5.17 Water Resources

This section evaluates the potential impacts of the SV 50K/Moosa 50K Alternative on water resources. This evaluation includes an assessment of the direct, indirect, short-term, long-term, and cumulative effects of the SV 50K/Moosa 50K Alternative on surface water and groundwater quality, flow patterns, flow rates, and flooding. The evaluation is based on available data relevant to the SV 50K and Moosa 50K study areas and regulatory information published by the San Diego Regional Water Quality Control Board (RWQCB) and other agencies.

5.17.1 Affected Environment

The SV 50K study area would be a subset of the larger SV 100K study area, and the Moosa 50K study area would be a subset of the larger Moosa 100K study area. Therefore, the following discussion refers to Section 3.17.1 (Water Resources for the Proposed Action) and Section 4.17.1 (Water Resources for the Moosa 100K Alternative) of this EIR/EIS for information on the Affected Environment as it applies to the SV 50K/Moosa 50K Alternative.

5.17.1.1 Environmental Setting

The environmental setting for the SV 50K component of the SV 50K/Moosa 50K Alternative is the same as described in Section 3.17.1.1 (Water Resources for the Proposed Action) of this EIR/EIS, and the setting for the Moosa 50K component is the same as described in Section 4.17.1.1 (Water Resources for the Moosa 100K Alternative) of this EIR/EIS.

5.17.1.2 Regulatory Setting

Refer to Section 3.17.1.2 (Water Resources for the Proposed Action) of this EIR/EIS for a discussion of the regulatory setting that applies to both the SV 50K and Moosa 50K components of this alternative.

5.17.2 Project Design Features

General Conditions and Standard Specifications that will be included in the project construction documents to reduce water resources impacts associated with the SV 50K/Moosa 50K Alternative are summarized in Section 1.9.9 (Introduction, Water Resources) of this EIR/EIS. Refer to Section 3.17.2 (Water Resources for the Proposed Action) of this EIR/EIS for a list of project design features that also apply to the SV 50K/Moosa 50K Alternative.
5.17.3 Direct and Indirect Effects

5.17.3.1 Thresholds of Significance

Thresholds used to evaluate impacts on water resources are based on applicable criteria in the State CEQA Guidelines (CCR §§15000-15387), Appendix G. A significant impact on water resources would occur if the SV 50K/Moosa50K Alternative would:

1. Violate any water quality standards or waste discharge requirements.
2. Substantially alter the existing drainage pattern of the site or area, in a manner that would result in substantial erosion or siltation on or off site.
3. Substantially alter the existing drainage pattern of the site or area, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site.
4. Place structures within a 100-year flood hazard area, which would impede or redirect flood flows.

5.17.3.2 Impact Analysis

Methodology

The Water Resources analysis provided in the ESP EIR/EIS was updated as necessary through discussions with appropriate agency staff, and research of engineering reports and agency websites.

Analysis

Threshold 1: Violate any water quality standards or waste discharge requirements

Changes in Reservoir Water Quality

SV 50K

Construction Activities. Construction of the SV 50K dam and reservoir would include project design features that would prevent improper disposal of groundwater dewatering water and pollution resulting from downstream scour, erosion, and sedimentation from construction areas (refer to Section 3.17.3.2 [Water Resources for the Proposed Action] of this EIR/EIS). These measures, including BMPs in contractor-approved SWPPPs, would help ensure that applicable RWQCB water quality standards and discharge requirements would be met. Therefore, the SV 50K component of this alternative would not violate any water quality standards or waste discharge requirements during construction, and impacts would be less than significant.
Operation of the Reservoir. Operation of the expanded San Vicente Reservoir would involve appropriate annual water supply removal and replacement volumes such that reservoir TDS concentrations would be maintained at a level no greater than 100 mg/L above water supply TDS concentrations (refer to Section 3.17.3.2 [Water Resources for the Proposed Action] of this EIR/EIS). Also, impacts on fisheries resources (refer to Section 3.6.3.2 [Biological Resources for the Proposed Action] of this EIR/EIS) and other beneficial uses at the San Vicente Reservoir from the Proposed Action would be less than significant. Therefore, impacts from operation of the SV 50K reservoir would be less than significant.

