



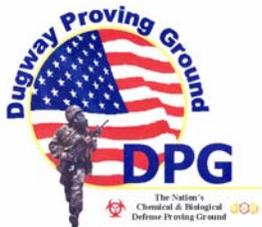
Dugway Proving Ground Restoration Advisory Board Meeting

August 21, 2006
Tooele County Courthouse Auditorium
Tooele, Utah

UPDATE

RCRA Facility Investigation

Ed Staes, PE, PG
Parsons



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RCRA Corrective Action Process

- Solid Waste Management Units (SWMU) Definition
 - "Any discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include any area at a facility at which solid wastes have been routinely and systematically released."
- Four Main Steps
 - RCRA Facility Assessment (RFA)
 - RCRA Facility Investigation (RFI)– Phase I
 - RCRA Facility Investigation (RFI)– Phase II
 - Corrective Measures Study (CMS)



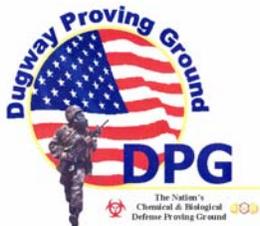
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Status of RFI SWMUs

Priority 1

32 SWMUs

- **21 SWMU RFI Reports DSHW Approved**
 - SWMUs 3, 16, 17, 18, 21, 44, 52, 54, 65, 79, 98, 172, 194 (A,B,C), 199, 200, 212, 213, 215, and 207
- **1 SWMU RFI Draft-Final Report to DSHW**
 - SWMU 180
- **2 SWMU RFI Draft Report In Progress**
 - SWMU 41, 177



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Status of RFI SWMUs

Priority 1

32 SWMUs

- **1 SWMUs where field work has been conducted**
 - **SWMU 60**
- **3 SWMUs where removal actions will be conducted**
 - **SWMUs 35, 173, and 208**
- **4 SWMUs requiring additional investigation work**
 - **SWMUs 4, 15, 32, and 192**



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Status of RFI SWMUs

Priority II

36 SWMUs

- **22 SWMU RFI Final Reports Approved by DSHW**
 - SWMUs 6, 10, 23, 25, 56B, 75, 77, 113, 115, 116, 118, 171, 179, 185, 188, 189, 193, 197, 205, 206, 214, and 216
- **6 SWMU RFI Draft-Final Report to DSHW**
 - SWMUs 61, 97, 133, 150, 154, and 211.



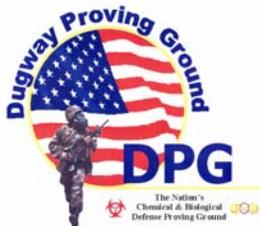
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Status of RFI SWMUs

Priority II

36 SWMUs

- **1 SWMU RFI Draft Report**
 - SWMU 8
- **3 SWMUs where removal actions or field work has been conducted**
 - SWMUs 11, 183, and 201
- **4 SWMUs requiring additional work**
 - SWMUs 31, 114, 209, and 210



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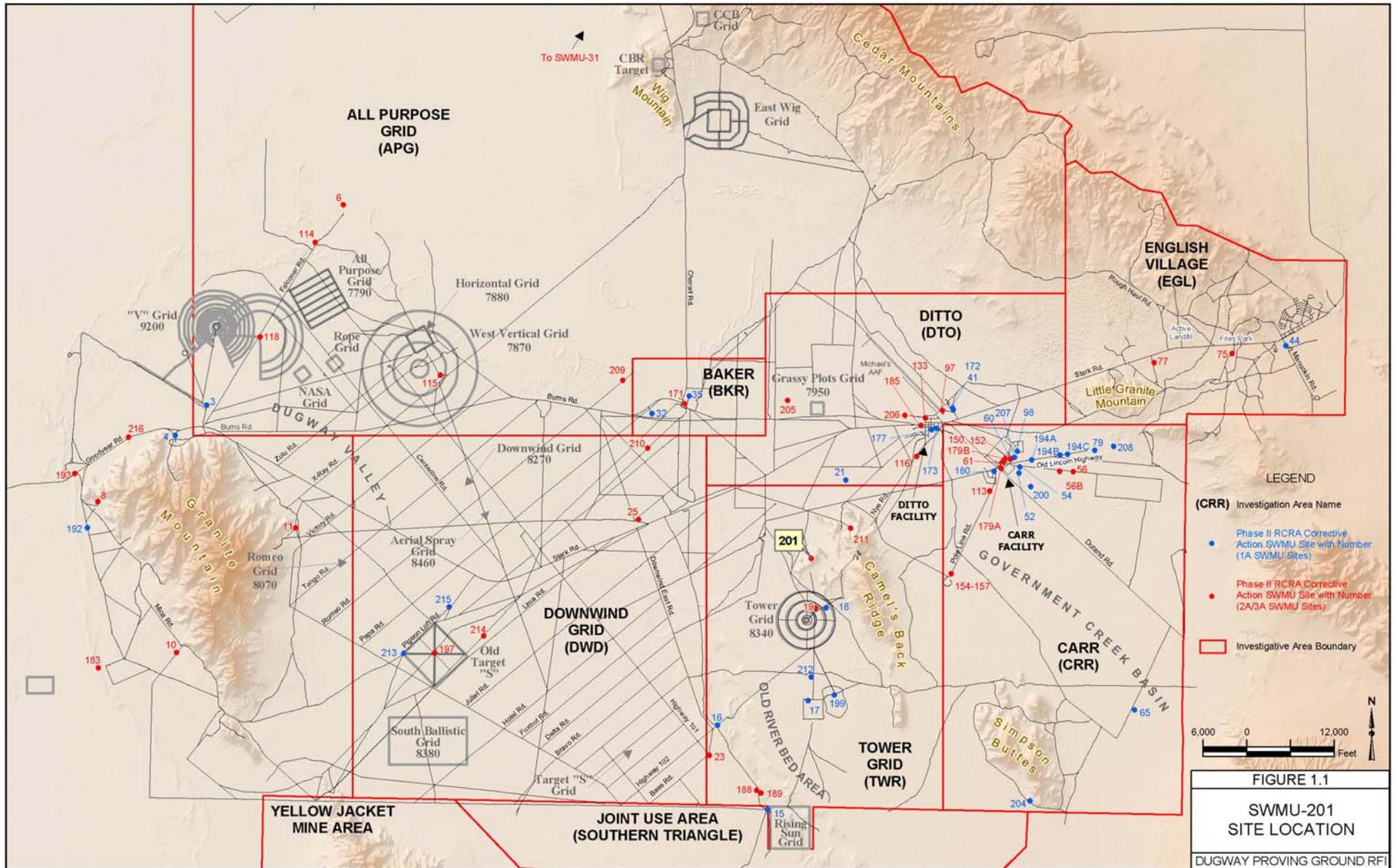
SWMU-201

Camels Back Mountain Cave Closure



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SWMU – 201 Location



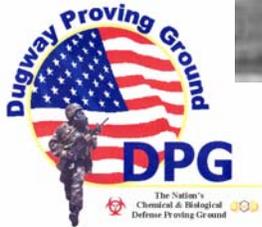
SWMU-201

- SWU-201 consists of a series of natural caves used for cave fortification testing located in the limestone cliffs of Camels Back Mountain.
- Phase II RFI sampling within the cave identified low levels of chemical agent (mustard) and explosives.
- Based on the results, DPG implemented a corrective action of fencing the cave the entrances.



