This section was prepared by RMC Water and Environment.

3B.17 GROUNDWATER RESOURCES – WATER

3B.17.1 AFFECTED ENVIRONMENT

The following sections describe the groundwater basin and associated subbasins that underlie the Off-Site Water Facilities Study Area. Exhibit 3B.17-1 illustrates the geographic extent of these subbasins in relation to the Off-Site Water Facilities Study Area. These subbasins are located within the Sacramento Valley Groundwater Basin and are described in detail below.

SACRAMENTO VALLEY GROUNDWATER BASIN

The Sacramento Valley Groundwater Basin is the major groundwater basin in the Sacramento River Hydrologic Region and is considered a single aquifer system (Domagalski and Brown, 1996). The storage capacity of the Sacramento Valley Groundwater Basin is estimated at approximately 114 million AF beginning at depths of 20 to 60 feet below the land surface. Groundwater provides about 31% of the water supply for urban and agricultural uses in the region. This groundwater basin is comprised of 18 groundwater smaller subbasins, which include the South and North American Subbasins. These two groundwater subbasins underlie the Off-site Water Facilities Study Area and are described further below.

NORTH AMERICAN GROUNDWATER SUBBASIN

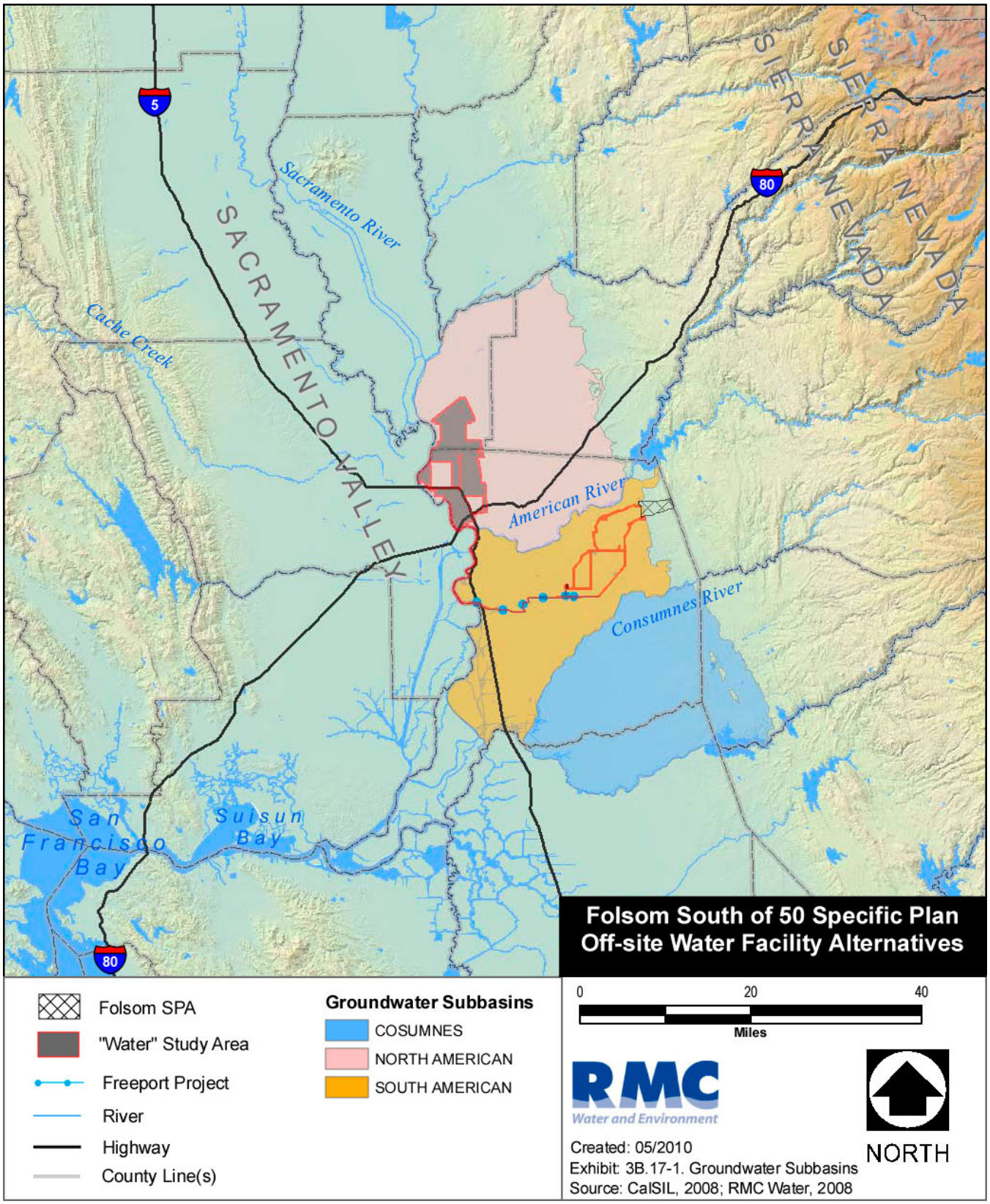
As shown in Exhibit 3B.17-1, the Natomas Central Mutual Water Company (NCMWC) or Zone 1 of the Off-site Water Facilities Study Area overlies the southwestern portion of the North American Groundwater Subbasin, which encompasses approximately 548 square miles in the east-central portion of the Sacramento Valley Groundwater Basin (California Department of Water Resources [DWR], 2006). The Bear River is its northern boundary, the Feather River is its western boundary, and the Sacramento River and American Rivers are its southern boundary. The eastern boundary is a north-south line extending from the Bear River south to Folsom Lake and represents the approximate edge of the alluvial deposits, where little or no groundwater flows into or out of the groundwater basin from the rock of the Sierra Nevada (DWR, 1997; DWR, 2006).