Moosa 50K
Construction Activities. Construction of the Moosa 50K dam and reservoir would include project design features that would prevent violation of any water quality standards or waste discharge requirements (refer to Section 3.17.3.2 [Water Resources for the Proposed Action] of this EIR/EIS); therefore, impacts during construction would be less than significant.

Operation of the Reservoir. The Moosa 50K reservoir would have a lower water elevation than the Moosa 100K reservoir; however, the proximity of the inundation area to the abandoned Valley Center Landfill would still pose a threat to water quality. The maximum normal pool (MNP) surface elevation of the Moosa 50K reservoir would be 1,168 AMSL. At this elevation, reservoir water would approximately inundate a portion of the southwest corner of the parcel on which the abandoned landfill is located (Figure 5.13-1). The reservoir water level would not reach the abandoned landfill; however, the edge of the inundation area would be approximately 100 feet from the perimeter of the abandoned landfill. Based on this proximity, it is possible that the reservoir would raise the groundwater level in the area such that the reservoir and the abandoned landfill would be hydrologically connected. If the abandoned landfill contains hazardous materials or contaminated soil, the proximity of the Moosa 50K reservoir to the landfill could cause groundwater or reservoir surface water to become contaminated.

If the SV 50K/Moosa 50K Alternative were selected, hazardous materials testing for the Moosa 50K study area would be required at the abandoned landfill to determine impacts and materials removal requirements. The Moosa 50K Alternative would include measures to reduce water quality impacts from potential hazardous materials contained in the abandoned landfill material (refer to Section 4.17.3.2 [Water Resources for the Moosa 100K Alternative] of this EIR/EIS). Therefore, impacts from the Moosa 50K component would be less than significant.

Operation of the Moosa 50K reservoir would be similar to the Moosa 100K Alternative. Appropriate annual water supply removal and replacement volumes would be established such that reservoir TDS concentrations would be maintained at a level no greater than 100mg/L above water supply TDS concentrations. The Moosa 50K Alternative would be monitored and maintained such that RWQCB TDS goals would be met and, if necessary, any hazardous material in the abandoned landfill would be removed prior to inundation (refer to Section 4.17.3.2 [Water Resources for the Moosa 100K Alternative] of this EIR/EIS); therefore, impacts would be less than significant.
In addition, fisheries would be established at the Moosa 50K reservoir, and the existing resource protection measures would be maintained as reservoir waters are raised, as subject to the terms of A022992 and Fish and Game Code 5937. Therefore, impacts from operation of the Moosa 50K component would be less than significant.

Combined Impacts
While the potential impacts of the SV 50K/Moosa 50K Alternative would be expected to be reduced with the smaller extent of disturbance compared to the Proposed Action and Moosa 100K Alternative, respectively, construction activities for both dams and operation of two reservoirs would result in potential water quality impacts in two separate locations. Thus, the total impact of the SV 50K/Moosa 50K Alternative is potentially greater than that of either the Proposed Action or the Moosa 100K Alternative alone. However, the project design features listed in Section 3.17.2 (Water Resources for the Proposed Action) of this EIR/EIS would be implemented at both the SV 50K and Moosa 50K project site. In addition, mitigation measures listed in Section 4.13 (Public Safety for the Moosa 100K Alternative) of this EIR/EIS would be implemented as necessary at the Moosa 50K project site. Therefore, water quality impacts due to the combined impacts of the SV 50K and Moosa 50K components would be less than significant.

Changes in Surface Water Quality

SV 50K
Construction Activities. As described in Section 3.17.3.2 (Water Resources for the Proposed Action) of this EIR/EIS, with implementation of project design features such as BMPs specified in the SWPPP, the Proposed Action would not degrade downstream surface water or groundwater quality during construction and construction impacts would be less than significant. The SV 50K component would cover less area and incorporate the same measures for water quality as the Proposed Action. Therefore, impacts from the SV 50K component would be less than significant.

