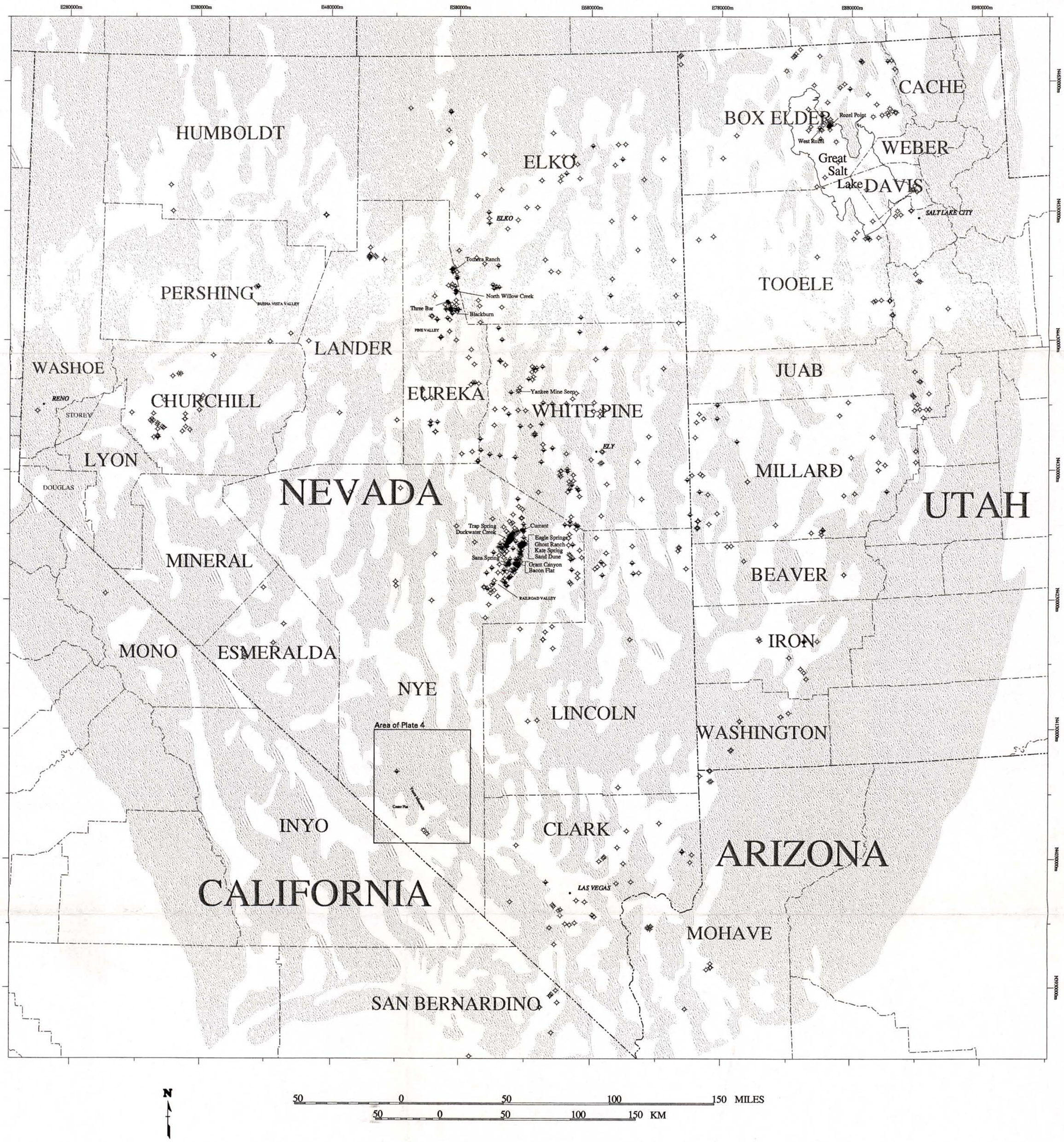


LEGEND

- Dry Hole
- Oil Well
- Dry Hole, Oil Show
- Dry Hole, Gas Show
- Dry Hole, Oil and Gas Show
- State Boundary
- County Boundary
- Ranges
- Basins

SOURCES

Locations of Oil and Gas Wells obtained from: Arizona Oil and Gas Conservation Commission; California Division of Oil, Gas, and Geothermal Energy; Nevada Bureau of Mines and Geology; and Utah Division of Oil, Gas, and Mining.

