COMPARISON BETWEEN DOE STD 1212 REVISION 0 AND REVISION 7 AS APPROVED BY THE DOE EXPLOSIVES SAFETY COMMITTEE

NOTE	DRIVER/LOCATION	1212	Rev 7	Comments
1	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014. (Chapter I-2.0.b Note)	NOTE: To assist in the transition of DOE Manual 440.1-1A, DOE Explosives Manual into a Technical Standard, the Manual's content describing the Explosives Safety Committee organizations and functions has been included in Appendix B of this document.	NOTE: To assist in the transition of DOE Manual 440.1-1A, DOE Explosives Safety Manual into a Technical Standard, the Manual's content describing the Explosives Safety Committee organizations and functions has been included in Appendix B of this document.	Errata: Corrected title of Standard in Note.
2	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014. (Chapter I-8.0 Definitions)	NON-FACILITY PERSONNEL. Construction or maintenance personnel who do not have a continuing contract with DOE or NNSA or their agents at the facility/ site concerned where construction or maintenance activities occur.	NON-FACILITY PERSONNEL. Construction or maintenance personnel who do not have a continuing contract with DOE or NNSA or their agents at the facility/site concerned where construction or maintenance activities occur.	Errata: Removed extra space.
3	Change 15-07 approved at the 70th DOE ESC on May 21, 2015. (Chapter I-8.0 Definitions)	N/A	ANNUAL INVENTORY or ANNUAL INSPECTION (or inventory or inspection performed annually). An inventory or inspection performed on the one year anniversary of the last inventory or inspection plus or minus 30 days.	Change provides a specific definition to provide clarity where the term 'Annual Inventory' or 'Annual Inspection' is used.
4	Change 14-07 approved at the 69th DOE ESC Meeting on November 20, 2014. (Chapter I-8.0 Definitions)	SITE PLAN. A formal explosives facility and operations safety document to be prepared by Facility Management for DOE/NNSA approval of explosives facilities siting and operations before the operation starts. This document becomes a part of the authorization basis for explosives facility operations.	SITE PLAN. A formal package of explosives facility and operations safety documents to be prepared by Facility Management for DOE/NNSA approval of explosives facilities siting and operations before the operation starts. This package becomes part of the authorization basis for explosives facility operations.	Change clarifies that a Site Plan is a package of documents rather than a single document.

COMPARISON BETWEEN DOE STD 1212 REVISION 0 AND REVISION 7 AS APPROVED BY THE DOE EXPLOSIVES SAFETY COMMITTEE

NOTE	DRIVER/LOCATION	1212	Rev 7	Comments
5	Change 15-02A approved at the 70th DOE ESC Addendum on October 14, 2015 (Chapter I-8.0 Definitions)	N/A	ENERGIZED. A circuit is energized when any part of it is connected to an electrical energy source.	Change provides a specific definition to provide clarity where the term 'Energized' is used.
6	Change 15-02Aapproved at the 70th DOE ESC Addendum on October 14, 2015(Chapter I-8.0 Definitions)	N/A	FIRING CIRCUIT. A firing circuit is a component of a Firing Control Circuit. It is intended to transmit energy to an electro-explosive device (EED) to reliably initiate it. A firing circuit usually includes the final energy storage device and the last switch that releases energy to the EED.	Change provides a specific definition to provide clarity where the term 'Firing Circuit' is used.
7	Change 15-02A approved at the 70th DOE ESC Addendum on October 14, 2015 (Chapter I-8.0 Definitions)	N/A	FIRING CONTROL CIRCUIT. An electrical circuit designed to reliably initiate electro-explosive devices (EEDs) while preventing unintentional initiations. The firing control circuit includes everything electrically associated with the circuit providing energy to the EED being initiated, (e.g. the firing circuit, safety interlocks, diagnostic interfaces, controls and switches, power supplies, transmitters, receivers, etc.).	Change provides a specific definition to provide clarity where the term 'Firing Control Circuit' is used.

COMPARISON BETWEEN DOE STD 1212 REVISION 0 AND REVISION 7 AS APPROVED BY THE DOE EXPLOSIVES SAFETY COMMITTEE

NOTE	DRIVER/LOCATION	1212	Rev 7	Comments
8	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014. (Chapter II-1.7.a) And Change 14-13 approved at the 69th DOE ESC Meeting on November 20, 2014. (Chapter II-1.7.a) And Change 14-01 approved at the 69th DOE ESC Meeting on November 20, 2014. (Chapter II-1.7.a) And Change 15-01 approved at the 69th DOE ESC Addendum on February 20, 2015. (Chapter II-1.7.a)	Process Hazard Analysis a. Before beginning any explosives synthesis, formulation, manufacturing, testing, or disposal operation, a primary hazard analysis shall be performed. A single process hazard analysis may be performed for similar processes performed in a single facility, provided that the “worst-case” process is the basis for the hazard analysis. If required, a shield or other protective measure shall be employed. Selection criteria for the worst-case process are:	Hazard Analysis a. Before beginning any explosives synthesis, formulation, manufacturing, testing, or disposal operation, a hazard analysis shall be performed. A single hazard analysis may be performed for similar processes performed in a single facility, provided that the “worst-case” process is the basis for the hazard analysis. When a new process is considered for inclusion under an existing hazard analysis, each step of the new process shall be evaluated to determine if it is within the scope of the existing hazard analysis, and to identify any hazards not addressed in the existing hazard analysis. Any new hazards must be addressed in a supporting hazard analysis which then becomes part of the original hazard analysis. Selection criteria for the worst-case process are:	Changes accomplish the following: Removes the term "primary" and "process" from hazard analysis to eliminate ambiguities with other disciplines. Clarifies requirement for new processes being considered under an existing hazard analysis. Removes the out of context sentence "If required, a shield or other protective measure shall be employed."

