

West Desert Test Center



**ATEC**



# US Army Dugway Proving Ground

DPG as the Chem/Bio MRTFB Activity

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16 March 2011

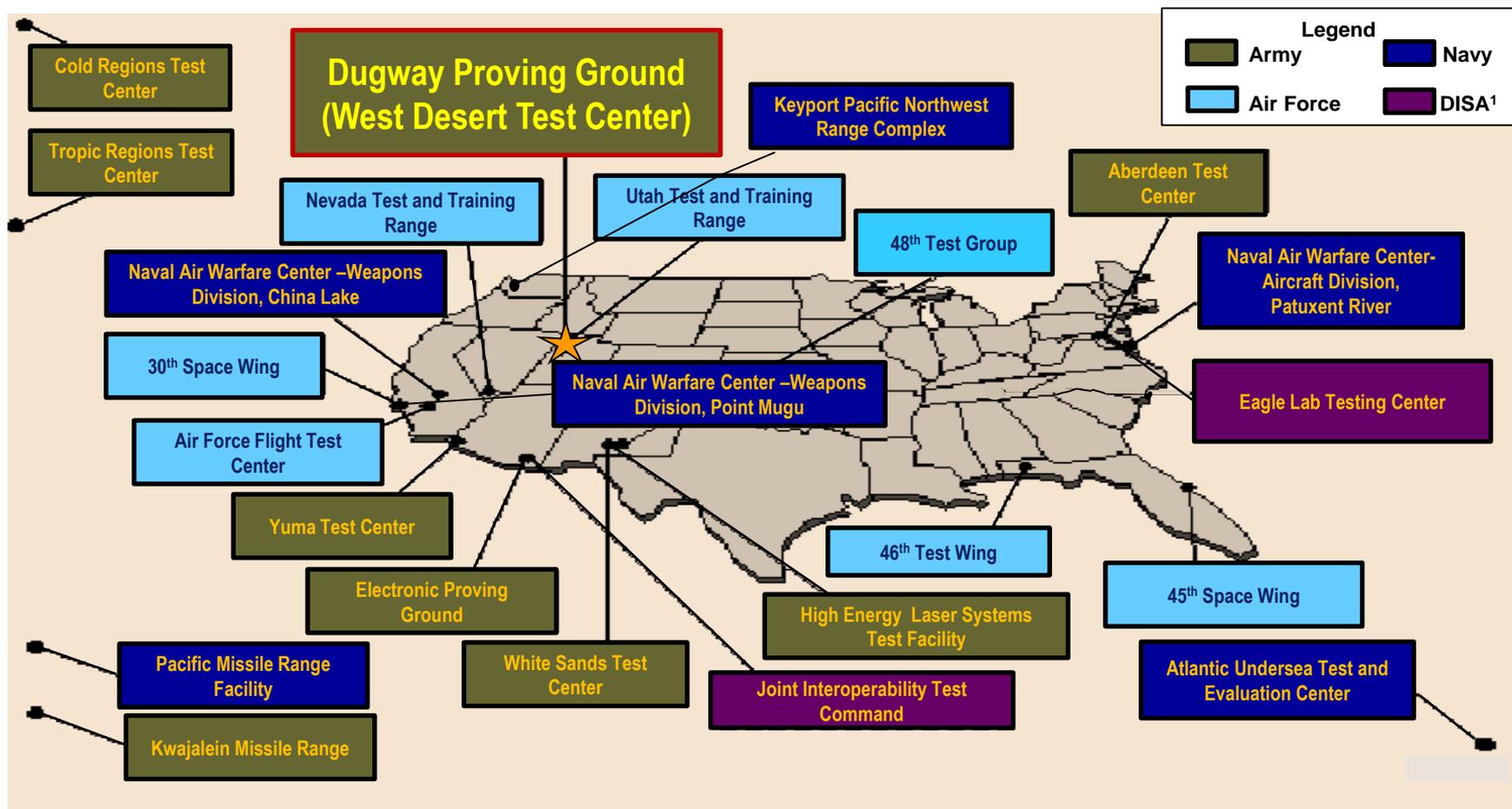
# Major Range and Test Facility Base (MRTFB)



- 1971: DoD recognizes that large military test facilities represent national assets and establishes MRTFB
- Set of test installations, facilities and ranges
- Selected for unique T&E assets
- Includes installations from the Services, Joint Interoperability Test Command and range cooperatives



