



Dugway Proving Ground

COL GARY R. HARTER
Commander
U.S. Army Dugway Proving Ground
Dugway, Utah

April 22, 2004



Dugway Proving Ground

Site Familiarization Briefing
to
The Army Basing Study Group

COL GARY R. HARTER
Commander
U.S. Army Dugway Proving Ground
Dugway, Utah

April 22, 2004

Agenda



- Size and Location
- Organization
- Chem-Bio Test Mission and Capabilities
- Tenant Missions and Capabilities
- Dugway Quality of Life Assets
- Potential for Growth
- Summary

Take-away Message



GWOT support

- Acknowledged experts in Chem-Bio testing
- 1,300 sq. miles of controlled access, remote real-estate with **no** encroachment



Airfield On-Site



Vast remote areas for testing and training



Positioned for future growth



Expert work force



Infrastructure in place with state-of-the-art equipment



Environmental permits



Established working relationships



Capability to support DOD transformation

Global War on Terrorism



Contingency Operations - Afghanistan and Iraq

- Scientist deployment and reach-back
- Chem-Bio Urgent Need equipment testing
- Met forecasting
- SOF mission rehearsals

Anthrax

- Hart Senate Office Building decon

Olympics

- Analysis of environmental samples
- WMD hazard prediction

UTTR Missions

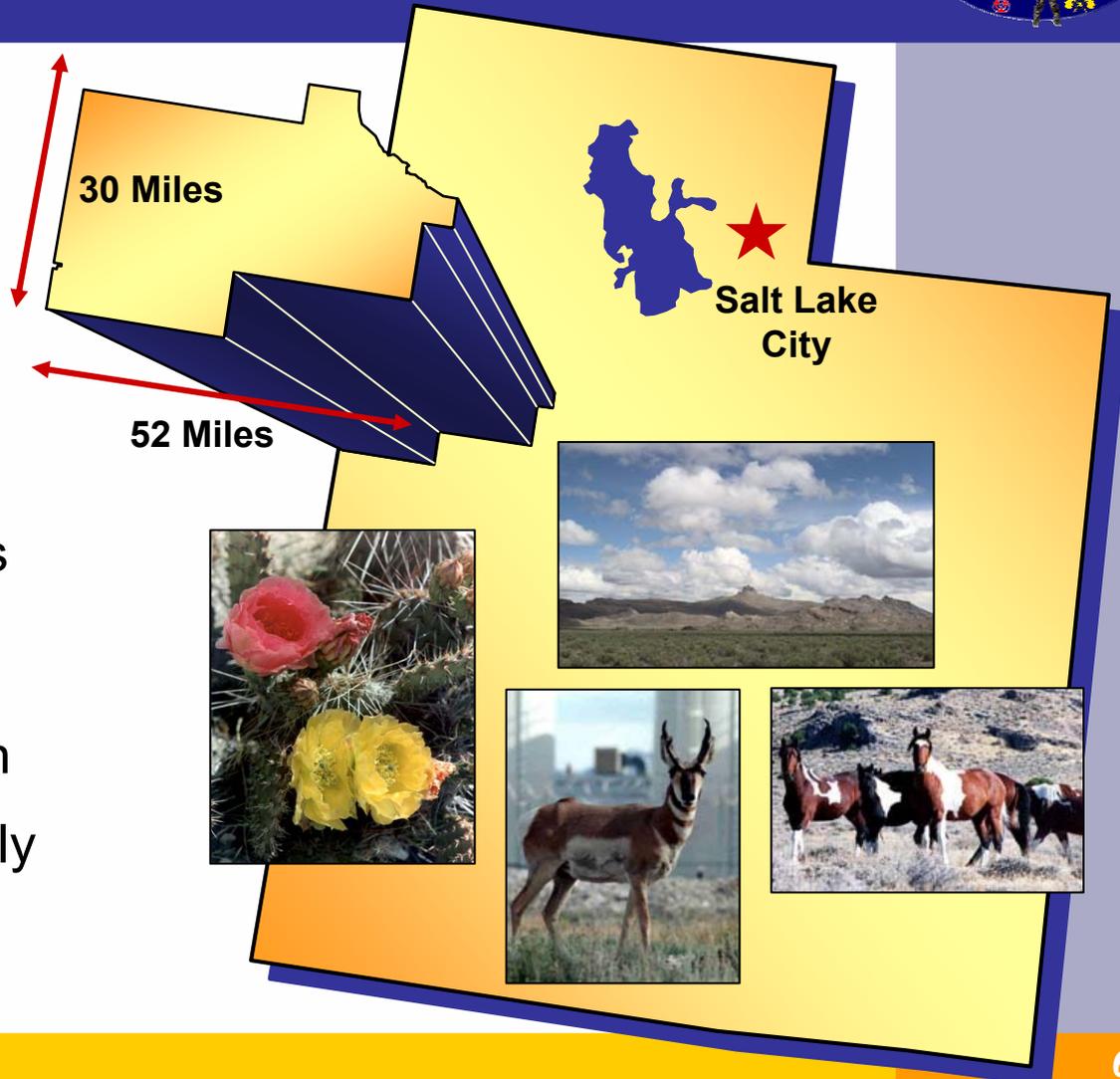
- Afghanistan and Iraq mission rehearsals
- Classified testing



Remote Location



- 1,300 sq. miles of sparse desert environment
- 85 miles from metro Salt Lake City
- Free from urban encroachment
- Surrounded on three sides by mountains and desert terrain
- Salt flats for 90 miles north
- Acoustically & electronically quiet
- Free of light pollution



Remote Location



- **Dugway is part of the Utah Test and Training Range**

Airspace - 19,161 sq. miles

Restricted air space - 9,158 sq. miles

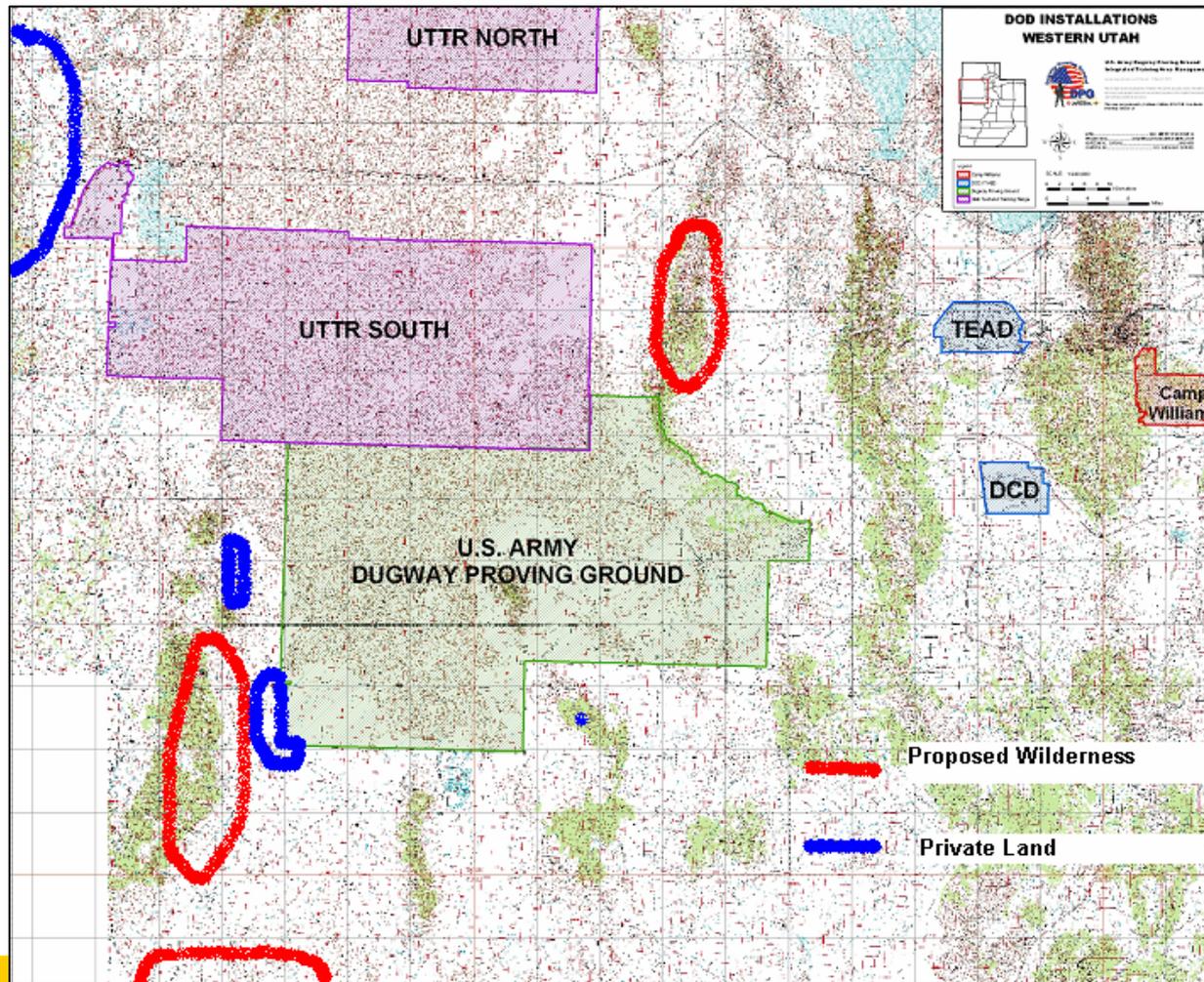
Military operations area - 10,004 sq. miles

DOD exclusive use land - 3,078 sq. miles

Government owned land - 16,686 sq. miles



Zero Encroachment



Dugway Environment



Granite Mountain
7,080 ft



59,078 acres
mountain terrain



279,768 acres desert terrain
(sage and sand dune)



462,180 acres playa
(mud and salt flats)

Salt Flats
4,230 ft

- 801,027 acres total
- Environmental Permits in place
- EIS pending
- Pristine air quality
- < 8 inches rainfall a year
- No endangered species