COMPARISON BETWEEN DOE STD 1212 REVISION 0 AND REVISION 7 AS APPROVED BY THE DOE EXPLOSIVES SAFETY COMMITTEE

NOTE	DRIVER/LOCATION	1212	Rev 7	Comments
9	Change 14-11 approved at the 69th DOE ESC Meeting on November 20, 2014.(Chapter II-1.7.b)	The process hazard analysis shall be performed as a team effort. The team shall consist of a minimum of three personnel, and preferably no more than seven personnel. The team shall include at least one engineer and one operator, and should have the following makeup:1. Team Leader, who is familiar with the analysis methodology used.2. Technical Member(s), who is familiar with the process being analyzed.3. Scribe, who writes notes of meetings and interviews and drafts reports.	The hazard analysis shall be performed as a team effort. The team shall consist of a minimum of three personnel. The team shall include at least one technical member and one operator. The following makeup is recommended:1. Team Leader, who is familiar with the analysis methodology used.2. Technical Member(s), who is familiar with the process being analyzed. A technical member is an individual who has expertise in a particular technical discipline (e.g. engineering, chemistry, physics, and safety).3. Scribe, who writes notes of meetings and interviews and drafts reports.4. Operator. An operator is a worker who actually performs the work being analyzed.5. Explosives Safety Subject Matter Expert.	Change updates the hazard analysis team advisory requirements to recommendations, better defines technical member requirements and operator requirements, and adds an Explosives Safety Subject Matter Expert.
10	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014. (Chapter II-1.7.c.8)	The facility manager or team leader may select the analysis methodology used, which should be one of the following: 1. Checklist (usually for similar batch operations). 2. What-if Analysis. 3. Hazard and Operability Study (HAZOP). 4. Failure Modes, Effects, and Criticality Analysis (FMECA). 5. Fault Tree Analysis. 6. Event Tree Analysis. 7. Documented Safety Analysis (DOE STD 3009, Preparation Guide for U.S Department of Energy Nonreactor Nuclear Facility Documented Safety Analyses).	The facility manager or team leader may select the analysis methodology used, which should be one of the following: 1. Checklist (usually for similar batch operations) 2. What-if Analysis. 3. Hazard and Operability Study (HAZOP). 4. Failure Modes, Effects, and Criticality Analysis (FMECA). 5. Fault Tree Analysis. 6. Event Tree Analysis. 7. Documented Safety Analysis (DOE STD 3009, Preparation Guide for U.S Department of Energy Nonreactor Nuclear Facility Documented Safety Analyses). 8. Preliminary Hazard Analysis.	Errata: Restores "Preliminary Hazard Analysis" to analysis methodology advisory requirement. It was inadvertently omitted during the transition from DOE M 440.1-1A to DOE STD 1212-2012.

COMPARISON BETWEEN DOE STD 1212 REVISION 0 AND REVISION 7 AS APPROVED BY THE DOE EXPLOSIVES SAFETY COMMITTEE

NOTE	DRIVER/LOCATION	1212	Rev 7	Comments
11	Change 15-01 approved at the 69th DOE ESC Addendum on February 20, 2015. (Chapter II-1.7.i)	N/A	Facility Management shall ensure that all applicable controls derived from the hazard analysis are implemented through approved operating procedures as required by Chapter VII. Operating procedures that were not prepared using the current hazard analysis will be evaluated to ensure that all applicable controls derived from the hazard analysis are implemented prior to the procedure being approved for use.	Change adds this mandatory requirement in response to a request from the NNSA CTA to provide clarity and remove ambiguity from hazard analysis and approved procedure requirements. The NNSA CTA request is associated with the results of the investigation of the December 2013 Sandia Firing Site Accident.
12	Change 12-08 approved at the 68th DOE ESC Meeting on February 13, 2014.(Chapter II-2.1.g)	Safety analyses of explosives facilities and operations shall be performed. The safety analysis shall be performed during the design of new explosives facilities or the redesign of existing facilities. Facility management shall prepare and obtain DOE/NNSA approval of the Site Plan. The Site Plan shall include the result of this analysis.	Safety analyses of explosives operations shall be performed.	Change removes ambiguities and clarifies mandatory requirement to perform safety analysis. Facility Safety Analysis is covered by the Site Plan requirements already specified throughout Chapter VI.
13	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014. (Chapter II-7.6.c)	Each electrode shall weigh 5.07 lbs (2.3 kg) and shall have a dry, flat, circular contact area 2.56 in (6.5 cm) in diameter, which shall comprise a surface of aluminum or tinfoil .05118 to .0984 in (1.3 to 2.5 mm) thick, backed by a layer of rubber .2362 to .2559 in (.6 to .65 cm) thick and measuring between 40 and 60 durometer hardness as determined with a Shore Type A durometer (ASTM D-2240-68).	Each electrode shall weigh 5.07 lbs (2.3 kg) and shall have a dry, flat, circular contact area 2.56 in (6.5 cm) in diameter, which shall comprise a surface of aluminum or tinfoil 0.05118 to 0.0984 in (1.3 to 2.5 mm) thick, backed by a layer of rubber 0.2362 to 0.2559 in (0.6 to 0.65 cm) thick and measuring between 40 and 60 durometer hardness as determined with a Shore Type A durometer (ASTM D-2240-68).	Errata: Restores zeros before numbers that follow a decimal.

COMPARISON BETWEEN DOE STD 1212 REVISION 0 AND REVISION 7 AS APPROVED BY THE DOE EXPLOSIVES SAFETY COMMITTEE

NOTE	DRIVER/LOCATION	1212	Rev 7	Comments
14	Change 14-04 approved at the 69th DOE ESC Meeting on November 20, 2014. (Chapter II-8.1.d.4)	Class II, Division 2 wiring, fixtures, process equipment, and instrumentation are recommended for explosives operations capable of producing explosives dust that can accumulate on electrical equipment or apparatus. Examples are; inspection of explosives powders, wet machining of explosives, and heating of fully encased explosives. Class II, Division 1 or dual-rated equipment and wiring can be substituted. Permanent wiring and equipment in storage and assembly locations should also be rated for Class II per section 8.4.b.2 of this chapter.	Class II, Division 2 wiring, fixtures, process equipment, and instrumentation are recommended for explosives operations capable of producing explosives dust that can accumulate on electrical equipment or apparatus. Examples are; inspection of explosives powders, wet machining of explosives, and heating of fully encased explosives. Class II, Division 1 or dual-rated equipment and wiring can be substituted.	Change removes a redundancy which refers to an existing requirement.
15	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014. (Chapter II-8.1.d.6)	(c) Due to the potential for unacceptable consequences concerning operations with nuclear explosives, subassemblies, or components, they shall be evaluated in accordance with section 8.0 of this chapter to determine the appropriate electrical hazard classification.	6. Due to the potential for unacceptable consequences concerning operations with nuclear explosives, subassemblies, or components, they shall be evaluated in accordance with section 8.0 of this chapter to determine the appropriate electrical hazard classification.	Errata: Corrects numeration error.
16	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014.(Chapter II-8.1.d.7)	(d) Facility management shall evaluate, by using the principles given above, all explosives operations not specified elsewhere in this section to determine the appropriate electrical classification. The analysis shall be documented.	7. Facility management shall evaluate, by using the principles given above, all explosives operations not specified elsewhere in this section to determine the appropriate electrical classification. The analysis shall be documented.	Errata: Corrects numeration error.
17	Change 14-09 approved at the 69th DOE ESC Meeting on November 20, 2014. (Chapter II-8.8.c)	Hand-held, battery-operated equipment shall not come in direct or indirect contact with bare explosives. Batteries shall not be removed or replaced in hazard rated areas (section 8.1 of this chapter).	Hand-held, battery-operated equipment shall not come in direct or indirect contact with bare explosives, <u>unless they are evaluated and approved by facility management prior to use</u>. Batteries shall not be removed or replaced in hazard rated areas (section 8.1 of this chapter).	Change allows hand-held, battery operated equipment to come in direct or indirect contact with bare explosives if the equipment has been evaluated and approved by facility management prior to use. Example in proposal was a very low voltage caliper with an LED display.