# MRTFB Activities



<sup>1</sup>Defense Information Systems Agency



# Dugway Becomes Part of the MRTFB



- Attack on Pearl Harbor prompted the formation of Dugway Proving Ground (DPG) by President Roosevelt in 1942
- Established to fill the need for supporting the Chemical Warfare program in WWII
- Became part of the MRTFB in 1971



# West Desert Test Center (WDTC)

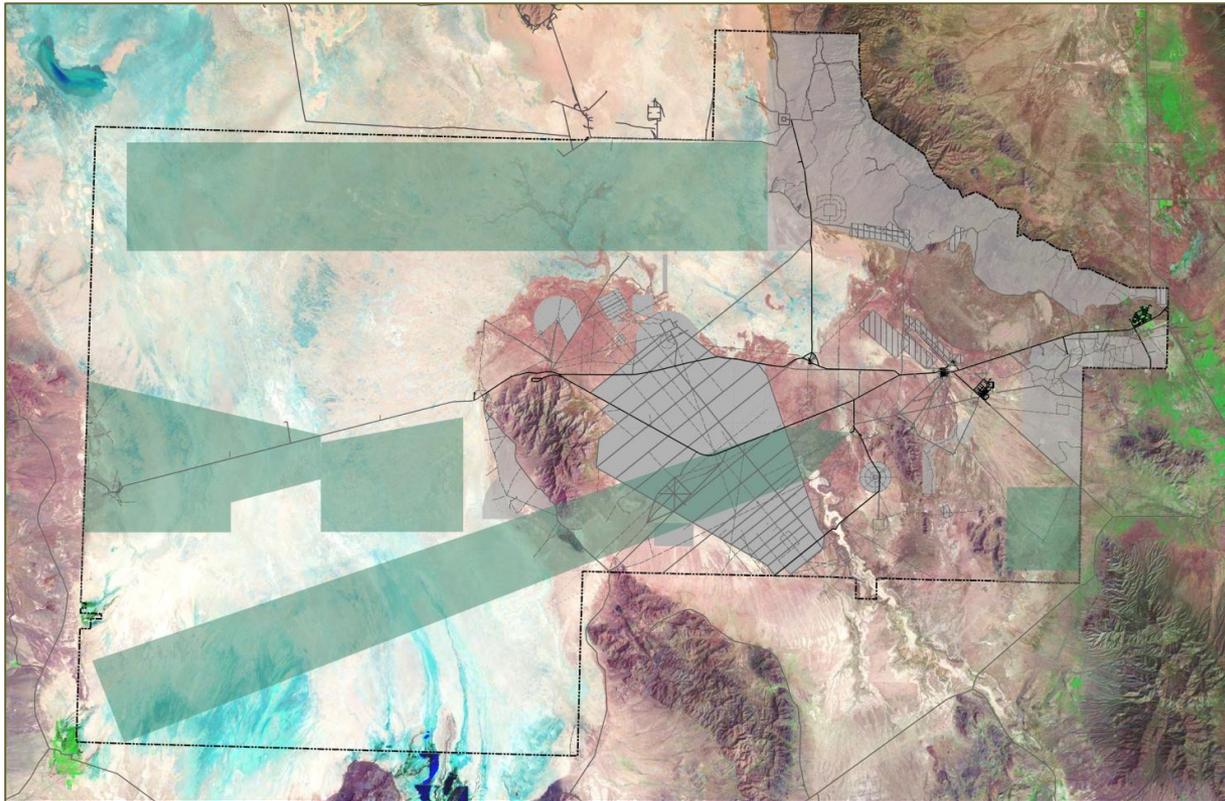
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- WDTC is the mission side of DPG
- Primary mission: testing chemical and biological (CB) defense systems
- Perform nuclear, biological, and chemical (NBC) contamination survivability testing of defense materiel
- State-of-the-art laboratories and chambers
- Extensive field testing grids



