



DCN: 9988



Picatinny Armaments Research, Development & Engineering Center, New Jersey



COL John A. Merkwan

Picatinny Arsenal Installation Commander



AGENDA

- Overall Picatinny Mission & Joint War Fighter Value
- Opportunities for Leveraging Installation Facilities
- Key Site Cost Reduction Initiatives
- Environmental Considerations
- Community Support
- Vital Installation Statistics
- Tenant Mission Descriptions
- Facilities Descriptions
- Infrastructure Enhancement Initiatives
- Summary



PICATINNY

Center for Lethality

Bottom Line

- **Picatinny is DoD's Center for Lethality**
- **Picatinny Develops, Acquires and Fields Most of the Joint Service Lethality**
- **World-Class Multifunctional Capabilities & Facilities**
- **No Commercial Counterparts**
- **Innovative and Aggressive Site Management**
- **Readily Able to Accept Other Missions (Acreage, Facilities, and Utilities)**



Overall Picatinny Mission Center for Lethality



- World renowned **armament technologists** (weapons, ammunition, fire control, optics and mounts) with **life cycle program managers** at one site
 - Seamless transition from tech base through fielding
 - Highly specialized, experienced workforce
- Numerous **unique facilities** necessary for research and development of armament systems
 - Prototyping facilities enhances ability for rapid development and training of armament engineers ability to support system development through production support
- **Homeland Defense Technologies**

***Unique Workforce Develops and Prototypes
New Armaments for DoD in World Class Facilities***



Picatinny Location



Workforce of
4237

In NY/NJ Metropolitan Area Yet Encroachment is not an issue



Picatinny's Responses to BRAC Criteria Military Value



Criteria #1 Response: Picatinny is already the Center of Mass for Joint Service Lethality & does substantial work in Homeland Defense Technologies and can become even more effective by bringing all the services ammunition and weapon activities on site.

Criteria #2 Response: Picatinny has significant mission critical facilities that would be cost prohibitive to move.

Criteria #3 Response: Picatinny has a flexible infrastructure capable of further consolidation to accommodate approximately 1100 people without construction and substantially more with construction. Ideal location in North East High Tech Corridor.

Criteria #4 Response: Aggressive site management in place. Our business strategy will reduce base ops costs by 50%. There are no commercial equivalent markets for armaments. Therefore, the risk of disrupting the workforce by moving Picatinny missions to other sites is high.

***Picatinny Develops, Acquires and Fields Most of the
Joint Service Lethality & Homeland Defense Technology***



Picatinny's Responses to BRAC Criteria Other Considerations



- **Criteria #5 Response:** To be determined based upon the scenario. However, the risk of perturbing a critical capability at a time of war would bring disproportionately small returns.
- **Criteria #6 Response:** The economic impact on existing communities in the vicinity is \$1B and 10,500 jobs (NJ Commerce Study).
- **Criteria #7 Response:** The existing community can (and would willingly) support additional missions and personnel.
- **Criteria #8 Response:** Picatinny is a superfund site that can accept additional missions within environmental constraints. If closed, cleanup costs to non-government standards would approach \$1B.

***There are Substantial Opportunities
for Bringing Additional Missions to Picatinny***



Urgent Fieldings to IRAQ/Afghanistan

Some Examples

Gunfire Detection System



- Detect/locate small arm fire origins
- 360 degree coverage
- 20 systems fielded

M211/212 Advanced Aircraft Infrared Countermeasure Flares



- Decoys infrared Threat Missiles
- Counters all fielded Surface-to-Air Missile (SAM) Threats
- Fielded to Special Operations Command, 101st AB, Air Mobility Command

XM1060 40mm Thermobaric Grenade



- Increased effectiveness in MOUT
- 6 months from inception to fielding

M255A1 2.75 “ ROCKET FLECHETTE WARHEAD



- Superior Anti-Personnel Capability
- Fielded to Army Attack Helicopters

20 War-related System Materiel Releases Since 9/11/01



Operation Iraqi Freedom

Examples of User Feedback

Bunker Defeat Munition “This thing is a real kick in the pants” - Staff Sgt Lonnie Schultz, Infantry Squad Leader, 31st Inf Regiment, 10th Mtn Div



“**SADARM saved the day**”
- MG Maples



US Army Sgt Verbowski cheers after his mortar platoon hit the Baath Party headquarters in Baghdad



“**1-10 field artillery** accomplished every essential field artillery task without a single casualty. We fired 6283 rounds with speed and incredible accuracy only 3 months after fielding AFATDS.

The **Paladin** and AFATDS are winners, that with minor modifications can sustain the field artillery community for years to come.” - LTC John D Harding, Commander, 1st Battalion, 10th Field Artillery Regiment



“**Weapon systems are performing well, especially the 25mm DU**” – USMC 1st Sgt





Afghanistan

Examples of User Feedback



MH47E crew stated that IR Countermeasure Flares saved them by diverting SAMs “Our MH47E fleet had 16 confirmed SAM (MANPAD) firings during the first 6 months of the Afghanistan conflict. I had two MANPADS fired during a daylight flight with CINCCENT onboard.” “Flares dispensed automatically” “I think I am sitting here writing because our ASE worked”

02/10/2005COL John A. Merkwon, AMSRD-AAR-CG,
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“My verdict is if you want it killed, use your mortars” - 1ST Sgt, 101st Abn Div (Air Assault)

“M4 worked great” – Soldier feedback 10th Mountain Div; as one Brigade Commander said “The M4 with PEQ and PAC provided overmatch over our threat equipped with AK47s and RPGs”



1000 containers provided rapidly to ship items to Afghanistan “Wow - you guys work fast” - Capt Jansen, Special Ops Support Battalion





Expertise to Quickly Solve Field Problems



★ Repaired VOLCANO Mine Systems and provided New Equipment Training. “Outstanding Support to the 101st Airborne Brigade.” ...COL John H. Schnibben, 101st Airborne Division

★ “Thanks to your efforts, we were able to immediately identify faults with many of our machine guns and fix them on the spot.” ...MG John Vines, CG 82nd Airborne Division



★ Repaired 187 M2 Machine Guns in Kuwait and returned them to mission capable in 2 days

The Army's 911 for Lethality Help

★ Handheld Stand-off Mine Detection System (HSTAMIDS): - PEO Ammo FEDEX'd the parts to the PEO Ammo Liaison on the ground
- Provided Battery Repair Kits
- Implemented Repairs