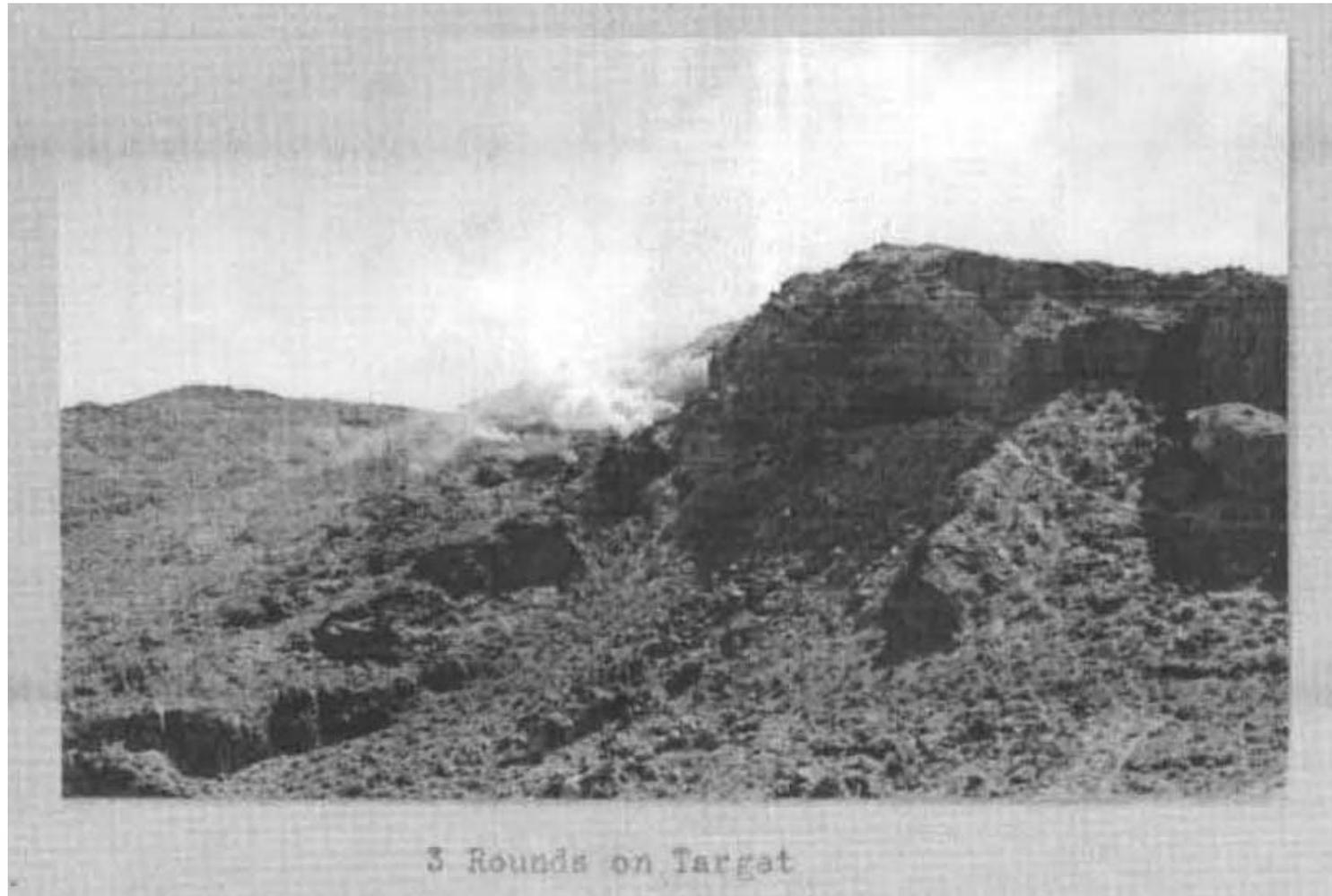
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Site History



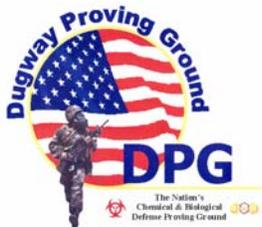
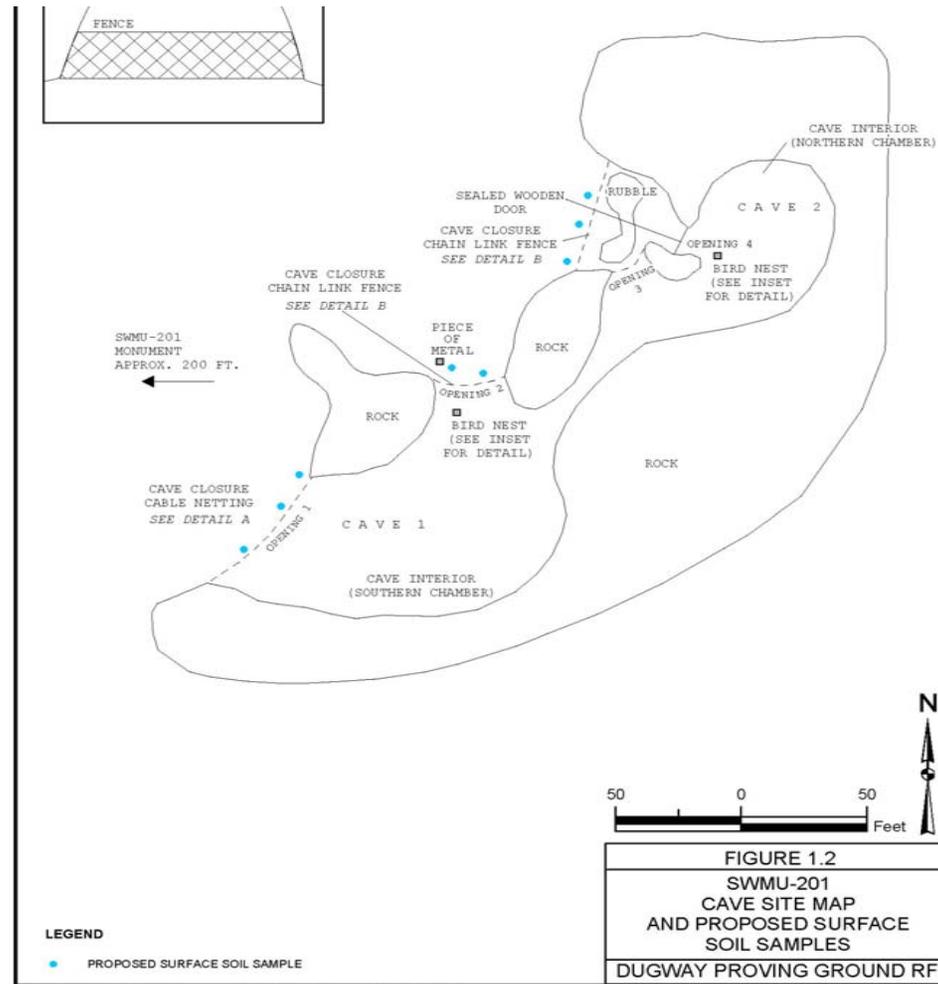
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Site History



