing

2. Maximum order: $1,000,000 per order

3. Minimum order: $100


5. Point(s) of production (city, county, and State or foreign country): N/A for Services

6. Discount from list prices or statement of net price: GSA Net Prices are shown on the attached GSA Pricing and the IFF has been included.

7. Quantity discounts: None

8. Prompt payment/payment terms: None, Net 30 Days

“Information for Ordering Offices: Prompt payment terms cannot be negotiated out of the contractual agreement in exchange for other concessions.”

9a. Government Purchase Cards are accepted at or below the micro-purchase threshold.

9b. Government Purchase Cards are not accepted above the micro-purchase threshold.

10. Foreign items (list items by country of origin): N/A for Services

11a. Time of delivery: TBD at Task Order Level
11b. Expedited delivery: TBD at Task Order Level
11c. Overnight and 2-day delivery: Consult with Contractor
11d. Urgent requirements: Consult with Contractor
12. F.O.B. Point(s): N/A for Services
13. Ordering address(es): Same as Contractor’s Address
14. Payment address(es): Same as Contractor’s Address
15. Warranty provision: N/A for Services
16. Export packing charges, if applicable: None
17. Terms and conditions of government purchase card acceptance (any thresholds above the micro-purchase level). None
18. Terms and conditions of rental, maintenance, and repair (if applicable). N/A
19. Terms and conditions of installation (if applicable). N/A
20. Terms and conditions of repair parts indicating date of parts price lists and any discounts from list prices (if applicable): N/A
20a. Terms and conditions for any other services (if applicable): N/A
21. List of service and distribution points (if applicable): N/A
22. List of participating dealers (if applicable): N/A
23. Preventive maintenance (if applicable): N/A
24a. Special attributes such as environmental attributes (e.g. recycled content, energy efficiency, and/or reduced pollutants): N/A
24b. If applicable, indicate that Section 508 compliance information is available on Electronic and Information Technology (EIT) supplies and services and show where full details can be found (e.g. contractor’s website or other location.) The EIT standards can be found at: www.Section508.gov/. N/A
25. Data Universal Number System (DUNS) Number: 089029966
26. Notification regarding registration in system for Award Management (SAM) database: Contractor has an Active Registration in the SAM database.
GSA Awarded Labor Category Descriptions

**Labor Category:** Technical Instructor Level 2

**Functional Responsibility:** Technical Instructor shall be a subject matter expert in ammunition and explosives safety topics. They have capability of displaying this expertise and conveying it to others via course material, field instruction, or other methodologies. They shall be able to teach the utilization of the most effective and efficient techniques as defined by course objectives in instructional materials. Duties include the planning, synchronization, and execution of training courses, with an eye on specifying learning objectives and delivery methods. Individual provides expert technical and managerial guidance and direction for training course definition, analysis, requirements development and implementation.

**Education:** A four-year college Bachelors degree in Business, Engineering, or experience in a related field, is required.

**Experience:** A minimum of 15 years of specialized law enforcement and/or military experience is required, with professional background in explosives and ammunition safety. Must have a minimum 4 years of documented experience in military and/or civilian course development and training.

**Labor Category:** Technical Instructor Level 1

**Functional Responsibility:** Technical Instructor shall be a subject matter expert in ammunition and explosives safety topics. They have capability of displaying this expertise and conveying it to others via course material, field instruction, or other methodologies. They shall be able to teach the utilizing the most effective and efficient techniques as defined by course objectives in instructional materials. Duties include the planning, synchronization, and execution of training courses, with an eye on specifying learning objectives and delivery methods. Individual provides expert technical and managerial guidance and direction for training course definition, analysis, requirements development and implementation.

**Education:** A four-year college Bachelors degree in Business, Engineering, or experience in a related field, is required.

**Experience:** A minimum of 10 years of specialized law enforcement and/or military experience is required, with professional background in explosives and ammunition safety. Must have a minimum 4 years of documented experience in military and/or civilian course development and training.

**Labor Category:** Program Manager

**Functional Responsibility:** Provide program management to ensure program success. Provides effective and qualified management and leadership empowered to make timely decisions, engage company resources and to successfully resolve issues with the program customer. Ensure customer and mission support is responsive, efficient and transparent to customers and partners. Must ensure the following goals are achieved; single point of accountability for the contract, clear lines of communication with the client management, effective and efficient lines of responsibility and efficient use of resources. Provides the final
review of all educational products to ensure that the most up to date safety guidelines and practices are being referenced and taught.