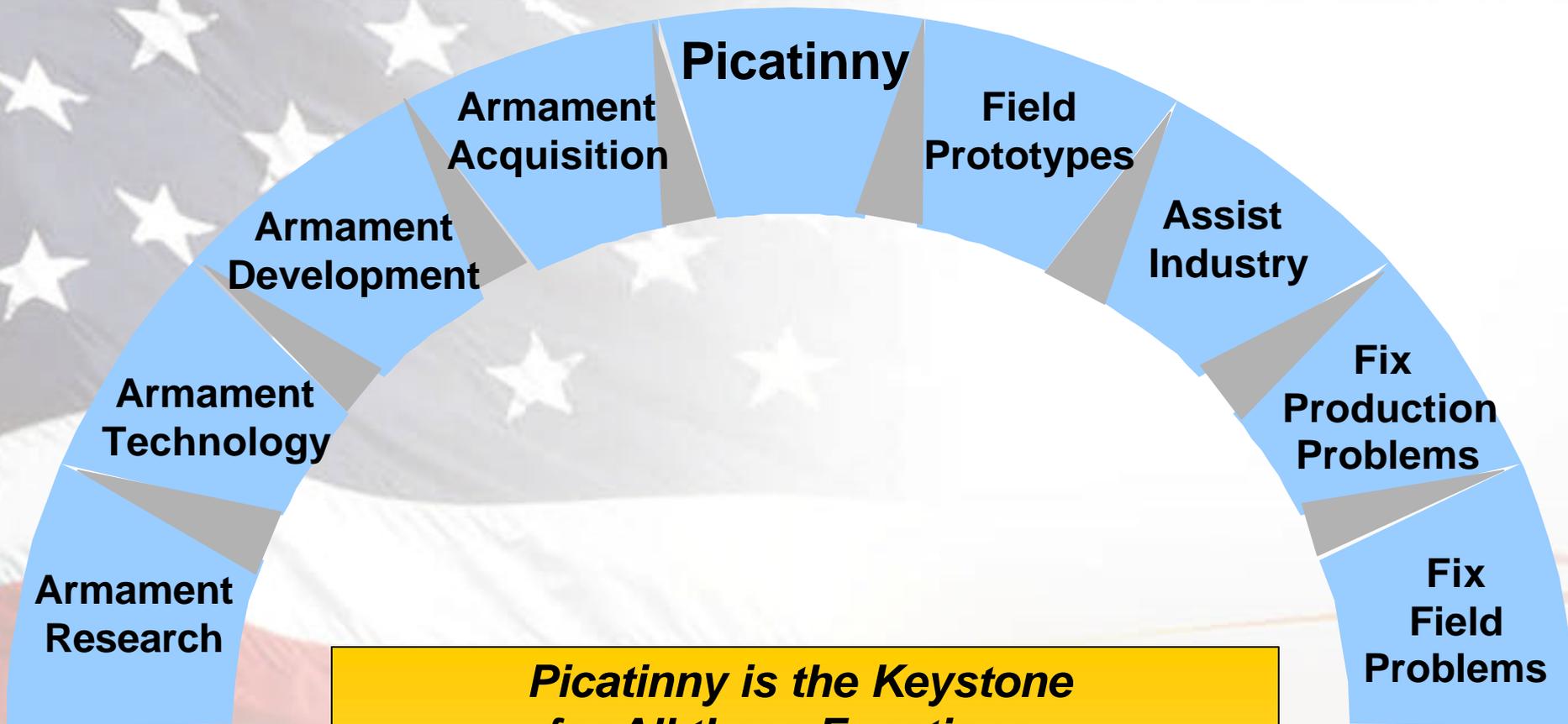


★ = Rapid Response





Picatinny Functions



***Picatinny is the Keystone
for All these Functions –
Without Picatinny, the Support Collapses***



Multidisciplinary Armaments Workforce

- Aeroballistics
- Automated Testing Tech Engineer
- Chemical Engineer (Armaments Processing)
- Chemist (Propellants & Explosives)
- Explosives Research
- Civil Engineer
- Electrical Armaments Engineer
- Electronic Engineer (Armaments Electronics)
- Environmental Engineer (Demil. Technologies)
- Explosives Ordnance Disposal Engineer
- Explosives Logistics Specialist (Safety)
- Explosives Test Operator
- Explosives Worker
- Fuze Systems Engineer
- Fire Control Optics Engineer
- Mechanical Engineer
- Munitions Packaging Engineer
- Combat Vehicle Protection Specialist
- Computer Simulation (Armaments M&S)
- Computer Engineer (Embedded Armaments)
- Industrial Engineer (Armaments Manufacturing)
- Quality Engineer
- System Safety Engineer
- Logistics Systems Analyst
- Material Fielding Manager
- Metallurgist (Armaments Materials)
- Model Maker
- Munitions Engineer
- Physicist
- Munitions Manufacturing Engineer
- Software Engineer (Embedded Armaments)

450 New Hires in last 5 years: - Ave Age: 26.5 - Retention Rate: 98%

Adaptable, Highly Specialized Workforce with Few Commercial Counterparts



Uniqueness of Armaments Commodity



- Commercial Markets and Developers Exist for:
 - Automotive
 - Radios
 - Food/Clothing
 - Logistics Support
 - Helicopters
- No Commercial Market for Armaments

***Government must be sustaining base
and be the technology driver for armaments***



Picatinny Joint Support

- Single Manager for Conventional Ammunition for Army, Navy (\$122M FY03) and Air Force (PEO Ammunition)
- Life cycle systems armaments engineering (from R&D to demilitarization) for armaments used by Army, Navy/Marines (\$23M FY01-03), Air Force (\$9M FY01-03) and Special Forces
- Joint Service Small Arms Program Office coordinates small arms requirements for all services
- Home of the Joint Defense Ordnance Technology Center
- Active leadership/participation on numerous joint and international armaments standardization groups



Picatinny is DoDs Center of Mass for Armaments



Picatinny's Criticality to the Army's Future

- Focused on current and future armaments to enable global war on terrorism capability
 - Directed Energy
 - Nanotechnology - high volume production for armaments applications
 - Non-lethal
 - Precision Guided Munitions
 - Electromagnetic Gun
- Vital to FCS - funded by Lead Systems Integrator - CRADAS with GD/UD
 - Providing:
 - Lightweight Direct and Indirect Fire Cannon
 - Lightweight Mortar

Picatinny is Critical to the Future of the Army



Defense Technology in Support of Homeland Defense



- **Develops applications of defense technologies for homeland defense**
- A multi-acre urban type facility used for armament research & development
 - **Target Behavioral Response Laboratory** – Studying behavioral response to less-than lethal technologies
 - An area to **develop the training techniques** so that we can “train the trainer” – especially in non-lethal technologies
 - A **50m outdoor environmental firing test bed**. Test bed will also serve as a firing range to provide training to agencies within and outside Picatinny Arsenal
 - **Combined training of military and civilian forces** on Homeland Defense emergency scenarios.
- **Emergency Operation Center Test Bed** – Developing scenarios and analyzing Command and control software
- **Backup Emergency Operations Centers** for Port Authority NY/NJ, State of NJ, and NJ National Guard.

