



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
US ARMY DEFENSE AMMUNITION CENTER  
1 C TREE ROAD  
MCALESTER OK 74501-9053

SJMAC-ESM

24 JUN 2005

MEMORANDUM FOR Badger Army Ammunition Plant, (DAIM-BO-H-BA/Mr. Sitton),  
2 Badger Road, Baraboo, WI 53913-5000

SUBJECT: Amendment 1 to the Explosives Safety Submission (ESS) for Decontamination and  
Demolition of Buildings at Badger Army Ammunition Plant, Baraboo, WI

1. References:

a. Memorandum, Badger Army Ammunition Plant, (DAIM-B)-H-BA, 14 Feb 2005, subject:  
Explosive Safety Submission for the 5X Certification of Selected Areas at Badger AAP,  
Baraboo, WI Addendum 1.

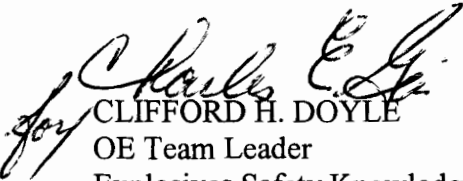
b. AR 385-64, U.S. Army Explosives Safety Program, 1 Feb, 2000.

c. Memorandum, Department of Defense Explosives Safety Board, DDESB-KO,  
24 Jun 2005, subject: Amendment 1 to the Explosives Safety Submission (ESS) for  
Decontamination and Demolition of Buildings at Badger Army Ammunition Plant, Baraboo, WI  
(encl).

2. The subject amendment transmitted by reference 1.a. has been reviewed in accordance with  
reference 1.b. Reference 1.c. provides DDESB approval for changing the decontamination  
method for selected buildings from burning to conventional wet demolition methods. Please  
note the specific additions and modifications contained in paragraphs h, i, j and k of the  
referenced memo. The subject amendment along with this memorandum will be made part of  
the administrative record for the site.

3. The POC is Mr. James Toburen, SJMAC-ESM, DSN 956-8784, or COMML (918) 420-8784,  
email james.toburen@dac.army.mil.

Encl  
as

  
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CF (w/encl):

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Office of the Assistant Secretary of the Army for Installations & Environment), (Asst. for  
Munitions) (DESOH/Mr. King), 110 Army Pentagon, Washington, DC 20310-0110



**DEPARTMENT OF DEFENSE EXPLOSIVES SAFETY BOARD  
2461 EISENHOWER AVENUE  
ALEXANDRIA, VIRGINIA 22331-0600**

**24 JUN 2005**

DDESB-KO

MEMORANDUM FOR DIRECTOR, U.S. ARMY DEFENSE AMMUNITION CENTER,  
ATTENTION: SJMAC-ESM

SUBJECT: Amendment 1 to the Explosive Safety Submission (ESS) for Decontamination and Demolition of Buildings at Badger Army Ammunition Plant, Baraboo, WI

- References:
- (a) USADAC, SJMAC-ESM Memorandum, Subject: Amendment 1 to the Explosive Safety Submission (ESS) for the 5X Certification of Selected Areas at Badger Army Ammunition Plant (BAAAP), 9 March 2005
  - (b) E-mail Message from Mr. James Toburen, USADAC, to CAPT William E. Wright, USN, DDESB Chairman, Subject: Badger AAP Amendment 1, 31 May 2005
  - (c) DDESB-KO Memorandum, Subject: Explosives Safety Submission Decontamination and Demolition of Ten Buildings at Badger Army Ammunition Plant, Baraboo, Wisconsin, 14 August 2003
  - (d) DoD 6055.9-STD, DoD Ammunition and Explosives Safety Standards, 5 October 2004

The DoD Explosives Safety Board (DDESB) Secretariat reviewed the subject amendment to the ESS for Badger Army Ammunition Plant (BAAAP), WI, forwarded via reference (a) and modified via reference (b), against the DDESB approval at reference (c) and the explosives safety requirements at reference (d). This amendment adds mechanical building demolition methods to dismantle and demolish 82 buildings located within the BAAAP smokeless powder and rocket propellant production areas. Based on the information provided, amendment 1 to the Badger AAP for decontamination and demolition of explosive contaminated buildings is approved, with the additional or modified requirements and clarifications at subparagraphs h through k below. In summary:

a. The buildings will be dismantled using a wet demolition process. Per reference (b), wet demolition was selected for these buildings because of their low risk of ignition hazard – low contamination with explosive residue. Expected explosive residues include spilled propellant grains, settled and residual dusts, residual rocket paste/propellant.

