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Environmental Protection Division
Water Quality & RCRA Group (ENV-RCRA)
P.O. Box 1663, M704
Los Alamos, New Mexico 87545
(505) 667-0666

National Nuclear Security Administration
Los Alamos Site Office, A316
3747 West Jemez Road
Los Alamos, New Mexico 87545
(505) 667-5794/FAX (505) 667-5948

APR 16 2012

Date:
Refer To: ENV-RCRA-12-0083
LAUR: 12-20363

Mr. John E. Kieling
Program Manager
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505



SUBJECT: REQUEST TO SUPPLEMENT AND CORRECT THE LOS ALAMOS NATIONAL LABORATORY (LANL) PERMIT MODIFICATION REQUEST FOR OPEN DETONATION UNITS AT TECHNICAL AREAS 36 AND 39, LANL HAZARDOUS WASTE FACILITY PERMIT, EPA ID NO. NM0890010515

Dear Mr. Kieling:

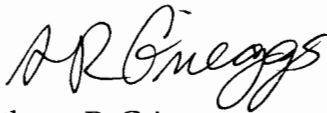
The purpose of this letter is to apply a revision to the above referenced Class 3 permit modification request to the Los Alamos National Laboratory (LANL) Hazardous Waste Facility Permit (the Permit) originally submitted by the Department of Energy (DOE) and the Los Alamos National Security, LLC (LANS), to the New Mexico Environment Department Hazardous Waste Bureau (NMED-HWB) on July 19, 2011. The revision includes the addition of waste explosives that may be treated by open detonation to Table 2-8 within Section 2.0 of the permit modification request. The table was inadvertently left out of the original submittal. Table C-6 of the Waste Analysis Plan in Attachment L, *Redline/Strikeout of 2010 LANL Hazardous Waste Facility Permit*, also requires revision for consistency with Table 2-8.



Enclosures to this letter include a copy of the tables with editing marks that illustrate the additions to the tables and the revised tables in a format consistent with the original submittal. Along with the additional explosives information in Table 2-8, a number of revisions have been made to the table for clarity and update. Because of the frequent updates and maintenance to the list in Table 2-8, the Permittees have revised the suggested permit language in Table C-6 to include a generalized version of the list that encompasses all explosives that could be treated at the unit, without the specificity as included in Table 2-8. It is important to note that while the suggested language for the table of explosives (Table C-6) has been generalized, the suggested language for Table C-7, *Description of Explosives Waste Streams Treated at the Facility*, remains unchanged and continues to list specific explosives that are likely to be found in each waste stream. Therefore, the specificity required for waste characterization is preserved without reproducing an extensive list of all explosives at the Facility.


This correspondence will be posted to the LANL electronic public reading room and included within an electronic mail notice to keep the interested public aware of this change. Please contact Mark Haagenstad of the Water Quality and RCRA Group (ENV-RCRA) at (505) 665-2014 if you have questions.

Sincerely,



Anthony R. Grieggs
Group Leader
Water Quality & RCRA Group
Los Alamos National Laboratory

Sincerely,



Gene E. Turner
Environmental Permitting Manager
Environmental Projects Office
Los Alamos Site Office
National Nuclear Security Administration

ARG:GET/lm

- Enclosures:
- (1) Revised Table 2-8 and Table C-6 with Editing Marks Los Alamos National Laboratory Permit Modification Request for Open Detonation Units at Technical Areas 36 and 39
 - (2) Revised Table 2-8 and Table C-6 without Editing Marks Los Alamos National Laboratory Permit Modification Request for Open Detonation Units at Technical Areas 36 and 39

Cy: Laurie King, USEPA/Region 6, Dallas TX, w/enc.
Tim Hall, NMED/HWB, Santa Fe, NM, w/enc., (E-File)
Gene Turner, LASO-EO, w/enc., A316, (E-File)
Peter Maggiore, LASO-EO, w/o enc., A316, (E-File)

Mr. John E. Kieling
ENV-RCRA-12-0083

-3-

Cy (continued):

Carl A. Beard, PADOPS, w/o enc., A102, (E-File)
Michael T. Brandt, ADESH, w/o enc., K491, (E-File)
Alison M. Dorries, ENV-DO, w/o enc., K491, (E-File)
Scotty W. Jones, ENV-DO, w/o enc., K491, (E-File)
Connie Gerth, ENV-ES, w/enc., C919, (E-File)
Mark Haagenstad, ENV-RCRA, w/enc., K404 (E-File)
IRM-RMMSO, locatsteam@lanl.gov, w/enc., A150
LASO Records Center, w/enc., A316, (E-File)
ENV-RCRA, Correspondence File, w/enc., M704

Enclosure 1

**Revised Table 2-8 and Table C-6 with Editing Marks
Los Alamos National Laboratory Permit Modification Request for
Open Detonation Units at Technical Areas 36 and 39**

ENV-RCRA-12-0083

LAUR-12-20363

APR 16 2012

Date

Table 2-8

Waste Explosives^a Detonated Treated By Open Detonation at Los Alamos National Laboratory

Explosives	Other Names, Compositions, or Reference
AN	Ammonium nitrate, <u>130N</u>
CL20	Hexanitrohexaazaisowurtzitane
DAAzF	3,3'-diamino-4,4'-azofurazan
DAAF	Diamino-azoxyfurazan z
DAAT	3,3'-azobis (6-amino-1,2,4,5-tetrazine)
DAATOx	3,3'-azobis (6-amino-1,2,4,5-tetrazine) <u>n-oxide</u>
DATB	Diaminotrinitrobenzene, <u>1201</u>
DHT	Dihydrazino-1,2,4,5-tetrazine
DiPEHN	<u>Dipentaerythritol hexanitrate</u>
DINGU	Dinitroglycoluril
DINA	Di(nitroxydiethyl)-nitramine, Dioxyethyl dinitrate
EDNA	Ethylenedinitramine, Halite, <u>1101</u>
FOX-7	1,1diamino-2,2dinitrethylene; AKA -1,1-diamino-2,2dinitroethene
HMX	<u>Octahydro, 1,3,5,7-tetranitro, 1,3,5,7-tetrazocine; 03NN</u> <u>Cyclotetramethylenetetranitramine</u>
HNAB	<u>Hexanitroazobenzene 2,2',4',6',6'-hexanitrohexaazaisowurtzitane</u>
Hydrogen Peroxide	Pure compound (above 80%)
LAX-112 <u>TZX</u>	Bis-diaminotetrazine N-oxide <u>Diaminotetrazine dioxide, LAX-112</u>
NC <u>Nitrocellulose</u>	Single component <u>Nitrocellulose</u>
NQ	Nitroguanidine, Picrite, <u>07NN</u>
NTO	<u>3-nitro</u> -1,2,4-Nitro-tiazole-5-one
PETN	Pentaerythritoltetranitrate, <u>06NN</u>
Picric Acid	1,3,5-Trinitrophenol Note: Picric acid forms impact-sensitive compounds with metal ions.
PYX	2,6-Bis(picrylamino)-3,5-dinitropyridine
RDX	Cyclo-1,3,5-trimethylene-2,4,6-trinitramine, <u>02NN</u> ; Hexogen, Cyclonite
TAGDNAT	Bis-triaminoguanidinium <u>3,3'</u> -Dinitroazotriazole
TAGN	Triaminoguanidine nitrate
TAGN4BIM	<u>Triaminoguanidinium tetranitroimidazole</u>
TAGzT	Triaminoguanidinium azotetrazolate
TATB	1,3,5-Triamino-2,4,6-trinitrobenzene; <u>1701</u>
TNAZ	1,3,3-Trinitroazetidene
Tetryl	2,4, 6 5-Trinitrophenylmethyl nitramine
HNS	Hexanitrostilbene, <u>3001</u>
TNT	2,4,6-Trinitrotoluene; Trotyl; <u>010N</u>
TriPEON	Triptaerythritol octanitrate