***Site is Ideally Suited for Regional Homeland Defense Activities
Homeland Defense Complements Current Mission***



Opportunities for Consolidation of DoD Armaments Functions at Picatinny

- **The Army has a clear DoD leadership role for armaments**
 - Army is the biggest user and procurer of munitions
 - Army is the single manager for conventional ammunition
- **Picatinny is already the DoD center of mass for armaments**
 - Single manager for conventional ammunition and the associated engineering support already located at Picatinny
 - Armaments lifecycle management & engineering already located at Picatinny
- **The Picatinny installation can absorb other DoD armaments functions to include:**
 - Navy: Indian Head; Dahlgren; Crane
 - Air Force: Eglin

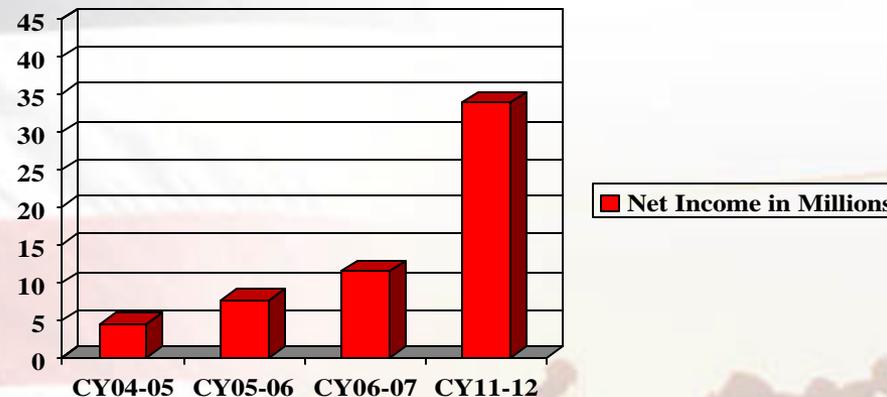
Picatinny is the Clear Choice to Continue as the DoD Lead for Armaments to Achieve Maximum Joint Forces Capability



Innovative Site Initiatives

Consolidation and Space Utilization

- FY 95-99 – A Process Action Team moved 1263 people and made available 220 KSF for reuse (occupied by DCMA, DCAA, GSA, NJ Business Incubator and others)
- FY03 – Leased 12 KSF - occupied by mission related tenants
- FY04 – 120 acres and 100 KSF made available for Mission Related Enhanced Use Leasing and Advanced Technology Center to leverage technology investment and reduce base operation costs



Proactive Consolidation has Increased Leasing Success and Enabled Bringing in Other Government Agencies



Innovative Site Initiatives - Advanced Technology Center Initiative



Technology Acceleration

- Picatinny awards contract(s)/OT to a **Partnership Intermediary (Non-for-Profit) to accelerate technology** in core areas Nano, Environmental, Homeland Defense, Manufacturing Technologies and Prototyping **through leverage investment drawing venture capital investors to Picatinny.**

Intellectual Property Exchange Point (IPEP)–

- Picatinny **licenses new and existing Intellectual Property** to Partnership Intermediary for possible commercialization.

Benefits:

- **Leverage investment** results in acceleration in fielding new technologies
- Picatinny will **share in royalties/revenues/equity** generated from commercialization through Partnership Intermediary.
- Technology investors/University start-up companies come to Picatinny to **collaboratively develop technologies** on-site.
- Partnership Intermediary will provide net income “value” to Picatinny through in-kind services to reduce base operation costs.

Site Initiative to Leverage Mission Related Technology and Reduce Site Operation Costs



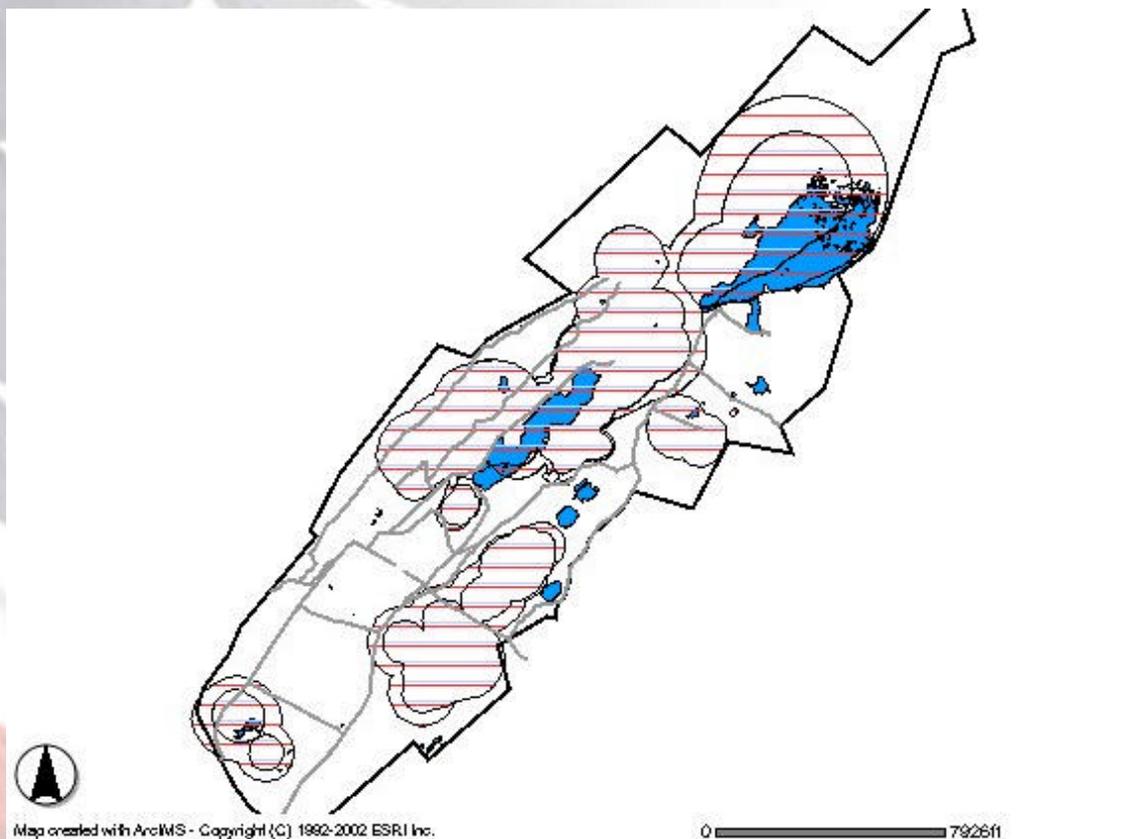
ENVIRONMENTAL CONSIDERATIONS

- PARTS DESIGNATED SUPERFUND SITES
 - Legacy of earlier production era
 - 175 listed sites of concern, but does not impact existing mission nor constrain absorption of additional missions
 - Community prefers Government stays at Picatinny
- UNEXPLODED ORDNANCE
 - Result of explosion in 1926
- WETLANDS – Manageable
- ENDANGERED SPECIES – Minimal impact
- MISSION SAFETY ZONES

