

3.4 Water Resources

3.4.1 Surface Water

The ROI for water resources consists of all ground water basins in the study area and the Mojave River drainage, which flows in an easterly direction to its termination at Soda Lake, a few miles southwest of Baker, CA. Surface water sources within the study area are scarce due to annual average rainfall being approximately 3.87 inches. Washes descending from elevated landforms form intermittent channels that runoff into playas where temporary lakes form. This type of water accumulation occurs about once every ten years during greater than average precipitation. During heavy runoff, subsurface flows may occur. Local groundwater recharge may occur along washes due to subsurface water movement. Without a drainage outlet, surface water in shallow ephemeral lakes is lost through groundwater percolation and/or evaporation.

Small springs within the study area offer isolated and limited pockets of perennial surface water, but none are of sufficient size to sustain perennial surface watercourses.

Dry lakes occur within the study area. The region contained water during the ice ages and became dry during the interglacial periods. Dry lakebeds do not provide water resources.

3.4.2 Groundwater

Groundwater is stored within the soils and rock strata in the study area. Recharge to aquifers underlying the ROI occurs through direct infiltration of precipitation, subsurface flow from adjoining valley groundwater basins, and runoff and subsequent infiltration of flash flood waters originating in the surrounding mountainous areas.

Water-bearing units in the ROI can be broadly divided into two main types: consolidated material (rock) and unconsolidated deposits or sediments (sand, gravel, etc.). The capacity of rocks and sediments as sources of groundwater is extremely variable. The porosity of a rock or sediment is a measure of the percentage of space in the material. Porosity may be as low as one to three percent in granitic rock or greater than 50 percent in some sediment. Sediments form the valley floor and contain most of the groundwater that is stored in the area. Consolidated rocks form the surrounding mountains, hills, and aquicludes (impermeable layers which retard groundwater movement) underlying the sediments on the valley floor. Natural groundwater recharge is estimated to be approximately 150 acre-feet per year. Most of the recharge is thought to occur along the margins of the basin or through the channels of washes, following heavy rains. Little recharge occurs on the valley floor.

The California Department of Water Resources (CDWR) has divided the state according to major groundwater drainage basins. Portions of the study area fall within the following groundwater basins:

- ❖ Superior Valley Basin
- ❖ Coyote Lake Basin/Coyote Basin
- ❖ Langford Valley Basin/Langford Basin
- ❖ Cronise Valley Basin

- ❖ Red Pass Valley Basin
- ❖ Riggs Valley
- ❖ Goldstone Valley Basin
- ❖ Silver Lake Valley Basin
- ❖ Lower Mojave River Valley Basin

A number of water wells have been drilled on Fort Irwin, however few are currently producing water. Bicycle, Irwin, and Langford Basins supply water to Fort Irwin. Coyote Basin may be developed in the future as a groundwater resource for the NTC. Figure 3.4-1 illustrates hydrologic resources in the study area and on Fort Irwin.

3.4.3 Wetlands

Field investigations conducted by Fort Irwin DPW have identified wetlands under the EPA definition of wetlands. Section 404 of the Clean Water Act is not applicable as there will be no impacts to these areas.

3.4.4 Water Quality

Due to limited development in the study area, few studies of water quality have been conducted in the region. No known contamination exists in the surface water of the study. A 2002 Environmental Baseline Study conducted by Charis Corporation found no existing threat of contamination to springs or wells in the study area.

3.4.5 Water Rights

Surface and ground waters flowing in subterranean streams with a known or definite channel or known to be inflow or outflow from a spring, are subject to the application and appropriation through the State of California, State Water Resources Control Board (SWRCB). Appropriations for water rights on Fort Irwin property through application, permit, or license are not indicated by the SWRCB. Underground water not flowing in subterranean streams is not subject to SWRCB jurisdiction. Owners of lands overlying a groundwater basin or other common sources have the right to withdraw water for reasonable beneficial use on their overlying lands, the right of each owner is equal and correlative to the right of all other owners similarly situated. In the case of insufficient water supply, the available supply is equally appropriated among owners of overlying lands. Surplus water, which may be withdrawn without creating an overdraft on groundwater supply, may be appropriated for use on overlying lands. Fort Irwin has water rights to water on property owned by Fort Irwin; any potential use of percolating groundwater in the expansion area would be limited to use by the Army.