Table 2-8 (continued)
Waste Explosives^a Treated by Open Detonation at Los Alamos National Laboratory

Explosives	Other Names, Compositions, or Reference
FEFO	Bis (2-fluoro-2,2-dinitroethyl) formal
Isopropylnitrate	<u>Chemical Abstracts Service Registry Number (CAS Number) 1712-64-7</u>
Methylnitrate	<u>CAS Number 598-58-3</u>
NM	Nitromethane
Tetranitromethane	<u>CAS Number 509-14-8</u>
AFX-757	<u>Ammonium perchlorate (AP) 30% / Aluminum (Al) 33% / RDX 25% / Binders 12%</u>
AFX-1209 Type II	<u>Carnuba Wax 1.91% / Lecithin, 0.78% / Isodecyl pelargonate 0.81 % / Al 5% / HMX 12% / Tungsten, 79.5% / TMD 6.27%</u>
AFX-1212	<u>Carnuba Wax 3.82% / Lecithin 1.55% / Bis(2-ethylhexyl) adipate 1.63% / Al 10% / HMX 20% / Tungsten 63%</u>
Al/Fomblin oil	<u>65.7% Fomblin oil, 34.3% Al / Aluminum particles / Fomblin Oil</u>
AP/Fuel mixture	<u>Ammonium perchlorate in combination with sugar, metal powders, or dodecane AP, 23% sugar</u>
AP/Fuel mixture	<u>Ammonium perchlorate / Aluminum particles AP, 23% Al</u>
AP/Fuel mixture	AP, 7.3% dodecane
ANFO	Ammonium nitrate / fuel oil
Boracitol	<u>60 wt% OrthoB-boric acid 60% / 40 wt% TNT 40%</u>
Baratol	<u>76 wt% Barium nitrate 76% / 24 wt% TNT 24%, 76NN</u>
Calcitol	<u>40 wt% TNT 40% / 55-60 wt% CaCO₃ 55-60% / 0-2 wt% Talc 0-2% / 1-2 wt% Microballoons 1-2%, X-0533</u>
CH-6	<u>97.5 wt% RDX 97.5% / 1.5 wt% Calcium stearate 1.5% / 0.5 wt% Polyisobutylene 0.5% / 0.5 wt% Graphite 0.5%</u>
CL 20	2,4,6,8,10,12 hexanitro 2,4,6,8,10,12 hexaazaisowurtzitane, hexanitrohexaazaisowurtzitane
Comp. A	<u>91 wt% RDX 91% / 9 wt% Beeswax 9%; Includes Comp. A-2, Comp. A-3, & 9085</u>
Comp. A-2	91 wt% RDX/9 wt% Synthetic wax
Comp. A-3	9085, 91 wt% RDX/9 wt% Beeswax
Comp. A-4	<u>97 wt% RDX 97% / 3 wt% Beeswax 3%</u>
Comp. A-5	<u>98.5 wt% RDX 98.5-99% / 1.5 wt% Beeswax Stearic acid 1-1.5%</u>
Comp. B	<u>64 wt% RDX 63% / 36 wt% TNT 36% / Wax 1%, 60NN Comp B, Hexolite, Hexotol</u>
Comp. B-3	<u>60 wt% RDX 60% / 40 wt% TNT 40%, 60NN</u>
Comp. C-3	<u>9080, 88 wt% RDX 78% / 12 wt% Wax Plasticizer or oil 22%, 9080</u>
Comp. C-4	<u>9081, 91 wt% RDX 91% / 2.1 wt% Polyisobutylene 2.1% / 1.6 wt% Motor oil 1.6% / 5.3 wt% Di(2-ethylhexyl) sebacate 5.3%, 9081</u>

Table 2-8 (continued)
Waste Explosives^a Treated by Open Detonation at Los Alamos National Laboratory

Explosives	Other Names, Compositions, or Reference
CR-1	94% RDX 94% / , 6% Hydroxyl-terminated polybutadiene (HTPB), / Diethyl Adipate (DOA), / Isophorone diisocyanate (IPDI) gumstock 6%
CR-2	84% RDX 84% / , 10% Al 10% / , 6% HTPB, / DOA, / IPDI gumstock 6%
CR-4	84% RDX 84% / , 10% nm Al 10% / , 6% HTPB, / DOA, / IPDI gumstock 6%
CR-5	84% RDX 84% / , 10% nm Al oxide 10% / , 6% HTPB, / DOA, / IPDI gumstock 6%
Cyclotol	RDX 75-60-80% / TNT 25-20-40%
Cyclotol 75/25	75 wt% RDX/25 wt% TNT
Cyclotol 70/30	70 wt% RDX/30 wt% TNT
Detasheet	PETN / Plasticizer
Detasheet C	63 wt% PETN 63% / , 8 wt% NC 8% / , 29 wt% Elastomeric binder 29%, 6300
Detasheet D	75 wt% PETN 75% / , 25 wt% Elastomeric binder 25%, 6301 Note: This material is usually red, but it is an explosive, not an inert material.
DNAT	Dinitroazotriazole 100%
EDC-8	76.0 wt% PETN 76% / , 24.0 wt% RTV Silicone Sylgard 24%
EDC-18	HNS 95% / , Kel-F 5%
EDC-28	94 wt% RDX 94% / , 6 wt% FPC 461 (polymer) 6%
EDC-29	HMX 95% / , Polyurethane 5%
EDC-31	TATB 75% / , HMX 22.5% / , HTPB-IDPI 2.5%
EDC-32	85 wt% HMX 85% / , 15 wt% Viton A 15%, LX-04
EDC-35	TATB 95% / , KE Kel-F 5%
EDC-37	91 wt% HMX 91% / , 1 wt% dinitroethylbenzene (DNEB) 5.2% / trinitroethylbenzene (TNEB) 2.8% / Nitrocellulose 1% / 8 wt% K-10 Liquid
EDC-38	94.5 wt% HMX 94.5% / , 3.5 wt% K-10 Liquid 3.5% / , 2 wt% Polyurethane 2%
EF-96	96% HMX 96% / , 4% i Inert binder 4%
Fixor	70/30 AN/NM Ammonium nitrate 70% / Nitromethane 30%
FOX-7	1,1-diamino-2,2-dinitroethylene, AKA 1,1-diamino-2,2-dinitroethene
HBX-1	40 wt% RDX 40% / , 38 wt% TNT 38.1% / , 17 wt% Al 17.1% / , 4.5 wt% Wax 4.8% / , 0.5 wt% CaCl₂ 0.5%
Helix-72	6:1 NM / Al powder by weight
IMX-104	Dinitroanisole (DNAN) 31.7% / , NTO 53% / , RDX 15.3%
Kine-Pak/Kinestick	70/30 AN/NM Ammonium nitrate 70% / Nitromethane 30%, Slurry
LAX-118	95% FOX-7 95% / , Kel-F 5%
LLM-105	ANPZO, RX-55 AE-5 2,6-Diamino-3,5-dinitropyrazine-1-Oxide
LX-04	85.5 wt% HMX/15.0 wt% Viton A
LX-07	90 wt% HMX 90% / , 10 wt% Viton A 10%, PBX-9012, X-0211
LX-10	95.0 wt% HMX/5.0 wt% Viton A

