

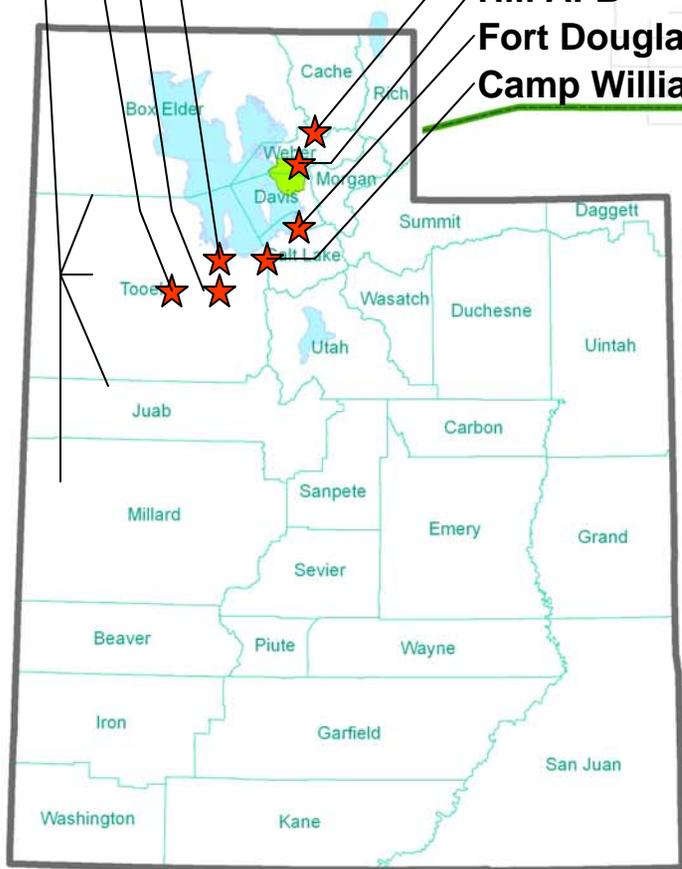
Hill Air Force Base
as a case study for linking
Cancer Data, Exposure Data
and Residential Tenure Data

Environmental Epidemiology Program
Office of Epidemiology
Utah Department of Health