**Education:** MS Engineering Management

**Experience:** A minimum of 15 years of specialized law enforcement and/or military experience is required.

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**Labor Category:** Project Manager

**Functional Responsibility:** The Project Manager serves as the primary interface and point of contact with the Program Manager on technical project issues. Ensures that all educational products are based on verified safety sources and best practices. Interfaces with the client to identify training requirements and provide recommendations to how best deliver the necessary training on ammunition and explosives safety topics. Supervises course operations by developing its systems, procedures, planning and execution. Identifies, acquires, and utilizes company resources to achieve project technical objectives as needed and establishes priorities, task assignment and completion for project. Responsible for monitoring and reporting progress, management of acquisition and employment of the program/project resources management and control of financial and administrative aspects of the project with respect to delivery order requirements. Ensures quality and productivity standards are maintained while meeting project/client deadlines and budget constraints.

**Education:** A four-year college Bachelors degree in Business, Engineering, or experience in a related field, is required.

**Experience:** A minimum of 10 years of specialized law enforcement and/or military experience is required, with professional background in explosives and ammunition safety.

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**Labor Category:** Training Course Developer

**Functional Responsibility:** The Training Course Developer maintains current course materials as well as modifies and improves them as required by instructors and trainees. They conduct training needs analysis, develop exercises and training scenarios as well as perform assessment of training materials. They make sure that all training objectives are accomplished, and issues are resolved.

**Education:** A four-year college Bachelors degree in Business, Engineering, or experience in a related field, is required.

**Experience:** At least 5 years of experience and specialized training in ammunition and explosive safety.

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**Labor Category:** Technical Writer

**Functional Responsibility:** Technical Writers consult with the technical instructors, Training Course Developer and program managers in obtaining the necessary raw data and information; they collect it and put it into a logical and readable format using computer programs. Technical writers create technical written
materials, such as manuals, appendices, instructions and catalogs. They also review published materials and recommend revisions or changes in scope, format, content, and methods of reproduction and binding and select photographs, drawings, sketches, diagrams, and charts to illustrate material. Observe production, developmental, and experimental activities to determine operating procedure and detail.

**Education:** A four-year college Bachelors degree plus a degree or certificate in technical writing is required.

**Experience:** Minimum of 10 years experience. In addition to formal education, knowledge of popular software programs used by technical writers is also essential.

**Labor Category:** Safety Specialist

**Functional Responsibility:** The Safety Specialists are specialized in all aspects in the management of ordnance (ammunition and explosives). Develops and conduct explosive safety training classes and coordinates actions to correct explosive safety related problems and documents corrective actions to prevent recurrence. They provide general support and recommendations regarding objectives, priorities, and approaches to improve explosive safety programs and accountability. Inspect facilities, equipment, and field operations to ensure technical instruction is in compliance with all applicable procedures.

**Education:** High school certification degree or equivalent. A degree or certificate in industrial or occupational safety is required.

**Experience:** Minimum of 5 years of experience in supply and ammunition procedures, or similar experience in ammunition and explosives safety is required.

**Labor Category:** Information Systems Specialist

**Functional Responsibility:** The Information Systems Specialist is responsible for supporting/administering training and registration database systems. They will ensure all course materials are produced and delivered in a timely and cost effective manner and coordinate usage among system users. They will also serve as primary point of contact for all online training and training registration capability. Additionally, they manage administrative staff scheduling to include but not limited to: standard work schedules, vacation requests/approval, overtime management and approval of expense reports.

**Education:** High school certification degree or equivalent. Training in Microsoft Office programs is required.

**Experience:** Minimum of 2 years of experience in office administration, or similar experience is required.
GSA Awarded Training Course Descriptions

Ammunition and Explosives Safety for Defense Contractors

1) Course Description:
This inclusive course is designed to provide students with an understanding of the technical safety standards, procedures, and safety practices required for all aspects of handling ammunition and explosives. By utilizing the DOD Contractors Safety Manual for Ammunition and Explosives (DOD 4145.26-M) as our baseline for the training and multiple instructors (industry specialists, government experts, and technical inspectors), we are able to cover a vast array of topics in detail. This course specifically addresses contractor operations and contractual safety requirements, and it includes specific, practical information that can help safety managers understand, interpret, and uniformly apply the contract safety requirements of the Contractors Safety Manual (DOD 4145.26-M). Additionally, this course tackles the peculiar manufacturing safety requirements associated with explosives operations.

