

1 and well yields. If site-specific geotechnical conditions result in localized groundwater elevation
2 reductions, mitigation measure GW-1 is available to help reduce this effect. This impact is therefore
3 less-than-significant.

4 **Mitigation Measure GW-1: Maintain Water Supplies in Areas Affected by Construction**
5 **Dewatering**

6 Please see Mitigation Measure GW-1 under Impact GW-1 in the discussion of Alternative 1A.

7 **Impact GW-2: During Operations, Deplete Groundwater Supplies or Interfere with**
8 **Groundwater Recharge, Alter Local Groundwater Levels or Reduce the Production Capacity of**
9 **Preexisting Nearby Wells**

10 See Impact GW-2 under Alternative 4; operations under Alternative 4A fall within the range of
11 operations scenarios analyzed for Alternative 4.

12 **NEPA Effects:** Due to the measures described above for Alternative 4 and in Appendix 3B,
13 *Environmental Commitments, AMMs, and CMs*, related to installation of slurry cutoff walls, operations
14 of Alternative 4A conveyance facilities are not anticipated to result in adverse effects on surrounding
15 groundwater levels and well yields. The new Intermediate Forebay and the expanded Clifton Court
16 Forebay would be constructed to comply with the requirements of the DSD which include design
17 features intended to minimize seepage under the embankments. In addition, the forebays would
18 include a seepage cutoff wall installed to the impervious layer and a toe drain around the forebay
19 embankment, to capture water and pump it back into the forebay.

20 Operation of the tunnel would have no impact on existing wells or yields given the facilities would
21 be located more than 100 feet underground and would not substantially alter groundwater levels in
22 the vicinity.

23 Model simulations also indicate up to 5-foot episodic lowering of groundwater levels beneath the
24 Sacramento River due to lower flows in the river as a result of diversions at the north Delta intakes
25 that result in a reduction in river flows and elevations, as described in Chapter 6, *Surface Water*. The
26 groundwater level changes would be 5-feet or less on nearby shallow domestic well yields. Due to
27 the implementation of Mitigation Measure GW-1, no additional mitigation measures are required.

28 Therefore, during operations there would be no adverse effects on groundwater resources.

29 **CEQA Conclusion:** Due to the measures described above for Alternative 4 and in Appendix 3B,
30 *Environmental Commitments, AMMs, and CMs*, related to installation of slurry cutoff walls, operations
31 of Alternative 4A conveyance facilities are not anticipated to result in adverse effects on surrounding
32 groundwater levels and well yields. The new Intermediate Forebay and the expanded Clifton Court
33 Forebay would include design features intended to minimize seepage under the embankments and a
34 toe drain around the forebay embankment, to capture water and pump it back into the forebay.

35 Operation of the tunnel would have no impact on existing wells or yields given these facilities would
36 be located over 100 feet underground and would not substantially alter groundwater levels in the
37 vicinity.

38 Model simulations also indicate up to 5-foot episodic lowering of groundwater levels beneath the
39 Sacramento River due to lower flows in the river as a result of diversions at the north Delta intakes
40 that result in a reduction in river flows and elevations, as described in Chapter 6, *Surface Water*. The

1 groundwater level changes would be 5-feet or less on nearby shallow domestic well yields. Due to
2 the implementation of Mitigation Measure GW-1, no additional mitigation measures are required.

3 Therefore, this impact would be less than significant. No mitigation is required.

4 **Impact GW-3: Degrade Groundwater Quality during Construction and Operation of** 5 **Conveyance Facilities**

6 See Impact GW-3 under Alternative 4; the construction activities under Alternative 4A would be
7 identical to those under Alternative 4. The operations under Alternative 4A fall within the range of
8 operations scenarios analyzed for Alternative 4.

9 **NEPA Effects:** Due to the measures described above under Alternative 4 and in Appendix 3B,
10 *Environmental Commitments, AMMs, and CMs*, related to installation of slurry cutoff walls,
11 construction and operations activities associated with Alternative 4 conveyance facilities are not
12 anticipated to result in adverse effects on surrounding groundwater levels or changes in direction of
13 groundwater flow patterns near the intake pump stations along the Sacramento River, Intermediate
14 Forebay, and Byron Tract Forebay. Since no significant regional changes in groundwater flow
15 directions are forecasted, and the inducement of poor-quality groundwater into areas of better
16 quality is unlikely, it is anticipated that there would be no change in groundwater quality for
17 Alternative 4A. Further, the planned treatment of extracted groundwater prior to discharge into
18 adjacent surface waters would prevent significant impacts on groundwater quality. There would be
19 no adverse effect.

20 **CEQA Conclusion:** Due to the measures described above under Alternative 4 and in Appendix 3B,
21 *Environmental Commitments, AMMs, and CMs*, related to installation of slurry cutoff walls,
22 construction and operations activities associated with Alternative 4 conveyance facilities are not
23 anticipated to result in adverse effects on surrounding groundwater levels or changes in direction of
24 groundwater, no significant groundwater quality impacts are anticipated during construction and
25 operations activities of the conveyance facilities. Further, the planned treatment of extracted
26 groundwater prior to discharge into adjacent surface waters would prevent significant impacts on
27 groundwater quality.

28 No significant groundwater quality impacts are anticipated in most areas of the Delta during the
29 implementation of Alternative 4A, because changes to regional patterns of groundwater flow are not
30 anticipated. However, degradation of groundwater quality near the Suisun Marsh area is likely, due
31 to the effects of saline water intrusion caused by slightly rising sea levels. Effects due to climate
32 change are provided for informational purposes only and do not lead to mitigation. This impact
33 would be less than significant. No mitigation is required.

34 **Impact GW-4: During Construction of Conveyance Facilities, Interfere with Agricultural** 35 **Drainage in the Delta**

36 See Impact GW-4 under Alternative 4; construction activities under Alternative 4A would be
37 identical to those under Alternative 4.

38 **NEPA Effects:** Due to the measures described above under Impact GW-1 and in Appendix 3B,
39 *Environmental Commitments, AMMs, and CMs*, related to installation of slurry cutoff walls,
40 construction activities associated with Alternative 4 conveyance facilities are not anticipated to
41 result in effects on surrounding groundwater levels that would affect agricultural drainage.