Minimal Impediments to Mission Operations



PICATINNY EXPLOSIVE SAFETY ARC MAP



Mission Requires Considerable Acreage due to Safety Arcs



Picatinny Arsenal Restoration Program



Contamination History

- 1926 Explosion resulted in UXO dispersion throughout 20% of Arsenal (Still being found)
- Past industrial waste practices by munitions and explosive production till 1970s and research and outdoor testing till recent
- National Priority List/Superfund in 1990 with score of 43
- 175 listed sites of concern

• Major Sites of Chemical Concern

- 11 groundwater plumes
- 7 landfills or land filled areas
- Hundreds of soil hotspots throughout arsenal
- Contaminated lake and brook sediment
- Chemicals include volatiles, metals and explosive parameters

• Buried Munitions Contamination

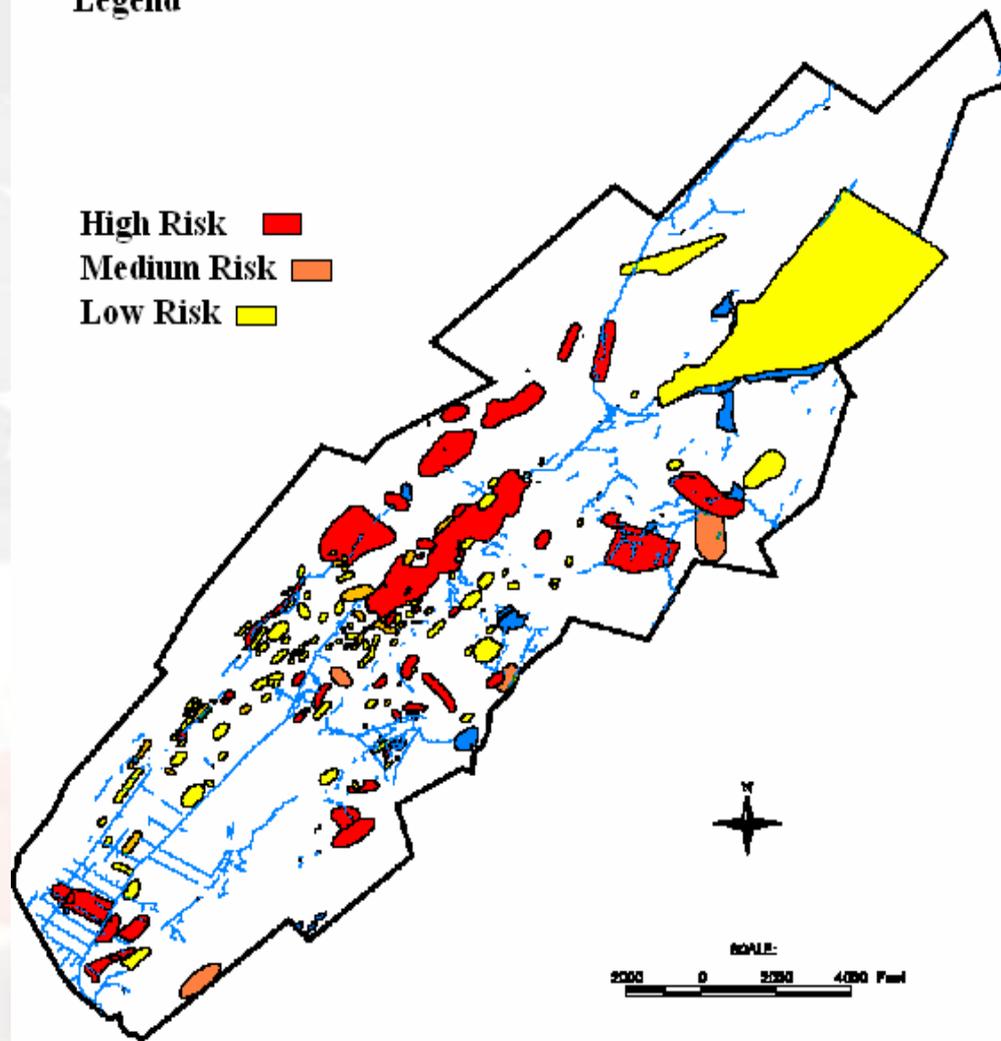
- 2 shell burial areas
- Lakes used as former ranges
- 17 active ranges – not fundable by ER-A
- Buried munitions throughout arsenal

Cleanup Costs:

- \$85M spent to date
- \$38M for Govt Use
- Approaching \$1B for non-Govt Use

Legend

- High Risk ■
- Medium Risk ■
- Low Risk ■





Community Support

- Business Related
 - Business Innovation Center
 - Explicit support for redevelopment
 - Support for more mission or mission partners on site
- Shared Facilities
 - Recreation Fields & Fitness Center
 - Aquatic Park
- Mutual Assistance
 - Fire & Police Dept Mutual Aid
 - Hazardous Spill Response
 - Explosive Ordnance Disposal
- Education
 - Future Scientist Programs
 - Math & Science Camps
- Academia/Industry Alliances

Picatinny's Economic Impact is \$1B and over 10,500 jobs



Benefits of Picatinny Site

- DoD critical mass for armaments
- No commercial equivalent market for armaments
- Established, qualified workforce
- Extensive mission critical infrastructure
- Net cost of operating is decreasing
- Capability to absorb other missions

Critical Lethality Supplier to Today's and Tomorrow's Warfighter



Vital Statistics

Vital Installation Statistics

- Location (Unique Features)
- Assets
- Site Population



Unique Physical Location Features

- Picatinny lies within a natural valley which supports the mission without impact on the civilian population – no encroachment issues
- Proximity to academic institutions:
 - 100+ 4 year institutions within 50 mile radius
 - Princeton, Stevens Institute of Tech, NJ Institute of Tech
- Proximity to major commercial research facilities
- Proximity to transportation:
 - Serviced by 3 major international airports
 - Located ½ mile from Interstate Route 80
 - Located 3 ½ miles from rail link
 - Located 35 miles from Port Newark/Elizabeth/New York City

Installation Location is Key to Partnerships with Industry & Academia



Picatinny Assets

<u>Facility Type</u>	<u># of Facilities</u>	<u>Area</u>
RDT&E	244	1314 KSF
ADMIN	40	867 KSF
TRNG/OPER/MAINT	63	456 KSF
HSG/COMMUNITY	171	534 KSF
MEDICAL	1	9 KSF
UTILITIES	39	75 KSF
<u>SUPPLY</u>	<u>261</u>	<u>688 KSF</u>
TOTAL	819	3946 KSF

Total Acres 6493 AC

Miles of Paved Roads 84 MI

***Significant Number of Multifunctional and Research Facilities
Adaptable to Current and Future Technology Needs***



“Deliberate Document – For Discussion Purposes Only – Do Not Release Under FOIA”.