Using a five-day format, the course focuses on the application of the requirements of the Contractors Safety Manual. Of special interest are the principles and application of quantity distance, explosive facility siting requirements, hazard classification, and storage and compatibility of explosives and ammunition. There is also a discussion on the basic chemistry of energetic materials tied into the presentation of manufacturing and processing pyrotechnics and propellants.

Course Content
Courses focuses on the application of the requirements of DOD 4145.26-M, DOD Contractors’ Safety Manual for Ammunition and Explosives
- Mishap Investigation and Reporting
- Safe Practice Standards
- Principles and Application of Q/D, Standard Explosives Facilities, and Siting Requirements
- Storage Compatibility System
- Hazard Classification and Q/D Criteria
- Liquid Propellants Standards
- Manufacturing and Processing Pyrotechnics
- Storage of Explosives and Ammunition
- Fire Protection
- Specific Chemicals
- Safety Standards for Explosive Materials, Facilities, and Operations
- Testing Standards

Course Designed in Association with the US Army Defense Ammunition Center (USADAC)

2) Length: Forty (40) hours; Five days – Monday thru Friday

3) Type of Course: Instructor led, classroom training

4) Prerequisites (if applicable): None

5) Minimum/Maximum Number of Students: Class size is typically 25-35 students

6) Class Schedule and Location(s): Visit www.tci-training.com for additional future dates and locations

7) Materials Necessary: Required training materials will be provided and is included in the training cost
Process Safety Management (PSM) Principles for Explosive Operations (1 Day)

1) **Course Description:**
   This course is offered in partnership with Safety Management Systems, Inc. and addresses the unique aspects of the propellant, explosives, and pyrotechnic (PEP) materials as they relate to OSHA 29 CFR 1910.119 "Process Safety Management." The course begins with a review of the heritage of the PEP industry and the fundamental principles of explosive safety. These principles are emphasized throughout the presentation and discussion of the elements of the PSM regulation. This course will provide managers, engineers, safety professionals, and others involved PSM compliance efforts with an understanding of the practices and procedures that should be implemented to provide safe operations and compliance with 29 CFR 1910.119. Emphasis will be given to the benefits of implementing explosives safety protocol in conjunction with a PSM system (e.g., improved safety, enhanced product quality, cost avoidance, etc.)

   **Course Content**
   - Explosives Manufacturing Heritage
   - PSM Background
   - Brief overview of inter-relationships of OSHA PSM, EPA RMP, ISO 9000, & ISO 14000
   - PSM elements (with explosives safety perspective)
     - Employee Participation
     - Process Safety Information
     - Process Hazard Analysis
     - Management of Change & "Replacement in Kind"
     - Mechanical Integrity
     - Operating procedures
     - Training
     - Contractors
     - Hot Work Permit
     - Incident Investigation
     - Emergency Planning and Response
     - PSM Audits
     - Pre-startup Safety Reviews
   - Documentation Requirements for PSM
   - OSHA PSM Interpretations

2) **Length:** 8 hours, One day

3) **Type of Course:** Instructor led, classroom training

4) **Prerequisites (if applicable):** None

5) **Minimum/Maximum Number of Students:** Class size is typically 15-25 students

6) **Class Schedule and Location(s):** Visit [www.tci-training.com](http://www.tci-training.com) for additional future dates and locations; TBD.

7) **Materials Necessary:** Required training materials will be provided and is included in the training cost
**DOT, ATF, and In-Process Classification Testing (1 Day)**

1) **Course Description:**
This course is offered in partnership with Safety Management Systems, Inc. and presents the testing protocol associated with classifying propellant, explosives, and pyrotechnics (PEP) for transportation, storage, and facility siting. The course discusses similarities and differences in testing philosophy between the three classification types and provides a basis for understanding of which tests appropriately address the related classification issues. Standard test methods and appropriate interpretation of test results will be reviewed. The approach for development and performance of in-process simulation testing required for facility siting will also be outlined and discussed. The course will then focus on how to apply the various test results to obtaining DOT approval for transportation, ATF approval for storage, or local jurisdiction approval of facility siting. Considerable time will be spent discussing how proper classification of materials and articles can be used to facilitate the right decisions regarding personnel protection, facility/equipment design, and facility siting. This course will prove invaluable for personnel (e.g., management, program managers, project engineers, facility engineers, safety engineers, safety professionals, others) involved in obtaining material/article classifications. At the conclusion of this course the participants will have an understanding of the applicable regulations, the philosophy of classification testing, how to properly apply classification test results to protect personnel and company assets, and the protocol required to obtain approval from the various agencies/jurisdictions.