Operation of the Reservoir. As discussed in Section 3.17.3.2 (Water Resources for the Proposed Action) of this EIR/EIS, the quality of water flowing downstream in San Vicente Creek or percolating into the groundwater is not expected to change with operation of the Proposed Action expanded reservoir, and operational impacts would be less than significant. Therefore, impacts from the SV 50K component would be less than significant.

Moosa 50K
Construction Activities. As described in Section 4.17.3.2 (Water Resources for the Moosa 100K Alternative) of this EIR/EIS, with implementation of project design features such as BMPs specified in the SWPPP, the Moosa 100K Alternative would not degrade downstream surface water or groundwater quality during construction. It is expected that Turner Reservoir would be partially drawn down to provide flood protection for the construction site. As with the Moosa 100k Alternative, this is not expected to adversely affect fish present within the reservoir. Construction would not directly affect Turner Reservoir. Combined, construction impacts
related to the construction of the Moosa 50K Alternative are considered to be less than significant. The Moosa 50K component would cover less area and incorporate the same measures for water quality as the Moosa 100K Alternative. Therefore, impacts from the Moosa 50K component would be less than significant.

As with the Moosa 100k Alternative, construction of a dam across Moosa Creek could capture runoff from the watershed above the dam site. Capture of flows would alter the streamflow pattern in Moosa Creek and eventually the San Luis Rey River. Changes in flow within the San Luis Rey River could adversely affect fish present within the stream. The Water Authority would assume and abide by the conditions for the existing VCMWD water right for storage of water within Turner Reservoir (Application No. 22992), as well as Fish and Game Code 5937. Because of this, the Moosa 50k Alternative would not substantially change flow patterns within Moosa Creek or the river downstream of the proposed reservoir. Therefore, impacts on fisheries resources downstream of the dam that could result from construction of the Moosa 50K Alternative would be considered less than significant.

**Operation of the Reservoir.** As discussed in Section 4.17.3.2 (Water Resources for the Moosa 100K Alternative) of this EIR/EIS, releases of water from the Moosa Reservoir would occur to maintain existing habitats downstream in compliance with the existing water right for Turner Reservoir (Application No. 22992). Water imported to the new reservoir would be of better quality than the water currently in Turner Reservoir, and water released to Moosa Creek downstream of the new dam would have higher quality than flows in existing conditions. Flooding of Turner Reservoir along with Moosa for what could eventually become a substantial resource. Measures implemented to maintain reservoir water quality would be the same as for the Moosa 100k Alternative and Creek within the inundation zone and planned stocking of fish would provide the seed population would also serve to protect the new fishery. Because most surface runoff is generated downstream of the proposed dam, impacts on groundwater recharge within the alluvium are expected to be minimal. Downstream water quality impacts from operation of the Moosa 50K Alternative would be less than significant. The Moosa 50K component would have a smaller reservoir size, but would have similarly higher quality water to release downstream than flows in existing conditions, and would have similarly negligible impacts on groundwater. Therefore, impacts from the Moosa 50K component would be less than significant.

**Combined Impacts**

Construction activities for both dams and operation of two reservoirs would result in potential downstream water quality impacts in two separate locations. Thus, the total impact of the SV 50K/Moosa 50K Alternative is potentially greater than that of either the Proposed Action or the Moosa 100K Alternative alone. However, implementation of the project design features listed in Section 3.17.2 (Water Resources for the Proposed Action) of this EIR/EIS would occur at both the SV 50K and Moosa 50K project sites. In addition, mitigation measures listed in Section 4.13 (Public Safety for the Moosa 100K Alternative) of this EIR/EIS would be implemented as necessary at the Moosa 50 K project site. Therefore, downstream water quality impacts due to the combined impacts of the SV 50K and Moosa 50K components would be less than significant.
The SV 50K/Moosa 50K Alternative would not cause violations of water quality standards during construction of the two dams or when the new reservoirs are completed. With implementation of project design features, such as BMPs specified in the SWPPP, the SV 50K/Moosa 50K Alternative would not degrade downstream water quality during construction and reservoir operations, and would not affect downstream water quality upon project completion. Implementation of the proposed project design features would reduce all impacts on below a level of significance. Therefore, impacts of the SV 50K/Moosa 50K Alternative would be less than significant.