The Great Salt Lake Digitized from United States Geologic Survey (USGS) 1:250,000 scale maps.

Range and Basin features digitized from Stewart, 1978, Plate 1-1.

Projection is Universal Transverse Mercator, Zone 11. Coordinates are displayed in meters.

PLATE 1
REGIONAL INDEX MAP OF THE GREAT BASIN

Regional map of the Great Basin showing 843 oil and gas tests drilled since 1900. Drilling prior to 1900 was restricted to development of a field that produced biogenic gas near Salt Lake City. Three wildcats have been drilled within 80 km (50 miles) of Yucca Mountain, all since 1990. Eight commercial and six non-commercial fields have been found since the discovery of Eagle Springs Field in 1954.

LEGEND

- Dry Hole
- Oil Well
- Dry Hole, Oil Show
- Dry Hole, Gas Show
- Dry Hole, Oil and Gas Show
- Calderas
- Thrust Fault of Antler Orogeny, Sawteeth on Upper Plate
- Thrust Faults of Sevier Orogeny, Sawteeth on Upper Plate
- Strike-slip Fault
- Metamorphic Core Complexes
- State Boundary
- County Boundary
- Ranges
- Basins

SOURCES

Locations of Oil and Gas Wells obtained from: Arizona Oil and Gas Conservation Commission; California Division of Oil, Gas, and Geothermal Energy; Nevada Bureau of Mines and Geology; Utah Division of Oil, Gas, and Mining.

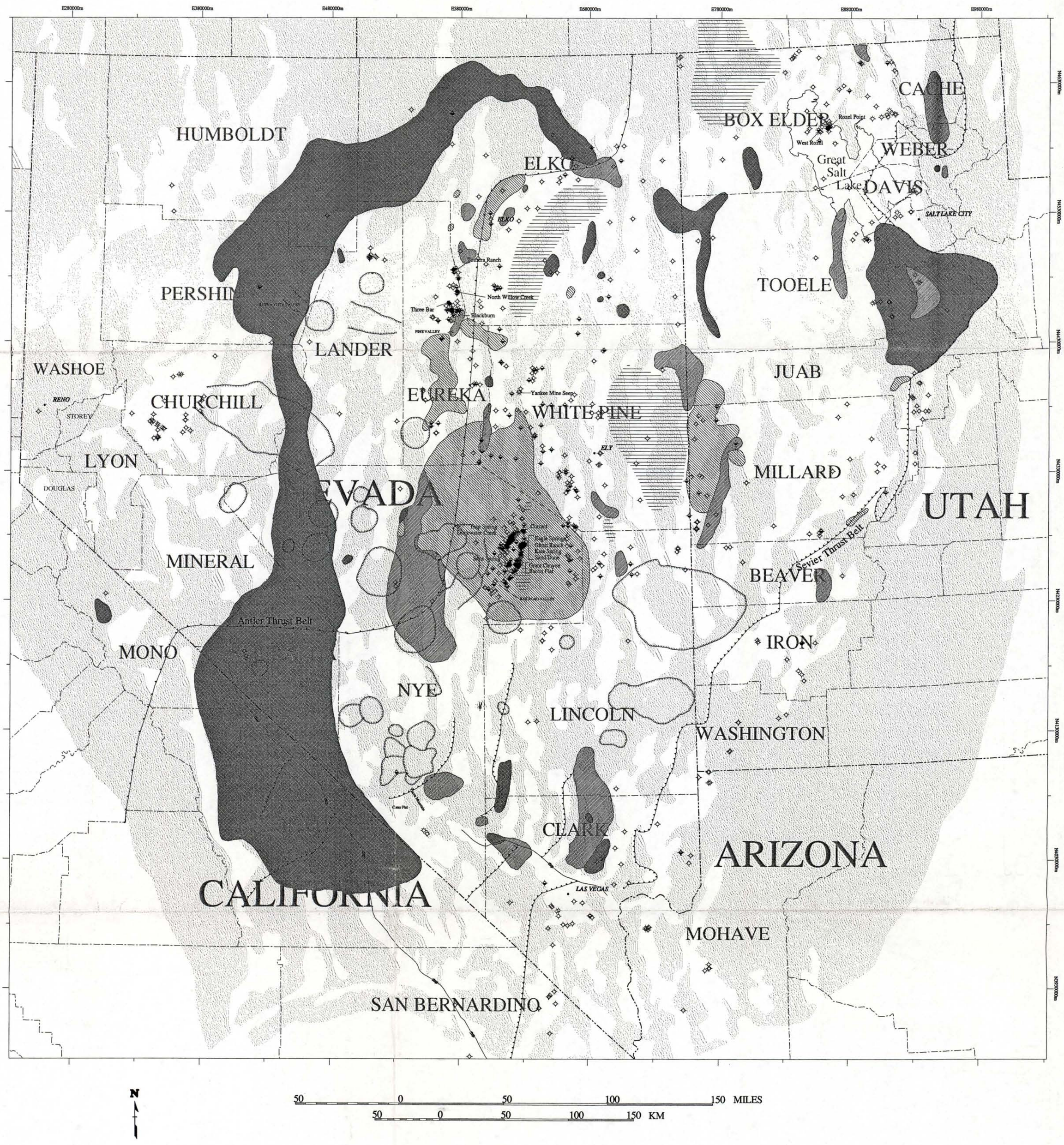
The Great Salt Lake Digitized from United States Geologic Survey (USGS) 1:250,000 scale maps.