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SWMU – 201 Location



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Site Layout



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Existing Pulley System



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Pulley System Used for Equipment



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Bringing Equipment to Site



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Installation of Cave Closure Fencing



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Installation of Cave Closure Fencing



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Installation of Cave Closure Fencing



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Installation of Cave Closure Fencing



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RFI Phase II Work Completed Since May

Reports

- **Alternate Groundwater Monitoring Strategy- Down Range Area – Prepared Draft**
- **Final RFI Report for SWMU 98**
- **Submitted 7 RFI Reports to Army or DSHW**
- **Submitted Draft RFI Work Plans on SWMUs 192 and 208.**



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RFI Phase II Work Completed Since November

Field Work

- **Completed Corrective Action at SWMU 201**
- **Completed investigation work at SWMU 41**



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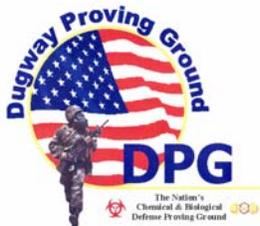
Future Field Work

RFI Field Work -

- **Soil Sampling at SWMUs 4, 32, 114, 209, and 210**
- **Groundwater investigation at SWMU-180**

Removal Actions -

- **SWMUs 35, 173, 189, and 208**



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Future Report Activity

PHASE II RFI SWMUs – REPORTS

- **Prepare Final RFI Reports for SWMUs 61, 133, 150, and 154**
- **Prepare Draft-Final RFI Reports for SWMUs 97, 177, and 180**
- **Prepare Draft RFI Reports for SWMUs 8, 11, 41, 60, and 183.**
- **Prepare Final Carr Groundwater Management Plan**



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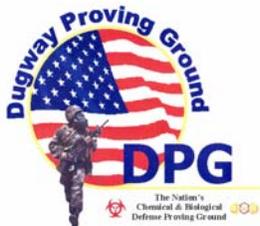


QUESTIONS?

