DEPARTMENT OF THE ARMY
U S ARMY ABERDEEN PROVING GROUND
ABERDEEN PROVING GROUND, MARYLAND 21005

STEAP-SA

18 MAR 1981

SUBJECT: Application for Amendment to Source Material License SUB 834

THRU Commander
US Army Test and Evaluation Command
ATTN: DRSTE-SA
Aberdeen Proving Ground, Maryland 21005

Ltr Col GS DRSTE-PP 27 Mar 81

THRU Commander
US Army Materiel Development and Readiness Command
ATTN: DRCSF-P
5001 Eisenhower Avenue
Alexandria, Virginia 22333

TO Director
Nuclear Material Safety and Safeguards
US Nuclear Regulatory Commission
Washington, DC 20555

1. Request that Source Material License SUB 834 be amended to authorize destructive testing of a minimum of 10 and up to 25 depleted uranium (staballoy) projectiles by firing into a target butt enclosure for the purpose of determining enclosure integrity.

2. The destructive testing of a minimum of 10 rounds and a maximum of 25 rounds will be used to obtain data on containment of aerosolized material.

3. The data and analysis results will be furnished to the Nuclear Regulatory Commission upon completion of testing and analysis in an amendment requesting authorization for continuation of T&E and QA firing similar to that furnished in Aberdeen Proving Ground letter application dated 12 May 1980 which resulted in issuance of SUB 834 Amendment 08.

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4. This enclosure will be erected at the BTD Range (200-meter range) at Aberdeen Proving Ground. The enclosure drawing is inclosed at Inclosure 2. Testing protocols are at Inclosure 1. Record of Determination is at Inclosure 3. Completion date of the target enclosure is expected to be 1 June 1981. The Aberdeen Proving Ground Radiation Protection Committee approved the subject application for amendment in its 4 March 1981 meeting. Expeditious processing is requested.

3 Incl
as

WILLIAM E. WATTS
Colonel, OrdC
Commanding

Protocol for 200 Meter (BTD) Environmentally Controlled Enclosed Depleted Uranium Firing Facility

1. Description of Enclosed Target Facility

1.1 Structure - The environmentally controlled facility consists of an enclosure 24 feet wide by 24 feet high by 50 feet long. It is equipped with an air evacuation/filtration system. The enclosure is of structural steel construction. The rearmost areas (in the vicinity of the target) are reinforced with additional steel plates for protection from fragments. Provision is made for removable roof panels, sliding door (side opening) for target access, and back stop plates. Provision is made for decontamination (wash down) of the interior with floor drainage to a holding/evaporation tank.

1.2 Air Evacuation/Filtration System - The system consists of prefilters and high efficiency particulate arrestor (HEPA) filters with associated housings, manometers, air handling unit, and ductwork. Face area of the filter bank is designed so as not to exceed the manufacturers recommended maximum face velocity when operated at the designed flow rate of 18000 cubic feet per minute.

a. Prefilters, Stages 1 and 2 - The prefilter section consists of two arrays (banks) within a steel housing. The first stage consists of 18 each 2-inch minimum thickness 2 foot by 2 foot pleated fire retardant filters. The second stage consists of a bank of 18 each high efficiency (90% average NBS dust spot efficiency) dry cell fire retardant filters. Both stages are loaded from the same access area.

b. High Efficiency Particulate Arrestor (HEPA) Filters - The HEPA filter bank consists of 18 fire retardant filters of not less than 99.97% efficiency at 0.3 Micron size particle. This is a front loading system.

c. Manometers - Inclined type manometers are installed across each filter bank. A vertical manometer is installed across the system. All manometers are equipped with over pressure safety traps and valves for checking zero setting.

d. Air Handling Unit - The unit is a Buffalo Forge size 210 BLD high pressure double inlet drawn-thru system equipped with radial-type variable inlet vanes for automatic air volume control. The unit is driven with an internal mounted 40 horse power electric motor.

e. Ductwork - All ductwork is of welded steel plate and sheet metal construction with suitablely located access doors for filter maintenance.

2. Test Plan for Qualifying the Enclosure

2.1 Objective - To determine the functional adequacy and strength of design of an enclosure for containing and restricting emission of radioactive particulates to the environment when testing ammunition with depleted uranium (staballoy) penetrators against armor targets.

2.2 Scope - The qualification test will require approximately 25 days to complete and will be conducted by the Materiel Testing Directorate at US Army Aberdeen Proving Ground. The individual subtests are designed to generate data on the strength of design of the enclosure, filter integrity and performance of the air evacuation/filtration system.

2.3.1 In Place Leak Tests - These tests will be performed prior to use of the facility. The tests will conform to American National Standards Institute standards as listed in ANSI N509 - 1976 and ANSI N510 - 1975 as implemented by NRC Regulatory Guide 1.140 - March 1978.

2.3.2 Strength of Design/Filter Integrity Test - Sufficient static charges will be detonated and/or tungsten penetrators fired against armor targets to determine strength of design of the enclosure and filter integrity.

a. Prior to testing and after completion of these tests visual inspection and in-place diocty phthalate (DOP) leak tests will be conducted. DOP tests during the test may be conducted as deemed warrented.

b. Visual inspection and photographic coverage will be utilized to check for noticeable leakage, holes, breaks, or other damage to the facility.

c. Pressure transducers will be used at various locations within the enclosure to determine overpressures and severity of the test. The pressures before and after each filter bank will be recorded and used for filter integrity confirmation.

2.3.3 Integrity of Air Evacuation/Filtration System - A minimum of 10 and maximum of 25 depleted uranium penetrators will be fired against armor targets to determine adequacy of the air evacuation/filtration system.

a. Visual tests will be performed to check for noticeable leaks, holes, or other damage to the filters and will be accomplished in conjunction with air sampling after each round is fired.

b. Surveillance of the enclosure and filtering system (para 2.3c) will be performed throughout the test phase.

c. Air sampling will be performed at the exhaust of the air evacuation/ filtration system with in-line air particulate monitoring instrumentation. This sampling will be performed continuously whenever the system is in operation.

ABERDEEN PROVING GROUND

RECORD OF DETERMINATION

OF

ENVIRONMENTAL CONSIDERATIONS

FOR

RESEARCH, DEVELOPMENT, TEST AND EVALUATION ACTIVITIES

The proposal to fabricate a depleted uranium (DU) test target enclosure at the 200 Meter Range, BTD, APG and to operate this range throughout a long term test and evaluation program for testing of kinetic energy DU penetrator munitions against targets within the enclosure at various ranges up to 200 meters.

(A) is exempt from NEPA requirements under the provisions of the Federal law entitled _____.

OR (B) is adequately covered in the existing environmental document entitled Testing of Depleted Uranium Penetrator Munitions, APG, dated 4 June 1980.

OR (C) has been evaluated for its potential environmental impacts (copy attached). There are/are not circumstances which make an EA/EIS necessary. This proposal does/does not qualify for Categorical Exclusion #_____ _____ contained in _____.

Project Officer Capt James D Vickery FA Date 7 Jan 81

Activity Environmental Quality Coordinator M. J. Drake Date 7 Jan 81

APG Environmental Quality Coordinator Willard J Russell

Date Approved 7 Jan 81

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