The estimated storage capacity for the North American Subbasin is approximately 4,900,000 acre-feet (AF) (DWR, 2006). The Water Forum Agreement (WFA) establishes a long-term average sustainable yield of 131,000 AFY for portions of the North American Subbasin underlying Sacramento County. Within this portion of the Subbasin, groundwater is typically used as a supplemental supply to surface water. In wet/average years[1], the need for supplemental groundwater supplies is estimated to be approximately 49,190 AF per year (AFY), which is below the 131,000 AFY long-term sustainable yield estimate cited in the WFA. The need for supplemental groundwater supplies during drier years is estimated to range from 102,110 to 132,520 AFY with the driest exceeding the 131,000 AFY long-term sustainable yield (Sacramento Groundwater Authority [SGA], 2003).

SOUTH AMERICAN GROUNDWATER SUBBASIN

Portions of the Off-site Water Facilities Study Area, more specially Zones 3 and 4 overlie the South American Groundwater Subbasin, also synonymous with the Central Sacramento County Groundwater Basin, which encompasses approximately 388 square miles in the east-central portion of the Sacramento Valley Groundwater

[1] Under the WFA a wet year is defined as those years when the projected March through November unimpaired inflow into Folsom Reservoir is equal to or greater 1,600,000 AF. A normal year is defined as more than 950,000 AF. Drier years are defined as those years when the projected March through November unimpaired inflow into Folsom Reservoir is less than 950,000 AF but equal to or greater than 400,000 AF.



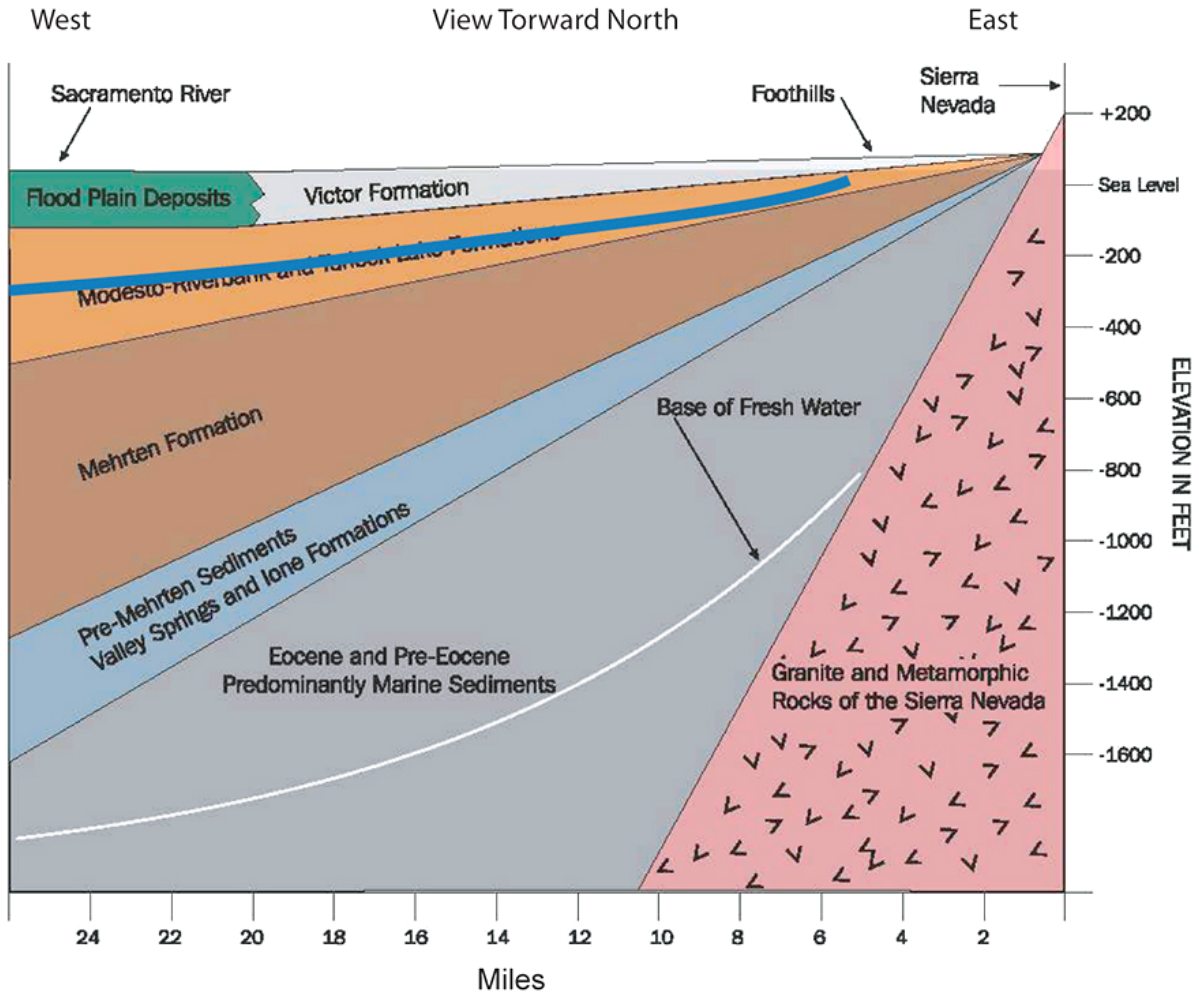
Local Groundwater Subbasins **Exhibit 3B-17-1**

Basin, south of the American River. This subbasin is bounded on the east by the Sierra Nevada foothills, on the west by the Sacramento River, on the north by the American River, and on the south by the Cosumnes and Mokelumne Rivers (see Exhibit 3B.17-1).