UPDATE

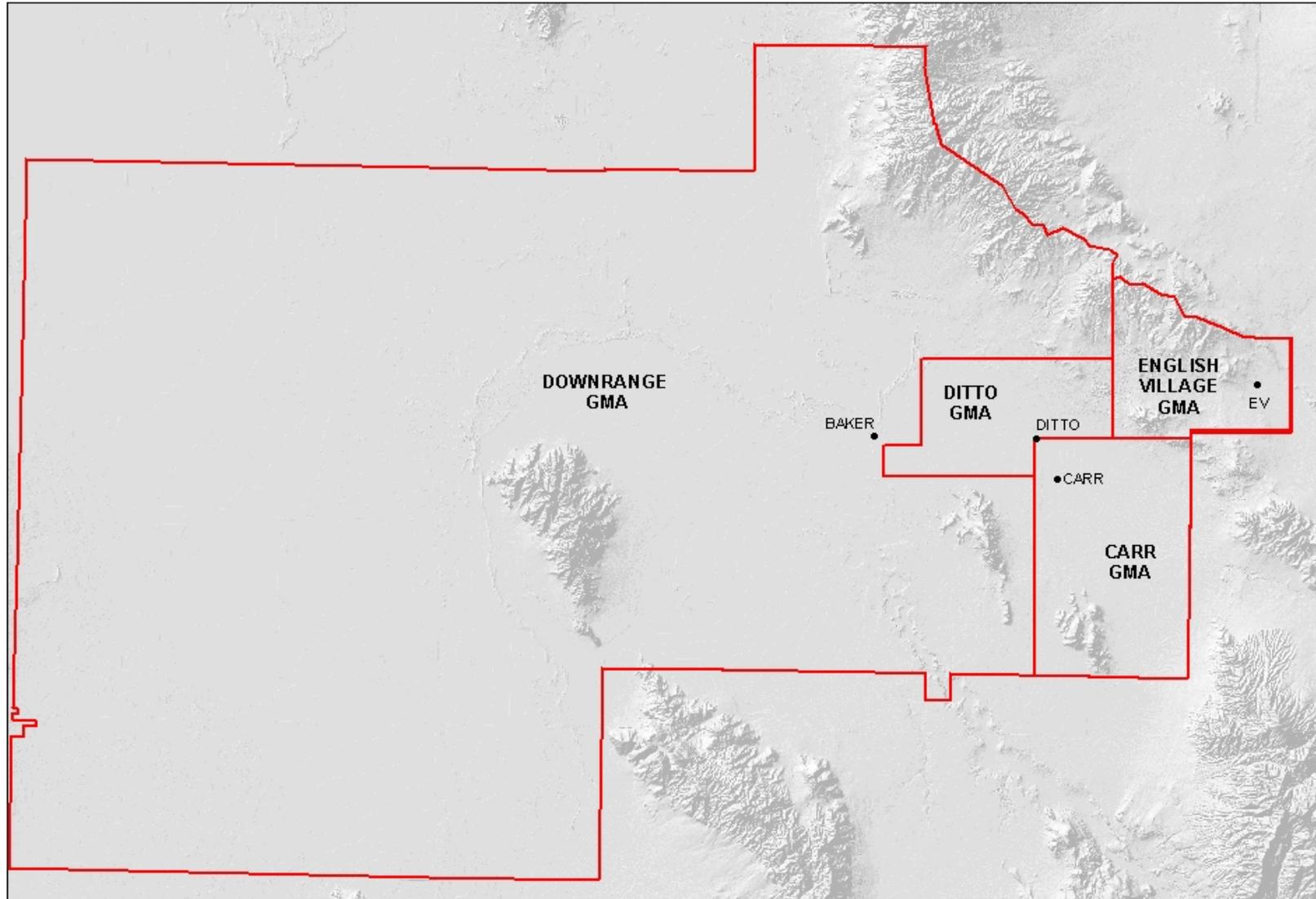
Carr Groundwater Management Plan

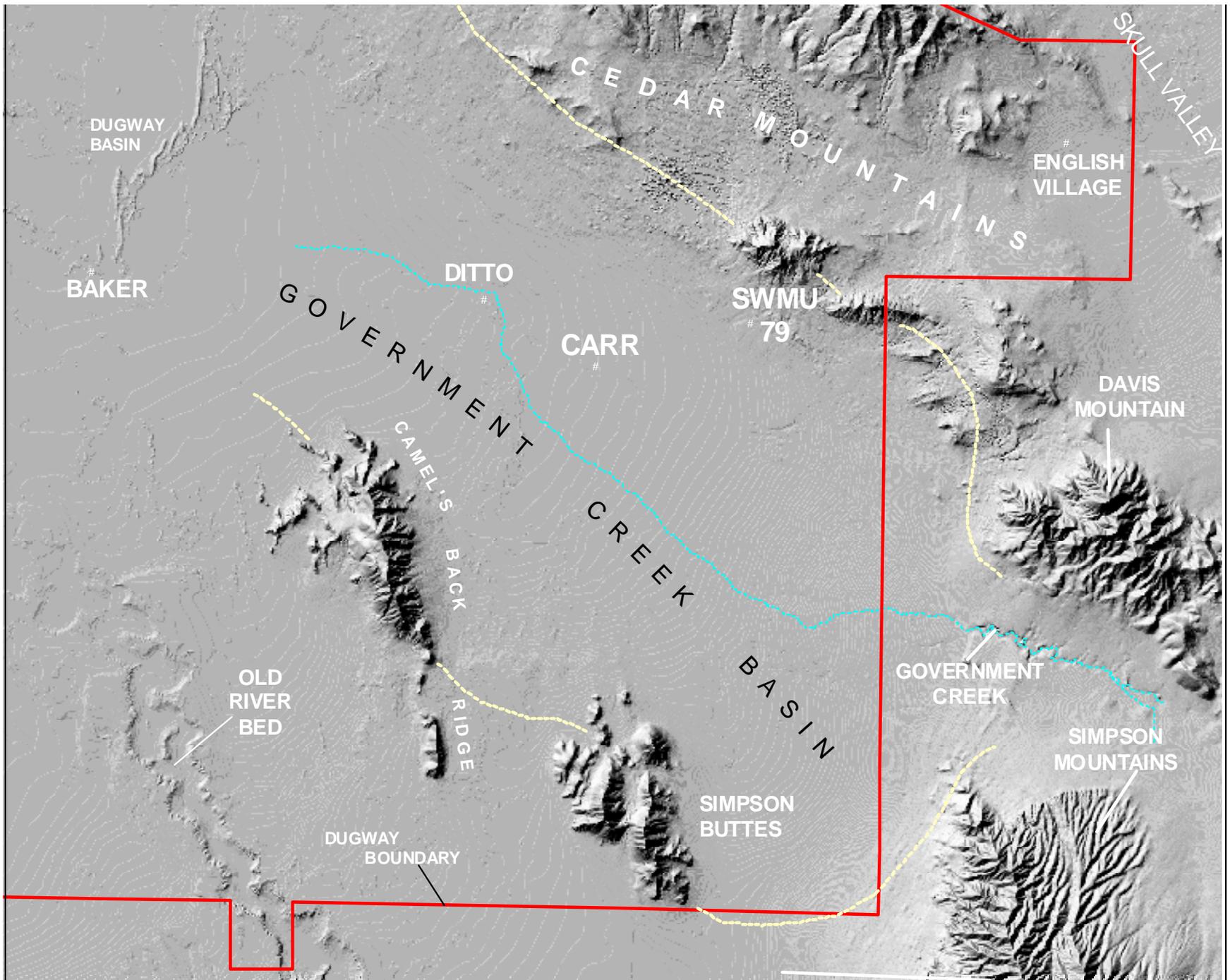
Jeff Fitzmayer, RG
Parsons

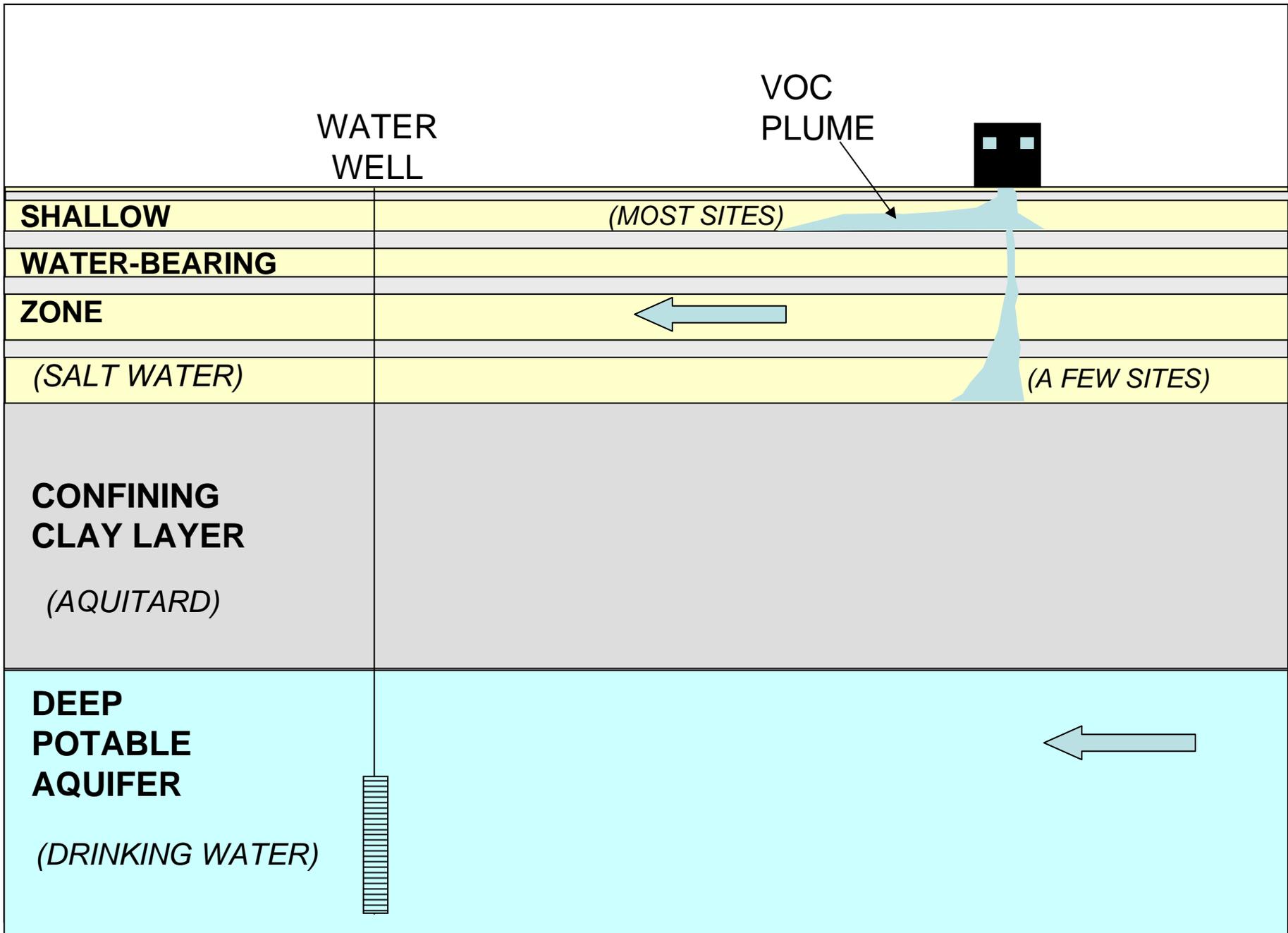


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REGIONAL GROUNDWATER MANAGEMENT AREAS, DUGWAY PROVING GROUND







WATER
WELL

VOC
PLUME

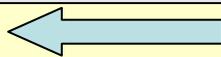


SHALLOW

(MOST SITES)