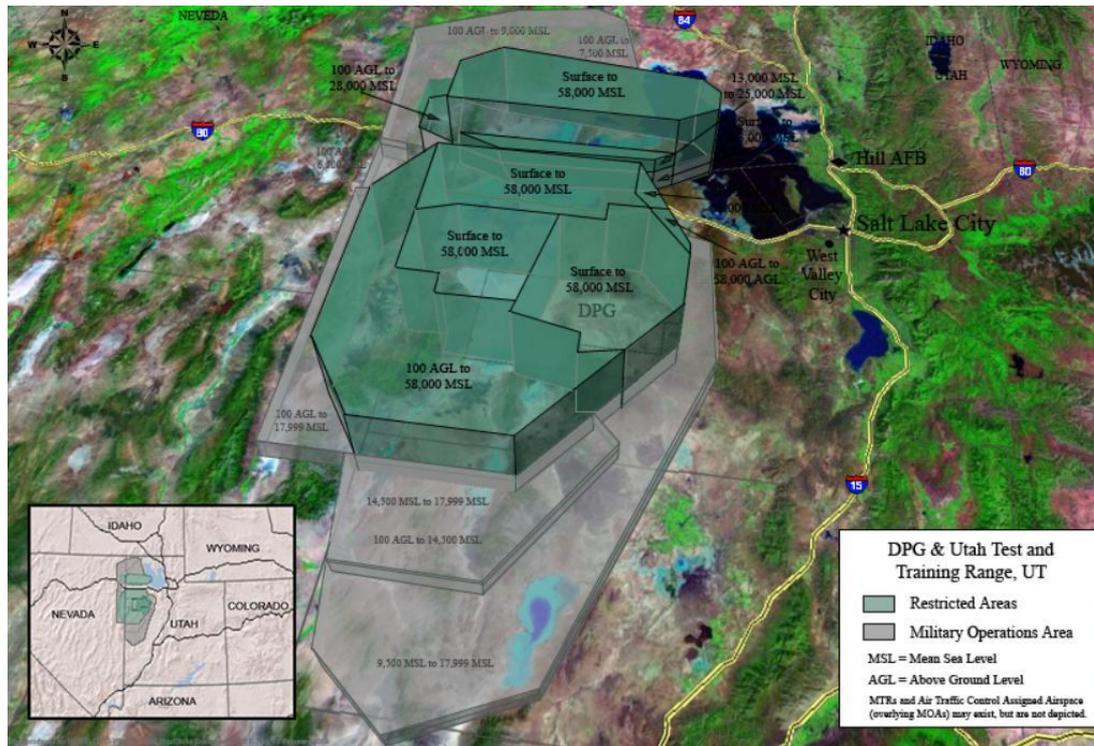
# Terrain

798,214 acres of Great Basin desert terrain ranging from salt flats, to intermittent sand dunes and rugged mountains



# Airspace

Adjacent U.S. Air Force gunnery and bombing ranges extend Dugway's restricted airspace to an area of about 90 x 70 miles and up to an elevation of 58,000 feet



# Test Grids, Test Grids, Test Grids



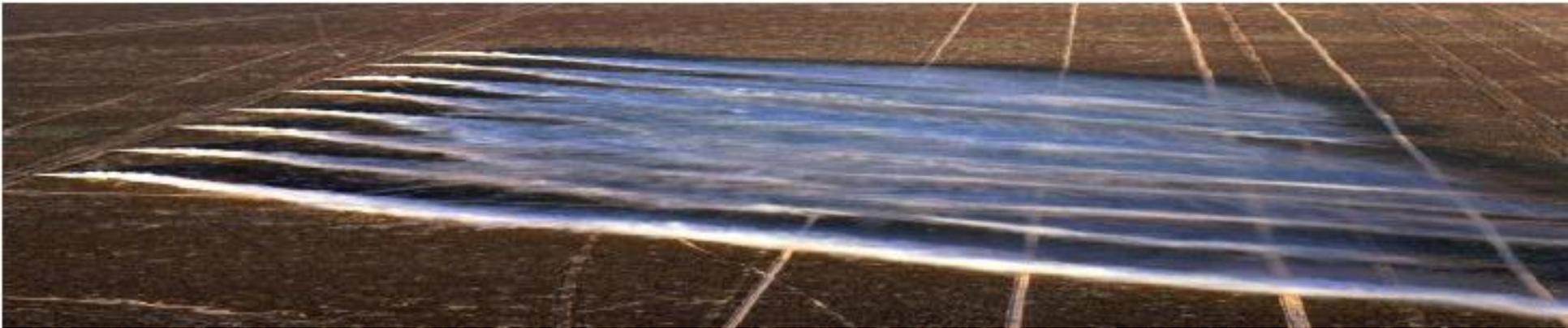
## Test grid activities:

- CB detection systems
- Individual protection
- Collective protection
- Munitions
- Training