**Threshold 2: Substantially alter the existing drainage pattern of the site or area, in a manner that would result in substantial erosion or siltation on or off site**

**SV 50K**

As described in Section 3.17.3.2 (Water Resources for the Proposed Action) of this EIR/EIS, with implementation of project design features, including the BMPs specified in the SWPPP, the Proposed Action would not substantially alter the existing drainage pattern of the site or area in a manner that would result in substantial erosion or siltation on or off site; therefore, impacts would be less than significant. The SV 50K component would cover less area and incorporate the same measures for drainage and water quality as the Proposed Action. Therefore, impacts from the SV 50K component would be less than significant.

**Moosa 50K**

As described in Section 4.17.3.2 (Water Resources for the Moosa 100K Alternative) of this EIR/EIS, with implementation of project design features, including the BMPs specified in the SWPPP, the Moosa 100K Alternative would change the drainage patterns in the area between the existing Turner Reservoir dam and the new Moosa dam. However, this would not substantially alter the existing drainage pattern of the site or area below the location of the new dam; therefore, impacts would be less than significant. The Moosa 50K component would cover less area and incorporate the same drainage and water quality measures as the Moosa 100K Alternative; therefore, impacts of the Moosa 50K component would be less than significant.

**Combined Impacts**

Construction activities for both dams and operation of two reservoirs would result in drainage pattern alteration impacts in two separate locations. Thus, the total impact of the SV 50K/Moosa 50K Alternative is potentially greater than that of either the Proposed Action or the Moosa 100K Alternative alone. However, BMPs would reduce the impacts at both sites, such that the combined impacts of the SV 50K and Moosa 50K components would be less than significant.

*Construction and operation of the 50K/Moosa 50K Alternative would not change surface flows below the location of the new dam, and would not affect associated siltation effects or groundwater flows. Therefore, impacts of the SV 50K/Moosa 50K Alternative would be less than significant.*
Threshold 3: Substantially alter the existing drainage pattern of the site or area, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site

SV 50K

As discussed in Section 3.13 (Public Safety for the Proposed Action) of this EIR/EIS, the risk of flooding from dam failure for the Proposed Action would be extremely low. Moreover, since the Proposed Action would increase the amount of water stored behind the dam along the stream course, flooding would not increase downstream in San Vicente Creek. In addition, with implementation of project design features (including the BMPs specified in the SWPPP), the Proposed Action would not substantially alter the existing drainage pattern of the site or area; therefore, impacts would be less than significant. The SV 50K component would cover less area and incorporate the same measures for preventing dam failure and subsequent flooding, and for avoiding drainage alteration impacts as the Proposed Action. Therefore, impacts from the SV 50K component would be less than significant.

Moosa 50K

As described in Section 4.13 (Public Safety for the Moosa 100K Alternative) and Section 4.17.3.2 (Water Resources for the Moosa 100K Alternative) of this EIR/EIS, and as discussed above, the Moosa 100K Alternative would have an extremely low risk of flooding from dam failure. In addition, although the construction of the new dam would affect drainage in the area between the existing Turner Reservoir dam and the new Moosa dam, this would not substantially alter the existing drainage pattern of the site or area below the site of the new dam; therefore, impacts would be less than significant. The Moosa 50K component would cover less area and incorporate the same measures for preventing dam failure and subsequent flooding, and for avoiding drainage alteration impacts as the Moosa 100K Alternative; therefore, impacts of the Moosa 50K component would be less than significant.

Combined Impacts

Construction activities for both dams and operation of two reservoirs would result in potential flooding impacts in two separate locations. Thus, the total impact of the SV 50K/Moosa 50K Alternative is potentially greater than that of either the Proposed Action or the Moosa 100K Alternative alone. However, BMPs and other design features would reduce the impacts at both sites, such that the combined impacts of the SV 50K and Moosa 50K components would be less than significant.