Key Dugway Locations



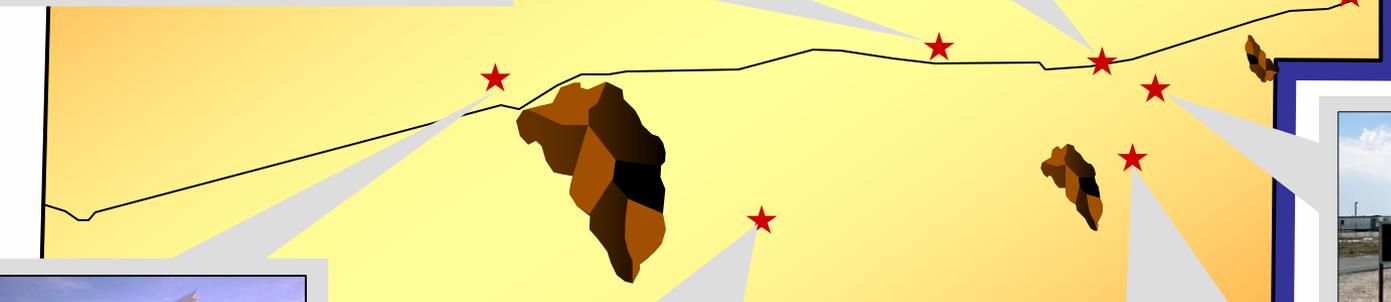
Life Sciences Test Facility



Combined Chemical Test Facility



English Village



USAF Tracking Radar



Test Grid



Defensive Test Chamber



Material Test Facility

Dugway Partners



Utah Support of Dugway



- Strong outreach program to local Chambers of Commerce and State agencies
- Exemplary working relationship with State Environmental Office
- Cooperative Agreements with local universities
- The State of Utah provided Dugway \$2M to repair runway at MAAF
- Participation in special events (Winter Olympics, Veteran's Day)
- House Resolution No. 14, Resolution Recognizing Dugway Proving Ground, Tooele Army Depot, Deseret Chemical Depot, Utah National Guard, and U.S. Military Reserves

History



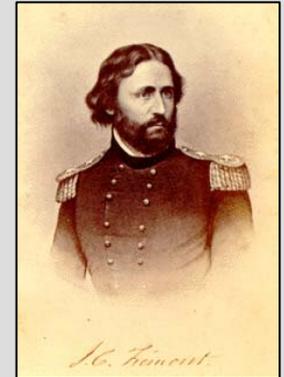
**32-14,000
Years**

Lake Bonneville covers the area that will become Dugway Proving Ground under several hundred feet of water.



**10,000
Years**

The lake recedes and the first nomadic humans populate the arid region.



**1776 -
1845**

Explorers Dominguez & Escalante, Jim Bridger, and John C. Fremont survey and map the region.

History



Pioneers arrive in the Salt Lake Valley.

1847

The Pony Express and Overland Stage routes follow Dugway's future southern border.

1860

Transcontinental Railroad completed.

1869

Miners and ranchers invade the region. Special wagon roads, called "dugways" are cut into nearby mountainsides.



1870

Utah becomes the 45th state in the Union.

1896

History



1900

WWI engulfs Europe. Mustard Gas is first used against the Allies at Ypres.

1915

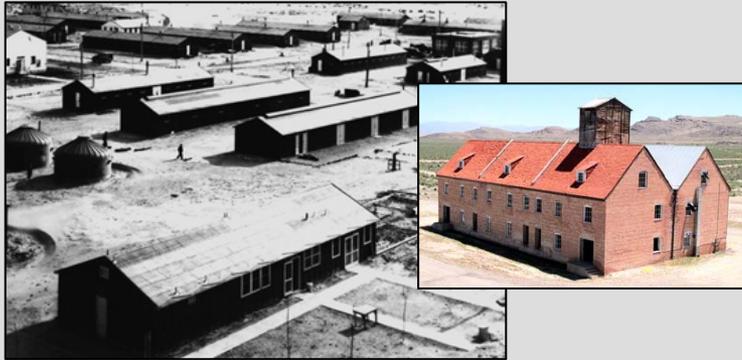


1919

The transcontinental Army Motor Transport Expedition cuts across future Dugway test grids, with a young MAJ Eisenhower in tow, on the route of the famous Lincoln Highway.

1930

History



Pearl Harbor

BRAC Commission



9-11

1941

1942

1995

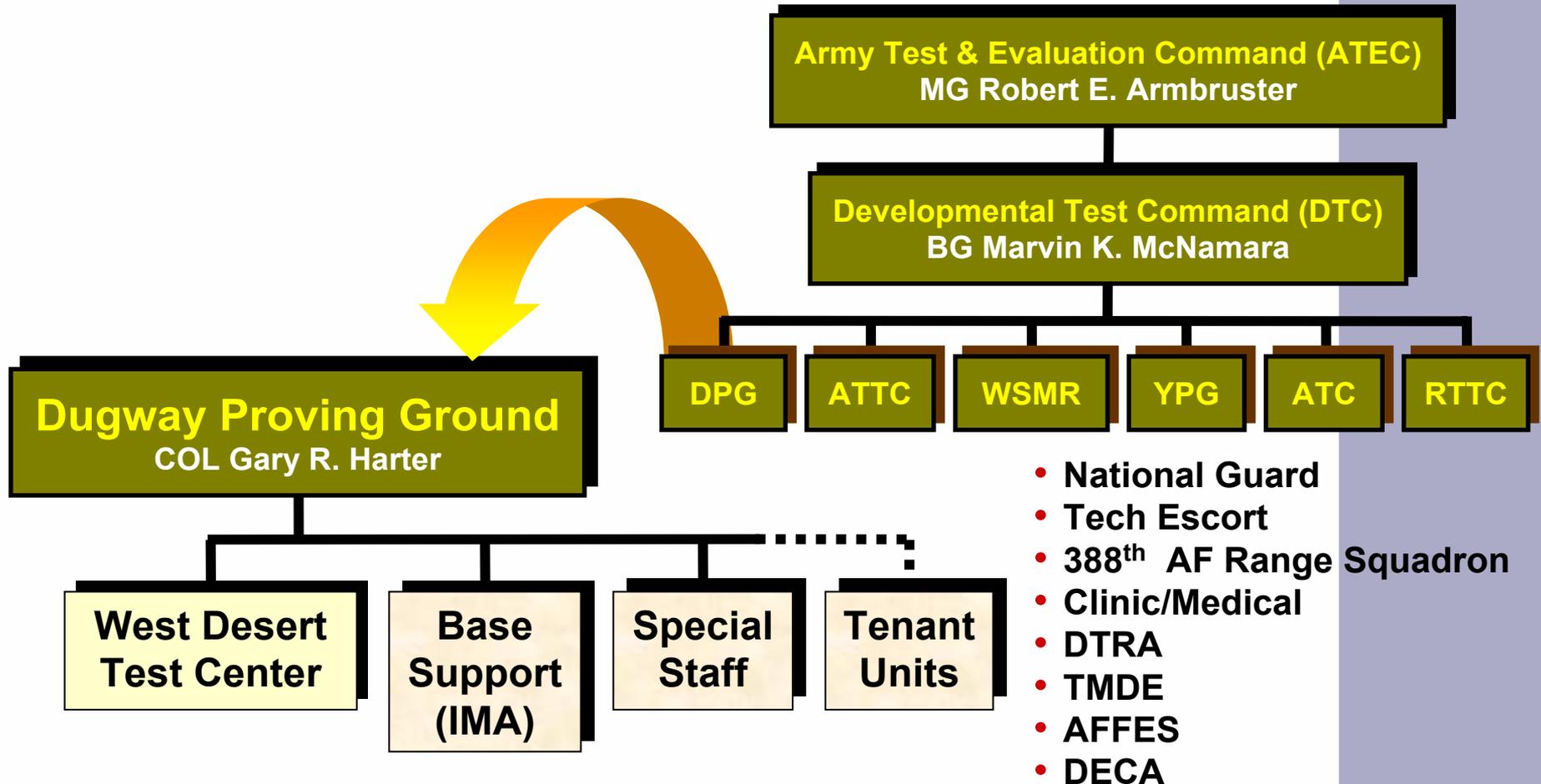
2001

Today

President Roosevelt withdraws an initial 127,000 acres of Utah land for use by the War Dept. and Dugway Proving Ground is officially activated.

Dugway continues to serve America's soldiers, citizens, and allies as the nation's chemical and biological defense Proving Ground.

Structure



Vital Statistics



FY 04

\$40.1M Operations
\$ 4.3M Technology
\$10.3M OSD Mission
\$ 4.5M OSD Modernization
\$ 4.5M Air Force Mission
\$ 1.1M NAF
\$58.1M Reimbursable
\$ 5.3M Other

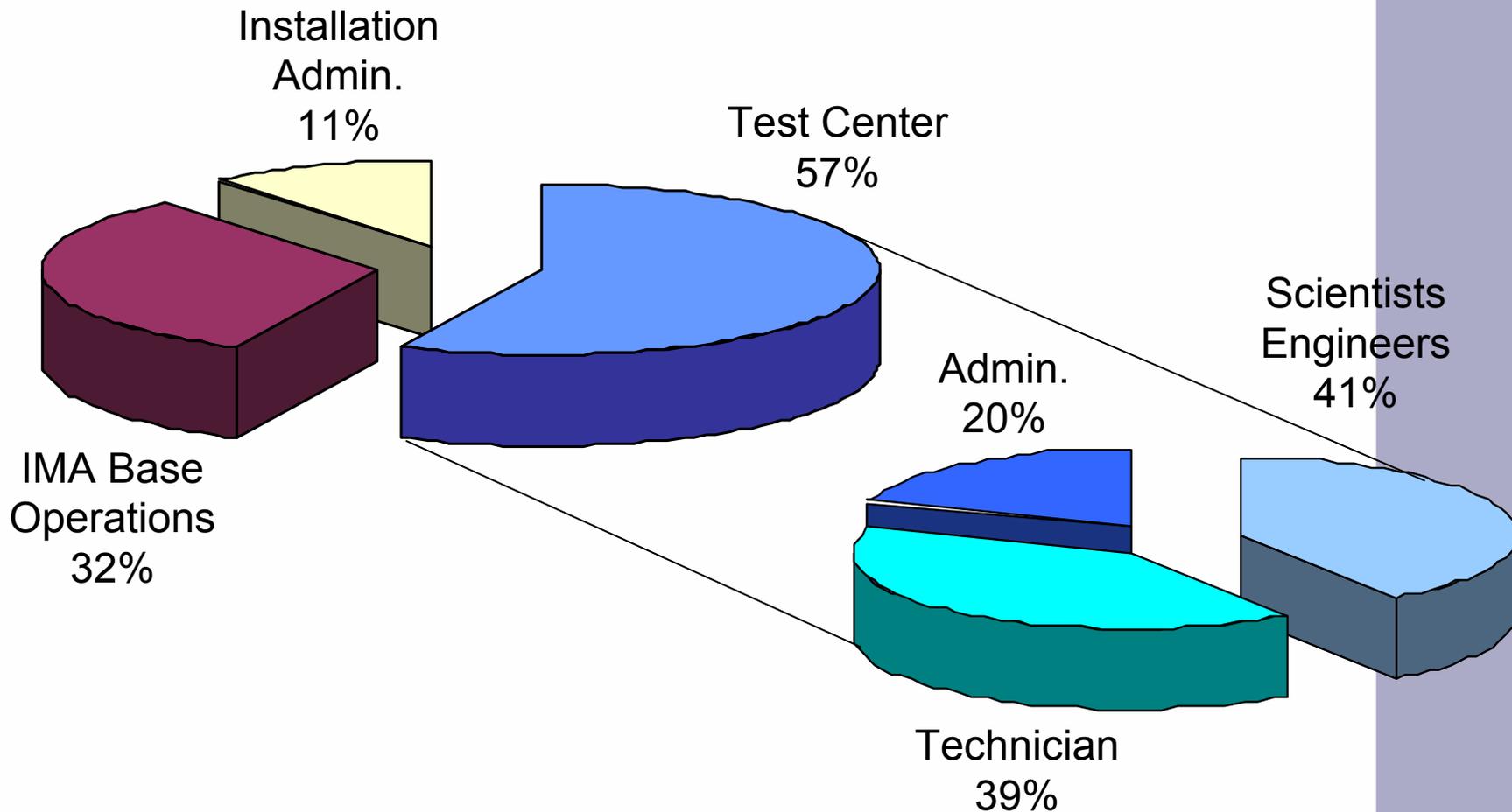
\$128.2M Total Annual Budget

March 2004 Population Data

254 Military (Including Tenants)
652 DOD Civilians
539 Full-time Contractors
159 NAF, USPS, Tooele County
Schools, Credit Union, etc.