Table 2-8 (continued)
Waste Explosives^a Treated by Open Detonation at Los Alamos National Laboratory

Explosives	Other Names, Compositions, or Reference
LX-14	95.5 wt% HMX 95.5% / 4.5 wt% Estane 4.5%, 5702 F1 (X-0282)
LX-15	HNS 95% / Kel-F 5%
LX-16	PETN 96% / FPC 461 4%
LX-17	TATB 92.5% / Kel-F 7.5%
LX-18	HNS 99.5% / Epoxy 0.5%
MDF	Mild Detonating Fuse
Nonel	RDX Lined Metal Tubing
Octogen	94.5 wt% HMX 94.5% / 4.5 wt% Wax 4.5% / 1 wt% Graphite 1%
Octol	75 wt% HMX 75% / 25 wt% TNT 25%, 740N
PAX	77% HMX 77% / 15% Al 15% / 4.8% BDNPA (plasticizer) 4.8% / 3.2% CAB 3.2%
PBX-7	TATB 60% / RDX 35% / Teflon 5%
PBX 9001	90 wt% RDX 90% / 8.5 wt% Polystyrene 8.5% / 1.5 wt% Dioctyl phthalate 1.5%
PBX 9007	90 wt% RDX 90% / 9.1 wt% Polystyrene 9.1% / 0.5 wt% Dioctyl phthalate 0.5% / 0.4 wt% Resin 0.4%
PBX 9010	90 wt% RDX 90% / 10 wt% Kel-F 3700 Elastomer 10%
PBX 9011	90 wt% HMX 90% / 10 wt% Estane 5703 F 1 10%
PBX 9205	92 wt% RDX 92% / 6 wt% Polystyrene 6% / 2 wt% Dioctyl phthalate 2%
PBX 9206	92 wt% HMX 92% / 8 wt% Kel-F 3700 Elastomer 8%
BTF	Benzotrifuroxan
Hydrazinium Mononitrate	Hydrazine nitrate
ABX 116-2	TATB 95% / Silver 5%
ABX 120-1	TATB 60% / Silver 3% / Indium 19% / Bismuth 18%
DAAF/PIB	DAAF 50-100% / Polyisobutylene 0-50%
IMX-101	Dinitroansiole (DNAN) 43.5% / NQ 36.8% / NTO 19.7%
PBX 9401	RDX 94.2% / Polystyrene 3.6% / Trioctyl phosphate 2.2%
PBX 9404	HMX 94% / NC 3% / CEF (chloroethyl phosphate) 3%
PBX 9405	RDX 93.7% / NC 3.15% / CEF 3.15%
PBX 9407	RDX 94% / Exon-461 (polymer) 6%
PBX 9501	HMX 95% / Estane 2.5% / Nitroplasticizer (NP) 2.5%
PBX 9502	TATB 95% / Kel-F Elastomer 5%, X-0290
PBX 9503	TATB 80% / HMX 15% / Kel-F Elastomer 5%, X-0351
PBX 9504	TATB 69.8% / PETN 25% / Kel-F Elastomer 5% / Dye 0.2%, X-0407
PBXN-5	HMX 95% / Viton A 5%, LX-10
PBXN-7	TATB 60% / RDX 35% / Viton 5%
PBXN-7 Type 1	TATB 60% / RDX 35% / Teflon 5%

Table 2-8 (continued)