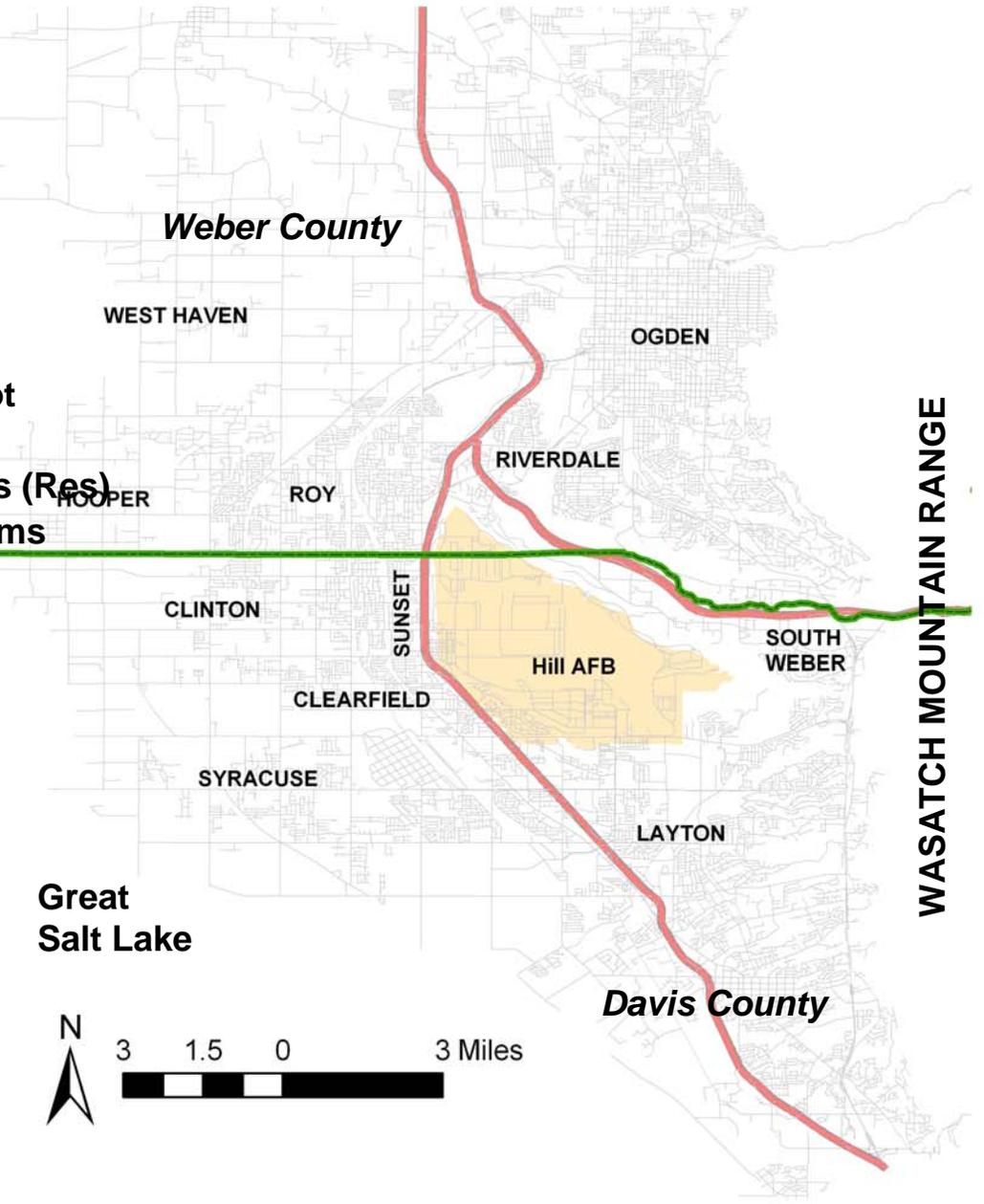


LSA ANACONDA ("MORTARVILLE") near Balad Iraq, April 2004 – March 2005.

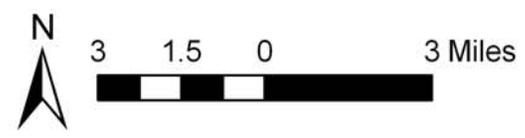
- West Desert Test Range
- Dugway Proving Ground
- Deseret Chemical Depot
- Tooele Army Depot