1,604 Total Work Force

Work Force – Structure





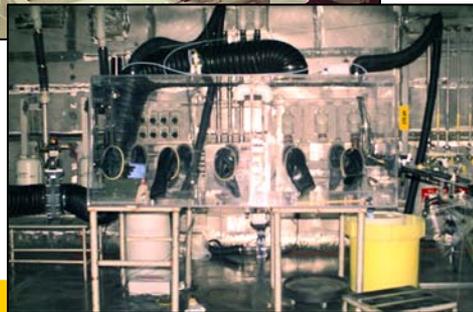
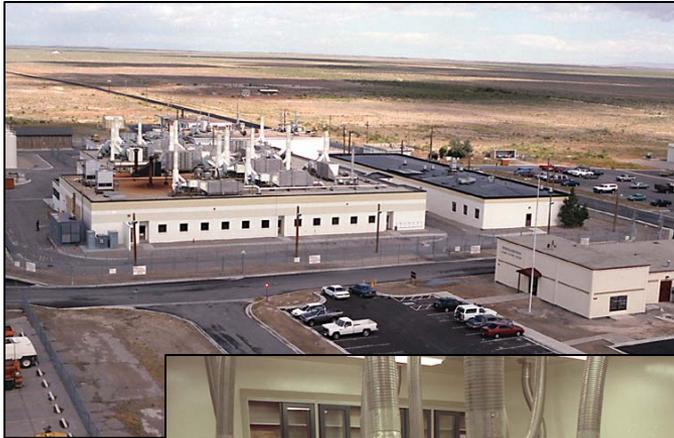
Chem-Bio Test Mission and Capabilities

Dugway Mission Statement



- **To test U.S. and Allied chemical and biological defense equipment and systems. Perform NBC survivability testing of defense materiel. Test environmental characterization and remediation technology. Develop procedures, methodology and technology necessary for chemical and biological testing.**
- **Act as the DOD joint Chem-Bio defense contact point in support of Combatant Commanders. Provide support to chemical and biological weapons conventions. Provide for testing of smoke, illumination and incendiary munitions. Conduct the Army's Meteorology Program. Conduct a surety program. Support training.**
- **Safeguard the environment.**
- **Operate and maintain an installation to support the test mission.**

Combined Chemical Test Facility



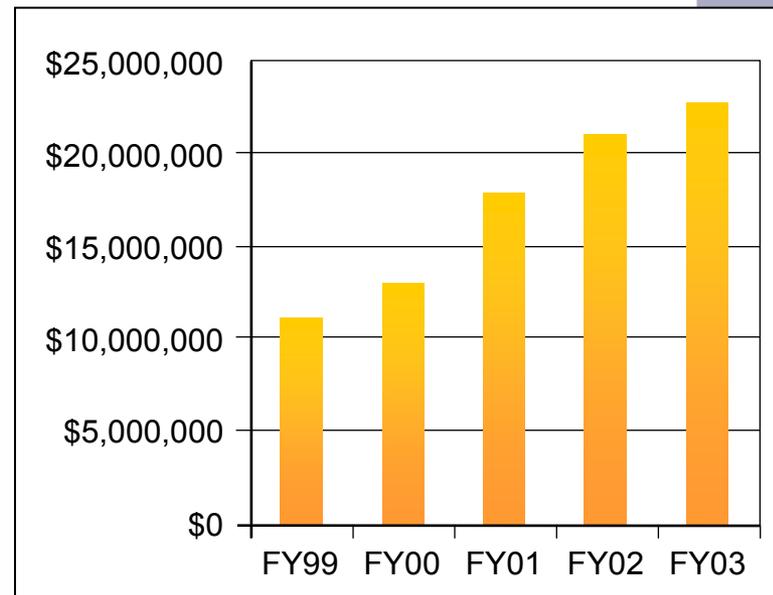
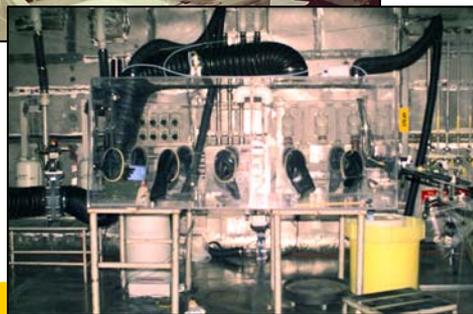
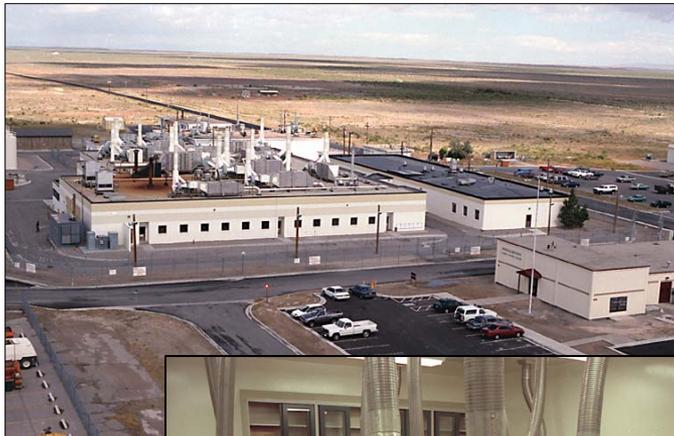
Capabilities

- 35,000 square feet of multifunctional chemistry laboratories
- 47 agent certified fume hoods in 27 Surety-capable test suites
- Supports chamber and field testing of Chem-Bio defense systems
- Aerosol, vapor, and droplet testing with all chemical agents
- Support of Homeland Defense

Chemical Agents & Simulants

Agent	Simulant
-G Agents	13 licensed simulants
-VX	
-H-Series	
-Lewisite	

Combined Chemical Test Facility



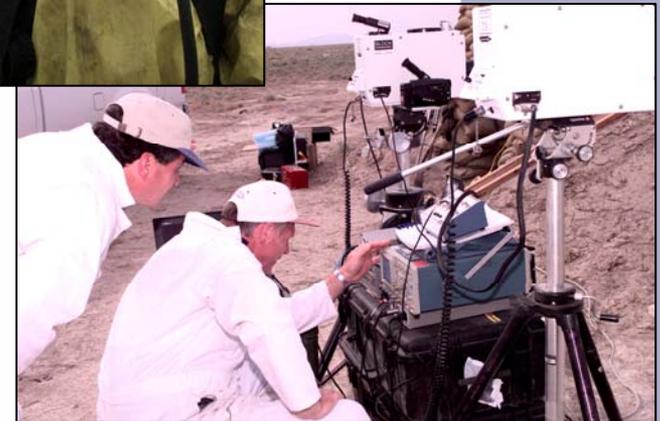
Growth in Chemical Testing

- Increased CBDP support
- \$13.7M test technology
- Support of WMD-CST training

Chemical Test Capabilities



- Super Chamber decontamination or IPE testing
- Detector Test System Chamber, chemical point detector testing
- Passive Standoff Detector test chamber
- Nuclear Magnetic Resonance Spectroscopy (NMR)
- Gas Chromatograph (GC)
- GC/Mass Spectrophotometer
- Smartman Mask Test Chamber
- AVLAG material swatch test chamber
- CBART material swatch test chamber (in development)
- Field sampling, assay and safari capability



Materiel Test Facility



Capabilities

- *Stainless Steel Chamber (30'x50'x50')*
 - Full environmental control
- Two (30'x25'x25) test chambers
 - Upgrade for BSL-3 Bio agent testing
- Chemical vapors & aerosols
- Use full range of chemical agents and Chem-Bio simulants



Operational Uses

- Testing of Chem-Bio defense equipment under realistic conditions
- Perform real decontamination operations
- Full-scale testing of large military hardware



Test Chambers



Bldg 3445

- Certified to test with chemical agents and Chem-Bio simulants

Defensive Test Chamber

- Certified for Chem-Bio simulants
- Man-in-simulant (MIST) testing

Bang Box

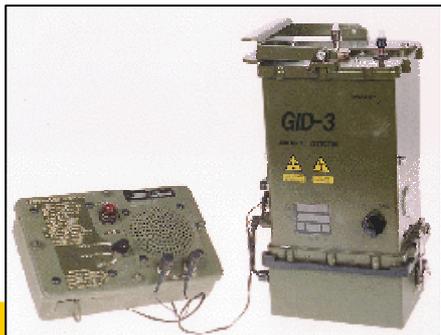
- Explosive material testing
- Environmental characterization of explosive munitions

Ambient Breeze Tunnel

- Simulant testing of Stand-off Chem-Bio Detectors



Chemical Test Programs



- STRYKER NBCRV
- Joint Service Lightweight Standoff Chemical Agent Detector (JSLSCAD)
- Joint Service Lightweight Suit Technology (JSLIST)
- Joint Protective Aircrew Ensemble (JPACE)
- Joint Service Chemical Environmental Survivability Mask (JSCESM)
- Joint Service Family of Decon Systems (JSFDS)
- Artemis technology demonstration
- Joint Chemical Agent Detector (JCAD)
- Future Combat Systems (FCS)

