

The U.S. Department of Defense Joint Non-Lethal Weapons Program



March 2000 Overview Brief

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GUIDANCE

National Defense Authorization Act for FY 96

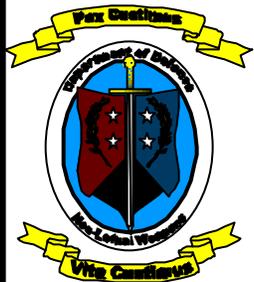
“Sec Def shall assign centralized responsibility for development and (any other functional responsibility the Secretary considers appropriate) of Nonlethal weapons technology”

Office of the Secretary of Defense 22 March 1996 Memo

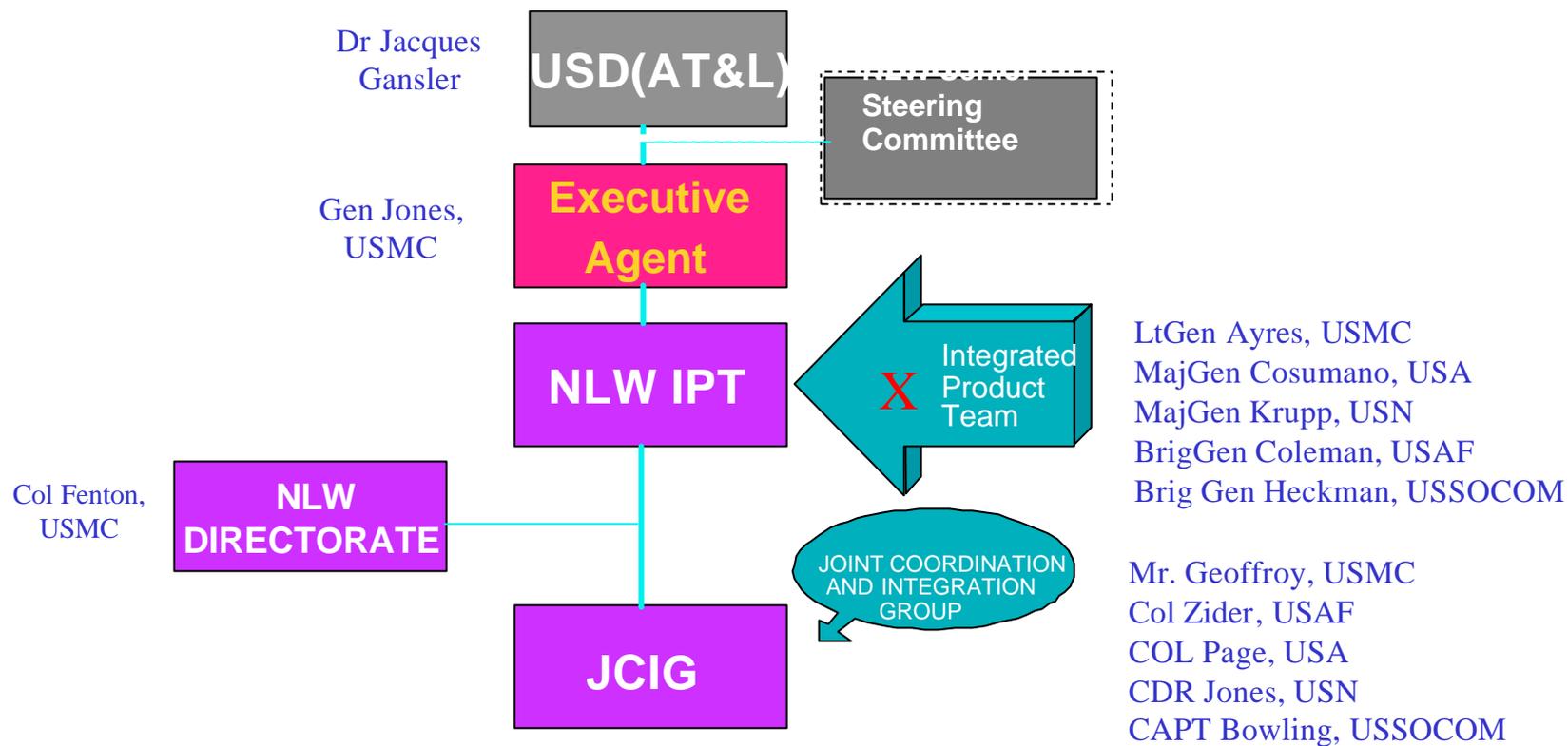
“The Commandant, US Marine Corps will serve as the Executive Agent (EA) for the Non Lethal Weapons Program.”