**Course Content**
- The philosophy of classification testing
- Overview of applicable DOT, ATF, and Building/Fire Codes
- Classification test methods and procedures
  - Sensitivity testing
  - Reactivity testing
- Selection of appropriate tests
  - Standard
  - In-process simulation
- The role of process hazards analysis in specifying in-process test parameters
- Steps to obtain DOT and ATF classification of material/articles
- Facility Siting and Permit approval
  - Quantity Distance
    - Attended vs. unattended operations
    - Inhabited buildings
    - Magazines requirements
  - Engineer controls
    - Barricades
    - Work Station Shielding
  - Code compliance
  - Permit application process

2) **Length:** 8 Hours, One Day

3) **Type of Course:** Instructor Led, Classroom Training

4) **Prerequisites (if applicable):** None

5) **Minimum/Maximum Number of Students:** Class size is typically 15-25 students

6) **Class Schedule and Location(s):** Visit [www.tci-training.com](http://www.tci-training.com) for additional future dates and locations.

7) **Materials Necessary:** Required training materials will be provided and is included in the training cost
Training Course Descriptions

Process Hazards Analysis (PHA) Training for Team Leaders (2 Days)

1) **Course Description:**
This two-day course is offered in partnership with Safety Management Systems, Inc. and consists of a combination of lecture and practical workshop exercises to allow participants to become familiar with the PSM requirements related to PHAs, selection of the appropriate PHA methodology(s), and how to effectively lead a PHA team. The unique aspects of propellant, explosives, and pyrotechnic (PEP) manufacturing/processing will be emphasized as PHA methodologies are discussed throughout the course. Participants will learn to organize and lead hazard analysis studies using the various PHA techniques. The course will address the tactics and success factors that help ensure a successful study. Participants will work in groups to apply PHA methodologies to example energetic material processes. Instructors will work closely with the participants throughout this session/workshop to ensure that key principles are understood. By applying the PHA methodologies to practical example processes, the participants will internalize the principles learned and gain added insight to the value of performing proper PHAs at their facilities.

**Course Content**
- Regulatory PHA Requirements
- Preparing and Organizing PHA Studies
- Subdividing the Process for Study
- Determining appropriate PHA methodology
- Leadership Skills for Managing the Team
- Applying Qualitative & Quantitative PHA Methodologies
- Design Intent, Parameters and Deviations
- Human Factors
- Material Characterization Test Data
- How to document a PHA study
- PHA Report Preparation & Approval process
- Managing the Follow-up of PHA Results

Course Designed in Association with the US Army Defense Ammunition Center (USADAC)

2) **Length:**
16 Hours, Two Days

3) **Type of Course:**
Instructor Led, Classroom Training

4) **Prerequisites (if applicable):**
None

5) **Minimum/Maximum Number of Students:**
Class size is typically 15-25 students

6) **Class Schedule and Location(s):**
Visit [www.tci-training.com](http://www.tci-training.com) for additional future dates and locations

7) **Materials Necessary:**
Required training materials will be provided and is included in the training cost
Process Safety Management/Process Hazards Analysis Training

1) Course Description
   Course offered in partnership with Safety Management Systems, Inc.

   Process Safety Management (PSM) Principles for Explosive Operations (1 Day)
   This course addresses the unique aspects of the propellant, explosives, and pyrotechnic (PEP) materials as they relate to OSHA 29 CFR 1910.119 "Process Safety Management." The course begins with a review of the heritage of the PEP industry and the fundamental principles of explosive safety. These principles are emphasized throughout the presentation and discussion of the elements of the PSM regulation. This course will provide managers, engineers, safety professionals, and others involved PSM compliance efforts with an understanding of the practices and procedures that should be implemented to provide safe operations and compliance with 29 CFR 1910.119. Emphasis will be given to the benefits of implementing explosives safety protocol in conjunction with a PSM system (e.g., improved safety, enhanced product quality, cost avoidance, etc.)