Program Executive Office (PEO) and Program Manager (PM) Facilities



Synergistic Co-location



Site Population

Organization	Population	Number of Facilities
U.S. Army Armament Research Development and Engineering Center	2,344	586
Program Executive Office (PEO) for Ammunition (Headquarters) and associated PM Offices	181	3
PEO for Ground Combat Systems' associated PM Offices	128	3
PEO for Soldier Systems' PM for Soldier Weapons	40	1
Picatinny Center for Contracting and Commerce	151	2
Defense Contract Management Agency	120	3
Defense Contracting Auditing Agency	58	1
Picatinny Garrison	457	244

Tenants are Highly Synergistic



Site Population (Con't)

Organization	Full-time Population	Drill Strength	Number of Facilities
U.S. Marine Reserve unit, G Company, 2 nd Battalion, 25 th Marine Regiment	19	230	4
NJ Army National Guard, Company B, 1 st Battalion, 126 th Aviation Regiment	31	100	3
U.S. Army Reserve 4219 th General Hospital	6	200	1
Army Research Laboratory (Human Engineering Directorate, Field Element)	5	NA	1
Cooperative Research and Development Agreement (CRADA) Partners	90	NA	6
Leased Tenants	36	NA	1
Others	571	NA	71
Picatinny Total Population	4237	530	-



Tenant Mission Descriptions

- US Army Armaments Research Development and Engineering Center
 - PEO Ammunition & Program Managers
 - PEO Ground Combat Systems Program Managers
 - PEO Soldier Program Manager for Soldier Weapons
 - Picatinny Contracting and Commerce Center
 - Defense Contract Management Agency
 - Defense Contract Audit Agency
 - CRADA Industry Partners
 - US Army Reserves
 - NJ Army National Guard
 - US Marine Reserves



U.S. Army Armament Research, Development and Engineering Center (ARDEC)



Mission: Provides fully integrated life cycle engineering (from R&D to demil) for armaments and munitions in support of the Army, Program Executive Offices, the Single Manager for Conventional Ammunition, Air Force, Navy, Marines, Coast Guard and Special Operations Forces

- **Advanced weapons** – line of sight/beyond line of sight fire; non line of sight fire; scalable effects; non-lethal; directed energy; autonomous weapons
- **Ammunition** – small, medium, large caliber; propellants; explosives; pyrotechnics; warheads; insensitive munitions; logistics; packaging; fuzes; environmental technologies and explosive ordnance disposal
- **Fire control** – battlefield digitization; embedded system software; aero ballistics and telemetry

Provides the Technology for Over 90% of the Army's Lethality; Significant support to other Services Lethality



ARDEC Manufacturing Prototyping Capabilities



- Develop manufacturing processes
- Produce Prototype items
- Low rate initial production
- Respond to urgent field requirements and malfunctions
- Experimental evaluation of new technologies with armaments applications.
- Designated as PEO Ammunition Center – supporting SMCA operation as the Manufacturing Science Technology Transfer Center
- Focal Point for Industrial Base Surge for Warfighter
- Rapid Prototyping Center for SOCOM
- Knowledge Base for Munitions Manufacturing Expertise for all services

Technical Capabilities and Infrastructure Would be Difficult to Relocate



Program Executive Office (PEO) for Ammunition

- Single Manager for Conventional Ammunition for all services (Army, Air Force, Navy, Marines)
 - Executes the life cycle acquisition management of ammunition
 - Procures ammunition for all services
 - Manages DoD’s ammo industrial base (doesn’t run individual plants)
 - Manages annual budget \$2.2B
- Program Management (PM) offices:
 - Close Combat Systems – Equips warfighter with networked assured mobility, force protection and close battle systems.
 - Combat Ammunition Systems – Equips warfighter with all tube launched, indirect fire munitions and mortar systems
 - Maneuver Ammunition Systems – Equips warfighter, mounted and dismounted, with all calibers of direct fire ammunition
 - Joint Services – Equips warfighter with energetics/munition items

***Acquisition Lifecycle Responsibility for
Conventional Ammunition for All Services***



PM Joint Services Portfolio

Air Force & Navy Bombs

- | | |
|-------------------|-------------------|
| ➤ <u>Tactical</u> | ➤ <u>Training</u> |
| ✓ BLU-111 | ✓ BDU-45/50 |
| ✓ BLU-110 | ✓ BDU-56 |
| ✓ BLU-113 | ✓ MK80 Series |
| ✓ BLU-109 | ✓ BDU-33 |
| ✓ BLU-117 | ✓ MK76-5 |
| ✓ MK80 Series | ✓ BLU-109 |



Navy Gun Ammo

- 5”/54 Cal
 - ✓ HE Rounds (VT, PD, IR Configurations)
 - ✓ ILLUM & Smoke Rounds
 - ✓ Training Rounds (BL&P, VT-NF)
- 76mm Ctgs
 - ✓ HE-PD Ctg
 - ✓ Training Ctgs



Propellants & Explosives

- ✓ RDX Type II Class I
- ✓ Propellant M-2 SP
- ✓ HMX
- ✓ C4 (MICLIC, Demo)
- ✓ N5 Propellant (MICLIC)
- ✓ TNT
- ✓ CXM-7 (Navy Bombs)
- ✓ PBXN-7 (Navy Bombs)



Bomb Components

- ✓ Fins
- ✓ Fuzes
- ✓ Signal Cartridges
- ✓ Lugs, Plugs, Cables





PEO for Ground Combat Systems PM/Directorate Offices



- Joint (Army & Marine) Lightweight 155mm Howitzer – responsible for management of:
 - M777 Lightweight 155mm Towed Howitzer
 - M777E1 Towed Artillery Digitization
 - M119 105mm and M198 Towed Howitzers
 - Gun Laying & Positioning System
 - Improved Position & Azimuth Determining System