Life Sciences Test Facility



Capabilities

- 32,000 ft² of Multifunctional Biological Laboratories
- *Only U. S. Facility Equipped to Test with Aerosolized Biosafety Level 3 (BSL3) Agents*
- Six BSL3 Containment Suites (3 new available in June)
- Aerosol testing with pathogens, toxins and simulants,
- Support Homeland Defense



Agents of Biological Origin & Simulants

Agent

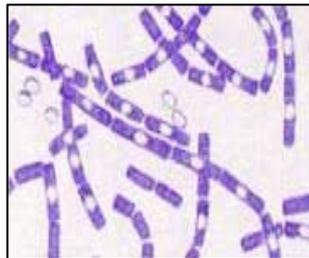
Biosafety Level 1-3

- Bacteria
- Viruses
- Ricettsia

Biological toxins

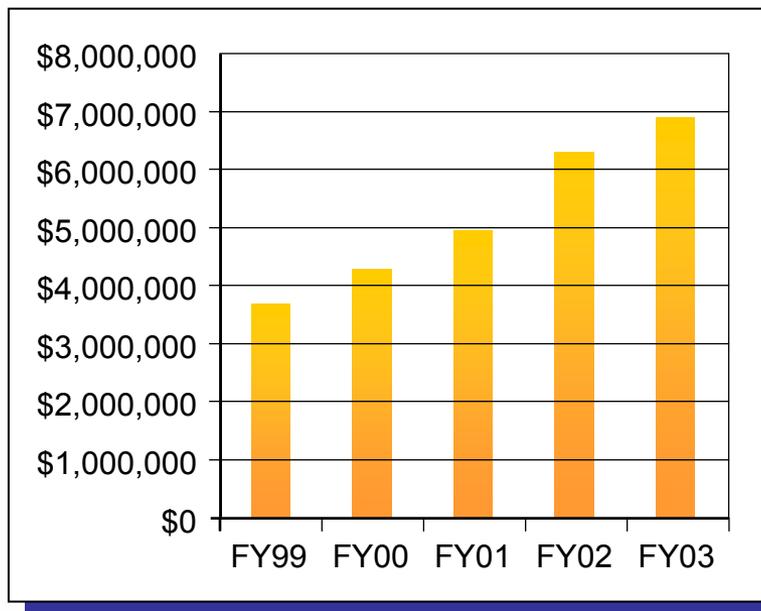
Simulant

8 licensed simulants



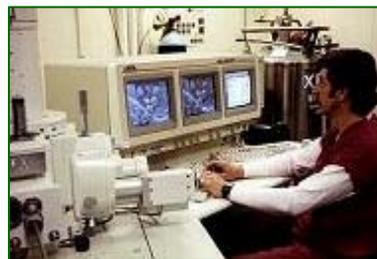
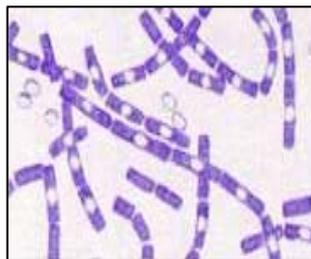
LSTF Annex in
FYDP FY07

Life Sciences Test Facility



Growth in Biological Testing

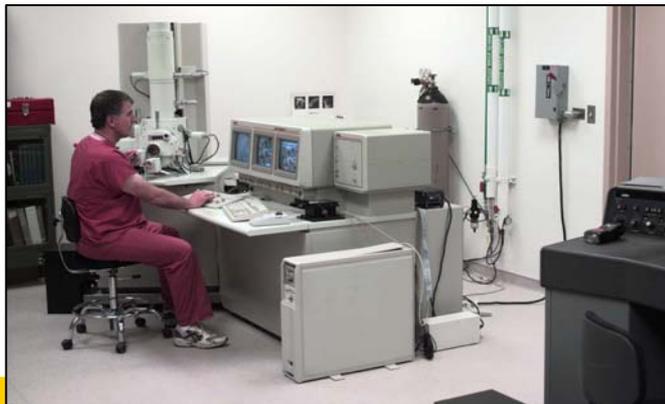
- Increased Chemical and Biological Defense Program support
- Homeland Defense – EPA/NIOSH testing
- Support of WMD-CST training
- DOJ support



Biological Test Capabilities



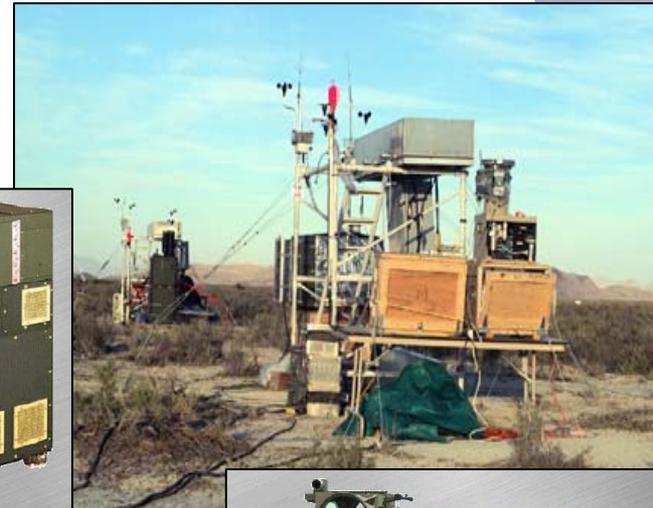
- BSL-3 Containment Aerosol Chamber
- Aerosol Simulant Exposure Chamber
- Simulant and agent fermentation
- Scanning Electron Microscope
- Transmission Electron Microscope
- Tissue Culture
- Polymerase Chain Reaction technology
- Gamma Irradiator
- Field sampling, assay and safari capability



Biological Test Programs



- Joint Biological Point Detection System (JBPDS)
- Joint Biological Agent Identification and Detection System (JBAIDS)
- Joint Biological Standoff Detection System (JBSDS)
- Critical Reagent Program
- Whole System Live Agent Test
- Support of FBI and EPA for anthrax investigation and decon
- Homeland Security Support (CDC/NIOSH pathogen sampling)



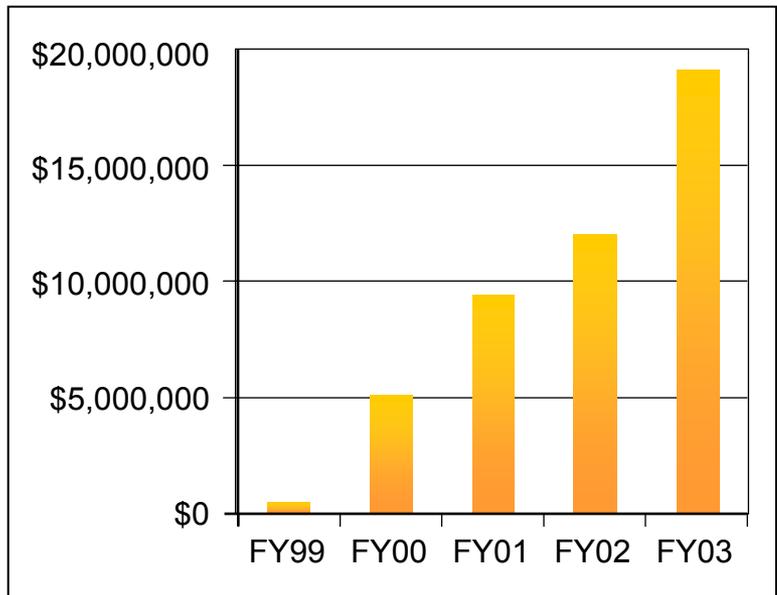
Special Programs



- Direct Support to Combatant Commands
 - Advanced C/B training
 - Developmental and Operational testing
 - Technical Expertise Reachback/ Deployment Team
 - Mission Planning and Execution
- Homeland Defense/Homeland Security and Other Government Agencies
 - Advanced C/B training
 - Developmental and Operational testing



Special Programs



Growth in Special Programs

- WMD-CST training
- First Responder training
- Homeland Defense support
- Combatant Command support



Special Programs Projects



- Combatant Commands
 - Restoration of Operations (RestOps) ACTD
 - Contamination Avoidance at Seaports of Debarkation (CASPOD) ACTD
 - Boundary Step ACTD
 - Adapted Response ATD
 - Hardened Deeply Buried Targets ACTD
 - O49 Program/ Joint Contact Point
 - Block training
- Homeland Defense/ Homeland Security
 - C/B Sampling Course
 - Biological Sampling and Detection Course
 - Field Exercises
 - Advanced Chemical and Biological Integrated Response Course

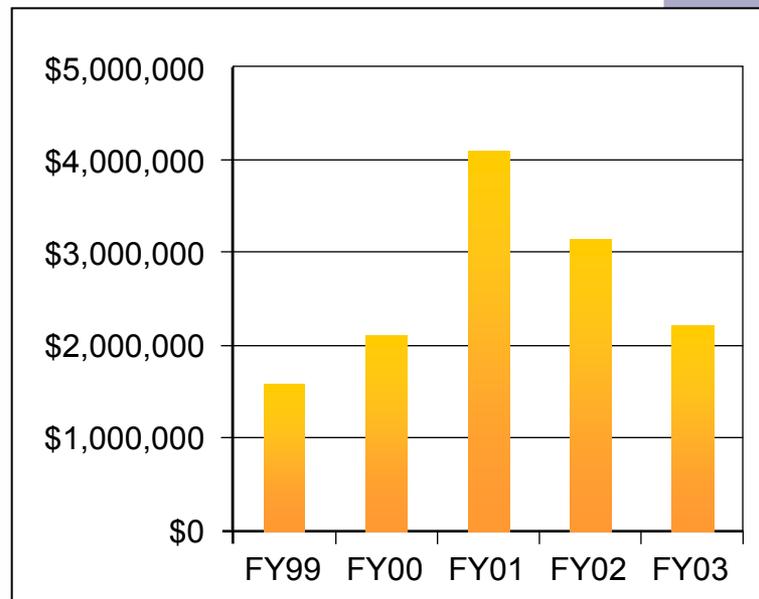


Munitions Test Programs



- US Navy AGS Land Based System
- Light Vehicle Obscuration Smoke System (LVOSS)
- 81-mm Practice Cartridge
- 120-mm short range Practice Cartridge
- Climatic, shock and vibration testing
- Support of Chem-Bio test programs