COMPARISON BETWEEN DOE STD 1212 REVISION 0 AND REVISION 7 AS APPROVED BY THE DOE EXPLOSIVES SAFETY COMMITTEE

NOTE	DRIVER/LOCATION	1212	Rev 7	Comments
18	Change 12-04 approved at the 67th DOE ESC Meeting on October 25, 2012. (Chapter II-12.1.2.a)	Heat should be supplied by steam, hot water, friction air, or electrically heated transfer fluid. Redundant, automatic heat controls shall limit temperatures.	Heat should be supplied by steam, hot water, friction air, electrically heated transfer fluid, or electrical resistance elements. Redundant, automatic heat controls shall limit temperatures. Explosives heated using electrical resistance elements shall be separated from electrical resistance elements to avoid any possible contact.	Change clarifies that the authorized types of heating ovens include those that are designed with electrical resistance elements when those elements are separated from explosives to avoid any possible contact.
19	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014. (Chapter II-12.1.3.c)	Small samples may be dried by placement in desiccators or by subjecting them to vacuum. Vacuum drying of larger items should be preceded by drying at atmospheric pressure to remove quantities of moisture or solvent before vacuum is applied to remove the final traces of moisture or solvent. Explosives having a vapor pressure exceeding .013 Pa (1 x 10-4 mm Hg) at the drying temperature shall not be subjected to vacuum drying. A cold trap shall be used for vacuum drying where the vapor pressure of the explosives is unknown.	Small samples may be dried by placement in desiccators or by subjecting them to vacuum. Vacuum drying of larger items should be preceded by drying at atmospheric pressure to remove quantities of moisture or solvent before vacuum is applied to remove the final traces of moisture or solvent. Explosives having a vapor pressure exceeding 0.013 Pa (1 x 10-4 mm Hg) at the drying temperature shall not be subjected to vacuum drying. A cold trap shall be used for vacuum drying where the vapor pressure of the explosives is unknown.	Errata: Restores zeros before numbers that follow a decimal.
20	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014. (Chapter II-12.4.2.c.1)	Drilling of holes smaller than 1.968 in (5 cm) in diameter, except for IHE, where drilling of holes smaller than .1968 in (5 mm) shall be done remotely.	Drilling of holes smaller than 1.968 in (5 cm) in diameter, except for IHE, where drilling of holes smaller than 0.1968 in (5 mm) shall be done remotely.	Errata: Restores zeros before numbers that follow a decimal.

COMPARISON BETWEEN DOE STD 1212 REVISION 0 AND REVISION 7 AS APPROVED BY THE DOE EXPLOSIVES SAFETY COMMITTEE

NOTE	DRIVER/LOCATION	1212	Rev 7	Comments
21	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014.(Chapter II-12.4.2.e)	IHE, PBX 9404, and LX-10 may be contact machined by high-pressure fluid jet. The fluid jet system pressure shall not exceed 20,000 psig (137,895 kPa). The velocity of the fluid jet shall not exceed 1706 ft/sec (520 m/sec) (theoretical). The jet nozzle orifice diameter shall not exceed .01 in (.0254 cm). The system machining fluid shall be water and shall not contain any abrasives. See section 12.15 of this section for use of low-pressure fluids.	IHE, PBX 9404, and LX-10 may be contact machined by high-pressure fluid jet. The fluid jet system pressure shall not exceed 20,000 psig (137,895 kPa). The velocity of the fluid jet shall not exceed 1706 ft/sec (520 m/sec) (theoretical). The jet nozzle orifice diameter shall not exceed 0.01 in (.0254 cm). The system machining fluid shall be water and shall not contain any abrasives. See section 12.15 of this section for use of low-pressure fluids.	Errata: Restores zeros before numbers that follow a decimal.
22	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014. (Chapter II-12.4.4.a.3)	The feed rate of the cutting tool or work piece shall not exceed .03937 in (1 mm) per revolution.	The feed rate of the cutting tool or work piece shall not exceed 0.03937 in (1 mm) per revolution.	Errata: Restores zeros before numbers that follow a decimal.
23	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014. (Chapter II-12.4.5.a.2)	The fluting length on the drill bit shall exceed the depth of the hole to be drilled by a minimum of .512 in (1.3 cm) or one hole diameter, whichever is greater.	The fluting length on the drill bit shall exceed the depth of the hole to be drilled by a minimum of 0.512 in (1.3 cm) or one hole diameter, whichever is greater.	Errata: Restores zeros before numbers that follow a decimal.
24	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014. (Chapter II-12.4.5.a.3)	The depth of a hole shall not be extended more than 1.5 times the hole diameter (up to a maximum of .787 in (2 cm)) during a single insertion of the drill into the material. After each insertion, it may be advisable to withdraw the drill completely and remove loose explosives from the cavity and drill bit before reinserting.	The depth of a hole shall not be extended more than 1.5 times the hole diameter (up to a maximum of 0.787 in (2 cm)) during a single insertion of the drill into the material. After each insertion, it may be advisable to withdraw the drill completely and remove loose explosives from the cavity and drill bit before reinserting.	Errata: Restores zeros before numbers that follow a decimal.

COMPARISON BETWEEN DOE STD 1212 REVISION 0 AND REVISION 7 AS APPROVED BY THE DOE EXPLOSIVES SAFETY COMMITTEE

NOTE	DRIVER/LOCATION	1212	Rev 7	Comments
25	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014.(Chapter II-12.11.4.c)	Roll gaps should be set as wide as possible while still allowing adequate working of the material. The minimum gap setting shall be .003937 in (.1 mm).	Roll gaps should be set as wide as possible while still allowing adequate working of the material. The minimum gap setting shall be 0.003937 in (.1 mm).	Errata: Restores zeros before numbers that follow a decimal.
26	Change 11-11 approved at the 70th DOE ESC Meeting on May 21, 2015 (Chapter II-12.16)	N/A	12.16. Laser Ablation 27 a. Explosives may be laser-ablated provided the following conditions are met: 1. The laser ablation shall be conducted as a Class 1 Level of Protection Activity. 2. During set-up, when personnel are exposed to the explosives hazard, the ablation laser beam must not be able to reach the explosives or assembly containing explosives, however, a low-power alignment laser may be used. 3. Before performing a new laser ablation operation, setup and preparation should be conducted in accordance with section 12-4-3, as applicable. 4. During laser ablation operations, the operator should be provided an immediate means to block the laser beam from reaching the explosives. 5. Facility Management shall comply with the appropriate local/national standard(s) for the safe use of lasers.	Change provides guidance for laser-ablation of explosives.