DoD Directive 3000.3 dtd 9 Jul 96

“Applies to all non-lethal weapon development and acquisition programs and the employment of fielded non-lethal weapons.”



NLW Management Structure



X Non-Voting Members - DOT, DOJ, DOE, Joint Staff/J8, CINCs & OSD



Joint Service MOA

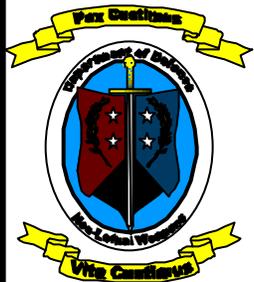
(Revised 23 Jun 99)

The Services agree to coordinate and integrate the development of all NLW programs and activities through the DOD NLW Executive Agent (EA). As such, the JNLWD will serve as the DOD focal point for matters pertaining to non-lethal weapons. Present efforts to enhance and improve the tactical applications through the current development of NLW acquisition programs remains the focus of the directorate. Additionally, the JNLWD remains committed to leveraging developmental and emerging technologies (directed energy, lasers, etc.) that have application at multiple levels of war. For those service-unique systems being specifically developed for strategic application, the directorate will maintain insight, not financial oversight.....



DoD NLW Definition

Weapons systems that are *explicitly designed* and *primarily employed* so as to incapacitate personnel or material, while *minimizing* fatalities, permanent injury to personnel, and undesired damage to property and the environment.

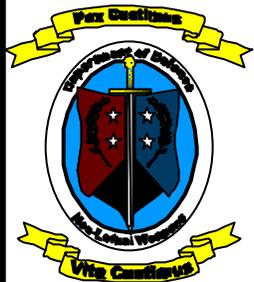


Emerging Operational Environment

Conflicts characterized by:

- **Urbanized Terrain**
- **Non-state Actors**
- **“Asymmetrical War”**
- **Joint Expeditions**





Challenges Facing Military Commanders



- **Availability of Technology**
- **Public Misconception**
- **Increased Legal Issues**

- **Noncombatants**
- **Media Factor**





The Joint NLW Core Capabilities [1996 CINC User Conference]

Counter-personnel

- Crowd Control
- Incapacitate Individuals
- Deny Access
- Clear Facilities/Structures



Counter-materiel

- Area Denial (land, sea, and/or air space)
- Disable/Neutralize Equipment or Facilities



The Joint NLW Concept

Guiding Principles

- ★ Leverage High Technology
- ★ Enhance Operations
- ★ Augment Deadly (Lethal) Force
- ★ Provide Rheostatic Capability
- ★ Focus on Tactical Applications
- ★ Expeditionary
- ★ Acceptable
- ★ Reversible Effects



NON-LETHAL TECHNOLOGY: TAXONOMY

ELECTROMAGNETIC DEVICES

<u>Gamma Rays</u>	<u>X-Ray</u>	<u>Ultraviolet</u>	<u>Infrared</u>	<u>Microwave</u>	<u>Radio</u>	<u>Electricals</u>
- Particle Beam Generator	- X-Ray Weapon	- Lasers - Tactical - Pulsed Chemical	- Lasers - Tactical - Low Energy	- High Powered Microwave - Maser - Thermal Gun	- EMI - Non-Nuclear EMP - Radio Frequency Weapons	- Baton - Sticky Shocker - Stun Gun & Belt