Range and Basin features digitized from Stewart, 1978, Plate 1-1.

Projection is Universal Transverse Mercator, Zone 11. Coordinates are displayed in meters.

PLATE 2
GREAT BASIN REGIONAL TECTONIC MAP

Great Basin regional tectonic map showing major structures that developed prior to Basin-Range extension. These structural episodes have deformed the rocks of the region causing the creation of trap geometries and resulting in the deposition of important source and reservoir rocks. See Plate 1.



LEGEND

- Dry Hole
- Oil Well
- Dry Hole, Oil Show
- Dry Hole, Gas Show
- Dry Hole, Oil and Gas Show
- Calderas
- Thrust Fault of Antler Orogeny, Sawteeth on Upper Plate
- Thrust Faults of Sevier Orogeny, Sawteeth on Upper Plate
- Strike-slip Fault
- Metamorphic Core Complexes
- CAI Range 1 –2
- CAI Range 2 –4.5
- CAI Range > 4.5
- Ranges
- Basins
- State Boundary
- County Boundary

SOURCES

Locations of Oil and Gas Wells obtained from: Arizona Oil and Gas Conservation Commission; California Division of Oil,Gas, and Geothermal Energy; Nevada Bureau of Mines and Geology; Utah Division of Oil, Gas, and Mining.

Location of Calderas, Core Complexes and Thrust Belts digitized from Stewart, 1980, and Best, et al., 1989.

Conodont Alteration Index data digitized from Harris, et al., 1980.