Waste Explosives^a Treated by Open Detonation at Los Alamos National Laboratory

Explosives	Other Names, Compositions, or Reference
<u>PBXN-7 Type 2</u>	<u>TATB 60% / RDX 35% / Viton-A 5%</u>
<u>PBXN-9</u>	<u>HMX 92% / Hytemp 6% / Dioctyl Adipate (DOA) 2%</u>
<u>PBXN-109</u>	<u>RDX 64% / Al 20% / binder 20%</u>
<u>PBXN-110</u>	<u>HMX 88% / HTPB (Hydroxy-terminated Polybutadiene) 12%, PBXW-113.</u>
<u>PBXN-111</u>	<u>AP 43% / Al 25% / RDX 20% / Binders 12%</u>
<u>PBXN-112</u>	<u>HMX 89% / Cobalt Acetoacetinate (polylaurylmethacrylate binder) 0.0025%, PBXC-129</u>
<u>PBXN-113</u>	<u>HMX 45% / Aluminum 35% / HTPB (Hydroxy-terminated Polybutadiene) 9.335% / Isodecyl Pelargonate 9.335% / Isophorone Diisocyanate 0.89% / Lecithin 0.36% / Triphenyl bismuth 0.03% / Ethanox-702 0.05%</u>
<u>Pentolite</u>	<u>TNT 50% / PETN 50%, 5001</u>
<u>PLG/UW-1</u>	<u>AP 44.73% / Al 37.52% / RDX 4% / TMETN 11.3% / PCP-0260 0.94% / PCP-030 0.24%</u>
<u>RSI-007</u>	<u>CL-20 97.75% / Zeon acrylic polymer 2% / PTFE (Teflon) 0.25%</u>
<u>RX-55</u>	<u>LLM-105 92.5-99% / Viton A 1-7.5%</u>
<u>Semtex 1A</u>	<u>PETN 83.5% / heavy oil 12.4% / rubber 4.1%, X-0564</u>
<u>Semtex 10</u>	<u>PETN 85% / 2bf 11.3% / acrylonitrile butadiene rubber 3.7%</u>
<u>Semtex 1H</u>	<u>RDX 60.5% / PETN 25% / heavy oil 11.6% / rubber (styrene/butadiene) 2.9%, X-0565</u>
<u>TAGzT Aluminum Formulation</u>	<u>TAGzT 80% / Al powder 15% / Viton A 5%</u>
<u>TBX01</u>	<u>TAGzT 50% / Al powder 30% / GAP (glycidyl azide polymer) 20%</u>
<u>TBX02</u>	<u>TAGzT 65% / Al powder 30% / Viton A 5%</u>
<u>Tritonal</u>	<u>TNT 80% / Al powder 20%</u>
<u>Urea Nitrate</u>	<u>Urea nitrate 66% / Al flake 33% / Orthoboric acid 1%, RX-61-AH</u>
<u>VEX288-2B</u>	<u>Aluminum, titanium, bismuth trioxide 85% / perfluoropolyether diol binder 15%</u>
<u>X-0106</u>	<u>RDX 76.1% / EXON 461 23.9%</u>
<u>X-0208</u>	<u>RDX 80% / Sylgard 182 20% / XTX-8004</u>
<u>X-0219</u>	<u>TATB 90% / Kel-F 10%</u>
<u>X-0233</u>	<u>HMX 5-40% / Tungsten 40-95% / Polystyrene 0-10% / Plasticizer 0-5%</u>
<u>X-0242</u>	<u>HMX 90-95% / BDNPF-A 0-5% / Estane 0-5% / Calcium stearate 0-5%</u>
<u>X-0298</u>	<u>HMX 97.5% / Kraton 1.43% / Oil 1.17%</u>
<u>X-0309</u>	<u>TNT 74.6% / Al 18.7% / Wax 4.8% / Acetylene black (carbon) 1.9% (Destex)</u>
<u>X-0319</u>	<u>TATB 50% / HMX 45% / Kel-F Elastomer 5%</u>
<u>X-0321</u>	<u>TATB 75% / HMX 20% / Kel-F Elastomer 5%</u>
<u>X-0401</u>	<u>PETN 99.5% / Kel-F 800 0.5%</u>
<u>X-0450</u>	<u>70% TATB / 25% HMX / 5% Estane</u>

Table 2-8 (continued)
Waste Explosives^a Treated by Open Detonation at Los Alamos National Laboratory

Explosives	Other Names, Compositions, or Reference
<u>X-0457</u>	<u>PETN 78% / NuSil CF6-3500 22%</u>
<u>X-0526</u>	<u>TNT 70% / CaCO₃-Talc 30%</u>
<u>X-0534</u>	<u>TNT 50% / CaCO₃ 16-24% / Talc 25-33% / Microballoons 1-2%</u>
<u>X-0535</u>	<u>TZX 95% / OXY-461(polymer) 5%</u>
<u>X-0541</u>	<u>TATB 69.8% / PETN 25% / Kel-F Elastomer 5% / dye 2%</u>
<u>X-0557</u>	<u>HMX 96.4% / Estane 1.1-3.7% / BDNPA-F 0-2.5% / Irganox 1010 0.1%</u>
<u>X-0566</u>	<u>TATB 96.9% / Tungsten trioxide 3.1%</u>
<u>X-0567</u>	<u>DAAF 95% / Polystyrene 2.5% / DOP (di-2-ethylhexylphthalate) 2.5%</u>
<u>X-0569</u>	<u>HMX 85% / Nitroplasticizer 7.5% / Estane 7.5%</u>
<u>XTX-8003</u>	<u>PETN 80% / Sylgard 182 or silicone rubber 20%, LX-13</u>
<u>Benite</u>	<u>Mixture of black powder and NC</u>
<u>Black powder</u>	<u>Standard commercial and military grades only; Potassium nitrate 75%</u>
<u>Black powder substitute</u>	<u>Commercial synthetic black powder substitute, sodium or potassium nitrate based, Pyrodex or similar</u>
<u>HARP-1,-2</u>	<u>HARP propellants are Al/AP/HMX composites</u>
<u>HELP-1,-2</u>	<u>HELP propellants are NC/NG/HMX composites</u>
<u>HPP</u>	<u>Ammonium perchlorate and aluminum propellant</u>
<u>M-14</u>	<u>NC 90% / dinitrotoluene 8% / dibutylphthalate 1% / diphenylamine 1%</u>
<u>Smokeless Powder- Single, Double, or Triple Base</u>	<u>Propellants containing NC, Nitroglycerine (NG), and NQ in combination with stabilizers, plasticizers, inorganic nitrates, and other modifying agents 2,4-dinitrotoluene (2,4-DNT) may also be present</u>
<u>VTP 25540</u>	<u>HMX based High Energy Propellant</u>
<u>High power detonators</u>	<u>Articles such as EBWs and slappers</u>
<u>LEEEDs</u>	<u>Low Energy Electro-Explosive Devices- Articles that may contain lead azide and/or lead styphnate</u>
<u>Library and Analytical Standards</u>	<u>Small quantities (generally <1 kg) of energetic materials used as library and/or analytical standards</u>
<u>Un-fused or un-primed munitions</u>	<u>Generally includes metal-lined shaped charges and conventional bombs filled with explosives or propellants</u>
<u>Small-arms ammunition of caliber 20-mm or less</u>	<u>Generally complete commercial products</u>

^a Additional developmental or novel types/formulations of explosives may be treated at the OD Units in small quantities.

^b Developmental or novel types/formulations of explosives may be added to the allowed energetic materials list at the discretion of the LANL Explosives Review Committee.

Table C-6

(This table is reserved) Explosives* Found in Explosives Wastes and Explosives Contaminated Wastes