COMPARISON BETWEEN DOE STD 1212 REVISION 0 AND REVISION 7 AS APPROVED BY THE DOE EXPLOSIVES SAFETY COMMITTEE

NOTE	DRIVER/LOCATION	1212	Rev 7	Comments
27	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014. (Chapter II-13.3.5.a.1)	Procedures shall be established to ensure that RF, FM, and television transmitters with sufficient output energy to initiate an EED at the test site are either restricted to a safe distance from the site or not operated. Air Force Manual AFMAN 91-201, Explosives Safety Standards, NAVSEAOP 3565/NAVAIR 16-1-529, Electromagnetic Radiation Hazards (U) (Hazards to Personnel, Fuel and Other Flammable Material) (U) or the Pantex V Curve formula shall be used for establishing minimum separation distance between EMR sources and EEDs. Appropriate separation distances from EMR transmitters shall be determined per Chapter II, section 6.0.f.	Procedures shall be established to ensure that RF, FM, and television transmitters with sufficient output energy to initiate an EED at the test site are either restricted to a safe distance from the site or not operated. Appropriate separation distances from EMR transmitters shall be determined per Chapter II, section 6.0.f.	Errata: Removed redundancy which cites Chapter II-6.0.f while including the entire text from that reference in the same paragraph.
28	Change 10-20 approved at the 68th DOE ESC Meeting on February 13, 2014.(Chapter II-13.3.12.a)	Test firing areas are subject to explosives contamination from incomplete or failed detonations when the explosives are subjected to varying forms of energy input. Although most of this contamination will be cleaned up in the post-shot inspection, the following steps shall be taken to reduce the hazards from residual explosives contamination.(1) A contamination zone for each firing area shall be established and permanently annotated on facility site plans.(2) Personnel access to explosives-contaminated areas shall be controlled.(3) Service personnel shall not work in the area without the permission of testing-area management and only when supervised by a management-approved person.	Test firing areas are subject to explosives contamination from incomplete or failed detonations when the explosives are subjected to varying forms of energy input. Although most of this contamination will be cleaned up in the post-shot inspection, the following steps shall be taken to reduce the hazards from residual explosives contamination.(1) A contamination zone for each firing area shall be established and permanently <u>documented</u>.(2) <u>Unless determined unnecessary through documented analysis approved by the AHJ:</u>a. Personnel access to explosives-contaminated areas shall be controlled<u>.</u>b. Service personnel shall not work in the area without the permission of testing-area management and only when supervised by a management-approved person.	Change allows contamination zone permanent documentation to be maintained in other places than the facility site plan, as well as crediting documented analysis of decontamination results.

COMPARISON BETWEEN DOE STD 1212 REVISION 0 AND REVISION 7 AS APPROVED BY THE DOE EXPLOSIVES SAFETY COMMITTEE

NOTE	DRIVER/LOCATION	1212	Rev 7	Comments
29	Change 15-02 approved at the 69th and 70th DOE ESC Addendum on February 20, 2015 and October 14, 2015. (Chapter II-13.3.13) This change is shown on this and the next 2 rows. (1 of 3)	13.3.13 Test Range Firing Circuit Criteria (a) The following criteria are guidelines for the design of electrical circuits used to arm and initiate squibs, igniters, detonators and similar EEDs during test firing. (1) Fire control circuits shall include both an ARM switch and a FIRE switch. For low-firing-current initiators, the safe mode of the arming circuit should interrupt the firing circuit and short-circuit and ground the EED terminals. Manual shorting and grounding is permitted. (2) Each electrical ARM and FIRE circuit shall include an interlock device consisting of a safety plug or a key-operated switch to prevent inadvertent energization. (3) The safety plug design and configuration shall be unique for its application and used to prevent unauthorized or accidental activation of a firing circuit. Key-operated switches for ARM and FIRE circuits shall be designed to lock in the safe (OFF) position when the control key is removed. Duplicate keys or safety plugs shall not be permitted in any one test area. (4) During shot-preparation, the key or safety plug for a firing site shall be in the control of the lead operator at all times.	13.3.13 Firing Control Circuit Criteria (a) The following criteria shall apply to electrical circuits used to initiate electro-explosive devices (EEDs) used for test firing. These criteria apply regardless of whether the circuit is energized using an internal or external power source. NOTE: A Firing Circuit shall be treated as capable of firing without warning as soon as it is coupled to an EED. A Firing Circuit that is connected to explosives shall not be ARMED during contact operations. (1) Firing Control Circuits shall be documented, reviewed, and approved for safety and operational control purposes. a. Documentation shall include complete wiring diagrams, electrical schematics, and cable function lists. b. All Firing Control Circuits, including changes and modifications, shall be reviewed for safety and compliance with section 13.3.13 of this Chapter, and approved by Facility Management prior to use with explosives. Firing Control Circuits not meeting the safety criteria of section 13.3.13 may be used with explosives only if equivalent safety is provided as determined by a documented analysis reviewed by the AHJ, and approved by Facility Management.	Change is in response to a request from the NNSA CTA to provide clarity and remove ambiguity from firing circuit criteria. The NNSA CTA request is associated with the results of the investigation of the December 2013 Sandia Firing Site Accident. In summary, the change accomplishes the following: -Removes antiquated and undefined terms from II-13.3.13. -Adds three new terms (Firing Control Circuit, Firing Circuit, and Energized) to Chapter II-13.3.13 with their definitions added to Chapter I-8.0. -Simplifies and generalizes Firing Control Circuit design requirements, focusing on long established safety principles. -Clarifies the requirement to review and approve Firing Control Circuits for safety and operational control purposes to include all such circuits, (the previous language only specified changes and modifications). (1 of 3)

COMPARISON BETWEEN DOE STD 1212 REVISION 0 AND REVISION 7 AS APPROVED BY THE DOE EXPLOSIVES SAFETY COMMITTEE

NOTE	DRIVER/LOCATION	1212	Rev 7	Comments
30	Continued from above(2 of 3)	(5) FIRE control circuits in test areas shall be documented for operational control purposes. Documentation shall include complete wiring diagrams, electrical schematics, and cable function lists. All changes or modifications to FIRE control circuits shall be reviewed for safety and approved by other appropriate departments before being incorporated into thecircuits.(6) Each FIRE control circuit shall be isolated from all other circuits. A shielded, twisted pair of wires with an outer insulating jacket or coaxial cable should be employed for each circuit.(7) All sequential timers used in firing circuits shall be "failsafe." Failure of a component or circuit must not energize the firing circuit.(8) Test current from the electrical instruments used to perform resistance checks shall not exceed 10 percent of the no-fire rating of the EED in the circuit.(9) Firing circuits shall be marked clearly or otherwise distinctively identified, and shall be installed so as to prevent inadvertent energization by other circuits.	(2) Firing Control Circuits shall include both an ARM and a FIRE control. For low-energy EEDs, the safe mode of the arming circuit shall interrupt the firing circuit, short-circuit the EED terminals, and should ground the EED terminals. Manual shorting and grounding is permitted.(3) Each Firing Control Circuit shall include an interlock device which prevents unauthorized or inadvertent energization of a firing circuit.a. The interlock device shall be unique for its application.b. If key-operated controls are used, they shall be designed to lock in the safe (OFF) position when the control key is removed.c. Duplicate keys, safety plugs, or other interlock devices shall not be permitted in any single test area.d. During shot preparation, the key, safety plug, or other interlock device, whichever is used, shall be in the control of the lead operator at all times.(4) Each Firing Control Circuit shall be isolated from all other circuits so as to prevent inadvertent energization by other circuits.(5) Firing Control Circuits shall be failsafe. Failure of any single component must not result in inadvertent initiation of the EED prior to ARMING.(6) Firing Control Circuits shall be marked clearly or otherwise distinctively identified.	Continued from above (2 of 3)-Adds a provision such that Firing Control Circuits not meeting the safety criteria of section 13.3.13 may be used with explosives only if equivalent safety is provided as determined by a documented analysis reviewed by the AHJ, and approved by Facility Management.
31	Continued from above (3 of 3)	N/A	(b) Developmental and/or Self-Contained Firing Circuits designed to initiate electro-explosive devices (EEDs) shall meet the requirements of paragraph 13.3.13 of this Chapter before being used with explosives.	Continued from above (3 of 3) -Adds a specific provision addressing developmental firing control circuits.