- M109 A6 Paladin self-propelled howitzer and M992A2 Field Artillery Ammunition Support Vehicle

- Future Combat Systems Lethality Systems Integration – responsible for management of lethality system elements of FCS





PEO for Soldier Systems Joint PM for Soldier Weapons

- Lifecycle management for all services:
 - Individual and crew served weapons
 - Weapon mounted optics and Fire control systems
 - Future armaments
- Oversight of integration for all items on small arms
- Oversight of the weapons industrial base



“Every Soldier is a rifleman first” - GEN Schoomaker



Picatinny Center for Contracting and Commerce

- Mission: Provide comprehensive contracting, acquisition and business advisory services for base operations as well as assigned armament and munitions systems. Supports contracting requirements of all phases of armament and munitions R&D as well as initial and follow-on production.
 - Only contracting organization in the Army that supports full spectrum of contracting requirements for ammunition systems in support of the SMCA
 - FY03 - \$1.5B obligated
 - One of the most efficiently run contracting organizations

Integral Contracting Capability Supporting Multiple Installation Customers



Defense Contract Agencies

- Defense Contract Management Agency (DCMA) – DoD contract manager for northern and central New Jersey.
 - Active contracts – 5,115
 - Obligations - \$2.9B
- Defense Contract Audit Agency (DCAA) – Performs contract audits; provides accounting and financial advisory service, acquisition, negotiation, administration and settlement of DoD contracts and subcontracts in northern New Jersey

Strong Synergy with Installation PEO/PMs and ARDEC



Cooperative Research & Development Agreement Partners



- Active technology transfer program leveraging technology and resources from industry and academia to reduce development and acquisition costs to the army and enhance development capabilities for Army research
 - 91 active partners
 - On Site
 - Alliant Tech Systems
 - General Dynamics Ordnance & Tactical Systems
 - General Dynamics Advanced Technology Products
 - Robbins-Gioia
- Master CRADAs with United Defense and General Dynamics in support of Future Combat System

***Desirability of Picatinny Technical Expertise and Facilities
On-site Partners Due to Location in Eastern High Tech Corridor***



U.S. Army Reserve

4219th U.S. Army Hospital assists the North Atlantic Regional Medical Command in satisfying the expansion requirements of Walter Reed Medical Center; provides a blood donor center to Walter Reed Medical Center; provides veterinary services to the Northeast District Veterinary Command



Location Supports Region's Military Readiness



New Jersey Army National Guard

Company B, 1st Battalion, 126th Aviation Regiment provides aviation support – movement of personnel, command and control, aerial resupply, casevac, and limited air assault as well as aircraft maintenance

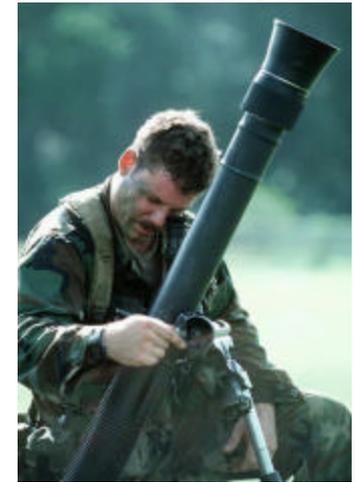




U.S. Marine Reserve

G Company, 2ND Battalion, 25TH Marine Regiment, conducts individual and unit training on small arms, mortars, machine guns and shoulder launched multipurpose assault weapons to prepare for regimental combat operations. Utilizes Picatinny for unit training in patrolling and combat maneuvering.

Unit recently deployed to Kosovo and Iraq.





World-Class Unique Research and Development Facilities

- Unique Research and Development Major Facilities (only one in U.S.)
 - Armament Technology Facility (\$10M)
 - Advanced Warheads Development Facility (\$10M)
 - Propellant Surveillance Facility (\$3M)

***Unique World Class Facilities are Key to Accomplishing
Picatinny's Armaments Mission***



MAJ Marie Rossi-Clayton

Armament Technology Facility



- Integration of **small and cannon caliber armament system** design, validation and evaluation
- Supports **joint service** infantry, air defense, aircraft, combat vehicle armament systems, and less-than-lethal. Also **used by industry partners**.

- **Indoor tunnel range** for kinetic projectiles up to 40mm

- 300m range can accommodate HMMWV, M2 Bradley Fighting Vehicle, and M1 Abrams Main Battle Tank (secondary armament)
- Three ranges capable of up to 20mm

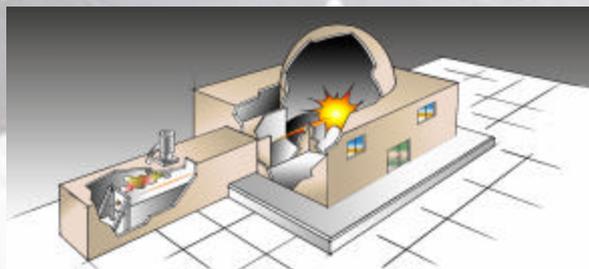
- Small Arms Simulator Testbed



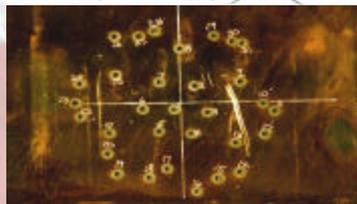
Indoor Experimental Range Accelerates Small Arms Development



Davidson Advanced Warhead Development Facility



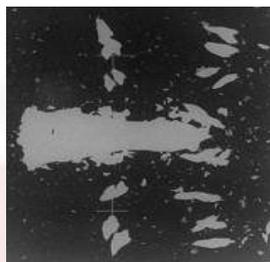
- Experimental evaluation of shaped charge and explosively formed penetrator type warheads; munitions and explosives
- 40 ft diameter blast containment chamber reinforced concrete lined with armor plate capable of withstanding a 50-lb explosive charge (TNT equivalent)
- 335 ft firing tunnel that allows for 100m warhead to target standoff distances



Armor Defeat



Flash X-ray



Warhead cutaway

Indoor Experimental Facility Integral to Innovative Warhead Design



Propellant Surveillance Laboratory



- ❖ Only laboratory in DoD dedicated to safe storage and handling of loaded and bulk stored propellant
- ❖ Performs **analysis of solid propellant** for guns, howitzers, mortars, tanks, small arms, and selected rockets and missiles to identify potentially hazardous material and remove it from the stockpile before an auto-ignition occurs
- ❖ **Addresses safe storage and handling issues** for the Single Manager for Conventional Ammunition **for tri-services propellant**
- ❖ Conducts **high volume** (>22,000 annually) of complex analytical procedures on a broad range of propellant formulations
- ❖ In 2003, **identified 9.4 million pounds of hazardous propellant** and had it removed from the stockpile