0.38 0.76 2.0 4.0 10 μm



1 nm 1 μm 1 mm 1 m 1 km

<u>ACOUSTIC</u>	<u>BIOTECHNICAL</u>	<u>CHEMICAL</u>	<u>MECHANICAL</u>	<u>OPTICAL</u>
-Acoustics & Opticals Diversionary Device (Flash Bang) Stun Grenade -Blast Wave Projector Explosive/Pyrotechnic Pulsed Laser -High Intensity Sound Curdler Unit HPS-1 Sound System Squawk Box -Infra Sound	-Behavior Altering Drugs Calmatives Gastrointestinal Convulsives -Malodorants Hydrogen Sulfide(H ₂ S) NaS ₈ -Biodegrading Microbes Acids Enzymes -Biomaterials	-Markers Dyes, Paints Smokes -Obscurants Colored Smokes Hardening Agents -Reactants Combustion Alteration Chemical Compounds Embrittlers -Riot Control Agents Tearing Agents CN, CR, CS and Variants Oleoresin Capsicum	-Barriers Coatings - Slippery Foams - Aqueous & Sticky Spikes & Spike Strips -Batons Electrical; Expandable -Entanglements Cloggers Cords, Lines, Rope, Nets Spider Fiber -Projectiles - Blunt Impact Bean Bags Liquid Filled Projectiles Ring Air Foil Grenade Rubber (Sting) Balls Stun Bags Velocity Adjusting Launcher Water (Cannon) Stream	-Holograms Soldier - Forces -Lasers Advanced Tactical Laser Combat Assault Weapon Laser Crazying and Glare Dazer Dazzle Rifle Pulsed Chemical Laser -Lights Dazzle Flares Illuminating Grenades Isotropic Radiators -Stroboscopic Devices Bucha Effect



Fielded Non-Lethal Weapons (Capability Sets)

Protection Items

- Ballistic & Non-Ballistic Body, Face and Shin Shields
- Riot Batons
- Portable Bullhorns
- High Intensity Search Lights
- Disposable Forearm/Ankle Cuffs
- Individual (OC) Pepper Spray Dispensers

Nonlethal Munitions

- 12 Gauge Point, Area & Flash Bang
- 40mm Sponge Grenade*
- 40mm (Area) Munition*
- 5.56mm Muzzle Launched, Point & Area*
- Stun Grenade/Stingball Grenade (USMC)
- Modular Crowd Control Munition (MCCM)**
- Handheld Dye Marker*

Training Items

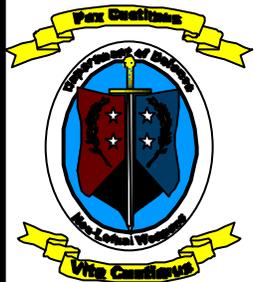
- Riot Baton Training Suit*
- Inert Individual Training Dispenser

Other Items

- 12 Gauge Shotguns*
- Light Vehicle Obscurant Smoke Systems (LVOSS) M-305**
- Portable Vehicle Immobilization System**
- Mid-Size riot Control Dispenser
- Large Riot Control Dispenser (M33A1)*
- Resupply Quantity of (OC) Pepper Spray

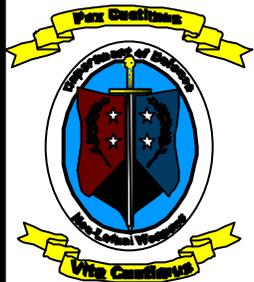
***Army only**

**** To be fielded as available**



Joint NLW Program Structure

- Acquisition Programs
- Concept Exploration Programs
- Pre-Milestone 0 Programs
- Technology Investment Projects
- Studies & Analysis
- Experimentation
- Modeling & Simulation



Acquisition Programs



Modular Crowd Control Muniton
(FUE: 2QFY00)

66mm Vehicle Launched NL Grenade
(FUE: 4QFY01)

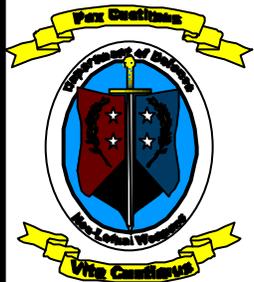


Portable Vehicle Immobilization System
(FUE: 3QFY00)

40mm Non-Lethal Crowd Dispersal Cartridge
(FUE: 4QFY01)



NL Rigid Foam
(FUE: 3QFY02)



Concept Exploration Programs



**Comister Launched
Area Denial System**



**Bounding
NL Munitions**



Non System-Specific

(FY 00 start)