Hydrogeology

The South American Subbasin aquifer system is comprised of continental deposits of Late Tertiary to Quaternary age. These deposits include younger alluvium (consisting of flood basin deposits, dredge tailings and Holocene stream channel deposits), older alluvium, and Miocene/Pliocene volcanics (DWR, 2003). The cumulative thickness of these deposits increases from a few hundred feet near the Sierra Nevada foothills on the east to over 2,500 feet along the western margin of the subbasin.

Similar to the North American Subbasin, the South American Subbasin is characterized by two major water-bearing zones. The shallow aquifer zone occurs within the Laguna and/or Modesto formations and extends to 200-300 feet below the ground surface. The shallow aquifer is typically used for private domestic wells requiring no treatment unless high arsenic values are encountered. Older municipal and all domestic wells have been constructed in the shallow aquifer. Exhibit 3B.17-2 illustrates a generalized geologic cross-section for the South American Subbasin.



Source: CSCGMP, 2006

Generalized Geologic Cross-Section of the South American Groundwater Subbasin Exhibit 3B.17-2

The underlying deeper aquifer zone is encountered within the Mehrten formation at depths below 300 feet and is separated from the shallow layer by a semi-confining layer that runs east to west. The base of the deep aquifer is approximately 1,400 feet below the ground surface. Large municipal wells constructed by the Sacramento County Water Agency (SCWA) have targeted the deeper layer because the deep layer generates higher production rates and impacts domestic wells to a smaller degree (Tully & Young, Inc., 2008).

Intensive use of groundwater over the past 60 years has resulted in a general lowering of groundwater elevations within the upper aquifer. Over time isolated groundwater depressions have grown and coalesced into a single cone of depression that is centered in the southwestern portion of the South American Subbasin, near the City of Elk Grove. This circumstance in turn has resulted in groundwater elevations within the central portion of the Subbasin that range from 40 feet above to 40 feet below mean sea level (msl) and, in the northern section of the Subbasin, 120 feet above to 30 feet below msl.

Based on available information from Olmstead and Davis (1961), DWR calculated groundwater storage capacity within the South American subbasin at 4,816,000 AF. Sources of recharge include natural and applied water recharge, which totals 257,168 AF. Subsurface inflow and outflow are not known specifically, but net subsurface outflow is estimated at 29,676 AFY. Other groundwater outflows include annual urban extraction of 68,058 AF and agricultural extraction of 162,954 AF (DWR, 2003). Based on these estimates, the WFA determined the estimated long term average annual sustainable yield of groundwater from the Central Basin to be 273,000 AFY.

Currently, groundwater extractions are estimated to be 250,000 AFY basinwide (Central Sacramento County Groundwater Management Plan [CSCGMP], 2006). However, these pumping rates are expected to decline significantly with the initiation of the operation of the Freeport Project in 2009, which will allow for SCWA to meet a large portion of its current groundwater demand with surface water. The demand for groundwater is not expected to reach these levels again until 2030.

Eastern County Replacement Water Supply Project

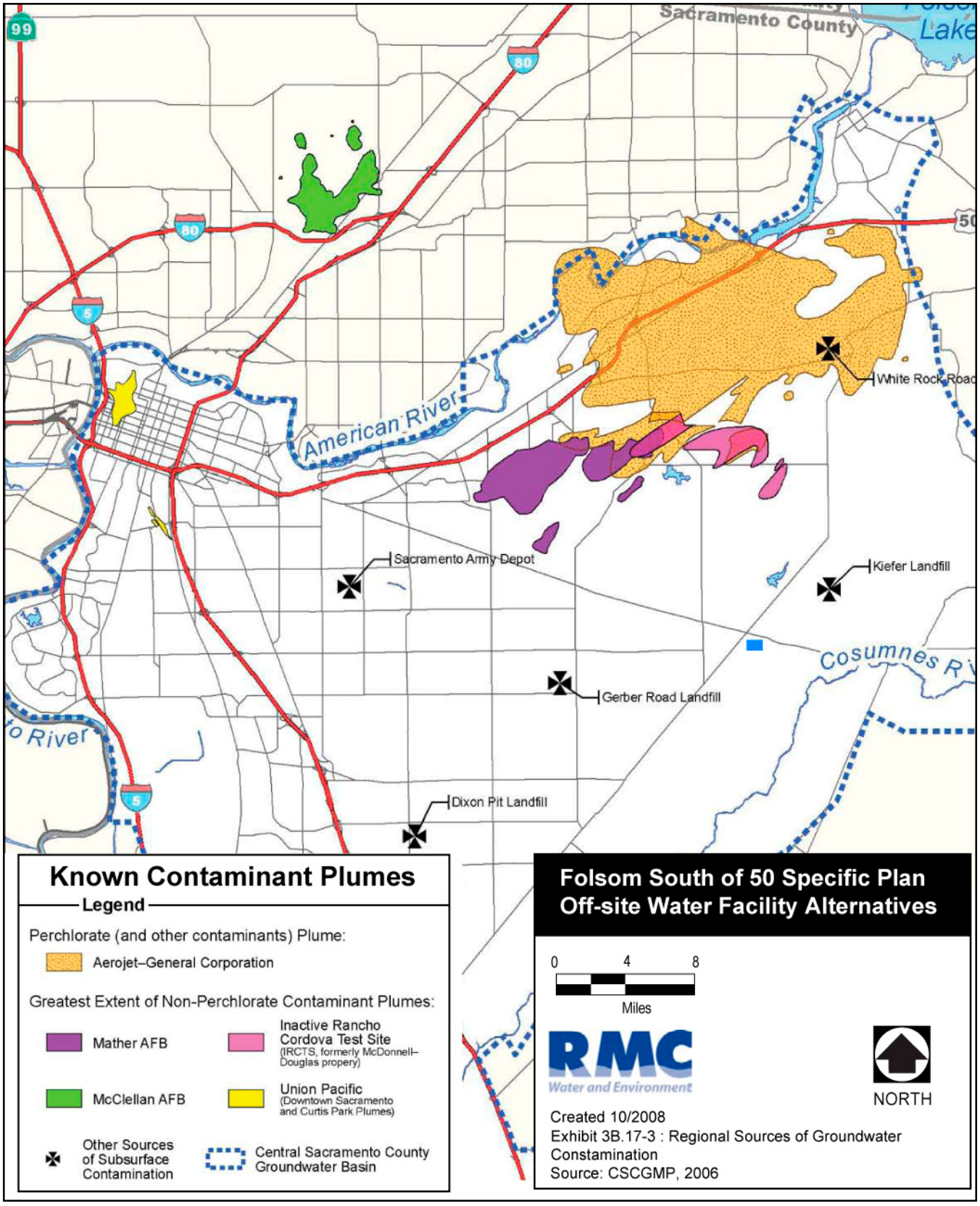
Under an agreement with Aerojet, SCWA is proposing the Eastern County Replacement Water Supply Project (RWSP) in eastern Sacramento County. The RWSP would consist of a system of conveyance facilities (i.e., pipelines and pump stations) to transport remediated water from groundwater extraction and treatment (GET) facilities to surface streams with discharge points along the American River. The GET-remediated water would be diverted at Reclamation's Folsom South Canal (FSC), the City of Sacramento's Fairbairn WTP diversion, and the Freeport Project. Diverted GET-remediated water would be delivered to the Golden State Water Company (GSWC) and the Cosumnes River via the FSC, Cal-American Water Company (Cal-Am) via the Fairbairn diversion, and SCWA wholesale and retail customers via the Freeport Project. No new diversion facilities are part proposed as part of the RWSP. Under the proposed RWSP, water for SCWA users would be diverted at the Freeport Project and treated at the Vineyard Surface WTP.