COMPARISON BETWEEN DOE STD 1212 REVISION 0 AND REVISION 7 AS APPROVED BY THE DOE EXPLOSIVES SAFETY COMMITTEE

NOTE	DRIVER/LOCATION	1212	Rev 7	Comments
32	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014.(Chapter II-13.6.2.a Note 2)	Nuclear Explosive Operations, covered by DOE O 452.2, Nuclear Explosive Safety, are exempted from this requirement.(1) Application of high-energy stimuli (i.e., high shock, impact, or friction levels) to the explosive.(2) Heating the explosive to within 18°F (10°C) of the heating limit determined for the explosive system without hazardous radioactive materials consistent with section 12.1.1(d) of this chapter.(3) Intimate contact of incompatible material with the explosive as determined by compatibility testing.(4) Unacceptably high risk of accidental application of stimuli listed in section (1), (2), or (3) above.	Nuclear Explosive Operations, covered by DOE O 452.2, Nuclear Explosive Safety, are exempted from this requirement.(1) Application of high-energy stimuli (i.e., high shock, impact, or friction levels) to the explosive.(2) Heating the explosive to within 50°F (10°C) of the heating limit determined for the explosive system without hazardous radioactive materials consistent with section 12.1.1(d) of this chapter.(3) Intimate contact of incompatible material with the explosive as determined by compatibility testing.(4) Unacceptably high risk of accidental application of stimuli listed in section (1), (2), or (3) above.	Errata: Corrected misspelling and temperature conversion.
33	Change 14-06 approved at the 69th DOE ESC Meeting on November 20, 2014. (Chapter II-17.6.5.a)	A service bay is a designated room, area or vault within an operating building for the intermediate storage/staging of explosives or explosives components awaiting initial or additional processing performed in that facility. Service bays are not intended to be used for long term storage or the staging of explosives or explosives components whose next manufacturing process is not performed within the facility containing the explosives.	A service bay is a designated room, area or vault within an operating building for the intermediate storage/staging of explosives or explosives components awaiting either processing performed in that facility or transportation once intermediate or final processing in that facility is complete. Service bays are not intended to be used for long term storage/staging of explosives or explosives components.	Change clarifies the storage requirements within a staging/service bay by specifically addressing intermediate storage/staging of explosives or explosives components that have undergone processing in the supported facility and are awaiting transportation outside the facility.
34	Change 11-23R1 Approved at the 66th DOE ESC Meeting on May 16, 2012. (Chapter II-18.7.a)	For decontamination of real estate, reference DoD 6055.09-M.	For the disposition of real estate reference DoD Instruction 4140.62, Material Potentially Presenting an Explosive Hazard.	Change points to correct reference for decontamination of real estate.

COMPARISON BETWEEN DOE STD 1212 REVISION 0 AND REVISION 7 AS APPROVED BY THE DOE EXPLOSIVES SAFETY COMMITTEE

NOTE	DRIVER/LOCATION	1212	Rev 7	Comments
35	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014. (Chapter II-19.6)	N/A	Salvaged Explosives a. Salvaged explosives materials shall be thoroughly inspected by operating supervisors and reused, screened, reprocessed, or destroyed as the situation warrants. b. Salvaged explosives materials shall be classified as Storage Compatibility Group L until they have been established to be compatible with the original material.	Errata: Restores "Salvaged Explosives section, (formerly "Explosives Recovery and Reuse"). This section was inadvertently omitted during the transition from DOE M 440.1-1A to DOE STD 1212-2012.
36	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014.(Table II-6)	2 units each of .9999 in (25.4 mm) plate glass laminated with .4882 in (12.4 mm) polycarbonate with a .374 in (9.5 mm) air gap between units (glass sides facing theexplosive)	2 units each of .9999 in (25.4 mm) plate glass laminated with 0.4882 in (12.4 mm) polycarbonate with a 0.374 in (9.5 mm) air gap between units (glass sides facing the explosive)	Errata: Restores zeros before numbers that follow a decimal.

COMPARISON BETWEEN DOE STD 1212 REVISION 0 AND REVISION 7 AS APPROVED BY THE DOE EXPLOSIVES SAFETY COMMITTEE

NOTE	DRIVER/LOCATION	1212	Rev 7	Comments
37	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014. (Table II-6, Note)	Recent blast testing has shown that laminated tempered glass is superior to monolithic tempered glass, and polycarbonate is superior to acrylic plastics, such as Lucite. Laminated tempered glass is recommended instead of monolithic tempered glass and polycarbonate is recommended in lieu of acrylic. The shields are recommended to be of equal or greater thickness than those listed in the table. Proof testing is highly recommended. When designing and/or replacing a safety shield with a polycarbonate, it should be UV stabilized, treated for abrasion resistance, and have met Mil Spec P-46144C. When designing or replacing a safety shield with laminated glass, it should be coated with a .003937 in (.1 mm) fragment-resistant film on the viewer's side to minimize spalling. The shield, shield frame, and anchoring system shall be designed to resist maximum credible overpressure and fragments.	Recent blast testing has shown that laminated tempered glass is superior to monolithic tempered glass, and polycarbonate is superior to acrylic plastics, such as Lucite. Laminated tempered glass is recommended instead of monolithic tempered glass and polycarbonate is recommended in lieu of acrylic. The shields are recommended to be of equal or greater thickness than those listed in the table. Proof testing is highly recommended. When designing and/or replacing a safety shield with a polycarbonate, it should be UV stabilized, treated for abrasion resistance, and have met Mil Spec P-46144C. When designing or replacing a safety shield with laminated glass, it should be coated with a 0.003937 in (.1 mm) fragment-resistant film on the viewer's side to minimize spalling. The shield, shield frame, and anchoring system shall be designed to resist maximum credible overpressure and fragments.	Errata: Restores zeros before numbers that follow a decimal.
38	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014. (Chapter II-21.7)	Based on a total mass size less than the critical diameter, primary explosives .01543 gr (1 mg) or less and secondary explosives .1543 gr (10 mg) or less are considered non-detonable by abnormal stimuli or environment (see Chapter II, 1.1.a) Locations with explosives in these quantities are therefore exempt from the following requirements:	Based on a total mass size less than the critical diameter, primary explosives 0.01543 gr (1 mg) or less and secondary explosives 0.1543 gr (10 mg) or less are considered non-detonable by abnormal stimuli or environment (see Chapter II, 1.1.a) Locations with explosives in these quantities are therefore exempt from the following requirements:	Errata: Restores zeros before numbers that follow a decimal.