WATER-BEARING

ZONE



(SALT WATER)

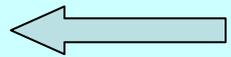
(A FEW SITES)

**CONFINING
CLAY LAYER**

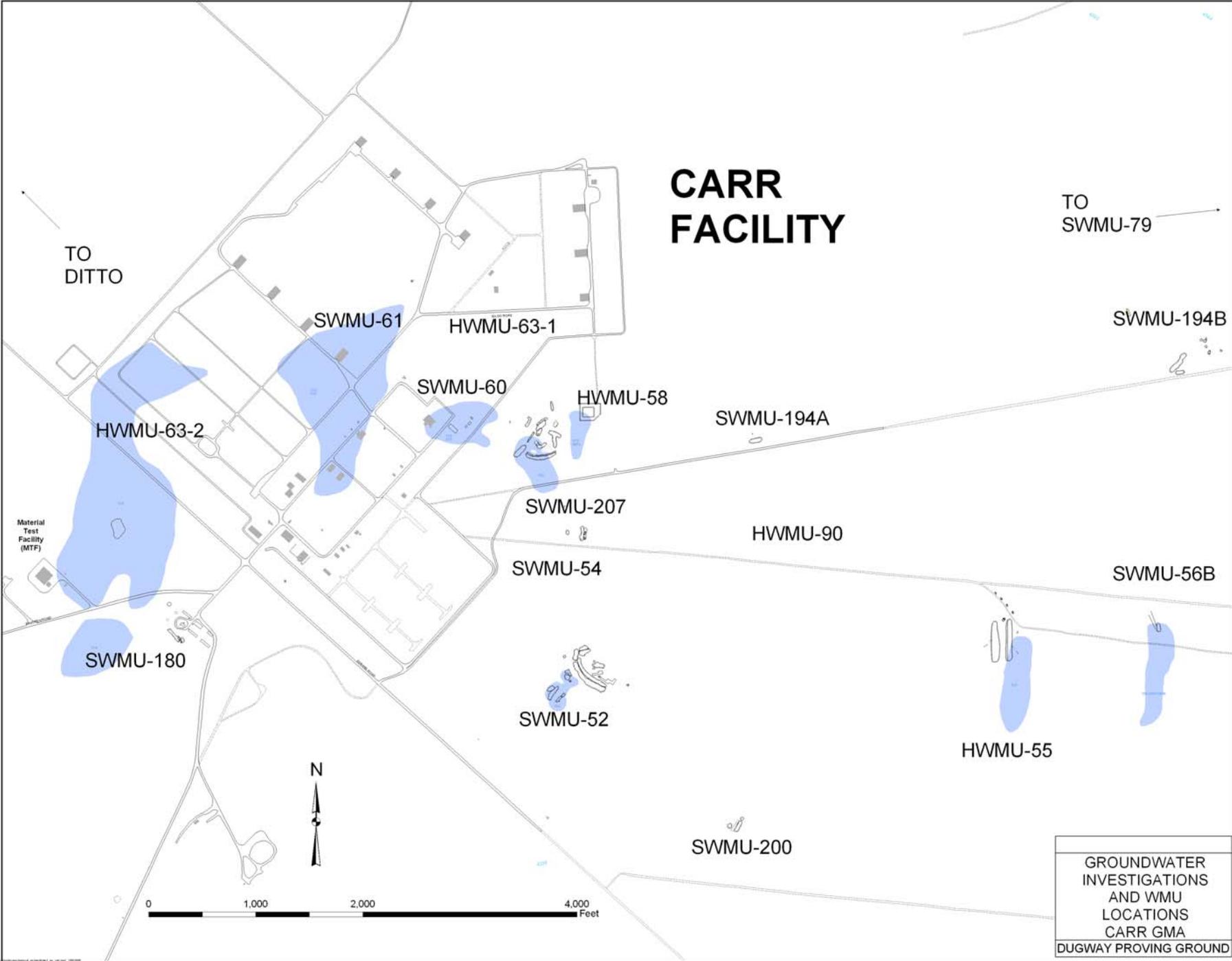
(AQUITARD)