Explosive Categorys	Other Names, Compositions, or ReferenceDescription
AN	Ammonium nitrate
CL20	Hexanitrohexaazaisowurtzitane
DAAzF	3,3'-diamino-4,4'-azofurazan
DAAF	Diamino-azoxyfurazaz
DAAT	3,3'-azobis-(6-amino-1,2,4,5-tetrazine)
DAATOx	3,3'-azobis-(6-amino-1,2,4,5-tetrazine)
DATB	Diaminotrinitrobenzene
DHT	Dihydrazino-1,2,4,5-tetrazine
DiPEHN	
DINGU	Dinitroglycoluril
DINA	Di(nitroethyl)-nitramine, Dioxethyl dinitrate
EDNA	Ethylenedinitramine, Halite
FOX-7	1,1-diamino-2,2-dinitrethylene, AKA 1,1-diamino-2,2-dinitroethene
HMX	Cyclotetramethylenetetranitramine
HNAB	2,2',4',6',6'-hexanitrohexaazaisowurtzitane
Hydrogen Peroxide	Pure compound (above 80%)
LAX-112	Bis-diaminotetrazine N-oxide
Nitrocellulose	Single component
NQ	Nitroguanidine, Pierite
NTO	1,2,4-Nitro-tiazole-5-one
PETN	Pentaerythritoltetranitrate
Pieric Acid	1,3,5-Trinitrophenol Note: Pieric acid forms impact sensitive compounds with metal ions.
PYX	2,6-Bis(pierylamino)-3,5-dinitropyridine
RDX	Cyclo-1,3,5-trimethylene-2,4,6-trinitramine; Hexogen, Cyclonite
TAGDNAT	Bis-triaminoguanidinium 3,3'-Dinitroazotriazole
TAGN	Triaminoguanidine nitrate
TAGN4BIM	
TAGzT	Triaminoguanidinium azotetrazolate
TATB	1,3,5-Triamino-2,4,6-trinitrobenzene
TNAZ	1,3,3-Trinitroazetidine
Tetryl	2,4,5-Trinitrophenylmethylnitramine
HNS	Hexanitrostilbene
TNT	2,4,6-Trinitrotoluene; Trotyl

Explosive Categorys	Other Names, Compositions, or ReferenceDescription
TriPEON	Tripentaerythritol octanitrate
FEFO	Bis (2-fluoro-2,2-dinitroethyl) formal
Isopropylnitrate	
Methylnitrate	
NM	Nitromethane
Tetranitromethane	
AFX 757	AP 30%, Al 33%, RDX 25%, Binders 12%
AFX 1209 Type II	Carnauba Wax 1.91%, Lecithin, 0.78%, Isodecyl pelargonate 0.81 %, Al 5%, HMX 12%, Tungsten, 79.5%, TMD 6.27%
AFX 1212	Carnauba Wax 3.82%, Lecithin 1.55%, Bis(2-ethylhexyl) adipate 1.63%, Al 10%, HMX 20%, Tungsten 63%
Al/Fomblin oil	65.7% Fomblin oil, 34.3% Al
AP/Fuel mixture	AP, 23% sugar
AP/Fuel mixture	AP, 23% Al
AP/Fuel mixture	AP, 7.3% dodecane
ANFO	Ammonium nitrate/fuel oil
Boracitol	60 wt% Boric acid/40 wt% TNT
Baratol	76 wt% Barium nitrate/24 wt% TNT
Calcitol	40 wt% TNT/55-60 wt% CaCO ₃ /0-2 wt% Tale/1-2 wt% Microballoons, X-0533
CH-6	97.5 wt% RDX/1.5 wt% Calcium stearate/0.5 wt% Polyisobutylene/0.5 wt% Graphite
CL-20	2,4,6,8,10,12-hexanitro-2,4,6,8,10,12-hexaazaisowurtzitane; hexanitrohexaazaisowurtzitane
Comp. A	91 wt% RDX/9 wt% Beeswax
Comp. A-2	91 wt% RDX/9 wt% Synthetic wax
Comp. A-3	9085, 91 wt% RDX/9 wt% Beeswax
Comp. A-4	97 wt% RDX/3 wt% Beeswax
Comp. A-5	98.5 wt% RDX/1.5 wt% Beeswax
Comp. B	64 wt% RDX/36 wt% TNT, Comp B, Hexolite, Hexotol
Comp. B-3	60 wt% RDX/40 wt% TNT
Comp. C-3	9080, 88 wt% RDX/12 wt% Wax
Comp. C-4	9081, 91 wt% RDX/2.1 wt% Polyisobutylene/1.6 wt% Motor oil/5.3 wt% Di(2-ethylhexyl) sebacate
CR-1	94% RDX, 6% HTPB/DOA/IPDI gumstock
CR-2	84% RDX, 10% Al, 6% HTPB/DOA/IPDI gumstock
CR-4	84% RDX, 10% Al, 6% HTPB/DOA/IPDI gumstock
CR-5	84% RDX, 10% Al oxide, 6% HTPB/DOA/IPDI gumstock
Cyclotol	RDX 75%, TNT 25%
Cyclotol 75/25	75 wt% RDX/25 wt% TNT

Explosive Category	Other Names, Compositions, or Reference Description
Cyclotol 70/30	70 wt% RDX/30 wt% TNT
Detasheet	PETN/Plasticizer
Detasheet C	63 wt% PETN/8 wt% NC/29 wt% Elastomeric binder
Detasheet D	75 wt% PETN/25 wt% Elastomeric binder Note: This material is usually red, but it is an explosive, not an inert material.
DNAT	Dinitroazotriazole
EDC-8	76.0 wt% PETN/24.0 wt% RTV Silicone
EDC-18	HNS 95%, Kel-F 5%
EDC-28	94 wt% RDX/6 wt% FPC 461
EDC-29	HMX 95%, Polyurethane 5%
EDC-31	TATB 75%, HMX 22.5%, HTPB-IDPI 2.5%
EDC-32	85 wt% HMX/15 wt% Viton A
EDC-35	TATB 95%, KEL-F 5%
EDC-37	91 wt% HMX/1 wt% Nitrocellulose/8 wt% K-10 Liquid
EDC-38	94.5 wt% HMX/3.5 wt% K-10 Liquid/2 wt% Polyurethane
EF-96	96% HMX 4% inert binder
Fixot	70/30 AN/NM
FOX-7	1,1-diamino-2,2-dinitroethylene, AKA 1,1-diamino-2,2-dinitroethene
HBX-1	40 wt% RDX/38 wt% TNT/17 wt% Al/4.5 wt% Wax/0.5 wt% CaCl ₂
Helix-72	6/1 NM/Al powder by weight
IMX-104	DNAN 31.7%, NTO 53%, RDX 15.3%
Kine-Pak/Kinestick	70/30 AN/NM
LAX-118	95% FOX-7, Kel-F 5%
LLM-105	RX-55-AE-5-2,6-Diamino-3,5-dinitropyrazine-1-Oxide
LX-04	85.5 wt% HMX/15.0 wt% Viton A
LX-07	90 wt% HMX/10 wt% Viton A
LX-10	95.0 wt% HMX/5.0 wt% Viton A
LX-14	95.5 wt% HMX/4.5 wt% Estane 5702-F1 (X-0282)
LX-15	HNS 95%, Kel-F 5%
LX-16	PETN 96%, FPC 461 4%
LX-17	TATB 92.5%, Kel-F 7.5%
LX-18	HNS 99.5%, epoxy 0.5%
MDF	Mild-Detonating-Fuse
Nonel	RDX Lined Metal Tubing
Oetogen	94.5 wt% HMX/4.5 wt% Wax/1 wt% Graphite
Oetol	75 wt% HMX/25 wt% TNT
PAX	77% HMX, 15% Al, 4.8% BDNPA/F, 3.2% CAB
PBX-7	TATB 60%, RDX 35%, Teflon 5%
PBX-9001	90 wt% RDX/8.5 wt% Polystyrene/1.5 wt% Dioctyl-phthalate