- Ogden Depot
- Hill AFB
- Fort Douglas (Res)
- Camp Williams



Great Salt Lake



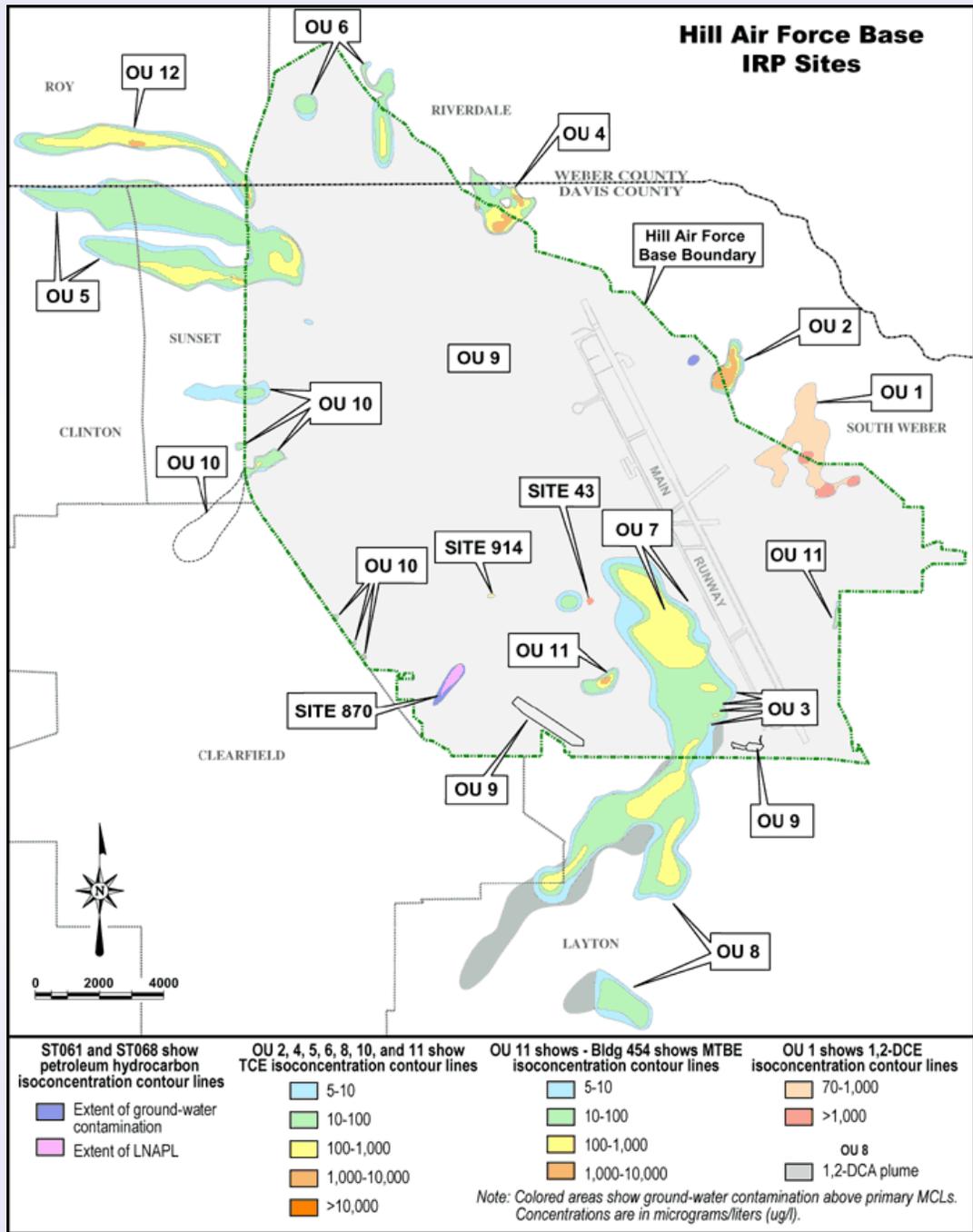
WASATCH MOUNTAIN RANGE

Davis County

Hill Air Force Base

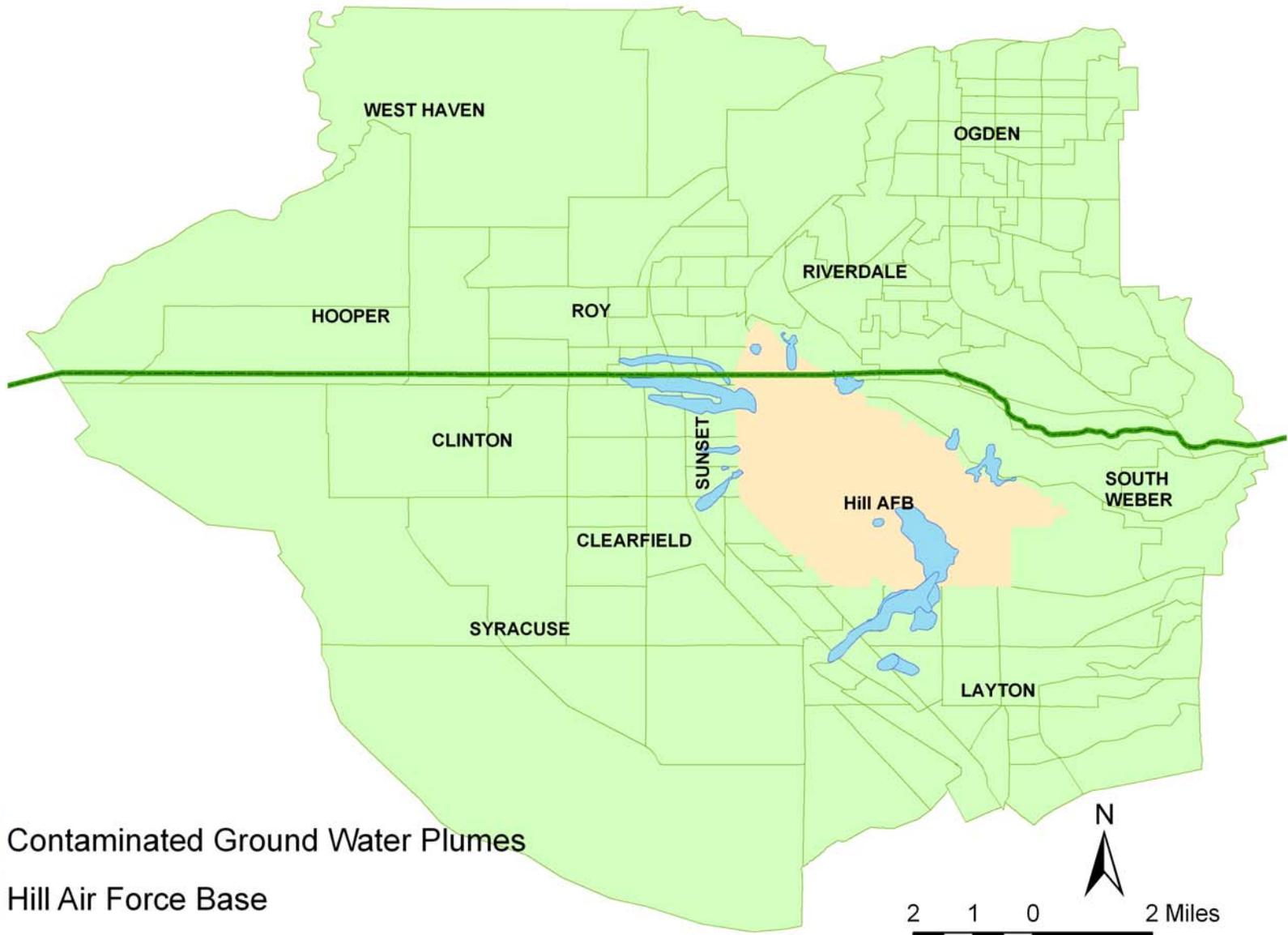
- Started as an Army Air Mail Port in 1934.
- Construction for Hill Field begins in January 1940 and Hill Field becomes operational in November 1940.
- Logistics support, maintenance and depot operations began in 1950.
- Started investigation of environmental contamination in 1976.
- EPA places Hill AFB on Superfund NPL in Jul 1987.