- **Area Denial - Personnel**
- **Clear Facilities**

Slippery Foam





Concept Exploration: Vessel Stopper Programs

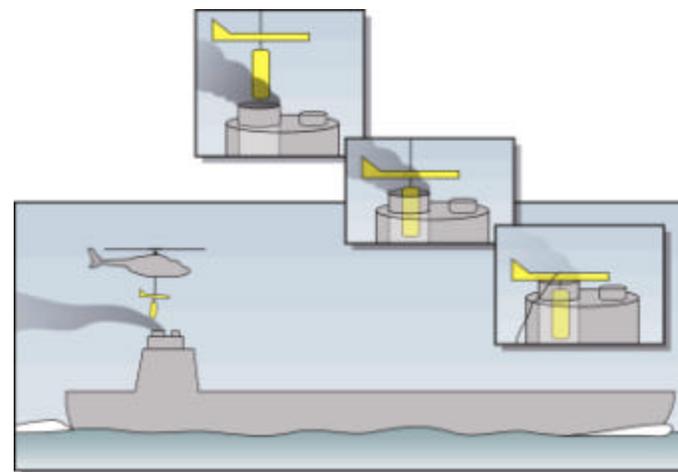
Running Gear Entanglement System

Target: Planing Vessels



Stack Blocker

Target: Displacement Hull Vessels





Pre-Milestone 0 Programs

Ground Vehicle Stopper



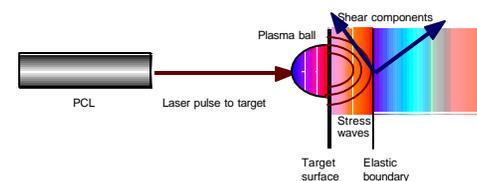
UAV NL Payload Delivery (On-Hold)

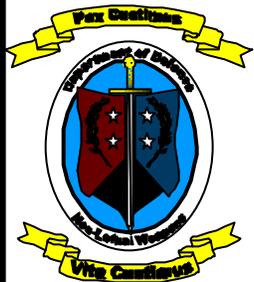


Objective Infantry Combat Weapon NL Round



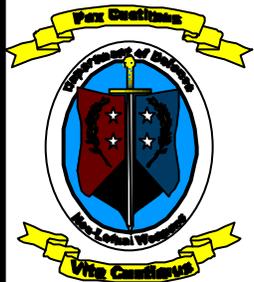
Pulsed Chemical Laser



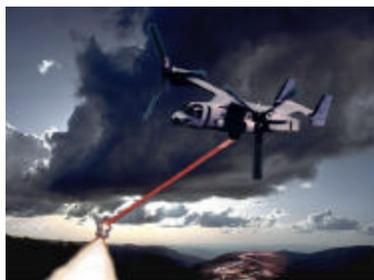


Technology Investment Program (TIP)

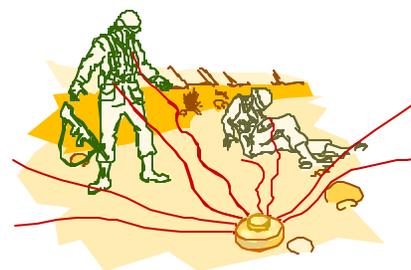
- Initiated in 1997
- Annual solicitation to government laboratories, industry, and academia
- Funds 1-2 year initiatives with specific deliverables
- Successful projects with joint support can be transitioned to full program status
- FY01 BAA will be released in April 00
 - *Topic: Incapacitation of Personnel*



Technology Investment Program



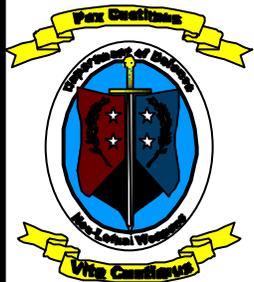
Airborne Tactical Laser
ERGM NL Round
NL 81mm Mortar Round
Frangible Mortar Casing
Microencapsulation
Overhead Liquid Dispenser
Taser Area Denial Munition