Munitions Test Programs



Sustained Munitions Testing

- Smoke and Obscurant Test Site

Munitions Test Capability



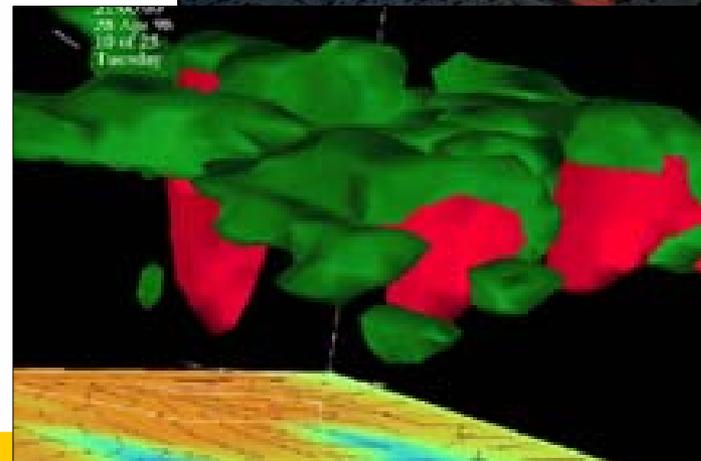
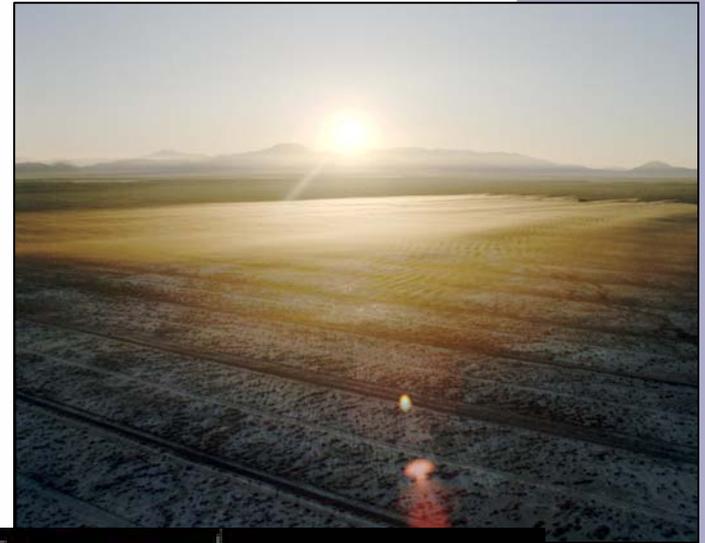
- Mortar and artillery gun sites and test ranges
- Small arms and grenade ranges
- 231,000 acres of impact areas
- 90,000 meter firing range
- Shock, vibration, bounce, bullet impact, drop physical testing
- Conditioning chambers (-100° to $+200^{\circ}$ F)
- Salt fog, altitude, humidity, and fungus chambers
- X ray Facilities
- Ultrasonic System
- Magnetic Particle System
- Metal Hardness Test System
- Moment of Inertia and Center of Gravity Test System
- Weight and Dimension Measurement System
- High speed still and video cameras, round tracking, GPS, and survey



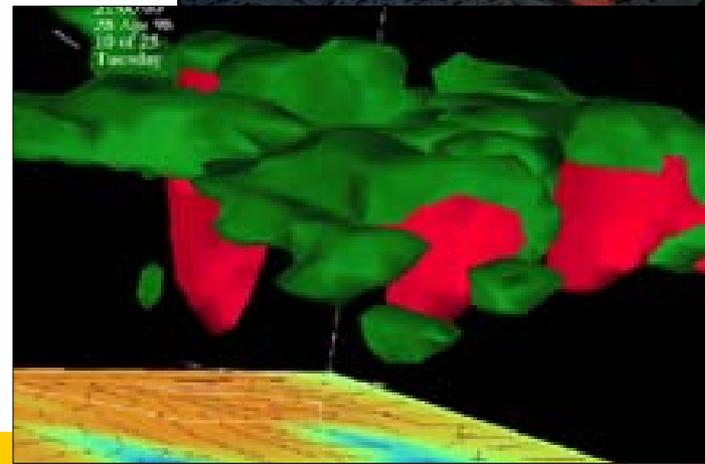
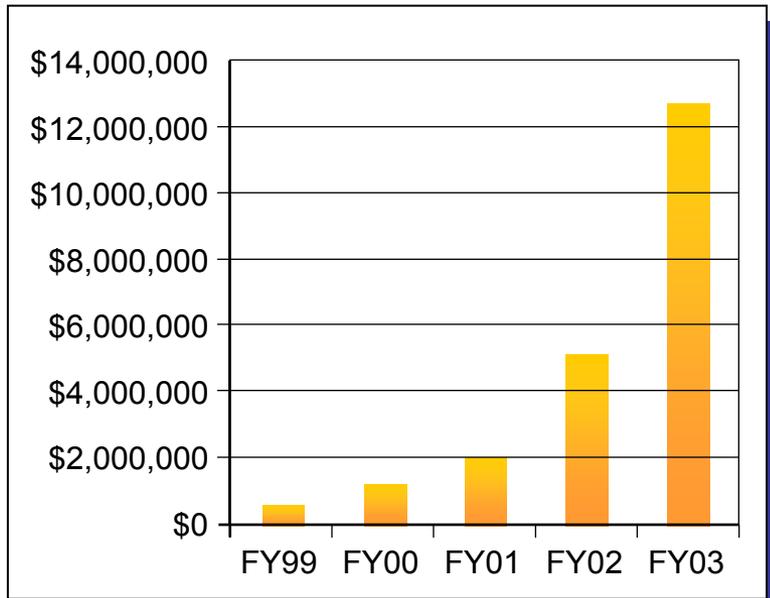
Meteorological Testing



- Program Manager for Army RDT&E Meteorology
- Supports all field testing at Dugway
- Developed Four-Dimensional Weather (4DWX) System
- Defense Threat Reduction Agency (DTRA) Urban Modeling Program
- Joint Urban 2003 participant
- Defense Advanced Research Projects Agency (DARPA) Pentagon Shield program participant



Meteorological Testing



Growth in Meteorological Testing

- 4DWX support for all ATEC Test Ranges
- Weather support for operations in Afghanistan and Iraq

Meteorology Test Capabilities



- Fixed and portable automated remote weather stations
- Portable 924-MHz radar wind profilers (100-3000 m AGL)
- Portable Frequency Modulated/Continuous Wave radar for boundary-layer (25-3000 m AGL)
- Portable Doppler acoustic sounder (15-200 m AGL)
- One fixed and three mobile radiosonde upper-air systems
- Up to three surface observation/pibal stations
- One mobile multi-level tethered balloon sounding (tethersonde) system
- A laser ceilometer for cloud height measurement
- State-of-the-art, full service weather station
- Four-Dimensional Weather (4DWX) System with real-time four-dimensional data assimilation (RT-FDDA)
- The Surface Layer Turbulence & Environmental Science Test (SLTEST) facility
- World-class Chem-Bio hazard prediction capability



Michael Army Airfield

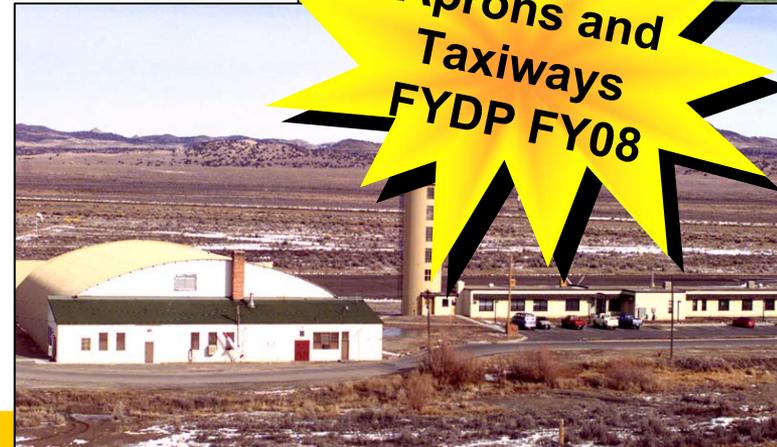


Capabilities

- Capable of handling all Army & Air Force aircraft
- Fully lighted 7,000 ft. runway
- Aircraft Decon Pad
- 20,000 ft² hangar with office space and ground handling equipment
- Support to National Capitol Response Mission (NCR)

Operational Uses

- Shipping surety materials
- Chem-Bio decon of aircraft
- Tactical Air Operations
- Air-Assault Operations
- Air re-supply and logistics
- USAF emergency airfield



Test & Training Ranges



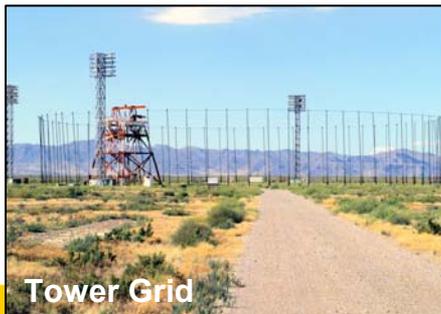
- Certified to test with Chem-Bio simulants
- Independently evaluate and test Chem-Bio detection, protection, and decontamination equipment
- Validate tactics, techniques, and procedures
- Artillery and Mortar Test and Training Ranges
- Four major impact areas – 231,000 acres
- Nine Drop Zones, 91 artillery firing points



