26 August 1980

DRAFT

POINT PAPER

Subject: Impact of NATO Small Arms Test Recommendations for Second NATO Round, NATO Standardization Agreement and NATO Country Decisions

1. The Unclassified NATO Small Arms Test Control Commission's (NSMATCC) final recommendations for a second standard NATO ammunition have been concluded and the report promulgated within the last two months, i.e., June and July 1980. Its basic recommendations were :

a) NAAG approve the adoption of 5.56mm as the second standard NATO caliber.

b) NAAG approve SS109 ammunition as the best candidate as a basis for this standardization.

c) NAAG direct Panel III to expedite preparation of STANAG 4172 for an ammunition for use in both individual and light support weapons using SS109 ammunition as a basis.

d) NAAG agree that a recommendation for NATO standardization of an individual or light support weapon should not be made.

2. Panel III was published within the last week, i.e., 18-11 August 1980. The NATO Unclassified document STANAG 4172 (third draft) suggests standardization with 5.56mm ammunition. In summary, the STANAG states:

a) NATO 5.56mm cartridge designs will comply with the essential characteristics of a cartridge defined in the NSMATCC final report. (Note: Exterior dimensions similar to SS109; bullet weight not specified except SS109 is 68 grains; bullet is steel core, copper jacketed, heavier bullet will require 1:177.8mm 1:7" twist.)

b) Precision .When fired from a standard proof barrel (MANN barrel) at a range of 600 meters, all shot shall be in groups whose horizontal and vertical standard deviations are 225mm or less for metal bullets and 340mm or less for tracer bullets. (This equates to a hit standard NATO 3m x 3m target at 600 meters.)

c) Trajectory. The main point of impact for all types ammunition at 600 meters must not deviate by more than 300mm.

d) Terminal Effects. Bullets except tracers will completely perforate a steel plate which represents the characteristics of the German helmet placed 600 m from the muzzle at 0° obliquity.

e) Muzzle Energy. Each NATO cartridge shall produce a muzzle energy in a standard NATO proof barrel of not less than 1,500 joules.

f) Velocity. Each NATO design must comply with the requirements of this STANAG.

g) Chamber Pressure. Average shall not exceed 380 kilo pounds.

The STANAG went on to specify other standards for action time, primer sensitivity, tracer performance (burnout at least 600m), barrel erosion (5,000 round barrel life), function and casualty testing, smoke and flash, fouling, environmental requirements, resistance to cook-off (comparable to that of reference ammunition), etc.

3. Countries' Positions.

U.S.

U.S. Army conferees on Panel III and NSMATCC members have enthusiastically supported the test and NSMATCC recommendations for adoption of an SS109 type bullet. This was reflected in the 28 May SAW IPR recommendations that DARCOM select the FN XM249 MINIMI as the SAW weapon. This is further reflected in the U.S. Army Small Arms Community decision to product improve the M16A-1 by changing its twist from 1:11 to 1:7 in order to accept SS109 type ammunition and achieve the terminal effects experienced with the SS109. Further, the M16A-1 PIP would include a strengthened butt stock and forearm.

FRG Position.

a) Will not field the second NATO round in either the individual weapon or light support weapon role but will adopt the G-11 circa 1987. The steel core SS109 type round as specified in NATO STANAG 4172 is too complicated and expensive for manufacture.

b) FRG internal position of the test impact and FRG future rifle/machine gun plans are as follows:

- The NSMATCC evaluation weighted the 5.56mm cartridge so heavily (because of its low weight and volume) that the 7.62mm cartridge was at a disadvantage before the tests even started.
- However, the results of the shooting test have proven without

doubt the superiority of the cal. 7.62mm and thus reinforces the FRG position that two calibers will be required for the infantry rifleman as small as possible within effective terminal ballistics limits and light machine gun in 7.62mm NATO caliber.

In consequence, the only logical result is to take advantage of G-11 4.7mm caseless technology which reduces volume of the cartridge in comparison to 5.56mm by over one third and reduces weight by about one half. At the same time, the 4.7mm caseless ammunition, during side by side test with the SS109, shows equal test results as that recommended for the SS109. Thus, the final decision would be to complete development and produce the G-11 to have it ready for mass production in 1985 for eventual introduction into the FRG Armed Forces starting in 1987, continue with a light machine gun in caliber 7.62 mm developing a caseless machine gun in that same caliber for MG/ light machine gun utilization.

Netherlands:

Will not adopt the NATO round. Will adopt the G-11.

Norway.

Will not adopt NATO round. Will adopt the G-11.

France.

Will adopt 5.56 in the standard M193 caliber only as an intermediate measure and will adopt G-11.

U.K.

Will accept the NATO second round as a recommendation but defer decision until 1990.

Canada.

Final position not known although their addendum to the NSMATCC report stated that Canada would take note of the report only and that caution must be exercised when using data presented therein. However, they will probably follow the U.S. position on SS109.

Belgium, Denmark, Greece, or Luxembourg.

No comment is as yet known.

4. The impact of the recommendation for a second standard round is that no NATO nation will accept it as a standard round in a light support weapon. This means that SS109 type cartridge as specified in STANAG 4172 is no longer a viable candidate as ammunition for a light support weapon. It appears that the final result of all of the NATO trials in reference to the requirement for a light support weapon employment is to return to the 7.62mm NATO cartridge.

- The FRG position is very similar to the USMC stated position to the U.S. Army (See USMC letter to U.S. Army).
- The U.S. appears to be the only nation to adopt the 5.56mm in a light support weapon which is non-convertible to 7.62mm and thus appears to be excluding itself from any cooperation and standardization and interoperability with NATO and European partners.
- The U.S. adoption of this type cartridge would require further and large-scale ammunition development for a steel core type bullet which is conservatively estimated to be at least twice the cost of present M193 ammunition (about 40¢ versus 19¢ in large-scale production).