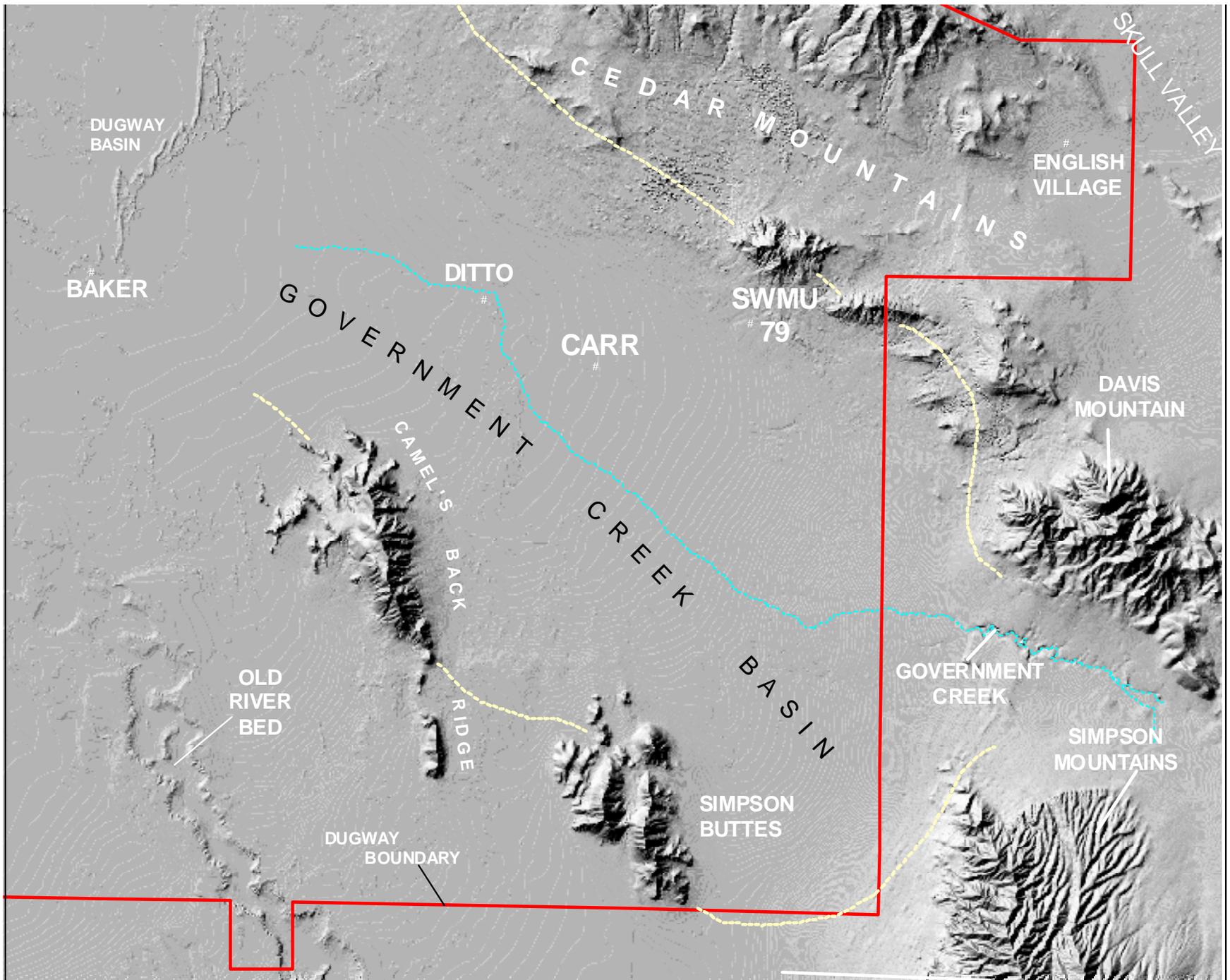
**DEEP
POTABLE
AQUIFER**

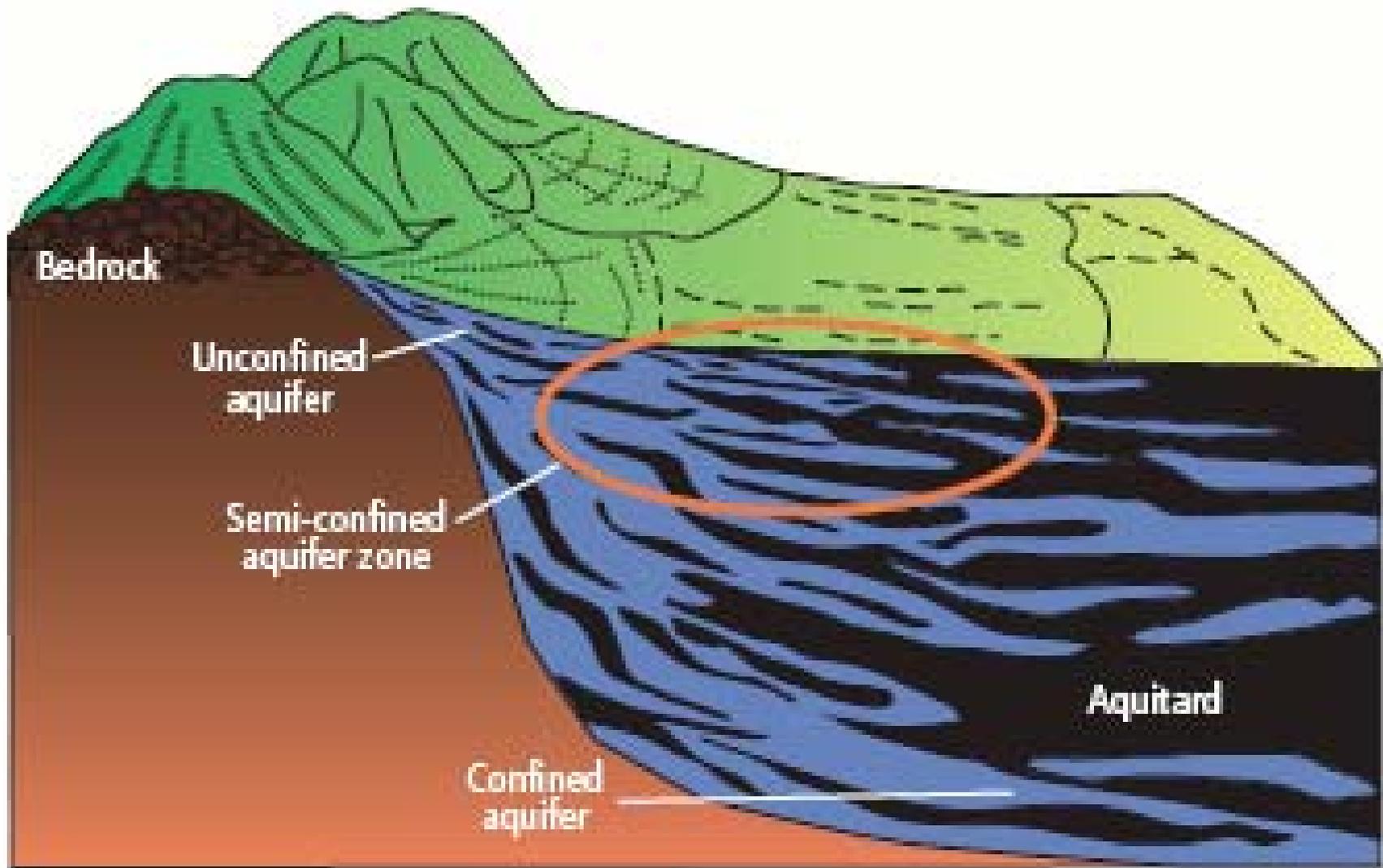
(DRINKING WATER)