   DOT, ATF and In-Process Classification Testing (1 Day)
   This course presents the testing protocol associated with classifying propellant, explosives, and pyrotechnics (PEP) for transportation, storage, and facility siting. The course discusses similarities and differences in testing philosophy between the three classification types and provides a basis for understanding of which tests appropriately address the related classification issues. Standard test methods and appropriate interpretation of test results will be reviewed. The approach for development and performance of in-process simulation testing required for facility siting will also be outlined and discussed. The course will then focus on how to apply the various test results to obtaining DOT approval for transportation, ATF approval for storage, or local jurisdiction approval of facility siting. Considerable time will be spent discussing how proper classification of materials and articles can be used to facilitate the right decisions regarding personnel protection, facility/equipment design, and facility siting.

   Process Hazards Analysis (PHA) Training for Team Leaders (2 Days)
   This course will prove invaluable for personnel (e.g., management, program managers, project engineers, facility engineers, safety engineers, safety professionals, others) involved in obtaining material/article classifications. At the conclusion of this course the participants will have an understanding of the applicable regulations, the philosophy of classification testing, how to properly apply classification test results to protect personnel and company assets, and the protocol required to obtain approval from the various agencies/jurisdictions. This two-day course consists of a combination of lecture and practical workshop exercises to allow participants to become familiar with the PSM requirements related to PHAs, selection of the appropriate PHA methodology(s), and how to effectively lead a PHA team. The unique aspects of propellant, explosives, and pyrotechnic (PEP) manufacturing/processing will be emphasized as PHA methodologies are discussed throughout the course. Participants will learn to organize and lead hazard analysis studies using the various PHA techniques. The course will address the tactics and success factors that help ensure a successful study. Participants will work in groups to apply PHA methodologies to example energetic material processes. Instructors will work closely with the participants throughout this session/workshop to ensure that key principles are understood. By applying the PHA methodologies to practical example processes, the participants will internalize the principles learned and gain added insight to the value of performing proper PHAs at their facilities.

2) Length: 32 hours, four days
3) Type of Course: Instructor led, Classroom Training
4) Prerequisites (if applicable): None
5) Minimum/Maximum Number of Students: Class size is typically 15-25 students
6) Class Schedule and Location: Visit www.tci-training.com for additional future dates and locations
7) Materials Necessary: Required training materials will be provided and is included in the training cost
Basic Explosives Safety for Production Operations (1 Day)

1) Course Description:
   This 8-hour introductory course is designed to provide a basic understanding of the unique characteristics and hazards of explosives. With a target audience that includes both technical and non-technical personnel, the training highlights safe practices for working on or around explosives. Course content will introduce the characteristics of different classes of ammunition and explosives, safety handling procedures and basic concepts of operational explosives safety.

   Course Content
   • Explosive Safety Definitions
   • Hazard Classification
   • Introduction to Quantity Distance
   • Process Safety Management
   • Safe Practices
     o Standard Operation Procedures (SOPs)
     o Housekeeping
     o Personal Protective Clothing
     o Electrostatic Discharge (ESD) and ESD Control
   • Ammunition & Explosive (AE) Storage
   • Safety Requirements for Explosives (AE) Facilities
   • Basic Safety Requirements for AE Operations

   Includes course material for up to 40 participants and travel (includes flight, transportation, hotel and meals) for TCI instructor (CONUS).

2) Length: Eight (8) Hours, One Day
3) Type of Course: Instructor led, Classroom Training
4) Prerequisites (if applicable): None
5) Minimum/Maximum Number of Students: Class size is typically 10-40 students
6) Class Schedule and Location: As requested by customers
7) Materials Necessary: Required training materials will be provided and is included in the training cost
General Explosives Safety for Production Operations

1) Course Description:

This 16-hour, two-day training is targeted for the engineering and management level of an ammunition and explosives (AE) production operation. The goal is to provide a background and understanding of the unique risks and requirements associated with designing and managing an AE production line. The General Explosives Safety for Production Operations course covers four major topic areas regarding explosives safety:

- Characteristics of ammunition and explosives - introduces basic terminology associated with explosives, propellants, and ammunition items
- Hazard Classification - covers how hazard classes, divisions, and compatibility groups are used to enhance the safety of ammunition items during storage and transportation
- Introduction to Quantity Distance - discusses the basic terms and principles of quantity distance, categories of QD protection, and regulatory guidance
- Operational Safety - covers general safety practices such as fire prevention measures, maintenance and waste collection, facilities requirements, storage principles, standard operating procedures, and hazard analysis.