As discussed above, the GET facilities have already undergone CEQA environmental review and are under construction. The RWSP DEIR (State Clearinghouse No. 2004042122) was circulated for public review in October 2006. To the City's knowledge, SCWA does not anticipate implementing the RWSP in its entirety as described in the DEIR and will be seeking changes to its agreement with Aerojet.

Groundwater Quality

Water quality within the South American Subbasin is typically of good quality and suitable for potable use and meets water quality objectives. The concentration of TDS ranges from 24 to 581 milligrams per liter (mg/L) and averages 221 mg/L (DWR, 2003).

Exhibit 3B.17-3 illustrates regional sources of significant groundwater contamination within the North American Subbasin. Included are three EPA Superfund sites: Aerojet, Mather Field, and the Sacramento Army Depot. The other sites include the Kiefer Boulevard Landfill, an abandoned PG&E site on Jiboom Street near Old



Regional Sources of Groundwater Contamination **Exhibit 3B.17-3**

Sacramento, and the Southern Pacific and Union Pacific Rail Yards in downtown Sacramento. Although other localized plumes exist in and around the South American Subbasin (e.g., small leaking underground fuel tanks), the principal plumes shown in Exhibit 3B.17-3 are the largest and have the greatest current impact on existing groundwater use. For the Mather Field plumes, the primary constituents of concern (COC) are tetrachloroethylene (TCE), perchloroethylene (PCE), and carbon tetrachloride. For the Aerojet and Inactive Rancho Cordova Test Site (IRCTS) plumes, the primary COCs are TCE, n-nitrosodimethylamine (NDMA), and perchlorate.

3B.17.2 REGULATORY FRAMEWORK

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) was established to protect the quality of drinking water in the United States. The SDWA focuses on waters actually or potentially designated for drinking use, whether from surface or underground sources. The SDWA authorized the EPA to establish safe standards of purity and requires all owners or operators of public water systems to comply with primary (health-related) standards. State governments, which may assume this power from EPA, also encourage attainment of secondary standards (nuisance-related standards). COCs in a domestic water supply are those that either pose a health threat or in some way alter the aesthetic acceptability of the water. These types of contaminants are currently regulated by EPA as primary and secondary maximum contaminant levels (MCLs). Primary and secondary MCLs are established for COCs including turbidity, TDS, chloride, fluoride, nitrate, priority pollutant metals and organic compounds, selenium, bromate, trihalomethane precursors, radioactive compounds, and gross radioactivity. The SDWA includes the Wellhead Protection Program and the Underground Injection Control (UIC) program wells to prevent degradation of groundwater supplies. Water supplies delivered by the Off-site Water Facilities would be required to comply with the drinking water standards set by EPA.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Groundwater Management Act (AB 3030)

California's Groundwater Management Act (California Water Code Sections 10750–10755.4 [AB 3030]) provides guidelines under which local agencies may adopt groundwater management plans. It promotes the voluntary development of groundwater management plans and provides criteria to ensure sustainable groundwater supplies for the future.

The Groundwater Management Act specifies the technical components of a groundwater management plan as well as the procedures for such a plan's adoption, including passage of a formal resolution of intent to adopt a groundwater management plan and holding a public hearing on the proposed plan. The Act also allows agencies to adopt rules and regulations to implement an adopted plan, and empowers agencies to raise funds to pay for the facilities needed to manage the basin, such as extraction wells, conveyance infrastructure, recharge facilities and testing and treatment facilities. The passage of SB 1938 in 2002 also required basin management objectives and other additions to be included in the groundwater management plans to comply with California Water Code Section 10750 et seq.

State Drinking Water Program

The California Department of Public Health (CDPH) Drinking Water Program is responsible for implementation of the Federal SDWA, as well as California statutes and regulations related to drinking water. The Division of Drinking Water and Environmental Management develops and implements the Drinking Water Source Assessment Program (DWSAP). The DWSAP Program describes CDPH's procedures for conducting drinking water source assessments, such as location of the drinking water source, and delineation of zones (based on

readily available hydrogeologic information on ground water flow, recharge, and discharge, and other information deemed appropriate by the state).