Explosive Categorys	Other Names, Compositions, or ReferenceDescription
PBX-9007	90 wt% RDX/9.1 wt% Polystyrene/0.5 wt% Dioctyl-phthalate/0.4 wt% Resin
PBX-9010	90 wt% RDX/10 wt% Kel-F-3700-Elastomer
PBX-9011	90 wt% HMX/10 wt% Estane-5703-F-1
PBX-9205	92 wt% RDX/6 wt% Polystyrene/2 wt% Dioctyl-phthalate
PBX-9206	92 wt% HMX/8 wt% Kel-F-3700-Elastomer
Single component explosives	Explosives such as ammonium nitrate (AN); diamino-azoxyfuran (DAAF); octahydro, 1,3,5,7-tetranitro, 1,3,5,7-tetrazocine (HMX); Pentaerythritoltetranitrate (PETN); and cyclo-1,3,5-trimethylene-2,4,6-trinitramine (RDX) that have not been mixed or blended with other explosives components.
Liquid explosives	Explosives (e.g., pure compound hydrogen peroxide and nitromethane) that are in liquid form at standard temperatures and pressures.
Mixed Explosives	This category includes cast and pressed formations of single component explosives that have been mixed or blended with other explosives, binders, plasticizers, fuels, acids, polymers, or other chemical components.
Propellants	Components, mixtures, composites, and chemical compounds (e.g., black powder and benite) that propel or provide thrust.
Detonators	Devices that contain small amounts of explosives that are used to initiate a larger explosion.
Special explosives	Can include laboratory or analytical standards, developmental, or novel types/formulations of explosives.
Munitions	Can include small-arms ammunition and un-fused or un-primed munitions filled with other explosives or propellants.

^a—~~Additional developmental or novel types/formulations of explosives may be treated at the OD Units in small quantities.~~

Enclosure 2

**Revised Table 2-8 and Table C-6 Without Editing Marks
Los Alamos National Laboratory Permit Modification Request for
Open Detonation Units at Technical Areas 36 and 39**

ENV-RCRA-12-0083

LAUR-12-20363

APR 16 2012

Date

Table 2-8

Waste Explosives^a Detonated Treated By Open Detonation at Los Alamos National Laboratory

Explosives	Other Names, Compositions, or Reference
AN	Ammonium nitrate, 130N
CL20	Hexanitrohexaazaisowurtzitane
DAAzF	3,3'-diamino-4,4'-azofurazan
DAAF	Diamino-azoxyfurazan
DAAT	3,3'-azobis (6-amino-1,2,4,5-tetrazine)
DAATOx	3,3'-azobis (6-amino-1,2,4,5-tetrazine) n-oxide
DATB	Diaminotrinitrobenzene, 1201
DHT	Dihydrazino-1,2,4,5-tetrazine
DiPEHN	Dipentaerythritol hexanitrate
DINGU	Dinitroglycouril
DINA	Dinitroxydiethylnitramine
EDNA	Ethylenedinitramine, Halite, 1101
FOX-7	1,1diamino-2,2dinitrethylene; 1,1-diamino-2,2dinitroethene
HMX	Octahydro, 1,3,5,7-tetranitro, 1,3,5,7-tetrazocine; 03NN
HNAB	Hexanitroazobenzene
Hydrogen Peroxide	Pure compound (above 80%)
TZX	Diaminotetrazine dioxide, LAX-112
NC	Single component Nitrocellulose
NQ	Nitroguanidine, Picrite, 07NN
NTO	3-nitro-1,2,4-Nitro-tiazole-5-one
PETN	Pentaerythritoltetranitrate, 06NN
Picric Acid	1,3,5-Trinitrophenol Note: Picric acid forms impact-sensitive compounds with metal ions.
PYX	2,6-Bis(picrylamino)-3,5-dinitropyridine
RDX	Cyclo-1,3,5-trimethylene-2,4,6-trinitramine, 02NN
TAGDNAT	Bis-triaminoguanidinium 3,3'-Dinitroazotriazole
TAGN	Triaminoguanidine nitrate
TAGN4BIM	Triaminoguanidinium tetranitrobiimidazole
TAGzT	Triaminoguanidium azotetrazolate
TATB	1,3,5-Triamino-2,4,6-trinitrobenzene; 1701
TNAZ	1,3,3-Trinitroazetidene
Tetryl	2,4,6-Trinitrophenylmethylnitramine
HNS	Hexanitrostilbene, 3001
TNT	2,4,6-Trinitrotoluene; Trotyl; 010N
TriPEON	Tripentaerythritol octanitrate
FEFO	Bis (2-fluoro-2,2-dinitroethyl) formal

Table 2-8 (continued)
Waste Explosives^a Treated by Open Detonation at Los Alamos National Laboratory

Explosives	Other Names, Compositions, or Reference
Isopropylnitrate	Chemical Abstracts Service Registry Number (CAS Number) 1712-64-7
Methylnitrate	CAS Number 598-58-3
NM	Nitromethane
Tetranitromethane	CAS Number 509-14-8
AFX-757	Ammonium perchlorate (AP) 30% / Aluminum (Al) 33% / RDX 25% / Binders 12%
AFX-1209 Type II	Carnuba Wax 1.91% / Lecithin, 0.78% / Isodecyl pelargonate 0.81 % / Al 5% / HMX 12% / Tungsten, 79.5%
AFX-1212	Carnuba Wax 3.82% / Lecithin 1.55% / Bis(2-ethylhexyl) adipate 1.63% / Al 10% / HMX 20% / Tungsten 63%
Al/Fomblin oil	Aluminum particles / Fomblin Oil
AP/Fuel mixture	Ammonium perchlorate in combination with sugar, metal powders, or dodecane
AP/Fuel mixture	Ammonium perchlorate / Aluminum particles
ANFO	Ammonium nitrate / fuel oil
Boracitol	Ortho-boric acid 60% / TNT 40%
Baratol	Barium nitrate 76% / TNT 24%, 76NN
Calcitol	TNT 40% / CaCO ₃ 55-60% / Talc 0-2% / Microballoons 1-2%, X-0533
CH-6	RDX 97.5% / Calcium stearate 1.5% / Polyisobutylene 0.5% / Graphite 0.5%
Comp. A	RDX 91% / Wax 9%; Includes Comp. A-2, Comp. A-3, & 9085
Comp. A-4	RDX 97% / Beeswax 3%
Comp. A-5	RDX 98.5-99% / Stearic acid 1-1.5%
Comp. B	RDX 63% / TNT 36% / Wax 1%, 60NN, Hexolite, Hexotol
Comp. B-3	RDX 60% / TNT 40%, 60NN
Comp. C-3	RDX 78% / Plasticizer or oil 22%, 9080
Comp. C-4	RDX 91% / Polyisobutylene 2.1% / Motor oil 1.6% / Di(2-ethylhexyl) sebacate 5.3%, 9081
CR-1	RDX 94% / Hydroxyl-terminated polybutadiene (HTPB), Dioctyl Adipate (DOA), Isophorone diisocyanate (IPDI) gumstock 6%
CR-2	RDX 84% / Al 10% / HTPB, DOA, IPDI gumstock 6%
CR-4	RDX 84% / nm Al 10% / HTPB, DOA, IPDI gumstock 6%
CR-5	RDX 84% / nm Al oxide 10% / HTPB, DOA, IPDI gumstock 6%
Cyclotol	RDX 60-80% / TNT 20-40%
Detasheet	PETN / Plasticizer
Detasheet C	PETN 63% / NC 8% / Elastomeric binder 29%, 6300
Detasheet D	PETN 75% / Elastomeric binder 25%, 6301