Course Content

- Explosive Safety Definitions
- Hazard Classification
- Introduction to Quantity Distance
- Process Safety Management
- Safe Practices
  - Standard Operation Procedures (SOPs)
  - Housekeeping
  - Personal Protective Clothing
  - Electrostatic Discharge (ESD) and ESD Control
- Ammunition & Explosive Storage
- Safety Requirements for Explosives (AE) Facilities
- Fire Protection
- Waste collection and disposition

Includes course material for up to 40 participants and travel (includes flight, transportation, hotel and meals) for TCI instructor (CONUS).

2) Length: Sixteen (16) hours, Two days

3) Type of Course: Instructor Led, Classroom Training

4) Prerequisites (if applicable): None

5) Minimum/Maximum Number of Students: Class size is typically 20-40 students

6) Class Schedule and Location(s): As requested by the client

7) Materials Necessary: Required training materials will be provided and is included in the training cost
Advanced Explosives Site Plan Training

1) Course Description:
This course uses lecture, discussion, and workshops to provide an in-depth knowledge of explosives site plans (ESPs). Students will be immersed in explosives safety quantity distance (ESQD) tables, criteria, and calculations used in DOD 4145.26M to perform in-depth evaluations of ESP scenarios based on real world examples and prepare required site plan documentation. The course will review mitigation strategies used to reduce risk and address regulatory compliance issues. Students will also learn how to apply maximum credible event (MCE) analysis results and integrate various analyses into ESP documentation to promote understanding for a smooth approval process.

Course Content:
- Review key explosives safety principles applicable to ESPs
  - Note: Course prerequisite is a fundamental understanding of DOD ESPs
- ESQD Application Workshops
  - Explosion Effects and Expected Consequences
  - HD 1.4 Storage and Operating Facilities
  - HD 1.3 Basic Storage Facility
  - HD 1.3 Operating Facility
- ESQD Application Workshops
  - HD 1.1 Storage Facility
  - HD 1.1 Operating Facility
- Developing the ESP components
  - Required components
  - Level of detail
  - QD worksheet workshop
  - Narrative workshop
- Review HD 1.1 Operating Facility Workshop
  - Complete elements of workshop (if required)
  - Review objectives and lessons learned
- Facility Siting and Design in the Real World
- Regulatory agency review and approval process
- Advanced ESQD Application Workshops
  - HD 1.1 Storage Facility
  - HD 1.2 AE Facilities
  - HD 1.1 and HD 1.3 Operating Facility
- Advanced ESQD Application Workshops
  - HD 1.1 Operating Facility
  - ESP tips and traps
  - ESQD Mitigation Strategies
  - Open Discussion

2) Length: Thirty-two (32) hours, Four days

3) Type of Course: Instructor Led, Classroom Training

4) Prerequisites (if applicable): None

5) Minimum/Maximum Number of Students: Class size is typically 24-35 students

6) Class Schedule and Location(s): As requested by the client

7) Materials Necessary: Required training materials will be provided and is included in the training cost
Explosives Shipping Classification DOT Ex-Number Training and Workshop

1) **Course Description:**
An exciting and insightful look into the hazards classification process for Class 1 materials.

**Course Content:**
Day 1 & 2: Hazards Classification Procedures
- Identify the hazards presented by Class 1 materials in transportation
- Select the tests required to properly classify the hazards of Class 1 materials for transportation
- Discover the purpose of each test, along with key parameters/objectives and indicators for assessing test results

Day 3: Hazards Classification Testing Workshop at SMS’s Test Site (Toole Army Depot)
- Gain invaluable classroom and hands-on experience with each test’s setup and representative pass/fail results at SMS’s Test Site (Tooele Army Depot)

Day 4 & 5: Using Your Approval in a Hazardous Material Shipment
- Overview of the governing regulation: 49 CFR Subchapter C Hazardous Regulations (HMR)
- Learn about the various Approvals (EX numbers, Special Permits, and Competent Authority letters) and the hazardous materials' shipment process.