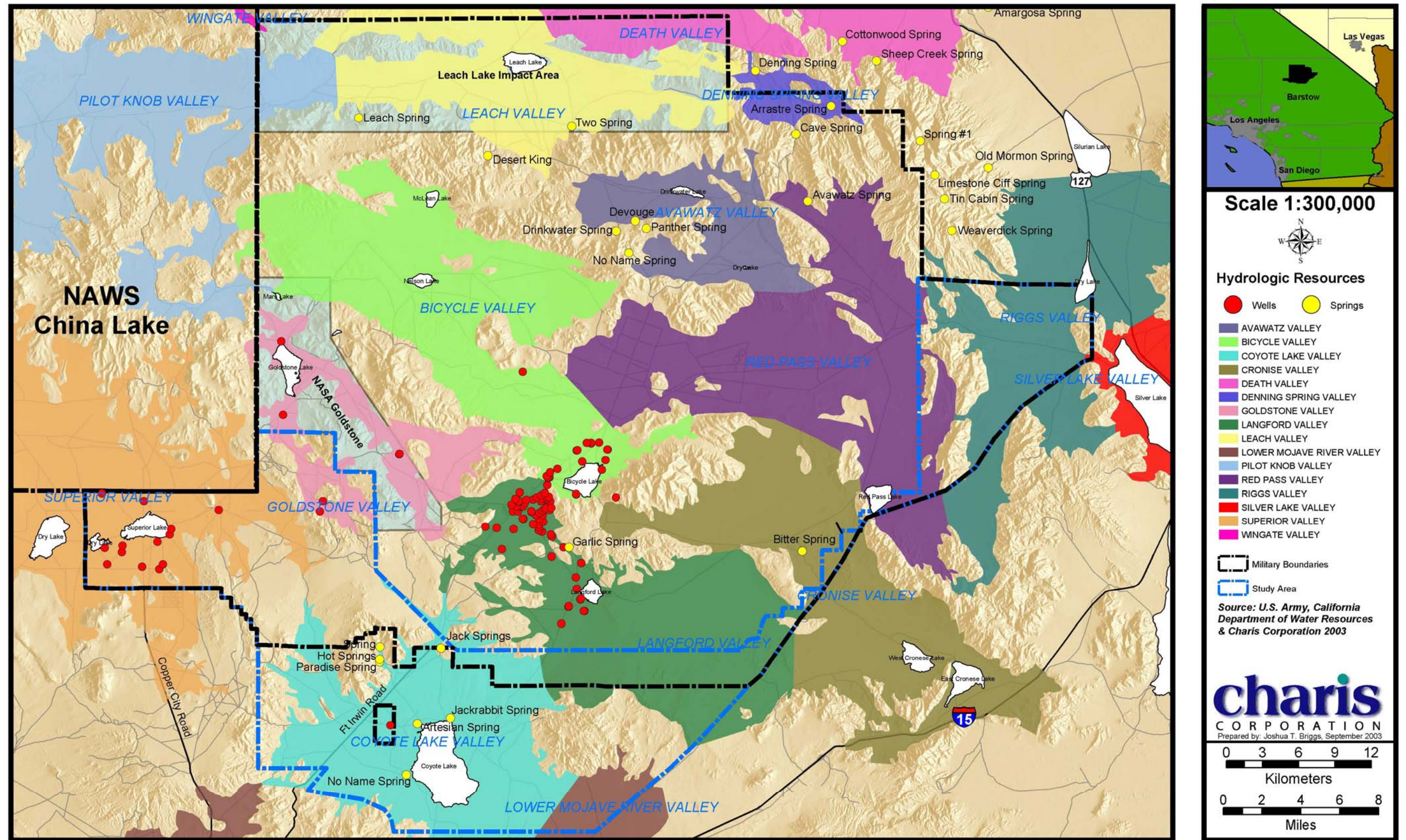


Figure 3.4-1: Hydrologic Resources