***Facility Provides Assurance Fielded Propellants
Remain Safe for Soldiers***



Flexible, Mission Critical Facilities

- Explosive Development Facility
- Precision Armament Laboratory
- Explosive Weapons/Armament Prototype Facility
- Powder Metallurgy
- Hot Air Decontamination Facility
- Depleted uranium Fab/characterization
- X-ray Imaging Technology Development Laboratory
- Advanced Energy Armament Center
- Welding & Production Metallurgy Facility
- Pilot Plant for High Explosive Loading of Projectiles
- Twin Screw Mixer/Fine Grind Facility
- Pilot Facility for Explosive Formulation

Extensive Facilities Required for R&D of Armaments for DoD



Flexible, Mission Critical Facilities (Cont)

- Nitramine Drying/Fine Grind Facility
- Projectile Demilitarization Facility
- Armament Software Engineering Center
- Radar Anechoic Chamber/Radar Cross Section Measurement Lab
- Energetics Materials Analysis Laboratory
- Nanotechnology and Characterization Laboratory
- Ground Based Hyper Spectral Imaging Laboratory
- Cryogenic Grinding System
- Rapid Prototyping Lab
- Energetics & Engineering Materials Laboratory
- Electromagnetic Environmental Effects Laboratory
- Acoustic Technology Laboratory

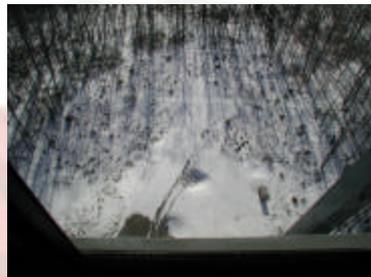
See Leave Behind Package for Descriptions



Robert Reisman Precision Armaments Laboratory



- Multifunctional experimentation facility for the measurement and evaluation of the performance of sensors and sensor systems to detect targets at ground level and various altitudes during adverse weather. Target areas located 150, 1800 and 4200 feet from tower.
- Facility is fully automated to collect sensor performance data during any weather condition
- Complete compliment of meteorological instrumentation
- Facility consists of 250 foot tower on top of ridge



150 ft Target



1800 ft Target



4200 ft Target

***Tower Supports All Weather Sensor Experimentation
for Smart Armaments***



Explosive Development Facility



- Small scale explosives sensitivity testing diagnostics. Fully instrumented chambers for detonating up to 10 lbs equivalent TNT.



- Utilizes state-of-the art syncho-streak and high speed photography to evaluate explosively formed penetrators
- Develop manufacturing processes and capable of low rate initial production. Recently used for higher rate production of the Modular Crowd Control Munition (MCCM) after fire destroyed a plant.



Facility Supports Development of More Powerful Explosives



Armament Software Engineering Center



- Newly renovated 87 KSF facility consisting of engineering, software integration laboratories and high bay areas (including 35 ton crane) capable of simultaneously supporting five indirect and direct fire support vehicles
- Type of systems supported: Bradley; M1/M1A1 Abrams; Paladin; Towed Artillery Digitization; Chemical and Biological Detectors; SPIDER; Mortar Systems; and Small Arms



Software Development Process Now Capability Maturity Model – Integrated Level 3 & Pursuing Level 5



Installation Master Planning Initiatives



- MCA Program
- Laboratory Renovation Program
- Innovative Site/ Business Development Initiatives
- Asset Management Initiatives

***Proven Track Record of Aggressive Site Management
to Enhance Mission and Reduce Costs***



Future MCA Facilities

- **Facility Under Construction (Ready for Occupancy - March 04)**
 - Armament Software Engineering Center
- **Facilities in Design (MCA FY03-04)**
 - High Energy Propellant Formulation Facility
 - Explosive R&D Loading Facility
- **Facilities In Planning (MCA FY05-09)**
 - Pryo Technics Facility
 - Homeland Defense Technology Center
 - Ballistic Evaluation Center
 - Explosive Magazines
 - Energetic Material Chemical Complex
 - Armament Technology College
 - Center for Ecosystem Studies

***Facility Additions will Enhance Existing
World Class Facilities (See Leave Behind Package for Details)***



2003 - 2005 LABORATORY RENOVATION PROGRAM



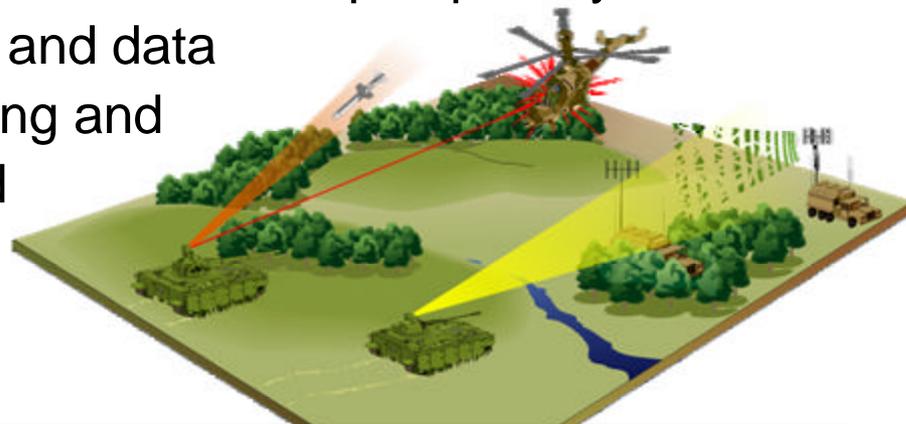
- Completed
 - Advanced Energy Armament Systems Center
- In construction
 - Fuze Prototype and Detonator Insert Facility (95% complete)
 - Rapid Prototyping Facility Addition
 - Target Behavioral Response Laboratory
 - Mfg Research, Dev. & Eng. Center for Nano Technology
 - Indoor Environmental Firing Test Bed
- In design
 - Crystallization Formulation Laboratory
 - Modeling and Simulation/Command Control Center
 - Area Outdoor Environmental Firing Test Bed

***Prioritizing and Programming Resources to
Support Technology Research and Development***



Advanced Energy Armament Systems Center

- **World Class High power Laboratory** capable of providing High Voltage and High current requirements.
- The unique capabilities of this facility are crucial in the development of Directed Energy Weapon Systems; Non-Conventional/Directed Energy Technologies: Lasers, Acoustics, Nano particles, Low Energy Ignition, High Power Microwaves
- Applications include In Theatre Force Protection, Homeland Defense and Facility Protection Systems.
- The facility has a world class 2.5 Million Volt Amp capability. Integrates specialized diagnostics and data acquisition assembled for measuring and processing the ultra wideband and high power systems being developed for the future warfighter