2) **Length:**
Forty (40) hours, Five days

3) **Type of Course:**
Instructor Led, Classroom Training

4) **Prerequisites (if applicable):**
None

5) **Minimum/Maximum Number of Students:**
Class size is typically 24-35 students

6) **Class Schedule and Location(s):**
As requested by the client

7) **Materials Necessary:**
Required training materials will be provided and is included in the training cost
Chemistry of Pyrotechnics: Basic Course

1) Course Description:
The Chemistry of Pyrotechnics Basic Course is a week-long course designed to provide students with a firm understanding of the basic principles of pyrotechnics, propellants and explosives. These principles are presented from a chemistry perspective and will be understood by both students with a small amount of chemistry background and those more deeply involved with energetic chemistry. The course is intended to be of interest to persons engaged in the design, manufacture, management, identification, regulation, analysis, disposal, and use of all types of energetic compositions. All three areas: pyrotechnics, propellants, and explosives will be discussed in detail highlighting their similarities as well as their differences. Each day, the principles discussed in the lectures will be demonstrated in the laboratory. At the end of the week, students will be given the opportunity to mix and test very limited amounts of pyrotechnic compositions. Both the chemicals and the hands-on instructional materials will be provided. Additionally, a copy of "Chemistry of Pyrotechnics - Basic Principles and Theory", by Dr. John A. Conkling and Mr. Christopher Mocella, will be provided for each student.

Course content:
The course will loosely follow the second edition of "Chemistry of Pyrotechnics - Basic principles and theory", by Dr. John A. Conkling and Mr. Christopher Mocella. Mr. Ed Bender of Oklahoma State University's Center for Fire & Explosives, Forensic Investigations, Training & Research (CENFEX) will provide the majority of the lectures throughout the week, with specific segments presented by the co-instructors. Mr. Ed Bender will conduct daily laboratory demonstrations assisted by CENFEX Director Mr. John Frucci.

Highlights from the course include:

- A review of the basic chemical and pyrotechnic principles
- Components of energetic mixtures
- Ignition, propagation, and sensitivity of pyrotechnic compositions
- Systems and compositions for heat, light, color, smoke production, propulsion, and explosive effects

2) Length: Thirty-two (32) hours, Four days
3) Type of Course: Instructor Led, Classroom Training
4) Prerequisites (if applicable): None
5) Minimum/Maximum Number of Students: Class size is typically 18-28 students
6) Class Schedule and Location(s): As requested by the client
7) Materials Necessary: Required training materials will be provided and is included in the training cost
Chemistry of Pyrotechnics II: Intermediate Course

1) Course Description:
The Chemistry of Pyrotechnics II - Intermediate Course is a four-day course designed to provide working professionals who desire to continue their education the opportunity to examine fundamental concepts applied to the manufacturing of explosive substances and articles (ESA). A background in chemistry is helpful but not mandatory as the course is designed for persons engaged in development, manufacture, management, distribution, regulation, analysis, disposal, and use of ESA. Pyrotechnic, explosive and propellant substances and articles will be discussed and demonstrated in the Advanced Explosives Processing Research Group (AXPRO) indoor and outdoor laboratory facilities. Hands on opportunities will be provided for students with interest.

Course Content:
The course will use the second edition of "Chemistry of Pyrotechnics - Basic principles and theory", by Dr. John A. Conkling and Mr. Christopher Mocella, and, the third edition of "The Chemistry of Explosives", by Dr. Jacqueline Akhavan. Dr. Vilem Petr, Technical Director of the Colorado School of Mines Advanced Explosives Processing Research Group will coordinate the course and demonstrations with support from Dr. Jackson Shaver and other faculty members and guest lecturers.

Highlights from the course include:
• Advanced discussion of pyrotechnic, explosive and propellant principles and practices
• Process safety and quality assurance concepts for energetic materials
• Research and tools to predict and measure energetic effects
• Management of explosive substances and articles

2) Length: Forty (40) hours, Five days

3) Type of Course: Instructor Led, Classroom Training

4) Prerequisites (if applicable): None

5) Minimum/Maximum Number of Students: Class size is typically 20-40 students

6) Class Schedule and Location(s): As requested by the client

7) Materials Necessary: Required training materials will be provided and is included in the training cost
## Labor Categories and Training Courses

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<th>SIN</th>
<th>Labor Category</th>
<th>GSA Price w/IFF</th>
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<td>Technical Instructor Level 2</td>
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<td>Process Safety Management (PSM) Principles for Explosive Operations</td>
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<td>DOT, ATF, and In-Process Classification Testing</td>
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<td>Process Hazard Analysis (PHA) for Team Leaders</td>
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<td>Process Safety Management / Process Hazard Analysis Training</td>
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