CARR FACILITY



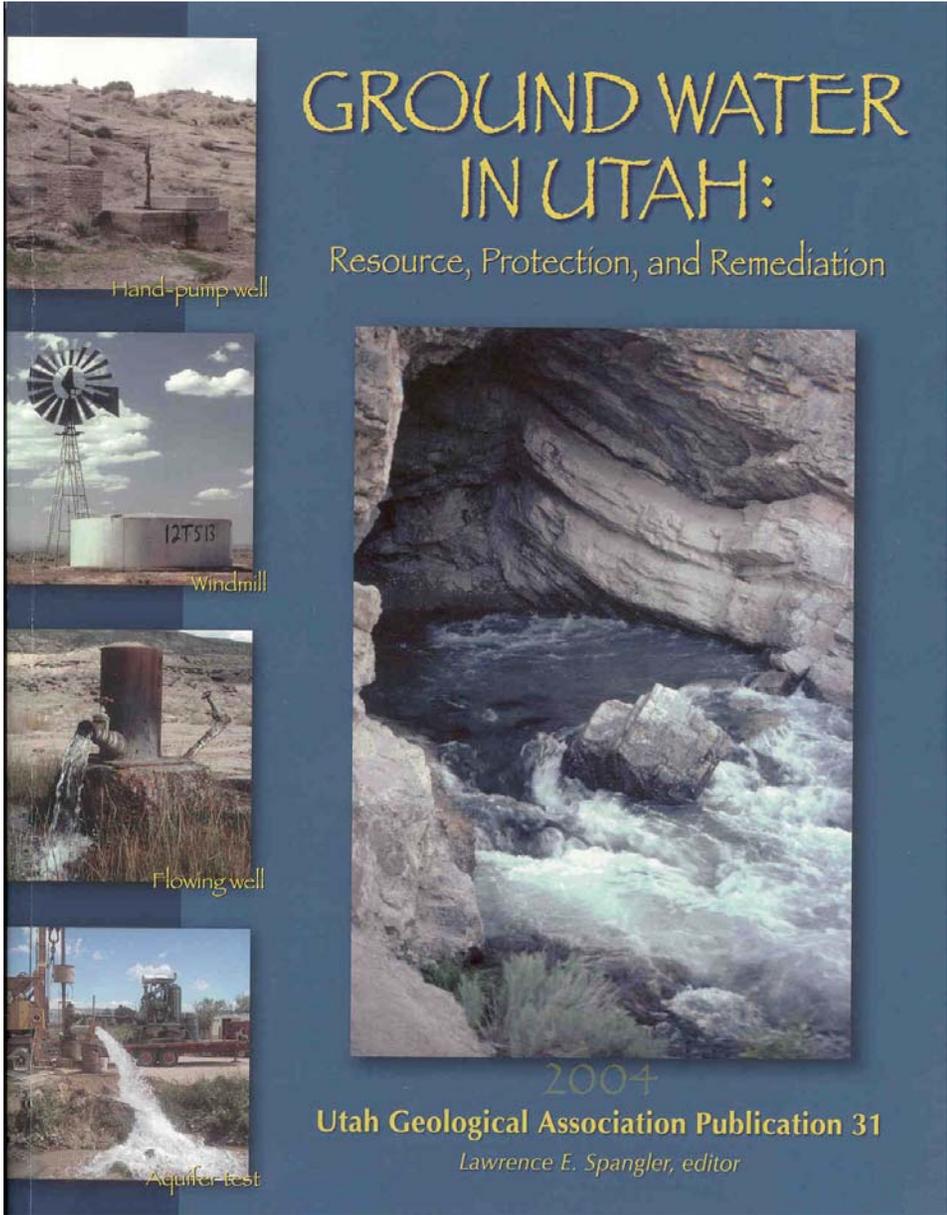




From: Thomas Harter's *Basic Concepts of Groundwater Hydrology*, University of California Division of Agriculture and natural Resources.



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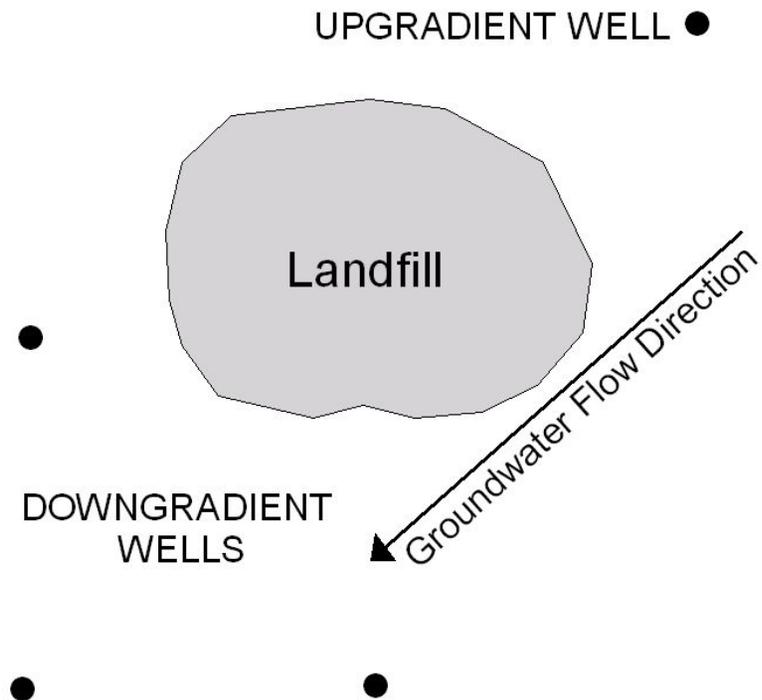
Previous Groundwater Monitoring

- Applies to HWMUs
(Consent Order SWMUs)
 - Landfills
 - Inactive Wastewater Systems
 - Decontamination Pads
- Follows Guidelines in
 - UAC R315-7-13
 - One Upgradient well
 - Three Downgradient Wells



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Previous Groundwater Monitoring



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Alternate Management Plan

- **Utah Regulation R315-7-13 Allows for development of an “alternative management plan” provided that:**
 - **One or more releases have occurred**
 - **The alternate plan is protective of Human Health And the Environment**



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Objectives of Proposed Groundwater Management Plan

- Develop Comprehensive Management Approach
 - Detailed Understanding of
 - Nature and Extent of Contamination
 - Hydrogeologic Controls on Contaminant Migration
 - Relationship Between Sites
- Develop Cost-Effective Long-Term Management Plan
- Employ Systematic and Consistent Decision-Making Criteria for All Sites
- Develop Well-Defined Exit Strategy



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Advantages of A Regional Groundwater Management Program

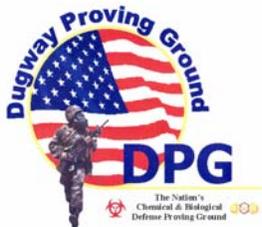
- Fewer Wells/Samples
- Limited Analyte List
- Well-Defined Exit Strategy
- Provides Framework for Addition of New Sites.
- Lower Costs