The CDPH regulates the operation of potable and recycled water systems, issues operating permits for these facilities, reviews plans and specifications for new facilities, enforces laws and regulations including the SDWA, and reviews water quality monitoring results. Furthermore, CDPH also conducts source water assessments and evaluates projects using injection and extraction into potable groundwater basins.

Central Valley Regional Water Quality Control Plan

The Central Valley RWQCB (Region 5) is responsible for the protection of beneficial uses of surface water and groundwater resources within the Sacramento River Basin. The Central Valley RWQCB uses planning, permitting, and enforcement authorities to meet this responsibility and has adopted a Water Quality Control Plan (Basin Plan) for the Sacramento River and San Joaquin River Basins and water quality objectives for groundwater (Central Valley RWQCB, 2004).

Although not a part of the regional water quality control plan, the SWRCB also has an adopted State Anti-Degradation Policy (SWRCB Resolution No. 68-16). This policy specifies that any new supply of water recharged into the basin must not degrade the existing groundwater basin unless change is consistent with maximum benefit to people of state and will not unreasonably affect present and potential beneficial uses.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND LAWS

Sacramento County General Plan

The Sacramento County General Plan Conservation Element includes the following goals and policies that are relevant to the Off-site Water Facilities:

GOAL: Adequate long-term quantity and high quality of ground water resources for both human and natural systems.

- **Policy CO-22:** Development entitlements shall not be granted in areas where no ground water exists and water purveyors have reached their capacity to deliver treated water unless all necessary agreements and financing to obtain additional water supply are secured.

- **Policy CO-27:** Maintain agricultural zoning, and existing agricultural uses, in primary aquifer recharge areas identified as having a moderate to very high recharge capability Rezone applications for categories other than agricultural within one quarter mile of ground water recharge capability boundaries shall supply hydrologic data pertinent to recharge capability before the rezone application shall be considered complete.

- **Policy CO-29:** Discourage any nonagricultural land use in unincorporated areas with moderate to very high ground water recharge capability which could allow the percolation of pollutants into the ground water table.

Sacramento County Groundwater Ordinance

Title 3, Section 3.40.090 of the Sacramento County Water Code addresses the export of groundwater and surface water within the County. The ordinance requires that groundwater and surface water not be transported from the County without a permit issued by the Sacramento County Department of Water Resources. This ordinance does not apply to public water purveyors providing water service in two or more counties within a legally defined service area.

Sacramento Water Forum

The City and SCWA participated in the Water Forum process and are signatories to the WFA. The WFA supports the City's pursuit of additional water supplies and includes SCWA's need for increased surface water diversions. SCWA's "Purveyor Specific Agreement" also commits it to certain limitations on its use of water supplies, including groundwater. SCWA agreed to divert surface water at or near the mouth of the American River or from the Sacramento River. It agreed to limit its maximum surface water diversions to 78,000 AFA within the "South County M&I Users Group" area within Zone 40. An additional area within Zone 40 that overlaps the City of Sacramento's American River water rights settlement contract place of use is considered in the Water Forum Agreement and considers a long-term average demand of 9,300 AFA and up to 12,000 AFA in any single year.

As described in the Freeport Project EIR/EIS, SCWA anticipates diverting up to 90,000 AFA by 2030 (in any single year) to serve all areas within Zone 40 with surface water (FRWA, 2003). In addition to recognizing the need for surface water supplies, the WFA also sets a sustainable yield for the central county groundwater basin 273,000 AFA. Of this yield, SCWA expects to produce a long-term average of approximately 41,000 AFA from groundwater resources.

Sacramento Groundwater Authority Groundwater Management Plan

SGA is a joint powers authority responsible for the protection of the portion of the North American Subbasin within Sacramento County. SGA adopted a groundwater management plan in December 2003 with the goal of ensuring viable groundwater resources for agricultural, industrial, municipal, environmental, and aesthetic uses (SGA, 2003). Specifically, the plan's objectives are to maintain or improve groundwater quality and elevations, protect against land subsidence and impacts to surface water flows, and protect against impacts to water quality in the American River resulting from interaction between groundwater and surface water in the American River basin (SGA, 2003). As previously indicated, the NCMWC's service area overlies western portions of this subbasin.

Central Sacramento County Groundwater Management Plan

The CSCGMP is the result of the WFA and the Water Forum Successor Effort (Successor Effort), which ultimately formed the Central Sacramento County Groundwater Forum. The Central Sacramento County Groundwater Forum developed the CSCGMP to assist in delineating roles and responsibilities of participating agencies and individuals in the management of the groundwater basin. The CSCGMP outlines five Basin Management Objectives (BMOs) that are designed to protect and enhance the groundwater basin and includes monitoring and management programs to ensure the BMOs are being met.

Sacramento Valley Integrated Regional Water Management Plan

The Northern California Water Association (NCWA), as administrator of the Joint Exercise of Powers Agreement for Northern California, coordinated the preparation of the Sacramento Valley Draft Integrated Regional Water Management Plan (IRWMP), which includes Zones 1, 2, and 3 of the Off-site Water Facilities Study Area (NCWA, 2006). Objectives outlined in the Draft IRWMP that are related to the Off-site Water Facilities include a groundwater management and monitoring program with the purpose of improving regional and local water supply reliability. Under the Draft IRWMP, siting of groundwater wells should be conducted so as to be dispersed in location in order to spread project benefits and minimize environmental and third-party impacts. Other goals of the plan in relation to groundwater include promoting recharge facilities, ensuring recharge areas are not impacted by urban development, supporting distribution facilities, and allocation of facilities to allow for monitoring groundwater levels, quality, and recharge.