# Field Testing

- CB simulant dissemination systems
- Referee instrumentation
- WiFi
- Management system to acquire, integrate, analyze, fuse, and visualize data during testing
- Smoke and obscurants
- Data network
- Fiber optic transmission of real-time test data
- Safari capability



# Dissemination

- Vapor
- Explosive
- Powder
- Liquid
- Aerosol
- Aerial



# Chemical Testing

- Collective Protection
- Individual Protection
- Contamination Avoidance
- Decontamination



Reginald Kendall Combined  
Chemical Test Facility



Decon pad



JSLSCAD Test Fixture



# Collective Protection

- Chemical warfare agents (CWAs)
- Toxic industrial chemicals
- Battlefield contaminants
- Barrier materials swatch testing
- Component testing of closures and seams
- Air filter component and air filtration system testing
- Full-system tests in environmentally-controlled chambers using agents and simulants
- Outdoor field testing of full systems using CWA simulants



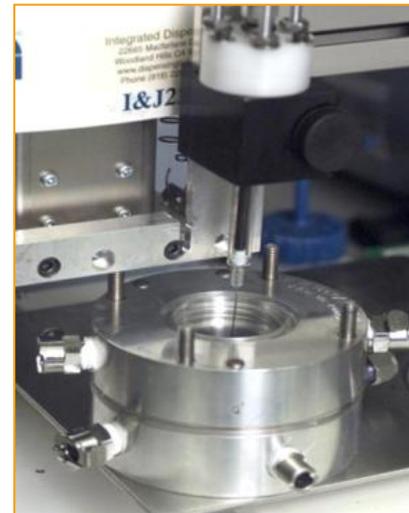
# Individual Protection

## Component Testing

- Masks
- Boots
- Gloves



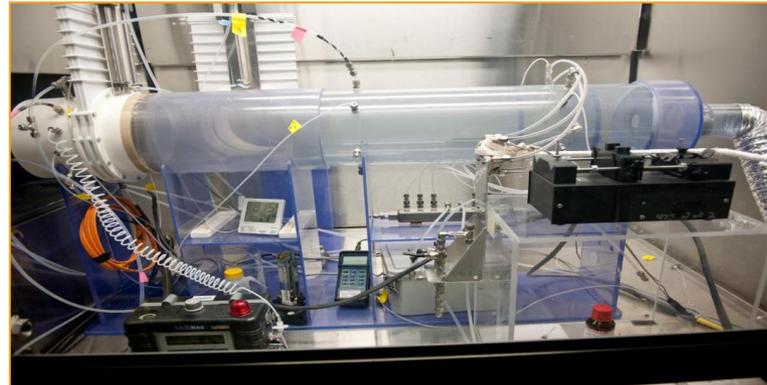
## Swatch testing



# Contamination Avoidance



Standoff detection systems



Point detection systems



Whole system testing



# Decontamination



## Decontamination Test Facility

- Will hold all Army tactical vehicles up to an M1A1 tank
- Allows for dissemination of any chemical or biological simulant
- Capable of using any current known decontaminant or decontamination system

## Small Item Decontamination Test Fixture

- Any chemical warfare agents
- Environmentally controlled (60 to 110°F and 10 to 80% RH)
- Will test actual fielded small equipment items (23"x23"x36")
- Biosafety Level (BSL) 1 biological simulants



# Biological Testing

## Aerosol Simulant Exposure Chamber →

Stainless steel-lined chamber designed to dispense and contain aerosol simulant clouds in a BSL-1 and BSL-2 environment under laboratory controls. Primarily used for testing biological point detectors, but can be used for any test requiring the control of factors that could not otherwise be controlled in another setting.



← **Containment Aerosol Chamber**  
One-of-a-kind BSL-3 chamber designed for testing biological aerosol detector systems by challenging the systems with aerosols generated inside the chamber.