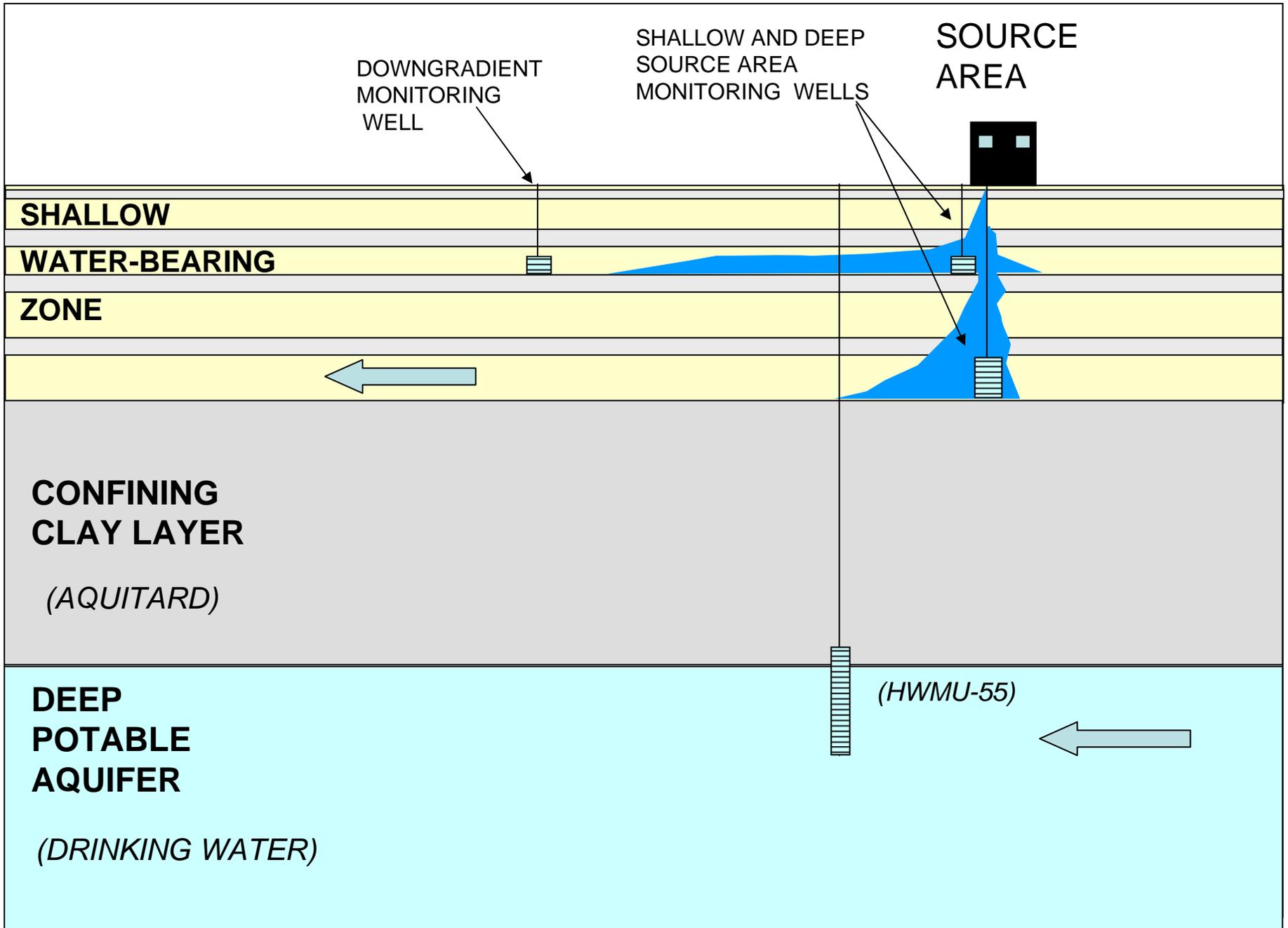
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Proposed Groundwater Management Plan Data Inputs

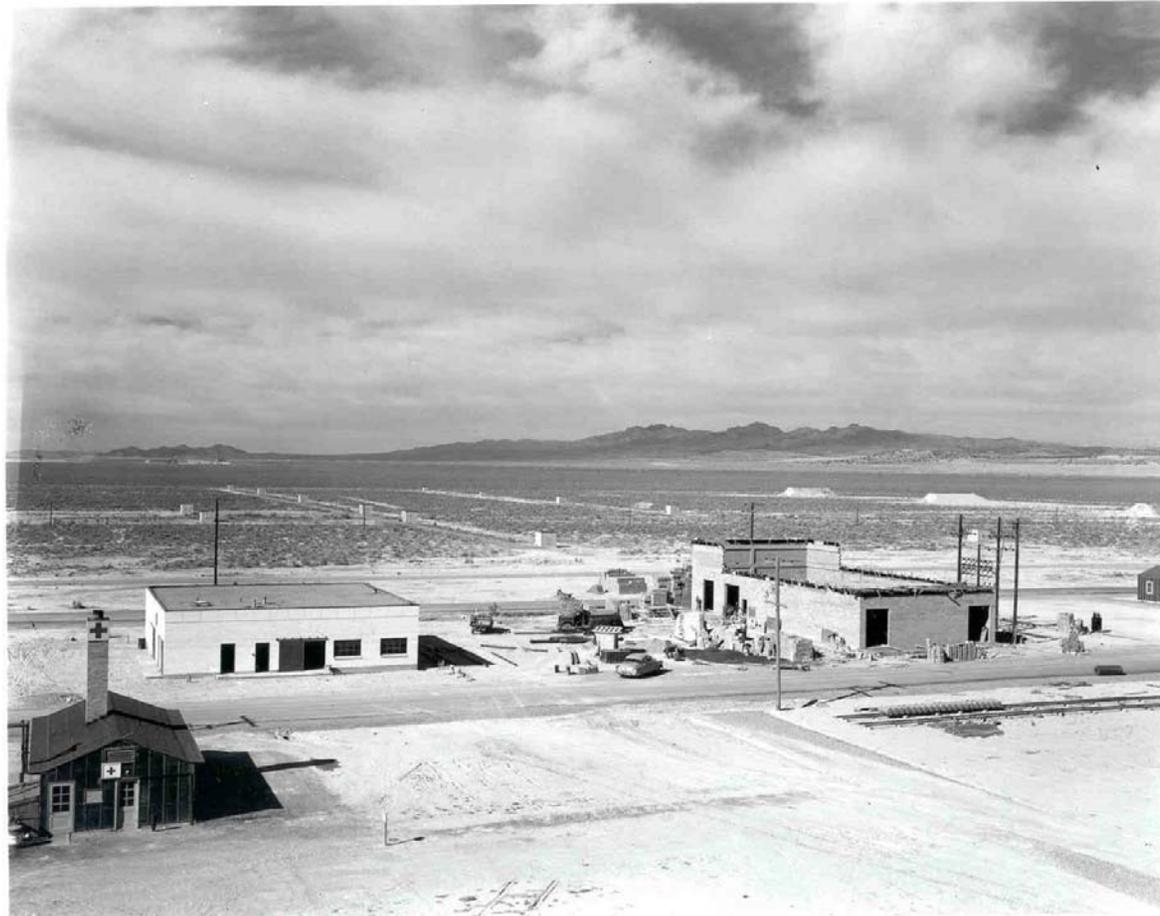
- Shallow Source Area Monitoring
- Deep Source Area Monitoring
- Downgradient Monitoring



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CURRENT STATUS OF CARR GMA



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QUESTIONS?



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