Horizontal Grid



MOUT Facility



Tower Grid



Target S-Downwind Grid



German Village Artillery Site

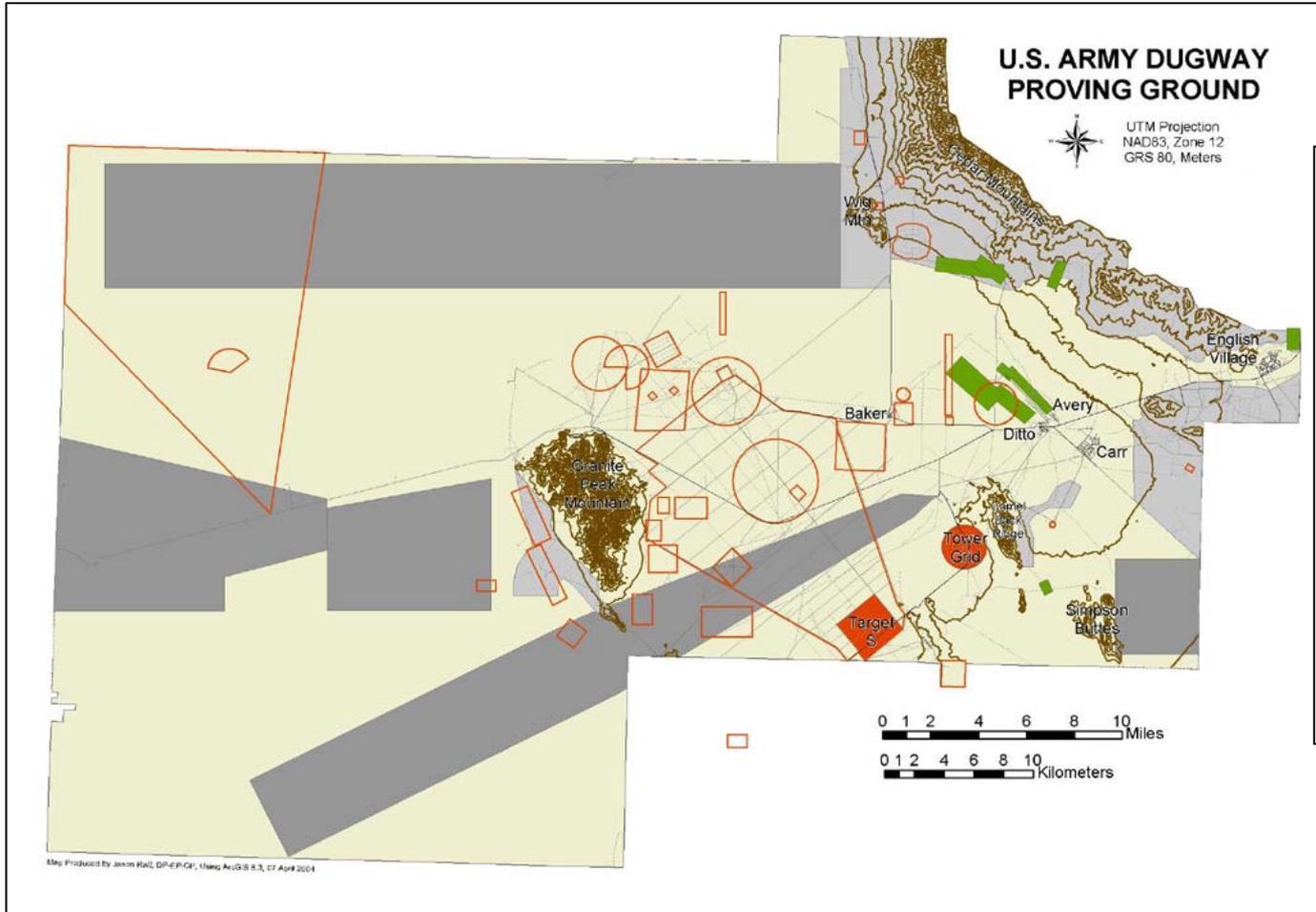
Dugway Training Range Use



- Joint Patriot
- Annual Army National Guard Training
- Air Force National Guard Training
- Special Operations Units
- Active and Reserve Army, Air Force, Marine, Navy units
- WMD-CSTs
- Chemical Brigades
- NATO Exercises
- Homeland Defense training
- ROTC



Range Utilization



Chem-Bio Test FY03 Workload



Acquisition Workload

\$20.9 Chemical Defense
 5.6 Biological Defense
 1.5 Munitions & Obscurants

\$28.0M

Non-Acquisition

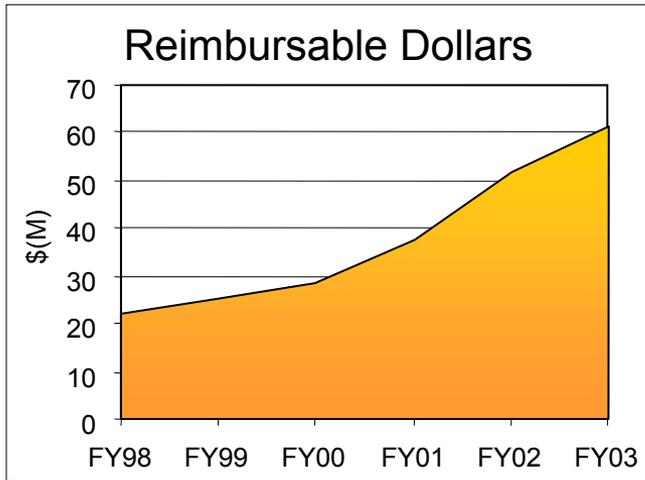
\$11.9 Meteorology
 16.0 Special Programs
 1.7 Miscellaneous

\$29.6M

Technology

\$1.2 CTEIP
 1.2 VPG
 0.9 SNI

\$3.3M



Total FY03 = **\$60.9M**
 (Customer Reimbursable)

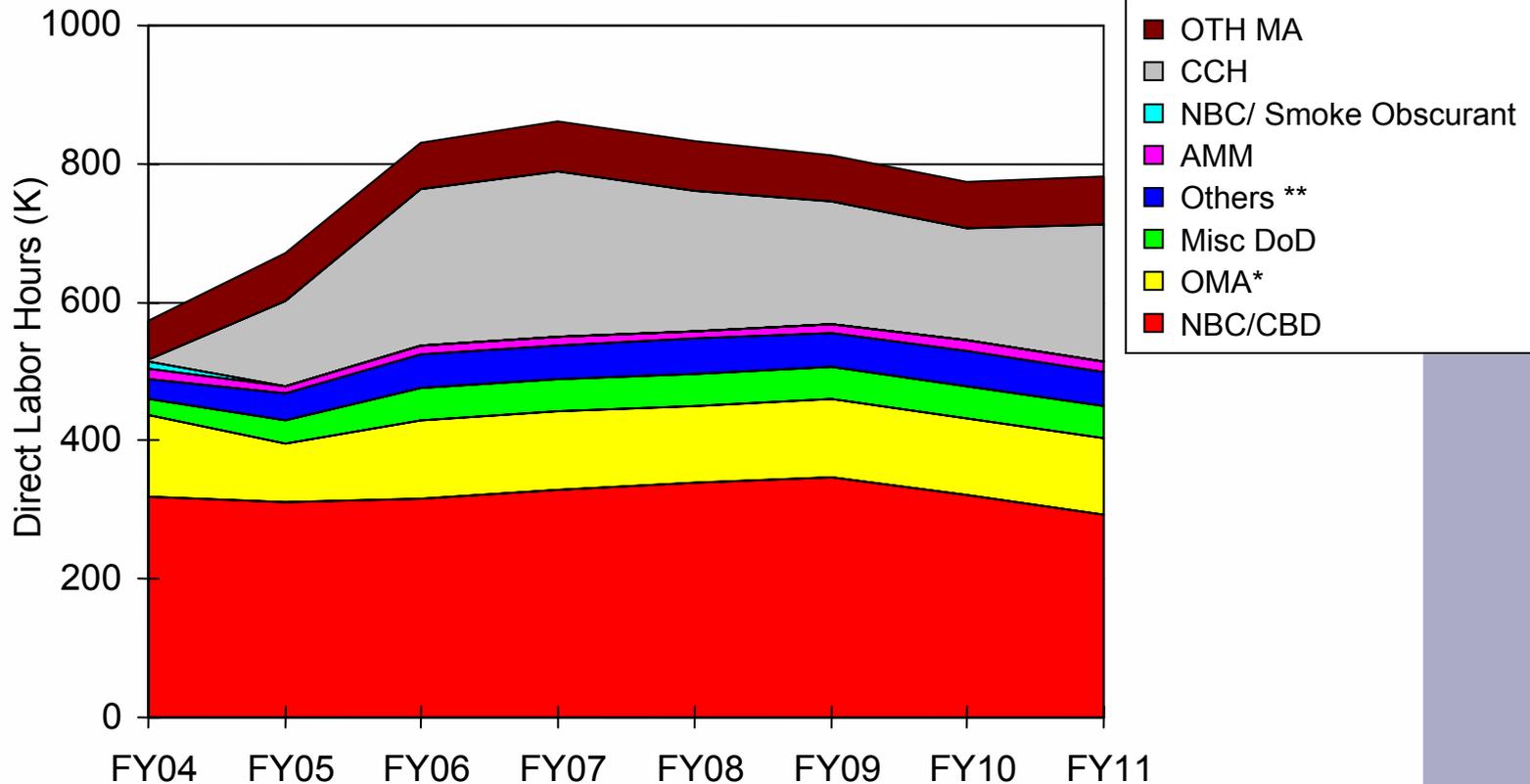


FY04 Projected = \$58.1M

Chem-Bio Workload Projection



(Based on FY05 BES 12 Sep 03 and Sep 03 Update for Other Than Army RDA workload)



*OMA includes efforts under the Chemical Agent and Munitions Destruction (CAMD) budget.

** Others includes, at Dugway, Air Force and Navy non-NBC related, FMS, Private Industry, and other Federal agencies.



Tenant Missions and Capabilities

388th Mission Statement



“Operate and maintain the Utah Test and Training Range (UTTR), comprised of 1.8 million acres and 12,574 square miles of airspace. Supports the warfighter operational test and evaluation (OT&E) of large-footprint weapons (bombers/fighters), ground-static firings and combat Air Force training and tactics development. Coordinate operational and support requirements with MAJCOMs and government agencies.”



Air Force Test Capabilities



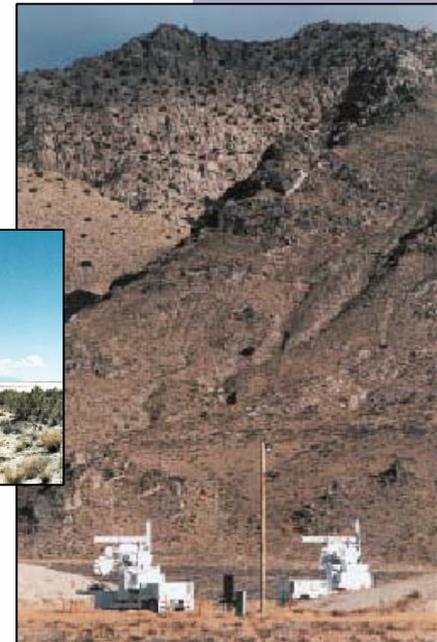
- Avery Compound
 - 388th Range Squadron
 - Remote cameras, video, computer scoring
 - Repair and maintenance
- WIG Support Facility
 - Control point for all South Range target sites
 - TPQ-39 Radar
- Granite Peak Telemetry Site



Air Force Test Technologies



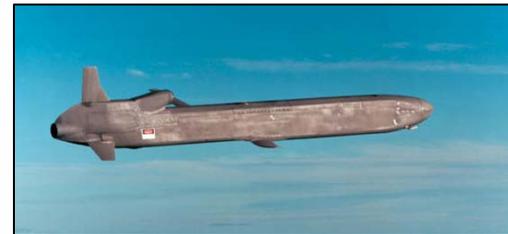
- Mobile Telemetry Automatic Acquisition System (MOTAAS)
- UTTR Air Combat Maneuvering Instrumentation System
- High Accuracy Multiple Object Tracking System
- Test and Evaluation Command and Control System
- Advanced Range Data System
- The Weapons Impact Scoring Set (WISS)
- Video Metric Analysis System (VMAS)
- Time Space Position Information
- Multiple Threat Emitter System (MUTES)
- Threat Reaction Analysis and Indicator System (TRAINS)



UTTR Capabilities



- Largest DOD owned land range
 - 58,000 ft restricted air-space
- Airspace & land mix ideal for testing large foot-print weapons
 - Only USAF Cruise Missile test range
 - Only 10K lbs+ routine explosion range (up to 500K lbs tested)
 - 1 of 2 ACC JDAM approved ranges (UTTR & Nellis)
- All Cruise Missiles
 - ALCM, CALCM, & ACM
- Employs HARM, MAVERICK, AGM-130, JDAM, UAVs, LGBs, etc.



