

GENERAL DYNAMICS

Ordnance and Tactical Systems



SIMUNITION[®]

**2007 George M. Chinn Award Winner
Bill Dittrich**

**May 8, 2007
Brian Berger**

Chinn Award Criterion

- ▶ **“The George M. Chinn Award is presented annually to honor a government or industry individual who, in the opinion of the Small Arms Systems Division Executive Board, has made significant contributions to the field of small arms and / or infantry weapons.”**

Bill Dittrich Professional Experience

- ▶ **Employee at Frankford Arsenal from 1954-1977 (23 years)**
- ▶ **Professional Experience at Frankford Arsenal**
 - Establishment of computer simulation laboratory (1954 - 1955)
 - Chief of Section responsible for ballistic measurement of small arms ammunition, cartridge activated devices, recoilless rifles, explosives and related systems (1956 -1963)
 - Team Leader of project to develop and produce special weapons, ammunition and related devices for US Special Forces to include silenced or suppressed weapons, special shotguns, propellant / explosives and fire control devices (1964 – 1969)

Bill Dittrich Professional Experience

► Professional Experience at Frankford Arsenal

- Chief Engineer of the Small Caliber Ammunition Program (SCAMP), the Army's first major program in the automation of ammunition production, which was installed at LCAAP in the early 1970's. (1969 – 1977)

► Professional Experience at Picatinny Arsenal

- Chief of Manufacturing Technology at ARDEC (1977 – 1985)
- Development of new manufacturing processes and equipment for small caliber weapons, ammunition, propellants / explosives and fire control devices.

► President of Fleximation – (1985 – present)

- Bill retired and formed a consulting business called Fleximation, Inc.
- Services related to R&D, manufacture, test and failure analysis of small caliber weapons, ammunition and demolitions systems
- Clients have included the US Army, General Dynamics – Canada (SNC TEC), Saco Defense, Olin / Winchester Corp, US Treasury, Dept of Energy and others.

Bill Dittrich Professional Experience

► Patents

- Multistage Weapons, Laser Exciter, Vibration Transducers, Composite Gun Barrels, Non Lethal Ammunition (FX Marking Cartridge Family of Munitions)

► Publications

- Numerous Technical Reports on small arms weapons and ammunition, training manuals on improvised munitions, explosives and special weapons

► Memberships

- National Defense Industrial Association, AUSA, Society of Manufacturing Engineers, Sigma XI, NRA

Bill Dittrich Career Highlights

► Weapons

- Worked on designs for microballistic weapons 1, 2, & 4mm
- Worked on designs for wire guns, laser guns, disposable 21 shot electric fired pistol, CABWS (400+ shot electric fired .22 weapons
- Worked on designs for 12 ga. Automatic shotgun and semi automatic .50 cal sniper rifle
- Evaluation of special designs of submachine guns and weapons silencers for use by Special Forces

► Ammunition

- Teamed with GD-OTS Canada for NSAC Project for LWCC -7.62/5.56mm
- Conceived the FX Marking Cartridge Projectile design and licensed the rights to SNC TEC, currently in use throughout DoD and in **43** countries around the world.
- Worked on a design for Silent Ammunition
- Worked with SNC TEC to design .50 cal limited range, 7.62 short range, plated .50 cal bullets, explosively propelled projectiles

Bill Dittrich Career Highlights

► Ballistic Instrumentation Design Work

- Strain Gauging of barrels for internal pressure studies
- Accelerometers in projectiles to measure actual projectile acceleration
- Bore surface thermocouples with fast response to measure gas temperature / time during a ballistic cycle
- Microwave measurement of projectile velocity / position and tracer performance in flight
- Special transducers, electronic circuitry and computers for instrumentation / data reduction
- Patent on first Piezo Transducer incorporating a field effect transducer impedance converter
- Development of a machine for testing of primer output

Bill Dittrich Career Highlights

► Equipment Design Work

- Assigned in 1970 while at Frankford Arsenal as Chief Engineer of the SCAMP Program. SCAMP machines still in use at LCAAP.
- Helped lay out the entire program and prepare scopes of work for the original equipment manufacturers.
- Helped develop novel manufacturing process, machines, inspection equipment / computer process control including:
 - ◆ 100% in-line inspection of case hardness, grain size, bullet weight, x-ray of powder level, tracer intensity, etc.
 - ◆ Use of vibration and ultrasonic signatures to detect bad parts
 - ◆ Skewed axis roll forming of bullets
 - ◆ Alternate parts feeder concepts, high speed component transfer
 - ◆ Computer studies to optimize line efficiencies, repair and downtimes

Bill Dittrich Career highlights

► Miscellaneous Project Work

- M16 Failure Analysis in Vietnam
- Work on aluminum and steel cartridge cases
- Demolition devices including blasting battery, 2-part safe blasting cap, modular electronic triggering system
- Part of a special project management office at F/A to study barrier / counter barrier R&D.
- Participant in Project Greenball, supplying weapons and training to the US Secret Service White House Detail
- Special processes for micro rifle barrel manufacture
- Thermite devices and metal embrittlement
- 20mm manufacturing line, including 600 ppm HE charging, fuze manufacture, steel case production, load / assembly

Summary - Bill Dittrich

- ▶ **Bill Dittrich has devoted 50+ years to making significant contributions to the field of small arms, ammunition, propellant, automation of mfg equipment, etc.**
- ▶ **\$0 - Contract will ARDEC to mentor young engineers. Bill is actively working with young engineers mentoring them and sharing his knowledge with them to better prepare them for serving the US Army in the future**
- ▶ **He starts each day thinking of ways to improve the equipment in the hands of our soldiers**
- ▶ **Even at the age of (70 plus) he is still active, currently teamed with GD-OTS Canada NSAC project to develop lightweight cartridge cases (7.62 / 5.56mm) which will reduce the weight of the ammo by 20%**
- ▶ **Bill Dittrich's life-long commitment to Small Arms is evident and he continues to contribute significant achievements and therefore he is a deserving recipient of the 2007 Chinn Award**