

the remediation timeframe of the plume. The purpose of the freshwater injection along the upgradient portion of the plume is to accelerate the groundwater and solute transport velocities to shorten the period of performance of the active remedy. The simulated total freshwater injection rate is 550 gpm and the source of this water is assumed to be HNWR-1 located on the eastern side of the Colorado River in Arizona. The layout and extraction rates for the freshwater injection wells is shown in Figure B-17 and B-18. The freshwater injection is applied to 5 injection wells. The northern 3 freshwater injection wells (FW-INJ-1, FW-INJ-2, and UPGRAD-INJ-3) operate at a rate of 100 gpm each, the freshwater injection rate of the well located to the north of I-40 (UPGRAD-INJ-4) is 200 gpm, and the final freshwater injection well located to the west of the TCS (FW-INJ-4) operates at a rate of 50 gpm.

One consideration that was taken into account when simulating the freshwater injection was the water quality of the source water. The primary component of concern for this freshwater source is arsenic. A conservative simulated arsenic concentration of 17 ppb was introduced into all 5 freshwater injection wells. Due to the relatively high precipitation potential in this aquifer, the footprint of the impacted groundwater in the vicinity of the freshwater injection wells is fairly limited and actually reaches steady state conditions after several years where the arsenic footprint no longer expands. Figures B-20, B-22, and B-24 show each of the freshwater injection wells in cross-section.

4.4.2 Riverbank Extraction

Along the west side of the Colorado River, a series of extraction wells were simulated with the goal of both accelerating groundwater through the NTH IRZ and to also capture any hexavalent chromium located downgradient of the NTH IRZ. The proposed layout of the riverbank extraction wells consists of 4 wells screened in model layers 3 and 4 (beneath the naturally occurring rind) with the option to add a fifth well if necessary. The simulated total extraction rate of 150 gpm was utilized for the solute transport model runs. These wells will potentially pull down the groundwater from the naturally occurring rind, so consideration was taken to keep the extraction rate at a reasonable level. The locations and rates of the riverbank extraction wells are shown in Figure B-17. The water extracted from these wells was injected into 2 upland wells to further accelerate the movement of the hexavalent chromium plume through the NTH IRZ, similar to the function of the freshwater injection wells. Figure B-19 shows the riverbank extraction wells in cross-section.