*The SV 50K/Moosa 50K Alternative would not change downstream flows below the new dam or increase the frequency of flooding upon completion. Therefore, impacts of the SV 50K/Moosa 50K Alternative would be less than significant.*
Threshold 4: Place structures within a 100-year flood hazard area, which would impede or redirect flood flows

SV 50K

As discussed in Section 3.17.3.2 (Water Resources for the Proposed Action) of this EIR/EIS, the Proposed Action would not place structures in the 100-year floodplain; therefore, impacts would not occur. In addition, the Proposed Action would not cause an increase in base flood elevations within its floodplain. The SV 50K component would cover less area. Therefore, there would be no impacts due to the SV 50K component.

Moosa 50K

As discussed in Section 4.17.3.2 (Water Resources for the Moosa 100K Alternative) of this EIR/EIS, the Moosa 100K Alternative would not place structures in the 100-year floodplain; therefore, impacts would not occur. In addition, the Moosa 100K Alternative would not cause an increase in base flood elevations within its floodplain. The Moosa 50K component would cover less area. Therefore, there would be no impacts due to the Moosa 50K component.

Combined Impacts

Neither component of the SV 50K/Moosa 50K Alternative would place structures in the 100-year floodplain, or cause an increase in base flood elevations within their respective floodplains; therefore, impacts would not occur. Therefore, there would be no combined impacts of the SV 50K and Moosa 50K components.

The SV 50K/Moosa 50K Alternative would not place structures in the 100-year floodplain. Therefore, there would be no impact due to the SV 50K/Moosa 50K Alternative.

5.17.3.3 Mitigation Measures

Impacts on water resources would be less than significant. Measures that would reduce potential impacts on water quality from hazardous materials, including Valley Center Landfill material, to less than significant, are provided in Mitigation Measures M/HM 1-1 through M/HM 1-8 of Section 4.13.3.3 (Public Safety for the Moosa 100K Alternative) in this EIR/EIS. Therefore, no additional mitigation measures are required.

5.17.3.4 Residual Impacts after Mitigation

No residual impacts would remain after implementation of the standard conditions, planned project design features, and mitigation measures listed above.
5.17.4 Cumulative Effects

5.17.4.1 Other CIP Projects

CIP projects that would contribute to cumulative water resources impacts of the SV 50K/Moosa 50K Alternative would include those projects that would also impact the Proposed Action and the Moosa 100K Alternative identified in Sections 3.17.4.1 and 4.17.4.1, respectively, of this EIR/EIS. These projects would include the Slaughterhouse Terminal Reservoir, Hubbard Hill Flow Regulatory Structure, North County Distribution Pipeline Flow Regulatory Structure, and Second Crossover Pipeline. The PEIR for the Regional Water Facilities Master Plan concluded that the Water Authority’s water infrastructure projects would result in significant cumulative impacts on water quality from increased runoff when combined with the effects of other development projects within the same watershed. Construction projects have the potential to cause increased erosion from exposed soil areas that may contribute to sediment-laden runoff into local drainage courses. Erosion can be destructive to the immediate area and sedimentation can clog waterways and downstream wetland and lagoon areas. However, Water Authority CIP projects would be required to meet federal, state, and local permit requirements for storm water and water resources impacts. The above conclusions regarding cumulative water resources impacts for the CIP projects described above is incorporated into the cumulative water resources analyses in Section 5.17.4.3 below.

5.17.4.2 ESP Projects

ESP projects in the vicinity of the SV 50K component would include the San Vicente Surge Control Facility, San Vicente Pipeline, and the San Vicente Pump Station. These ESP components would be required to follow NPDES regulations to protect local water resources. The ESP EIR/EIS determined that cumulative water resources impacts of the ESP would not be significant. The above conclusions regarding water resources impacts for the ESP projects are incorporated into the cumulative water resources analyses in Section 5.17.4.3 below.

5.17.4.3 Other Planned Projects with CIP and ESP Projects

This section evaluates the cumulative water resources impacts of the SV 50K/Moosa 50K Alternative when considered in conjunction with the other planned projects listed in Table 5.2-1, and incorporates the cumulative water resources impacts associated with the CIP and ESP projects described in the above sections. The following cumulative water resources analysis addresses each of the four significance thresholds listed in Section 5.17.3 above.