COMPARISON BETWEEN DOE STD 1212 REVISION 0 AND REVISION 7 AS APPROVED BY THE DOE EXPLOSIVES SAFETY COMMITTEE

NOTE	DRIVER/LOCATION	1212	Rev 7	Comments
39	Change 14-08 approved at the 69th DOE ESC Meeting on November 20, 2014.(Chapter II-22.0.a)	Placards and fire symbols (as specified in DoD 6055.09-M or NFPA 704) shall be displayed on either buildings, work areas, or multi-building areas to warn of potential hazards from explosives and to provide information for emergency situations. These symbols shall be readily visible upon approach.	Placards and fire symbols as specified in DoD 6055.09-M shall be displayed on either buildings, work areas, or multi-building areas to warn of potential hazards from explosives and to provide information for emergency situations. These symbols shall be readily visible upon approach.	Change removes the option to use NFPA 704 placards instead of DoD 6055.09-M placards and fire symbols. This change in no way prohibits other disciplines from requiring postings IAW NFPA 704.

COMPARISON BETWEEN DOE STD 1212 REVISION 0 AND REVISION 7 AS APPROVED BY THE DOE EXPLOSIVES SAFETY COMMITTEE

NOTE	DRIVER/LOCATION	1212	Rev 7	Comments
40	Change 14-05 approved at the 69th DOE ESC Meeting on November 20, 2014.(Chapter II-22.0.b)	22.2. Explosives Emergency Control Plansa. Each installation shall have a facility-specific written plan for the control of emergencies involving explosives (the plan may need to be broken down for each operating area). An explosives emergency control plan may be part of the facility's overall emergency control plan. All facility personnel shall be trained in the plan's content applicable to their area. The plan shall be available to personnel on a need-to-know basis for ready reference.b. Emergency situations that should be covered include the following:1. Fires and explosions.2. Floods.3. Extreme weather conditions.4. Conditions resulting in environmental disturbances.5. Civil disturbance.6. Threats and bomb scares.7. Enemy attack.8. Other emergencies that require rapid mobilization of personnel andequipment to minimize death and injury to personnel or to prevent the spread of damage and destruction. c. The plan should address: 1. Reporting an emergency. 2. Criteria for activating the emergency plan. 3. Authority and responsibility for administration and execution of the plan. 4. Mobilization of personnel to respond to an emergency or disaster. 5. Roles of operating personnel in responding to an emergency. 6. Procedures for responding to an emergency or disaster. 7. Accounting for evacuation of personnel. 8. Plant and document security.	Each installation shall have a facility-specific written plan for the control of emergencies involving explosives. These plans shall take into consideration additional hazards due to the presence of explosives.	Change removes ambiguity between the DOE Standard and other governing documents that address emergency control and provides clarity on the specific role of the explosives safety program regarding emergency control plans.

COMPARISON BETWEEN DOE STD 1212 REVISION 0 AND REVISION 7 AS APPROVED BY THE DOE EXPLOSIVES SAFETY COMMITTEE

NOTE	DRIVER/LOCATION	1212	Rev 7	Comments
41	Change 11-24 approved at the 66th DOE ESC Meeting on May 16, 2012. (Chapter V-5.0)	N/A	SECURITY WORKING DOG SEARCH TRAINING a. Security Working Dog Search Training will be conducted per the requirements of AFMAN 91-201 12.	Change adds a section addressing Security Working Dog Search Training.
42	Change 11-24 approved at the 66th DOE ESC Meeting on May 16, 2012. (Chapter V-6.0)	REFERENCES a. OT-525, Personnel Qualifications, Commanding Officer, Naval Explosive Ordnance Disposal Technology Division, 2008 Stump Neck Road, Indian Head, MD 20640-5070 (current version)	REFERENCES a. OT-525, Personnel Qualifications	Errata associated with the previous change. Renumeration, abbreviated reference.
43	Change 11-25 approved at the 66th DOE ESC Meeting on May 16, 2012. (Chapter VI-1.1.c)	N/A	Risk based explosives siting, as described in DDESB TP-14, Approved Methods and Algorithms for DoD Risk-Based Explosives Siting, is an alternative tool to address any explosives quantity-distance determinations of equivalency of safety.	Change allows approval of explosives site plans that contain explosives quantity distance violations based on a risk based approach as defined in DDESB TP 14. This same risk based process can serve as an advisory tool to assist Site Managers on the risks associated with quantity distance violations.
44	Change 14-07 approved at the 69th DOE ESC Meeting on November 20, 2014. (Chapter VI-1.2.a)	The site plan shall contain the following information:	The site plan <u>package shall contain the following</u>:	Change clarifies that a Site Plan is a "package" of documents rather than a single document.

COMPARISON BETWEEN DOE STD 1212 REVISION 0 AND REVISION 7 AS APPROVED BY THE DOE EXPLOSIVES SAFETY COMMITTEE

NOTE	DRIVER/LOCATION	1212	Rev 7	Comments
45	Change 12-09 approved at the 67th DOE ESC Meeting on October 25, 2012. (Chapter VI-4.1.a.2.b)	Examples of Class I activities are screening, blending, pressing, extrusion, drilling of holes, dry machining, machining explosives and metal in combination, some environmental testing, new explosives development and processes, explosives disposal, and destructive testing.	Examples of Class I activities are screening, blending, pressing, extrusion, drilling of holes, dry machining, machining explosives and metal in combination, some environmental testing, new explosives development and processes, explosives disposal by burning and some destructive testing.	Change provides clarification against Class 0 definition.
46	Change 14-12 approved at the 68th DOE ESC Meeting on October 25, 2014.(Chapter VI-4.2.1.c)	(1) Overpressures greater than 15 psi (100 kPa) maximal effective pressure.(2) Structural collapse resulting from overpressure or debris impact. Structural collapse is a structural component's failure as a direct result of a facility losing structural integrity. This collapse must not result in explosives propagation, fatalities, or severe personal injuries.(3) Hazardous fragments or debris generated in acceptor occupied areas having an impact energy of 58 foot pounds (79J) or greater. The threshold pressure for eardrum rupture is 5 psi (34 kPa); one-half of the threshold pressure for lung damage is 15 psi (100 kPa). (see Chapter I of UFC 3-340-02)	(1) Overpressures greater than 15 psi (100 kPa) maximal effective pressure. The threshold pressure for eardrum rupture is 5 psi (34 kPa); one-half of the threshold pressure for lung damage is 15 psi (100 kPa), (see Chapter I-11.1 of UFC 3-340-02).(2) Structural collapse resulting from overpressure or debris impact. Structural collapse is a structural component's failure as a direct result of a facility losing structural integrity. This collapse must not result in explosives propagation, fatalities, or severe personal injuries.(3) Hazardous fragments or debris generated in acceptor occupied areas having an impact energy of 58 foot pounds (79J) or greater, (see Chapter I-11.3 of UFC 3-340-02).	Change provides clarity by placing the statement regarding eardrum rupture in the correct paragraph and adding the reference to Chapter I of UFC 3-340-02 to paragraph 2 as well as adding specific paragraph numbers to the references.
47	Change 10-21 approved at the 67th DOE ESC Meeting on October 25, 2012. (Chapter VI-5.2.a.1)	Automatic fire suppression systems shall be installed in all buildings containing HE and plutonium, except storage magazines.	Automatic fire suppression systems shall be installed in all buildings containing HE and plutonium, except storage magazines, firing chambers, or rooms used as firing chambers within explosives operating buildings.	Change provides consistency with Chapter II-2.2.3.b.1 for Personnel Protective Restrictions and Requirements. The exemption of firing chambers reflects the inherent challenges of installing fire suppression in a chamber or room used for intentional detonations.