# Biological Testing, cont'd



## Ambient Breeze Tunnel

- BSL-1
- Biological point and standoff detection systems
- Referee equipment
- Variety of disseminators (Micronair sprayers, Skilblowers™)
- Simulants
- Interferents (smoke, burning brush, burning tires, burning diesel fuel)
- Agent-like organisms



# Matériel Test Facility



- Large, environmentally-controlled chambers
- Simulant and live agent capable
- Point and standoff detector testing
- Large equipment testing



# Joint Ambient Breeze Tunnel

## Active Standoff Chamber

### Active Standoff Chamber

- Static cloud conditions
- Calibrate referee instruments
- Evaluate standoff CB agent detectors
- Built-in dissemination system
- Aperture dimensions permit evaluation of CB detectors at ranges up to 3 km
- Containment system prevents simulant leakage

### Joint Ambient Breeze Tunnel

- Dynamic conditions
- Calibrate referee instruments
- Evaluate CB agent detectors
- Variable-pitch fans create airflow up to 6 meters/second.
- Disseminate CB simulants
- Evaluation of standoff detectors at ranges up to 3 km



Active Standoff Chamber

Joint Ambient Breeze Tunnel

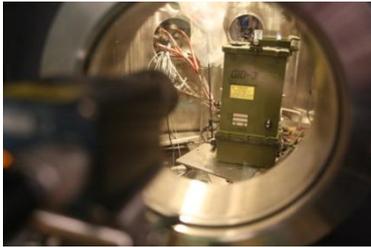


# Michael Army Air Field

- 11,000-foot runway for departures
- 10,000 feet for landings
- 9,000-foot taxiway
- 20,000-square-foot hangar
- Flight operations and ground support personnel



# Future Capabilities



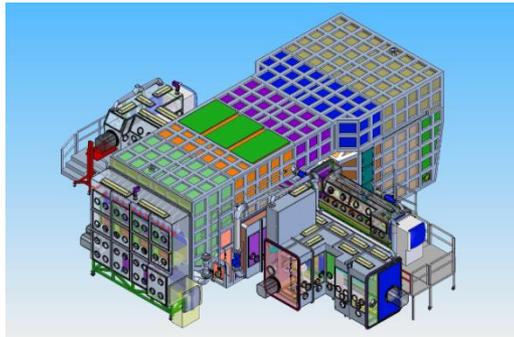
## Dynamic Test Chamber

Designed to test chemical agent point detectors operating in several MIL-STD-810 environmental conditions.



## Individual Protection Mannequin System

Robotic mannequin designed to simulate soldier activity in agent test facilities in order to evaluate individual protection ensemble performance.



## Whole System Live Agent Test Facility

A BSL-3 chamber large enough to dynamically test two side-by-side Joint Biological Point Detection Systems (JBPDS).



# WDTC Capabilities Report

## WDTC Annual Technology Report

### Capabilities Report 2010 West Desert Test Center



U.S. Army Dugway Proving Ground, Utah



[https://www.kc.army.mil/wiki/Dugway\\_Proving\\_Ground#Dugway\\_Capabilities\\_Report](https://www.kc.army.mil/wiki/Dugway_Proving_Ground#Dugway_Capabilities_Report)

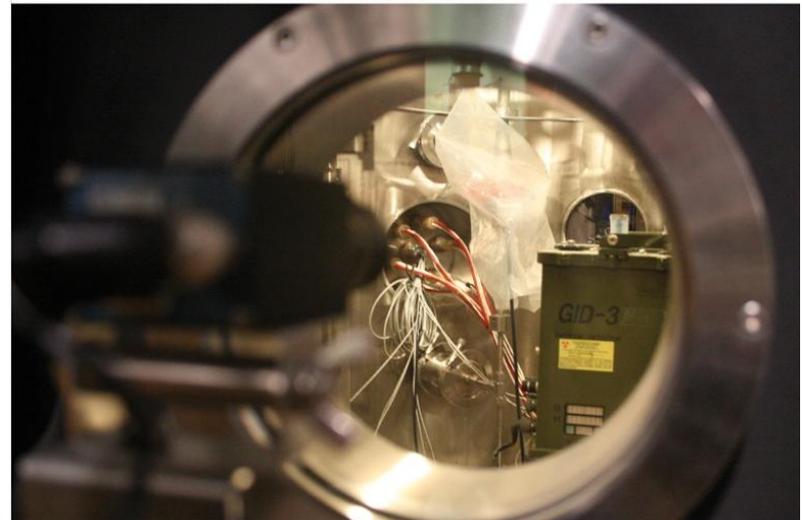
### West Desert Test Center Annual Technology Report- Fiscal Year 2010

Test Technology Division

Report On Chemical/Biological Defense Test  
Capability Development at DPG



West Desert Test Center



US Army, Dugway Proving Ground

[https://www.kc.army.mil/wiki/Dugway\\_Proving\\_Ground](https://www.kc.army.mil/wiki/Dugway_Proving_Ground)



# DPG Tours



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