Cumulative Threshold 1: Violate any water quality standards or waste discharge requirements

The SV 50K/Moosa 50K Alternative would not cause violations of water quality standards during construction of the two dams or when the new reservoirs are completed. With implementation of project design features, such as BMPs specified in the SWPPP, the SV 50K/Moosa 50K Alternative would not degrade downstream water quality during construction
and reservoir operations, and would not affect downstream water quality upon project completion. The alternative’s contribution would not be cumulatively considerable. In accordance with state and federal law, the cumulative projects and the CIP and ESP projects listed above, would also be required to follow water quality standards and waste discharge requirements in order to maintain downstream water quality. Regulations would require that each project implement a SWPPP and utilize construction (temporary) and post-construction (permanent) storm water BMPs. Therefore, short-term (construction related) and long-term (operational) cumulative water quality impacts due to the SV 50K/Moosa 50K Alternative, when combined with water quality impacts from the CIP, ESP, and other planned cumulative projects listed in Table 5.2-1, would be less than significant.

**Cumulative Threshold 2: Substantially alter the existing drainage pattern of the site or area, in a manner that would result in substantial erosion or siltation on or off site**

With implementation of project design features, such as BMPs specified in the SWPPP, construction of the SV 50K/Moosa 50K Alternative would not change downstream surface water and groundwater flows and associated siltation effects. Operation of the expanded San Vicente Reservoir and the new Moosa Reservoir would not change downstream surface water and groundwater flows and associated siltation effects. In accordance with state and federal law, the cumulative projects and the CIP and ESP projects listed above, would also be required to implement a SWPPP and appropriate construction (temporary) and post-construction (permanent) storm water BMPs in order to avoid substantial erosion and siltation on or off site. Therefore, short-term (construction related), and long-term (operational) cumulative erosion and siltation impacts due to the SV 50K/Moosa 50K Alternative, which would not be cumulatively considerable, when combined with erosion and siltation impacts from the CIP, ESP, and other planned cumulative projects listed in Table 5.2-1, would be less than significant.

**Cumulative Threshold 3: Substantially alter the existing drainage pattern of the site or area, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site**

The SV 50K/Moosa 50K Alternative would not substantially alter the existing drainage pattern of the site or area, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site. The cumulative impact of additional impervious area added to any watershed increases the rate and amount of surface runoff and could result in flooding. However, these cumulative projects and the CIP and ESP projects listed above would be required to implement a SWPPP and appropriate temporary and permanent storm water BMPs in order to avoid runoff impacts downstream. Therefore, cumulative increases in the rate or amount of surface runoff as a result of the SV 50K/Moosa 50K Alternative, when combined with increases in the rate or amount of surface runoff associated with the CIP, ESP, and other planned cumulative projects listed in Table 5.2-1, would not result in on- or off-site flooding and would be less than significant.
**Cumulative Threshold 4: Place structures within a 100-year flood hazard area, which would impede or redirect flood flows**

The SV 50K/Moosa 50K Alternative would not place structures in the 100-year floodplain. Impacts due to the SV 50K/Moosa 50K Alternative on flood flows as a result of placement of structures in a 100-year floodplain would not be cumulatively considerable. Therefore, there would be no cumulative impacts on flood flows due to the SV 50K/Moosa 50K Alternative.

*The SV 50K/Moosa 50K Alternative would not violate any water quality standards or waste discharge requirements; substantially alter existing drainage pattern of the site or area in a manner that would result in substantial erosion or siltation on or off site, or substantially increase the rate or amount of runoff in a manner that would result in flooding on or off site; or place structures within a 100-year flood hazard area, which would impede or redirect flood flow. The SV 50K/Moosa 50K Alternative would implement project design features and mitigation measures that would reduce all impacts to below a level of significance. Therefore, short-term (construction related), and long-term (operational) cumulative water resources impacts due to the SV 50K/Moosa 50K Alternative, when combined with water resources impacts of the CIP and ESP projects listed above, and other planned cumulative projects listed in Table 5.2-1, would be less than significant.*
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