COMPARISON BETWEEN DOE STD 1212 REVISION 0 AND REVISION 7 AS APPROVED BY THE DOE EXPLOSIVES SAFETY COMMITTEE

NOTE	DRIVER/LOCATION	1212	Rev 7	Comments
48	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014. (Chapter VI-6.0.d.1)	DOE/TIC-11268, A Manual for the Blast and Fragment Loadings of Structures, July 1992	DOE/TIC-11268, A Manual for the Blast and Fragment Loadings of Structures, July 1992.	Errata: Added missing period.
49	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014.(Chapter VI-6.1.a)	a. The design of all new explosives facilities shall conform to the requirements established in this Technical Standard. It is not intended that existing physical facilities be changed arbitrarily to comply with these provisions, except as required by law. Existing facilities that do not comply with these standards may continue to be used for the balance of their functional lives if the following two conditions are met:1. The current operation presents no significantly greater risk than that assumed when the facility was originally designed.2. It can be demonstrated clearly that a modification to bring the facility into compliance is not feasible.	a. Reserved.	Errata: Removal of redundancy as Chapter VI-6.1.a and Chapter I-1.c are substantially the same.
50	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014. (Chapter VI-6.1.b)	b. However, in the case of a major renovation, the facility must be brought into compliance with current standards.	b. Reserved.	Errata: Removal of redundancy as Chapter VI-6.1.b and Chapter I-1.d are substantially the same.

COMPARISON BETWEEN DOE STD 1212 REVISION 0 AND REVISION 7 AS APPROVED BY THE DOE EXPLOSIVES SAFETY COMMITTEE

NOTE	DRIVER/LOCATION	1212	Rev 7	Comments
51	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014. (Chapter VI-6.1.c.2)	Facilities for activities not involving ammunition or explosives that are in such proximity to ammunition and explosives as to be exposed to hazards or for which a reasonable doubt may exit regarding possible exposure to hazards.	Facilities for activities not involving ammunition or explosives that are in such proximity to ammunition and explosives as to be exposed to hazards or for which a reasonable doubt may <u>exist</u> regarding possible exposure to hazards.	Errata: Spelling correction.
52	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014. (Chapter VIII-2.3.b)	No more than .0705 oz (2 g) of the new formulation should be prepared, handled, or stored before compatibility testing.	No more than <u>0.0705</u> oz (2 g) of the new formulation should be prepared, handled, or stored before compatibility testing.	Errata: Restores zeros before numbers that follow a decimal.
53	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014.(Chapter VIII-2.4.a)	The total quantity of material that may be processed, handled, or stored at any one time in Phase I should not exceed .3527 oz (10 g). Whenever possible, thismaterial should be processed remotely.	The total quantity of material that may be processed, handled, or stored at any one time in Phase I should not exceed <u>0.3527</u> oz (10 g). Whenever possible,this material should be processed remotely.	Errata: Restores zeros before numbers that follow a decimal.
54	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014. (Table VIII-1)	Compatibility Testing: .0705 oz (2g)	Compatibility Testing: <u>0.0705</u> oz (2g)	Errata: Restores zeros before numbers that follow a decimal.
55	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014. (Table IX-1)	TB 700-2 test procedures, any shape, minimum thermal path of .9842 in (25 mm), no explosion.	TB 700-2 test procedures, any shape, minimum thermal path of <u>0.9842</u> in (25 mm), no explosion.	Errata: Restores zeros before numbers that follow a decimal.

COMPARISON BETWEEN DOE STD 1212 REVISION 0 AND REVISION 7 AS APPROVED BY THE DOE EXPLOSIVES SAFETY COMMITTEE

NOTE	DRIVER/LOCATION	1212	Rev 7	Comments
56	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014. (Chapter X-2.4.3.b)	All metallic penetrations into a Faraday cage or shield shall be bonded to the nearest structural member or LPS component that is integrally bonded to the earth (ground) electrode system. Bonding connections shall be as close to the point of entry as possible. More than one bond may be required in some situations where a conductive penetration passes a structural member inside the structure.	All metallic penetrations into a Faraday cage or shield shall be bonded to the nearest structural member or LPS component that is integrally bonded to the earth (ground) electrode system. Bonding connections shall be as close to the point of entry as reasonably achievable. More than one bond may be required in some situations where a conductive penetration passes a structural member inside the structure.	Errata: Restores "reasonably achievable" to closeness requirements for bonding. It was inadvertently changed to "possible" during the transition from DOE M 440.1-1A to DOE STD 1212-2012.
57	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014. (Chapter X-2.4.3.d)	Lightning protection system bonds should be as short and as direct as reasonably achievable to minimize inductance. Where applicable, route the bonds as close to the rebar as practical.	Lightning protection system bonds should be as short and as direct as reasonably achievable to minimize inductance. Where applicable, route the bonds as close to the rebar as reasonably achievable.	Errata: Restores "reasonably achievable" to closeness requirements for bonding. It was inadvertently changed to "practical" during the transition from DOE M 440.1-1A to DOE STD 1212-2012.
58	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014. (Chapter X-3.2.d)	The recommended interval for electrical resistance measurements of visible external bonds bonds is every 14 months and shall be conducted at least every 24 months or on an interval determined by a continuously validating statistical model reviewed by the AHJ and approved by Facility Management.	The recommended interval for electrical resistance measurements of visible external bonds is every 14 months and shall be conducted at least every 24 months or on an interval determined by a continuously validating statistical model reviewed by the AHJ and approved by Facility Management.	Errata: Removal of duplicated word.