3B.17.3 Environmental Consequences and Mitigation Measures

Thresholds of Significance

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines. These thresholds also encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its impacts. An impact to groundwater resources would be considered significant if the Off-site Water Facilities would result in any of the following effects:

- violate any water quality standards or waste discharge requirements or otherwise substantially degrade groundwater water quality;
- substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would decline to a level which would not support existing land uses or planned uses for which permits have been granted); or
- groundwater pumping associated with operations of the Off-site Water Facilities would alter the existing surface hydrology.

Analysis Methodology

The potential impacts of the Off-site Water Facilities to groundwater resources were evaluated in terms of potentially foreseeable changes in groundwater levels and groundwater quality. Results for groundwater levels with and without the Off-site Water Facilities were compared for groundwater basins underlying the Off-site Water Facilities Study Area to determine the potential for both regional and local impacts or benefits. In evaluating the potential changes to groundwater levels or storage resulting from implementation of one of the Off-site Water Facility Alternatives, the City used the sustainable yields and demand projections established for the Northern and Central Sacramento County Groundwater Basin Management Plans by the WFA (SGA, 2003; CSCGMP, 2006).

Impact Analysis

Impacts that would occur under each of the Off-site Water Facility Alternatives are identified as follows:

NCP (No USACE Permit Alternative)

PA (Proposed Off-site Water Facility Alternative)

1 (Off-site Water Facility Alternative 1 – Raw Water Conveyance – Gerber/Grant Line Road Alignment and White Rock WTP)

1A (Off-site Water Facility Alternative 1A Raw Water Conveyance – Gerber/Grant Line Road Alignment Variation and White Rock WTP)

2 (Off-site Water Facility Alternative 2 Treated Water Conveyance – Douglas Road Alignment and Vineyard SWTP)

2A (Off-site Water Facility Alternative 2A Treated Water Conveyance – Excelsior Road Alignment Variation and Vineyard SWTP)

2B (Off-site Water Facility Alternative 2B Treated Water Conveyance – North Douglas Tanks Variation and Vineyard SWTP)

3 (Off-site Water Facility Alternative 3 Raw Water Conveyance – Excelsior Road Alignment and White Rock WTP)

3A (Off-site Water Facility Alternative 3A Raw Water Conveyance – Excelsior Road Alignment Variation and White Rock WTP)

4 (Off-site Water Facility Alternative 4 Raw Water Conveyance – Easton Valley Parkway Alignment and Folsom Boulevard WTP)

4A (Off-site Water Facility Alternative 4A Raw Water Conveyance – Easton Valley Parkway Alignment Variation and Folsom Boulevard WTP).

The impacts for each alternative are compared relative to the PA at the end of each impact conclusion (i.e., similar, greater, lesser).

IMPACT 3B.17-1 Exceedance of Water Quality Standards and Requirements for Groundwater. *The Off-site Water Facility Alternatives could generate discharges to or contribute to the depletion of groundwater resources thereby potentially directly and indirectly violating water quality standards or waste discharge requirements.*

NCP, PA, 1, 1A, 2, 2A, 2B, 3, 3A, 4, and 4A

Construction-Related Impacts

Construction of the Off-Site Water Facilities pipelines, pump stations, and WTP would, at times, require dewatering of shallow, perched groundwater in the immediate vicinities of excavations and installation of underground features at a limited number of areas where groundwater depths are shallow. In order to create safe working conditions, free of standing water, when needed, shallow groundwater wells would be installed to lower groundwater elevations in the immediate vicinity of boring shafts to about 15 to 30 feet below the ground surface. During trenchless construction, dewatering would be necessary to remove water from tunnel, launching, and receiving pits. It is not known how much water would be withdrawn because the volume would be influenced by the local shallow aquifer character, the depth of excavation, and the duration that subsurface work is conducted.

Groundwater withdrawn from the construction areas would be subsequently discharged to local waterways or drainage ditches, or via land application. These discharges may contain sediments, dissolved solids, salts, and other water quality constituents found in the shallow groundwater, which could degrade the quality of receiving waters. Degradation of local receiving waters from the introduction of shallow groundwater during construction dewatering could result in a **potentially significant direct** and **indirect** impact to receiving waters. ***[Similar]***

Operational Impacts

The proposed assignment of 8,000AFY of surface water from NCMWC to the City would not require NCMWC to the supplement its supplies to meet irrigation demands by pumping groundwater in its service area. NCMWC has sufficient water supplies to meet its 2007 irrigation demands with or without the proposed transfer. As result, the proposed assignment would not have any adverse impacts to groundwater resources underlying NCMWC's Service Area within the North American Subbasin.

Likewise, with no increase in groundwater pumping within the NCMWC service area, there is no potential to influence the distribution and extent of existing contamination of the shallow aquifer at McClellan Air Force Base. This contamination resulted from military and related operations on the Air Force Base, and is comprised of a wide array of toxic chemicals including volatile organic carbons, solvents, PCBs, heavy metals, and jet fuel. A remediation plan is presently underway and this contamination site is located over 3 miles away from NCMWC. However, the groundwater plume is not fully contained or remediated (EPA, 2005) and may be susceptible to movement by operations of nearby wells. Given that no increased well use is proposed in conjunction with the

Off-site Water Facilities, it is reasonable to conclude that the Off-site Water Facilities would not directly or indirectly affect or alter the distribution of this contaminant zone. Based on these considerations, these **direct** and **indirect** impacts would be **less than significant**. ***[Similar]***

Mitigation Measure 3B.17-1a: Implement Construction Dewatering Best Management Practices.