b. The procedures in this amendment do not include removal of concrete foundations, concrete slabs, or associated underground utilities (pipelines, sewers, and other

utility conduits). These building components will be subjected to explosive hazard inspections and post-demolition sampling and analysis before transferring this portion of the BAAAP.

c. Per reference (b), large equipment has been determined not to present an explosive hazard; however, this equipment will be flashed in the decontamination oven site-approved via reference (c). Small equipment items will be decontaminated through a wipe-down and then transferred to the decontamination oven for flashing.

d. During inspections, if a structure is deemed structurally unsafe to enter and engineering controls cannot feasibly remove the unsafe condition, remote procedure may be used to dismantle the structure to a point where inspection for energetic materials is possible. If this is not feasible, the structure will be recommended for thermal decomposition.

e. Each structure will be visually inspected internally and externally. Some disassembly of the structure may be necessary to ascertain the presence of contamination where not readily accessible for visual inspection. Inaccessible pipes, vessels, and void spaces may be inspected using a boroscope equipped with a cool light.

f. Utility piping and infrastructure included in the demolition process but that are inaccessible to visual inspection or for use of the boroscope will be removed using remote cutting shears. These items will undergo hydro jet pressure washing prior to flashing in the decontamination oven.

g. Per reference (b), a 1,250 foot arc will be maintained as an exclusion zone around all structures determined to present an explosive hazard, and during all work activities involving explosives decontamination, removal of asbestos-containing materials, and demolition work. Teams working within the arc will maintain a 200 foot separation distance between teams. Personnel not essential to the work activities at hand will evacuate to a safe location outside the exclusion zone.

h. The net explosive weight (NEW) anticipated to be recovered from each structure is 30 lbs or less and will be stored and disposed of as approved in reference (c).

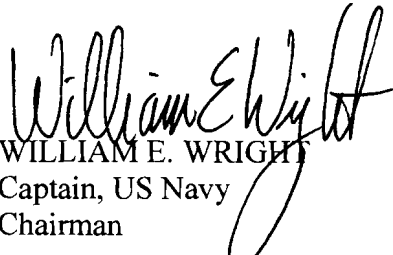
NOTE: Because the exclusion zone was established as 1,250 feet for all activities, including intentional detonations, the NEW subjected to intentional detonation must not exceed 55.3 lbs. Paragraph 6.5 of reference (b) must be modified to limit the intentional detonation shots to a maximum NEW of 55.3 lbs, including the NEW of the items to be destroyed and the demolition explosives.

i. Per Army document IOCP 385-1 (Certification and Remediation of Explosive Contamination, 16 July 1997), articles, equipment, and buildings that were never contaminated with explosives are classified as 0X. The submission at reference (b) incorrectly classifies these items as 5X. The submission must be change to indicate the correct classification for all items and structures.

j. Visual inspection to verify that 5X level of decontamination has been achieved is acceptable only when every surface of the item is visible or, when not visible, it is capable of being inspected or sampled. Where holes, blind spaces, rivets, cracks, etc., exist, decontamination methods other than heat usually are not effective in removing the contaminant. A situation can result where the surface appears decontaminated to visual examination and/or surface testing, but hazardous explosive contaminants remain hidden. (Ref: IOCP 385-1, 17 July 1997) Therefore, the preferred method to achieve a 5X decontamination level is to subject the contaminated items to heat (e.g., fire or hot gas), as necessary to ensure explosive contaminants are consumed. If heat treatment is not possible, then the items (walls, equipment, piping, drains, conduits, etc) must be taken apart and all pieces made accessible for visual inspection and sampling/testing to determine if they still contain explosives after the chemical or physical removal treatment has been performed. All surfaces, equipment, piping, and other items known or suspected to have been contaminated with explosives must be inspected and screened (using EXPRAY<sup>®</sup> or Drop-Ex<sup>®</sup>, as proposed, or other effective field or lab tests methods for detection of explosives) and documented to ensure they contain no explosive hazards prior to classifying them as 5X.

k. All operations must comply with all applicable Federal, state and local laws and regulations.

The point of contact for this action is Ms. Lydia E. Sanchez, (703) 325-1373, DSN 221-1373, E-mail address [Lydia.Sanchez@ddesb.osd.mil](mailto:Lydia.Sanchez@ddesb.osd.mil).

  
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Captain, US Navy  
Chairman