Company C Technical Escort Unit



Mission:

“On Order, Deploy Worldwide to Conduct Chemical, Biological, Radiological and Industrial Hazard (CBR-I) Operations in Support of the Department of Defense, and Local, State And Federal Authorities”

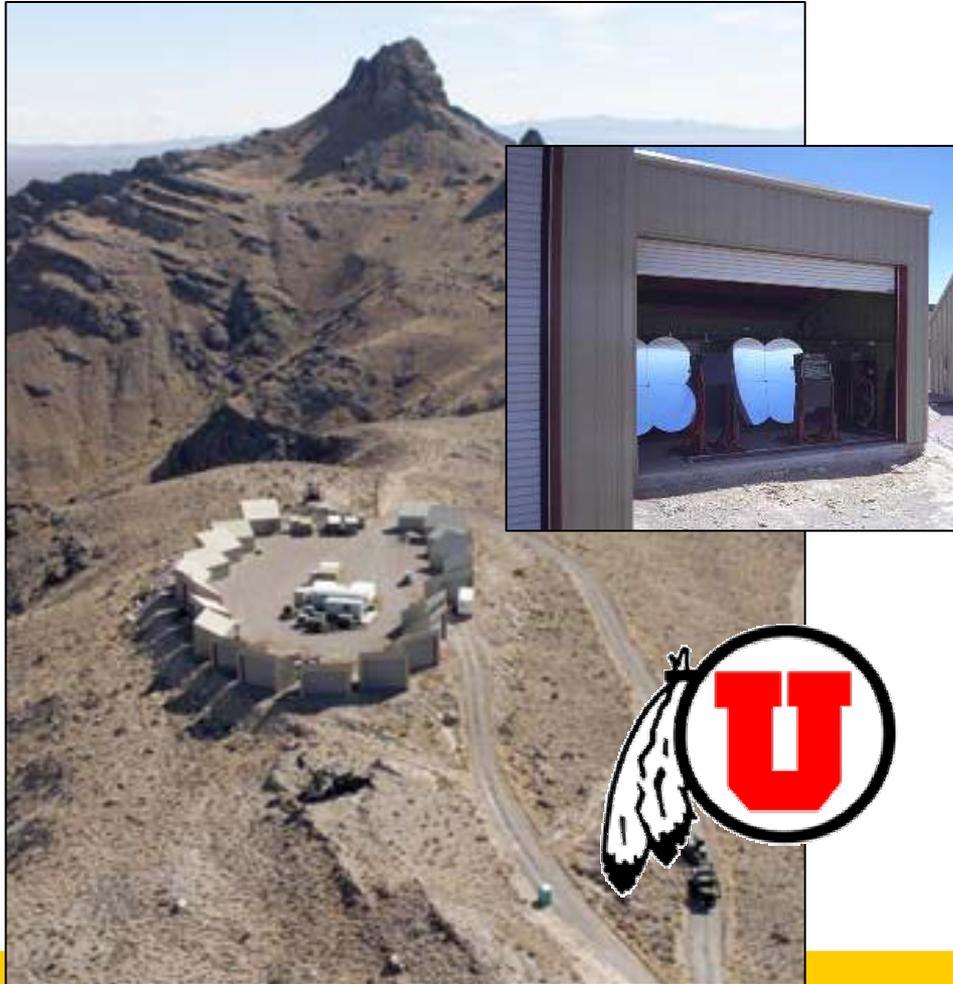


Recent deployments:

- Individual members to Afghanistan
- Munitions Assessment - Hill AFB, WSMR, Rocky Mountain Arsenal
- NATO Mission Exercise/Czech Republic
- Seattle, WA/Vile Assessment



HiRes Fly's Eye



- Scientific Consortium to study Cosmic Rays since 1976
 - National Science Foundation
 - University of Utah
 - University of Adelaide
 - Columbia University
 - Rutgers University
 - University of New Mexico
 - University of Tokyo
- World's largest Cosmic Ray detector
- Takes advantage of Dugway's clear skies and pristine air



Dugway Quality of Life Assets

Installation – English Village



- Housing
- Base Support
- 142,000 ft² Office space
- Health Clinic
- Commissary
- Schools (capacity)
 - Elementary – 250 students
 - High School – 300 students
- Child Development Center
- Library
- Gas Station/Shoppette

Installation Housing



- 362 Family housing units
- 701 Military billets
- 77 Visitors quarters
- 82 Dorms



162 Housing Units Renovation FY04

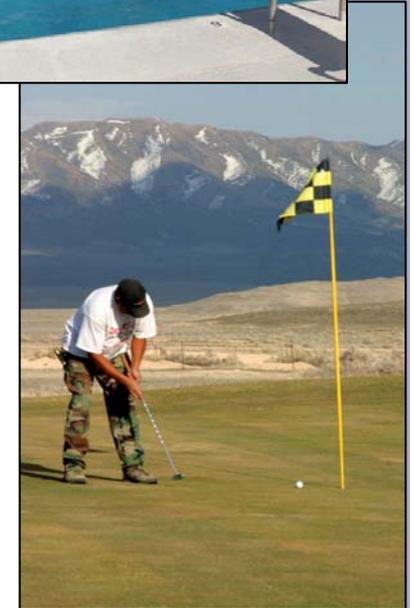


60 Room Hotel Construction August 04

Installation – Recreation



- Theater
- Outdoor Swimming Pool
- Golf Course
- Skill Development Center
- Auto Craft Shop
- Horse Stables
- Fitness Center
- Outdoor Recreation
- Photo Studio/Gift Shop
- Bowling Center
- Tours and Travel
- Organized sports and fitness programs
- Leisure programs



MCA Projects



Project Title	Commodity	Total Cost (\$M)	Test Program(s) Needed For	Scheduled
Defensive Test Chamber Annex	Protection	1.2	JSLIST, JPACE	Completed
Michael Army Airfield 1	All	9	ALL Agent Programs	Completed
Michael Army Airfield 2a		25.4		FY06
Michael Army Airfield 2b		15.1		FY08
New Hotel	NA	11	NA	FY04
Housing Expansion	NA	11.3	NA	FY04
Life Sciences Test Facility Annex	All	26.5	ALL Bio Programs	FY07
Active Standoff Test Facility	Contamination Avoidance	38	JBSDS, Artemis	FY07
Downwind Grid Upgrade	Contamination Avoidance	9	JBSDS, Artemis, JSLSCAD, STRYKER	FY09
Chem-Bio Protective Equipment Test Facility	Protection	33	JSFDS, JPACE, CST Training, Survivability	FY09
Passive Chamber Test Facility	Contamination Avoidance	1.5	JSLSCAD	
Storage/Test Chamber Fabrication Facility	All	1.45	All Chamber Tests	
Chem-Bio Urban Training Facility	CST Training	33	CST Training, Testing CB Detectors in urban environment.	
Operational Test Grid	Contamination Avoidance	17.4	NBC Recon Systems, Artemis, JBSDS, JSLSCAD, STRYKER	



Potential for Growth



Dugway Capacity



Utility	Unit	Capacity	Average Use	% Available
Water	MGD	5.846	1.593	73
Electricity	MW	10	2.5	75
Sewage	MGD	2.506	0.350	86
Landfill	20 years to exceed current permitted capacity			
IT	MB	400	200	50

Facility Use	Total Number	Total Square Footage
Administrative	12	14,371
Barracks/Rooms	701	358,121
Community	29	239,573
Family Housing	362	593,063
Industrial - Hangar	50	461,876
Medical	2	39,366

Dugway can support 3500 residents and 1000 commuters within current capacities

Potential for Growth



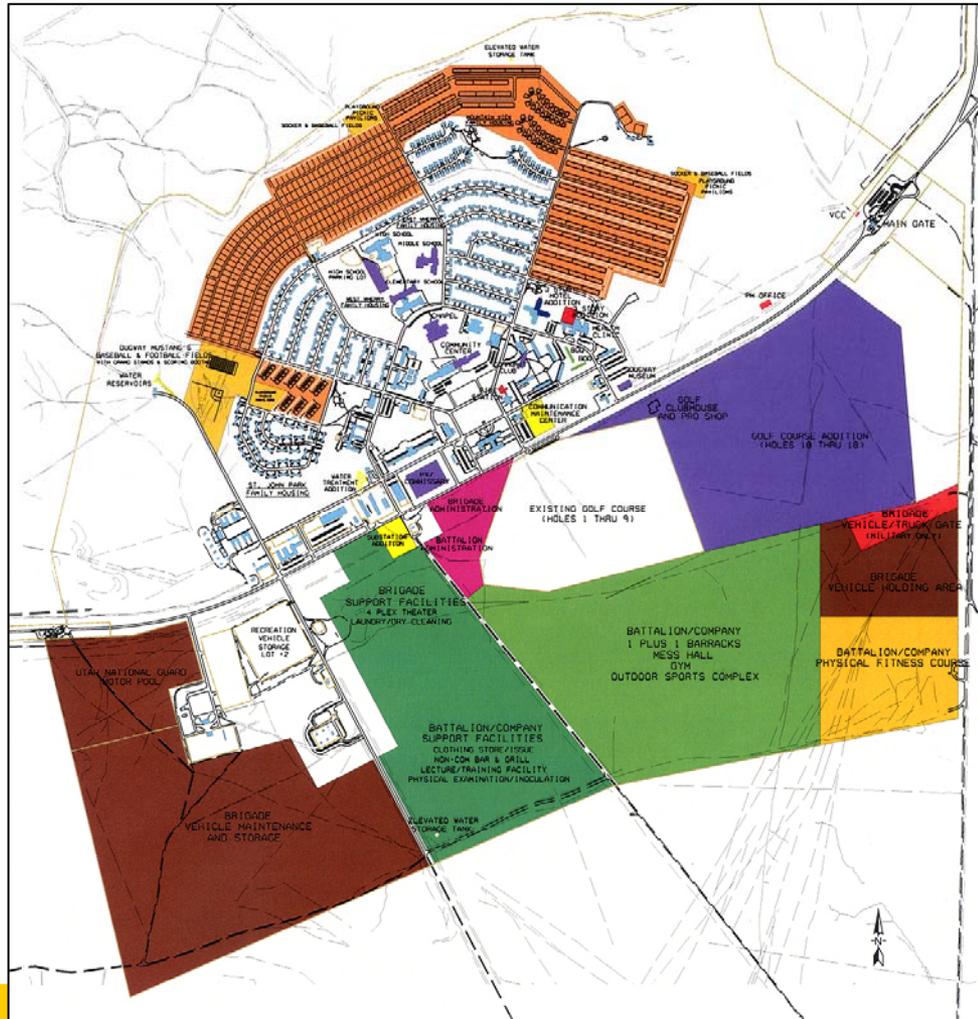
- TEU Battalion
- Chemical Units
- Chemical Brigade HHD
- Special Operations Units
- Reserve Units
- Artillery Units
- Displaced Units