During construction at site locations containing high groundwater, if groundwater from dewatering activities cannot be contained within the construction area (e.g., pipeline corridor, WTP), it shall be pumped to an authorized onsite land area, existing detention facilities, or Baker tanks or equivalent with sufficient capacity to control the volume of groundwater. Tanks shall be equipped with either a gel coagulant, a filter system, or other containment to remove sediment. The Off-site Water Facilities Stormwater Pollution Prevention Plan (SWPPP) shall include BMPs, as appropriate, to retain, treat, and dispose of groundwater from dewatering activities. Measures shall include, but not limited to, the following:

- temporarily retain pumped groundwater, as appropriate, to reduce turbidity and concentrations of suspended sediments before discharge to surface waterways;
- convey pumped groundwater to a suitable land disposal area capable of percolating flows; and/or
- incorporate other applicable measures from the Caltrans Storm Water Quality Handbook, Section 7: Dewatering Operations (2004).

Implementation: City of Folsom Utilities Department

Timing: Prior to and during construction

Enforcement:
1. California Department of Fish and Game or Regional Water Quality Control Board
2. City of Folsom Community Development Department.
3. Sacramento County Planning Department or City of Rancho Cordova Planning Department for improvements within their respective jurisdictions.

Mitigation Measure 3B.17-1b: Implement a Dewatering Discharge Monitoring Program.

A groundwater discharge monitoring program shall be implemented to ensure that receiving water quality does not exceed levels that would impact aquatic resources and agricultural use. If monitoring reveals that water quality would impact these beneficial uses, discharges to surface waterways shall be reduced or diluted to acceptable levels, or terminated. If discharges are reduced or terminated, groundwater shall be disposed through land application. Groundwater collected during dewatering shall be tested for contamination prior to disposal and comply with Central Valley RWQCB requirements.

Implementation: City of Folsom Utilities Department

Timing: Prior to and during construction

Enforcement:
1. California Department of Fish and Game or Regional Water Quality Control Board
2. City of Folsom Community Development Department.

3. Sacramento County Planning Department or City of Rancho Cordova Planning Department for improvements within their respective jurisdictions.

With the implementation of the above mitigation measures, impacts to groundwater quality under the Off-site Water Facility Alternatives would be reduced to a **less-than-significant** level by ensuring that all dewatering discharges are properly managed in accordance with RWQCB requirements and, if determined necessary, receive appropriate treatment prior to off-site discharge.

IMPACT 3B.17-2 Depletion of Groundwater Supplies Through Pumping. *The Off-site Water Facility Alternatives is unlikely to substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater levels.*

NCP, PA, 1, 1A, 3, 3A, 4, and 4A

Construction Impacts

The Off-Site Water Facility Alternatives would include the construction of impermeable surfaces associated with the WTP and storage tanks. Construction of these impermeable surfaces would affect groundwater recharge onsite. However, these impermeable surfaces would be limited in extent to less than one half of the 10-acre WTP (including buildings, paved roads, storage and treatment facilities, and parking lots) and only a portion of the well sites (including access roads and auxiliary facilities). This area would be very small in comparison to adjacent areas that would remain open and permeable. Therefore, **direct** impacts to groundwater recharge associated with these impermeable surfaces would be **less than significant**. ***[Similar]***

Groundwater dewatering may be necessary during construction of portions of the untreated and treated water pipelines, and the WTP. Dewatering activities would temporarily reduce groundwater levels to approximately 15 feet below ground surface within and directly adjacent to construction areas. During trenchless construction, dewatering may be necessary to remove water from tunnel, launching, and receiving pits. These impacts would be temporary in duration and highly localized to areas within and directly adjacent to construction activities. Although the limited dewatering activities under construction of the Off-site Water Facility Alternatives would cause a highly localized lowering of the groundwater table, they would not cause a net deficit in aquifer volume or a lowering of the groundwater table in the South American Basin. Therefore, these in**direct** impacts would be **less than significant**. ***[Similar]***

Operational Impacts

The operation of the Off-site Water Facility Alternatives could involve impacts to the South American Subbasin. Specifically, implementation of the Off-site Water Facility Alternatives involves the City's acquisition of a portion of SCWA's 85 mgd capacity within the Freeport Project, which could result in a reduction in SCWA's ability to meet peak demands, at times, with surface water alone. As a result, this analysis assumes that SCWA may be required to pump additional groundwater in place of the capacity transferred to the City to meet SCWA's peak demands to the extent it becomes necessary as demand increases in future years. For the purposes of this analysis, the resulting impact on groundwater would be equal to the purchased conveyance capacity of 6.5 mgd or 7,280 AFY. This action could require that SCWA pump more than 41,000 AFY of groundwater in future years.

As previously indicated in the setting discussion, the WFA sets the sustainable yield for the South American Subbasin at 273,000 AFY. Based on information contained in the Freeport Project EIR (2003) and CSCGMP (2006), current groundwater demands (2005) within the South American Subbasin are estimated at 250,000 AFY. Of this total, SCWA currently pumps, on average, 131,000 AFY. With the completion of the Freeport Project,

SCWA anticipates diverting up to 90,000 AFY[2] of surface water during normal years thereby reducing its groundwater pumping to 41,000 AFY. This initial reduction in groundwater demand from SCWA would reduce total groundwater demand within the South American Subbasin to 159,000 AFY. Given that the Freeport Project would be online in advance of the operation of the Off-site Water Facility Alternatives, even if SCWA is required to pump groundwater in place of the conveyance capacity lost by the Off-site Water Facilities, this pumping would occur at SCWA's existing well facilities with total groundwater demands under a worst-case, critical-dry-year scenario increasing to 166,280 AFY. As a result, **direct** and **indirect** impacts to groundwater resources under existing conditions would be **less-than-significant**. ***[Similar]***