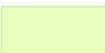


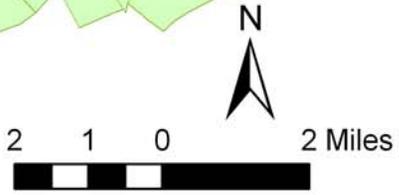


Contaminants of Concern:

- Trichloroethylene (TCE)
- Tetrachloroethylene (PERC)
- Carbon Tetrachloride
- Perchlorate



-  Contaminated Ground Water Plumes
-  Hill Air Force Base
-  Study Area: 2000 Census Block Groups



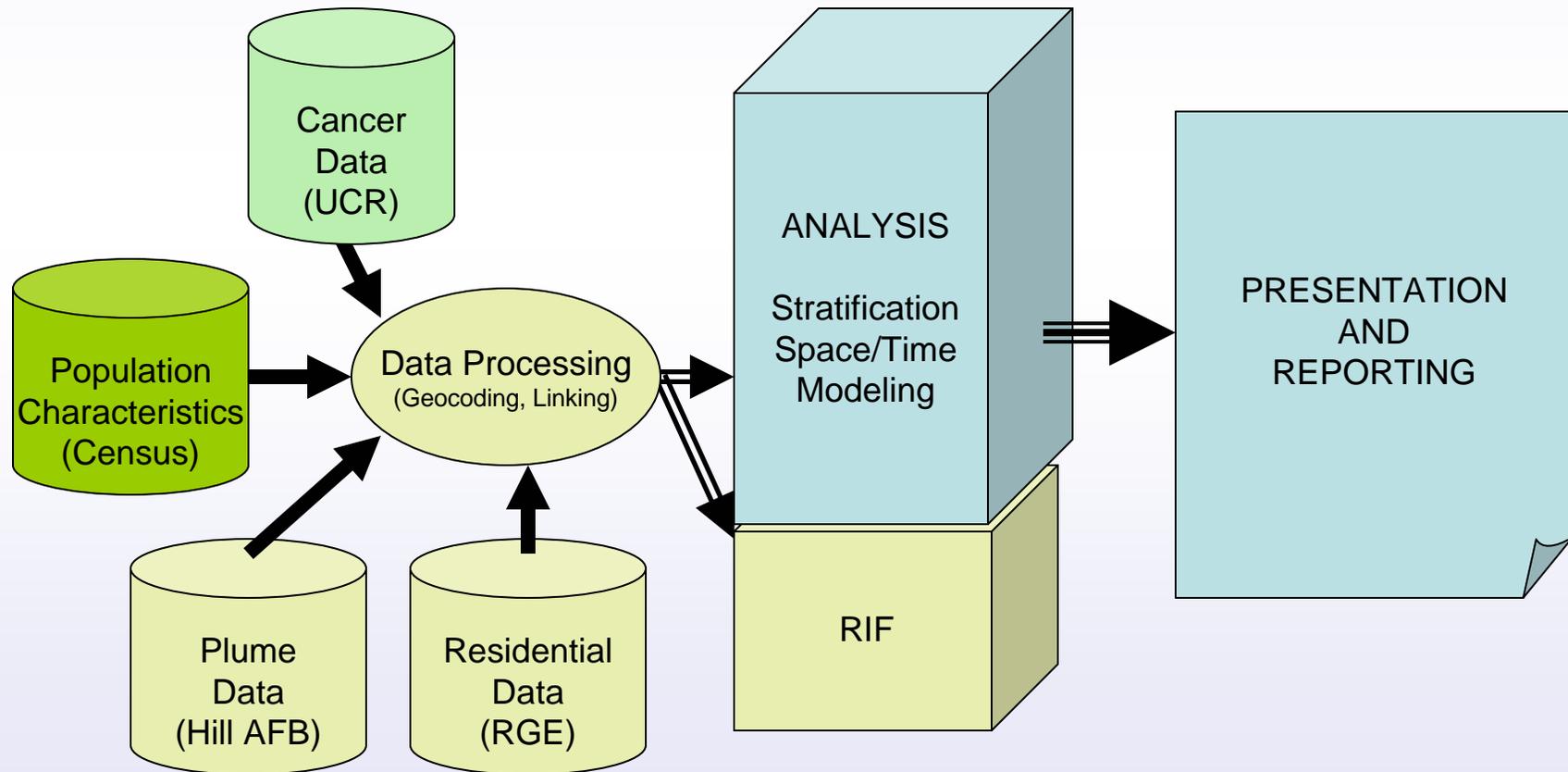
Pilot Project Model

DATA COLLECTION

DATA PREPARATION

DATA ANALYSIS

INTERPRETATION

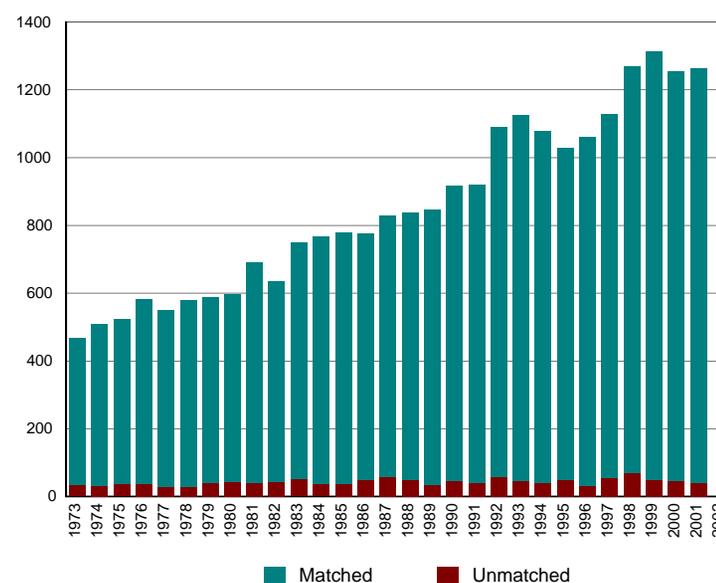
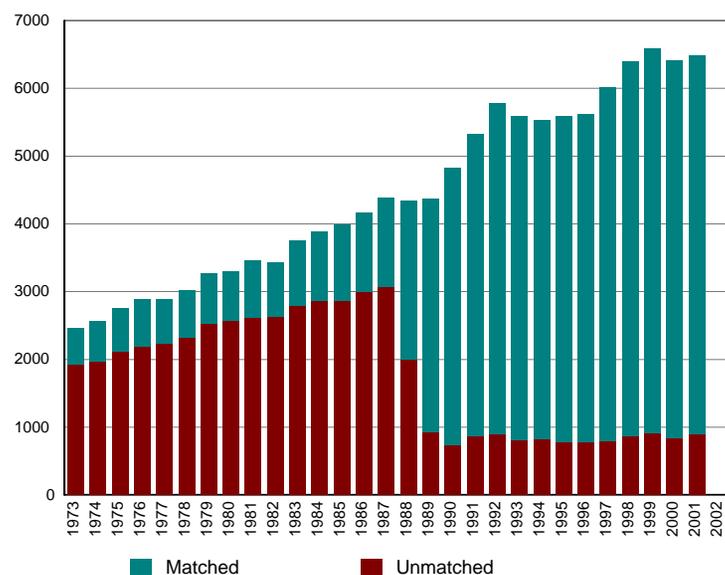