COMPARISON BETWEEN DOE STD 1212 REVISION 0 AND REVISION 7 AS APPROVED BY THE DOE EXPLOSIVES SAFETY COMMITTEE

NOTE	DRIVER/LOCATION	1212	Rev 7	Comments
59	Change 14-02 approved at the 69th DOE ESC Meeting on November 20, 2014.(Chapter X-3.5)	Documentation and Trend Analysisa. A record of all resistance or transfer impedance measurements at all required points and of visual inspections should be maintained for the life of the facility and shall be maintained for at least six inspection and testing cycles. In addition, those records specified in NFPA 780 Annex D shall be maintained for an equivalent time. The records shall be reviewed for trend analysis. A diagram of the structure or room showing all points requiring measurements or visualinspection and location of surge protection devices should be prepared.b. Trend analysis shall be conducted on resistance-to-earth test results to identify significant increases in the resistance of the LPS. Corrective action shall be initiated before the threshold resistance is exceeded unless it is not feasible to meet the threshold resistance criterion. Trend analysis shall continue and be documented.	Documentation. A record of all resistance or transfer impedance measurements at all required points and of visual inspections should be maintained for the life of the facility and shall be maintained for at least six inspection and testing cycles. In addition, those records specified in NFPA 780 Annex D shall be maintained for an equivalent time. A diagram of the structure or room showing all points requiringmeasurements or visual inspection and location of surge protection devices should be prepared.	Change removes requirement for LPS trend analysis. The committee determined that LPS trend analysis does not add any value to the documentation as readings vary based on weather and other variables that cannot be controlled. Data collected is not reliable to base maintenance decisions on. Acute changes in resistance or physical damage are better indicators of serviceability. In addition, trend analysis is not required by NFPA 780.
60	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014. (Chapter X-6.0.a)	Facility Management shall evaluate their explosives operations to determine the time required (1) to safely shut down explosive operations where required, (2) to evacuate personnel from the areas specified in section 6.0.d below to safe locations, or (3) to relocate explosives to a safe sideflash separation (standoff) distance.	Facility Management shall evaluate their explosives operations to determine the time required (1) to safely shut down explosive operations where required, (2) to evacuate personnel from the areas specified in section 6.0.c below to safe locations, or (3) to relocate explosives to a safe sideflash separation (standoff) distance.	Errata: Reference correction.
61	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014. (Chapter X-6.0.c.6)	All buildings and areas within public traffic route distance (based on a 2.3 psi (15.8 kPa) as given in DoD 6065.09-M of an explosive structure not equipped with an LPS.	All buildings and areas within public traffic route distance (based on a 2.3 psi (15.8 kPa) as given in DoD 6055.09-M of an explosive structure not equipped with an LPS.	Errata: Reference correction.

COMPARISON BETWEEN DOE STD 1212 REVISION 0 AND REVISION 7 AS APPROVED BY THE DOE EXPLOSIVES SAFETY COMMITTEE

NOTE	DRIVER/LOCATION	1212	Rev 7	Comments
62	Change 11-25 approved at the 66th DOE ESC Meeting on May 16, 2012. (Appendix A)	N/A	DDESB Technical Paper 14: *Approved Methods and Algorithms for DoD Risk-Based Explosives Siting.*	Errata: Reference added.
63	Change 11-23R1 Approved at the 66th DOE ESC Meeting on May 16, 2012.(Appendix A)	N/A	DoD Instruction 4140.62, Material Potentially Presenting an Explosive Hazard, (current version)	Errata: Reference added.
64	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014. (Appendix A)	N/A	DOE STD-3009: Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Documented Safety Analysis (current version).	Errata: Reference added.
65	Administrative Change approved at the 68th DOE ESC Meeting on February 13, 2014. (Appendix A)	N/A	MIL-STD-1474D: Military Standard: Design Criteria Standard, Noise Limits, (current version).	Errata: Reference added.

COMPARISON BETWEEN DOE STD 1212 REVISION 0 AND REVISION 7 AS APPROVED BY THE DOE EXPLOSIVES SAFETY COMMITTEE

NOTE	DRIVER/LOCATION	1212	Rev 7	Comments
66	Administrative Change made in conjunction with the 69th DOE ESC Addendum on February 20, 2015. (Appendix B)	The DOE Explosives Safety Committee is composed of a member from each of the offices listed below. Committee members, primary and alternates, shall be appointed by a site office manager (federal) or M&O senior manager (contractor). Members shall serve until a replacement is nominated. The membership listing has been updated by the Chair of the DOE Explosives Safety Committee to reflect reorganizations in DOE/NNSA. Membership is available upon request to the Committee Chair and is approved by the Committee. 1. DOE Office of Health, Safety and Security 2. NNSA Office of Nuclear Safety and Governance 3. NNSA NA-SH, Albuquerque 4. NNSA Kansas City Site Office 5. NNSA Livermore Site Office 6. NNSA Nevada Site Office 7. NNSA Sandia Site Office 8. NNSA Pantex Site Office 9. DOE Idaho Operations Office 10. DOE Savannah River Office	The DOE Explosives Safety Committee is composed of a member from each of the offices listed below. Committee members, primary and alternates, shall be appointed by a site office manager (federal) or M&O senior manager (contractor). Members shall serve until a replacement is nominated. The membership listing has been updated by the Chair of the DOE Explosives Safety Committee to reflect reorganizations in DOE/NNSA. Membership is available upon request to the Committee Chair and is approved by the Committee. 1. DOE Office of Health, Safety and Security 2. NNSA Office of Safety, Infrastructure, and Operations 3. NNSA Kansas City Site Office 4. NNSA Livermore Field Office 5. NNSA Nevada Field Office 6. NNSA Sandia Field Office 7. NNSA Production Office, Pantex Plant 8. DOE Idaho Operations Office 9. DOE Savannah River Site 10. NNSA Los Alamos Field Office	Errata: Addition of Argonne Site Office, Argonne National Laboratory, NNSA Production Office, Y12 Oak Ridge, and several organizational name changes.
67	Continued from above..	11. NNSA Los Alamos Site Office12. Lawrence Livermore National Laboratory13. Los Alamos National Laboratory14. Pantex Plant15. Idaho National Laboratory16. Nevada National Security Site17. Sandia National Laboratories18. Savannah River Site19. Kansas City Plant20. NNSA Office of Secure Transportation21. Office of Secure Transportation Contractor22. Y12 Oak Ridge	11. Lawrence Livermore National Laboratory12. Los Alamos National Laboratory13. Pantex Plant14. Idaho National Laboratory15. Nevada National Security Site16. Sandia National Laboratory17. Savannah River Site18. Kansas City Plant19. NNSA Office of Secure Transportation20. Office of Secure Transportation Contractor21. Y12 Oak Ridge22. NNSA Production Office, Y12 Oak Ridge23. Argonne Site Office24. Argonne National Laboratory	See above.

COMPARISON BETWEEN DOE STD 1212 REVISION 0 AND REVISION 7 AS APPROVED BY THE DOE EXPLOSIVES SAFETY COMMITTEE

NOTE	DRIVER/LOCATION	1212	Rev 7	Comments
68	Administrative Change made in conjunction with the 69th DOE ESC Addendum on February 20, 2015. (Appendix B)	The explosives safety responsibilities of Committee members will include, but are not limited to, the following:	The explosives safety responsibilities of Committee members will include, but are not limited to, the following:	Errata: Formatting correction.
69	Administrative Change made in conjunction with the 69th DOE ESC Addendum on February 20, 2015.	A representative of the DOE Office of Health, Safety and Security shall chair the Committee. The NNSA Office of Nuclear Safety and Governance member shall be the Deputy Chair and function as Chair as delegated by the Chair or in his or her absence. A rotating Secretary assigned from the host organization at each meeting of the Committee will take meeting minutes. Responsibilities of the Chair and Deputy Chair include:	A representative of the DOE Office of Health, Safety and Security shall chair the Committee. <u>The NNSA Office of Safety, Infrastructure, and Operations</u> primary member shall be the Deputy Chair and function as Chair as delegated by the Chair or in his or her absence. A rotating Secretary assigned from the host organization at each meeting of the Committee will take meeting minutes. Responsibilities of the Chair and Deputy Chair include:	Errata: Organizational name change.