Table 2-8 (continued)
Waste Explosives^a Treated by Open Detonation at Los Alamos National Laboratory

Explosives	Other Names, Compositions, or Reference
DNAT	Dinitroazotriazole 100%
EDC-8	PETN 76% / Sylgard 24%
EDC-18	HNS 95% / Kel-F 5%
EDC-28	RDX 94% / FPC 461 (polymer) 6%
EDC-29	HMX 95% / Polyurethane 5%
EDC-31	TATB 75% / HMX 22.5% / HTPB-IDPI 2.5%
EDC-32	HMX 85% / Viton A 15%, LX-04
EDC-35	TATB 95% / Kel-F 5%
EDC-37	HMX 91% / dinitroethylbenzene (DNEB) 5.2% / trinitroethylbenzene (TNEB) 2.8% / Nitrocellulose 1%
EDC-38	HMX 94.5% / K-10 Liquid 3.5% / Polyurethane 2%
EF-96	HMX 96% / Inert binder 4%
Fixor	Ammonium nitrate 70% / Nitromethane 30%
HBX-1	RDX 40% / TNT 38.1% / Al 17.1% / Wax 4.8% / CaCl ₂ 0.5%
Helix-72	6:1 NM / Al powder by weight
IMX-104	Dinitroanisole (DNAN) 31.7% / NTO 53% / RDX 15.3%
Kine-Pak/Kinestick	Ammonium nitrate 70% / Nitromethane 30%, Slurry
LAX-118	FOX-7 95% / Kel-F 5%
LLM-105	ANPZO, 2,6-Diamino-3,5-dinitropyrazine-1-Oxide
LX-07	HMX 90% / Viton A 10%, PBX-9012, X-0211
LX-14	HMX 95.5% / Estane 4.5%, X-0282
LX-15	HNS 95% / Kel-F 5%
LX-16	PETN 96% / FPC 461 4%
LX-17	TATB 92.5% / Kel-F 7.5%
LX-18	HNS 99.5% / Epoxy 0.5%
Octogen	HMX 94.5% / Wax 4.5% / Graphite 1%
Octol	HMX 75% / TNT 25%, 740N
PAX	HMX 77% / Al 15% / BDNPA-F(plasticizer) 4.8% / CAB 3.2%
PBX-7	TATB 60% / RDX 35% / Teflon 5%
PBX 9001	RDX 90% / Polystyrene 8.5% / Dioctyl phthalate 1.5%
PBX 9007	RDX 90% / Polystyrene 9.1% / Dioctyl phthalate 0.5% / Resin 0.4%
PBX 9010	RDX 90% / Kel-F Elastomer 10%
PBX 9011	HMX 90% / Estane 10%
PBX 9205	RDX 92% / Polystyrene 6% / Dioctyl phthalate 2%
PBX 9206	HMX 92% / Kel-F Elastomer 8%
BTF	Benzotrifuroxan

Table 2-8 (continued)
Waste Explosives^a Treated by Open Detonation at Los Alamos National Laboratory

Explosives	Other Names, Compositions, or Reference
Hydrazinium Mononitrate	Hydrazine nitrate
ABX 116-2	TATB 95% / Silver 5%
ABX 120-1	TATB 60% / Silver 3% / Indium 19% / Bismuth 18%
DAAF/PIB	DAAF 50-100% / Polyisobutylene 0-50%
IMX-101	Dinitroansiole (DNAN) 43.5% / NQ 36.8% / NTO 19.7%
PBX 9401	RDX 94.2% / Polystyrene 3.6% / Trioctyl phosphate 2.2%
PBX 9404	HMX 94% / NC 3% / CEF (chloroethyl phosphate) 3%
PBX 9405	RDX 93.7% / NC 3.15% / CEF 3.15%
PBX 9407	RDX 94% / Exon-461 (polymer) 6%
PBX 9501	HMX 95% / Estane 2.5% / Nitroplasticizer (NP) 2.5%
PBX 9502	TATB 95% / Kel-F Elastomer 5%, X-0290
PBX 9503	TATB 80% / HMX 15% / Kel-F Elastomer 5%, X-0351
PBX 9504	TATB 69.8% / PETN 25% / Kel-F Elastomer 5% / Dye 0.2%, X-0407
PBXN-5	HMX 95% / Viton A 5%, LX-10
PBXN-7	TATB 60% / RDX 35% / Viton 5%
PBXN-7 Type 1	TATB 60% / RDX 35% / Teflon 5%
PBXN-7 Type 2	TATB 60% / RDX 35% / Viton-A 5%
PBXN-9	HMX 92% / Hytemp 6% / Dioctyl Adipate (DOA) 2%
PBXN-109	RDX 64% / Al 20% / binder 20%
PBXN-110	HMX 88% / HTPB (Hydroxy-terminated Polybutadiene) 12%, PBXW-113.
PBXN-111	AP 43% / Al 25% / RDX 20% / Binders 12%
PBXN-112	HMX 89% / Cobalt Acetoacetinate (polylaurylmethacrylate binder) 0.0025%, PBXC-129
PBXN-113	HMX 45% / Aluminum 35% / HTPB (Hydroxy-terminated Polybutadiene) 9.335% / Isodecyl Pelargonate 9.335% / Isophorone Diisocyanate 0.89% / Lecithin 0.36% / Triphenyl bismuth 0.03% / Ethanox-702 0.05%
Pentolite	TNT 50% / PETN 50%, 5001
PLG/UW-1	AP 44.73% / Al 37.52% / RDX 4% / TMETN 11.3% / PCP-0260 0.94% / PCP-030 0.24%
RSI-007	CL-20 97.75% / Zeon acrylic polymer 2% / PTFE (Teflon) 0.25%
RX-55	LLM-105 92.5-99% / Viton A 1-7.5%
Semtex 1A	PETN 83.5% / heavy oil 12.4% / rubber 4.1%, X-0564
Semtex 10	PETN 85% / 2bf 11.3% / acrylonitrile butadiene rubber 3.7%
Semtex 1H	RDX 60.5% / PETN 25% / heavy oil 11.6% / rubber (styrene/butadiene) 2.9%, X-0565
TAGzT Aluminum Formulation	TAGzT 80% / Al powder 15% / Viton A 5%