Studies & Analysis

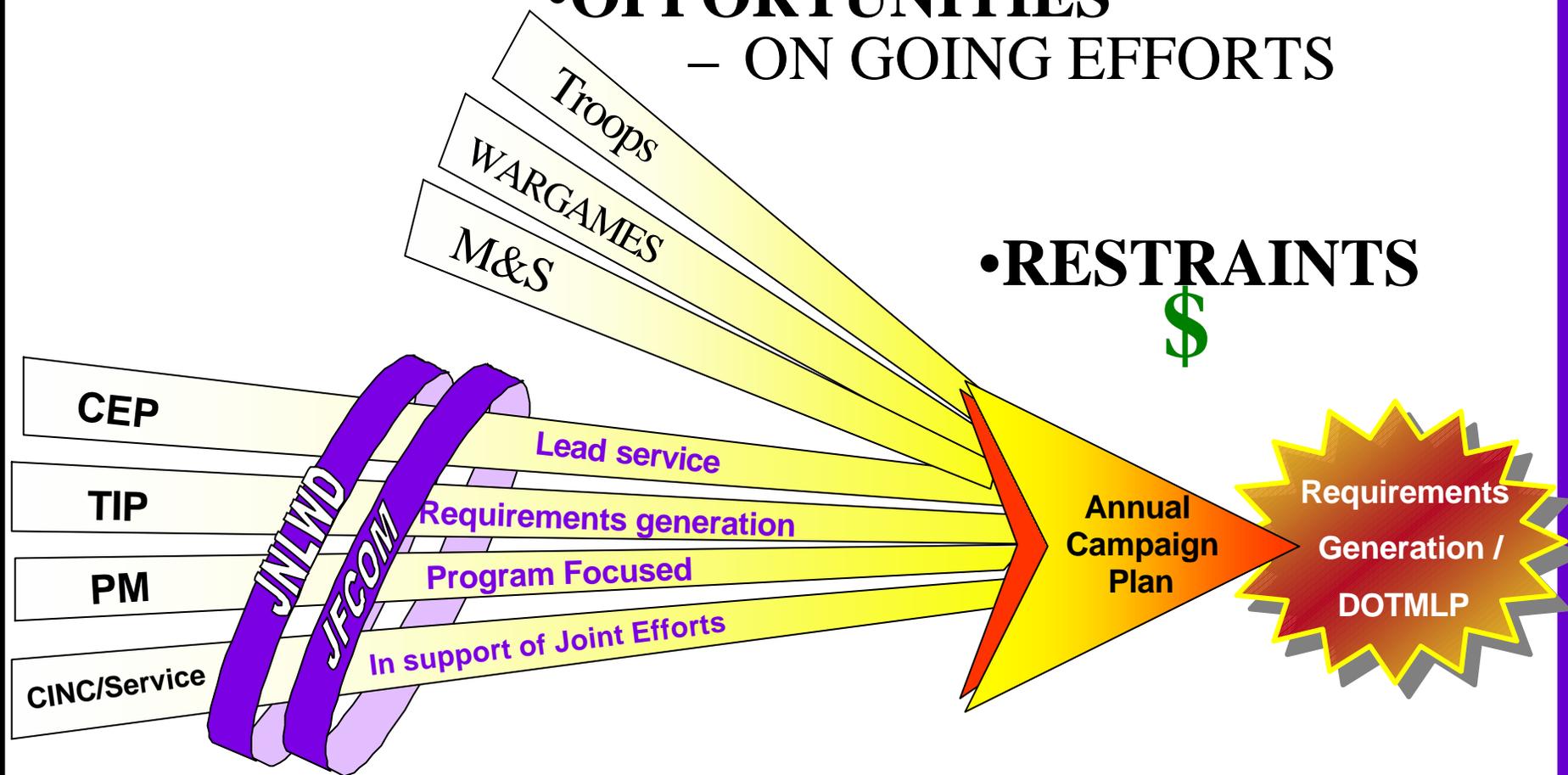
- **Joint Mission Area Analysis**
- **Health Effects**
- **NLW Acceptability Advisory Team**



Joint Experimentation

• **OPPORTUNITIES**
– ON GOING EFFORTS

• **RESTRAINTS**
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Modeling and Simulation



- **ASSESSMENT MODELS**

- **Joint Conflict and Tactical Simulation**

- Enhancements

- Beam Shadowing effect of Beam Blockage
 - Direct Fire Targeting
 - Mobility and Electronic Kills
 - Crowd Behavior Capability

- NLW Capability Set Analysis

- **HEALTH EFFECTS MODELS**

- Interim Total Body Model
 - 3-Rib Model
 - Virtual Human





Summary

- The JNLW Program has accomplished much since 1997:
 - Fielded NLW Capability Sets
 - 5 Acquisition Programs; 2 entering production this FY
 - DepSecDef designation as a Jointly Manned Activity
 - Warfighting CinC visits to discuss JNLW program and requirements generation
 - Initiation of NL Joint Mission Area Analysis
 - Establishment of Human Effects Process Action Team
 - Creation of the NL Technology Academic Research Symposia
- Much remains to be done to move NLWs beyond the “rubber bullet modality:”
 - Both “Top Down” Guidance and “Bottom Up” Acceptance will be necessary