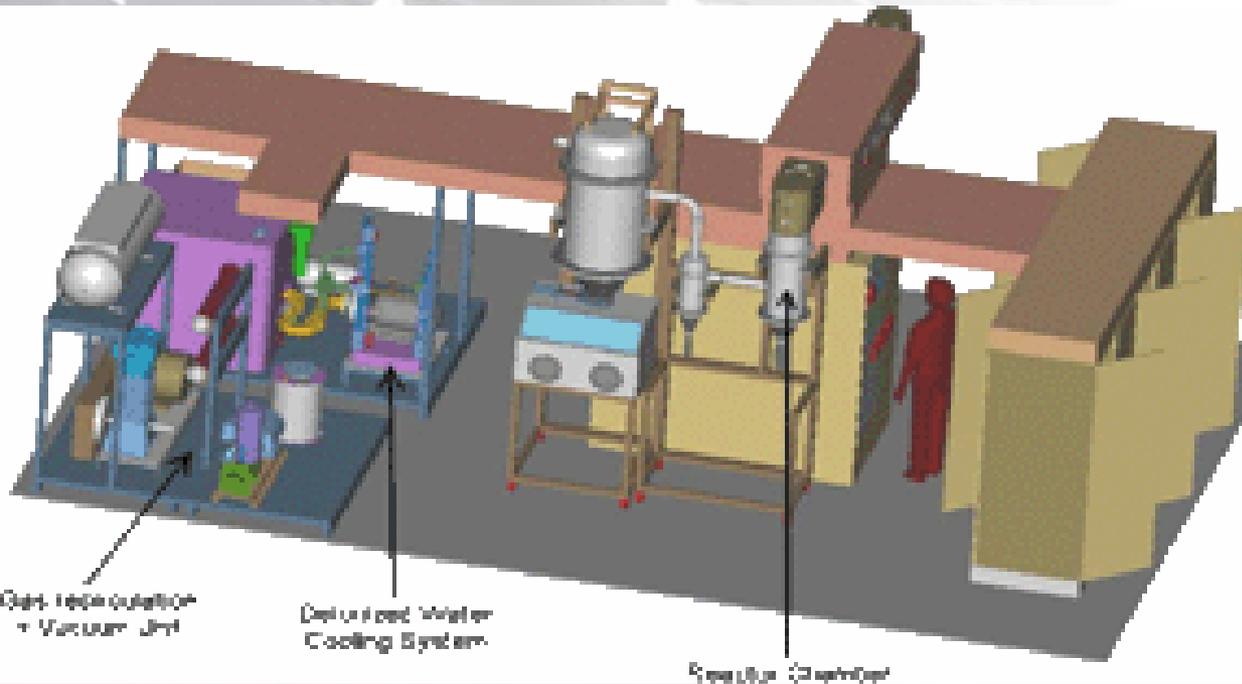
***Laboratory to Support Advanced Energy Armaments –
The Next Battlefield Advantage for the Soldier***



Manufacturing Research, Development and Engineering Center for Nano Technology



- Develop Advanced Manufacturing Science to demonstrate producible prototypes
 - Nanomaterials
 - MEMs and Nano devices
 - Nanoelectronics
- Accelerate development of nanotechnology from the laboratory to fielding



First Production Reactor in North America



Infrastructure Enhancement Initiatives

- Renovations and Upgrades
- Privatization of utilities and housing
- Energy Savings Performance Contracting
- Optimize land (zoning) & facility utilization for mission needs



Infrastructure Enhancement Initiatives Renovations and Upgrades



- Total renovation of 517.2 KSF of admin space in the last 8 years (60% of total admin assets) to support engineering mission
- Replacement or total renovation of 500.5 KSF of RDTE space in the last 10 Years (38.1% of total RDTE assets)
- Replacement of 90.3 KSF of RDTE space is in process (additional 6.9% of total RDTE assets)
- Electrical Distribution System completely replaced & upgraded
- Sewer Main Distribution System completely replaced
- Water Distribution System replacement of the majority of system
- Decentralization and complete upgrade of the entire heating system is in progress thru an Energy Savings Proposal Contract (ESPC)

***Reversing the Age of the Infrastructure to
Better Serve the Needs of the Army in the Future***



Infrastructure Enhancement Initiatives Privatization Efforts



SYSTEM	STATUS	CONTINGENT TERMINATION LIABILITY AS OF FY05
Natural Gas	Privately owned – New Jersey Natural Gas	\$10 million
High Voltage Distribution	Privatized 2003 – Sussex Rural Electric Cooperative	Would be negotiated (Current contract operating cost is \$808k per year for 48 years)
Water Supply Treatment and Distribution	Expect to issue RFP in FY04	None Presently
Sewage Collection, Treatment & Disposal	Expect to issue RFP in FY04	None Presently
Residential Communities Initiative	Expect to award in FY04	None

Picatinny has Aggressively Supported Privatization Initiatives



Infrastructure Enhancement Initiatives – ENERGY SAVINGS PERFORMANCE CONTRACTING

PROJECT	INITIAL CAPITAL INVESTMENT	SAVINGS PER YEAR	PAYMENT PERIOD	CONTINGENT TERMINATION LIABILITY
Energy efficient lighting	\$251k	\$48k	7 yrs	\$58k
Heating ventilation and air conditioning (HVAC) upgrades Phase I	\$3,765k	\$420k	17 yrs	\$3,562k
HVAC upgrades Phase II	\$3,200k	\$417k	22 yrs	\$3,282k
Decentralization of central steam distribution system & plant	\$36,125k	\$4,899k	18 yrs	\$37,931k



Picatinny Awards

- Baldrige-based quality awards:
 - Army Communities of Excellence:
 - Commander-in-Chief award (two times)
 - Chief of Staff award (four times)
 - Presidential Award for Quality awards (three times)
 - Quality New Jersey awards (two times)
 - Considered top contender for not-for-profit National Baldrige award in FY05 for OSD
- Army Research and Development Laboratory awards:
 - Organization of the Year (four times)
 - Center of the Year (six times)
- Army Energy and Water Management award (two times)

Widely Recognized Center of Excellence



PICATINNY

Center for Lethality

Summary

- **Picatinny is DoD's Center for Lethality**
- **Picatinny Develops, Acquires and Fields Most of the Joint Service Lethality**
- **World-Class Multifunctional Capabilities & Facilities**
- **No Commercial Counterparts**
- **Innovative and Aggressive Site Management**
- **Readily Able to Accept Other Missions (Acreage, Facilities, and Utilities)**