Table 2-8 (continued)
Waste Explosives^a Treated by Open Detonation at Los Alamos National Laboratory

Explosives	Other Names, Compositions, or Reference
TBX01	TAGzT 50% / Al powder 30 % / GAP (glycidyl azide polymer) 20%
TBX02	TAGzT 65% / Al powder 30% / Viton A 5%
Tritonal	TNT 80% / Al powder 20%
Urea Nitrate	Urea nitrate 66% / Al flake 33% / Orthoboric acid 1%, RX-61-AH
VEX288-2B	Aluminum, titanium, bismuth trioxide 85% / perfluoropolyether diol binder 15%
X-0106	RDX 76.1% / EXON 461 23.9%
X-0208	RDX 80% / Sylgard 182 20% / XTX-8004
X-0219	TATB 90% / Kel-F 10%
X-0233	HMX 5-40% / Tungsten 40-95% / Polystyrene 0-10% / Plasticizer 0-5%
X-0242	HMX 90-95% / BDNPF-A 0-5% / Estane 0-5% / Calcium stearate 0-5%
X-0298	HMX 97.5% / Kraton 1.43% / Oil 1.17%
X-0309	TNT 74.6% / Al 18.7% / Wax 4.8% / Acetylene black (carbon) 1.9% (Destex)
X-0319	TATB 50% / HMX 45% / Kel-F Elastomer 5%
X-0321	TATB 75% / HMX 20% / Kel-F Elastomer 5%
X-0401	PETN 99.5% / Kel-F 800 0.5%
X-0450	70% TATB / 25% HMX / 5% Estane
X-0457	PETN 78% / NuSil CF6-3500 22%
X-0526	TNT 70% / CaCO ₃ -Talc 30%
X-0534	TNT 50% / CaCO ₃ 16-24% / Talc 25-33% / Microballoons 1-2%
X-0535	TZX 95% / OXY-461(polymer) 5%
X-0541	TATB 69.8% / PETN 25% / Kel-F Elastomer 5% / dye 2%
X-0557	HMX 96.4% / Estane 1.1-3.7% / BDNPA-F 0-2.5% / Irganox 1010 0.1%
X-0566	TATB 96.9% / Tungsten trioxide 3.1%
X-0567	DAAF 95% / Polystyrene 2.5% / DOP (di-2-ethylhexylphthalate) 2.5%
X-0569	HMX 85% / Nitroplasticizer 7.5% / Estane 7.5%
XTX-8003	PETN 80% / Sylgard 182 or silicone rubber 20%, LX-13
Benite	Mixture of black powder and NC
Black powder	Standard commercial and military grades only; Potassium nitrate 75%
Black powder substitute	Commercial synthetic black powder substitute, sodium or potassium nitrate based, Pyrodex or similar
HARP-1,-2	HARP propellants are Al/AP/HMX composites
HELP-1,-2	HELP propellants are NC/NG/HMX composites
HPP	Ammonium perchlorate and aluminum propellant
M-14	NC 90% / dinitrotoluene 8% / dibutylphthalate 1% / diphenylamine 1%
Smokeless Powder- Single, Double, or Triple Base	Propellants containing NC, Nitroglycerine (NG), and NQ in combination with stabilizers, plasticizers, inorganic nitrates, and other modifying agents

Table 2-8 (continued)
Waste Explosives^a Treated by Open Detonation at Los Alamos National Laboratory

Explosives	Other Names, Compositions, or Reference
	2,4-dinitrotoluene (2,4-DNT) may also be present
VTP 25540	HMX based High Energy Propellant
High power detonators	Articles such as EBWs and slappers
LEEEDs	Low Energy Electro-Explosive Devices- Articles that may contain lead azide and/or lead styphnate
Library and Analytical Standards	Small quantities (generally <1 kg) of energetic materials used as library and/or analytical standards
Un-fused or un-primed munitions	Generally includes metal-lined shaped charges and conventional bombs filled with explosives or propellants
Small-arms ammunition of caliber 20-mm or less	Generally complete commercial products

^a Additional developmental or novel types/formulations of explosives may be treated at the OD Units in small quantities.

^b Developmental or novel types/formulations of explosives may be added to the allowed energetic materials list at the discretion of the LANL Explosives Review Committee.

Table C-6

~~(This table is reserved)~~ **Explosives* Found in Explosives Wastes and Explosives Contaminated Wastes**

Explosive Category	Description
Single component explosives	Explosives such as ammonium nitrate (AN); diamino-azoxyfuran (DAAF); octahydro, 1,3,5,7-tetranitro, 1,3,5,7-tetrazocine (HMX); Pentaerythritoltetranitrate (PETN); and cyclo-1,3,5-trimethylene-2,4,6-trinitramine (RDX) that have not been mixed or blended with other explosives components.
Liquid explosives	Explosives (e.g., pure compound hydrogen peroxide and nitromethane) that are in liquid form at standard temperatures and pressures.
Mixed Explosives	This category includes cast and pressed formations of single component explosives that have been mixed or blended with other explosives, binders, plasticizers, fuels, acids, polymers, or other chemical components.
Propellants	Components, mixtures, composites, and chemical compounds (e.g., black powder and benite) that propel or provide thrust.
Detonators	Devices that contain small amounts of explosives that are used to initiate a larger explosion.
Special explosives	Can include laboratory or analytical standards, developmental, or novel types/formulations of explosives.
Munitions	Can include small-arms ammunition and un-fused or un-primed munitions filled with other explosives or propellants.

* ~~Additional developmental or novel types/formulations of explosives may be treated at the OD Units in small quantities.~~

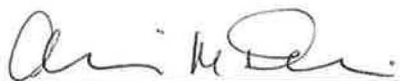
Document: LANL OD Permit Modification Request Correction

Revision: 0.0

Date: April 2012

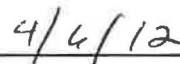
CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



Alison M. Dorries

Division Director
Environment Protection Division
Los Alamos National Laboratory
Operator

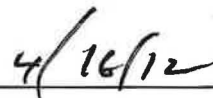


Date Signed



Kevin W. Smith

Manager, Los Alamos Site Office
National Nuclear Security Administration
U.S. Department of Energy
Owner/Operator



Date Signed