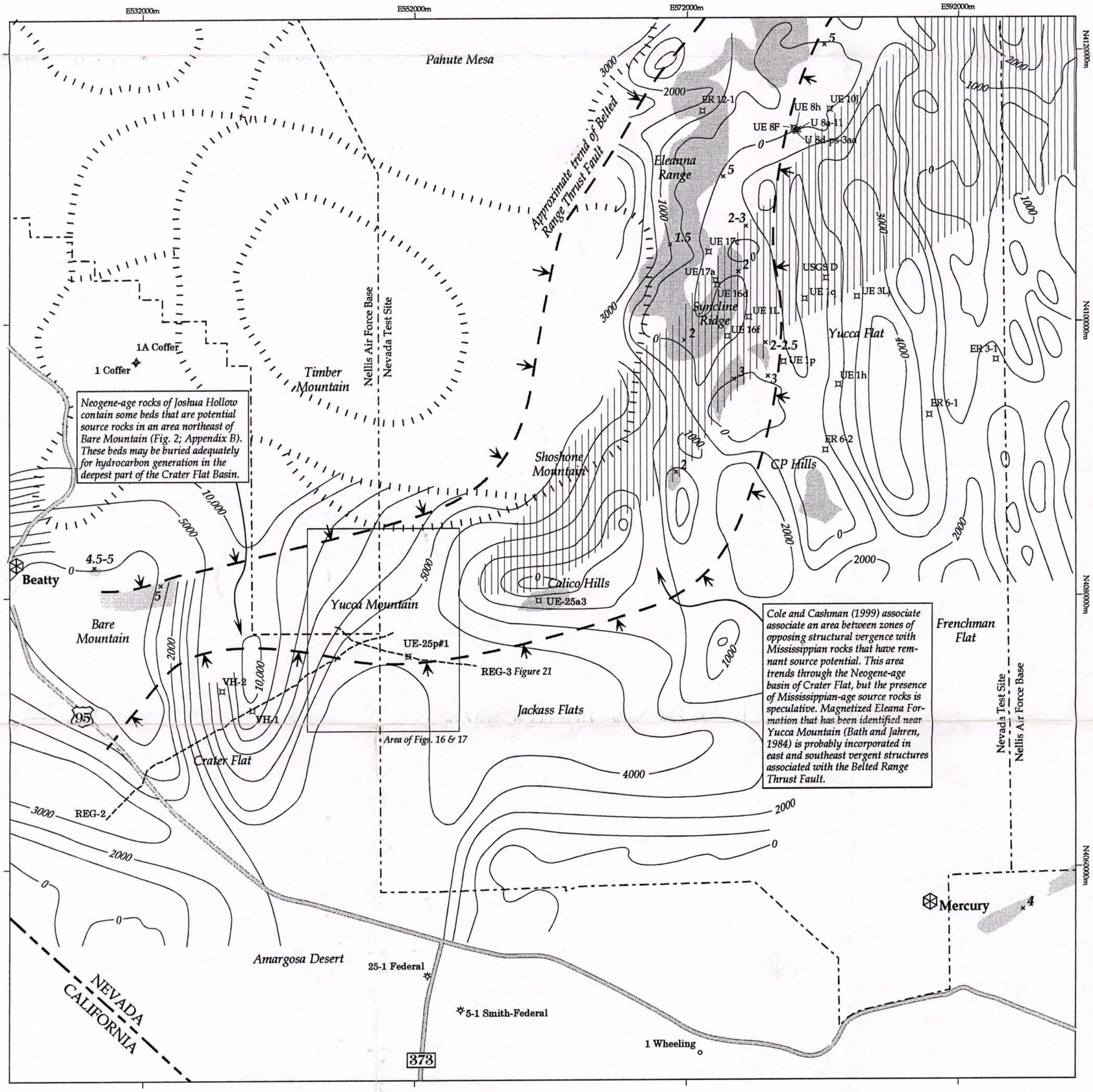
Basin and Range features digitized from Stewart, 1978, Plate 1-1.

The Great Salt Lake Digitized from United States Geologic Survey (USGS) 1:250,000 scale maps.

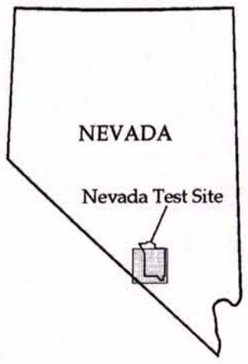
Projection is Universal Transverse Mercator, Zone 11. Coordinates are displayed in meters.

PLATE 3
GREAT BASIN REGIONAL TECTONIC MAP WITH CAI DISTRIBUTION

Regional tectonic map of the Great Basin showing the distribution of conodont alteration indices (CAI) for Mississippian rocks. Low CAI values near Pine and Railroad valleys show that source rocks of that age had not reached maturity prior to Basin-Range extension. Therefore, oil produced from the fields in these valleys was probably generated in the basins that underlie the valleys that have formed since the onset of the Basin-Range episode.



Location Map



Legend

- Undrilled Location
- Dry Hole
- Dry Hole, Gas Show
- Dry Hole, Oil Show
- Investigation Borehole
- Conodont Sample Location showing CAI value
- U.S. or State Highway
- Seismic Line
- Administrative Boundary
- Contraction Belt, arrow points in direction of vergence
- Isopach of Cenozoic Rock contour interval: 1,000 ft
- Caldera Boundary
- Outcrop of Upper Paleozoic Rocks
- Area of Thermal Potential for Oil and Gas

CAI map: Grow and others, 1994;
Cenozoic isopach: Robinson, 1985;
Contraction tectonics: Cole and Cashman, 1999.

Yucca Mountain area showing tectonic features and conodont alteration index (CAI) distribution for Mississippian-age rocks. The basin of Crater Flat is a potential generation site if Tertiary-age source rocks or Paleozoic-age rocks with remnant potential are present. Most source rocks of Paleozoic age are overmature as indicated by high CAI values.

Plate 4

Yucca Mountain Area

Tectonic Features and Conodont Alteration Index Distribution