Over the longer-term, total water demands within the South American Subbasin are estimated to approach approximately 255,000 AFY[3][4] in the year 2030 for a critically dry year (CSCGMP, 2006). Total groundwater demand becomes substantially reduced at 235,000 AFY during wet and normal years when surface water supplies are available, thereby allowing the basin to recharge. With the Off-site Water Facilities and assuming that groundwater is used to augment SCWA's peak water demands in response to SCWA's reduced conveyance capacity within the Freeport Project, the corresponding increase in total groundwater demands could approach 262,280 AFY[5] by 2030. This estimate is short of the 273,000 AFY sustainable yield estimate for the South American Subbasin based on the WFA and leaves a margin of 10,720 AFY of available capacity for other potential users under future conditions. Because groundwater pumping directly and indirectly associated with the Off-site Water Facilities would not exceed the sustainable yield recommendations, groundwater levels within the South American Subbasin under future conditions are projected to remain at levels above than those accepted by the WFA. Based on these findings, this **direct** and **indirect** impact is considered **less-than-significant**. ***[Similar]***

Impacts to the North American Groundwater Basin

Implementation of the Off-site Water Facilities would not require the NCMWC to replace the assigned surface water supplies with groundwater. As previously indicated in Chapter 2, "Alternatives," a study prepared by Wagner and Bonsignore (2007) concludes that the proposed assignment of CVP water from NCMWC to the City would have no indirect adverse effect on cropping patterns in terms of water availability during normal and wet years. Even during drier years, groundwater pumping should not be required by NCMWC to augment the surface water supplies transferred to the City assuming a continuation of 2007 cropping and irrigation patterns. Based on these circumstances, the **direct** and **indirect** impacts would **less-than-significant**. ***[Similar]***

Mitigation Measure: No mitigation measures are required.

2, 2A, and 2B

Off-site Water Facility Alternatives 2 and 2A would involve the construction of treated-water conveyance lines from SCWA's existing Vineyard SWTP or the planned Douglas Storage Tanks. However, under these alternatives no new WTP would be constructed and new facilities proposed under these alternatives would generally be contained within existing roadways and/or developed areas. For this reason, these alternatives would have negligible or **no impact** on groundwater recharge. ***[Lesser]***

These alternatives would involve the purchasing of capacity within the Freeport Project and, therefore, those potential impacts to groundwater levels identified for the Preferred Off-site Water Facility Alternatives would apply to Off-site Water Facility Alternatives 2, 2A, and 2B.

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[2] SCWA's total surface water supplies for Zone 40 are assumed to include 68,500 AFA in CVP and appropriated supplies and 12,000 AFA and 9,300 AFA from the Purveyor Specific Agreement with the City of Sacramento.

[3] A conservation factor of 25.6% is applied to 2030 water demand estimates per the WFA.

[4] Groundwater use for 2030 assumes the inclusion of Aerojet GET extraction rates, estimated at 35,890 AFY.

[5] Estimate to account for City purchasing capacity within the Freeport Project is based on an average annual increase in pumping within SCWA's service are of 6.5 mgd or 7,280 AFY.

Mitigation Measure: No mitigation measures are required.

IMPACT 3B.17-3 Alteration of Surface Water Hydrology through Substantial Groundwater Pumping. *Substantial groundwater pumping from the Excelsior Well Field required by Off-site Water Facilities operations could alter existing surface hydrology.*

NCP, PA, 1, 1A, 2, 2A, 2B, 3, 3A, 4, and 4A

As part of the proposed Off-site Water Facility Alternatives, the City would acquire conveyance capacity within the Freeport Project. As previously discussed, the capacity allocated to the City would reduce SCWA's total dedicated capacity within the Freeport Project. This could require that SCWA rely more on groundwater extracted from existing well sites, such as the Excelsior Well Field, to meet long-term water demands.

The interaction between groundwater and surface water has not been extensively evaluated in the South American Basin. A recent draft decision by the SWRCB (2003) regarding the American River concluded that from Nimbus Dam to about 6,000 feet below the dam, groundwater elevations and surface water elevations were similar enough to each other that groundwater could be tributary to the American River. Beyond 6,000 feet down river from the dam, groundwater elevations are sufficiently lower than the river channel to conclude that the American River is a "losing" stream down to its confluence with the Sacramento River.

No new wells would be constructed as part of the Off-site Water Facility Alternatives. Any additional pumping by SCWA would likely occur at the existing Excelsior Well Field, which generally operates at depths that would be expected to provide sufficient separation between the existing wells and the American River, which is more closely linked to groundwater associated with the Laguna formation. Given that these wells tap geologic materials substantially lower than the Laguna formation and are located over six miles south of the River, any increased operation of the well field is not expected to result in significant adverse effects to surface water flows within the American River and would remain within the safe yield for the basin. Further, once the Freeport Project is in operation and surface water supplies becomes available, SCWA's use of the Excelsior Well Field for groundwater pumping is expected to diminish significantly. Therefore, this **direct** impact is considered **less-than-significant**. **No indirect** impacts would occur. ***[Similar]***

Further, the Freeport Project EIR/EIS provided a programmatic evaluation of groundwater banking within the Central Sacramento Groundwater Basins. At the time, the FRWA concluded that the banking within the Central Basin was not feasible due to the lack of a Groundwater Management Plan (AB 3232). However, since the Freeport Project EIR/EIS's preparation, the CSCGMP has been adopted as part of the WFA Successors Effort and, thereby, removing a significant institutional obstacle that existed in 2003. Based on these considerations, the operation of the Off-Water Facility alternatives would result in **no impacts** to surface water flows as a result of increased groundwater pumping. ***[Similar]***

Mitigation Measure: No mitigation measures are required.

3B.17.4 RESIDUAL SIGNIFICANT IMPACTS

Operation of the Off-site Water Facility Alternatives would not result in residual, project-specific significant and unavoidable impacts to the quality and quantity of local and regional groundwater resources. With the implementation of the prescribed dewatering mitigation, construction-related impacts to shallow groundwater would be minimized to a less-than-significant level through the proper control, treatment, and containment of pumped groundwater prior to off-site discharge.