UTAH CANCER REGISTRY

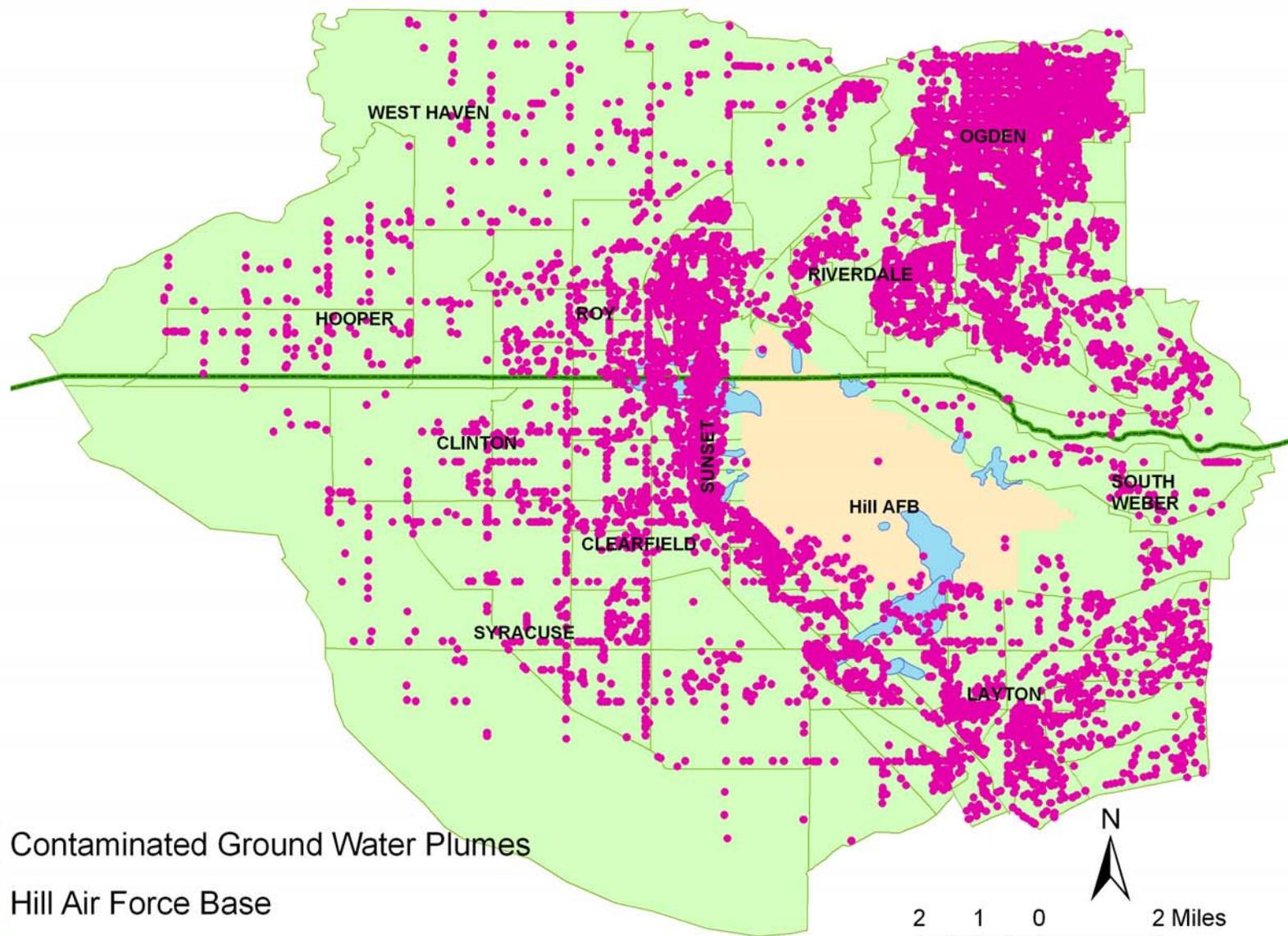


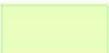
- Cancer Reporting Rule (R384-100)
- Population-based registry started in 1996
- Digital data available from 1973 onward
- An original member of the NIH SEER program
- Database = Rocky Mountain Cancer Database System
- <http://www.med.utah.edu/ucr/index.html>

Geocoding the Utah Cancer Registry



	Statewide 1973-2001	Percent Success	Davis/Weber 1973-2001	Percent Success
Records	129,089		24,760	
Geocodeable	79,781		24,742	
Geocoded	78,545	60.8%	24,433	98.7%



-  Contaminated Ground Water Plumes
-  Hill Air Force Base
-  Study Area: 2000 Census Block Groups

Population Data Table



2000 Census Data



1990 Census Data



1980 Census Data



1970 Census Data

Redistribute
Into
2000 Census
Block Group
Areas

Utah 1970 – 2000
Population
Data Table
by
2000 Census
Block Group
by
5 year age groups
and
Gender

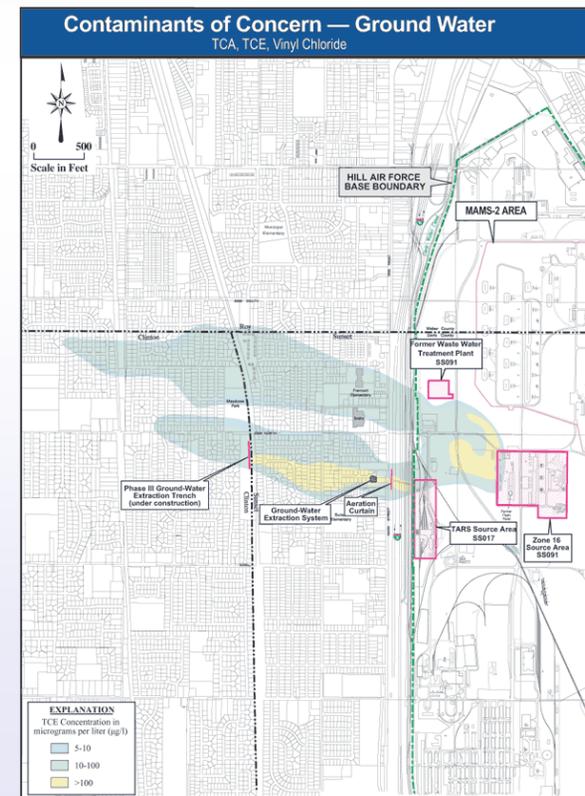
Utah 1990 – 2000
Socio-economic
Status
Data Table
by
2000 Census
Block Group