- Brigade Combat Team
- Chemical School

- Additional Air Force Units
- Center for WMD Emergency Responders (DOD, DHS, academia)



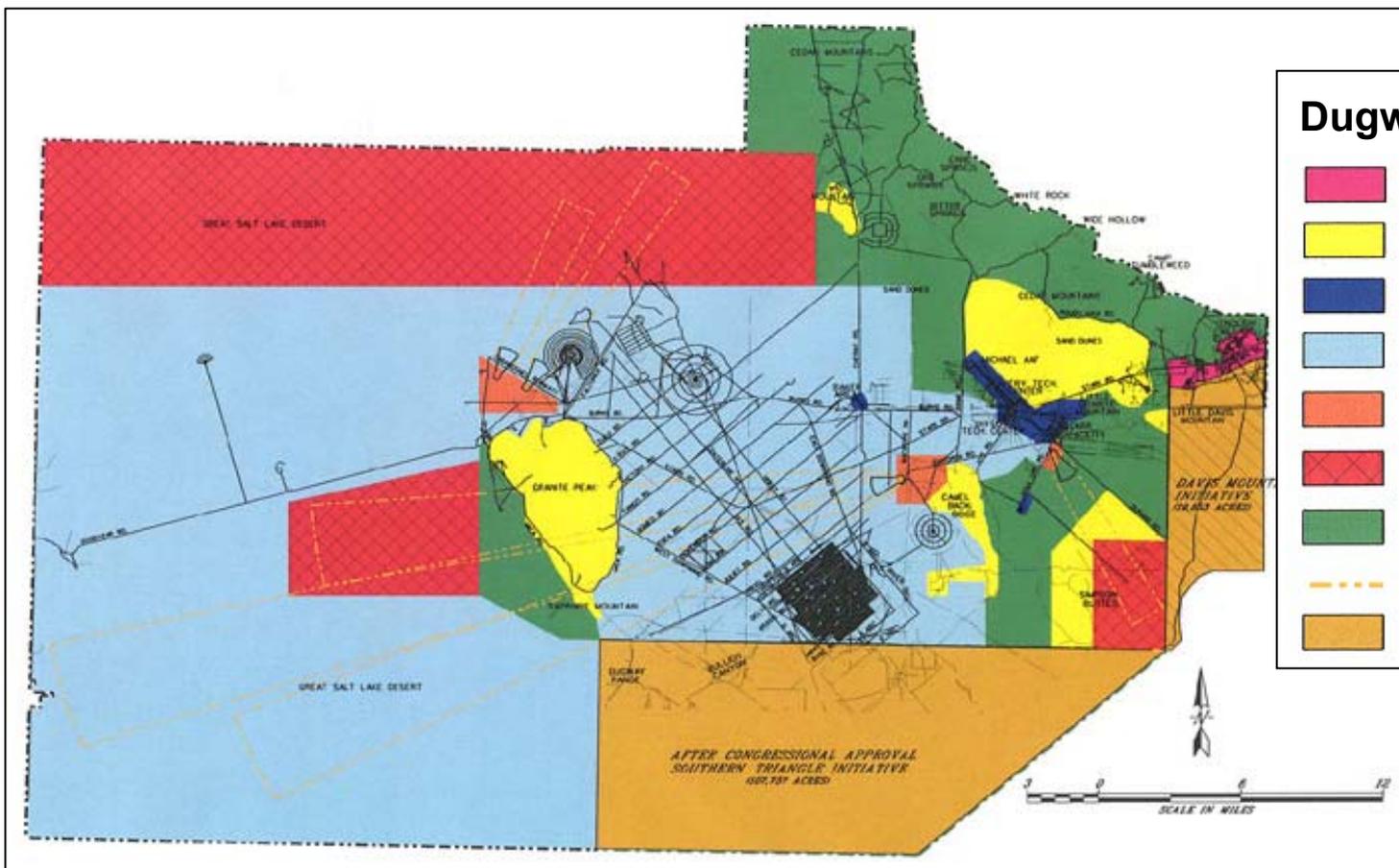
English Village Expansion



Area/Facility Classification

- Existing Housing & Facilities
- Admin./Command Facilities
- Comm./Support Facilities
- Brigade/Support Facilities
- Health/Safety Facilities
- Industrial/Utilities
- Supply/Storage & Vehicle Main.
- New Family Housing
- New Lodging
- Troop Housing & Dining
- Open Area Development

Dugway Range Expansion



Dugway Land Use Types

- Garrison Support Activities
- Limited Access/Buffer Area
- Test & Eval. Facilities
- Test Pads/Grids
- Firing Lines & Positions
- Impact Areas
- Training/Maneuver Areas
- Firing Lanes
- Brigade Facilities & Ops.

Dugway Range Expansion



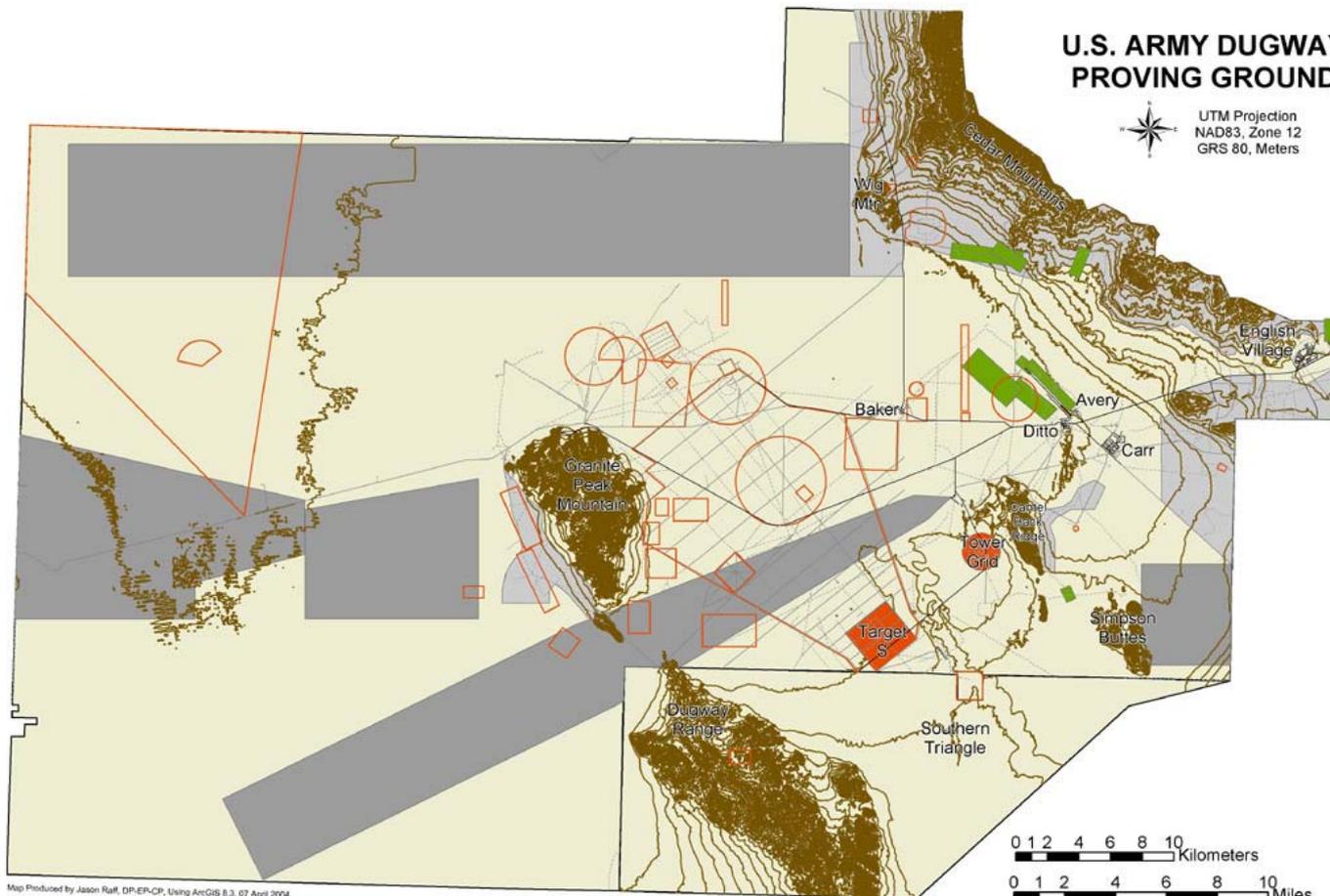
U.S. ARMY DUGWAY PROVING GROUND



UTM Projection
NAD83, Zone 12
GRS 80, Meters

Legend

- Paved Road
- Runway
- Gravel Road
- - - - - Dirt Road
- ~ 200 ft. Contours
- Test Range Areas
- Target S Test Range
- Tower Grid Test Range
- Drop Zones
- Training/Maneuver Areas
- Impact Area
- Installation Boundary



0 1 2 4 6 8 10 Kilometers

0 1 2 4 6 8 10 Miles

Map Produced by Jason Raff, DP-EP-CP, Using ArcGIS 8.3, 07 April 2004

Potential for Growth



- Terrain is ideal for dismounted operations
- Ranger school conducted desert training phase at DPG for 10 years
- Major SOF exercises conducted on DPG and adjoining UTTR
- Adequate area to build ranges on Dugway
- No encroachment, no noise issues
- No endangered species
- Additional area of 101,000 acres (BLM) available adjacent to Dugway – prime mountain and maneuver area
- Major munitions depot (Tooele) 50 miles away – reduces need to build additional igloos



Summary



Take-away Message



GWOT support

- Acknowledged experts in Chem-Bio testing
- 1,300 sq. miles of controlled access, remote real-estate with **no** encroachment



Airfield On-Site



Vast remote areas for testing and training



Positioned for future growth



Expert work force



Infrastructure in place with state-of-the-art equipment



Environmental permits



Established working relationships



Capability to support DOD transformation