Exposure Data

- Hill AFB TCE Plume Data

- Source **Hill AFB Environmental Management Team**
- Description **TCE Plume boundary at ~5 ug/L
(single point in time)**

- <http://www.em.hill.af.mil/>



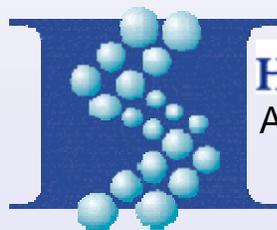
Other Covariate Data



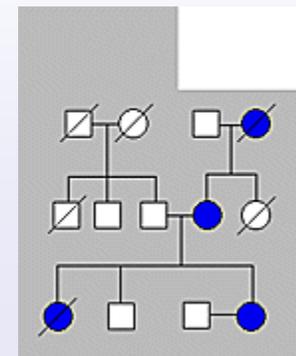
- **The Utah Population Database – Links:**

- Utah Vital Records (Birth, Death and Fetal Death)
- the Utah and Idaho Cancer Registries
- Utah Driver's Licenses records
- the Social Security Index
- LDS genealogical data
- HCFA data

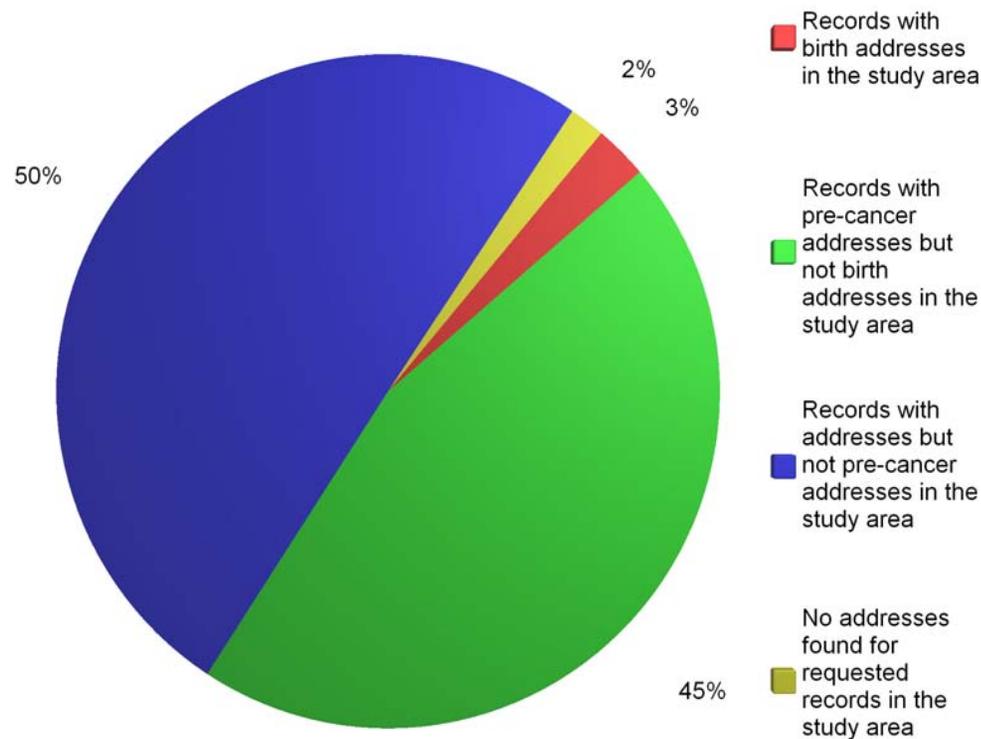
- <http://www.research.utah.edu/rge/>



HUNTSMAN CANCER INSTITUTE
A National Cancer Institute Clinical Cancer Center



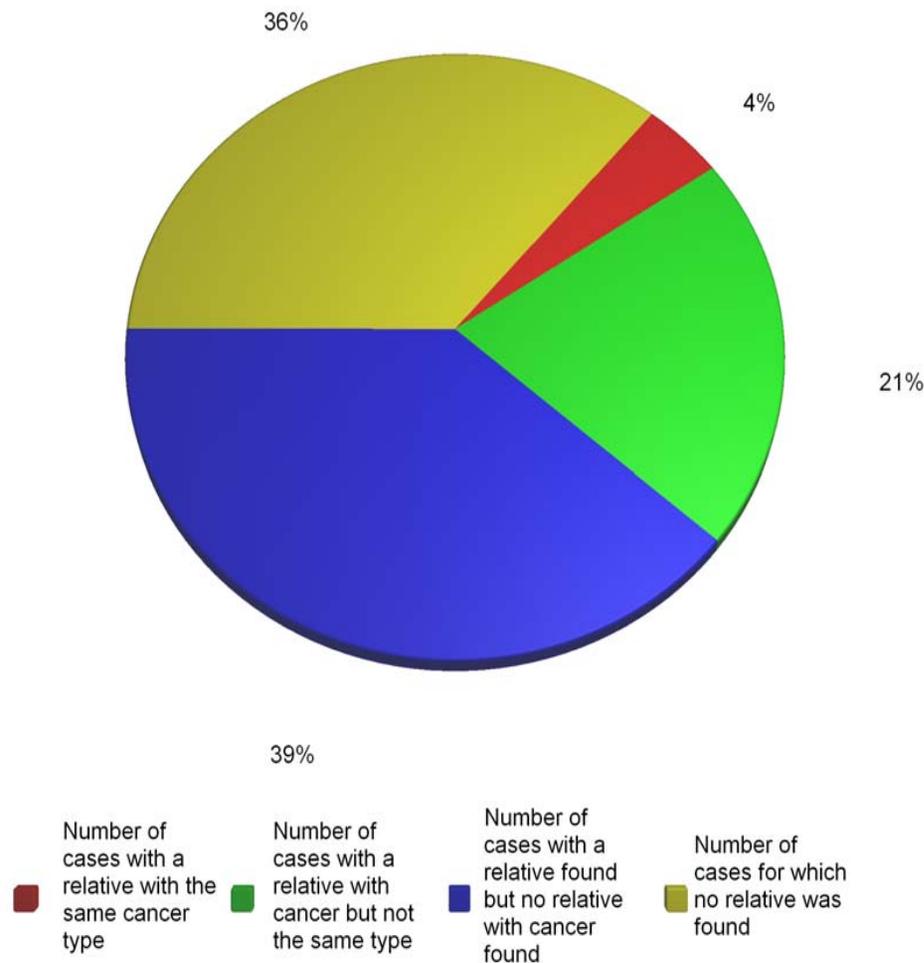
Resource for Genetic and Epidemiologic Research



Residential Tenure

- 11,130 records requested
- Addresses found for 10,937 records
- Pre-cancer addresses found for 5,349 records
- Birth addresses found for 290 records

Resource for Genetic and Epidemiologic Research



Residential Tenure

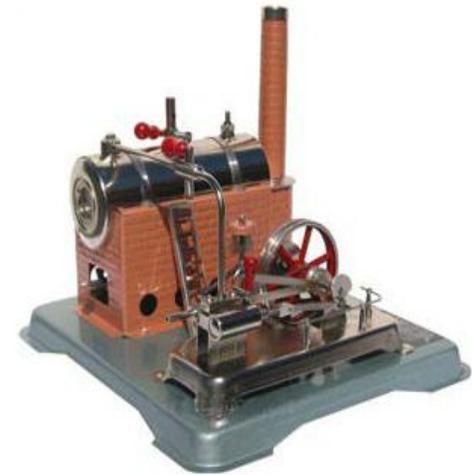
- 11,130 records requested
- 7,114 records found
- A relative with cancer was found for 2,820 of those records
- A relative with cancer in the same site was found for 485 records.

Statistical Analysis

Cancer Site
Incidence Time
Incidence Place
Age
Sex
Residential Tenure
Familial History
Exposure Status

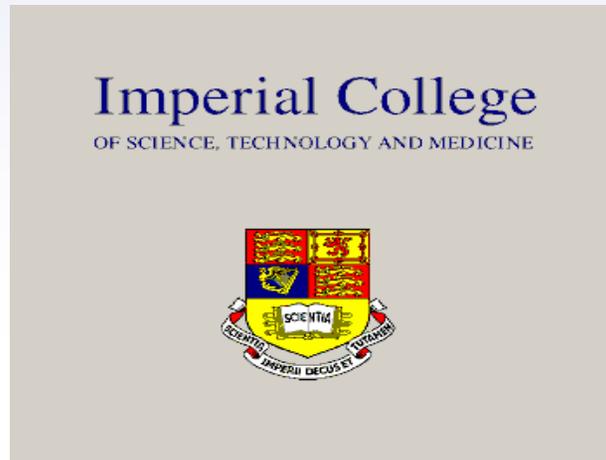


An 'adjusted'
observed count
for each census
block group



SMR and Scan Statistic
Global / Local Spatial Autocorrelation
Focal Tests
Bayesian Methods

Rapid Inquiry Facility



- <http://www.euroheis.org>